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The Alice Lee Centre for Nursing Studies (ALCNS) was established in 2006. We continue to build our research strengths with the appointment of key Faculty to drive our research programs forward. We have also begun a suite of research training programmes with the first of Honours students in August 2009 and the Master of Science (Nursing) and PhD programmes to commence in August 2010.

Our research is focused on ensuring that nursing care is based upon the best available evidence. Nursing care can be preventative, treatment focused or restorative. Our research therefore focuses on one or more of these areas. Nursing care is provided to people throughout their lifespan, and therefore our research expertise and interests range from birth to death with a focus on maternal health and the health of the infant to the management of chronic conditions as well as the provision of end of life care.

We are partners in the National University Hospital System Joanna Briggs Institute for Evidence Based Practice Collaborating Centre. This partnership facilitates research training and ensures that research and teaching with the ALCNS remains focused on the provision of evidence based care.
KEY RESEARCH AREAS

- Chronic Condition Management including prevention
- Women's Health
- Aged Care
- End of Life Care
- Nursing Workforce
- Nursing Education
- Evidence Based Practice

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

<table>
<thead>
<tr>
<th>Title</th>
<th>Period</th>
<th>PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing the symptom care and management system to monitor and support patients receiving chemotherapy.</td>
<td>Jul 2009 to Jun 2011</td>
<td>Dr Chan Moon Fai</td>
</tr>
<tr>
<td>Exploring factors impacts to unplanned hospital readmission in Singapore.</td>
<td>Jul 2009 to Jun 2011</td>
<td>Dr Chan Moon Fai</td>
</tr>
<tr>
<td>Exploring the effect of music on psychological &amp; Physiological responses in community based older adults.</td>
<td>April 2009 to Mar 2011</td>
<td>Dr Chan Moon Fai</td>
</tr>
<tr>
<td>Exploring the impact of socioeconomic instability and availability of health resources on infant mortality rates in Indonesia, Myanmar, and Singapore from 1969-2008.</td>
<td>April 2009 to Dec 2009</td>
<td>Dr Chan Moon Fai</td>
</tr>
<tr>
<td>Singapore Nurses' Perception of Postoperative Pain Management in Children.</td>
<td>Oct 2008 to Oct 2009</td>
<td>Dr He Hong-Gu</td>
</tr>
<tr>
<td>What Factors Contribute to Life Expectancy: Comparison of ASEAN Countries in the 21st Century.</td>
<td>Feb 2010 to 31 Jan 2011</td>
<td>Dr Chan Moon Fai</td>
</tr>
</tbody>
</table>

RESEARCH ACHIEVEMENTS

International Refereed Publications


Childs C. Evidence-based medicine in BURNS revisited - the need for the CONSORT criteria *Burns.* (2009) 35:158.


Machin G, **Childs C**. A systematic performance evaluation of brain and body temperature sensors using ultra-stable temperature references in press. *J. Medical Engineering and Technology*.


**BIOSKETCH OF DEPARTMENT FULL-TIME STAFF**

**Name:** Debra K. CREEDY  
**Designation:** Professor and Head  
**Qualifications:** PhD, M. Ed (Research), B.A (Hons), RN  
**Email:** nurdkc@nus.edu.sg  
**Contact Number:** 6516 5088  
**Research Interests:** Women's mental health, maternity research, testing psychological interventions, evidence-based practice

**Top 5 Publications:**


Name: Desley Gail HEGNEY  
Designation: Professor and Director of Research  
Qualifications: PhD, BA (Hons) DNE, RN  
Email: nurgdh@nus.edu.sg  
Contact Number: 6516 3109  
Research Interests: nursing workforce, cardiovascular, evidence based practice, qualitative research, mixed method research

Top 5 Publications:

Name: Charmaine CHILDS  
Designation: Associate Professor  
Qualifications: PhD MPhil BNurs RGN HV cert NDN cert  
Email: nurcc@nus.edu.sg  
Contact Number: 6516 3116  
Research Interests: Critical Care, Neurocritical Care, Emergency Medicine, Burn Injury, Thermal Metabolism, Inflammation, Magnetic Resonance Spectroscopy, Translational Medicine

Top 5 Publications:
Name: Jillian D. BRAMMER  
Designation: Assistant Professor  
Qualifications: PhD, M. Clin Ed., B.Ed, RN  
Email: nurjdb@nus.edu.sg  
Contact Number: 6516 8685  
Research Interests: Clinical Education, Undergraduate Education, Health Education  

Top 5 Publications:  

Name: Moon Fai CHAN  
Designation: Assistant Professor  
Qualifications: PhD, CStat  
Email: nurcmf@nus.edu.sg  
Contact Number: 6516 8684  
Research Interests: Statistical modelling, Music therapy, Health informatics, Health education, Bereavement care  

Top 5 Publications:  
Name: Vicki Blair DRURY  
Designation: Assistant Professor  
Qualifications: PhD, MCINs, PGCertPsychNsg, BHlthSc(Nsg), BA(Ed-TT), CertMensHlth, RN, RMHN  
Email: nurvbd@nus.edu.sg  
Contact Number: 6516 3107  
Research Interests: chronic disease self-management, mental health, ophthalmology

Top 5 Publications:


Name: HE Hong-Gu  
Designation: Assistant Professor  
Qualifications: PhD, MSc(Nursing), BSc(Medicine), MD, RN  
Email: nurhhg@nus.edu.sg  
Contact Number: 6516 7448  
Research Interests: Pain management, maternity care, nursing education

Top 5 Publications:


Name: Piyanee KLAJININ
Designation: Assistant Professor
Qualifications: BS (Nursing & Midwifery), MSN, PhD (Nursing)
Email: nurpk@nus.edu.sg
Contact Number: 6516 7789
Research Interests:
   a) Stress and related factors (coping, cognition, self-efficacy, negative affectivity, and personality)
   b) Stress management interventions for general populations and psychiatric patients
   c) Mental health promotion
   d) Depression and anxiety

Top 5 Publications:

Name: Sandra MACKEY
Designation: Assistant Professor
Qualifications: PhD Sydney, BN Hons RN
Email: nursjm@nus.edu.sg
Contact Number: 6516 8686
Research Interests: Wellness and health promotion; Women's health; Phenomenological methodology

Top 5 Publications:
Name: LIAW Sok Ying  
**Designation:** Senior Lecturer  
**Qualifications:** PhD in Medical Education (candidate); Master in Health Science (Education); Bachelor of Health Science Nursing  
**Email:** nurliaw@nus.edu.sg  
**Contact Number:** 6516 7451  
**Research Interests:** Educational strategies; Simulation-based learning; Assessing and Managing Deteriorating Patients;  

**Top 5 Publications:**  

Name: M Kamala Devi  
**Designation:** Senior Lecturer  
**Qualifications:** MSc Adv Practice (Cancer Care), PGDip HE, BHSc (N), ONCert., RN  
**Email:** nurmkd@nus.edu.sg  
**Contact Number:** 6516 7792  
**Research Interests:** Oncology, quality of life, patient outcomes, nursing education  

Name: IGNACIO Mary Jeanette Jacinto  
**Designation:** Lecturer  
**Qualifications:** Doctor of Medicine (MD), Residency Training in Anaesthesia, BSc Psychology, BSc Nursing  
**Email:** jeanette_ignacio@nuhs.edu.sg  
**Contact Number:** 6516 7457  
**Research Interests:** Cognitive psychology, depression, stress management, pain management simulation-based education, drug interactions  

**Top 5 Publications:**  
Name: CHEN Hui-Chen  
Designation: Lecturer  
Qualifications: Master of Nursing  
Email: nurch@nus.edu.sg  
Contact Number: 6516 3108  
Research Interests:  
a) Health care promotion in children and women  
b) Quality of life and supporting groups in Breast cancer  
c) Mental health and coping strategies among  
d) International migrant nurse

Name: Thayalamurugan s/o Naidu Vellasamy  
Designation: Lecturer  
Qualifications: MSc  
Email: nurtnv@nus.edu.sg  
Contact Number: 6516 7791  
Research Interests: Infectious Diseases; HIV/AIDS; Infection Control

Name: Madrean SCHOBER  
Designation: Senior Visiting Fellow  
Qualifications: RN, APN, MSN, FAANP  
Email: nurms@nus.edu.sg  
Contact Number: 6516 7454  
Research Interests: Advanced Nursing Practice; Family Health; Women’s Health; Leadership Roles in Nursing; Health Policy

Top 5 Publications:  

LIST OF ADJUNCT STAFF

Adjunct Associate Professor:
Ang, Emily  
K, Prema  
Koh, Serena  
Ang Beng Choo  
Lee Siu Yin  
Lim Swee Hia  
Poon, Edward

Adjunct Assistant Professor:
O’Brien, Anthony (Honorary)

Adjunct Senior Lecturer:
Ng, Elaine  
Ng Toon Mae  
Tiew Lay Hwa

Adjunct Lecturer:
Koh, Sabrina  
Lee Yee Mei
MESSAGE ON RESEARCH MISSION FROM HEAD OF DEPARTMENT
ASSOCIATE PROFESSOR YEO JIN FEI

The Research Mission of the Department of Oral & Maxillofacial Surgery is to support NUHS to be an Academic Medical Institution of international repute through engaging in high impact translational research in the field of oral & maxillofacial surgery.
KEY RESEARCH AREAS

The Department of Oral & Maxillofacial Surgery current research works include:

• Stem cell research using hESC for tissue regeneration & biologic testings in relation to clinical dentistry applications.
• Orofacial pain biology: Neuro-mechanism of chronic orofacial pain / hyperalgesia especially the roles of Nitric Oxide (NO), other neurotransmitters / mediators and neural cellular elements in chronic orofacial pain like Trigeminal Neuralgia.
• Bone biology: Distraction Osteogenesis & Regeneration of bone; Bone bioscaffold, dental Implants and effects of drugs like bisphosphonates on jaw bones.
• 3-D Imaging in dental, oral & maxillofacial pathology.
• Nanotechnology in Oral & Maxillofacial Surgery.
• Immunologic diagnosis and molecular genetics of oral diseases.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: Global gene expression analysis in the mouse brainstem after hyperalgesia induced by facial carrageenan injection. (FRC grant).
Period: Jul 2009 to Jun 2012
PI: A/Prof Yeo Jin Fei

Title: Keratinocyte differentiation of hESCs for potential dental, medical and wide biotech needs (ARF Tier 1).
Period: 1 Apr 2009 to 31 Mar 2011
PI: A/Prof Cao Tong

Title: The use of Guided Bone Regeneration (GBR) in mandibular distraction osteogenesis.
Period: Oct 2009 to Oct 2010
PI: Dr Andrew Ow

AWARDS AND PRIZES

1. Dr Andrew Ow
   Merit Award for Best Oral-Surgical Disciplines
   8th NHG Annual Scientific Congress 2009

RESEARCH ACHIEVEMENTS

International Refereed Publications


**BIOSKETCH OF DEPARTMENT FULL-TIME STAFF**

**Name:** YEO Jin Fei  
**Designation:** Head, Department of Oral & Maxillofacial Surgery  
**Qualifications:** BDS, MSc, MDS, FAMS, FDSRCSEd, FFOPRCPA  
**Email:** omsyeojf@nus.edu.sg  
**Contact Number:** 6772 4932  
**Research Interests:** Orofacial Pain Biology; Bone biology & regeneration; Orthognathic Surgery; Bisphosphonates related osteonecrosis; Immunodiagnosis of oral diseases.

**Top 5 Publications:**


Name: CAO Tong  
Designation: Associate Professor  
Qualifications: DDS, PhD, Cert Adv Oral Surg, Cert Adv Maxillofac  
Email: omscaot@nus.edu.sg  
Contact Number: 6516 4630  
Research Interests: Stem cell, Regenerative medicine  
a) Derivation of progenitor and somatic cells, single tissues and organized multi-tissues from human embryonic stem cells (hESCs) for cell-based and transplanting therapies, as well as for study of human normal development, function, repair, disease, prevention and therapy.  
b) Development of predictive and evaluative tools of function and safety from hESCs for discovery and assessment of drugs, biomaterials and therapies.  
c) Development of cost-effective human models from hESCs to investigate the influence of natural and artificial products on human health and safety.  
d) Immune properties of allogeneic mesenchymal stem cells and their progenies.  
e) Design of the highly macro-porous structure of 3D-printing bio-implant and bio-scaffold for tissue regeneration.  

Top 5 Publications:  

Name: Andrew OW Tjin-Chiew  
Designation: Assistant Professor  
Qualifications: BDS (Adel), MDS (OMS), AdvDip (OMS), FRACDS, MOSRCS (Edin)  
Email: omsaot@nus.edu.sg  
Contact Number: 6772 4932  
Research Interests: Cranio-facial distraction osteogenesis  

Top 5 Publications:  
The research activities of the department support FOD’s research objective: “To improve Oral, Dental and Craniofacial Health and the Delivery of Clinical Care.”

The department has 2 main research foci:
1. Laser-induced Caries Prevention
2. Dento-maxillo-facial imaging and modelling

Other research areas in the department include:
1. Caries Risk Assessment
2. Diabetes mellitus and periodontitis
3. Developmental and Regenerative Biology: “Wound healing” studies, in particular, periodontal and bone modelling and regeneration mechanisms.
KEY RESEARCH AREAS

- Laser-induced caries prevention
- Caries risk assessment/prediction with biopsychosocial markers
- Developmental and Regenerative Biology: periodontal ligament; bone regeneration
- Dento-maxillo-facial imaging and modelling
- Periodontal-systemic risks: Diabetes and periodontal disease

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

<table>
<thead>
<tr>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>3-Dimensional Orthodontic Digital Visualization and Prediction.</td>
<td>2009-2012</td>
<td>Dr Mah Kuan Seet Michael</td>
</tr>
<tr>
<td>Alveolar Ridge Preservation with Polycaprolactone Scaffold compared to Extraction alone for Implant Site Development: A Clinical, Radiographic and Histologic Study in Humans.</td>
<td>2009-2010</td>
<td>A/Prof Lim Lum Peng</td>
</tr>
<tr>
<td>The Biomolecular Response of Rat Derived Osteoblasts to Mechanical Strain in Vitro.</td>
<td>2008-2011</td>
<td>Dr Li Xiaobing Samuel</td>
</tr>
<tr>
<td>Effects of Yakult and Laser Therapy on Preventing Enamel Demineralization around Orthodontic Brackets in a Biofilm Model</td>
<td>2008-2012</td>
<td>A/Prof Stephen Hsu Chin-Ying</td>
</tr>
<tr>
<td>Oral Health Attitudes and Periodontal Disease Risk Profile of Adult Diabetics in Singapore.</td>
<td>2008-2009</td>
<td>A/Prof Lim Lum Peng</td>
</tr>
<tr>
<td>Molecular Studies of Periodontal Ligament and Alveolar Bone Remodelling during Orthodontic Tooth Movement.</td>
<td>2008-2011</td>
<td>A/Prof Foong Weng Chiong Kelvin</td>
</tr>
<tr>
<td>Periodontal Disease Risk Markers and Treatment Outcome of a Periodontal Programme for Adult Diabetics in Singapore.</td>
<td>2008-2009</td>
<td>A/Prof Lim Lum Peng</td>
</tr>
</tbody>
</table>

AWARDS AND PRIZES

1. A/Prof Lim Lum Peng
   IDEM Postal Competition 2nd Prize (April 2008)
   “The Impact of Tumor Necrosis Factor-a associated with Untreated Periodontal Disease in Diabetics and Healthy Individuals”.

2. A/Prof Lim Lum Peng
   IDEM Postal Competition 3rd Prize (April 2008)
   “The Relationship between Oral Parameters and Halitosis in Patients with Untreated Periodontics: Results from a Pilot Study”.

3. A/Prof Stephen Hsu Chin-Ying
   2008 NUS Outstanding Undergraduate Research Award (SS$500)
   “Potential Cariostatic Prevention Effects of Yakult”.

20
NUHS Annual Research Report 2008/09
4. A/Prof Stephen Hsu Chin-Ying
   **Best Paper Award**
   GC Asia-SEADE Student Prevention Program Competition (October 2008)
   “Potential Carieostatic Prevention Effects of Yakult”.

**RESEARCH ACHIEVEMENTS**

**International Refereed Publications**


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: ONG Hui Lian, Grace  
Designation: Associate Professor  
Qualifications: BDS (S’pore), MSc (Periodontics) (London), FAM (S’pore)  
Email: grace_ong@nuhs.edu.sg  
Contact Number: 6772 4988  
Research Interests: Epidemiology of Periodontal Disease, Microbiology of Periodontal Diseases, Treatment outcomes in periodontal therapy, Education – teching/learning outcomes.

Top 5 Publications:

Name: Kelvin FOONG Weng Chiong  
Designation: Associate Professor, Senior Consultant  
Qualifications: BDS, MDS, M Orth RCSEd, FAMS, FDS RCSEd, PhD  
Email: kelvinfoong@nus.edu.sg  
Contact Number: 6772 6843, 6516 7569; 6773 2602 (Fax)  
Research Interests: Dento-maxillo-facial imaging and its applications.

Top 5 Publications:
Name: Stephen HSU Chin-Ying  
**Designation:** Associate Professor  
**Qualifications:** DDS, MSc, PhD  
**Email:** pndhsus@nus.edu.sg  
**Contact Number:** 6779 5555 ext 1658; 6773 2602 (Fax)  
**Research Interests:** Biophotonic/laser application on caries detection, prevention and treatment; physicochemical characterization of tooth enamel; caries risk assessment/prediction with biopsychosocial markers.

**Top 5 Publications:**

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Name: LIM Lum Peng  
**Designation:** Associate Professor  
**Qualifications:** BDS(Sing), DDPHRCS(Eng), MSc (London), PhD (Hong Kong)  
**Email:** pndlimlp@nus.edu.sg  
**Contact Number:** 6773 5555, Ext 1647  
**Research Interests:** Oral-Systemic interrelationship, Dental education, Oral epidemiology, Behavioural science.

**Top 5 Publications:**
Name: Robert YEE  
Designation: Associate Professor, Dept. Preventive Dentistry, Faculty of Dentistry  
Qualifications: BSc Food Science; Doctor Dental Surgery; MSc Dental Public Health; PhD.  
Email: pndry@nus.edu.sg  
Contact Number: 9634 2659  
Research Interests: Epidemiology, Dental Public Health, Clinical Trials.

Top 5 Publications:  

Name: LI Xiaobing  
Designation: Assistant Professor  
Qualifications: Orthodontist  
Email: Pndlx@nus.edu.sg  
Contact Number: 6779-5555-1657  
Research Interests: Orthodontic tooth movement related bone biology; orthodontic clinic trial.

Top 5 Publications:  

Name: Rahul NAIR  
Designation: Assistant Professor  
Qualifications: MPH, MS in Dental Public Health  
Email: Pndrni@nus.edu.sg  
Contact Number: 9725 3009  
Research Interests: Caries diagnosis and prediction; Early childhood caries; Epidemiology; and Quality of life of elderly.

Top 5 Publications:  
Name: MOK Yuen Yue, Betty  
Designation: Senior Lecturer  
Qualifications: BDS (S’pore), MSc (Children’s Dentistry) (London)  
Email: betty_mok@nuhs.com.sg  
Research Interests: Caries risk assessment and prevention in children

Top 5 Publications:
The research activities of the department support FOD’s research objective: “To improve Oral, Dental and Craniofacial Health and the Delivery of Clinical Care.”

The department has 2 main research foci:
1. Laser-induced Caries Prevention
2. Dento-maxillo-facial imaging and modelling

Other research areas in the department include:
1. Caries Risk Assessment
2. Diabetes mellitus and periodontitis
3. Developmental and Regenerative Biology: “Wound healing” studies, in particular, periodontal and bone modelling and regeneration mechanisms.
BIOSKETCH OF
DEPARTMENT
FULL-TIME STAFF

Name: Jennifer NEO
Designation: Associate Professor; Head (Restorative Dentistry); Vice-Dean (Clinical Affairs)
Qualifications: BDS (Singapore), MS (University of Iowa)
Email: ndtmj@nus.edu.sg; rsdhead@nus.edu.sg; denvdca@nus.edu.sg
Contact Number: 6772 6844; 6772 4955
Research Interests: Clinical trials on alternatives to dental amalgam.

Top 5 Publications:
1. Neo JCL, Denehy GE and Boyer DB. Effects of polymerization techniques on uniformity of cure of large diameter, photo-initiated composite resin restorations. JADA. (1986) 113: 905-909.

Name: MOK Yuen Pun Clara
Designation: Senior lecturer
Qualifications: BDS (S’pore), MSc (Lon)
Email: rsmypc@nus.edu.sg
Contact Number: 9380 2228
Research Interests: Vertical dimension in edentulous patients.

Name: Tapan KOTICHA
Designation: Registrar & Visiting Fellow
Qualifications: BDS, MDS (Prosthodontics), MRD RCS (Prosthodontics)
Email: rtvd@nus.edu.sg
Contact Number: 6779 5555, Ext 1650
Research Interests: Implant biomechanics, All-ceramic restorations.

Top 5 Publications:
Name: KENG Siong Beng  
Designation: Associate Professor, Senior Consultant, Dental Services, NUHS  
Qualifications: BDS Sing, MDS Sing, MSc. (Lond), FFDRCSI, FAMS  
Email: rdksb@nus.edu.sg  
Contact Number: 6772 4990; 6772 4954  
Top 5 Publications:  

Name: Keson TAN Beng Choon  
Designation: Associate Professor  
Qualifications: BDS (Hons), Singapore, Cert. Prosthodont., MSD, FAMS, FDS RCS (Edinburgh)  
Email: rstdtanbc@nus.edu.sg  
Contact Number: 6772 4955  
Research Interests: Dental Implant Biomechanics, 3-D Distortion Analysis, Clinical Longevity/Failure of Prostheses, Fatigue Failure.  
Top 5 Publications:  
Name: Joanne UY  
Designation: Assistant Professor  
Email: rsdujn@nus.edu.sg  
Contact Number: 67795555, ext 1612  
Research Interests: Load fatigue performance of dental biomaterials; Implant biomechanics; Fluoride.

Top 5 Publications:


Name: Clarisse NG  
Designation: Assistant professor  
Qualifications: BDSc, Cert(Prosthodontics), M.S  
Email: clarisse_ng@nuhs.edu.sg  
Contact Number: 6779 5555, ext 1649  
Research Interests: modification of titanium surfaces, osseointegration, endodontically treated teeth.

Top 5 Publications:


Name: Victoria S H YU  
Designation: Assistant Professor  
Qualifications: BDS, MSc  
Email: ndyshv@nus.edu.sg  
Contact Number: 67795555, ext 1654  
Research Interests: Endodontic education, risk assessment of asymptomatic persistent endodontic lesions

Name: THEAN Pik Yen Hilary  
Designation: Senior Lecturer  
Qualifications: BDS, MSc, FAMS  
Email: ndtpy@nus.edu.sg  
Contact Number: 6772 4954  
Research Interests: Geriatric Oral health

Top 5 Publications:


Name: CHEW Chong Lin  
Designation: Professor  
Email: ndccl@nus.edu.sg  
Contact Number: 6772 4954  
Research Interests: Development of Biomaterials and their uses in Clinical Practice; Clinical Research in Prosthodontics

Top 5 Publications:


LIST OF ADJUNCT STAFF

Paediatric Dentistry
Adjunct Senior Lecturer:
Mohd Azharashid Bin Mohd Tahir

Adjunct Instructor:
Ryan Shannon Selamat
Chong Ling, Sharon

Preventive Dentistry/Dental Public Health
Adjunct Associate Professor:
Lee Woon Oi, Teresa

Periodontics
Adjunct Associate Professor:
Chung Kong Mun

Adjunct Senior Lecturer:
Madeleine Rathi Gunaratnam
Ong Siu-Min, Ethel
Lee Kwee Jin
Chee Kuan Hock, Alexander
Tan Thong Kwan, Benjamin
Yasmin d/o Mohd Akrum

Adjunct Lecturer:
Marlene Teo

Orthodontics
Adjunct Senior Lecturer:
Koh Chay Hui
Ho Chee Wai, Henry
Tan Tzee Jen
Kaan Sheung Kin
Soh Jen
Hwang Yee Cheau
Tan Hwee Hiang

Adjunct Lecturer:
Lim Chong Yang, Arthur
Ong Hoe Boon
Geraldine Simone Oh Sin Yin
Ching Siew May, Eileen
Poon Kee Hoon
Anaesthetists are perioperative physicians, managing the total care of the patient from evaluating them before surgery, planning the operation with the surgical team and caring for the patient after the procedure. The Department of Anaesthesia provides perioperative and intensive care for some 30,000 patients annually at the National University Hospital. Incorporated into the clinical work is the teaching of both medical students and postgraduate trainees. Besides providing excellent clinical care, we also emphasize clinical research, focused on improving patient care.
KEY RESEARCH AREAS
The department’s main focus areas are:
• In clinical research, on airway devices (LMA, CTrach, Fastrach, Airway scopes).
• In education research, in the use of simulation to teach airway management and management of crisis to undergraduates.
• In pain proteomics research, on identifying, characterizing neuropeptides in rodent models of neuropathic and inflammatory pain and their receptors.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: Comparison of Mini-Bypass to conventional cardiopulmonary bypass in small Asian patients undergoing coronary artery bypass grafting surgery (NMRC).
Period: Jul 2008 – Jul 2011
PI: A/Prof Ti Lian Kah

Title: Peer-to-peer teaching using the Human-Patient Simulator is an effective way of teaching patient safety concepts to medical students (NUS - Centre for Development of Teaching and Learning).
Period: Jul 2009 to Jul 2010
PI: A/Prof Ti Lian Kah

Title: A simple quantitative method for blood D-serine analysis to evaluate its role in CNS diseases and pain (Academic Research Fund).
Period: Sep 2008 to Sep 2010
PI: A/Prof Low Chian Ming

AWARDS AND PRIZES

Year 2008
1. A/Prof Chen Fun Gee, A/Prof Eugene Liu
Best Paper Award
Singapore Duke Anaesthesia and Critical Care Update 2008, April 2008
“Tracheal intubation through a laryngeal mask conduit.”

2. A/Prof Eugene Liu
Conferred Doctor of Medicine
University of Cambridge, UK, May 2008
“Central nervous system effects of nocistatin”.

Year 2009
3. A/Prof Eugene Liu
Best Equipment section abstract prize
IARS 2009 Annual Meeting taking place March 14-17, at the Manchester Grand Hyatt Hotel, San Diego, California
“Tracheal intubation with videolaryngoscope in patients with cervical spine stabilization: A randomized trial of the airway scope and glidescope.”
**RESEARCH ACHIEVEMENTS**

International Refereed Publications


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: Chen Fun Gee, Edward
Designation: Head of Department, Associate Professor
Qualifications: MBBS, MMED (Anaesthesia), FFARACS, FANZCA, FAMS
Email: anacfg@nus.edu.sg
Contact Number: 6772 4200
Research Interests:
  a) Pedagogical research on teaching of intubation skills to medical students.
  b) Pedagogical research on the teaching of acute medical emergencies using the human patient simulator as a tool.
  c) Airway research: the use of CTrach and Fastrach to replace conventional laryngoscopy in intubation.
  d) ICU readmissions factors.
  e) Stress levels and performance in management of medical emergencies.
  f) Servo driven feedback loop devises in sedation.

Top 5 Publications:

Name: LEE Tat Leang
Designation: Professor
Qualifications: MBBS, MMED (Anaesthesia), FFARACS, FANZCA
Email: analeetl@nus.edu.sg
Contact Number: 6772 4207
Research Interests:
  a) Novel neuropeptides involved in pain.
  b) Equipment for airway management & Servo driven feedback loop devises in sedation.
  c) Research in clinical acupuncture.

Top 5 Publications:


Name: LIU Hern Choon, Eugene
Designation: Assistant Dean (Academic Affairs), Associate Professor
Qualifications: MBChB, MPhil, MD, FRCA
Email: analue@nus.edu.sg
Contact Number: 6772 42007
Research Interests:
a) Novel neuropeptides involved in pain
b) Equipment for airway management

Top 5 Publications:


Name: TI Lian Kah
Designation: Associate Professor
Qualifications: MBBS, MMED (Anaesthesia), FAMS
Email: anatilk@nus.edu.sg
Contact Number: 6772 4207
Research Interests:
a) Cardiac Anaesthesia
b) Cardiopulmonary Bypass
c) Medical Education and Simulation

Top 5 Publications:


LIST OF
ADJUNCT STAFF

Adjunct Assistant Professor
Low Chian Ming
The research mission of the Department of Anatomy is in line with that of the National University Health System, which is to focus on translating research findings into impactful outcomes for the patient. The department aspires to excel in basic and translational biomedical research by exploiting the research strengths of its faculty and adopting a multidisciplinary approach by collaborating with researchers from other NUS departments, as well as local and foreign institutions.
KEY RESEARCH AREAS

Departmental research has been focused on 3 major themes:

- Neuroscience
- Venoms and Toxins
- Cancer Cell Biology

The Department of Anatomy’s research thrust continues to be vibrant and strong as the faculty remains committed to the University’s vision of building synergies in a global knowledge enterprise. The Department has continued to receive grant support from the Ministry of Education, Agency for Science, Technology & Research (A*STAR), Defence Science Organization (DSO) and other public agencies. This quality of research in the Department has been enhanced through the adoption of a multidisciplinary approach emphasizing on basic strategic / applied research in collaboration with local and foreign partners. To promote an entrepreneurial spirit, efforts have also been made to explore the acquisition of patents that hold biomedical applications and the organization of international conferences.

The Department has embarked on focused projects that are either disease-based or clinically relevant, such as in the areas of Parkinson’s disease, cancer and metastasis, epilepsy (including its pathogenesis), hypoxic effects on the eyes, wound healing, mesenchymal cell transplantation and novel peptidergic therapeutic agents.

In the last 2 years, more than 100 research papers were published in reputed international refereed journals. Such publication record is a hard act to follow. The Department has a community of hardworking staff and graduate students, who are committed to research. The strategic aim of the Department is to exploit technological innovations so as to achieve research breakthroughs in the future.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: Anti-inflammatory peptide loaded micro-emulsion gel formation as potential therapeutic for post-operative adhesion.
Period: 1 Dec 2009 to 30 Nov 2009
PI: Prof P Gopalakrishnakone

Title: The Effects of Altered Oxygenation on the Molecular Biology, Structure and Function of the Retina with Particular Reference to the Role of Excitotoxicity in the Retinopathy of Prematurity.
Period: 4 Jul 2008 to 31 Jul 2011
PI: A/Prof Charanjit Kaur

Title: Effects of mesenchymal stem cell transplantation in Parkinson’s disease.
Period: 8 Dec 2009 to 7 Dec 2012
PI: A/Prof Tay Sam Wah, Samuel

Title: Effect of oxidative stress on dysbindin-1 expression in the rat hippocampus.
Period: 4 Jun 2009 to 30 Jun 2011
PI: A/Prof Ong Wei Yi

Title: Evaluation, optimization and functional analysis of a panel of chondroitin sulphate species as novel therapeutic agents in accelerating skin wound healing.
Period: 4 Mar 2008 to 3 Mar 2012
PI: Dr Yip Wai Cheong, George

Title: Exploration of the role of NG2 cells in immunity of the central nervous system.
Period: 30 Oct 2008 to 30 Nov 2010
PI: Dr He Beiping

Title: Field bio-toxin detection.
Period: 5 Mar 2009 to 4 Jun 2011
PI: Prof P Gopalakrishnakone
Title: Lipodomic analysis of the brain after transcranial magnetic stimulation – potential implication for the role of lipids in epileptogenesis.
Period: 1 Feb 2008 to 31 Jan 2010
PI: A/Prof Ong Wei Yi

Title: Peptides as therapeutic agents for arthritis and bone diseases.
Period: 1 Dec 2009 to 30 March 2011
PI: Prof P Gopalakrishnakone; Prof Prem V Kumar

Title: Reorganization of the hippocampal memory networks following the environmental enrichment in immature and adult mice after pilocarpine induced status epilepticus.
Period: 12 Aug 2009 to 31 Jul 2010
PI: A/Prof Shaikali Thameem Dheen

Title: Surviving neurons in sclerotic CA1 area of the hippocampus post cholinergic crisis: their extra and intra-hippocampal connections and neurophysiological property in the mouse model of human intractable temporal lobe epilepsy.
Period: Starting December 2009
PI: A/Prof Tay Sam Wah, Samuel

PATENTS
Title: Methods and Compositions for Treatment of Arthritis and Cancer.
US Patent No.: 7,579,433
Inventor: Prof Gopalakrishnakone P, Dr Maung-Maung Thwin and Prof Kazuki Sato

RESEARCH ACHIEVEMENTS
International Refereed Publications


Ng EL, Ng JJ, Liang FY and Tang BL. Rab22B is expressed in the CNS astroglia lineage and plays a role in epidermal growth factor receptor trafficking in A431 cells. Journal of Cellular Physiology. (2009) 221(3):716-728.


Ong WY, Jenner AM, Pan N, Ong CN and Halliwell B. Elevated oxidative stress, iron accumulation around microvessels, and increased 4-hydroxynonenal immunostaining in zone 1 of the liver acinus in hypercholesterolemic rabbits. Free Radical Research. (2009) 43(3):241-249.


Yap ELE, Tan WL, Ng I and Ng YK. Combinatorial-approached neuroprotection using pan-caspase inhibitor and poly (ADP-ribose) polymerase (PARP) inhibitor following experimental stroke in rats; is there additional benefit?. Brain Research. (2008) 1195:130-138.


BIOSKETCH OF
DEPARTMENT
FULL-TIME STAFF

Name: BAY Boon Huat
Designation: Head / Professor
Qualifications: PhD; MBBS
Email: antbaybh@nus.edu.sg
Contact Number: 6516 6139
Research Interests:
a) Cancer biology, in particular the expression, biology and functional significance of novel biomarkers and their potential as predictors of treatment outcome and survival. Tumors that are of special interest include breast, nasopharyngeal and gastric cancers.
b) Lactobacillus in bladder and colon cancer prevention in collaboration with the Lactic Acid Bacteria Programmatic Research group.
c) Nanotoxicology.

Top 5 Publications:

Name: TAY Sam Wah Samuel
Designation: Deputy Head / Professor
Qualifications: PhD; MSc; BSc
Email: anttaysw@nus.edu.sg
Contact Number: 6516 3210
Research Interests:
a) Molecular characterization and transplantation of mesenchymal stem cells in the nervous system.
b) Molecular analysis of gestational diabetes-induced changes in the developing nervous system.
c) Diabetes mellitus and Neurodegeneration in the nervous system.

Top 5 Publications:
Name: GOPALAKRISHNAKONE P
Designation: Professor
Qualifications: FAMS; DSc; PhD; MBBS
Email: antgopal@nus.edu.sg
Contact Number: 6516 3207

Research Interests:
- a) To understand the mechanism/s of actions of venoms and toxins from Snakes, Scorpions, Spiders and other venomous marine creatures.
- b) Structures of venom secreting apparatus and the mechanism/s of venom secretion in various venomous animals.
- c) Muscle structure, muscle pathology, venom and toxin induced muscle damage Myoglobinuria, Renal lesions following myoglobinuria.
- d) Animal models for muscle diseases and renal lesions.
- e) Identification and Characterization of channels Toxins.
- f) Immunology and cloning of toxins, Naturally occurring antitoxic factors.
- g) Use of IT in teaching Medical and Dental students.
- h) Microarray technology for proteomics and genomics.
- i) Biosensors for biomedical applications.

Top 5 Publications:
Name: LING Eng Ang  
Designation: Professor  
Qualifications: DSc; PhD; BSc  
Email: antlea@nus.edu.sg  
Contact Number: 6516 3203  
Research Interest/s:  
  a) Microglia in the central nervous system  
   Its development and roles in neurodegeneration and regeneration in acute and chronic lesions in the brain and spinal cord in different experimental models e.g. occlusion of middle cerebral artery.  
  b) Structural organization of the autonomic nervous system  
  c) Current focus is on the effect of chronic obstruction of the urethra in the guinea pig on the expression of nitric oxide synthase, inflammatory and anti-inflammatory cytokines and neuropeptides in the bladder and spinal cord.  
  d) Roles of local progenitor cells in neural regeneration in spinal cord injury following transplantation of exogenous stem cells.  
  e) Stem cells in neuroregeneration.  
  f) Muller cells in the retina – their potential role as stem cells and reactive changes to altered environment.  

Top 5 Publications:  

Name: S Thameem DHEEN  
Designation: Associate Professor  
Qualifications: PhD; M Phil; MSc; BSc  
Email: antstd@nus.edu.sg  
Contact Number: 6516 3217  
Research Interest/s:  
  a) Identifying the underlying alterations in gene expression and epigenetic factors which contribute to neural tube defects in embryos of diabetic pregnancy.  
  b) Molecular characterization of fetal and adult microglial cells and development of strategies to inhibit neurotoxicity caused by activated microglia in CNS disease and injury.  

Top 5 Publications:  


**Name:** Charanjit KAUR  
**Designation:** Associate Professor  
**Qualifications:** PhD; MBBS; BSc  
**Email:** antkaurc@nus.edu.sg  
**Contact Number:** 6516 3209  
**Research Interest/s:**  
- a) Immunobiology of microglial cells and neuronal degeneration in the central nervous system and retina under normal and pathological/experimental conditions e.g. hypoxia and administration of neurotoxins.  
- b) Structural and molecular changes in the choroid plexus in the lateral ventricles of developing and adult brain following hypoxic exposures with special emphasis on intraventricular macrophages.  
- c) Microglial cells/macrophages in the pineal gland under normal and hypoxic conditions.

**Top 5 Publications:**  

**Name:** NG Yee Kong  
**Designation:** Associate Professor  
**Qualifications:** PhD; BDS  
**Email:** antngyk@nus.edu.sg  
**Contact Number:** 6516 3689  
**Research Interest/s:**  
- a) Stroke-induced neurodegeneration in the central nervous system (CNS) and extra-focal areas, possible neuroprotective roles of physical exercise and ischemic preconditioning as well as their underlying mechanisms.  
- b) Neurodegeneration in the visual system in visual pathologies such as diabetic retina-neuronopathy and glaucoma, which are major causes of blindness in developed countries.  
- c) Biology of glial cells, in particular, microglia and its possible roles in neuro-degeneration or - regeneration in the above-mentioned experimental models.

**Top 5 Publications:**  


Name: ONG Wei Yi  
**Designation:** Associate Professor  
**Qualifications:** PhD; BDS  
**Email:** antongwy@nus.edu.sg  
**Contact Number:** 6516 3662  
**Research Interests:**  
a) Role of phospholipases A2 in neurodegeneration.  
b) Role of metals in neurodegeneration.  
c) Role of lipids in neurodegeneration.  
d) Orofacial pain mechanisms.  
e) Health effects of engineered nanomaterials.

**Top 5 Publications:**  

Name: RAJENDRAN K  
**Designation:** Associate Professor  
**Qualifications:** FRCS; MBBS  
**Email:** antrajen@nus.edu.sg  
**Contact Number:** 6516 3660  
**Research Interests:** Medical Education

**Top 5 Publications:**  
Name: VOON Chee Tet, Francis  
Designation: Associate Professor  
Qualifications: PhD; MBBS  
Email: antvoon@nus.edu.sg  
Contact Number: 6516 3208  
Research Interests:  
a) Information Technology in Medical Education.  
b) Interactive Technology in Health Care.  
c) Computer-Evolved Cognition.  
d) The Virtual University.  
e) Cell-tissue Interactions in Morphogenesis.  
f) Memory, Learning and Dementia in Ageing.  

Top 5 Publications:  

Name: HE Beiping  
Designation: Assistant Professor  
Qualifications: PhD; MMed; BMed  
Email: anthepb@nus.edu.sg  
Contact Number: 6516 3662  
Research Interests:  
a) Interaction between microglial cells and neurons in neurodegenerative diseases  
   - Dual functions of microglial activation: Understanding possible mechanisms to modulate perineuronal microenvironment.  
   - Role of microglial receptors in microglial dual functions.  
b) Biology of adult bone marrow stem cells  
   - Mechanism of migration of the bone marrow stem cells through the blood-brain barrier.  
   - The immune modulating effects of transplanted bone marrow stem cells in environment of the central nervous system.  
   - Differentiation of “diseased” neurons from the bone marrow stem cells isolated from animals with neuronal gene deficiency.  
c) Interaction between glial cells and tumor cells in brain metastatic cancer  
   - Glial responses towards to metastatic cancer cells in vitro and in vivo.  
   - The immune modulating effects of the metastatic cancer cells on glial cells, especially microglia, in the central nervous system.  

Top 5 Publications:  


Name: LIANG Fengyi
Designation: Associate Professor
Qualifications: PhD; MMED; BMed
Email: antlfy@nus.edu.sg
Contact Number: 6516 1936
Research Interests:
- a) Glia neurobiology, especially oligodendroglia and myelination in relation to cytoskeleton-related oligodendroglial proteins.
- b) Cell type-specific novel genes/proteins in the CNS.
- c) Gene expression in relation to synaptic plasticity and neurological/psychiatric diseases.
- d) The motor nervous system in relation to neural degeneration/regeneration.

Top 5 Publications:


Name: YIP Wai Cheong, George
Designation: Assistant Professor
Qualifications: PhD; MBBS
Email: georgeyip@nus.edu.sg
Contact Number: 6516 3206

Research Interests:
   a) Roles of glycosaminoglycans and proteoglycans in:
      • Breast, prostate and nasopharyngeal cancers.
      • Wound healing.
      • Neurulation and neural tube defects.
   b) A variety of cell and molecular biology techniques are employed in these studies, including
cell/organ/whole embryo culture, immunohistochemistry, electron microscopy, laser capture
microdissection, ion exchange chromatography, proteoglycan quantification assays, real-time
PCR, in situ hybridisation, gene cloning, and microarrays.

Top 5 Publications:
   30(3):397-407.
2. Teng YH, Tan PH, Chia SJ, Zam NA, Lau WK, Cheng CW, Bay BH, Yip GW. Increased expression of
   non-sulfated chondroitin correlates with adverse clinicopathological parameters in prostate cancer.
5. Koo CY, Bay BH, Lui PC, Tse GM, Tan PH, Yip GW. Immunohistochemical expression of heparan
   sulfate correlates with stromal cell proliferation in breast phyllodes tumors. Mod Pathol. (2006)

LIST OF
ADJUNCT STAFF

Adjunct Associate Professor:
   Lu Jia
   Tan Puay Hoon
   Leung King Chor Thomas
   Yang Xiaohang
   Lo Yew Long

Adjunct Assistant Professor:
   Norris Ray Dunn
   Jacqueline Veltmaat
Our Department’s mission statement is to enhance the international structure of NUS and Singapore through excellence in research, teaching and scholarship in biochemistry, cell and molecular biology. Hence, we aim to have top publications in leading journals, making significant impact internationally.
KEY RESEARCH AREAS

- Cancer biology
- Stem cell and cancer epigenetics
- Neurobiology
- Aging and neurodegenerative diseases
- Bioinformatics
- Biomarker discovery
- Infectious diseases and drug discovery

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

**Title:** C. elegans as a Model System for the Investigation of Mitochondrial DNA Mutations in Ageing.
**Period:** 1 Jan 2008 to 31 Dec 2010
**PI:** Prof Barry Halliwell

**Title:** Characterization of Mechanisms Through Which Cullin-Based E3 Ubiquitin Ligases are Regulated in Health and Disease.
**Period:** 1 Jan 2008 to 31 Dec 2010
**PI:** Dr Thilo Hagen

**Title:** Characterization of Sirt1’s Epigenetic Role in Neuroprotection/Neural Differentiation and its Modulation by IGF-1.
**Period:** 24 Nov 2009 to 23 Nov 2010
**PI:** A/Prof Tang Bor Luen

**Title:** Characterization of the mechanism of action of heteroaromatic quinol and ortho-substituted cinnamaldehyde anti-cancer agents.
**Period:** 1 Apr 2008 to 31 Mar 2011
**PI:** Dr Thilo Hagen

**Title:** Characterization of Genetic and Epigenetic Mechanisms that Regulate Cachectic Muscle Wasting.
**Period:** 1 Jan 2008 to 31 Dec 2010
**PI:** A/Prof Mridula Sharma

**Title:** Clinical validation of stathmin as a biomarker for colorectal cancer metastasis using tissue microarrays.
**Period:** 18 Jul 2009 to 31 Aug 2011
**PI:** A/Prof Chung Ching Ming, Maxey

**Title:** Control of Burkholderia pseudomallei’s virulence through the regulation of Type III and Type VI secretion systems – Identifying novel targets for therapeutic intervention in melioidosis.
**Period:** 18 Jul 2009 to 31 Aug 2012
**PI:** A/Prof Gan Yunn Hwen

**Title:** Cyclin Dependent Kinase 5 Phosphorylation of -Catenin: Implications in Synaptic Organisation and Function in Neurodevelopment and Neurodegeneration.
**Period:** 1 Jan 2008 to 30 Jun 2010
**PI:** A/Prof Markus Wenk (transferred from Dr Sashi Kesavapany)

**Title:** Deciphering the catalytic blueprint of OMPDC: Toward the Design of Anti-Infectives of Catalytic Inhibition.
**Period:** 1 Oct 2009 to 30 Sep 2012
**PI:** Dr Yew Wen Shan

**Title:** Elucidation of the Epigenetic Roles of Histone H3 Phosphorylation.
**Period:** 2 Nov 2009 to 1 Nov 2012
**PI:** Dr Chen Ee Sin
Title: Developing YC-1 analogues as anti-cancer agents.
Period: 1 Mar 2009 to 28 Feb 2011
PI: Dr Thilo Hagen

Title: Directed Evolution of barrel enzymes in the shikimate biosynthesis pathway.
Period: 1 Apr 2008 to 31 Mar 2011
PI: Dr Yew Wen Shan

Title: Elucidating the Potential Cure for Diabetes Mellitus: Molecular Studies of Gene Expression in Obese.
Period: 28 Jul 2009 to 27 May 2010
PI: Prof Jeyaseelan Kandiah

Title: Lipid metabolism in the survival of dopaminergic neurons to relevance to Parkinson’s Disease.
Period: 1 Jan 2009 to 31 Dec 2011
PI: A/Prof Markus Wenk (transferred from Dr Sashi Kesavapany)

Title: Lipidomics Based Diagnostics for Ovarian Cancer.
Period: 1 Apr 2008 to 31 Mar 2011
PI: A/Prof Markus Wenk

Title: Lipidomics: Novel tools and applications.
Period: 1 Feb 2008 to 31 Mar 2013
PI: A/Prof Markus Wenk

Title: Mechanisms of Epigenetic Control of Leptin-STAT3 Axis in the Body Homeostasis.
Period: 1 Apr 2009 to 31 Mar 2012
PI: Prof Fu Xin-Yuan

Title: Microfluidic renal cell supplement.
Period: 1 Jul 2008 to 30 Jun 2011
PI: Prof Sit Kim Ping

Title: Molecular Approach to Validate the Progress of Clinically Stable Young Stroke Patients.
Period: 30 Oct 2008 to 30 Nov 2010
PI: Prof Jeyaseelan Kandiah

Title: Modulation of host cell signalling pathways by bacterial pathogen, Burkholderia pseudomallei.
Period: 28 Apr 2008 to 23 Apr 2011
PI: A/Prof Gan Yunn Hwen

Title: Modulators of Renal Aquaporins.
Period: 1 Jul 2008 to 30 Jun 2010
PI: Prof Jeyaseelan Kandiah

Title: Probing the correlation between oxidative damage and wound healing outcomes.
Period: 27 May 2009 to 30 Jun 2012
PI: Prof Barry Halliwell

Title: Pyruvate Metabolism in Benign and Malignant Tumor Cells.
Period: 17 Apr 2008 to 16 Apr 2009
PI: Prof Sit Kim Ping

Title: Phagosome Lipidomics and Autoimmunity Associated with FcyRllb Polymorphism in Humans.
Period: 1 Jan 2008 to 31 Dec 2010
PI: A/Prof Markus Wenk

Title: Quorum-based Technology: Developing N-Acyl Homoserine lactonases as therapeutic biomolecules.
Period: 4 Jun 2008 to 30 Jun 2010
PI: Dr Yew Wen Shan
Title: Rab22B/Rab31, a brain enriched small GTPase in astrocytic membrane traffic and brain pathophysiology.
Period: 1 Jan 2009 to 31 Dec 2011
PI: A/Prof Tang Bor Luen

Title: Role of microRNAs in lipid metabolism.
Period: 1 Jan 2009 to 31 Dec 2011
PI: A/Prof Theresa Tan

Title: Roles of MLL5 in Zebrafish Hematopoiesis.
Period: 1 Mar 2008 to 28 Feb 2010
PI: Dr Deng Lih Wen

Title: Signaling Mechanism and Antagonist Design for Treating Human Cancers and Other Diseases by Targeting Eph Receptors and Ephrins.
Period: 4 Jun 2009 to 30 Jun 2012
PI: A/Prof Song Jianxing

Title: A study to decipher the pathway(s) involved in S-nitrosylation of the tumour suppressor PTEN by an increased intracellular level of superoxide and hydrogen peroxide in normal and malignant cells.
Period: 13 Jan 2009 to 31 Jan 2012
PI: A/Prof Clement, Marie-Veronique

Title: Syntaxin 16's Role in Dendritic Outgrowth and Membrane Traffic in Neurons.
Period: 1 Dec 2008 to 30 Nov 2011
PI: A/Prof Tang Bor Luen

Title: Synthetic enzymology: Metabolic Engineering for Biomining of Electronic Wastes for Environmental Sustainability.
Period: 16 Feb 2009 to 15 Feb 2011
PI: Dr Yew Wen Shan

Title: Targeting Cancer with Telomerase Interference and Characterization of Progenitor Cancer cells and Cancer Stem cells.
Period: 23 Apr 2009 to 22 Apr 2011
PI: Dr Sherry Wang

Title: The role of SCF E3 ubiquitin ligases in cancer.
Period: 15 Dec 2009 to 31 Jan 2012
PI: Dr Thilo Hagen

Title: Understanding the Cell Cycle-Regulated Export of Chs2p from the Rough Endoplasmic Reticulum.
Period: 7 Dec 2009 to 6 Dec 2012
PI: Dr Yeong Foong May

PATENTS

Title: Flavivirus Specific and Evolutionary Conserved Proteomic Sequences of 9 or more Amino Acids for Vaccine Application as a Genetically Encoded Chimera of the Lysosome-associated Membrane Protein.
Inventor: August JT, Khan AM and Tan TW (U.S. Patent Pending)

Title: Consensus Sequence For Influenza A Virus.
Inventor: August JT, Tan PT, Tan TW and Khan AM (U.S. Patent Pending)

Title: HIV-1 Cell Epitope Peptide Vaccine Sequences Based on HLA-restricted T Cell Activation, Evolutionary Conservation, and Clustered Localization, as a Genetically Encoded Chimera of the Lysosome-associated Membrane Protein.
Inventors: August JT, Simon G, Khan AM, Tan TW (U.S. Patent Pending)
AWARDS AND PRIZES

Year 2008

1. **Department of Biochemistry**
   Gold Award for the Fire Safety Compliance Program conducted by OSHE.

2. **A/Prof Tan Tin Wee**
   8th ASEAN Science and Technology Meritorious Service Award by COST Philippines (ASEAN National Committee on Science & Technology).

3. **Prof Barry Halliwell**
   2008 Society for Free Radical Biology and Medicine (SFRBM) Lifetime Achievement Award.

Year 2009

1. **A/Prof Markus Wenk**
   NUS Young Researcher Award 2009.
   Faculty Outstanding Researcher Award 2009 (Young Researcher Category).

2. **Dr Victor Tong**
   Awarded Singapore's highest accolade for youth, the Singapore Youth Award (SYF) for Science and Technology 2009.

3. **Dr Lisa Ng**
   First Singaporean & Woman Scientist to win the ASEAN Young Scientist & Technologist Award.

4. **Mr Asif Khan**
   Winner of Project – Capturing Culture Materials on photos and videos; Collection of cultural information @ 1st ASEAN e-Culture Workshop in Brunei.

RESEARCH ACHIEVEMENTS

International Refereed Publications


Ng EL, Ng JJ, Liang FY, Tang BL. Rab22B is expressed in the CNS astroglia lineage and plays a role in epidermal growth factor receptor trafficking in A431 cells. *Journal of Cellular Physiology.* (2009) 222(3):716-728.


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: FU Xin-Yuan
Designation: Professor and Head, Management Committee Senior Principal Investigator in Cancer Science Institute (CSI)
Qualifications: PhD (Columbia University, New York)
Email: bchfxy@nus.edu.sg
Contact Number: 6516 3242

Research Interests:
My laboratory has been working on the STAT signalling pathway since its original discovery. We have shown in the past that the STAT pathway controls most critical steps during cell differentiation, cell cycle and apoptosis, immune/inflammatory responses and body metabolism/homeostasis. We are now focused on epigenetic control of program or reprogram of stem cells and iPS cells, and mechanisms of tumorigenesis and metastasis.

a) Molecular mechanisms of STAT3 in regulation of tumorigensis, metastasis and angiogenesis.
b) The key functions of STAT proteins in epigenetic regulation of development and diseases.
c) Reprogramming mechanisms during early development and generation of adult stem cells.

Top 5 Publications:
Name: CHANG Chan Fong  
Designation: Associate Professor  
Qualifications: BSc (Birmingham) PhD (London)  
Email: bchccf@nus.edu.sg  
Contact Number: 6516 3681  
Research Interests:  
a) Structure, function and regulation of CD38/ADP-ribosyl cyclase.  
b) The role of CD38 in nuclear calcium homeostasis.  
c) Mitochondrial ADP-ribosyl cyclase and its role in cADPR/Ca2+ signaling.  
d) NAD+-mediated melanogenesis.  

Top 5 Publications:  

Name: CHEN Ee-Sin  
Designation: Assistant Professor  
Qualifications: PhD (Kyoto University, Japan)  
Email: bchces@nus.edu.sg  
Contact Number: 6516 5616  
Research Interests:  
Maintaining the integrity of the genome is essential for the survival of a cell and genomic instability is associated with many human diseases including cancers. A cell ensures the integrity of its genome with an intricate interplay of epigenetic mechanisms to safeguard nuclear processes, including chromosome segregation, repair of DNA damage lesions and gene expression. Our lab aims to investigate the epigenetic mechanisms at the molecular level by:  
a) Identifying and characterizing factors that epigenetically control essential chromatin functions that have direct implication to genomic stability.  
b) Elucidating how different epigenetic mechanisms interplay to control faithful inheritance of chromatin information through the cell cycle.  
c) Investigating the genetic and epigenetic regulation of functional sub-nuclear compartments.  

Top 5 Publications:  
Name: CHUA Kim Lee  
Designation: Associate Professor  
Qualifications: BSc (Hons), Dip-Ed (S’pore), PhD (Cambridge)  
Email: bchkkl@nus.edu.sg  
Contact Number: 6516 3684  
Research Interest(s):  
- a) Physiological functions of bacterial multidrug efflux pumps of Gram-negative bacteria.  
- b) Intercellular and intracellular signaling in *B. pseudomallei*.  
- c) Small non-coding RNAs as global regulators of bacterial gene expression.  
- d) Discovery of novel antimicrobials and anti-infectives.  
- e) Modulation of antimicrobial-efflux pump interactions.  

Top 5 Publications:  

Name: CHUNG Maxey Ching Ming  
Designation: Associate Professor; Teaching Director, Management Committee  
Qualifications: BSc, PhD (Wellington)  
Email: bchcm@nus.edu.sg or maxey_chung@nuhs.edu.sg  
Website: [http://www.dbs.nus.edu.sg/staff/maxey.htm](http://www.dbs.nus.edu.sg/staff/maxey.htm)  
Contact Number: 6516 3252  
Research Interest(s):  
Our main interest is in the application of proteomics in the study of human diseases, especially in the discovery of novel biomarkers for their early detection. Proteomics, being a high throughput method that can profile differentially expressed and/or modified proteins at a global scale, is considered to be well suited for this task. To facilitate this work, we have established the Oncoproteomics Centre (OPC). The pipeline of proteomics platform technologies developed include 2-D DIGE, 2-D LC, iCAT, iTRAQ, MALDI-TOF/TOF MS and bioinformatics (SPLASH). Current projects include (i) Identification of prognostic biomarkers for hepatocellular carcinoma (HCC), (ii) Proteomics identification of proteins involved in colorectal cancer metastases, and (iii) Discovery of gastric cancer biomarkers from gastric juice and sera.  

Top 5 Publications:  


Name: Marie-Véronique CLEMENT
Designation: Associate Professor, Assistant Dean, Education (Life Sciences & Student Affairs, YLLSoM)
Qualifications: PhD (Paris VII/Pasteur Institute, Paris, France)
Email: bcmvcl@nus.edu.sg
Contact Number: 6516 7985
Research Interest/s:
  a) Reactive oxygen species and regulation of cell survival and cell death.
     To understand the role of intracellular reactive oxygen species such as superoxide (O2-) and hydrogen peroxide (H2O2) in the regulation of apoptosis and the regulation of cell response to death triggers.
  b) Superoxide dependent survival pathways in tumor cells.
     To assess if intracellular production of O2- could be a common denominator to oncogene associated survival pathways in tumor cell. A better understanding of these O2- -producing pathway(s) may be of critical importance to improve our understanding of cancer development, and most importantly may help to design new approaches to cancer therapy.

Top 5 Publications:


Name: DENG Lih Wen
Designation: Assistant Professor
Qualifications: PhD (University of Cambridge, UK)
Email: bchdlw@nus.edu.sg
Contact Number: 6516 1239
Research Interests:
   a) Cell cycle regulation and signaling pathways
   b) Molecular mechanism of genomic instability

Top 5 Publications:

Name: GAN Yunn Hwen
Designation: Associate Professor, Research Director, Management Committee
Qualifications: BSc (Purdue), PhD (UW-Madison)
Email: bchganyh@nus.edu.sg
Contact Number: 6516 3678
Research Interests:
   a) Interaction of Burkholderia pseudomallei with the host innate immune response.
   b) Regulation of virulence and identifying virulence factors in Burkholderia pseudomallei.
   c) Differential host susceptibility to Burkholderia pseudomallei.

Top 5 Publications:
Name: HAGEN Thilo
Designation: Assistant Professor
Qualifications: MD (Berlin)
Email: bchth@nus.edu.sg
Contact Number: 6516 3586
Research Interests:
a) Explore the role of protein degradation in normal cell signaling and in cancer.
b) Understand the role of mitochondria in cellular physiology and pathology.
c) Characterize the mechanisms through which cells adapt to hypoxia.

Top 5 Publications:

Name: Barry HALLIWELL
Designation: Tan Chin Tuan Centennial Professor, Deputy President (Research and Technology)
Email: bchbh@nus.edu.sg
Contact Number: 6516 3247 (Phone); 6872 0830 or 6467 9509 (Fax)

Top 5 Publications:
Name: INOUE, Takao  
Designation: Assistant Professor  
Qualifications: PhD (University of Washington, Seattle)  
Email: bchti@nus.edu.sg  
Contact Number: 6516 2204  
Research Interests:  
I am using C. elegans genetics to address important questions in signal transduction and development. Major areas of interest include:  
a) Mechanism and function of Wnt signalling through the Ryk receptor tyrosine kinase.  
b) Understanding how gene regulatory networks specify cell fates during organogenesis.  
Top 5 Publications:  

Name: Andrew M. JENNER  
Designation: Assistant Professor  
Qualifications: BSc (Hons), PhD (London)  
Email: bchjam@nus.edu.sg  
Contact Number: 6516 1095  
Research Interests:  
a) Development of analytical techniques for measuring damage biomarkers and antioxidants in biological samples.  
b) Lipid peroxidation, DNA damage and repair and protein damage.  
c) Diet dependent mechanisms of colon damage and protection – influence of heme and high fat consumption.  
d) The role of cholesterol synthesis and metabolism on neurodegeneration – Influence of ageing, apoE and diet.  
e) Mechanism of action of dietary phenolics and the significance of cell and gut bacterial metabolism.  
f) Elucidation of the role of iron and zinc in the development of degenerative disease.  
g) Development of techniques and protocols for metabolite profiling and metabolomics.  
Top 5 Publications:  


Name: Kandiah JEYASEELAN  
Designation: Adjunct Professor (Monash University, Australia)  
Qualifications: BSc (Ceylon), PhD (Sheffield), CBiol, FIBiol (London)  
Email: bchjeya@nus.edu.sg  
Contact Number: 6516 3248  
Research Interest/s:  
My laboratory focuses on the development of novel biomarkers and therapeutic agents for stroke, metabolic and viral diseases. We also examine the molecular mechanisms underlying the effects of such new therapeutic agents. Recently we have become involved in developing aquaporin based biomimetic membranes for water re-use and desalination.  
   a) RNomics and biomarkers of Stroke.  
   b) MicroRNAs in metabolic and viral diseases.  
   c) MicroRNAs as Modulators of Aquaporins.  
   d) Toxins, Toxinomes and Toxicogenomics.  
   e) Molecular cloning, expression and gene regulation.  
   f) Aquaporins and biomimetic membranes.  

Top 5 Publications:  
Name: KHOO Hoon Eng  
Designation: Associate Professor  
Qualifications: BA (Massachusetts), Dip. in Med. Edu. (Dundee), PhD (London)  
Email: bchkhe@nus.edu.sg  
Research Interests:  
a) Potential therapeutics from venoms and toxins.  
b) Role of nitric oxide in liver diseases.  
c) Medical education.

Top 5 Publications:
2. Liew HC, Khoo HE, Moore PK, Bhatia M, Lu J, Moochhala SM. Synergism between hydrogen sulfide (H2S) and nitric oxide (NO) in vasorelaxation induced by stonustoxin (SNTX), a lethal and hypotensive protein factor isolated from stonefish Synanceja horrida venom, Life Sciences (2007) 80:1664-1668.

Name: LEE Guat Lay, Caroline  
Designation: Associate Professor  
Qualifications: PhD (Baylor College of Medicine)  
Email: bchleec@nus.edu.sg  
Contact Number: 6516 3251 or 6436 8353  
Research Interests:  
a) Population Genetics / Pharmacogenetics of the Drug Response Genes.  
b) Functional Genomics of Hepatocellular Carcinoma.

Top 5 Publications:
Name: Martti T. TAMMI
Designation: Assistant Professor
Qualifications: BSc (Sweden), PhD (Sweden)
Email: dbstmt@nus.edu.sg
Contact Number: 6516 4255
Research Interests:
In the wake of large genome sequencing projects, the rapid development of laboratory techniques has resulted in a huge scaling up of data production. Large scale research is carried out in many different levels including genome, proteome, transcriptome, and metabolome levels, rapidly increasing the wealth of data. Therefore, the most important challenge facing molecular biology today is to make sense of this mass of data. My interest is in developing computer tools that allow extraction of meaningful biological information. The research areas will include: Large scale genomics and gene regulation in cell differentiation.

Top 5 Publications:

Name: Michael RAGHUNATH
Designation: Associate Professor and Deputy Head, Bioengineering
Qualifications: MD PhD.
Email: briern@nus.edu.sg
Contact Number: 6516 7657 or 6516 5307
Research Interests:
a) Antifibrotic measures (Scar Wars), antifibrotic drug discovery tool (Scar in the Jar), epigenetic control of fibrosis.
b) Neovascularisation of biomaterials and tissue constructs by inducing HIF-1 via side effects of antifibrotic drugs.
c) Development of a biological tissue glue based on transglutaminase activity.
d) Studying macromolecular crowding and exploiting it to create bioassembled human extracellular matrices including basement membranes and to manipulate the phenotype of differentiated and stem cells.
e) Epigenetic modifications as biomarkers and tools for cellular differentiation and tissue engineering.

Top 5 Publications:


Name: Mridula SHARMA
Designation: Associate Professor
Qualifications: PhD (P.G.I.M.E.R, Chandigarh)
Email: bchmridu@nus.edu.sg
Contact Number: 6516 7102
Research Interests:
- Genetic and epigenetic mechanisms of cancer cachexia.
- Genetic regulation of skeletal muscle hypertrophy.
- Skeletal muscle stem cells and muscle regeneration.
- Myostatin and muscle metabolism.

Top 5 Publications:


Name: SIT Kim Ping  
Designation: Emeritus Professor  
Qualifications: PhD (McGill), DSc (NUS)  
Email: bchsitkp@nus.edu.sg  
Contact Number: 6516 3244  
Research Interests:  
a) Bioenergetics of cancer cells. Cancer cells have an altered metabolism that is characterized by an increase in glycolysis even in the presence of oxygen. Human skin fibroblasts isolated from keloid scars also exhibit this glycolytic phenotype and are used as a model to gain insight into tumor biology.  
b) Akt/PKB pathway in proliferating cells. Both hypoxia and PI3K/Akt pathway are known to elicit the glycolytic phenotype of tumor cells. A comparison of the mitochondrial functions of MEF-PTEN knock-out and wild type is examined to assess the contribution of mitochondrial respiration to the high rate of proliferation of MEF-PTEN -/- cells.  
c) Tumor markers in human cancers. The tumor isoform of pyruvate kinase or PKM2, which catalyzes the last step in glycolysis has been found to be elevated in several human cancers. In addition, LDH5 and α-tubulin are examined as other tumor markers in ovarian, liver, gastric and breast cancers  
d) Drug metabolism. Kidney cells grown on a microfluidic device are used to study Phase II reactions, mainly conjugation with sulfate, glucuronide and glutathione to assess their suitability in the development of a kidney cell support system.  

Top 5 Publications:  
Name: SONG Jianxing  
Designation: Associate Professor  
Qualifications: PhD (Chinese Academy of Sciences)  
Email: bchsj@nus.edu.sg  
Contact Number: 6516 1013  
Research Interests:
My group aims to utilize NMR spectroscopy as well as other biophysical and molecular biology methods to understand the fundamental mechanisms underlying protein folding, stability, solubility and amyloid formation; to determine structures and their interactions for proteins of therapeutic interest. Ultimately, it is hoped that through discovery/design of molecules capable of intervening in signal transductions and enzymatic functions, one can design drugs to treat human diseases such as cancer, neurological and infectious diseases.  
Current research projects include:  
a) Molecular mechanisms for protein folding, stability, solubility and misfolding related diseases;  
b) Water-protein interaction.  
c) Structures, interactions and rational drug design targeting signaling proteins, with current focuses on Nogo/RTN and Eph-ephrin signaling networks critical for human neurological and cancer diseases.  
d) Rational inhibitor design to block viral entry and replication.  
e) Catalytic and regulatory mechanism of disease-related proteases.  
f) Protein-based nano-biomaterials.  
g) Protein-RNA interactions  

Top 5 Publications:  

Name: TAN May Chin, Theresa  
Designation: Associate Professor  
Qualifications: BSc, PhD (NUS)  
Email: bchtant@nus.edu.sg  
Contact Number: 6516 3685  
Research Interests:  
a) Sequence-specific strategies for inhibition of Hepatitis B viral gene expression.  
b) Role of microRNAs in liver diseases.  
c) Regulation of expression of sulfotransferases (SULTs).  
d) Regulation of expression of the multidrug resistance protein (MRP/ABCC) subfamily of transporters.  

Top 5 Publications:  


Name: TAN Tin Wee
Designation: Associate Professor and Deputy Head; Management Committee
Qualifications: BA (Cambridge), MSc (London), PhD (Edinburgh)
Email: bchtantw@nus.edu.sg
Website: http://www.bic.nus.edu.sg/~tinwee/
Contact Number: 6516 3566

Research Interests:
- **Bioinformatics**
  - Biodatabases; Large-scale workflow integration; grid computing; immunomics & vaccine informatics.
  - Computer protocols, applications and standards for biological entities, nomenclature, pathways, diagramming and software tools interfacing.

- **Advanced Internet Network Protocols and Applications in Biological Sciences**
  - Advanced internet research network engineering for bioinformatics applications.
  - Internet protocols for bioinformatics and multilingual internet names.

**Top 5 Publications:**


Name: TANG Bor Luen  
Designation: Associate Professor  
Qualifications: MSc, PhD (National University of Singapore)  
Email: bchtbl@nus.edu.sg  
Contact Number: 6516 1040  
Research Interests:  
a) Molecular and cellular neurobiology.  
b) Membrane dynamics and protein trafficking in mammalian cells.

Top 5 Publications:  

Name: TEO Tian Seng  
Designation: Associate Professorial Fellow  
Qualifications: BSc, MSc (NUS), PhD (Manitobe)  
Email: bchteots@nus.sg  
Contact Number: 6516 3246  
Top 5 Publications:  
**Name:** TOO Heng-Phon  
**Designation:** Associate Professor; Management Committee  
**Qualifications:** BSc, PhD (London), ARCS (UK)  
**Email:** bchtoohp@nus.edu.sg  
**Contact Number:** 6516 3687  
**Research Interests:**  
a) Glial-derived neurotrophic growth factor (GDNF) and related factors: Molecular and Cell Biology.  
b) Growth-factors and genes involved in Nociception.  
c) Metabolic Engineering of DXP pathways for biopharmaceuticals.  
d) Self-assembled platforms for Biochips.

**Top 5 Publications:**  

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**Name:** WALCZYK Thomas  
**Designation:** Associate Professor  
**Qualifications:** PhD (Regensburg, Germany)  
**Email**: walczyk@nus.edu.sg  
**Contact Number:** 6516 7986  
**Research Interests:**  
We focus on human mineral and trace element metabolism with a special focus on regulatory mechanisms of iron homeostasis and bone health. Our research group is one of the few groups worldwide that are capable to trace element uptake, utilization and excretion in the human body using stable isotope techniques. Research activities include:  
b) Identification of factors interfering with element bioavailability and turnover.  
c) Elemental speciation at the trace and ultra-trace level using isotope dilution mass spectrometry.  
d) Assessment of nutrient intake and status.  

For further information, visit the homepage of the group (NutriTrace@NUS): http://www.fst.nus.edu.sg/research/ResearchGroup/Walczyk/home.html

**Top 5 Publications:**  


Name: WANG Xueying
Designation: Assistant Professor
Qualifications: PhD. IMCB (NUS)
Email: bchwxy@nus.edu.sg
Contact Number: 6516 5995 (Office); 6516 5094 (Lab)
Research Interests:
Our laboratory focuses on:
  a) Characterization of telomerase-targeting gene constructs in human cancer cells, normal differentiated cells and stem cells.
  b) Roles of telomerase in stem cell pluripotency, differentiation and reprogramming.
  c) Cytokine regulation of telomerase in stem cell disorders.
  d) Function of telomerase in epigenetic modifications during cancer cell progression.

Our ultimate goal is to decipher the mechanisms of telomere attrition-induced body dysfunctions using both human disease samples and mouse models to provide new therapeutics for telomerase-regulated human diseases.

Top 5 Publications:


Name: Markus WENK  
**Designation:** Associate Professor  
**Qualifications:** BSc (Switzerland), PhD (Switzerland)  
**Email:** bchmrw@nus.edu.sg  
**Website:** www.lipidprofiles.com  
**Contact Number:** 6516 3624  
**Research Interests:**  
Application of lipid profiling ("lipidomics") as a novel and independent approach for the systems level scale analysis of biological systems.  
- Analytical lipidomics  
- Inositol lipids  
- Anti-lipid antibodies  
- Informatics  
- Microbial lipidomics  
- Ageing and neuro-degeneration  
- Environment applications  

**Top 5 Publications:**  

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Name: WU Qiang  
**Designation:** Assistant Professor  
**Qualifications:** PhD (National University of Singapore)  
**Email:** bchqw@nus.edu.sg  
**Contact Number:** 6516 3159  
**Research Interests:**  
Embryonic stem (ES) cells are derived from the inner cell mass (ICM) of blastocysts. These cells are pluripotent as they exhibit the ability to differentiate into most of the specialized cell types. Epigenetic modifications are crucial to sustain the pluripotent state of ES cells while suppressing cell differentiation. Our long term goal is to define epigenetic mechanism for the maintenance of pluripotency in ES cells and early embryos. We will focus on dissecting functions of novel epigenetic factors with molecular, cellular and live imaging approaches.  

**Top 5 Publications:**  


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**Name:** YEONG Foong May  
**Designation:** Assistant Professor  
**Qualifications:** BSc Hons (NUS), PhD (University of Vienna)  
**Email:** bchyfm@nus.edu.sg  
**Contact Number:** 6516 8866  
**Lab Website:** http://sites.google.com/site/yfmlab/  
**Research Interests:**  
We are interested in the mechanisms underlying the timely occurrence of cell cycle events using various model systems in our studies.  
- a) We are exploring the cell cycle regulation of late mitotic events which coordinate mitotic exit and cytokinesis and/or cell separation.  
- b) We are studying the controls which determine the precise timing of localization of cell cycle effectors.  
- c) We are also investigating chromosome segregation and condensation in relation to maintenance of genomic stability during cell division.

**Top 5 Publications:**  


Name: YeW Wen Shan  
Designation: Assistant Professor  
Qualifications: BSc (NUS), MS, PhD (UIUC)  
Email: bchyws@nus.edu.sg  
Contact Number: 6516 8624
Research Interests:
   a) Rational design and directed evolution of enzymatic activities.  
   b) Drug design and therapeutics against infectious diseases.  
   c) Synthetic Enzymology for biomedical and bioremediation applications.  
   d) Deciphering enzyme specificity.  
   e) Mechanistic enzymology of enzymes of pharmaceutical importance.  
   f) Discovery of new enzymatic functions.

Top 5 Publications:


Name: Yoichi Taya  
Designation: Professor  
Qualifications: BSc, PhD (University of Tokyo)  
Email: csiyt@nus.edu.sg  
Contact Number: 6516 8706
Research Interests: Functions of tumor suppressor RB protein and p53; Cell cycle and cancer.
Top 5 Publications:


LIST OF
ADJUNCT STAFF

Adjunct Professor:
Alan Colman (Institute of Medical Biology)
Neil D Clarke (Genome Institute of Singapore)
Barbara B Knowles (Institute of Medical Biology)
Ellen Birgitte Lan (Institute of Medical Biology)
Shoba Ranganathan (Macquarie University, Australia)
Kanaga Sabapathy (National Cancer Centre)

Adjunct Associate Professor:
Ximin Cao (Institute of Molecular and Cell Biology)
Han Weiping (Singapore Bioimaging Consortium)
Jiang Yun Jin (National Health Research Institutes)
Philipp Kaldis (Institute of Molecular and Cell Biology)
Liu Jianhua (Genome Institute of Singapore)
Huck Hui Ng (Genome Institute of Singapore)
Ng See-Kiong (Institute for Infocomm Research)
Yijun Ruan (Genome Institute of Singapore)
Yang Hongyuan, Robert (University of New South Wales)
Qi Zeng (Institute of Molecular and Cell Biology)

Adjunct Assistant Professor:
Frederic Bard (Institute of Molecular and Cell Biology)
Cheok Chit Fang (Institute of Molecular and Cell Biology)
Edwin Cheung (Genome Institute of Singapore)
Guccione Ernesto (Institute of Molecular and Cell Biology)
Yan Luo (Institute of Molecular and Cell Biology)
Lisa F P Ng (Singapore Immunology Network)
Prabha Sampath (Institute of Medical Biology)
Song Zhiwei (Bioprocessing Technology Institute)
B Starling Emerald (Brenner Centre for Molecular Medicine)
Tong Joo Chuan (Institute for Infocomm Research)
Tergaonkar Vinay (Institute of Molecular and Cell Biology)
The department is actively engaged in various clinical and basic research activities. The department staff also holds several research grants from various funding bodies. The department has collaborations with many different faculties as well as universities for various basic and translational research projects.

Currently we are working on projects in collaboration with Engineering, Science and other Medical departments in:
- Tissue engineering
- Stem cell research
- Nanotechnology
- Medical image processing
- Medical image informatics
- Automated image analysis
- Novel molecular probe development
- Exploring human brain function and disease
- Biological features of breast cancer and their relation to imaging
- Measuring and assessing cancer growth and response to treatment
- Novel Magnetic Resonance Imaging Techniques

There has been an explosion of interest in biomedical imaging research in the last 5 years, and NUS Radiology is well poised to contribute to this development.
KEY RESEARCH AREAS
• Novel Magnetic Resonance Imaging Techniques
• Medical Image Processing analysis
• Measuring and assessing cancer growth and response to treatment
• Biological features of breast imaging and response to treatment

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: Magnetic Resonance Elastography for non-invasive assessment of liver fibrosis and characterization of focal liver lesions (NMRC grant).
Period: 3 years (awarded 6th May 2008)
PI: Asst Prof Sudhakar Kundapur Venkatesh

AWARDS AND PRIZES

1. Dr Eugene Ong
   Won the Cum Laude Award for his educational poster on Non mass like Enhancement (NMLE) on Breast MRI: Lexicon-based Feature Analysis of Benign and Malignant Lesions at the RSNA 2009, Chicago, USA.

2. Dr Sudhakar Venkatesh
   Awarded Excellence in Design and Certificate of Merit for his educational poster on Magnetic Resonance Elastography of Liver: Technique, Analysis, and Clinical Applications at the RSNA 2009, Chicago, USA.

3. Dr Eugene Liu, Dr Sudhakar Venkatesh and Dr Edwin Siew
   With two others from Pathology and Nephrology have won Best Oral Presentation in the recent “Pitch for funds” for “Magnetic Resonance Elastography (MRE) for the Detection of Interstitial Fibrosis and Tubular Atrophy in Renal Transplants”. Sept 2009

4. Dr Sudhakar Venkatesh

5. Dr Tiffany Hennedige
   Won the Young Radiologist Award at the recent 18th Annual Scientific Meeting of the Singapore Radiology Society held from 26th to 29th of March 2009.

6. Dr Goh Poh Sun
   Won Best poster presentation (merit) award for his poster on Application of educational theory regarding teaching for skill transference for chest radiograph interpretation in undergraduate education and training at 6th APMEC, Feb 2009.

7. Dr Zhou Jiayin
   Won First Prize for Liver Tumor Segmentation Competition (Semi-automatic group) at 3D Segmentation in the Clinic: The Grand Challenge II, the 11th International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI), Sept 2008.

8. Dr Sudhakar Venkatesh
   Won certificate of Merit award for his educational exhibit on Multidetector Row CT Angiography and MR Angiography of Celiac Artery: Anatomy and Normal Variants at RSNA 2008.

9. Dr Sudhakar Venkatesh
   Won Magna Cum Laude Award at ECR Mar 2008 for his educational poster on Magnetic Resonance Elastography of Liver: Technique and Clinical Application.
10. Dr Sudhakar Venkatesh
Won 1st prize for Best Scientific Paper Award (Abdominal Viscera section) at ECR 2008 for Magnetic Resonance Elastography: A new quantitative tissue characterization parameter for differentiating benign and malignant primary liver tumors.

11. Dr Sudhakar Venkatesh

RESEARCH
ACHIEVEMENTS
International Refereed Publications


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: CHONG Fook Hin Vincent
Designation: Professor & Senior Consultant
Qualifications: M.B.,B.S., MBA, FRCR
Email: vincent.chong@nuhs.edu.sg
Contact Number: 6772 4216
Research Interests: Head and Neck Tumours

Top 5 Publications:
**Name:** GOH Poh Sun  
**Designation:** Assistant Professor, Senior Consultant  
**Qualifications:** MB,BS, FRCR, FAMS  
**Email:** dnrgohps@nus.edu.sg  
**Contact Number:** 6772 4569  
**Research Interests:** Orbital Imaging, Medical Education  

**Top 5 Publications:**

**Name:** Sudhakar Kundapur VENKATESH  
**Designation:** Consultant and Assistant Professor  
**Qualifications:** M.B.,B.S., MD, FRCR, MMed  
**Email:** Sudhakar_K_Venkatesh@nuhs.edu.sg  
**Contact Number:** 6772 2248  
**Research Interests:** Body Imaging; MRI

**Top 5 Publications:**
Name: Borys SHUTER  
Designation: Senior Lecturer, Senior Imaging Physicist  
Qualifications: BSc, PhD, BA  
Email: borys_shuter@nuhs.edu.sg  
Contact Number: 6772 2215  
Research Interests:  
a) Quantification in a clinical setting of physiology and anatomy from images obtained in diagnostic 'radiology'.  
c) Liver segmentation in 3D-CT&NM images for planning HCC treatment with Y90 microspheres.  
d) Properties and novel applications of MR and NM contrast agents (FeO nanoparticles).  
e) Behaviour patterns and gastrointestinal transit.  
f) MR spectroscopy & imaging of brain & breast.  
g) Measurement of GFR in the Singaporean population.  

Top 5 Publications:  

Name: QUEK Swee Tian  
Designation: Senior Consultant  
Qualifications: M.B.,B.S., FRCR, FAMS  
Email: swee_tian_quek@nuhs.edu.sg  
Contact Number: 6772 4214  
Research Interests: Musculoskeletal, Breast, Oncologic Imaging  

Top 5 Publications:  
Name: ONG Mun Wai Eugene
Designation: Consultant
Qualifications: M.B.,B.S. MRCP FRCR
Email: eugene_ong@nuhs.edu.sg
Contact Number: 9119 4578
Research Interests: Breast Imaging, Clinical Quality/ Audit

Top 5 Publications:

Name: Arvind Kumar SINHA
Designation: Consultant
Qualifications: M.B.,B.S., FAMS, Board certification
Email: Arvind_kumar_sinha@nuhs.edu.sg
Contact Number: 9128 3195
Research Interests: PET metabolic imaging & Targeted therapy

Top 5 Publications:
Creating an environment of vibrant research is one of the visions of this department. Being an emergency department with a very rich and diverse case-mix and strong evidence-based clinical practice culture but a moderate caseload, we are poised to be in strategic situation to actively participate in research. There is a lot of untapped research talent in our department. In the last few years, there has been a significant increase in the number of research publications from our department. However we are confident that in the next few years, beginning with a group of young enthusiastic doctors equipped with formal training in Research Methodology and Epidemiology, research will start to take off in a big way in our department. We have had successful research collaborations with other departments and we look forward to further collaborations.
KEY RESEARCH AREAS

• Emergency Cardiac Care specifically biomarkers for acute coronary syndromes and heart failure
• Critical Care specifically Sepsis and Non-invasive ventilation
• Observation Medicine
• Resuscitation specifically Shock and hypothermia
• Trauma

RESEARCH ACHIEVEMENTS

International Refereed Publications


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: OOI Beng Suat Shirley
Designation: Head/Senior Consultant; Designated Institutional Official, NUHS Residency
Qualifications: MBBS (S’pore), FRCS Ed (A&E), FAMS(Emergency Med)
Email: shirley_ooi@nuhs.edu.sg
Contact Number: 6772 5005
Research Interests: Emergency Cardiac Care, especially in research dealing with biomarkers and ECG in the diagnosis of acute coronary syndrome and heart failure; Medical Education/Evidence-based Medicine

Top 5 Publications:

Name: Peter George MANNING
Designation: Senior Consultant, Associate Professor
Qualifications: MBBS (London), FACEP, FAMS (Emergency Med)
Email: peter_manning@nuhs.edu.sg
Contact Number: 6772 4103
Research Interests: Administration / Education

Top 5 Publications:
Name: Suresh PILLAI  
Designation: Senior Consultant, Associate Professor  
Qualifications: MBBS (S’pore), FRCS Ed (A&E) , PBM  
Email: suresh_pillai@nuhs.edu.sg  
Contact Number: 6772 4101  
Research Interests: Toxicology/ Disaster/ Education  

Top 5 Publications:

Name: Malcolm MAHADEVAN  
Designation: Senior Consultant  
Qualifications: MBBS (S’pore), MRCP (UK), FRCS ED (A&E), FAMS  
Email: malcolm_mahadevan@nuhs.edu.sg  
Contact Number: 6772 2452  
Research Interests: Critical Care / General Medicine  

Top 5 Publications:

Name: QUEK Lit Sin  
Designation: Consultant  
Qualifications: MBBS (S’pore), MRCS Ed (A&E), MMED (Emergency Med), FAMS  
Email: lit_sin_quek@nuhs.edu.sg  
Contact Number: 6772 2458  
Research Interests: Mass disaster / Mass events  

Top 5 Publications:
Name: PENG Li Lee
Designation: Consultant
Qualifications: MBBS (S’pore), FRCS Ed (A&E), FAMS
Email: li_lee_peng@nuhs.edu.sg
Contact Number: 6772 2453
Research Interests: Radiology

Name: SEET Chong Meng
Designation: Consultant
Qualifications: MBBS (S’pore), FRCS Ed (A&E), MRCP (UK)
Email: chong_meng_seet@nuhs.edu.sg
Contact Number: 6772 2455
Research Interests: Cardiology

Top 5 Publications:

Name: Victor ONG Yeok Kein
Designation: Consultant
Qualifications: MBBS (S’pore), FRCS Ed (A&E), FCEM (UK)
Email: victor_yk_ong@nuhs.edu.sg
Contact Number: 6772 2456
Research Interests: Trauma / Critical Care

Top 5 Publications:
Name: Benjamin LEONG Siew Hon  
Designation: Consultant  
Qualifications: MBBS(S’pore), MRCS Ed (A&E), M. MED (S)  
Email: benjamin_sh_leong@nuhs.edu.sg  
Contact Number: 6772 5063  
Research Interests: Pre-Hospital Cardiac Care and Shock  
Top 5 Publications:  

Name: LEE Sock Koon  
Designation: Consultant  
Qualifications: MBBS (S’pore), MRCS Ed (A&E), M.MED (S’pore) A&E  
Email: sock_koon_lee@nuhs.edu.sg  
Contact Number: 6772 2459  
Research Interests: Geriatric Medicine  
Top 5 Publications:  

Name: SIM Tiong Beng  
Designation: Consultant  
Qualifications: MBBS (S’pore), MRCS Ed(A&E)  
Email: tiong_beng_sim@nuhs.edu.sg  
Contact Number: 6772 5062  
Research Interests: General Medicine  
Top 5 Publications:  
Name: Irwani Bte IBRAHIM  
Designation: Consultant  
Qualifications: MBBS (S’pore), FRCS Ed(A&E), MPH (UWA)  
Email: irwani_ibrahim@nuhs.edu.sg  
Contact Number: 6772 6218  
Research Interests: Sepsis, Non-invasive ventilation, Epidemiological studies.

Top 5 Publications:

Name: Amila Clarence A C Y PUNYADASA  
Designation: Associate Consultant  
Qualifications: MB; BCh; BAO (Belfast); MRCS Ed (A&E); MMED A&E (S’pore); FAMS; FCEM Ad Eundem (UK)  
Email: amila_punyadasa@nuhs.edu.sg  
Contact Number: 6772 2457  
Research Interests: Medicine / Education.

Top 5 Publications:
Name: ONG Pei Yuin
Designation: Associate Consultant
Qualifications: MBBS (S’pore), MRCS Ed (A&E), MMED (A&E)
Email: pei_yuin_ong@nuhs.edu.sg
Contact Number: 6772 6226
Research Interest/s: Trauma.

Name: Brandon KOH Chi Ping
Designation: Associate Consultant
Qualifications: MB; ChB (UK), MRCS Ed (A&E)
Email: brandon_chin_ping_koh@nuhs.edu.sg
Contact Number: 6772 2454
Research Interest/s: Trauma / Work Processes.

Name: GOH Ee Ling
Designation: Associate Consultant
Qualifications: MBBS (S’pore), MRCS Ed (A&E), M.MED (A&E)
Email: ee_ling_goh@nuhs.edu.sg
Contact Number: 6772 6223
Research Interest/s: Critical Care / Respiratory Medicine.

Name: KUAN Win Sen
Designation: Associate Consultant
Qualifications: MBBS (S’pore), MRCS Ed (A&E)
Email: win_sen_kuan@nuhs.edu.sg
Contact Number: 6772 6233
Research Interest/s: Critical Care.

Top 5 Publications:

LIST OF ADJUNCT STAFF

Research Assistant:
Vasanthi D/o Perumal
DEPARTMENT OF
EPIDEMIOLOGY &
PUBLIC HEALTH

MESSAGE ON RESEARCH MISSION FROM HEAD OF DEPARTMENT
PROFESSOR CHIA KEE SENG

Department of Community, Occupational and Family Medicine was re-named as the Department of Epidemiology and Public Health with effect from 1 March 2009.

Epidemiology is a well recognized discipline in biomedical research and practice. It reflects a major component of our teaching and research. It is one sphere where others recognize as an area of expertise and strength in the Department. We are now positioning ourselves to contribute actively in clinical epidemiology within the National University Health System.

Public Health is the generally accepted term to cover our traditional areas of expertise (Community and Occupational Medicine). It also covers new areas of research and education development in the Department, such as health service research, health promotion, Infectious Diseases and global health.

Our internationally recognized work in Occupational Medicine will continue in the department through our well established Centre for Environmental and Occupational Health Research, and WHO Collaborating Centre in Occupational Health.
**KEY RESEARCH AREAS**
- Chronic Disease
- Environmental and Occupational Health
- Health Promotion and Behaviour Change
- Health Service
- Infectious Disease
- Molecular Epidemiology

**LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09**

<table>
<thead>
<tr>
<th>Title</th>
<th>Period</th>
<th>PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis of Multivariate Failure Time Data: A Semi-Completing Risks Approach</td>
<td>1 Apr 2008 to 31 Mar 2011</td>
<td>A/Prof Tai Bee Choo</td>
</tr>
<tr>
<td>Assessment of the Prevalence of Visual Impairment Attributable to Refractive Error or Other Causes in School Children in Singapore</td>
<td>1 Dec 2008 to 30 Nov 2009</td>
<td>A/Prof Saw Seang Mei</td>
</tr>
<tr>
<td>Bridging the Gap: Identifying needs in primary and secondary prevention of cancer among Singaporeans aged 40 and above living in the Jurong/Clementi districts (The Cancer Institute Endowment Fund &amp; NUH Cancer Fund)</td>
<td>1 Jan 2009 to 31 Jan 2010</td>
<td>A/Prof Seow Ling Hui, Adeline</td>
</tr>
<tr>
<td>Ethnicity, Reproductive History and the Risk of Breast Cancer.</td>
<td>20 Nov 2008 to 31 Dec 2010</td>
<td>Dr Helena Verkooijen</td>
</tr>
<tr>
<td>Family-Based Genome-Wide Association Study of Early-Onset Myopia.</td>
<td>13 Aug 2008 to 31 Aug 2011</td>
<td>A/Prof Saw Seang Mei</td>
</tr>
<tr>
<td>Genome-wide case-control studies to identify genetic variants and gene-environment interactions involved in the pathogenesis of type 2 diabetes mellitus in Chinese, Malays and Asian Indians living in Singapore.</td>
<td>23 Jul 2008 to 31 Mar 2011</td>
<td>A/Prof Tai E Shyong</td>
</tr>
<tr>
<td>Growing Up in Singapore towards Healthy Outcomes (GUSTO) Developmental pathways to metabolic disease.</td>
<td>22 Jun 2009 to 31 Jul 2014</td>
<td>A/Prof Saw Seang Mei</td>
</tr>
<tr>
<td>Health-related Perceptions, Attitudes and Practices among Parents of Pre-school and School-going Children Aged 4-17 (HPB).</td>
<td>15 Mar 2008 to 31 Aug 2010</td>
<td>A/Prof Wong Mee Lian</td>
</tr>
</tbody>
</table>
Title: HIV Risks, Condom Use and Health-Seeking Behaviour among Indirect Sex Workers Based in Non-Brothel Entertainment Establishments in Singapore (STD Control).
Period: 1 Apr 2008 to 30 Nov 2009
PI: A/Prof Wong Mee Lian

Title: Mitsui Sumitomo Insurance Welfare.
Period: 1 Mar 2008 to 9 Jan 2011
PI: Dr Koh Choon Huat Gerald

Title: mTOR as the Molecular Target for Modulation of Autophagy, Necrosis and Tumorigenesis.
Period: 1 Jan 2009 to 31 Dec 2011
PI: A/Prof Shen Han Ming

Title: NUHS H1N1 Advanced Grant - Vernon Lee.
Period: 1 Jul 2009 to 30 Sep 2009
PI: Dr Vernon Lee

Title: Prevalence, Treatment and Control of Hypercholesterolaemia Following NCEP-ATPIII Guidelines in an Asian Population.
Period: 22 Sep 2008 to 07 Jan 2010
PI: A/Prof Lee Jen Mai Jeannette

Title: Projecting Individualized Probabilities of Developing Breast Cancer for Singaporean Women.
Period: 7 Oct 2008 to 6 Oct 2010
PI: A/Prof Gao Fei

Title: A Prospective Study of Dietary and Lifestyle Risk Factors of Hip Fractures among the Elderly in the Singapore Chinese Health Study.
Period: 1 Jan 2008 to 30 Jun 2010
PI: A/Prof Koh Woon Puay

Title: Setting up an Infrastructure for Clinical Epidemiology & Population-Based Case Control Studies in Cancer.
Period: 1 Jul 2008 to 31 Mar 2011
PI: Prof Chia Kee Seng

Title: Study of the effects of dynamic lighting on school children in Singapore.
Period: 1 Jul 2009 to 31 Dec 2010
PI: Prof David Koh

Title: A Randomized Controlled Trial of an STI/HIV/AIDS Prevention Intervention for Adolescents Attending a Public STI Clinic in Singapore.
Period: 20 Nov 2008 to 31 Dec 2011
PI: A/Prof Wong Mee Lian

Title: Risk Factors Predicting the Outcomes of Coronary Artery Bypass Graft Surgery (CABG) using a Large Hospital-based Cohort: An Important Pre-requisite for Surgeon Specific Comparisons.
Period: 1 Dec 2009 to 30 Nov 2010
PI: Dr Agus Salim

Title: Uncovering the aetiology of myopia through identification of refraction and ocular biometric genes.
Period: 2008 to 2011
PI: A/Prof Saw Seang Mei
AWARDS AND PRIZES

1. **Prof David Koh**  
   Was the first person to be conferred Honorary Fellowship of the Academy of Occupational and Environmental Medicine Malaysia (AOEMM) on 26 January 2008 in Kuala Lumpur.

2. **Prof David Koh, AProf Wong Mee Lian (Project Leader) and Adj Prof Roy Chan (Department of STI Control, MOH)**  
   Awarded the 2008 Wilf Howe Memorial Prize for their work on “Condom Promotion and Prevention of Sexually Transmitted Infections Among Brothel-based Sex Workers in Singapore” by the Faculty of Occupational Medicine, Royal College of Physicians, London. The prize was presented in London on 22 May 2008. The Wilf Howe Memorial Prize recognizes an outstanding innovation, initiative or intervention which has delivered a demonstrable health benefit for a defined working population. A Panel, chaired by the Registrar of the Faculty, assessed applications based on the following criteria: (1) Successful implementation of an initiative or intervention (2) Clearly defined working population (3) Clear, demonstrable health benefits.

3. **Adjunct Prof Roy Chan**  
   Received the Queen Elizabeth II Gold medal for services to public health and health promotion, from the Royal Society for Public Health on September 2009.

4. **A/Prof Saw Seang Mei**  
   Received the 2009 Achievement Award from the American Academy of Ophthalmology.

5. **A/Prof Shen Han Ming**  

6. **A/Prof Wong Mee Lian**  
   Conferred the Fellowship of the Faculty of Public Health, UK, through distinction, and was awarded the Distinguished Friend of National Skin Centre (NSC) Award 2009, for her significant contribution in helping NSC achieve its strategic organizational mission and improvement in healthcare delivery on prevention of sexually transmitted infections.

7. **Dr Mikael Hartman**  
   Awarded the Breast Surgery International BSI Best Paper Prize for his paper on “Increasing proportion of synchronous bilateral breast cancer – measure of improving diagnostic work up”, presented during International Surgical Week ISW 2009 held in Adelaide, Australia from 6 to 10 September 2009.

8. **Dr Gerald Koh**  
   Won the Poster Presentation Merit Award at the 4th Singapore Public Health and Occupational Conference on 28 Aug 2009, for the paper entitled “Predictors of Performance of Supervised Therapy in the Community in the First Post-Stroke Year: A Cohort Study with Repeated Measures”.

9. **Dr Judy Sng**  
   Received the Best Poster Award for her poster - “Environmental health issues of village communities in the vicinity of a pulp and paper mill” - from Dr HR Guo, President of International Society for Environmental Epidemiology (East Asian Chapter) at the 2nd East Asia Conference of the International Society for Environmental Epidemiology, Korea, and 17-19 April 2008. A total of 265 posters were presented at the meeting.
   
   Awarded the Young Asian Scientist Award, and the prize for the best paper presented at the 19th Asian Conference on Occupational Health, Singapore, and 17 - 19 September 2008. Her paper was entitled “Concerns and Infection Control Knowledge of Healthcare Workers during SARS and for an Impending Avian Influenza Outbreak”.

10. **Dr Huang Qing**  
    Awarded as Winner for the category of Best Poster Presentation Award - Basic Science at the 7th NHG Annual Scientific Congress, 7 to 8 November 2008. Her paper was entitled “A Novel Function of Poly (ADP-Ribose) Polymerase-1 in Modulation of Autophagy and Necrosis under Oxidative Stress”.

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11. **Ms Wong Hwee Bee, PhD Student**  
Awarded the Association for Research in Vision and Ophthalmology (ARVO) 2008 Sek-Jin Chew Travel Grant on 13 February 2008. Her main supervisor is A/Prof Saw Seang Mei, and the co-supervisors are A/Prof Tan Say Beng and Prof David Machin.

12. **Mr Dave Ong Qi Rong**  
Won second prize for student oral presentation at the NHG Conference, 7 - 8 November 2008, for project entitled "Knowledge and Practice of Household Mosquito Breeding Control Measures between a Dengue Hotspot and Non-Hotspot in Singapore". This is a EPH Community Health Project supervised by Dr Gerald Koh, A/Prof Adeline Seow and Dr Kenneth Lee.

13. **Aaron Foo Song Chuan, Ng Zhi Peng, Thia Jin Ping Joshua, and their Community Health Project supervisors Adj A/Prof Fong Ngan Phoon and Dr Gerald Koh**  
Won the Best Oral Communication (Primary Care Category) Award in the 8th NHG Annual Scientific Congress Scientific Competition held from 16 - 17 October 2009 for their paper on 'Colorectal Cancer Screening: Barriers and the Efficacy of Individual Education on its Adoption'.

14. **Dr Kamran Mehedi, our Master of Public Health student, and A/Prof Annelies Wilder-Smith, Md Samsuzzaman, Motiar Rahman, Adj A/Prof Helena Marieke Verkooijen**  
Awarded Merit for the category of Best Poster (Primary Care Category) in 8th NHG Annual Scientific Congress held from 16 - 17 October 2009 for their paper 'Determinants of Childhood Immunization in the Poorly Performing Lalmonirhat District in Bangladesh'.

### RESEARCH ACHIEVEMENTS
#### International Refereed Publications


Bishop GD, Ng DPK, Ngau FSS and Siti NBR. Ethnicity, Gender, Genotype, and Anger as Related to Nocturnal Dipping. *Psychophysiology*. (2009).


Cheung YB, Lau PN, Tan WL and Luo N. Mapping the 8-item Parkinson’s disease questionnaire (PDQ-8) to the EQ-5D utility index. *Quality of Life Research.* (2008) 17(9):1173-1181.


Ng DPK, Tai BC and Lim XL. Is the presence of retinopathy of practical value in defining cases of diabetic nephropathy in genetic association studies? The experience with the ACE insertion/deletion polymorphism in 53 studies comprising 17,791 subjects. *Diabetes.* (2008) 57(9):2541-2546.


Ng DPK. Prognostic value of the insertion/deletion polymorphism of the ACE gene in type 2 diabetic subjects: results from the Non-Insulin-Dependent Diabetes, Hypertension, Microalbuminuria or Proteinuria, Cardiovascular events, and Ramipril (DIABHYCAR), Diabete de type 2, Nephropathie et Genetique (DIAB2NEPHROGENE), and Survie, Diabete de type 2 et Genetique (SURDIAGENE) studies: response to Hadjadi et al. Author reply e78. *Diabetes Care.* (2008) 31(10):e78-e79.


Ong WY, Jenner AM, Pan N, Ong CN and Halliwell B. Elevated oxidative stress, iron accumulation around microvessels, and increased 4-hydroxynonenal immunostaining in zone 1 of the liver acinus in hypercholesterolemic rabbits. *Free Radical Research*. (2009) 43(3):241-249.


Teo YY. Common statistical issues in genome-wide association studies: a review on power, data quality control, genotype calling and population structure. Curr Opin Lipidol. (2008) 19(2):133-43


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: CHIA Kee Seng

Designation: Professor and Head, Department of Epidemiology and Public Health, Director, Centre for Molecular Epidemiology, Adjunct Professor of Epidemiology, Karolinska Institute, Sweden

Qualifications: Bachelor of Medicine & Bachelor of Surgery, National University of Singapore; Master of Science in Occupational Medicine, National University of Singapore; Doctor of Medicine, National University of Singapore

Email: ephcks@nus.edu.sg

Contact Number: 6516 8203

Research Interests: Molecular Epidemiology of Cancer and Chronic Diseases.

Top 5 Publications:


---

**Name:** KOH Soo Quee, David  
**Designation:** Professor  
**Qualifications:** M.B.,B.S. – University of Singapore, M.Sc. (Occup Med) – National University of Singapore, Ph.D. (Occup Med) – University of Birmingham  
**Email:** ephkohd@nus.edu.sg  
**Contact Number:** 6516 4972  
**Research Interests:** Occupational and Environmental Medicine.

**Top 5 Publications:**


Name: LEE Hin Peng
Designation: Professor, Department of Epidemiology and Public Health, Chairman, Institutional Review Board
Qualifications: M.B.,B.S., University of Singapore, MSc (Public Health), University of Singapore, MFCM, Member, Faculty of Community Medicine, UK, FFPH, Fellow, Faculty of Public Health, UK, FAMS, Fellow, Academy of Medicine, Singapore
Email: ephlehp@nus.edu.sg
Contact Number: 6516 4983
Research Interests: General Public Health, Cancer Epidemiology and Control.

Top 5 Publications:

Name: ONG Choon Nam
Designation: Professor, Department of Epidemiology and Public Health, Director, NUS Environment Research Institute
Qualifications: B.Sc Hons., Nanyang University (Singapore), MSc, University of London (London, UK), PhD, University of Manchester (Manchester, UK)
Email: ephocn@nus.edu.sg
Contact Number: 6516 4982
Research Interests: Toxicology, Chemoprevention, Biomarkers Identification and Metabolomics.

Top 5 Publications:
Name: CHIA Sin Eng  
Designation: Associate Professor  
Email: ephcse@nus.edu.sg  
Contact Number: 6516 4970  
Research Interests: Occupational Medicine, Reproductive Toxicology, Neurotoxicology, Cancer Epidemiology.

Top 5 Publications:

Name: KOH Woon Puay  
Designation: Associate Professor  
Qualifications: M.B.B.S (Honours) – National University of Singapore, Ph.D (Immunology) – The University of Sydney  
Email: ephkwkp@nus.edu.sg  
Contact Number: 6516 4975  
Research Interests: Epidemiology of Cancer and Chronic Diseases.

Top 5 Publications:
Name: LEE Jen-Mai, Jeannette  
Designation: Associate Professor  
Qualifications: M.B.,B.S. (Hons) B Med Sci, University of New South Wales (Sydney, Australia), Fellow of the Royal College of General Practitioners (Australia), MD Epidemiology, National University of Singapore  
Email: ephleej@nus.edu.sg  
Contact Number: 6516 4964  
Research Interests: Cardiovascular Diseases.

Top 5 Publications:

Name: LIM Meng Kin  
Designation: Associate Professor  
Qualifications: M.B.,B.S. (Sing), DAvMed (UK), MSc (OM), MPH (Harvard), FRCP (Edin), FFOM (UK), FAMS  
Email: ephlmk@nus.edu.sg  
Contact Number: 65164981  
Research Interests: Health Policy and Management, Occupational Health

Top 5 Publications:
**Name:** SAW Seang Mei  
**Designation:** Professor, Department of Epidemiology and Public Health, Vice-Dean, Research (Pre-clinical), Yong Loo Lin School of Medicine  
**Qualifications:** M.B.,B.S. – National University of Singapore, MPH – Johns Hopkins School of Hygiene and Public Health, USA, PhD – Johns Hopkins School of Hygiene and Public Health, USA, FAMS  
**Email:** epfssm@nus.edu.sg  
**Contact Number:** 6516 4976  
**Research Interests:** Epidemiology of Ocular Diseases.

**Top 5 Publications:**

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**Name:** SHEN Han-Ming  
**Designation:** Associate Professor  
**Qualifications:** PhD National University of Singapore, Master of Medicine Zhejiang Medical University, China, Bachelor of Medicine Zhejiang Medical University, China  
**Email:** ephshm@nus.edu.sg  
**Contact Number:** 6516 4998  
**Research Interests:**
- a) Autophagy in Cell Death and Cancer.
- b) Involvement of Reactive Oxygen/Nitrogen Species and Oxidative Stress in Cell Death Signaling Pathways (Apoptotic and Non-Apoptotic Cell Death).
- c) Antioxidants and Natural Products as Anti-Cancer Agents.

**Top 5 Publications:**
Name: SEOW Ling Hui, Adeline
Designation: Associate Professor
Qualifications: M.B.,B.S. – National University of Singapore, M.Med (Public Health) – National University of Singapore, MFPHM – Faculty of Public Health Medicine, Royal College of Physicians, UK, M.D. – National University of Singapore
Email: ephseowa@nus.edu.sg
Contact Number: 6516 4974
Research Interests:
  a) Epidemiology and Prevention of Cancer.
  b) Risk factors for lung cancer among non-smokers.
  c) Risk factors for malignant lymphoma in Asian populations.

Top 5 Publications:

Name: TAI Bee Choo
Designation: Associate Professor
Qualifications: Bachelor of Arts: National University of Singapore, Graduate Diploma in Statistics: The Institute of Statisticians, United Kingdom, Postgraduate Diploma in Medical Statistics: London School of Hygiene & Tropical Medicine, University of London, MSc in Medical Statistics (Distinction): London School of Hygiene & Tropical Medicine, University of London, PhD in Medical Statistics: University of London
Email: ephhtbc@nus.edu.sg
Contact Number: 6516 4973
Research Interests: Competing risks and correlated multiple failure time data; Design, Conduct and Analysis of Clinical Trials.

Top 5 Publications:
Name: WONG Mee Lian
Designation: Associate Professor, Department of Epidemiology and Public Health
FPH (2009) – Fellow (through distinction), Faculty of Public Health, UK
Email: ephwml@nus.edu.sg
Contact Number: 6516 4965
Research Interests:
  a) Control of sexually transmitted infections, HIV/AIDS.
  b) Adolescent health.
  c) Health promotion and behavioural change.

Top 5 Publications:

Name: KOH Choon Huat, Gerald
Designation: Assistant Professor
Qualifications: M.B., B.S. (Singapore), MMed (Family Medicine) (Singapore), Fellow of College of Family Physicians (Singapore), Grad Dip (Geriatric Medicine) (Singapore), Masters (Gerontology & Geriatrics) (Malta)
Email: ephkohch@nus.edu.sg
Contact Number: 6516 4979
Research Interests: Rehabilitation, Salivary Biomarkers, Asthma and Influenza.

Top 5 Publications:
Name: NG Peng Keat, Daniel  
**Designation:** Assistant Professor  
**Qualifications:** BSc (Hons), PhD  
**Email:** ephnpkd@nus.edu.sg  
**Contact Number:** 6516 4967  
**Research Interests:** Genetic Epidemiology of Diabetes and its Complications.

**Top 5 Publications:**


Name: Agus SALIM  
**Designation:** Assistant Professor  
**Qualifications:** PhD (National University of Ireland, Cork), Accredited Statistician (AStat, Australia)  
**Email:** ephagus@nus.edu.sg  
**Contact Number:** 6516 5783  
**Research Interests:** Biostatistics methods with emphasis on:  
- Methodology for Case-Controls and Cohort Studies.  
- High-dimensional Data Analysis with current emphasis on analysis of copy-number variants and expression data.  
- Application of Biostatistics in:  
  - Cardiovascular and Cancer Research.

**Top 5 Publications:**


Name: SNG Gek Khim, Judy  
Designation: Assistant Professor  
Qualifications: M. Med (OM) (Singapore), M.B.,B.S. (Singapore), GDFM (Singapore), GDOM (Singapore)  
Email: ephjsgk@nus.edu.sg  
Contact Number: 6516 8580  
Research Interests: Occupational and Environmental Medicine.

Top 5 Publications:

Name: WONG Tien Yin  
Designation: Joint Professor, Professor, Department of Ophthalmology, National University of Singapore, Director, Singapore Eye Research Institute, Senior Consultant, Singapore National Eye Centre & National University Health System, Professor (Joint), Centre for Eye Research Australia, University of Melbourne, Australia  
Email: ophwty@nus.edu.sg  
Contact Number: 6322 4571  
Research Interests: Eye diseases, Retinal Diseases, Diabetic Retinopathy, and Epidemiology of Eye Diseases

Top 5 Publications:
**Name:** TAI E Shyong  
**Designation:** Joint Associate Professor and Senior consultant  
**Qualifications:** MB ChB; MRCP; FAMS  
**Email:** mdctes@nuhs.edu.sg  
**Research Interests:** Metabolic diseases (Obesity, dyslipidemia and diabetes mellitus).

**Top 5 Publications:**


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**Name:** Annelies WILDER-SMITH  
**Designation:** Joint Associate Professor, Director, Travellers Screening and Vaccination Clinic, Editor, WHO publication “International travel and health”, Joint Associate Professor, Emerging Infectious Diseases Program, Duke-NUS  
**Qualifications:**  
German National Examination (II) (=Pre-registration exams) (2. Staatsexamen) University of Heidelberg, Germany, Approbation and ‘Aerztliches Zeugnis’, Heidelberg, Germany, ECFMG (American basic medical exams), MD Thesis (Doktorarbeit) at the University of Heidelberg, Germany, Diploma in Obstetrics, University of Otago, New Zealand (with distinction), Accredited specialist as Family Physician (‘Facharztpruefung’), University of Heidelberg, Germany, Diploma in Tropical Medicine and Hygiene (DTM&H), London School of Tropical Medicine and Hygiene, U.K., Master in International Health (with distinction), Curtin University, Perth, Australia, PhD, University of Amsterdam, The Netherlands, Specialist Accreditation in Public Health, Singapore Medical Council  
**Email:** ephwsa@nus.edu.sg  
**Contact Number:** 6516 4969  
**Research Interests:** Global Health, Dengue, Vaccine-Preventable Diseases, Emerging Infectious Diseases, Travel Medicine.

**Top 5 Publications:**


**Name:** Mikael HARTMAN  
**Designation:** Joint Assistant Professor  
**Qualifications:** MD, PhD  
**Email:** ephbamh@nus.edu.sg  
**Contact Number:** 9358 7004  
**Research Interests:** Breast Cancer, Cancer Epidemiology, Clinical Outcomes research.

**Top 5 Publications:**

**Name:** LUO Nan  
**Designation:** Joint Assistant Professor  
**Qualifications:** B.Sc. – Shenyang Pharmaceutical University, M.Sc. – Shenyang Pharmaceutical University, Ph.D. – National University of Singapore  
**Email:** ephln@nus.edu.sg  
**Contact Number:** 6516 4966  
**Research Interests:** Health Services Research.

**Top 5 Publications:**
LIST OF
ADJUNCT STAFF

**Adjunct Professor:**
Chan Kum Wah Roy

**Adjunct Associate Professor:**
Chew Suok Kai  
Fong Ngan Phoon  
Heng, Derrick Mok Kwee  
Lee Hock Siang  
Lee See Muah  
Mak Koon Hou  
Ooi Eng Eong  
Sim Joe Heng Joo  
Sri Chander s/o Tikamdas Nebhranj Nebhran  
Tan Say Beng  
Venkatasubramanian Ramani  
Verkooijen, Helena Marieke  
Yap Peng Huat Eric

**Adjunct Assistant Professor:**
Cheah Peh Yean  
Chen Mark I-Cheng  
Chow Angela Li Ping  
Choy Kwok Yin Kenneth David  
Lee Jian Ming Vernon  
Li Yi Ju  
Low Yen Ling  
Tan Lai Yong  
Virabhak, Suchin

**Adjunct Lecturer:**
Ng Wee Tong

**Centre for Molecular Epidemiology**

**Adjunct Assistant Professor:**
Lim Su Chi  
Liu Jian Jun  
Gao Fei  
Yap Peng Leng, Karen  
Ma Sze Lok Stefan  
Anbupalam Thalamuthu
The Department of Microbiology’s goal is to become one of the world’s leading centres for Microbiology and Immunology. Our research is focused on the way that micro-organisms cause disease, the host immune response to them and the identification of potential targets for therapeutic intervention. The Department has strength in both microbiology and immunology and continues to recruit world class faculty. Our mission is to combine their complementary academic strengths and skill sets into a winning team. We have expertise in animal models of inflammatory and infectious disease and in human immunology. Our laboratories have cutting edge technologies for the generation of novel monoclonal antibodies, for characterization of MHC I presented peptides and tetramer generation, and for investigating intracellular cell signaling and protein-protein interactions. The Department strives to achieve academic excellence through quality in teaching and research. We are fortunate to have recruited a large number of highly talented and motivated undergraduate and postgraduate students. Investment in the training and development of these young scientists is fundamental to the future academic success of the Department and the wider Singapore scientific community.
**KEY RESEARCH AREAS**

The two major research programmes in the Department are in Microbiology and Immunology. There are five research themes:

- Infectious Disease (Dengue, Influenza, SARS, Malaria),
- Cancer Biology (EBV, HBV, Helicobacter pylori),
- Immune Regulation (asthma, atherosclerosis),
- Innate Immunity (NK cells),
- Molecular Microbiology (intracellular protein-protein interaction, gene microarray).

We have over 30 collaborations with clinical teams in Singapore and abroad. Our research is supported by over $30 million of competitive grants funding in the past 3 years (2006-2009).

**LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09**

<table>
<thead>
<tr>
<th>Title</th>
<th>Period</th>
<th>PI</th>
</tr>
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<tbody>
<tr>
<td>Accumulation of Oil in Photosynthetic Cells.</td>
<td>23 Jun 2008 to 22 Jun 2012</td>
<td>A/Prof Lee Yuan Kun</td>
</tr>
<tr>
<td>Adaption of Human influenza A virus in a mouse model for understanding the molecular pathogenesis of influenza pneumonitis.</td>
<td>1 Apr 2008 to 31 Mar 2011</td>
<td>A/Prof Vincent Chow</td>
</tr>
<tr>
<td>Analysing the role of TLR-8 in Mycobacterial Immunity.</td>
<td>1 Sep 2008 to 01 Sep 2009</td>
<td>Dr Paul Macary</td>
</tr>
<tr>
<td>The BrkA Autotransporter: A novel carrier for the surface display of heterologous antigens in attenuated Bordetella pertussis.</td>
<td>1 Mar 2008 to 28 Feb 2011</td>
<td>Dr Sylvie Alonso</td>
</tr>
<tr>
<td>Carbon dioxide fixation and glycerol production of photosynthetic microalgae.</td>
<td>18 May 2009 to 17 May 2012</td>
<td>A/Prof Lee Yuan Kun</td>
</tr>
<tr>
<td>Characterization of the molecular mechanisms involved in the bio-activation of the second line anti-tubercular drug ethionamide.</td>
<td>1 Jul 2008 to 30 Jun 2011</td>
<td>Dr Sylvie Alonso</td>
</tr>
<tr>
<td>A comparative transcriptional analysis of Systemic Lupus Erythematosus in UK (Caucasian) and Singapore (Chinese) patients.</td>
<td>12 Jun 2008 to 30 Jun 2011</td>
<td>Prof David Michael Kemeny</td>
</tr>
<tr>
<td>Conditional Ligands For Class I Mhc Products; Application To Epitope Discovery For Dengue And Respiratory Syncytial Virus-Specific CD8+ T-Cells.</td>
<td>15 Sep 2008 to 14 Sep 2011</td>
<td>Dr Gijsbert Grotenbreg</td>
</tr>
<tr>
<td>Contribution of lymphatic function in atherosclerosis and its modulation by lipid mediators.</td>
<td>1 Mar 2008 to 28 Feb 2011</td>
<td>Dr Veronique Angeli</td>
</tr>
<tr>
<td>Dendritic cells.</td>
<td>04 Dec 2008 to 31 Dec 2013</td>
<td>Dr Justin Wong</td>
</tr>
</tbody>
</table>
Title: Dengue NS1 and D3 Combo Diagnostic POCT.
Period: 15 Apr 2009 to 15 Apr 2011
PI: Prof Mary Ng Mah Lee

Title: Development of High-Throughput Screen For Anti-Viral Prophylactic Agents from Natural Product Libraries Against Emerging Viral Diseases.
Period: 03 Mar 2008 to 02 Mar 2012
PI: Dr Justin Chu

Title: Dissecting the immunology and immunopathology of seasonal & novel influenza A H1N1 infections in vitro & in vivo.
Period: 1 Sep 2009 to 30 Oct 2009
PI: Prof David Michael Kemeny

Title: Enhanced Production of Flavivirus Envelope Domain III Protein Presented on Retrovirus Particles.
Period: 1 Apr 2009 to 31 Aug 2010
PI: Prof Mary Ng Mah Lee

Title: Functional Characterization of the Putative Hepatopoeitin Homologue throughout the Life Cycle of Plasmodium Parasites.
Period: 30 Oct 2008 to 30 Nov 2010
PI: Dr Kevin Tan

Title: Generation of Dermatophagoides and Blomia specific CD8 T cell receptor transgenic mice and investigation their role in a mouse asthma model using inhalant allergens.
Period: 20 Nov 2008 to 31 Dec 2011
PI: Prof David Michael Kemeny
Co-PI: Prof Peter Preiser

Title: Hybridoma Clones Producing mAbs Against West Nile Domain III Envelope Proteins.
Period: 1 Aug 2008 to 30 Sep 2009
PI: Prof Mary Ng Mah Lee

Title: Identification of the molecular and cellular mechanisms altering dendritic cell motility during atherosclerosis.
Period: 1 Aug 2008 to 31 Jul 2011
PI: Dr Veronique Angeli

Title: Innate Immunity against Malaria: Studies on the Mechanisms of the Plasmodium-Phagocyte Interactions and their Consequences.
Period: 1 Mar 09 - 28 Feb 2011
PI: Dr Kevin Tan

Title: Lipidomics, novel tools and applications.
Period: 1 Feb 2008 to 31 Jan 2013
PI: Dr Paul Macary

Title: M-DCs: A new type of IL-10-producing regulatory dendritic cells of major vaccination and therapeutic potentials.
Period: 1 Apr 2008 to 31 Mar 2011
PI: A/Prof Lu Jinhua

Title: Microbial seroprevalence survey.
Period: 2008 - 31 Oct 2010
PI: A/Prof Vincent Chow

Title: Mycobacterial versus Human HSP70. A Detailed Comparison of their immunological activities.
Period: 1 Jan 2008 to 31 Dec 2010
PI: Dr Paul Macary
Title: Neutralizing antibody project.  
Period: 1 Oct 2008 to 30 Sep 2013  
PI: Dr Paul Macary

Title: Novel dendritic cell LysRS – MITF pathway.  
Period: 1 Dec 2009 to 31 Dec 2012  
PI: Prof David Michael Kemeny

Title: Novel Photodynamic Therapy Against Medically Important RNA Viruses & Virus-Infected Cells.  
Period: 1 Jun 2008 to 31 May 2010  
PI: Dr Justin Chu

Title: Oral vaccines.  
Period: 04 Dec 2008 to 31 Dec 2013  
PI: Dr Sylvie Alonso

Title: Phagosome Lipidomics. FcRIIb and Autoimmunity.  
Period: 1 Jan 2008 to 01 Dec 2010  
PI: Dr Paul Macary

Title: Pre-clinical study of using nitric oxide (NO)-Donor as potential adjuvant for the development of an effective dendritic cell-based vaccine system.  
Period: 1 Apr 2008 to 31 Mar 2011  
PI: Dr Wong Siew Heng

Title: The response of human NK cells to primary human cells infected with dengue virus.  
Period: 13 Jan 2009 to 31 Jan 2011  
PI: Dr Justin Wong

Title: The Role CD39 In the Control of Inflammatory Immune Reactions.  
Period: 1 Mar 2009 to 28 Feb 11  
PI: Prof David Michael Kemeny

Title: Role of Bone-Marrow Derived Cells in Tumour-Induced Lymph Node Lymphangiogenesis in a Mouse Model of Human Melanoma & its Significance in Human Cancer Dissemination.  
Period: 1 Mar 2009 to 28 Feb 2011  
PI: Dr Veronique Angeli

Title: The Role of HMGB1 Protein in Mediating Vascular Permeability During Dengue Virus Infection.  
Period: 1 Jan 2008 to 31 Jan 2010  
PI: Dr Justin Chu

Title: The role of interferon regulatory factors in regulating the expression of NKG2D ligands.  
Period: 1 Jan 2008 to 31 Dec 2010  
PI: Dr Stephan Gasser

Title: Role of NK cells and NKG2D in chemotherapy of cancer.  
Period: 1 Apr 2008 to 31 Mar 2011  
PI: Dr Stephan Gasser

Title: The role of the DNA damage response in the regulation of the tumor-associated antigen 1 (CD155) expression.  
Period: 1 Aug 2008 to 01 Jul 2011  
PI: Dr Stephan Gasser

Title: The role of the DNA damage response in the regulation of the tumor-associated antigen 1 (CD155) expression.  
Period: 1 Aug 2008 to 01 Jul 2011  
PI: Dr Justin Wong

Title: Role of the Mycobacterium Tuberculosis Urease Activity in the Survival within the Phagolysosome of Macrophages.  
Period: 1 Sep 2008 to 30 Aug 2009  
PI: Dr Sylvie Alonso
Period: 4 Dec 2008 to 31 Dec 2013
PI: Prof Mary Ng Mah Lee

Title: Structure and function of non-structural (NS) 1 protein of dengue virus.
Period: May 2009 to April 2011
PI: Prof Mary Ng Mah Lee

Title: Suppressors of Conditional Ubiquitin Mutants.
Period: 1 Dec 2008 to 30 Nov 2011
PI: Dr Norbert Lehming

Title: Targeting EBV malignancies in SCID-Hu Mice.
Period: 1 Sep 2008 to 01 Sep 2009
PI: Dr Paul Macary

Title: Targeting Epstein Barr Virus (EBV) associated malignancies using humanised HLA/LMP1 specific monoclonal antibodies.
Period: 1 Apr 2008 to 31 Mar 2010
PI: Dr Paul Macary

AWARDS AND PRIZES

1. A/Prof Vincent Chow
   Best Poster Presentation Award.
   8th Asia Pacific Congress of Medical Virology, 2009.

2. Dr Justin Chu
   America Society of Microbiology Scientific Achievement Award 2008 - ICAAC Young Investigator Award.
   48th Annual InterScience Conference on Antimicrobial Agents and Chemotherapy, Washington DC.

3. Dr Justin Chu
   Merit Award for the NHG Young investigator Award - Basic Sciences.
   7th NHG Annual Scientific Congress 2008.

4. Dr Justin Chu
   Merit Award - Best Oral Presentation - Basic Science.
   7th NHG Annual Scientific Congress 2008.

5. Dr Justin Chu
   Best Oral Paper Award.
   Asia Pacific Society for Medical Virology.

6. Dr Justin Chu
   Microscopy Society (Singapore) Student Research Award 2009.

7. Dr Kevin Tan
   Best Oral Presentation.
PATENTS

Title: A Single Nasal Administration of the Attenuated B. Pertussis Strain BPZE1 Protects Against Infection with H3N2 Influenza Virus.
Inventor: Dr Sylvie Alonso
Place of registration: PCT filing by WIPO (2009)

Title: Influenza vaccine, composition, and methods of use.
Inventor: A/Prof Vincent Chow Tak Kwong
Place of registration: United States (2009)

Title: Sushi Peptide Clones with Enhanced LPS-Binding and Neutralizing Activities.
Inventor: A/Prof Ho Bow
Place of registration: Singapore and Switzerland (2008), Germany, France and United Kingdom (2009)

Title: CD4+ T Cell Receptor-transgenic Mice for a Major House Dust Mite Allergen.
Inventor: Prof Mike Kemeny
Place of registration: United States (2009)

Title: A Monoclonal Antibody with T-Cell Receptor-Like Specificity that Targets Epstein-Barr Infected Human Tumour Cells.
Inventor: Emeritus Prof Chan Soh Ha and Dr Paul MacAry
Place of registration: United States (2009)

Title: Hepatitis B virus specific antibody and uses thereof.
Inventor: Emeritus Prof Chan Soh Ha and Dr Paul MacAry
Place of registration: United States (2009)

Title: Chemical Synthesis & Anti-Malarial Use Of Fluorescent-Labelled Chloroquine.
Inventor: Dr Kevin Tan
Place of registration: United States (2009)

RESEARCH ACHIEVEMENTS

International Refereed Publications


**Year 2009**


**BIOSKETCH OF DEPARTMENT FULL-TIME STAFF**

**Name:** David Michael KEMENY  
**Designation:** Professor  
**Qualifications:** BSc, PhD, FIMLS, FRCPath  
**Email:** mickdm@nus.edu.sg  
**Contact Number:** 6516 3275; 6516 5518  
**Research Interests:**  
Research in the Kemeny Lab is divided into mouse and human immunology. The mouse programme seeks to understand the different regulatory mechanisms that control the lung immune response to viral infection and allergens. In particular, the interaction between CD8 T cells and dendritic cells (DC) has been found to play an essential role in determining immune inflammation. The human immunology programme investigates immune function and dysfunction in infectious and inflammatory disease. Our major interests are immune regulation, asthma/COPD, influenza and immune-mediated anaemia.

**Top 5 Publications:**  


Name: CHAN Soh Ha
Designation: Emeritus Professor
Qualifications: PhD, MBBS, FRCPA, FAMS
Email: micsh@nus.edu.sg
Contact Number: 6516 3315
Research Interests:
Nasopharyngeal carcinoma (NPC) genetics and Epstein-Barr virus in the pathogenesis of NPC

Six case-control studies have shown consistent HLA associations among our Chinese NPC patients. These findings have been confirmed in many countries with a sizable Chinese population. Sibpair studies from China, Hong Kong, Malaysia and Singapore not only confirmed the linkage with HLA but also indicated that both chromosome sixes are involved. Our current interests are in using computer program predictions of EBV peptide binding to at risk and protective HLA alleles and validate these predictions with the binding of synthesized peptides to the relevant HLA alleles. The ability of these HLA peptide combinations to bind to and stimulate relevant T cells is tested using tetramer technology and Elispot assays. SNPs are also used to scan chromosome six of patients and controls for other genes associated with NPC. We have also started to look at the contribution of NK receptors to the aetiology of NPC.

First degree relatives of NPC patients are at high risk of developing NPC and many normal relatives have raised EBV serology. Together with the ENT department at NUH, we are monitoring relatives of NPC patients with HLA, EBV serology and serum EBV DNA copy numbers for the early detection of NPC.

Sero-surveillance and vaccine efficacy of infectious diseases in Singapore
We have monitored exposure to dengue, EV71, Haemophilus influenzae infections in Singaporean children and the need for Hepatitis B and acellular pertussis vaccine boosters in children and adults.

Top 5 Publications:


Name: Mary NG Mah Lee  
**Designation:** Associate Professor  
**Qualifications:** BSc (Hons), PhD  
**Email:** micngml@nus.edu.sg  
**Contact Number:** 6516 3283  
**Research Interests:**  
**Flaviviruses**  
This family of viruses is of great medical importance as the prevalence of the mosquito vectors will increase with the global warming. The main virus models used in our study are West Nile and dengue viruses. The primary interest is to understand the assembly of functional infectious virus particles which will continue the infection.  
In relation to this, we are also investigating in detail the host proteins that are involved in the assembly process of the virus particles. The host proteins could aid or resist the virus assembly process. Understanding the virus-host protein interactions including the immune responses to infections will provide insights into potential anti-viral target sites, and allow the designing of feasible antiviral strategies against the flaviviruses. Our other interest is on the application of cutting edge imaging technologies to understand the virus infection cycle.  

**Top 5 Publications:**  

Name: Vincent CHOW Tak Kwong  
**Designation:** Associate Professor  
**Qualifications:** DipMicrobiol, MD, FRCPath, MBBS, MSc, PhD  
**Email:** micctk@nus.edu.sg  
**Contact Number:** 6516 3691  
**Research Interests:**  
**Molecular genetics and infectomics**  
The main interest of the team in the Human Genome Laboratory is the isolation and characterization of novel human genes and proteins. Thus far, several novel genes have been isolated and analysed. The first gene, HEP-COP isolated from the Hep3B hepatocellular carcinoma cell line, is the human homologue of the 160 kD alpha-subunit of the coatomer protein complex. The HEP-COP gene on chromosome 1q23-q25 codes for the largest of seven membrane coat proteins (COP) comprising the coatomer which mediates intracellular transport of secretory proteins between the Golgi apparatus and the endoplasmic reticulum. The 25 N-terminal amino acids of HEP-COP are identical to xenin, a gastrointestinal hormone that stimulates exocrine pancreatic secretion.  
The second gene was designated DENN as it was found to be differentially expressed in normal and neoplastic cells. The DENN gene product is involved in MAP kinase signalling and GDP/GTP exchange. Downregulation of DENN expression results in marked apoptosis of cancer cells *in vitro* and *in vivo.*
The third novel human gene HUEL (SLC30A9) encodes a protein that exhibits nuclear-cytoplasmic shuttling, and is a member of the solute carrier superfamily and of the zinc transporter family. We have also isolated the novel human gene HALR (MLL3), which maps to chromosome 7q36 associated with leukaemia and developmental defects, and encodes a protein homologous to the ALR (ALL-1 related) gene product. The lab has characterized the novel human MOST-1 gene that exhibits tissue-specific expression, maps to chromosome 8q24.2, and is overexpressed/ amplified in high grade cancers of the breast and prostate. Genomics and proteomic strategies have been adopted for studying the “infectomics” of diseases related to enterovirus 71, dengue and SARS coronavirus.

The team has employed PCR and cycle sequencing for the molecular diagnosis and epidemiology of common and important human pathogens in Singapore, including dengue viruses, varicella-zoster virus, enterovirus 71, mumps virus, respiratory syncytial virus, human papillomaviruses, Neisseria gonorrhoeae and Chlamydia pneumoniae.

Top 5 Publications:


Name: SIM Tiow Suan
Designation: Associate Professor
Qualifications: BSc (Hons), PhD
Email: micsimts@nus.edu.sg
Contact Number: 6516 3280
Research Interests:
Approaches to anti-malarial drug discovery research
Malaria, an age-old disease, affects millions of people worldwide including tropical Asia (WHO, 2005). With this widespread disease and the increasing occurrence of drug-resistant *Plasmodium falciparum*, new therapies requiring the identification of unique targets for drug development are warranted. A vital strategy in drug development is to apply rational drug designs through knowledge of the structural and active sites of drug targets. Using in silico approaches (sequence analysis and homology modelling), validation by site-directed mutagenesis and functional analyses, strategic amino acid residues in selected malarial proteins can be identified.

We are interested in the molecular basis of anti-malarial targets for setting up screens against a collection of natural and biotransformed products. Our studies so far have included primary metabolic genes and genes involved in the parasite’s life cycle: HSP90s, kinases, cysteine proteases.

Gene structure and function analysis: directed modification for improving antibiotic efficacies
The possibility of improving enzymes for the biosynthesis and biotransformation of antibiotics remains a useful challenge for drug development. Isopenicillin N synthase (IPNS) and deacetoxycephalosporin C synthase (DAOCS) have been studied and have provided promising avenues to upgrade industrially important enzymes. Genetically engineered DAOCS has been shown to expand the efficacy of penicillinase resistant β-lactam antibiotics.
Environmental microbiology: monitoring and endorsing microbial water quality
To support microbiological assessment of wastewater and potable water treatment systems, we have set up a battery of tests, including standard bacteriological tests, coliphage evaluation, parasite detection, toxicity tests and PCR amplification of signature sequences for species identification.

Top 5 Publications:

Name: HO Bow
Designation: Associate Professor
Qualifications: BSc (Hons), PhD
Email: michob@nus.edu.sg
Contact Number: 6516 3672
Research Interests:
Pathogenesis of peptic ulcer causing bacteria, Helicobacter pylori
H. pylori remains the only known bacterial pathogen that is strongly associated with peptic ulcers and gastric carcinoma. Bacterial, environmental, population-related and host factors are major determinants of H. pylori infection. However, the true mechanism of pathogenesis and the route of transmission of H. pylori infection have not been clearly established. We have identified several interesting proteins that show link to pathogenesis of the organism. Furthermore, our study on the extracellular polysaccharide production has shown that biofilm formation by H. pylori provides a means of survival strategy to its survivability in the extra-gastric environment. We seek to:
   a) understand how newly identified proteins contribute to H. pylori pathogenesis.
   b) examine the role of biofilm as the possible route of transmission.
   c) develop vaccine and alternate treatment against H. pylori infections.

Host-pathogen interactions
Gram negative bacterial endotoxin is a major cause of high mortality in septic shock. The Singaporean horseshoe crab, a living fossil, possesses many interesting innate molecules that have hitherto not described. We have cloned and expressed recombinant Factor C for use in rapid detection and removal of endotoxin contamination in pharmaceutical preparations. These technologies have been licensed and commercialized as Pyrogene (Lonza) and Endosafe (BDTI), respectively. Studies are now in progress to discover and examine the novel immune-responsive biomolecules in the ancient invertebrate. We are studying the:
   a) use of Factor C as antimicrobial against multiply antibiotic resistant bacteria.
   b) role of novel biomolecules in innate immunity and pathogen surveillance.
   c) origins and conservation of important immune defense mechanisms.

Top 5 Publications:


Name: LEE Yuan Kun
Designation: Associate Professor
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Contact Number: 6516 3284
Research Interests:
Fermentation
Microbial fermentation processes and microbial enzymes in the production of pharmaceutical, food and waste treatment are major research interests of this laboratory.

Microbe-host interactions & probiotics
Probiotics being defined as microorganisms, which impart beneficial effects to the host, is another major research interest of this laboratory. Cross-talk, which involved cell-cell adhesion and immunomodulation are focuses of the study.

Top 5 Publications:


Name: LU Jinhua  
Designation: Associate Professor  
Qualifications: BA, PhD  
Email: miclujh@nus.edu.sg  
Contact Number: 6516 3277  
Research Interests:  
Research in this group focuses on innate immunity. Earlier work emphasized on host recognition of carbohydrate structures on microbes using lectins including collectins and ficolins, leading to microbial killing and clearance. More recent work focus on microbial interaction with macrophages and dendritic cells and how these cells employ phagocytic and Toll-like receptors (TLRs) for pathogen capturing and sensing. We are intensely interested in how phagocytic receptors and TLRs cross-talk to modulate the immunostimulatory and tolerogenic properties of dendritic cells. Through comparative studies, we investigate the molecular basis of macrophage and dendritic cell functional heterogeneity at different differentiation and activation states. On-going projects include:  
a) Mechanisms of TLR co-operation and activation.  
b) Phagocytic receptor signalling in dendritic cells and macrophages.  
c) Autocrine regulation of immunostimulatory and tolerogenic properties of dendritic cells.  
d) Dendritic cell-based vaccine adjuvant development.  
e) The regulatory roles of C1q.  
Top 5 Publications:  
After infecting their hosts, viruses encounter the formidable task of having to multiply in the face of a vigorous host response. Importantly, the interaction between virus and host will determine the outcome of the viral infection. The aim of my laboratory is to understand how viruses, with emphasis on RNA viruses that can infect and cause severe diseases in humans, make use of the host cell machineries for their own benefit. Currently, we are working on newly emerged viruses like the severe acute respiratory syndrome coronavirus (SARS-CoV) and H5N1 avian influenza A virus, which cause acute infection. Another target of our research is the hepatitis C virus (HCV) which causes mainly chronic infection and is a major cause of liver disease worldwide.

We have identified several novel viral-host interactions through yeast-two-hybrid, proteomic and computational approaches. Currently, we are investigating the impact of these interactions on viral replication and/or pathogenesis. We intend to use the infectious clones of SARS-CoV and HCV, which can be used to produce these two viruses in cell culture, to determine the consequences of altering specific parts of the viral genome or knocking down host proteins that are known to interact with viral proteins. The infectious clones may also be used in the screening of siRNA libraries to identify other host factors that contribute to viral replication.

In addition, we are studying the mechanisms for the modulation of apoptosis during SARS-CoV and HCV infections. Many virus genomes encode gene products that can modulate apoptosis and the regulation of apoptosis in the infected host is an important determinant in the struggle between virus and host for survival. Induction of apoptosis in infected cells can contribute directly to viral spread and/or pathogenesis, while inhibition of apoptosis can prevent premature death of the infected cells, allowing the virus to replicate to a high titer or allowing the establishment of a persistent infection. In addition, emerging evidence suggests that non-apoptotic cell-death pathways, like autophagic cell death and necroptosis (also known as regulated necrosis), are also highly regulated cellular suicide processes and contribute to pathological injury. Hence, we aim to gain an in-depth understanding of the relationship between the different forms of cell-death and viral infection. These findings will contribute to a better understanding of the intricate interplay between virus and host and may have implications for the development of antiviral therapeutics and vaccine as well as the design of efficient strategies for disease control.

**Top 5 Publications:**


**Name:** Sylvie ALONSO  
**Designation:** Assistant Professor  
**Qualifications:** PhD  
**Email:** micsa@nus.edu.sg  
**Contact Number:** 6516 3541  

**Research Interests:**  
**Host-pathogen Interactions - Development of live bacterial vaccines**  
Our research interests involve exploring host-pathogen interactions in order to better understand the role of bacterial virulence factors in pathogenicity and in the induction of immune responses in the host. In particular, we currently focus on the mechanisms involved in the persistence of *Mycobacterium tuberculosis* and the implications for drug susceptibility and vaccine efficacy. We are also investigating the virulence mechanisms of *Bordetella pertussis*, the agent of whooping cough.

Increased knowledge in host-bacteria relationships may also be very helpful to develop vaccination strategies involving bacteria as delivery systems. Live recombinant bacteria represent an attractive means to induce both mucosal and systemic immune responses against heterologous antigens. The strategy for the expression of the passenger molecule, the invasiveness, the immunogenicity, as well as the safety of the bacterial vector have to be considered altogether.

We develop mucosal (oral and nasal) vaccines against various pathogens including Dengue virus, Enterovirus 71 and influenza virus using live recombinant bacteria as delivery system. The highly attenuated strain of *Bordetella pertussis* as well as the food-grade *Lactococcus lactis* bacterium are used as vehicles for the delivery of the vaccine candidates.

**Top 5 Publications:**


Dendritic cell migration

Initiation of adaptive immune responses is dependent upon the activation of antigen-specific T cells by antigen-presenting cells including B cells, macrophages and dendritic cells. Dendritic cells are strategically present as sentinels in peripheral tissues at sites of pathogen entry, and have a unique migratory capacity allowing them to readily mobilize to lymph nodes where they encounter naïve or central memory T cells. Antigen-bearing dendritic cells typically gain access to lymph nodes via emigration through the afferent lymphatic vessels. Our laboratory is addressing the mechanisms that control the migration of dendritic cells to lymph nodes, a fundamental issue in immunology that will benefit clinical research aiming to manipulate immune responses and manage chronic inflammatory diseases.

We discovered that some lipid mediators can govern the migration of dendritic cells. More recently, we have studied the mobilization of dendritic cells in atherosclerosis, a chronic inflammation of the arterial wall characterized by an alteration in lipid mediators. Our findings suggest that dyslipidemia related to atherosclerosis severely impairs the emigration of dendritic cells to the lymph nodes. The retention of dendritic cells at the peripheral site may contribute to the local inflammation. Currently, the cellular and molecular events that trigger the impairment of dendritic cell migration are under investigation.

Although it is clear that lymphatic vessels are required for peripheral dendritic cells to enter lymph nodes, remarkably little research has been devoted to investigate whether lymphatic vessel function may regulate the process of dendritic cell migration in normal and inflammatory conditions. We have recently shown that inflammatory signals present in a strong adjuvant induce lymph node swelling accompanied by lymphangiogenesis. This expansion of lymphatics leads to a more robust migration of dendritic cells and is, surprisingly, dependent on the recruitment of B cells within the activated lymph node. Understanding how lymphatic vessel function may affect adaptive immune response by modulating dendritic cell migration is another focus of our work.

Top 5 Publications:
Name: CHU Jang Hann, Justin
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Contact Number: 6516 3278

Research Interests:

RNA Virology and Antiviral Strategies Developments

Positive-strand RNA viruses encompass over one-third of all virus genera and include numerous human pathogens, such as dengue virus, West Nile virus, SARS coronavirus and hepatitis C virus. Host factors participate in most, if not all steps of positive-strand RNA virus infection, including entry, viral gene expression, virion assembly and release. Moreover, host factors are targeted by positive-strand RNA viruses to modulate host gene expression and immune defenses. In our current study, dengue virus, human Enterovirus 71 and Chikungunya viruses are used as the viral models to decipher the interplay of essential host factors with positive-strand RNA viruses. Genome-wide siRNA profiling and proteomic approaches are employed to identify cellular/host factors required for the replication of these medically important RNA viruses. Knowledge gained from these investigations will facilitate formulation of effective vaccine or therapeutic intervention against these viral infections and possibly other pathogenic positive-strand RNA viruses.

Bio-imaging

We are also interested in the development of novel cellular and small animal-based imaging technologies to dissect host-viral pathogens interactions. High throughput or high content bio-imaging technology platforms are also established for the screening of anti-viral compound libraries.

Top 5 Publications:


Name: Stephan GASSER  
Designation: Assistant Professor  
Qualifications: Bsc (Hons), PhD  
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Contact Number: 6516 7209  

Research Interests:  
The innate immune system provides a first line of defense against infections, microorganisms, and tumors. In addition, it is required to induce and enhance adaptive immune responses. The mechanisms that govern the recognition of pathogens and tumor cells by the innate immune system have been elusive. First insights into the nature of innate immune recognition were provided by the molecular characterization of receptor/ligand systems. Toll-like receptors and NOD proteins recognize bacterial and viral products. Other receptors, such as NKG2D, recognize self-molecules that are specifically expressed on diseased cells. The regulation of disease-induced self-ligand expression is not well understood. Our research focuses on understanding the molecular mechanisms underlying these processes.

Recently we have discovered that the DNA damage response regulates the expression of NKG2D ligands. The DNA damage response, which detects and protects against DNA lesions, is often induced by genomic abnormalities in infected and tumor cells. Genotoxic stress could therefore represent distinctive feature of diseased cells and may provide a means for the immune system to recognize diseased cells. A major focus of our research is to identify DNA damage-induced immunomodulatory molecules; reveal mechanisms whereby the DNA damage response activates the expression of immunomodulatory molecules; assess the functional consequences of DNA damage-induced immunomodulatory molecules in different diseases and study how the immune system manipulates the DNA damage response.

This unique arm of the DNA damage response may have implications in understanding therapeutic agents, many of which induce the DNA damage response, and for designing more effective regimens to treat cancer and infections.

Top 5 Publications:
Name: Gijsbert GROtenbreg
Designation: NRF Fellow / Assistant Professor
Qualifications: PhD
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Contact Number: 6516 6661

Research Interests:
The primary interest of the Grotenbreg group lies in MHC-restricted antigen presentation. The identification of epitopes that trigger a cellular immune response provides valuable insights into host-pathogen interactions and offers clues on how to better formulate vaccines. One method to identify such peptides employs MHC tetramers. These reagents stain antigen-specific T cells, but are notoriously cumbersome to produce.

However, when the MHC complex is temporarily loaded with a light-sensitive peptide, the peptide cargo can exchanged with a new epitope by UV-irradiation. Large and diverse arrays of MHC tetramers can thus be generated from a common precursor in a single step. This "caged" MHC tetramer technology allows high-throughput epitope discovery, and has already been applied successfully to influenza, Chlamydia trachomatis, Toxoplasma gondii and murine herpes virus 68 infections.

Using the peptide exchange strategy, the Grotenbreg group will produce tetramer libraries specifically tailored to MHC molecules found in Asian populations. Comparatively little is known about the epitopes presented by these MHC variants. The technology will then be applied to screen for CD8+ T cell epitopes derived from Dengue virus and respiratory syncytial virus (RSV) because of their prevalence in Asian regions. This approach should aid epitope prioritization in vaccine development pipelines and provide basic insights into the interaction of these pathogens with their human host. Enumeration of virus-specific CD8+ T cells may be used as prognostic markers for duration and severity of disease. The technology also allows isolation of antigen-specific T cell populations, which could be used therapeutically.

Beyond MHC tetramer technology, the Grotenbreg group will explore the mechanisms that drive pathogen virulence and the host’s immune response. Working at the interface of chemistry, biology and immunology, we will combine methods such as organic synthesis, protein chemistry, mass spectrometry, and molecular and cellular biochemistry techniques to create diagnostic tools and small molecule modulators of complex biological systems. Examples of this include the development of novel methods for the identification and retrieval of cells of the immune system, as well as expanding the breadth and scope of recently developed protein labeling strategies.

Top 5 Publications:


Transcription is the basis for the realization of genetic information, and its regulation is of vital interest for all organisms. Transcriptional regulation is achieved by protein interactions between DNA-bound transcription factors. Split-Ub, an alternative two-hybrid system, is used to analyze these protein interactions inside living cells. Split-Ub is based upon conditional degradation: A protein of interest is fused to the C-terminal half of ubiquitin, which is C-terminally extended by a reporter protein like R\(\text{Ura3p}\), RG\(\text{pt2p}\), or RG\(\text{FP}\). In the reporter protein, the first amino acid has been replaced by arginine, an instable residue in the N-end rule pathway of protein degradation.

A second protein of interest can be tested for interaction with the first protein by fusing it to the N-terminal half of ubiquitin. The local concentrations of the two halves of ubiquitin will only be high enough to allow the formation of a native-like ubiquitin if the two proteins interact inside the cell. The native-like ubiquitin is cleaved by the ubiquitin-specific proteases, and the free reporter is degraded by the enzymes of the N-end rule. Therefore, yeast cells become resistant to 5-fluorouracil, a drug counterselecting Ura3p, and human tissue culture cells become resistant to 6-thioguanine, a drug counterselecting Gpt2p, upon interaction of the two proteins inside these cells. The GFP reporter can be used in any organism. The system has been used to screen libraries in order to identify new interaction partners for transcriptional activators and repressors.

**Top 5 Publications:**


Name: Paul MACARY
Designation: Assistant Professor
Qualifications: BSc (Hons), PhD
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Contact Number: 6516 5482

Research Interests:
Dr. Paul MacAry received his BSc Hons in Molecular Genetics from Glasgow University and his PhD in Immunology from GKT, University of London. He performed his post-doctoral research in the laboratory of Professor Paul Lehner in the Cambridge University Institute for Medical Research (CIMR) and since 2005 has been an Assistant Professor and independent investigator in the Department of Microbiology and Immunology program at the National University of Singapore (NUS). The multi-disciplinary research in his laboratory covers the entire spectrum of scientific endeavour, from basic research to industrial applications. The identification of the novel HIV coreceptor CCR5, an immune receptor for Mycobacterium TB, was published in Science (co-first author Paul A MacAry et al. Dendritic cell stimulation by mycobacterial HSP70 is mediated through CCR5 Science 2006; 314:454-8). He has recently extended his work on immune receptors for M. Tuberculosis in collaboration with the AStar Genome Institute in Singapore and is now analyzing an additional Mycobacterial immune receptor (TLR-8) identified as part of genetic screens for susceptibility loci in large European and Asian patient cohorts. In recent years his laboratory has established platforms for generating novel monoclonal antibodies and have developed a unique panel of antibody reagents with cytotoxic T-cell receptor-like specificities that can be used to target virus-infected cells in Nasopharyngeal Carcinoma and Hepatocellular Carcinoma. These are the subject of two US patent applications in 2009. He has also succeeded in making new therapeutic and diagnostic candidates for Dengue virus and Mycobacterium Tuberculosis. The TCR-like antibody that targets HBV infected Hepatocellular carcinoma cells is currently being tested for clinical applications by Roche and his anti-Dengue antibody is being assessed in pre-clinical models by Novartis. Both of these projects are covered by formal research collaboration agreements. He has a Hirsh Index of 15, a citation count of 750 (excluding self-citations), and 34 publications, with 8 in journals with an Impact Factor greater than 10. He has published 18 manuscripts in Tier 1 journals including Nature Medicine, Immunity, Blood and PNAS, USA and has 3 included in the Faculty of 1000. Dr. MacAry is also the co-founder and director of the British Stem Cell Registry Ltd and Co-Founder/Meetings Secretary of the Singaporean Society of Immunology (SSI).

Top 5 Publications:
Name: Volker PATZEL  
Designation: Assistant Professor  
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Contact Number: 6516 3318  

Research Interests:  
Research is focused on experimental and computational design of ribonucleic acids (RNA) for enhancement (processing, nuclear export, and translatability of RNA), inhibition (antisense, RNAi) or repair (spliceosome-mediated RNA trans-splicing) of gene expression towards diagnosis and treatment of human diseases. The targets are viral and bacterial human pathogens as well as cellular genes involved in inflammation, cancer, and hereditary diseases. One goal is the construction of a modular platform for in silico design and in vitro manufacture of functional RNA molecules and their genes. A second goal is the development of distinguished molecules prepared for diagnosis or further clinical investigation. Because delivery represents a major hurdle of therapeutic applications of nucleic acids, we thirdly deal with the development of novel gene delivery strategies which are based either on sequence-specific cellular and nuclear DNA uptake or on shuttle-protein-mediated delivery. In the end we plan to use in vitro / in vivo selected carrier systems to deliver in silico optimized RNAs into human target cells including stem cells for gene therapy, cancer therapy or genetic vaccination.  

We collaborate with the German consortia for 'Innovative gene and cell therapy for Morbus Gaucher type II' and 'Innovative therapies for Cystic Fibrosis', the Max Planck Institute for Infection Biology in Berlin, and the German Cancer Research Centre in Heidelberg. We support the establishment of an EU consortium to develop novel anti influenza drugs that do not trigger viral resistance.  

We have a strong interest in transferring intellectual property form research to application: Current projects include:  
a) miRNA::target interaction.  
b) Design of trans-splicing RNA.  
c) Design of therapeutic genes for clinical investigation.  
d) Delivery of nucleic acids into target cells including stem cells.  
e) Novel approaches for genetic intervention.  
f) Identification of unknown non-coding RNA.  

Top 5 Publications:  
**Name:** Kevin TAN Shyong Wei  
**Designation:** Assistant Professor  
**Qualifications:** BSc (Hons), PhD, CBiol, MIBiol  
**Email:** mictank@nus.edu.sg  
**Contact Number:** 6516 6780  

**Research Interests:**  

**The protozoan parasites Plasmodium falciparum and Blastocystis**  

Host-pathogen interactions: *Plasmodium falciparum* is the most virulent of the human malaria parasites and causes the most devastating parasitic disease resulting in about 1-3 million deaths annually. Factors that contribute to its pathogenicity include the radical transformation of the host red blood cells (RBCs) into rigid and adherent structures. Our laboratory is a member of the Global Enterprise for Micro Mechanics and Molecular Medicine (GEM4), and is involved in the use of bioengineering approaches (optical tweezers, atomic force microscopy, microfluidics) to characterize the biomechanical properties of infected cells as a step towards drug discovery and understanding malaria pathogenesis. Our laboratory, together with collaborators at the Department of Chemistry and Singapore Immunology Network (SigN), is focused on studying the innate immune response to malaria and on development of novel methods to study malaria drug resistance.

Our laboratory has contributed extensively to the current understanding of *Blastocystis* biology. Our research on this protozoan focuses on host-pathogen interactions, which aims to clarify its controversial role in intestinal disease. We have shown that the parasite exhibits IgA protease activity, induces apoptosis in host cells, and compromises barrier function in intestinal epithelial cells. Current work involves molecular characterization of Blastocystis virulence factors by proteomic and genomic approaches.

**Protozoan programmed cell death**

We are also studying the phenomenon of programmed cell death (PCD) in protozoan parasites using *Blastocystis* and *P. falciparum* as model organisms. Our work on both parasites has shown that a variety of external stimuli can trigger PCD with features similar to those reported for mammalian cells, including links between caspase activation/ mitochondrial factors and DNA fragmentation. We are currently studying the molecules that are involved in the induction and regulation of PCD in Blastocystis and *P. falciparum*, with particular focus on protease-mediated pathways. A metacaspase homologue has been identified in the *P. falciparum* genome database and we are investigating its role in malaria PCD. The identification of novel activators of protozoan PCD provide exciting possibilities for anti-parasite strategies.

**Top 5 Publications:**


Name: Mark TAYLOR  
Designation: Senior Lecturer  
Qualifications: MA, MBBS, PhD, FRCPath  
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Contact Number: 6516 6741  
Research Interests:  
Medical Microbiology  
Medical aspects of microbiology, particularly in the areas of activity of antimicrobial agents and mechanisms of immunity and pathogenesis in infection.
   a) Sub-MIC and post-antibiotic effect (PAE) effects of antibacterial drugs on *Streptococcus intermedius* and other bacteria.
   b) Modulation of respiratory burst activity of human polymorphonuclear neutrophil cells.
   c) Efficacy of antibacterial drugs against intracellular pathogens and strategies to augment drug activities in this situation.

Top 5 Publications:  

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Name: WONG Siew Heng  
Designation: Assistant Professor  
Qualifications: BSc MSc (Genetics) PhD  
Email: micwsh@nus.edu.sg  
Contact Number: 6516 3517  
Research Interests:  
Protein trafficking and Regulation of Antigen Presentation  
MHC class II molecules bind peptides derived from internalized proteins that entered the endocytic pathway and present them at the cell surface for the activation of CD4 + T cell lymphocytes. MHC class II molecules are constitutively expressed by “professional” antigen presenting cells (APCs) of the immune system (dendritic, macrophages and B cells) and their expression can be induced on many other cell types by treatment with IFN-γ.

In the B cells (a typical “professional” APC), nascent class II MHC heterodimers rapidly associate in the endoplasmic reticulum (ER) with the invariant chain, CD74(Ii) and transported to the early endosomal compartments under the influence of the endosomal targeting signal on the cytoplasmic domain of invariant chain. From the early endosomal compartments, MHC-II complexes are then transported to the late endosomes and lysosomes. In these compartments, bound Ii is degraded by the cathepsins and other endosomal proteases, leaving a small fragment (CLIP) bound in the MHC peptide-binding groove. The CLIP fragment is exchanged for peptides generated in the endosomes as a result of proteolytic degradation, in a process catalyzed by the endosomal-resident peptide exchange factor DM. After peptide loading, the MHC-peptide complexes are transported from the endosomes to the cell surface and present to CD4 + T cell lymphocytes.
In recent years, much has been learned about the importance of the endocytic pathway in the trafficking of MHC class II to the peptide loading compartments for antigen loading prior to presentation of the antigens to CD4+ T lymphocytes. The pathways responsible for the trafficking and intracellular distribution of the MHC complexes had been extensively studied. However, great effort is required to integrate all the existing and new concepts/findings to determine how the membrane trafficking and sorting machinery that govern the intracellular distribution of MHC complexes are organized and regulated in APCs such as dendritic cells (DCs), B cells, macrophages, and microglia (brain macrophages).

Research focus and aims
Understanding the mechanism(s) responsible for the regulation of MHC trafficking remains one of the fundamental gaps in our knowledge of antigen presentation. As the protein complexes responsible for the vesicle budding, sorting, docking and fusion have become more fully elucidated, studies have been focused on the posttranslational modification of these proteins as possible targets for the modulation of the efficiency of antigen presentation. We have established that the trafficking of MHC II during the development of DCs was regulated by the activity of caspases. These caspases activities were in turn controlled at least partially by the activity of inducible-nitric oxide synthase (iNOS), which is upregulated during the maturation process of DCs.

This is an example where the regulation of immune responses is exerted through the control of the endosomal trafficking pathways. Understanding of these basic concepts in specialized APC is essential for the design and development of potent vaccines against microbial infections and cancer.

Top 5 Publications:
We are interested in studying the innate immune responses to dengue virus infection. Compared to the adaptive immune responses generated by B and T cells, much less is known about how cells of the innate immune system respond during dengue viral infections. Because innate immune responses act early and quickly to help contain viral spread, they might be an important determinant of subsequent peak viral titres, which has been shown to correlate with disease severity.

Our lab focuses on three particular areas:

a) The infection of myeloid cells by dengue virus.

b) The response of NK cells to dengue-infected cells.

c) The response of gamma delta TCR T cells to dengue-infected cells.

The human gamma delta TCR T cell response to dengue virus is a particularly intriguing project. Gamma delta TCR T cells are an evolutionarily conserved population of T cells that, like their alpha beta TCR cousins, possess T cell receptors generated by somatic recombination. It has been estimated that the potential diversity of gamma delta TCRs exceeds the diversity of alpha beta TCRs and antibodies - combined! However, unlike alpha beta TCR T cells, the broad diversity of gamma delta TCRs found at birth becomes severely restricted with age, and gamma delta TCR T cells appear to mediate innate immune functions instead. These cells have been ascribed roles in immune defence against bacterial infections. We have now found that gamma delta TCR T cells also respond to dengue virus-infected cells, and we are actively recruiting students to study this process in depth.

We also study the immune responses to Helicobacter pylori. This human pathogen is associated with gastritis, and the subsequent development of gastric cancer. Despite the availability of efficacious antibiotic therapy that can eradicate Helicobacter pylori, it has been observed that gastric inflammation still persists, and can be associated with histological changes that underlie progression to malignancy. In this project, we are trying to determine the nature of this gastric inflammatory process, and understand how this predisposes to gastric cancer.

Top 5 Publications:


Name: ZHANG Yongliang
Designation: Assistant Professor
Qualifications: PhD
Email: miczy@nus.edu.sg
Contact Number: 6516 6407

Research Interests:
Signal transduction pathways in innate and adaptive immunity
We are interested in signal transduction pathways that regulate innate and adaptive immune responses, and how dysregulated signaling can lead to pathological outcomes, such as inflammatory and autoimmune diseases. Currently, we focus on the regulation of MAP kinase pathways by MAP kinase phosphatases (MKPs), the major negative regulators of MAP kinases, in immune responses. MAP kinase signaling pathways are evolutionary conserved immune regulators, playing critical roles in various cellular programs including cell activation, proliferation, differentiation, effector function, and apoptosis. We and others have shown that by controlling MAP kinase activation, members of MKP protein family, also known as dual specificity phosphatase (DUSP) protein family, play essential roles in immune responses.

We are interested in understanding the following aspects of the MKP protein family in immunity: 1. What is the specific function of individual MKP in regulating MAP kinase activation in immune response, and their physiological function in innate and adaptive immunity? 2. How different MKPs work cooperatively to regulate MAP kinase activation and immune responses; 3. What are their functions in infectious and inflammatory diseases and how to target MKPs to develop novel therapeutic interventions for these diseases? We use genetic approaches, such as gene over expression, knockdown and knockout, and various infectious and inflammatory disease models including bacterial and viral infections to achieve these goals.

Top 5 Publications:


LIST OF ADJUNCT STAFF

Adjunct Professor:
Kwang, Jimmy
Philippe Kourilsky
Paola Castagnoli
Walter Henry Gunzberg

Adjunct Associate Professor:
Abastado Jean-Pierre
Ann Lee Siew Gek
Dick, Thomas
Francoise Thierry
Lin Tzer Pin Raymond Valentine
Renia Laurent Claude Stephane
Wang Yue

Adjunct Assistant Professor:
Charles Albert Gullo
Seah Geok Tong
Martin L Hibberd
Ong Siew Hua
Ooi Eng Eong
Kevin Pethe
Subhra Kumar Biswas
Jimmy Chao Sheng-Hao

Adjunct Senior Lecturer:
Ng Toon Mae
Historical Landscape
Our Department of Obstetrics and Gynaecology brought In-vitro Fertilization (IVF), Preimplantation Genetic Diagnosis (PGD), ultrasound in Obstetrics & Gynaecology and modern labour management to Singapore, and was involved in much of the development and education of this programme in this part of the world. This successful programme led to the development of our now renowned Human Embryonic Stem Cell programme.

Current landscape
Currently, the major issues concerning the Singapore population are (1) fewer and later pregnancies, (2) an aging population, and (3) changes in sexual behaviour that affect both pregnancy (e.g. non-consummation) and graceful ageing.

Reproductive and developmental biology cut across many boundaries, and many health and disease conditions. Understanding reproductive and developmental biology will also impact societal issues such as reproduction, which is now a top national priority. We aim to develop a centre of excellence in reproductive and developmental biology that not only will lead to increased knowledge in these areas, but also create national leadership on reproductive issues.

Our individual reproductive and developmental biology programmes already cover issues from the cradle to the grave. Investigators within the Department are collaborating extensively among themselves, and with external partners. We now want to bring all these programmes under one programmatic umbrella so as to gain international recognition for our research efforts.
KEY RESEARCH AREAS
We have identified two key programmes and six sub-programmes, three in each:

- **Fetal Development And Growth**
  - Reproductive Stem Cell Sciences
  - Fetal Medicine and Therapy
  - Developmental Origins of Health and Disease

- **Healthy Aging**
  - Sexual Medicine
  - Nuclear Receptor Biology & Drug Development
  - Ovarian Cancer

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

**Title**: Deciphering FOLR1 gene expression pattern in folate replete and deplete conditions in ovarian carcinoma cells.
**Period**: Apr 2009 to Mar 2012
**PI**: Dr Kothandaraman Narasimhan

**Title**: Developmental pathways to metabolic disease.
**Period**: Sept 2008 to August 2013
**PI**: A/Prof Chong Yap Seng
Title: Endothelial progenitor cells for regenerative medicine.
Period: 1 Apr 2008 to 31 Mar 2010
PI: A/Prof Mahesh Choolani

Title: Enrichment of epsilon-globin-positive fetal primitive erythroblasts and amplification of the fetal genome for array comparative genomic hybridization.
Period: 1 Apr 2009 to 31 Mar 2014
PI: A/Prof Mahesh Choolani

Title: Evaluation of the clinical performance of a novel diagnostic device for rapid intra-operative testing of malignancy using cyst fluid from epithelial ovarian tumours.
Period: 2009 to 2010
PI: Dr Jeffrey Low; Dr Diana Lim (Pathology)

Title: Evaluation of Wharton’s Jelly Stem Cells for cell based therapies.
Period: Apr 2009 to Mar 2012
PI: Dr Fong Chui Yee

Title: The generation of highly osteogenic and vascularised voluminous tissue-engineered constructs with primitive fetal mesenchymal stem cells and endothelial progenitor cells for critical-sized bony defects.
Period: Nov 2008 to Oct 2011
PI: Dr Chan Jerry K Y

Title: Human fetal MSCs for bone tissue engineering.
Period: 1 Apr 2008 to 31 Mar 2010
PI: Dr Chan Jerry K Y

Title: Intrauterine gene therapy for factor X deficiency in non human primate.
Period: 1 Nov 2009 to 31 Oct 2012
PI: Dr Chan Jerry K Y

Title: Intrauterine haemopoietic stem cell gene therapy for beta thalassaemia major in a murine fetal model.
Period: May 2009 to Apr 2011
PI: Dr Citra N Mattar

Title: Molecular and functional characterization of hydrogen sulphate effects in the area of sexual medicine.
Period: Jan 2010 to Dec 2012
PI: Dr Srilatha Balasubramanian; Prof Adaikan P Ganesan

Title: Profiling of membrane lipids of adult and fetal red blood cells using mass spectrometry to identify novel surface marker for enrichment of fetal nucleated red blood cells (FNRBCs) from maternal blood for first trimester non-invasive prenatal diagnosis.
Period: Jun 2009 to May 2011
PI: A/Prof Mahesh Choolani

Title: Pyruvate metabolism in benign and malignant tumor cells.
Period: 2009 to 2010
PI: Dr Sit Kim Ping (Biochemistry); A/Prof Mahesh Choolani

Title: Studies on the anticancer effects of Human Wharton’s Jelly Stem Cells.
Period: Jan 2010 to Dec 2012
PI: Prof A Bongso, A/Prof Mahesh Choolani, Dr Fong Chui Yee, A/Prof A Biswas, A/Prof Chan Woon Khiong
AWARDS AND PRIZES

Year 2008

1. Kuldip Singh
   Best Poster Presentation
   5th Asia Pacific Medical Education Conference
   “Integration of Preclinical and Clinical Teaching in Singapore: The Perception of Medical Students and Educators 10 years later”.

2. Citra Nurfarah Zaini Mattar
   Clinician Leadership in Research Award
   Clinician Scientist Unit
   “Transduction Efficiency and Erythroid-lineage Specific Transgene Expression in an In-vitro Model of Thalassaemia, and its Application for Intrauterine Gene Therapy”.

3. Citra Nurfarah Zaini Mattar
   Pitch For Funds Round: Merit Award and Winner
   Clinician Scientist Unit
   “Transduction Efficiency and Erythroid-lineage Specific Transgene Expression in an In-vitro Model of Thalassaemia, and its Application for Intrauterine Gene Therapy”.

4. Zhang Zhiyong
   Travel Award
   “Comparative study of human MSCs from fetal bone marrow, umbilical cord, adult bone marrow and adult adipose tissue for bone tissue engineering”.

5. Zhang Zhiyong
   50 Best Abstracts Awards
   TERMIS-EU 2008 Meeting in Porto
   “Biaxial-rotating bioreactor for bone tissue engineering application -- in vitro and in vivo study”.

6. Prof Teoh, Dr Jerry Chan, Chong Woon Shin and Dr Harmeet Singh
   Excellence Award in R&D 2008
   Singapore Polytechnic
   “A biaxial rotating bioreactor for the culture of fetal mesenchymal stem cells for bone tissue engineering”.

7. Citra Nurfarah Zaini Mattar
   Vandeburg-Storz Prize for Best Young Investigator
   “Intrauterine Gene Therapy for Haemophilia in a Non-Human Primate Model”.

8. Jerry Chan
   IFMSS Travel Award
   “In-utero gene transfer of self-complementing AAV-LP1-hFIX in fetal macaques leads to long term tissue-specific transgene expression at therapeutic levels”.

9. Mark SK Chong (Research Assistant)
   Best Travel Award
   2008 Annual Conference of Tissue Engineering and Regenerative Medicine International Society – Asia Pacific Region, Taipei, Taiwan
   “Generation of biphasic constructs from microthin biaxially stretched polycaprolactone films”.

10. Sonia Baig (Research Assistant)
    Best Oral – Medical : Merit Award
    7th NHG Annual Scientific Congress 2008
    “Rapid prenatal diagnosis of common chromosomal aneuploidies using Quantitative Fluorescence PCR”.

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11. Niraja Mohan Dighe (Research Fellow)

Merit Award for at Best Oral-Basic Science
7th NHG Annual Scientific Congress 2008
“Intrauterine therapy of haemophilia B: A non-human primate model of fetal gene transfer using self-complementing adeno-associated virus serotypes 5 and 8”.

12. Sherry Ho (Research Fellow)

Merit Award for Best Oral-Quality/Health Services Research
7th NHG Annual Scientific Congress 2008
“Development of rapid same-day prenatal diagnosis of common chromosomal abnormalities (FlashFISH)”.

13. Aniza Puteri Mahyuddin (PhD Student)

Young Investigator Award
ISUOG Outreach Course Singapore / Scientific Congress 2008
“Noninvasive prenatal diagnosis: CD147, a novel cell surface marker for the enrichment of fetal erythroblast from the maternal blood”.

14. Narasimhan Kothandaraman

Best Oral Presentation Award
ISUOG Outreach Course Singapore / Scientific Congress 2008
“Identification and Characterization of Trisomy (Trisomy 21, Trisomy 18 and Trisomy 13) Specific Maternal Serum Proteins Facilitating Early Diagnosis of Fetal Aneuploides”.

15. Kuldeep Singh, Ng Ying Woo (NUH)

APCOC Talent Encouragement Award and Best Oral Presentation Award
Second Congress of the Asia-Pacific Council on Contraception (APCOC), Macau, China
“Effects of Mirena (levonorgestrel releasing intrauterine system) on lipid metabolism – a Randomized Control Study”.

Year 2009

16. Mahesh Choolani

Clinician Scientist Award 2009 (5-year Senior Investigator category)
National Medical Research Council of MOH
“Enrichment of epsilon-globin-positive fetal primitive erythroblasts and amplification of the fetal genome for array comparative genomic hybridization”.

17. Liu Yuchun

Best Poster Award
International Conference on Materials for Advanced Technologies (ICMAT), Singapore
“In vitro maturation of large hMSC-PCL/TCB bone tissue engineered construct through long term culture in a biaxial perfusion flow bioreactor”.

18. Zhang Zhiyong

Best Poster Award (Graduate Student)
2nd Asian BioMaterials Congress (ABMC), Singapore
“Superior Osteogenic Capacity for Bone Tissue Engineering of Fetal Compared with Perinatal and Adult Mesenchymal Stem Cells”.

19. Tan Kok Kiong, Tang Kok Zuea, Huang Sunan, Andi S Putra, Lee Tong Heng, Ng Soon Chye, Jerry Chan, Tan Lay Geok and Mark SK Chong

Best Paper Award in Automation
The 2009 IEEE International Conference on Mechatronics and Automation (ICMA 2009), Changchun, Jilin, China.
“Automated Haematopoietic Stem Cells Harvesting Machine”.

20. Su Lin Lin

Best Obstetrics Oral Presentation
The 7th Singapore International Congress of O&G (SICOG)
“Carbetocin versus syntometrine for the third stage of labour following vaginal delivery – a double – blind randomized controlled trial”.

NUHS Annual Research Report 2008/09
21. **Citra Nurfarah Zaini Mattar**  
*Best Oral Presentation – Basic Science*  
The 7th Singapore International Congress of O&G (SICOG)  
“Fetal Gene Transfer with Self-Complimentary Recombinant Adeno-Associated Vectors Achieves Long-Term Factor IX Expression in Non-Human Primates”.

22. **Narasimhan Kothandaraman**  
*Best Research Poster Presentation (Basic Science)*  
The 7th Singapore International Congress of O&G (SICOG)  
“Biomarker discovery for ovarian cancer and trisomy”.

23. **Liu Lin (Postgraduate Student)**  
*Best Gynaecology Oral Presentation*  
The 7th Singapore International Congress of O&G (SICOG)  
“Evaluation of Haptoglobin in Ovarian Cyst Fluid as an Independent Biomarker for Epithelial Ovarian Cancer”.

24. **Mark SK Chong**  
*Heinmut Reul Young Investigator Award*  
17th Congress of the International Society for Rotary Blood Pumps, Singapore  
“Antibody Conjugation Promotes Endothelial Progenitor Cell Attachment and Haemocompatibility”.

25. **Citra Nurfarah Zaini Mattar**  
*Young Investigator Award – Basic Science / Translational Research (Silver)*  
8th NHG Annual Scientific Congress 2009  
“Late Gestation Intrauterine Gene Therapy with Self-Complimentary Adeno-Associated Vectors Achieves Long-term Transgene Expression in New-Born Cynomolgus Macaques”.

26. **Narasimhan Kothandaraman**  
*Young Investigator Award – Basic Science / Translational Research (Gold)*  
8th NHG Annual Scientific Congress 2009  
“A Novel Metabonomics Approach for Early Diagnosis of Epithelial Ovarian Cancer”.

27. **Zhang Zhiyong**  
*Best Oral Presentation (Basic Sciences)*  
8th NHG Annual Scientific Congress 2009  
“Treatment of large defect using tissue engineered bone grafts”.

**RESEARCH ACHIEVEMENTS**

International Refereed Publications


**BIOSKETCH OF DEPARTMENT FULL-TIME STAFF**

**Academic Staff**

**Name:** YONG Eu LEONG  
**Designation:** Professor & Head of Department  
**Qualifications:** MBBS, MRCOG, PhD  
**Email:** obghed@nus.edu.sg  
**Contact Number:** 6772 4285  
**Research Interests:**

a) **Steroid/nuclear receptors and human disease:** Use of molecular tools to uncover the basic mechanisms whereby androgen receptor mutations lead to male infertility, disorders of sexual differentiation and prostate cancer; how estrogen-regulate genes result in uterine fibroids. Regulation PPAR transcription activity by coactivators and corepressors. New ligands for “orphan” nuclear receptors.

b) **Botanical drug discovery programme:** Development of drugs of pharmaceutical quality from traditional herbal Chinese medicines and other natural products. In particular, compounds, extracts and drugs that activate Androgen receptor, Estrogen receptor, Progesterone receptor and PPAR family of receptors. Pharmacokinetics/ Pharmacodynamics and metabolism of botanical drugs and marker compounds in animal models and humans.

c) **Marine endocrine-disrupting chemicals programme:** Spatial and temporal patterns of endocrine disrupting chemicals in Singapore’s marine environment and their molecular and cellular effects on human health.

**Top 5 Publications:**  


Name: Kuldip SINGH  
Designation: Professor, Undergraduate Director  
Qualifications: MBBS, MMED (O&G), MD, FRCOG (UK), M.A. in Population Research (Exon), FAMS  
Email: obgkuldi@nus.edu.sg  
Contact Number: 6772 2669  
Research Interests:  
a) The acceptability of various fertility regulating methods especially Hormonal Contraceptive Methods with particular reference to their intrinsic attributes (safety, efficacy, reversibility) and their extrinsic attributes (behavioural and social determinants).  
b) Clinical pharmacology of Hormonal Contraceptive Methods - their effect on metabolic and coagulation process in the body.  
c) Prostaglandins and their use for Abortion and Pre-abortion Cervical Priming.  
d) Research in Reproductive Epidemiology with particular interest in Abortion Trends and Hormone Replacement Therapy in Singapore.  
e) Identification of Population Groups at high risk to AIDS and other Sexually Transmitted Diseases with an aim to provide and promote health education programmes.  
Top 5 Publications:  
Name: PC WONG  
Designation: Professor, Senior Consultant & Head, Division of Reproductive Endocrinology & Infertility  
Qualifications: MBBS (Malaya), MMED (O&G, S’pore), FRCOG (UK), FAMS (S’pore)  
Email: obgwpc@nus.edu.sg  
Contact Number: 6772 2670  
Research Interests: Infertility, in-vitro fertilisation (IVF).

Top 5 Publications:  

Name: A ILANCHERAN  
Designation: Associate Professor  
Qualifications: MBBS, MMED (O&G), FRCOG, MD, FAMS  
Email: obgia@nus.edu.sg  
Contact Number: 6772 2682  
Research Interests: Ovarian cancer and Human papillomavirus

Top 5 Publications:  
Name: Arijit BISWAS  
Designation: Associate Professor, Senior Consultant & Head, Division of Maternal-Fetal Medicine  
Qualifications: MD, FRCOG, FAMS  
Email: obgab@nus.edu.sg  
Contact Number: 6772 4261  
Research Interest(s):  
a) Development of prenatal diagnostic / therapeutic techniques.  
b) Management of high risk obstetric patients. 

Top 5 Publications:  

Name: CHONG Yap Seng  
Designation: Associate Professor  
Qualifications: MBBS, MRACOG, MMED (O&G), MD, FAMS  
Email: obgcys@nus.edu.sg  
Contact Number: 6772 4272  
Research Interest(s):  
a) Breastfeeding and early childhood programming.  
b) Developmental origins of health and disease.  
c) Genetic epidemiology of pregnancy-related disorders.  
d) Intrapartum and postpartum management. 

Top 5 Publications:  
Name: Mahesh CHOOLANI
Designation: Associate Professor, Research Director
Qualifications: MBBS (Singapore), FRCOG (UK), FRANZCOG (Australia), MMED (Singapore), FAMS (Singapore), PhD (London)
Email: obgmac@nus.edu.sg
Contact Number: 6772 2672

Top 5 Publications:

Name: Mary RAUFF
Designation: Associate Professor
Qualifications: MBBS, FRCOG, MMED (O&G)
Email: obgmr@nus.edu.sg
Contact Number: 6772 4267

Top 5 Publications:
Name: WONG Yee Chee
Designation: Associate Professor
Qualifications: MBBS, MMED (O&G), FRCOG
Email: obgwyc@nus.edu.sg
Contact Number: 6772 4275
Research Interests: Antenatal diagnosis, Ultrasound in O&G, Menopausal management.

Top 5 Publications:

Name: FONG Yoke Fai
Designation: Assistant Professor, Senior Consultant & Head, Division of Benign Gynaecology
Qualifications: MBBS, MRCOG (UK), FRANZCOG (Aust/NZ), MMED (NUS), FAMS
Email: obgfyf@nus.edu.sg
Contact Number: 6772 6302
Research Interests: Endometriosis, Robotic surgery.

Top 5 Publications:
Name: Jerry KY CHAN
Designation: Assistant Professor
Qualifications: MB BCH BaO (Hons), MA (Dublin), MRCOG (UK), PhD (London), FAMS
Email: obgjchan@nus.edu.sg
Contact Number: 6772 2672
Research Interest/s:
Fetal stem cells and its downstream application for
a) Developmental biology.
b) Intra-uterine gene / stem cell therapy.
c) Tissue Engineering & Regenerative Medicine.
  Intrateruterine Therapy – Cellular and Gene Therapy.
d) Haemophilia.
e) Lysosomal Storage Disorders.
f) Thalassaemia.
g) Small and large animal models.
  Non-human primate models of human reproduction and fetal therapy.
  Ovarian Cancer Stem Cells.
  Developmental origins of Health and Disease (DoHAD).
  Reproductive Medicine.
h) Ovarian reserve prediction.
i) Ovarian cryopreservation.
j) Epigenetics of IVF pregnancies.
k) Factors governing success rates in ART.

Top 5 Publications:

Name: SU Lin Lin
Designation: Assistant Professor
Qualifications: MBBS, MRCOG (UK), MMED
Email: obgsll@nus.edu.sg
Contact Number: 6772 4272
Research Interest/s: Maternal fetal, Antenatal diagnosis.

Top 5 Publications:


**Research Staff**

**Name:** Ariff BONGSO  
**Designation:** Research Professor  
**Qualifications:** PhD, MSc (Canada), FRCOG (ad eundem) (UK), DSc (S’pore), DVM (Cey), FSLCOG, DSc (hon) (SL)  
**Email:** obgbongs@nus.edu.sg  
**Contact Number:** 6775 9171  
**Research Interests:** Stem cell biology, Reproductive biology.

**Top 5 Publications:**


**Name:** P Ganesan ADAIKAN  
**Designation:** Research Professor  
**Qualifications:** PhD, DSc, ACS  
**Email:** obgadaik@nus.edu.sg  
**Contact Number:** 6772 4128  
**Research Interests:**

a) All aspects of sexual medicine including basic, translational and clinical research, drug trials and management approaches.

b) Aging and sexuality (andropause and menopause).

c) Phytohormones in sexual medicine.

**Top 5 Publications:**


Name: **FONG Chui Yee**  
**Designation:** Assistant Professor  
**Qualifications:** MSc (NUS), PhD  
**Email:** obgfong@nus.edu.sg  
**Contact Number:** 6516 8620  
**Research Interest/s:** Stem cell biology, Reproductive biology.

**Top 5 Publications:**  

Name: **GONG Yinhan**  
**Designation:** Senior Research Fellow / Assistant Professor  
**Qualifications:** PhD  
**Email:** obgg@nus.edu.sg; tmsgy@nus.edu.sg  
**Contact Number:** 6516 8498  
**Research Interest/s:**  
a) Bio-analytical chemistry and marine environmental chemistry: Isolation and characterization of steroid hormone receptor active compounds from marine phytoplankton cultures and traditional herbal medicine by preparative chromatography, chromatography-tandem mass spectrometry, and genetically-engineered cell-based bioassays.  
b) Chiral separation science: Synthesis and application of novel chiral stationary phases for high-performance liquid chromatography and capillary electrophromatography to separate enantiomers of chiral compounds for drug discovery and environmental analysis.  
c) Chromatography and drug discovery: Development and application of safe, fast and sensitive capillary electrophorphism and chromatography-tandem mass spectrometry technologies to determine trace level of bioactive compounds for animal studies and human trials.

**Top 5 Publications:**  


Name: LOGANATH Annamalai  
Designation: Senior Research Fellow  
Qualifications: M Biol (UK), C Biol, PhD (Singapore)  
Email: obgannam@nus.edu.sg  
Contact Number: 9180 3559  
Research Interests:  
a) Pre-eclampsia – Genetic susceptibility, role for cytokines and growth factors, angiogenesis and proteomics.  
b) Ovarian cancer – Biomarkers, proteomics and design of drug-like molecules as novel inhibitors of ovarian cancer.  
c) Persistent organic pollutants and adverse health effects on humans.  
d) Feto-placental steroidogenesis.

Top 5 Publications:  
Name: NEO Soek Ying
Designation: Senior Research Fellow
Qualifications: PhD (University of Cambridge, U.K.)
Email: obgneosy@nus.edu.sg
Contact Number: 6407 0112
Research Interests:
Our group is interested in understanding how the environment influences the early development of fetus or young infant and how it impacts life-long health, e.g., the later manifestation obesity and type II diabetes. Such knowledge has important consequences in our health as individuals and as a society, and also in shaping health care policies. Our unique multi-centre collaboration between both scientific and clinical colleagues worldwide enables us to test various hypotheses in a systematic fashion using the state-of-the-art genomic / molecular technologies (e.g. microarrays, Sequenom, pyrosequencing). One hypothesis being tested is that different developmental patterns are associated with distinct epigenetic profiles which influence the metabolic capacity of an individual as evidenced by the occurrence of obesity and other metabolic disorders such as type II diabetes. That these epigenetic marks are unique to the specific developmental environments suggest that useful biomarkers could be derived to assist in predicting later developmental patterns and responses to prevention and intervention in early life.

Top 5 Publications:


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Name: PONNUSAMY Sukumar
Designation: Senior Research Fellow
Qualifications: PhD
Email: obgps@nus.edu.sg
Contact Number: 6516 4901
Research Interests: Prenatal Diagnosis / Fetal Cells in Maternal Blood / Proteomics.

Top 5 Publications:


Name: Ruby Yun Ju HUANG  
**Designation:** Senior Research Fellow / Medical Officer / Clinician Scientist  
**Qualifications:** MD (National Taiwan University), PhD (National Taiwan University)  
**Email:** ruby.yj.huang@nuhs.edu.sg  
**Contact Number:** 9146 9101  
**Research Interests:** Ovarian cancer stem cells, Oncogenomics of epithelial ovarian cancer, EMT in ovarian cancer initiation & progression.

Top 5 Publications:

Name: Citra Nurfarah Zaini MATTAR  
**Designation:** Research Fellow A  
**Qualifications:** MBBS, MRANZCOG, MMED (O&G)  
**Email:** obgcnzm@nus.edu.sg  
**Contact Number:** 6772 6141  
**Research Interests:** Gene therapy, stem cell therapy, fetal gene therapy, animal models of human disease.

Top 5 Publications:
Name: HONG Xin
Designation: Research Fellow A
Qualifications: PhD
Email: obghx@nus.edu.sg
Contact Number: 6516 8498
Research Interests:
Involved in research on the project “Purification and identification of breviflavone B, a bioactive compound from Epimedium brevicornum, a traditional Chinese medicine”. The bioactive compound show strong ER- activity in cell based assay, and is a promising agent for hormonal replacement therapy. However, the compound is low content in the herb and hard to be purified. The compound was purified from the herb using chromatographic technology and accumulate sufficient amount to further study its action mechanism.

Top 5 Publications:

Name: HO Sze Yee, Sherry
Designation: Research Fellow A
Qualifications: PhD
Email: sherryho@nus.edu.sg
Contact Number: 9296 6374
Research Interests:
Non-invasive prenatal diagnosis, rapid prenatal diagnosis, molecular diagnosis

Top 5 Publications:
Name: Kalamegam GAUTHAMAN  
Designation: Research Fellow A  
Qualifications: MBBS, PhD  
Email: obgkg@nus.edu.sg  
Contact Number: 6516 8296  
Research Interests:  
a) To derive useful tissues from human Embryonic Stem Cells as well as human Wharton’s Jelly Stem Cells for transplantation.  
b) To scale up stem cells using biological (pharmacological agents) as well non biological substrates (Biodegradable nanoscaffolds).  
c) To devise possible strategies to eliminate the tumour formation by depleting the presence of rogue stem cells following differentiation either by efficient cell sorting, pharmacological or biological intervention methods.  
d) To understand further the cancer/cancer stem cell biology; identify methods to reduce the incidence/mortality of cancer and contribute to existing cancer therapy.  
e) To use human Embryonic Stem Cells as a screening platform in the pharmaceutical industry.  

Top 5 Publications:  

Name: KOH Chee Liang, Stephen  
Designation: Research Fellow A  
Qualifications: PhD; CBiol, MSB; FCATH (former, Fellow of the International Academy of Clinical & Applied Thrombosis/Hemostasis)  
Email: obgkohcl@nus.edu.sg  
Contact Number: 6775 9430  
Research Interests: Haemostasis in human reproduction and ovarian cancer, human tissue kallikreins as biomarkers for ovarian cancer.  

Top 5 Publications:  


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**Name:** KOTHANDARAMAN Narasimhan  
**Designation:** Research Fellow A  
**Qualifications:** MS, PhD  
**Email:** obgkn@nus.edu.sg  
**Contact Number:** 9835 9963  
**Research Interests:**  
- a) Ovarian cancer: The research focuses on the understanding of the biology of folate receptor expressed abnormally during ovarian cancer and the study on cell cycle transcription factors of E2F family type and their role in cancer development.  
- b) Prenatal diagnosis: There are two main objectives (i) understanding the role of extra chromosome in chromosomal aneuploid conditions such as Down's Syndrome using Gene expression profiling and (ii) using proteomics approaches to identify markers for Down's Syndrome from maternal blood.

**Top 5 Publications:**  

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**Name:** LI Jun  
**Designation:** Research Fellow A  
**Qualifications:** PhD  
**Email:** obglj@nus.edu.sg  
**Contact Number:** 6516 8175  
**Research Interests:** Orphan receptors relating to human diseases.

**Top 5 Publications:**  


**Name:** SRILATHA Balasubramanian  
**Designation:** Research Fellow A  
**Qualifications:** MD, PhD  
**Email:** obgsb@nus.edu.sg  
**Contact Number:** 6775 9167  
**Research Interests:** Sexual Medicine: Basic and clinical research and management approaches

**Top 5 Publications:**


**Name:** TONG Yoke Yin, Terry  
**Designation:** Research Fellow A  
**Qualifications:** B.Sc (University of Adelaide, South Australia), B.Sc (Hons.) (University of Adelaide, South Australia), M.Sc (NUS), Ph.D (NUS)  
**Email:** terry_tong@nuhs.edu.sg  
**Contact Number:** 6775 9710  
**Research Interests:** Aging, Reproductive Endocrinology, Circadian Physiology.

**Top 5 Publications:**


Name: LAU Lang Chu
Designation: Research Fellow B
Qualifications: BSc(Hons), MSc
Email: obglaucl@nus.edu.sg
Contact Number: 6775 9167
Research Interests: Male & Female Sexual Function & Dysfunction; Sexual Medicine.

Top 5 Publications:

Name: NIRAJA MOHAN DIGHE
Designation: Research Fellow B
Qualifications: MSc Medical Molecular Genetics
Email: niraja_dighe@nuhs.edu.sg
Contact Number: 9773 2774
Research Interests: Gene Therapy

Name: PRIYA KADAM
Designation: Research Fellow B
Qualifications: MBBS, MSc
Email: obgpk@nus.edu.sg
Contact Number: 9632 4365
Research Interests: Prenatal diagnosis, Cancer biology, and Medical genetics

Top 5 Publications:

NUH Staff
Name: ANNAPOORNA VENKAT
Designation: Senior Consultant
Qualifications: MBBS (India), DGO (India), MMed O&G (NUS), FAMS
Email: Annapoorna_Venka@nuhs.edu.sg
Contact Number: 6772 4267
Research Interests: Nil

Top 5 Publications:
Name: CHUA Tsei Meng  
Designation: Senior Consultant  
Qualifications: MBBS (S’pore), MRCOG (UK)  
Email: tmchuasg@yahoo.com.sg  
Contact Number: 6772 2669  
Research Interests: Nil  

Top 5 Publications:  

Name: Jeffrey LOW  
Designation: Senior Consultant & Head, Division of Gynaecologic Oncology  
Qualifications: MBBS, FRCOG (UK), FRANZCOG (Austr-NZ), MMED (O&G), FAMS (O&G)  
Email: jeffrey_low@nuhs.edu.sg  
Contact Number: 6772 2682  
Research Interests: Ovarian cancer, Human papillomavirus, Robotic surgery.  

Top 5 Publications:  

Name: VESNA Dramusic  
Designation: Senior Consultant  
Qualifications: MD, Cert. Obs/Gyn Specialist, PhD (Dr.Sci)  
Email: vdamusic@yahoo.com.sg  
Contact Number: 6772 4248  
Research Interests: Reproductive Endocrinology, Adolescence and Menopause.  

Top 5 Publications:  
Name: NG Soon Yau, Joseph  
Designation: Consultant, Postgraduate Director  
Qualifications: M.D. (Loma Linda University School of Medicine, USA), Board Certified (American Board of Obstetricians & Gynaecologists) FACOG, FAMS  
Email: drjoeng@nus.edu.sg  
Contact Number: 6772 2682  
Research Interests: Ovarian cancer, Human papillomavirus, Robotic surgery.

Top 5 Publications:

Name: Anita Sugam KALE  
Designation: Associate Consultant  
Qualifications: MBBS, MRCOG  
Email: anitakale69@yahoo.com.sg  
Contact Number: 9137 3474  
Research Interests: Nil

Top 5 Publications:

Name: Anupriya AGARWAL  
Designation: Associate Consultant  
Qualifications: MBBS, RCOG (UK)  
Email: dr_anupriya@yahoo.com  
Contact Number: 9672 7603  
Research Interests: Adolescent medicine, Endometriosis.

Top 5 Publications:
Name: NG Ying Woo  
Designation: Associate Consultant  
Qualifications: MBBS, MRCOG (United Kingdom), MMED (O&G)  
Email: ying_woo@yahoo.com.sg  
Contact Number: 9633 3784  
Research Interest(s): Contraception, minimally invasive surgery and general gynaecology.

Top 5 Publications:

LIST OF ADJUNCT STAFF

Adjunct Professor:
Ng Soon Chye
NUHS & Biopolis NUH Eye Center, in collaboration with the Singapore Eye Research Institute (SERI) have been conducting broad-based research to improve the understanding of how eye diseases develop, test new diagnostic and treatment modalities, and facilitate these technologies for commercialization. NUHS is particularly focused on translating research findings into impactful outcomes for the patient as well as studying sight-threatening disorders that are relevant to our society. It has indirectly created a collaborative framework among clinicians and basic science researchers to work together to improve prevention of eye diseases by early diagnosis. NUHS has already established a high international profile for its work and is widely recognized for its research at the cutting edge of vision sciences.

NUHS & Biopolis NUH Eye Center has close collaborative working relationship with SERI and various clinical eye centres in Singapore including the Singapore National Eye Centre (SNEC), Tan Tock Seng Hospital, A StAr Institute Bioengineering & Nano Technology, Duke-NUS Graduate Medical School, and various biomedical research institutions and major eye centres throughout the world.
KEY RESEARCH AREAS

Searching for better ways to predict cardiovascular diseases and stroke by examining the blood vessels in the eye. We studied the link between damaged blood vessels in the eye and heart disease, stroke, diabetes in patients and the use of retinal photography as a possible cardiovascular screening tool. The result of this research has led, for example to the understanding that microvascular (small blood vessels) disease plays a key role in the development of heart disease in people with diabetes and in women but not men. Thus, diabetic patients and women are more likely to have “silent” heart attacks without symptoms. We aim to gain greater understanding on the genetics and patho-physiology of different retinal vascular changes and study the difference in population cohorts. Our research will concentrate on four major vascular diseases - diabetes, stroke, heart disease and hypertension.

To improve the characterization of angle closure glaucoma, hence improve the understanding and management of the disorder. New imaging technology has contributed greatly to identifying and understanding the mechanisms and pathways involved in PACG. Research findings also highlighted that there are several subtypes of PACG, and PACG is not a homogenous or uniform disease. Due to the clinical heterogeneity and likely genetic heterogeneity of the disorder, we aim to carefully document in more detail the clinical characteristics of each patient. Our research is also looking at ways to initiate a careful series of investigations to identify specific sub-types of the disorder and responses to therapy as well as to investigate the gene(s) underlying PACG.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: Aspirin for the prevention of cognitive decline in the Elderly: a Neuro-Vascular Imaging Study (ENVIS-ion) from ASPREE.
Period: 1 Jan 2008 to 31 Dec 2013
PI: Prof Wong Tien Yin

Title: Accurate phenotyping of angle closure glaucoma.
Period: 1 Apr 2008 to 31 Mar 2013
PI: A/Prof Aung Tin

Title: Comparison of selective laser trabeculoplasty with prostaglandin analogues for lowering intraocular pressure in eyes with primary angle closure glaucoma.
Period: 1 Apr 2009 to 31 Mar 2011
PI: A/Prof Aung Tin

Title: Development of a computer-based retinal imaging program for identification of people at risk of cardiovascular disease.
Period: 1 Jun 2008 to 31 Jul 2010
PI: Prof Wong Tien Yin

Title: Early prediction of cardiovascular disease using novel retinal image-analysis.
Period: 1 Jun 2008 to 31 Jul 2010
PI: Prof Wong Tien Yin

Title: Effectiveness of Lens Extraction with Intraocular Lens Implantation for the Treatment of Primary Angle.
Period: 2009 to 2013
PI: A/Prof Paul Chew Tec Kuan

Title: Genetic Markers for Retinal Arteriolar Narrowing and Risk of Hypertension & Coronary Heart Disease.
Period: 1 Jan 2008 to 31 Dec 2010
PI: Prof Wong Tien Yin
Title: Investigating the genetic basis of age related macular degeneration (ARMD) in a Chinese population.
Period: 1 Apr 2008 to 31 Mar 2010
PI: A/Prof Aung Tin

Title: Measuring optic disc tilt objectively with a new software with the scanning laser ophthalmoscope, Heidelberg Retinal Tomograph.
Period: Dec 2009 to Jun 2011
PI: Dr Loon Seng Chee

Title: Normative data collection and software development.
Period: 2009 to 2012
PI: A/Prof Paul Chew Tec Kuan

Title: Novel Geometric Parameters of the Retinal Vasculature as Prognostic Markers in Acute Ischemic Stroke.
Period: 1 Jan 2008 to 31 Dec 2009
PI: Prof Wong Tien Yin

Title: Novel Retinal Geometric Parameters as Biomarkers of Cardio-Metabolic and Retinal Diseases and Mortality: A Multi-Ethnic Population-Based Study.
Period: 1 May 2008 to 30 Apr 2011
PI: Prof Wong Tien Yin

Title: Novel Retinal Vascular Imaging for Prediction of Stroke Sub-type and Long-term Outcomes after an Acute Ischemic Stroke Event.
Period: 1 Mar 2008 to 31 Mar 2010
PI: Prof Wong Tien Yin

Title: Prediction of Microvascular Complications in Type 1 Diabetes Using Novel Retinal Vascular Imaging Techniques.
Period: 1 Jan 2008 to 31 Dec 2010
PI: Prof Wong Tien Yin

Title: Prophylactic laser iridotomy for eyes with narrow drainage angles: A randomized controlled trial.
Period: 1 Apr 2008 to 31 Mar 2011
PI: A/Prof Aung Tin

Title: Retinal Imaging for Disease Prediction: From Bench to Bedside.
Period: 1 Apr 2008 to 31 Mar 2013
PI: Prof Wong Tien Yin

Title: The Singapore Indian Chinese Cohort Eye Study: Elucidating the Epidemiology, Novel Risk Factors, and Impact of Eye Diseases in Asians.
Period: 1 Jun 2008 to 31 May 2011
PI: Prof Wong Tien Yin

Title: Translational Clinical Research in Major Eye Diseases (TCR-Eye).
Period: 1 Mar 2008 to 31 Mar 2010
PI: Prof Wong Tien Yin

Title: Translational Research Innovations in Ocular Surgery.
Period: 2008 to 2013
PI: A/Prof Aung Tin

Title: The Use of Horse shoe Crab Derived Protein (Factor C Sushi Peptides) for the Treatment of Experimental Pseudomonas Aeruginosa Keratitis in Rabbit Eyes.
Period: 2009 to 2010
PI: Dr Clement Tan
ACHIEVEMENTS

International Refereed Publications


BIOSKETCH OF
DEPARTMENT
FULL-TIME STAFF

Name: Paul CHEW Tec Kuan
Designation: Associate Professor, National University of Singapore; Clinical Teacher, YLL School of Medicine, National University of Singapore; Chairman, Specialist Workmen Compensation Board (Ophthalmology); Head of Department of Ophthalmology, National University of Singapore, Senior Consultant, National University Hospital, Singapore; Chairman, GP Committee, National University Hospital, Singapore; Honorary Advisor, The Glaucoma Society (Singapore) Committee; Advisor, International Glaucoma Society; Advisor, Singapore Medical Council Disciplinary Committee
Email: ophchewp@nus.edu.sg
Contact Number: 6772 5317
Research Interests: Glaucoma.

Top 5 Publications:
Name: Donald TAN Tiang Hwee
Designation: Senior Consultant and Head, Corneal Service, SNEC; Director, Singapore Eye Research Institute; Medical Director, Singapore Eye Bank; Head, Dept of Ophthalmology, National University of Singapore
Email: ophtand@nus.edu.sg
Contact Number: 6322 8830
Research Interests: Corneal transplantation, artificial cornea surgery, ocular surface stem cell culture and transplantation, corneal refractive surgery, myopia.

Top 5 Publications:

Name: WONG Tien Yin
Designation: Professor, Department of Ophthalmology, National University of Singapore; Director, Singapore Eye Research Institute; Senior Consultant, Singapore National Eye Centre & National University Health System; Professor (Joint), Centre for Eye Research Australia, University of Melbourne, Australia
Email: ophwty@nus.edu.sg
Contact Number: 6322 4571
Research Interests: Eye diseases, Retinal Diseases, Diabetic Retinopathy, and Epidemiology of Eye Diseases.

Top 5 Publications:


**Name:** AUNG Tin  
**Designation:** Associate Professor (with tenure), Department of Ophthalmology, Yong Loo Lin School of Medicine, National University of Singapore; Deputy Director, Singapore Eye Research Institute (SERI); Senior Consultant and Head of Glaucoma Service, Singapore National Eye Centre; Head of Research, Singapore National Eye Centre; Director of Research, Dept of Ophthalmology, NUHS; Senior Consultant, Department of Ophthalmology, National University Hospital, Singapore;  
**Qualifications:** PhD (Lon), M.B.,B.S., Master of Medicine (Ophth), F.R.C.S Ed, F.R.C.Ophth, F.A.M.S.  
**Email:** ophat@nus.edu.sg  
**Contact Number:** 6322 4537  
**Research Interests:** Ophthalmic genetics, Angle closure glaucoma, glaucoma imaging.

**Top 5 Publications:**


Name: CHEE Soon Phaik
Designation: Head, Ocular Inflammation and Immunology, Singapore National Eye Centre; Co-Head, Cataract Service, Singapore National Eye Centre; Co-Head, Cataract Focus Group, Singapore National Eye Centre; Co-Head, Training and Education, Singapore National Eye Centre; Senior Consultant, Singapore National Eye Centre; Head, Uveitis Service, Singapore National Eye Centre; Head, Ocular Inflammation Research Group, Singapore Eye Research Institute; Associate Professor, Department of Ophthalmology, National University of Singapore.
Qualifications: Bachelor of Medicine and Surgery (Singapore), Fellow of the Royal College of Physicians and Surgeons, Glasgow, Fellow of the Royal College of Ophthalmologists (UK), Master of Medicine Ophthalmology (NUS), Fellow of the Royal College of Surgeons of Edinburgh
Email: ophat@nus.edu.sg
Contact Number: 6322 4537
Research Interests: Intraocular infection especially tubercolosis and cytomegalovirus, uveitis, phacoemulsification techniques, intraocular lenses.

Top 5 Publications:

Name: Caroline Ka Lin CHEE
Designation: Senior Consultant and Head, Vitreoretinal Service, Department of Ophthalmology; National University Hospital; Clinical Associate Professor, Department of Ophthalmology, National University of Singapore; Visiting Consultant, Singapore National Eye Centre.
Email: ophv5@nus.edu.sg
Contact Number: 6772 6445
Research Interests: Medical and surgical retinal diseases

Top 5 Publications:
Name: Lennard Harold See-Yin THEAN
Designation: Senior Consultant in Ophthalmology, Department of Ophthalmology, National University Hospital; Clinical Director, Department of Ophthalmology, National University Hospital; Head, LASIK & Refractive Surgery, National University Hospital; Head, Comprehensive Eye Services, National University Hospital.
Qualifications: MBChB (Leics): University of Leicester, FRCSed: Royal College of Surgeons of Edinburgh.
Email: Lennard_Thean@nuhs.edu.sg
Contact Number: 6772 6445
Research Interests: Small-incision cataract surgery, medical and surgical treatment of Glaucoma, Uveitis management, Presbyopia treatment and refractive surgery including LASIK and Phakic intra-ocular implants.

Top 5 Publications:

Name: Shantha AMRITH
Designation: Senior Consultant and Head of Oculoplastic, Department of Ophthalmology, National University Hospital; Clinical Senior Lecturer, National University of Singapore.
Qualifications: M.B.,B.S.: Thanjavur Medical College, University of Madras, India, MD (Ophthal): All India Institute of Medical Sciences (AIIMS), New Delhi, India, DO: Conjoint Board, UK, FRCS: Fellow, Royal College of Surgeons – Edinburgh, FAMS: Fellow, Academy of Medicine, Singapore.
Email: opsv14@nus.edu.sg
Contact Number: 6772 6445
Research Interests: Ophthalmic Plastic and Reconstructive Surgery.

Top 5 Publications:
Name: Gangadhara SUNDAR
Designation: Senior Consultant, Ophthalmic Plastic & Reconstructive Surgery and Comprehensive, Department of Ophthalmology, National University Health System, Singapore; Director, Eye Aesthetic Services, NUH Eye Surgery Centre, Singapore; Senior Clinical Lecturer, Dept of Ophthalmology, National University of Singapore; Reviewer, Singapore Medical Journal, Asian Journal of Ophthalmology; Examiner, National University of Singapore; Examiner, Royal College of Surgeons, Edinburgh.
Email: gsundar1@yahoo.com
Contact Number: 6772 6445
Research Interests: Functional and reconstructive ophthalmic plastic surgery, esthetic oculo-facial surgery and ocular oncology.

Top 5 Publications:

Name: Clement Woon-Teck TAN
Designation: Consultant, Department of Ophthalmology, National University Hospital
Email: clem_tan@yahoo.com.sg
Contact Number: 6772 6445

Top 5 Publications:
Name: Inez WONG Bik Yun  
Designation: Consultant: Pediatric Ophthalmology and Strabismus service, Dept of Ophthalmology, National University Hospital, Singapore; Associate Staff: University Children's Medical Institute, National University Health System; Clinical Teacher: Yong Loo Lin School of Medicine, National University of Singapore; Medical Undergraduate Education Director: Department of Ophthalmology, National University Hospital, Singapore.
Qualifications:
BA (Hons): Cambridge University, United Kingdom, MBBChir: Cambridge University, United Kingdom, MA: Cambridge University, United Kingdom, ICO: International Council of Ophthalmology, United Kingdom, Masters of Medicine (Ophth): National University of Singapore, MRCSI (Ophth): Royal College of Surgeons of Edinburgh, FRCS (Ophth): Royal College of Surgeons of Edinburgh, FAMS: Academy of Medicine, Singapore.
Email: inezwong@gmail.com
Contact Number: 6772 6445
Research Interests: Pediatric ophthalmology, including management of a range of eye problems in children, such as refractive errors, amblyopia, external and anterior segment diseases, cataract, glaucoma, retinopathy of prematurity, and strabismus in both children and adults.
Top 5 Publications:

Name: Jovina SEE Li Shuen  
Designation: Consultant, Head of Glaucoma, Department of Ophthalmology, National University Hospital  
Qualifications: BA, Hons (Genetics), MBBChir(Camb), MA, FRCS, MMed(Ophth), FAMS  
Email: jovinasee@yahoo.com  
Contact Number: 6772 6445  
Research Interests: Glaucoma, imaging, angle closure.
Top 5 Publications:


Name: LOON Seng Chee
Designation: Research Director, Eye Dept. National University Hospital, Singapore; Consultant, Eye Dept. National University Hospital, Singapore; Clinical Fellow, The Eye Clinic – Westmead Hospital, NSW Australia; Research Fellow, Singapore Eye Research Institute, Singapore; Asst Clinical Director, National University Hospital, Singapore.
Email: ploonsc@yahoo.com
Contact Number: 6772 6445
Research Interests: Glaucoma, Optic Disc Morphology in particular, Epidemiology.

Top 5 Publications:

Name: Ray MANOTOSH
Designation: Associate Consultant, Department of Ophthalmology, National University Hospital, Singapore
Qualifications: M.B.,B.S., MD, FRCSEd (Ophthalmology)
Email: mantoshr@yahoo.com
Contact Number: 9171 0051
Research Interests: Cornea and ocular surface.

Top 5 Publications (Book Chapters):
Name: TAN Wee Tien, Anna Marie
Designation: Associate Consultant in Department of Ophthalmology, National University Hospital
Qualifications: M.B.,B.S. (Singapore); MRCSEd (Ophthalmology); MMed (Singapore)
Email: amwttan@yahoo.com
Contact Number: 6772 6445
Research Interests:

Top 5 Publications:

LIST OF
ADJUNCT STAFF

Adjunct Professor:
Roger Beuerman
Wallace Fouleds

Adjunct Associate Professor:
Ecosse
Leonard Ang Pek Kiang

Adjunct Assistant Professor:
Edwin Chow
Eranga Nishanthie Vithana
Li Jing
Tina Wong
Zhou Lei
Research is one of the fundamental strengths of the Department of Otolaryngology, Head & Neck Surgery. Our strategy is to develop focused areas of research based on the research questions which are founded on relevant clinical questions. Our academic and clinical staffs are involved in many research areas of Otolaryngology, Head & Neck Surgery and related cell molecular biology. In addition, our research interests have extended into the identification of genetic predisposition and gene-environmental interaction on disease expression of allergic rhinitis, hearing disorders and nasopharyngeal carcinoma. During the last few years, there have been increasing intra-departmental and international collaborations in our department.

Our department is granted with a research laboratory that is located in the Clinical Research Centre (CRC). The department has a Director of Research who assists the Head in corresponding research activities and collaborations. Since 2000, 7 PhD and 7 MSc students have successfully graduated from our department. Currently, more than 10 research assistants and staff are working on varies research projects in our department.

Our major research areas which has been led by PI from the department and funded by various research grants from ASTAR, Biomedical Research Council (BMRC), National Medical Research Council (NMRC), Ministry of Education and Academic Research Funding of National University of Singapore, Singapore Immunology Network (SignN), EDB Proof of Concept Grants, National Health Group (NHG), and etc.
KEY RESEARCH AREAS
Our department’s research is focussed mainly on the following areas:

• Head and Neck Cancer
We have a database in excess of 500 NPC patients collated over the past few years that form a good base for research. Our clinical research involves determination of early genetic changes in nasopharyngeal carcinoma (NPC) using the screening model for first degree relatives of NPC patients. In collaboration with other research teams, we also participate in design and use of Epstein Barr Virus (EBV)-specific HLA tetramers to define the immunological basis underlying an association between certain HLA alleles and the risk of developing NPC, and apoptosis protease activating factor 1 (Apaf-1) mislocalization as a novel marker for drug resistance in NPC and head and neck squamous cell carcinoma.

• Rhinology, Allergy and Immunology
Our research interests cover several clinical and basic research areas, such as genetics, epidemiology and pathogenesis of allergic rhinitis and rhinosinusitis with and without nasal polyps; comparison of efficacy between indoor environmental controls and pharmacotherapy and a DBPC study of sublingual immunotherapy in treatment of allergic rhinitis. In collaboration with the Department of Engineering, we have established computational fluid dynamics (CFD) models of healthy and abnormal nose (e.g., inferior turbinate hypertrophy, septal deviation and perforation) for study of physiology and pathophysiology of nasal airflow and drug deposition of intranasal medications.

• Hearing/Balance & Communication Sciences
We have established extensive collaborations with local and international partners in hearing- & balance-related clinical and basic researches, such as genotypic and phenotypic correlations of hereditary non-syndromic hearing loss, and impact of hearing lose on socioeconomic and quality of life issues in affluent and aging population. Recently, we have extended our research interest to identify an exogenous renewable cell source (e.g., neural stem cells, NSCs) for reconstruction of damaged inner ears.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

<table>
<thead>
<tr>
<th>Title</th>
<th>Period</th>
<th>PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparing Biofilm in nasal cavity and sinuses in chronic rhinosinusitis - a prospective controlled study.</td>
<td>2009 to 2010</td>
<td>Dr Loh Woei Shyang</td>
</tr>
<tr>
<td>Development of and Determination of the Efficacy and Safety of a Novel Drug-Eluting Absorbable Stent for Trachea Stenosis.</td>
<td>2009 to 2010</td>
<td>A/Prof Lynne Lim Hsueh Yee</td>
</tr>
<tr>
<td>Evidence of a casual relationship between human papillomavirus and a subset of head and neck cancer patients in an Asian population.</td>
<td>2009 to 2010</td>
<td>Dr Lim Chwee Ming</td>
</tr>
<tr>
<td>Evaluation of the allergenicity of candida albicans and cladosporium herbarum by nasal challenge.</td>
<td>2007 to 2009</td>
<td>Dr Chao Siew Shuen</td>
</tr>
<tr>
<td>A genome-wide search for epigenetic alterations of genes important in development of nasal polyps.</td>
<td>2008 to 2010</td>
<td>A/Prof Wang De Yun</td>
</tr>
<tr>
<td>A genome-wide association study on atopy and allergic diseases in Singapore.</td>
<td>2009 to 2010</td>
<td>A/Prof Wang De Yun</td>
</tr>
</tbody>
</table>
AWARDS AND PRIZES

1. **Dr Raymond Ngo**
   **Clinician Leadership in Research Award 2008**
   By National Healthcare Group and the National University of Singapore.

2. **Dr Lim Chwee Ming**
   **Clinician Leadership in Research Award 2009**
   By National Healthcare Group and the National University of Singapore.

RESEARCH ACHIEVEMENTS

**International Refereed Publications**


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: Wang De Yun
Designation: Research Associate Professor
Qualifications: MD, PhD
Email: entwdy@nus.edu.sg
Contact Number: 6772 5373
Research Interests: Rhinology, allergy and clinical immunology; role of inflammatory cells, mediators and cytokines in allergic rhinitis, rhinosinusitis and nasal polyps; efficacy of different anti-allergic drugs; physiological and immunological functions of the nose; Genetic risk factors in allergic diseases.

Top 5 Publications:

Name: Loh Kwok Seng
Designation: Senior Consultant/Associate Professor
Qualifications: M.B.,B.S. (S’pore), FRCS (Edin)
Email: enthead@nus.edu.sg
Contact Number: 6772 5372
Research Interests:
(a) Evaluating the efficacy of a screening programme in nasopharyngeal carcinoma.
(b) Development of anti-trismus device in treatment of irradiated nasopharyngeal carcinoma patients.

Top 5 Publications:


**Name Chao Siew Shuen**  
**Designation:** Consultant / Assistant Professor  
**Qualifications:** M.B.,B.S.; FRCS  
**Email:** entcsi@nus.edu.sg  
**Contact No:** 6772 5346  
**Research Interests:**  
- **Pathogenesis of Nasal Polyps**  
  3 presentations at International Meetings on role of apoptosis, Bcl 2 expression and cysteinyl leukotriene 1 receptors expression in nasal polyps. *Manuscript published.*  
- **Murine Model in Allergic Rhinitis**  
  Developed a murine model in allergic rhinitis using aspergillus.  
  1 presentation at International Meeting. *Manuscripts in preparation.*
- **Allergic Rhinitis**  
  i) Role of fungus-funded by grant from NMRC. *Project recently completed.*  
  ii) Role of Environmental Control Measures-funded by grant from Seed grant and matching grant from Provost. *Project recently completed.*  
  iii) Evaluation of the allergenicity of Candida albicans and Cladosporium herbarum by nasal challenge – funded by NMRC. *Project currently in progress.*  
  iv) Role of microbes in non-allergic rhinitis and otitis media with effusion in children-funded by grant from startup grant. *Project currently in progress.*

**Top 5 Publications:**  

**Name Thong, Kim Thye Mark**  
**Designation:** Consultant  
**Qualifications:** M.B.,B.S.; MRCS (Edin); MMed(ORL), DO-HNS(Eng); FAMS (ORL)  
**Email:** mark_thong@nuhs.edu.sg  
**Contact No:** 6772 5376  
**Research Interests:** Rhinology, Skull Base, Allergy/Immunology, Sleep Apnea/Snoring  
2 presentations at International meetings on Drug-eluting stent, and Indications on balloon sinuplasty.

**Top 5 Publications:**  
**Name:** Dr Lim Chwee Ming  
**Designation:** Consultant  
**Qualifications:** M.B., B.S. (S’pore); MRCS (Edin), MMed(ORL)  
**Email:** chwee_ming_lim@nuhs.edu.sg  
**Contact No:** 6772 2631  

**Top 5 Publications:**  

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**Name:** Lim Hsueh Yee Lynne  
**Designation:** Senior Consultant / Associate Professor  
**Qualifications:** M.B., B.S.; FRCS(Edinburgh), FAMS, MPH(Harvard)  
**Contact No:** 6772 5308  

**Research Interests:**  
a) Hearing Loss - cochlear and middle ear implant, genetic hearing loss, presbyacusis and noise induced hearing loss, inner ear regeneration, auditory processing disorder, otitis media with effusion.  
b) Airway – trachea stenosis, allergic rhinitis.  

**Top 5 Publications:**  
Name: Loh Woei Shyang  
Designation: Consultant / Assistant Professor  
Qualification: M.B.,B.S. (S’pore), FRCS (Edin)  
Email: entv7@nus.edu.sg  
Contact No: 6772 2629  
Research Interests: Effects of airway foreign bodies; Nasopharyngeal carcinoma; Allergic rhinitis.

Top 5 Publications:

Name: Ngo Yeow Seng Raymond  
Designation: Consultant / Assistant Professor  
Qualification: MBCh (U.Dubl), MRCS (Ed), MMed (ORL), FAMS (ORL)  
Email: Raymond_ngo@nuhs.edu.sg  
Contact No: 6772 5379  
Research interests: Otology, Neurotology, Facial Nerve Disorders.

Top 5 Publications:

LIST OF ADJUNCT STAFF

Adjunct Associate Professor:  
Tan Kim Siang
Academic pathology with its close links to basic science and practical clinical medicine, places the Department of Pathology at the core of the translational research efforts as laid out in the national biomedical research initiative.

To keep pace with this challenge, the Department of Pathology has expanded its infrastructure and developed collaborative platforms with other academic institutions as well as with the pharmaceutical industry. Having a broad range of expertise and access to tissues and cells from a wide range of pathological conditions, enables us to investigate and identify central pathological mechanisms which can then be validated and transferred into the clinical setting, both as biomarkers and as potential targets for therapeutic intervention. This highlights the strategic position of academic pathology in translational medicine and clinical molecular research. To exemplify this, we support the collaboration between Bio-Schering Plough and NUS and are involved in the analysis of samples for clinical trials for several pharmaceutical companies.

During 2008/09, the Department of Pathology has led or taken part in the production of 118 scientific publications. In addition to making their way into major Pathology and Cytology journals, these publications have also featured in high-impact factor publications outside our speciality per se such as Journal of Hepatology, Annals of Oncology, New England Journal of Medicine and European Journal of Cancer. This reflects the key position of Pathology in translational research and molecular understanding of disease.

This outstanding output of scientific publications is the result of the Department carefully leveraging on its privileged position as a bridging discipline between the basic and clinical sciences and creating and maintaining a long-term strategic infrastructure as exemplified by the Experimental Pathology Unit, the Molecular Diagnosis Center, the Special Histology Laboratory and the Diagnostic Molecular Oncology Center. Another two laboratories are developed within the Cancer Science Institute of Singapore.
KEY RESEARCH AREAS

Our faculty covers a broad range of research interests spanning from basic science to translational, and a wide spectrum of clinical research aspects. In these endeavours we provide and benefit from synergistic effects related to multiple intra-, inter- and transdisciplinary efforts. In other words, many of our staff lead or are involved in ongoing projects and interactions with overseas institutions as well as fellow researchers at the NUS Oncology Research Institute (with some of our staff holding joint appointments with this institute), the Medical Science and Engineering faculties as well as the A-STAR research institutes at the Biopolis research hub. We also have collaborative research links with the National Cancer Center, Singapore General Hospital and the Singapore Eye Research Institute further strengthening the “joint collaborative effort” of medical research in Singapore.

In conclusion, even as we are continuing to develop our own pathology based research, we are strengthening our operational platforms and supporting the national biomedical research initiative.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: Dissecting the Erp29-mediated downstream modulators and its oncogenic role in breast tumour progression.
Period: 1 Jan 2008 to 31 Dec 2010
PI: Dr Zhang Daohai & Dr Zhou Jianbiao

Title: Evaluation of the clinical performance of a novel diagnostic device for rapid intra-operative testing of malignancy using cyst fluid from epithelial ovarian tumours.
Period: Starting from 22 Jul 2009
PI: Dr Diana Lim & Dr Jeffrey Low

Title: Maintenance and consolidation of the molecular pathology platform.
Period: 1 Jul 2008 to 31 Mar 2011
PI: A/Prof Manuel Salto-Tellez

Title: Oncogenic role and molecular mechanism of endoplasmic reticulum protein (ERP29) in breast cancer.
Period: 1 Feb 2008 to 30 Jun 2009
PI: Dr Zhang Daohai & A/Prof ESC Koay

Title: The use of a novel target-enriched multiplex reverse transcription-polymerase chain reaction (RT-PCR) amplification technique for the detection of viruses in sever community-acquired pneumonia.
Period: Starting from 22 Jul 2009
PI: A/Prof Evelyn SC Koay & Dr Jason Phua

Title: Quantitative real time polymerase chain reaction for the detection of influenza A (H1N1/2009) virus.
Period: 1 Oct 2009 to 30 Nov 2009
PI: A/Prof Evelyn SC Koay
AWARDS AND PRIZES

1. **A/Prof Manuel Salto-Tellez**  
   28-29 March 2008  
   Silver frame in recognition to research in the area of gastrointestinal diseases, presented at the 13th Annual Hellenic (Greek) Helicobacter Pylori Congress, Athens.

2. **A/Prof Manuel Salto-Tellez**  
   2008  
   Faculty Research Excellence Award 2006/2007

3. **A/Prof Evelyn Koay**  
   Recipient of the Faculty Research Excellence Award in recognition of “the continued excellence and leadership in research over the years that I have been with the NUS (1985-2009).” The award was presented at the NUHS Dinner & Dance on 11 July 2009 by Professor John Wong, Dean, YLL SOM.

RESEARCH ACHIEVEMENTS

International Refereed Publications


NUHS Annual Research Report 2008/09


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: TEH Ming
Designation: Associate Professor, Head of Department
Qualifications: BA, MD, MRCPath, FRCPath
Email: pathead@nus.edu.sg, pattehm@nus.edu.sg
Contact Number: 6772 4300
Research Interests:
1. Tumour pathology especially of the upper gastrointestinal tract.
2. Tumour angiogenesis.

Top 5 Publications:

Name: Manuel SALTO-TELLEZ
Designation: Vice Dean Research (Clinical); Associate Professor, Department of Pathology, Yong Loo Lin School of Medicine; Senior Research Scientist, Cancer Science Institute, Singapore; Senior Consultant Pathologist, National University Hospital; Director, Diagnostic Molecular Oncology Centre, National University Hospital; Head of Clinical Science Research, National University Health System
Qualifications: LMS (MD) MRCPath
Email: patmst@nus.edu.sg
Contact Number: 6772 4704 (Office), 9632 2692 (Mobile)
Research Interests: Cancer, Molecular Diagnosis, Gastrointestinal Pathology.

Top 5 Publications:
Name: Aileen WEE  
**Designation:** Professor  
**Qualifications:** MB, BS, FRCPATH, FRCPA  
**Email:** aileen_wee@nuhs.edu.sg  
**Contact Number:** 6772 4305  
**Research Interest/s:** Hepatobiliary pathology (liver fibrosis, liver cancer), fine needle aspiration cytology of liver and biliary brushing cytology.  

**Top 5 Publications:**  

Name: Evelyn Siew-Chuan KOAY  
**Designation:** Associate Professor (Molecular Pathology)  
**Qualifications:** B.Sc. Hons (Biochemistry), M.Sc. (Molecular Biology), Ph.D. (Biochemistry), FRCPATH (Chemical Pathology), FAACB (Chemical Pathology)  
**Email:** evelyn_koay@nuhs.edu.sg, patkoaye@nus.edu.sg  
**Contact Number:** 6772 4564 (Office); 6772 4384 (Lab); 9630 8610 (Mobile)  
**Research Interest/s:**  
1. Development of molecular diagnostic platforms and analytical tests for clinical applications such as identification and detection of emerging pathogens.  
2. Biomarker development and research  
3. Circulating nucleic acids in plasma and circulating tumour cells: potential use as diagnostic markers.  

**Top 5 Publications:**  
Name: Sunil K SETHI
Designation: Head and Senior Consultant Chemical Pathologist; Department of Laboratory Medicine, NUHS
Qualifications: MBBS; MAACB; M.Med (Int. Med); MRCP(UK); FRCPath; PhD; FAMS.
Email: patsks@nus.edu.sg
Contact Number: 6772 4347
Research Interests: Clinical Laboratory Automation, Clinical Biomarkers, Lipid Metabolism.

Top 5 Publications:

Name: Thomas Choudary PUTTI
Designation: Associate Professor and Senior Consultant
Qualifications: MBBS, MD(Path), Diplomate (American Board)
Email: pattcp@nus.edu.sg
Contact Number: 6772 4012
Research Interests: Breast cancer.

Top 5 Publications:
Name: Qasim AHMED
Designation: Senior Consultant
Qualifications: MBBS, American Board of Anatomic and Clinical Pathology & Cytopathology
Email: qahmed_ahmed@nuhs.edu.sg
Contact Number: 9179 7464
Research Interest/s: Cytopathology.

Top 5 Publications:

Name: TAN Kong Bing
Designation: Assistant Professor
Qualifications: MBBS, FRCPath, FRCPA, Dip. Dermatopathology (ICDP-UEMS)
Email: pattankb@nus.edu.sg
Contact Number: 6772 2057
Research Interest/s: Skin and muscle pathology.

Top 5 Publications:
Name: Thomas Paulraj THAMBOO
Designation: Consultant, Assistant Professor
Qualifications: MBChB, FRCPath, FRCPA
Email: Thomas_Paulraj_Thamboo@nuhs.edu.sg
Contact Number: 6772 4314
Research Interest/s: Renal pathology, Urologic Pathology.

Top 5 Publications:

Name: NGA Min En
Designation: Assistant Professor, Department of Pathology, NUS; Consultant, Department of Pathology, NUH
Qualifications: MBBS, FRCPath, FRCPA
Email: patngame@nus.edu.sg
Contact Number: 6772 4307
Research Interest/s:
a) Cytopathology - thyroid cytology - immunocytochemical markers in the diagnosis of papillary thyroid carcinoma; Diagnostic categories in classification of thyroid nodules ion cytology.
b) Gastrointestinal stromal tumours - tissue microarray based molecular and immunohistochemical classification; Cytologic diagnosis using molecular characterisation.
c) Lung tumours - Study of molecular markers of diagnostic and prognostic relevance. Tissue microarray based molecular characterization.
d) Sarcomas - Creation of tissue microarrays and high throughput analysis using novel immunohistochemical markers.

Top 5 Publications:


Name: SEET Ju Ee
Designation: Consultant
Qualifications: BA (Hons), MB,BCh, FRCPath (UK)
Email: ju_ee_seet@nuhs.edu.sg
Contact Number: 6772 2058 (O)
Research Interests: Lung and thoracic pathology.

Top 5 Publications:


Name: LIM Yaw Chyn
Designation: Assistant Professor
Qualifications: PhD
Email: patlyc@nus.edu.sg
Contact Number: 6772 4309
Research Interests:

- Immunomodulation of the tissue microenvironment.
- Leukocyte-endothelial interactions.
- Endothelial cell heterogeneity.
- Tumor metastasis.
- Mesenchymal stem cell homing.

Top 5 Publications:


Name: NG Siok Bian
Designation: Assistant Professor / Senior Consultant
Qualifications: MBBS, FRCPA
Email: patnsb@nus.edu.sg
Contact Number: 9010 5242
Research Interests:
a) Lymphoma pathology and molecular pathology.
b) EBV-related lymphoproliferative diseases and lymphoma.
c) The molecular pathology of the RUNX family of genes in lymphoma.

Top 5 Publications:

Name: Victor Kwan Min LEE
Designation: Assistant Professor, Consultant
Qualifications: MBBS (Melb University), FRCPA
Email: victor.lee@nuhs.edu.sg
Contact Number: 6772 4381
Research Interests:
a) Soft tissue and bone tumour pathology.
b) Molecular Pathology.
c) Pathology Informatics.

Top 5 Publications:
Name: Fredrik PETERSSON  
Designation: Consultant  
Qualifications: MD, PhD  
Email: fredrikpetersson@live.se  
Contact Number: 9771 4890  
Research Interests: Skin-, Head and Neck-, Genito-Urinary-pathology.

Top 5 Publications:


Name: HUANG Jingxiang  
Designation: Medical Officer  
Qualifications: MBBS, MD, PhD  
Email: jingxiang_huang@nuhs.edu.sg  
Contact Number: 6772 4002  

Top 5 Publications:


Name: PANG Nghee Kheem Brendan  
Designation: Associate Consultant  
Qualifications: MBBS, FRCPath  
Email: patv13@nus.edu.sg  
Contact Number: 9843 0638 (M); 6772 6114 (O)  
Research Interests:
I am a keen student of the expanding the role of molecular testing and immunohistochemistry research on routine pathology laboratory samples for the validation of novel biomarkers so as to bring them into the clinical setting, from the bench to the bedside. I am also developing an interest in diagnostic cytopathology, to support the expanding role of an on-site pathologist aspirator or consult for less invasive sampling procedures like endoscopic and percutaneous fine needle aspiration, so as to facilitate their application for early diagnosis of malignancies, targeted therapeutic oncology or personalized pathology testing.

Top 5 Publications:

LIST OF ADJUNCT STAFF

Adjunct Professor:
Birgit Lane  
Jean-Paul Thiery

Adjunct Associate Professor:
Ivy Sng  
Tan Puay Hoon

Adjunct Assistant Professor:
Zhang Daohai

Adjunct Instructor:
Huang Jingxiang
Pharmacology is the study of the action of drugs on living systems - human and animal. It is an exciting branch of experimental science concerned with the development of new drugs. It involves studying the action of biologically active compounds on the body and assessing how the body acts on them. The Department devotes its Research Mission to the study and understanding of drug actions and pathology of disease states for the primary objectives of identifying novel drug targets and the development of novel drug treatments of diseases.

The department focuses on translational research on the treatment of stroke, myocardial infarction, diabetes, cancer, asthma and COPD using animal models of human diseases and by conducting clinical trials. We have diverse research platforms ranging from receptor mutagenesis, genomics and proteomics for therapeutic target identification and validation, design and development of monoclonal antibodies, siRNA/antisense oligonucleotides, and protein/peptide, natural product development, and clinical pharmacokinetics and pharmacogenetics to support our mission of drug discovery and development.
KEY RESEARCH AREAS

Currently, research in the Department focuses on:

• Neuropharmacology, with particular emphasis on the biology of stroke and dementia, molecular biology of a number of receptors (including glutamate and holecystokinin), psychopharmacology as well as the role of stem cells in neurological diseases.

• Cardiovascular pharmacology, concentrating on the vascular and cardiac effects of biologically active gases and peptides in regulating cardiovascular function in both health and disease.

• The pharmacology of inflammation, centering on the mechanisms underlying asthma, pancreatitis and inflammatory shock with a view both to investigate the nature of the pathological events concerned and identify novel therapies.

• Pharmacokinetics and pharmacogenetics - Researchers in the Department use a variety of techniques and the Department is well-equipped with up to date facilities which permit the investigation of drug action using, for example, modern molecular biological and electrophysiological techniques.

• Cancer Pharmacology focusing on:
  - Cancer drug discovery and target validation.
  - Herbal compounds/small molecules repositories for drug screening.
  - Animal models for cancer biomarker and target evaluation.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: 5-substituted benzimidazoles as novel anti-stroke drugs.  
Period: 4 Jun 2009 to 30 Jun 2011  
PI: Dr Low Chian Ming

Title: Cholinergic neurochemistry of ischemic vascular dementias: Correlations with cognitive and behavioural features.  
Period: 1 Apr 2008 to 31 Mar 2010  
PI: A/Prof Chen Li Hsian Christopher

Title: Is cystathionine b-synthase a viable therapeutic target for the treatment of acute ischemic stroke?  
Period: 1 Jan 2009 to 31 Dec 2011  
PI: Prof Wong Tsun Hon Peter

Title: Effects of hydrogen sulphide on cholesterol biosynthesis and atherogenesis: Their possible relationship to reactive oxygen species.  
Period: 3 Jun 2009 to 30 Jun 2011  
PI: A/Prof Tan Kwong Huat Benny

Title: Genetic variants associated with arrhythmias-functional characterization of SCN5A.  
Period: 2 Jun 2009 to 1 Jun 2012  
PI: Prof Lee Jon Deoon Edmund

Title: Hydrogen sulphide: A novel agent to protect kidney against hypertensive renal injury.  
Period: 1 Jul 2009 to 30 Jun 2012  
PI: A/Prof Bian Jinsong

Title: Hydrogen sulphide: A novel neuroprotectant in neurodegenerative disease?  
Period: 20 Nov 2008 to 31 Dec 2011  
PI: A/Prof Bian Jinsong

Title: Inhibition of renin production: Evidence for hydrogen sulphide as a novel and powerful anti-hypertensive drug.  
Period: 18 Jul 2009 to 31 Aug 2012  
PI: A/Prof Bian Jinsong
<table>
<thead>
<tr>
<th>Title</th>
<th>Period</th>
<th>PI/Co-PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction of transient axonal glycoprotein 1 (TAX/TAG1) and amyloid precursor protein (APP): An investigation of downstream signalling and functions in adult neural stem cells.</td>
<td>1 Feb 2009 to 31 Jan 2012</td>
<td>A/Prof Gavin Stewart Dawe</td>
</tr>
<tr>
<td>Ischemic stroke with a focus on intracranial stenosis (NRF Competitive Programme Grant).</td>
<td>1 Apr 2009 to 31 Mar 2014</td>
<td>Prof Wong Tsun Hon Peter, A/Prof Chen Li Hsian Christopher, Prof Kandiah Jeyaseelan</td>
</tr>
<tr>
<td>JSPS-NUS joint seminar FY2009.</td>
<td>1 Apr 2009 to 31 Mar 2010</td>
<td>A/Prof Tan Chay Hoon</td>
</tr>
<tr>
<td>Modulation of Hippocampal – Prefrontal cortical long-term potentiation.</td>
<td>1 Apr 2009 to 31 Aug 2010</td>
<td>A/Prof Gavin Stewart Dawe</td>
</tr>
<tr>
<td>Molecular Targets of Thymoquinone for Cancer Prevention.</td>
<td>15 Feb 2009 to 28 Feb 2011</td>
<td>Gautam Sethi</td>
</tr>
<tr>
<td>Neurogenic inflammation as a potential target to prevent secondary sepsis from combat wound.</td>
<td>1 Apr 2009 to 30 Sep 2009</td>
<td>A/Prof Madhav Bhatia</td>
</tr>
<tr>
<td>Optimisation of search capabilities of rodents trained as biosensors for the detection of stimulants of explosives (rodents as biosensors II-follow-on for DIRP 2004).</td>
<td>7 Jan 2009 to 6 Jan 2012</td>
<td>A/Prof Gavin Stewart Dawe</td>
</tr>
<tr>
<td>Regulation of intracellular PH, a novel mechanism for the cardioprotection induced by hydrogen sulfide.</td>
<td>1 Jan 2008 to 31 Dec 2010</td>
<td>A/Prof Bian Jinsong</td>
</tr>
<tr>
<td>Reversal of NF-κB mediated chemoresistance by y-tocotrienol in gastric cancer.</td>
<td>1 Dec 2009 to 30 Nov 2012</td>
<td>A/Prof Madhav Bhatia</td>
</tr>
<tr>
<td>The role of the nucleus incertus in antipsychotic drug-induced weight gain.</td>
<td>1 Jan 2008 to 31 Dec 2010</td>
<td>A/Prof Gavin Stewart Dawe</td>
</tr>
<tr>
<td>Structure and function of NMDA receptors.</td>
<td>1 Apr 2009 to 31 Mar 2010</td>
<td>Dr Low Chian Ming</td>
</tr>
<tr>
<td>Substance P as an inflammatory mediator in acute pancreatitis and associated lung injury: Mechanism of action and implication.</td>
<td>6 Jun 2008 to 30 Jun 2011</td>
<td>A/Prof Madhav Bhatia</td>
</tr>
<tr>
<td>Targeting inflammatory pathways for prevention and therapy of prostate cancer.</td>
<td>23 May 2009 to 30 Jun 2011</td>
<td>Dr Gautam Sethi</td>
</tr>
</tbody>
</table>
Title: Targeting inflammatory pathways for the treatment of hepatocellular carcinoma.
Period: 1 May 2009 to 30 Apr 2011
PI: Dr Gautam Sethi

Title: Therapeutic effects of glycogen synthase kinase-3B inhibitor in mouse asthma models of allergic.
Period: 2 Feb 2009 to 30 Apr 2010
PI: A/Prof Wong Wai-Shiu Fred

PATENTS
1. Title: The Use of Des-Aspartate-Angiotensin I as an Antiviral and Anti-Diabetic Agent.
   Inventor: A/Prof Sim Meng Kwoon (Filed Singapore)
2. Title: Use of Des-Aspartate-Angiotensin I.
   Inventor: A/Prof Sim Meng Kwoon (Filed USA)
3. Title: Novel neuroprotective agent, Mesopen4.6 and its effects against transient focal ischemia.
   Inventors: Jeyaseelan, Kandiah; Arumugam, Arunmozhiarasi; Lim, Kai Ying; Halliwell, Barry; Wong, Peter Tsun Hon (Filed USA)

AWARDS AND PRIZES
1. Dr Low Chian Ming
   Travel Award for Excellent Presentation at 32nd Annual Meeting of the Japan Neuroscience Society, Jagoya, Japan (Sep-09).
2. A/Prof Wong Wai-Shiu, Fred
   Best Oral Presentation Award - 22nd Malaysian Society of Pharmacology & Physiology Scientific Meeting (May-08).

RESEARCH ACHIEVEMENTS
International Refereed Publications

Year 2008


**Year 2009**


De Silva DA, Woon FP, Chen CLH, Chang HM and Wong MC. Serum erythrocyte sedimentation rate is higher among ethnic South Asian compared to ethnic Chinese ischemic stroke patients. Is this attributable to metabolic syndrome or central obesity? *Journal of the Neurological Sciences*. (2009) 276(1-2):126-129.


**BIOSKETCH OF DEPARTMENT FULL-TIME STAFF**

Name: Wong Tsun Hon, Peter  
Designation: Professor and Head  
Qualifications: B.Sc. 1976 (King's College London), Ph.D 1979 (King's College London)  
Email: phcwth@nus.edu.sg  
Contact Number: 6516 3266  
Research Interests:  
a) Ischemic stroke with a focus on establishing an animal model for and biomarker studies of intracranial stenosis.  
b) The involvement of hydrogen sulfide in ischemic injuries – the therapeutic potential of inhibiting the production of hydrogen sulfide.  
c) Dementia – postmortem brain and animal model studies.

**Top 5 Publications:**


Name: Edmund Jon Deoon Lee  
Designation: Professor  
Qualifications: M.B.B.S 1975 (Singapore University), Master of Medicine (Int Med) 1980 (Singapore University), Ph.D 1987 (University of New South Wales)  
Email: edlee@nus.edu.sg  
Contact Number: 6516 3677  
Research Interests:  
a) Genetic polymorphisms in health and disease/ Ethnicity -drug transporters, ion channels, drug metabolism enzymes.  
b) Sudden Cardiac Death Syndrome.  
c) Phase I Clinical Trials.  

Top 5 Publications:
Name: Tan Kwong Huat Benny  
**Designation:** Associate Professor  
**Qualifications:** M.B.B.S 1974 (University of Singapore), Ph.D. 1989 (NUS), Post-grad Dip in Education (Higher) (NTU).  
**Email:** phctankh@nus.edu.sg  
**Contact Number:** 6516 3272  
**Research Interests:**  
- a) Evaluation of natural products for their effects on blood pressure, blood sugar, and lipids in experimental animals.  
- b) Evaluation of traditional Chinese herbal medicines for their effects on cancer cells in vitro and in cancer-induced mice.  
- c) Investigation into the role of iron, zinc and other cations on the development of atherosclerosis in cholesterol-fed NZ white rabbits.  
- d) Evaluation of natural products for their effects on renal transporters in animal models with diabetic nephropathy.  
- e) Evaluation of natural products for their effects on animal stroke models.  
- f) Dietary intervention in obesity.  

**Top 5 Publications:**  

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Name: Wai Shiu Fred Wong  
**Designation:** Associate Professor  
**Qualifications:** BPharm/PhD  
**Email:** phcwongf@nus.edu.sg  
**Contact Number:** 6516 3263  
**Research Interests:** The long-term goal of my research program is to study the pathogenesis of and to develop mechanism-based pharmacological agents for the treatment of airway inflammation such as asthma and COPD using small molecule drugs, antisense oligonucleotides/siRNA and pharmacoproteomics approaches.  

**Top 5 Publications:**  


Name: Tan Chay Hoon  
Designation: Associate Professor  
Email: phtanch@nus.edu.sg  
Contact Number: 6516 3310  
Research Interests:  
a) Studies on the effects of psychoactive drugs on intracellular calcium changes and transmembrane signalling in human platelets from normal controls and psychiatric patients.  
b) Clinical study of tardive dyskinesia and oculogyric crisis - phenothiazine induced side effects in psychiatric patients.  
c) Peripheral benzodiazepine binding in human platelets.  
d) Pharmacokinetic study of psychotropic drugs in psychiatric patients: Indicators for therapeutic response in psychiatric patients – The role of 5-HT genotypes.

Top 5 Publications:  

Name: Christopher Chen Li-Hsian  
Designation: Associate Professor  
Qualifications: BA (Cantab), BMBC (Oxon), MRCP (UK), FAMS, FRCP (Edin)  
Email: phcch@nus.edu.sg  
Contact Number: 8125 3628  
Research Interests: Neurochemistry, Genetics and Treatment of Stroke & Dementia.  

Top 5 Publications:  


Name: Bian Jinsong
Designation: Associate Professor
Qualifications: PhD
Email: phcbjs@nus.edu.sg
Contact Number: 6516 5502
Research Interests: Signal transduction, cardioprotection, neuroprotection

Top 5 Publications:


Name: Dawe, Gavin Stewart
Designation: Associate Professor
Qualifications: BSc (Hons), PhD
Email: gavindawe@nus.edu.sg
Contact Number: 6516 8864
Research Interests: Antipsychotics and antidepressants, adult neurogenesis, stem cell therapies for brain and retinal repair, amyloid precursor protein (APP) signalling, electrophysiology, cognitive and behavioural neuroscience.

Top 5 Publications:


Name: John M. Luk
Designation: Associate Professor
Qualifications: Dr.Med.Sc.
Email: jmluk@nus.edu.sg
Contact Number: 6516 4516
Research Interests:
- a) Cancer biomarkers, signalling and experimental therapy.
- b) Surgical oncology- HCC and GC.
- c) Adhesion molecules in wound healing and oncogenesis.

Top 5 Publications:


Name: Low Chian Ming  
*Designation:* Asst Professor, Dept of Pharmacology & conjoint Asst Professor, Dept of Anaesthesia  
*Qualifications:* B.Sc.(Pharm), M.Sc.(Biopharmacy)(Distinction), Ph.D.  
*Email:* phclowcm@nus.edu.sg or chian_ming_low@nuhs.edu.sg  
*Contact Number:* 6516 5841 (O) / 6516 5858 (Lab)  
*Research Interests:* Neuropharmacology and neurophysiology of neurological diseases e.g. Stroke, Parkinson’s disease and Pain.

**Top 5 Publications:**

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Name: Dr Gautam Sethi  
*Designation:* Assistant Professor  
*Qualifications:* Ph.D  
*Email:* phcgs@nus.edu.sg  
*Contact Number:* 6516 3267  
*Research Interests:* Cancer Pharmacology focusing on the cytokine signalling network, role of oncogenes and transcription factors in tumorigenesis, identification and development of new anti-cancer drugs from natural sources.

**Top 5 Publications:**
LIST OF
ADJUNCT STAFF

Adjunct Associate Professor:
Goh Boon Cher
Huynh The Hung
Manser, Edward J
Shabbir M Moochhala
Uttam C Surana
Zhu Yi-Zhun

Adjunct Research Associate Professor:
Lee How Sung

Adjunct Assistant Professor:
Lai Kim Peng Mitchell
Selvanayagam Nirthanan
MESSAGE ON RESEARCH MISSION FROM HEAD OF DEPARTMENT
ASSOCIATE PROFESSOR SOONG TUCK WAH

Research in the Department of Physiology

The research interests of our faculty members fall within four broad areas of (1) Cancer Biology, (2) Immunology, (3) Neurobiology and (4) Quantitative Physiology and Tissue Engineering. Our approaches include conducting research to gain fundamental mechanistic understanding at the molecular, biochemical and cellular levels. In addition, we seek understanding of normal physiology and pathophysiology at the tissue/organ and whole organism levels. We promote integrative research through encouraging interactions between groups at our “Work-In-Progress” and “Principal Investigator” seminars or through our Physiology Lecture Series. Our research groups integrate into the NUS Research Programmes to tap into wider expertise and to utilize synergism from cross-disciplinary research approaches. Further, we actively involve a number of adjunct and joint appointees from various Research Institutes and Centres in Singapore in our research thrusts. Together, we aim to contribute to fundamental scientific understanding that will generate new knowledge that is of benefit to clinical practice and society.
The departmental research is broadly divided into four research programmes – Neurobiology, Cancer Biology, Immunology and Quantitative Physiology and Engineering.

Neurobiology research has gained strength in Singapore and within that context the Department of Physiology at the National University of Singapore is focused on world-class research into cellular, system and behavioral functions of the central nervous system. In the Neurobiology programme, staff members conduct translational research in the fields of pain perception and modulation, axon guidance, the structure-function relationship of voltage-gated calcium channels and neurodegenerative disease. In addition, the department is expanding to increase its representation in both research and postgraduate teaching in Neuroscience. Indeed, in the context of postgraduate education, the Department has played an active role in the setting up of the Singapore Graduate Programme in Neuroscience that will be mounted in the year 2010-2011.

The Cancer Biology programme is a multidisciplinary one that is designed to provide a broad understanding of cellular growth regulatory machinery and the mechanism(s) involved in oncogenesis and metastasis. The focus of the programme is to provide an environment that stimulates excellence in scientific thought and reasoning while simultaneously providing exposure to the major fields of study relevant to cancer biology. Research and training by the members of the programme are broadly focused on signal transduction, reactive oxygen species, regulation of the death signal, cell cycle control, gene regulation, oncogene and tumor suppressor action, telomeres and telomerase, spread of cancer, experimental therapeutics, inflammation and cancer, drug resistance and antitumor pharmacology. Students participate in laboratory-based research, as well as in a tumor biology curriculum that integrates current concepts in cell growth control with the natural history of human tumors. Programme members are actively collaborating with groups within and outside Singapore.

The Immunology programme in our Department studies of the mechanisms and regulation of immune function and of the inflammatory process. The immune system is a complex network of specialized cells and organs that has evolved to defend the body against attacks by “foreign” invaders. The immune system also participates in a range of physiological processes. For example, inflammation is an essential part of wound healing. When functioning properly, the immune fights off infections by agents such as bacteria, viruses, fungi and parasites. When it malfunctions, however, it can cause or exacerbate diseases ranging from cancer to allergies and autoimmune diseases. Since most if not all diseases in humans have an inflammatory component an understanding of how immune responses are regulated and can be harnessed will aid in the treatment and management of immune-mediated diseases. The programme seeks to collaborate with the other programmes in the Department, Faculty and other life science initiatives in Singapore and beyond.

Physiology is synonymous with the study of biological functions. Tissue Engineering involves the study and manipulation of the structural-function relationship of cells and tissue so as to enable tissue repair and regeneration. The Quantitative Physiology and Engineering programme forms a bridge between the fundamental cell and molecular biology research and the use-inspired tissue engineering research activities, and will synergize with other life science programs in the Department, the Faculty of Medicine and the University.
<table>
<thead>
<tr>
<th>Title</th>
<th>Period</th>
<th>PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigating the roles of gelsolin, a cytoskeletal protein, in mechanisms that contribute to tumour dissemination</td>
<td>12 Dec 2009 to 31 Dec 2012</td>
<td>Dr Yap Suen Mei Celestial Therese</td>
</tr>
<tr>
<td>Evaluation of hepacam activities in leukocyte biology and immune regulations</td>
<td>30 Dec 2009 to 31 Jan 2012</td>
<td>A/Prof Herbert Schwarz</td>
</tr>
<tr>
<td>Transcriptional regulation of clfip in glucose deprivation-induced sensitization of BCL-2 overexpressing cancel cell to death receptor-mediated apoptosis</td>
<td>15 July 2009 – 31 July 2012</td>
<td>Prof Shazib Pervaiz</td>
</tr>
<tr>
<td>Regulation of stress induced apoptosis and tumorigenesis by stra13</td>
<td>04 Jun 2009 – 30 Jun 2011</td>
<td>A/Prof Reshma Taneja</td>
</tr>
<tr>
<td>Role of CD151 in the modulation of airway smooth muscle contraction</td>
<td>4 Jun 2009 – 30 Jun 2012</td>
<td>Dr Tran Thai</td>
</tr>
<tr>
<td>Inhibition of telomerase and DNA repair by a natural plant product in human cancer cells</td>
<td>4 Jun 2009 – 30 Jun 2011</td>
<td>A/Prof Manoor Prakash Hande</td>
</tr>
<tr>
<td>Investigating the oncogenic roles of numb isoforms and isoform-specific expression profiles in brain</td>
<td>13 Jan 2009 – 31 Jan 2012</td>
<td>Dr Yap Suen Mei Celestial Therese</td>
</tr>
<tr>
<td>The significance of C/ebpalpha up-regulation in human hepatocellular carcinoma and its implications for treatment</td>
<td>4 Jun 2009 – 30 Jun 2012</td>
<td>A/Prof Hooi Shing Chuan</td>
</tr>
<tr>
<td>Analysis of stra13 in human muscular dystrophy</td>
<td>01 Nov 2009 – 31 Dec 2010</td>
<td>A/Prof Reshma Taneja</td>
</tr>
<tr>
<td>Investigating the isoform-specific effects of apolipoprotein E on N-methyl-D aspartate receptor (NMDAR) signalling during age-related memory decline</td>
<td>1 Apr 2010 – 31 Mar 2013</td>
<td>Dr Wong Boon Seng</td>
</tr>
<tr>
<td>Virus-induced host cubic membranes: A novel biomarker and target for understanding and combating viral infections</td>
<td>1 Apr 2010 – 31 Mar 2013</td>
<td>Dr Deng Yuru</td>
</tr>
<tr>
<td>Ablation of alternatively applied exon 33 of cav1.2 channel by genetic targetin G in mouse: Implications in functions of cardiovascular and nervous system renewal</td>
<td>1 Apr 2010 – 31 Mar 2013</td>
<td>Prof Soong Tuck Wah</td>
</tr>
<tr>
<td>Implication of semaphorin 5A and plexin B3 in oligodendrocyte development</td>
<td>1 May 2008 – 30 Apr 2011</td>
<td>Dr Lee Yiu Wah</td>
</tr>
</tbody>
</table>
Title: Treatment of severed central nervous system by controlled release of therapeutic proteins encapsulated in biocompatible microspheres
Period: 1 Mar 2008 – 28 Feb 2010
PI: Dr Lee Yiu Wah

Title: Molecular mechanism of cell migration mediated by the novel immunoglobulin-like cell adhesion molecule hepacam
Period: 1 May 2008 – 30 Apr 2011
PI: Dr Shen Shali

Title: Key regulators involved in transendothelial migration of MSC and their relevance in cellular therapy and tissue repair
Period: 1 May 2008 – 30 Apr 2011
PI: Asst Prof Lim Yaw Chyn

Title: Start up grant – Regulation of skeletal muscle regeneration
Period: 1 May 2008 – 30 Apr 2010
PI: A/Prof Reshma Taneja

Title: Start up grant - Reshma Taneja (DPRT) regulation of skeletal muscle regeneration
Period: 1 Apr 2008 – 31 Mar 2010
PI: A/Prof Reshma Taneja

Title: Start up grant – Reshma Taneja (NMRC BV) regulation of skeletal muscle regeneration
Period: 1 Apr 2008 - 15 Feb 2009
PI: A/Prof Reshma Taneja

Title: Neurocognitive research initiative
PI: A/Prof Soong Tuck Wah

Title: Septohippocampal region: Role in pain-induced aversion and morphine antinociception
Period: 1 Apr 2008 – 31 Dec 2011
PI: A/Prof Khanna Sanjay

Title: The role of epithelial-mesenchymal transition (EMT) in colon cancer metastasis: an immunohistochemical analysis of newly identified EMT markers
Period: 1 Jan 2008 – 31 Dec 2010
PI: A/Prof Hooi Shing Chuan

Title: Regulation of skeletal muscle regeneration by stra13
PI: A/Prof Reshma Taneja

Title: Renal regulation of glucose homeostasis by the nuclear receptor HNF4A
Period: 1 Jul 2008 - 30 Jun 2011
PI: A/Prof Manoor Prakash Hande

Title: Immunotherapy of multiple myeloma by CD137
PI: A/Prof Herbert Schwarz

Title: LSI-BW joint grant – role of cathepsins and MMPs in CD137 induced monocyte migration
PI: A/Prof Herbert Schwarz

Title: Proximal tubule proliferation in kidney disease: Role of the nuclear receptor transcription factor HNF4A
PI: A/Prof Manoor Prakash Hande
Title: To develop in vitro drug hepatotoxicity testing platforms with high functionality, polarity and throughput for screening drug candidates  
**Period:** 1 Oct 2008 - 31 Dec 2012  
**PI:** Prof Henry Yu

Title: Alternative splicing as molecular switch to regulate CAV2.1 channel function in synaptic excitability  
**Period:** 01 Jan 2009 – 31 Dec 2011  
**PI:** Prof Soong Tuck Wah

Title: Study the involvement of reactive oxygen species and RHO gtpase in statin-induced apoptosis of breast cancer cells  
**Period:** 1 Jan 2009 – 31 Dec 2011  
**PI:** Prof Shazib Pervaiz

Title: Molecular characterization of the novel tumor suppressor DLEC1: Tissue distribution and cellular localization, mechanism of cell cycle arrest/function  
**Period:** 1 Jan 2009 – 31 Dec 2011  
**PI:** A/Prof Hooi Ching Chuan

Title: Genetic influence of apolipoprotein E on cholesterol metabolism and amyloid pathology in Alzheimer's disease  
**Period:** 20 Nov 2008 – 31 Dec 2011  
**PI:** Dr Wong Boon Seng

Title: Regulation of skeletal muscle regeneration and fibrosis by sharp-1  
**Period:** 1 May 2009 – 30 Apr 2012  
**PI:** A/Prof Reshma Taneja

Title: APAF-1 misslocalisation and chemoresistance in head and neck cancers and clinical implications of a novel therapeutic strategy against nasopharyngeal carcinoma  
**Period:** 1 Jul 2009 – 31 Mar 2011  
**PI:** Prof Shazib Pervaiz

Title: Project indirect research cost – TSF implication of semaphorin 5A and plexin B3 in oligodendrocyte development  
**Period:** 1 May 2008 – 30 Apr 2011  
**PI:** Dr Lee Yiu Wah

Title: Implication of semaphorin 5A and plexin B3 in oligodendrocyte development  
**Period:** 1 May 2008 – 30 Apr 2012  
**PI:** Dr Lee Yiu Wah

Title: Iron transporter, DMT1, transgenic mouse model of oxidative stress: Implications in Parkinson’s disease  
**Period:** 1 Jan 2008 – 31 Dec 2011  
**PI:** A/Prof Soong Tuck Wah

Title: Regulation of T cell development by annexin-1: Importance in the development of asthma  
**Period:** 1 Jan 2008 – 30 Jun 2011  
**PI:** Dr Lim Hsiu Kim Lina

Title: Project to study the effect of BCL-2 expression on mitochondrial physiology in tumor cells  
**Period:** 1 Jan 2008 – 30 Jun 2011  
**PI:** Prof Shazib Pervaiz

Title: Sign-07-011 a study on mouse and human tumor initiation, promotion and immune evasion by annexin-A1: Its therapeutic effectiveness in tumor growth inhibition  
**Period:** 1 Apr 2008 – 30 Jun 2009  
**PI:** Dr Lim Hsiu Kim


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: Sanjay KHANNA
Designation: Associate Professor
Qualifications: PhD
Email: sanjay_khanna@nuhs.edu.sg or phsk@nus.edu.sg
Contact Number: 6516 3665
Research Interests: Neurobiology of Pain; hippocampal-hypothalamic interactions.

Top 5 Publications:

Name: Reshma TANEJA
Designation: Associate Professor
Qualifications: PhD
Email: rehma_taneja@nuhs.edu.sg
Contact Number: 6516 3236
Research Interests: Regulation of cellular differentiation and apoptosis.

Top 5 Publications:
Name: Alan Lee Yiu Wah  
Designation: Assistant Professor  
Qualifications: Ph.D.  
Email: alanlee@nus.edu.sg  
Contact Number: 6516 3688  
Research Interests: Neuronal axon guidance and cell motility, CNS regeneration, Cognitive neurobiology.

Top 5 Publications:

Name: Leung Pui Lam, Bernard  
Designation: Assistant Professor  
Qualifications: BSc (Glasgow), PhD (Glasgow)  
Email: phslplb@nus.edu.sg  
Contact Number: 6874 4227  
Research Interests:  
   a) Role of inflammatory cytokines in the development of autoimmunity/allergy;  
   b) T cell regulation in chronic inflammatory diseases;  
   c) Role of immunomodulators in experimental inflammatory conditions.

Top 5 Publications:
Name: Shazib PERVAIZ  
Designation: Professor  
Qualifications: M.B., B.S.; PhD  
Email: shazib_pervaiz@nuhs.edu.sg  
Contact Number: 6516 6602  
Research Interests: Cancer Biology; Receptor-mediated cell death signalling; Regulation of Apoptosis and Autophagy; Bcl-2 family and Mitochondrial physiology; Redox Regulation of cancer cell fate; Resveratrol Biology; Redox and Cancer stem cells; Experimental Therapeutics.

Top 5 Publications:  

Name: DENG Yuru  
Designation: Assistant Professor  
Qualifications: PhD  
Email: phsdy@nus.edu.sg  
Contact Number: 6516 1935  
Research Interests:  
a) Studies on cubic membrane biogenesis and potential functions in 3 experimental systems:  
1) Starved amoeba Chaos mitochondria; 2) Virus-induced host membranes; 3) Tubular aggregates in skeletal muscles.  
b) Potential applications: gene delivery and optical filters.

Top 5 Publications:  
Name: Hanry YU  
Designation: Professor  
Email: hanry_yu@nuhs.edu.sg  
Contact Number: 6516 3466  
Research Interests:  
a) Drug Testing Platforms: hepatotoxicity testing chip, physiologically-based pharmacokinetic modelling (PBPK) chip, automated multiwell plate sandwich perfusion system.  
b) Image-based Diagnostic/Prognostic Standards of Liver: molecular and cellular imaging of organs, re-defining liver biopsy standard, liver cell banking revisited, systems level control switch of liver fibrosis and regression.  
c) Micro-tissue Fabrication Factory: dendritic cellular linker, cellular and tissue LEGO, micro-perfusion tissue culture system, mechanobiological control of cell-cell and cell-matrix interactions.  

Top 5 Publications:  
Name: HOOI Shing Chuan  
Designation: Associate Professor  
Qualifications: M.B.,B.S., PhD  
Email: phshsc@nus.edu.sg  
Contact Number: 6516 6603  
Research Interests:  
a) Tumor Suppressor Genes.  
b) Genes involved in colon cancer metastasis.  
c) Function of proline-rich acidic protein (PRAP).  

Top 5 Publications:  

Name: Manoor Prakash HANDE  
Designation: Associate Professor  
Qualifications: PhD  
Email: phsmph@nus.edu.sg  
Contact Number: 6516 3664  
Research Interests: Telomeres and telomerase in ageing and cancer; DNA damage and repair; Experimental Therapeutics; Environmental Toxicology; Biological Response markers of exposure (ionizing radiation and environmental toxicants); Radiation Biology/Oncology.  

Top 5 Publications:  
Name: Celestial T YAP Suen Mei
Designation: Assistant Professor
Qualifications: P PhD (2003, Univ of Edinburgh, UK) and M.B.,B.S. (Singapore)
Email: phsysypc@nus.edu.sg
Contact Number: 6516 3294
Research Interests: Translational cancer research, with a focus on tumour progression and metastasis.

Top 5 Publications:

Name: LIM Hsiu Kim Lina
Designation: Assistant Professor
Qualifications: BSc, PhD
Email: lina_lim@nuhs.edu.sg
Contact Number: 6516 5515
Research Interests: Tumor immunology, Immunology.

Top 5 Publications:
Name: Herbert SCHWARZ  
Designation: Associate Professor  
Qualifications: PhD  
Email: phssh@nus.edu.sg  
Contact Number: 6516 7773  
Research Interests:  
Tumour Immunotherapy  
Many tumour patients develop an immune response against their tumours. Unfortunately, this immune response is often not sufficient for tumour eradication. Tumour cells develop and are being selected for their successful development of defense mechanisms against the host immune response.

We are aiming at identifying such defense mechanisms of tumours and will be generating and testing specific inhibitors targeting them. These inhibitors will be designed to disarm the tumour and to allow the immune system to eliminate it.

Augmentation and Differentiation of Hematopoietic Stem Cells  
A side effect of chemo or radiation therapies is a destruction of the hematopoietic system. As a consequence, tumour patients suffer from various ailments after receiving such therapies. These range from a general weakness to serious immunodeficiencies with the danger of lethal infections. To minimize these discomforts and risks, patients need to be treated with growth factors, which activate and augment cells of the hematopoietic system.

We are characterizing novel growth factors which induce proliferation and/or differentiation of hematopoietic stem cells. We are testing which growth factor or which combination of growth factors is best suited to reconstitute the hematopoietic system after chemo or radiation therapy.

Immunomodulation  
Members of the tumor necrosis factor (TNF) and TNF receptor families provide essential costimulatory or coinhibitory signals to immune cells. Activation or inhibition of these molecules can lead to an enhancement or a downregulation of immune reactions and can be useful for treatment of cancer or autoimmune diseases, respectively. We are investigating the immunomodulatory activities of the CD137 receptor / ligand system.

Top 5 Publications:
Name: WONG Boon Seng  
Designation: Assistant Professor  
Qualifications: PhD  
Email: bswong@nus.edu.sg  
Contact Number: 6516 7617  
Research Interests: Role of apolipoprotein E in cholesterol metabolism & memory function during ageing and disease; Energy metabolism in ageing and brain diseases.

Top 5 Publications:  

Name: SOONG Tuck Wah  
Designation: Associate Professor  
Qualifications: PhD  
Email: phsstw@nus.edu.sg  
Contact Number: 6516 3222  
Research Interests:  
- a) Discovery and functional characterisation of novel voltage-gated calcium channel splice variants.  
- a) Discovery and evaluation of role of adaptor proteins in calcium channel function.  
- Regulation of calcium channel function and determination of alternative splicing mechanisms.  
- Investigations of physiological role of calcium channel splice variation in knock-out mouse.  
- Role of iron transporter in neuronal function: implications in Parkinson's Disease.

Top 5 Publications:  
LIST OF ADJUNCT STAFF

Adjunct Professor:
Frank McKeon
Michael Meaney

Adjunct Associate Professor:
Fong Ngan Phoon
Hunziker, Walter
Lam Yeng Po, Paula
Lee Chee Wee
Lim Chin Leong
Sohail Ahmed
Suresh Jesuthasan
Yu Qiang

Adjunct Assistant Professor:
Chuang Kai-Hsiang
Craig Steven Mcclachlan
Judy Sng
Ong Siew Hwa
Tang Soo Leng Carol
Message on Research Mission from Head of Department
ASSOCIATE PROFESSOR YEOH ENG JUH ALLEN

The Division of Paediatric Oncology runs the Viva-University Children’s Cancer Centre, which provides the following medical services and facilities for young cancer patients:

- Child-friendly one-stop centre for children with cancer
- Incorporates both inpatient and outpatient care in the same location
- 12 general beds and a five-room marrow transplant suite

The Division is also active in research, conducting studies into areas such as sarcomas and haematopoietic stem cell transplants using cord blood stem cells and natural killer cell transplants. The Division has been conducting a leukaemia clinical trial since 2003 with a cure rate exceeding 85 per cent, placing the Division among the leading centres in the world.
KEY RESEARCH AREAS
The Division is internationally recognised as a centre of clinical and research excellence.

Associate Professor Suresh Saminathan runs a highly successful multi-disciplinary sarcoma programme that features a cutting-edge chemotherapy regimen with limb-saving surgeries.

Dr Tan Poh Lin is advancing the use of immune cells to eradicate residual leukaemia.

Associate Professor Quah Thuan Chong and Dr Gangadhara Sundar are trail-blazers in providing a multi-disciplinary vision-sparing treatment for tumours of the eyes (retinoblastomas).

National University Cancer Institute, Singapore NCIS
Viva-University Children's Cancer Centre (VUC3)
This is the centre of excellence funded by the Viva Foundation for Children with Cancer (Singapore) which focuses on medical excellence in treatment of childhood cancer through translational clinical research. The VUC3 runs translational clinical research in
- Multi-centre Malaysia-Singapore ALL 2009 study using minimal residual disease to tailor therapy for children with acute lymphoblastic leukaemia.
- Multi-centre Malaysia-Singapore Acute Myeloid Leukaemia 2006 study
- Cell-based therapy using immune cells against high risk malignancies.
- Pharmacogenomics and toxicogenomics in Asian children with cancer.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: Malaysia-Singapore ALL 2007 Study - A risk-stratified multi-centre childhood acute.
Period: 1 Jan 2008 to 31 Dec 2010
PI: A/Prof Allen Yeoh

Title: A multi-centre, multi-faceted therapeutic study incorporating whole genome.
Period: 1 Apr 2008 to 31 Mar 2013
PI: A/Prof Allen Yeoh

Title: Paediatric Oncology Group (Singapore) [POG(s)] Renewal Grant : Establishing New Capabilities for High Risk Leukemia in Adult and Children Using Cell-based and Novel Drug Therapies.
Period: 1 Jul 2008 to 31 Mar 2011
PI: A/Prof Allen Yeoh

Title: Pre-immunization of parental stem cell donors against leukemia-specific mutation/ SNPs for adoptive transfer (PARENTS against LEUKEMIA).
Period: 15 May 2008 to 14 May 2010
PI: A/Prof Allen Yeoh

Title: Leukemia tissue bank.
Period: 14 May 2009 to 31 Dec 2014
PI: A/Prof Allen Yeoh

Title: Development of novel gene delivery methods for cell therapy of cancer: Comparing electroporation, nanoparticles, baculovirus gene delivery systems to redirect the specificity of natural killer cells and cytokine-induced killer cells with mRNA encoding a dual signalling anti-CD19 receptor.
Period: 19 Aug 2008 to 31 Dec 2009
PI: Dr Tan Poh Lin

Title: Small Innovative Grant Bone Marrow Transplant programme.
Period: Apr 2009 to Mar 2011
PI: Dr Tan Poh Lin

Title: Singapore Childhood Cancer Survivor Study (Singapore-CCSS): A Multi-Institutional Collaborative Study on Long-Term Survivors of Childhood Cancer.
Period: 2008 to 31 Mar 2009
PI: Dr Aung Lèle
AWARDS AND PRIZES

1. A/Prof Allen Yeoh EJ
   NMRC Clinician Scientist Award (SI Category)
   By Ministry of Health, Singapore (April 2008)

2. A/Prof Allen Yeoh EJ
   Faculty Research Excellence Award AY2007/2008
   By National University of Singapore (April 2008)

3. Dr Lele Aung
   “Late effects in childhood malignancies”
   RISE Grant Award FY2009 for funding of protected time in research
   By National Healthcare Group

4. Dr Lele Aung
   “Singapore Childhood Cancer Survivors Study (SIN-CCSS): A Multi-Institutional Collaborative Study on Long-Term Survivors of Childhood Cancer”
   Shortlisted as a Finalist at the coming 8th NHG Annual Scientific Congress
   NHG Young Investigator Award (YIA) - Clinical Research
   By National Healthcare Group

5. Dr Tan Poh Lin
   “Bone transplant programme”
   RISE Grant Award FY2009 for funding of protected time in research
   By National Healthcare Group (Jan 2008)

CLINICAL TRIALS

1. Malaysia-Singapore ALL 2003 study involving 4 centres: University of Malaya Medical Centre, Kuala Lumpur; Subang Jaya Medical Centre, Kuala Lumpur; Kadang Kerbau Children and Women Hospital and National University Hospital.
   Objective: Using molecular surrogate markers to monitor minimal residual disease (MRD) in patients, which have been shown to be an important prognostic parameter in determining treatment outcome.

2. Malaysia-Singapore AML 2006 study involving 4 centres: University of Malaya Medical Centre, Kuala Lumpur; Subang Jaya Medical Centre, Kuala Lumpur; Kadang Kerbau Children and Women hospital and National University Hospital.
   Purpose: To reduce antracycline doses as compared to the former AML MRC 10 protocol so as to minimize long-term risk of cardiomyopathy. Second, monitor disease progression using Flow cytometry for MRD measurement.

3. Malaysia-Singapore ALL 2008 study involving 4 centres: University of Malaya Medical Centre, Kuala Lumpur; Subang Jaya Medical Centre, Kuala Lumpur; Kadang Kerbau Children and Women hospital and National University Hospital.
   Objective: Incorporating pharmacovigilance using pharmacokinetics/pharmacodynamics studies using a randomized Vincristine window.

Industrial Collaboration:

   Purpose: A multi-centre collaborative study involving 11 participating centres for the purpose of validating ampli-chip produced by Roche Diagnostics. The chip is capable of classifying various molecular subtypes in leukemias. Unfortunately, the ampli-chip may not commercialise in the immediate future.

Consortium:

5. Collaborating with A/Prof Chia Kee Seng to set up an infrastructure for Clinical Epidemiology and Population-Based Case-Control Studies in Cancer (Jul 2008).
RESEARCH ACHIEVEMENTS
International Refereed Publications


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: YEOH Eng Juh Allen
Designation: Head of Division and Senior Consultant, Division of Paediatrics Oncology, National University Cancer Institute, Singapore
Qualifications: MBBS, MMed (Paediatrics)
Email: paev15@nus.edu.sg
Contact Number: 6772 4420
Research Interests:
Associate Professor Allen Yeoh’s interest is in childhood leukaemia. He is currently the principal investigator of the multi-centre Malaysia-Singapore ALL and AML trials competitively funded by NMRC and A*STAR/Singapore Cancer Syndicate. Currently these trials have been highly successful with > 80% and >60% projected cure. He is the first Singapore doctor to receive the American Society of Hematology Merit Award for his pioneering work in gene expression profiling in leukaemia. This work was one of the highest cited articles in this field for 2003.

Top 5 Publications:


**Name:** QUAH Thuan Chong  
**Designation:** Senior Consultant, Division of Paediatrics Oncology, National University Cancer Institute, Singapore  
**Qualifications:** MBBS MMed (Paediatrics)  
**Email:** paev15@nus.edu.sg  
**Contact Number:** 6772 4420  
**Research Interests:** Paediatric Leukaemia; Lymphoma; Haematology- Oncology; Histiocytosis

**Top 5 Publications:**


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**Name:** TAN Poh Lin  
**Designation:** Senior Consultant, Division of Paediatrics Oncology, National University Cancer Institute, Singapore; Senior Consultant, Paediatrics, National University Hospital; Assistant Professor (Clinical Faculty Scheme), Paediatrics, NUS  
**Qualifications:** MBBS, MMED (Paediatrics)  
**Email:** paev15@nus.edu.sg  
**Contact Number:** 6772 4420  
**Research Interests:** Dr. Tan's primary interest is in the development and implementation of safer, more effective, novel preparative therapies in BMT; and the use of alternative donor stem cells (umbilical cord blood stem cells, mismatched family and unrelated donor stem cells) for allogeneic hematopoietic stem cell transplantation in childhood diseases. She was part of the pioneer teams in NUHS performing the first unrelated umbilical cord blood donor transplants in children in Singapore.

Her research interests also focus on building a pipeline of stacked technology allowing safe delivery of stem cell therapy to patients who would most likely benefit. This is done through research studying how Asian children handle BMT drugs (pharmacogenomics); when and how best to deliver sophisticated cell therapy through studies in minimal residual disease detection and study of the biology, safety and efficacy of adoptive transfer of allogeneic donor cells.

**Top 5 Publications:**


Name: KOH Pei Lin
Designation: Consultant, Director of Paediatric Intensive Care, Division of Paediatrics Haematology/Oncology/BMT, National University Cancer Institute, Singapore
Qualifications: MBBS (Singapore), MRCPCH (UK), M.Med (Paeds, Singapore)
Email: paekpl@nus.edu.sg
Contact Number: 6772 2400

Research Interests: Dr Koh has a keen interest in Paediatrics Haematology-Oncology with a special interest in benign blood disorders such as thalassaemia, haemophilia, idiopathic thrombocytopenic purpura, etc. She runs clinics in the Children’s Blood and Cancer Centre. She is a medical advisor for the Thalassaemia Society of Singapore and also sits on the committee for the Haemophilia Society of Singapore.

Her current research project is pharmacogenetics of intravenous busulphan in paediatric haematopoietic transplants. She has won the “Pitch for Funds” award for this research project.

She is also the Director of the Paediatric Intensive Care unit.
Ovarian cancer is the most fatal gynaecological cancer for women in Singapore. The majority of patients do not show symptoms until an advanced stage. This results in few individuals being cured of the disease. However, with early detection, patient survival rates can increase to over 90 per cent. The Division of Gynaecologic Oncology is undertaking research to understand the cause of the disease to develop methods for early detection and to predict the best therapy.

The team is also working with Professors Markus Wenk and Jean-Paul Thiery in Singapore, and with Professors Gregory Rice and Ian Jacobs from Australia and the UK respectively. The research work is funded by a grant from the National Medical Research Council. The team has recently recruited a clinician-scientist who will focus her research efforts to understand the biology of epithelial ovarian cancer. The main thrusts of research are in:

- Early detection of epithelial ovarian cancer
- Role of folic acid receptor in the pathogenesis of epithelial ovarian cancer
- Understanding epithelial-mesenchymal transformation in epithelial ovarian cancer
- Epithelial ovarian cancer oncogenomics
KEY RESEARCH AREAS

Key research areas of the Division include:

• Identifying a protein from ovarian cyst fluid that can accurately distinguish between benign and malignant tumours, providing a robust screening test.

• Developing pre-clinical models of ovarian cancer metastasis and ovarian cancer stem cells to test for therapeutic responses.

• Focusing global collaborations to collect biological samples of ovarian cancer from Asian patients to build up a body of knowledge and repertoire of treatments to manage ovarian cancer here at home.

AWARDS AND PRIZES

1. Lin L, Zhao CQ, Annamalai L, Kothandaraman N, Choolani M.
   “Evaluation of Haptoglobin in Ovarian Cyst Lfuid as an Independent Biomarker for Epithelial Ovarian Cancer.”
   Best Oral Presentation in Gynaecology Category
   The 7th Singapore International Congress of O&G (26-29 Aug 2009).

2. Kothandaraman N.
   Best Poster Award in Gynaecology Category

   “Development and Validation of Serum and Plasma Protein Fingerprints for Early Diagnosis for Epithelial Ovarian Cancer over a Three year Time Period.”
   Merit Award for the Best Oral research presentation
   National Healthcare Group Annual Scientific Congress, Raffles City Convention Centre
   (10–11 Nov 2007).

RESEARCH ACHIEVEMENTS

International Refereed Publications


Name: Jeffrey LOW  
Designation: Head of Division and Senior Consultant, Division of Gynecologic Oncology, National University Cancer Institute  
Qualifications: MBBS, FRCOG (UK), FRANZCOG (Australia-New Zealand), MMED (Gynecology), FAMS (Gynecology)  
Email: jeffrey_low@nuhs.edu.sg  
Contact Number: 6772 4261  
Research Interests: Associate Professor Low’s interests are in preinvasive disease, radical pelvic surgery, lymphoedema and in the organization of multidisciplinary medical and paramedical care for women with gynaecologic cancers. His research work includes phase 3 chemotherapy trials, HPV vaccine trials and investigating the use of spectroscopy for realtime cervical screening.

Top 5 Publications:  

Name: Arunachalam ILANCHERAN  
Designation: Senior Consultant, Division of Gynecologic Oncology, National University Cancer Institute  
Qualifications: MBBS, MMED (Gynecology), FRCOG, MD, FAMS  
Email: ilancheran_arunachalam@nuhs.edu.sg  
Contact Number: 6772 4261  
Research Interests: A/Prof Ilancheran’s current practice includes all areas of gynaecological cancer, especially surgical management of advanced disease.

Top 5 Publications:  
Name: Mahesh CHOOLANI  
Designation: Senior Consultant, Research Director, Division of Gynaecologic Oncology, National University Cancer Institute  
Qualifications: MBBS, MMED, FAMS  
Email: obgsec@nus.edu.sg  
Contact Number: 6772 4261  
Research Interests: Principal areas of research interest are: non-invasive prenatal diagnosis, early detection of epithelial ovarian cancer, and fetal mesenchymal stem cells for intrauterine fetal therapy. His research papers are published in leading UK and USA peer-reviewed journals.  

Top 5 Publications:  

Name: NG Soon Yau Joseph  
Designation: Consultant, Division of Gynaecologic Oncology, National University Cancer Institute  
Qualifications: M.D. (Loma Linda University School of Medicine, USA), Board Certified (American Board of Obstetricians & Gynecologists) FACOG, FAMS  
Email: joseph.ng@nuhs.edu.sg  
Contact Number: 6772 4261  
Research Interests: His research interests include pre-cancerous and cancerous states of the female reproductive organs. His practice welcomes all women seeking gynaecologic care, and provides obstetric care for all expectant mothers.  

Top 5 Publications:  
Name: Ruby HUANG  
Designation: Senior Research Fellow, Division of Gynaecologic Oncology, National University Cancer Institute  
Qualifications: PhD (Taiwan), MD (Taiwan)  
Email: ruby.yj.huang@nuhs.edu.sg  
Contact Number: 6516 1114  
Research Interests:  
**Epithelial Ovarian Cancer Basic Research**  
Mechanisms of carcinogenesis and progression of ovarian carcinoma Epithelial-mesenchymal transition of human ovarian surface epithelium; The role of lysophosphatidic acid in ovarian cancer cell dispersal and EMT Identification of tumor-initiating cells of epithelial ovarian cancer Establishment of 3D culture system for ovarian cancer spheroids.  
**Translational Research**  
Oncogenomic and proteomics of epithelial ovarian cancer Integration of technologies of systems biology; Affymetrix expression array platform; Affymetrix Genotyping (SNP) array platform "Ovarian Cancer Consortium (OCC)" research program (PIs: Prof. Jean-Paul Thiery and Dr. Mahesh Choolani).  

Top 5 Publications:  
Message on Research Mission from Head of Department

DR ANG NEO KIM EMILY

The research goals of the Division of Oncology Nursing are to provide the best possible care for their patients, including delivery of cancer care based on the latest scientific and medical evidence; and forming a close partnership with physicians to provide seamless care from diagnosis to the completion of therapy.
KEY RESEARCH AREAS
The Division’s key research areas are patient safety; health services and supportive care for patients with cancer.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: Nutritional risk of patients with cancer receiving chemotherapy in the ambulatory setting: A prospective study (MOH NRC)
PI: Dr Emily Ang

AWARDS AND PRIZES

1. Best Poster Presentation Award for Nursing Category
8th NHG Annual Scientific Congress (16-17 Oct 2009).

BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: ANG Neo Kim Emily
Designation: Deputy Director, Division of Oncology Nursing, National University Cancer Institute, Singapore (NCIS), Adjunct Assoc Professor Alice Lee Centre for Nursing Studies, YLL SoM, NUS
Qualifications: Doctor of Nursing (2008), University of Adelaide, Australia, Master of Nursing (1998), Deakin University, Victoria, Australia, Bachelor of Nursing (1994), University of Sydney, New South Wales, Australia
Email: Emil._nk_ang@nuhs.edu.sg
Contact Number: 6772 4626
Research Interests: Fall prevention; patient safety; health service research; supportive care for patients with cancer.

Top 5 Publications:
Message on Research Mission

Pharmacists from the Division of Oncology Pharmacy handle and support both investigator-initiated and pharmaceutical industry-driven oncology clinical drug trials conducted in the National University Cancer Institute, Singapore (NCIS).

Our pharmacists also conduct clinical pharmacy and pharmacy practice-based research in collaboration with doctors. They are internationally recognised for their academic contributions to the field and have presented research papers in conferences both locally and aboard. Some examples of these conferences include the US Hematology Oncology Pharmacist Association Annual Conference, American Society of Health-System Pharmacists Mid-year Meeting and congresses organised by the National Healthcare Group and Pharmaceutical Society of Singapore.
KEY RESEARCH AREAS

• The impact of EGFR inhibitor-induced cutaneous toxicities on patients’ quality of life in a tertiary university hospital.
• A review of use of granulocyte colony-stimulating factor at a university cancer centre.
• A review of intravenous and oral busulphan use in haematopoietic stem cell transplant patients in a university hospital.
• A retrospective review of bleomycin-induced pulmonary toxicity arising from patients who have received ABVD for the treatment of Hodgkin’s disease in a tertiary university hospital.
• Aprepitant - Experience at a tertiary teaching hospital.

BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: LIM Siew Woon
Designation: Principal Pharmacist, National University Cancer Institute, Singapore
Qualifications: MSc (Clinical Pharmacy), BCOP
Email: Siew_Woon_Lim@nuhs.edu.sg
Contact Number: 6772 4915
Research Interest/s: Oncology pharmacy practice

Name: WONG Yuet Peng
Designation: Principal Pharmacist, National University Cancer Institute, Singapore
Qualifications: Bachelor of Pharmacy
Email: yuet_peng_wong@nuhs.edu.sg
Contact Number: 6772 4915
Research Interest/s: Oncology pharmacy practice
Message on Research Mission from Head of Department
ASSOCIATE PROFESSOR JIADE J. LU

The Department of Radiation Oncology is actively involved in research work directed at developing and evaluation of new radiation techniques for clinical application.

Our research goals are:
• To optimise how radiation can be delivered safely and most effectively for different tumours with advanced technology.
• To synergize the role of radiation with other treatment modalities especially with chemotherapy and novel target-therapy.
• To collaborate with other (international) centres with similar research interests, eg participation in multi-centre trials.
• To develop a research infrastructure and culture, especially among the younger radiation oncologists.
KEY RESEARCH AREAS
The Department of Radiation Oncology continues to build up considerable strength in the following research areas and platform technologies.

**Image-guided 3D brachytherapy**
In the treatment of early stage breast cancer, the Accelerated Partial Breast Irradiation (APBI) is emerging as a more attractive alternative to the external irradiation of the entire breast. APBI can be delivered in five days as compared to six weeks for the latter traditional therapy, making it a more convenient option for patients. The Department of Radiation Oncology is the first centre in Singapore to evaluate APBI in the context of a clinical trial.

**Intensity-modulated brachytherapy (IMRT)**
The department continues to evaluate this advanced form of radiation planning and delivery in its application on a wide range of tumours, eg head & neck and nasopharyngeal cancer, gastric and prostate cancers.

**Combined modality therapy**
The department continues to collaborate with other departments/centres to evaluate the combined effect of radiotherapy with chemotherapy in the treatment of head & neck and nasopharyngeal cancers, lung cancer, brain tumours and gastro-intestinal cancers.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

<table>
<thead>
<tr>
<th>Title</th>
<th>Period</th>
<th>PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial Breast Irradiation (PBI) for Asian Women with Stage 0 or 1 Breast Cancer – A Phase 2 Toxicity study</td>
<td>Apr 2008 to Mar 2010</td>
<td>Johann Tang</td>
</tr>
<tr>
<td>Primary Chemotherapy With Temozolomide Vs. Radiotherapy In Patients With Low Grade Gliomas After Stratification For Genetic 1P Loss: A Phase III Study</td>
<td>Apr 2008 to Mar 2010</td>
<td>Johann Tang</td>
</tr>
<tr>
<td>A randomized, phase II study of concurrent radiotherapy and oxaliplatin, capcitabine with or without cetuximab in rectal cancer tumour stratified by KRAS mutation status.</td>
<td>1 Apr 2008 to 31 Mar 2010</td>
<td>Hans Chung</td>
</tr>
<tr>
<td>A randomized, phase II study of concurrent radiotherapy and oxaliplatin, capcitabine with or without cetuximab in rectal cancer tumour stratified by KRAS mutation status</td>
<td>1 May 2009 to 30 Apr 2010</td>
<td>Leong CN</td>
</tr>
</tbody>
</table>

AWARDS AND PRIZES
1. RANZCR ASM Best Poster Presentation 2008
RESEARCH ACHIEVEMENTS
International Refereed Publications

Year 2008


Wang MLC, Howe TS, Ng DCE, Mantoo S, Tham IWK. Seeding of Bone Metastases from Nasopharyngeal Carcinoma - A Case Report. *Ann Acad Med Singapore,* accepted for publication.

Year 2009


Biosketch of Department Full-Time Staff

Name: Jiade J. LU
Designation: Chief and Senior Consultant, Department of Radiation Oncology, NCIS
Qualifications: Board certified in Radiation Oncology by American Board of Radiology, Doctor of Medicine (State University of New York at Buffalo), Bachelor of Science in Biochemistry (State University of New York at Buffalo)
Email: mdcljj@nus.edu.sg
Contact Number: 6772 4869
Research Interests: Head & Neck, GI malignancies

Top 5 Publications:


Name: LEE Khai Mun
Designation: Senior Consultant, Department of Radiation Oncology, NCIS
Qualifications: MBBS, FFRCSI, FRCR, FAMS
Email: khai_mun_lee@nuhs.edu.sg
Contact Number: 6772 4869
Research Interests: Gynaecologic, Haematology-Oncology, Head and Neck, Muscolo-Skeletal

Top 5 Publications:


Name: LIM Hsiu Chin Keith
Designation: Consultant, Department of Radiation Oncology, NCIS
Qualifications: MBBS, FRANZCR
Email: keith_hc_lim@nuhs.edu.sg
Contact Number: 6777 4869
Research Interests: Prostate, Breast and Brain

Top 5 Publications:


**Name: TANG I-Hsiung Johann**

**Designation:** Consultant, Department of Radiation Oncology, NCIS

**Qualifications:** MBBS, FRANZCR, FAMS

**Email:** johann_tang@nuhs.edu.sg

**Contact Number:** 6777 4869

**Research Interests:** Breast, gynaecologic, paediatrics

**Top 5 Publications:**


**Name: THAM Weng Keong Ivan**

**Designation:** Consultant, Department of Radiation Oncology, NCIS

**Qualifications:** MBBS, FRCR (Clinical Oncology), FRANZCR (Radiation Oncology)

**Email:** Ivan_WK_Tham@nuhs.edu.sg

**Contact Number:** 6772 4869

**Research Interests:** Head and Neck, Lung, Haematological Malignancies

**Top 5 Publications:**


Name: WONG Lea Choung
Designation: Consultant, Department of Radiation Oncology, NCIS
Qualifications: MBBS (Melb), Dip Pall Med (Wales), FRCP(Clin Onco), FAMS.
Email: lc_wong@nuhs.edu.sg
Contact Number: 6772 4869
Research Interests: a) Head and neck, Breast, Hepatobiliary tract and Gastrointestinal Cancers
b) Technological advances, e.g. IMRT, IGRT
c) Palliation
d) Psycho-oncology and Quality of Life
e) Integrative Oncology: Advising patients on Complementary and Alternative medicine

Top 5 Publications:

Name: CHOO Bok Ai
Designation: Associate Consultant, Department of Radiation Oncology, NCIS
Qualifications: MBChB, MRCP, FRCR (Clinical Oncology)
Email: bok_ai_choo@nuhs.edu.sg
Contact Number: 6772 4869
Research Interests: Musculo-Skeletal, Breast, Gynaecologic, Head and Neck

Top 5 Publications:
Name: TEY Chee Seong Jeremy
Designation: Associate Consultant, Department of Radiation Oncology, NCIS
Qualifications: MBBS, FRANZCR.
Email: jeremy_tey@nuhs.edu.sg
Contact Number: 6772 4869
Research Interests: Colorectal, Breast, Upper Gastrointestinal, Pancreas/Hepatobiliary, Lower Gastrointestinal, Genitourinary

Top 5 Publications:

Name: LEONG Cheng Nang
Designation: Associate Consultant, Department of Radiation Oncology, NCIS
Qualifications: MBBS, RANZCR
Email: cheng_nang_leong@nuhs.edu.sg
Contact Number: 6777 4869
Research Interests: Upper Gastrointestinal, Pancreas/Hepatobiliary, Lung, Lower Gastrointestinal

Top 5 Publications:
Message on Research Mission from Head of Department

DR LIM SENG CHEONG, ROBERT

The research mission of the Department of Haematology-Oncology, which comprises the Division of Medical Oncology and Division of Clinical Haematology, is to establish proof-of-concept and efficient treatment modalities, especially for Asians. Our research programme takes advantage of the multi-racial make-up of the Singapore population as well as existing collaborations with Western institutions to understand inter-ethnic differences in disease biology and drug disposition between major Asian populations and between Asians and Caucasians, so as to optimise cancer care treatment.

We also place emphasis on the development of novel drugs and conducting early phase clinical trials to test new drugs and treatment methods. The Department of Haematology-Oncology boasts a well-established clinical trials infrastructure comprising an active clinical trials programme with access to novel therapies to be tested in our internationally-recognised phase I programme. Our phase I unit has successfully completed several studies evaluating novel compounds from pharma, including first-in-man studies in two small molecules (ABT869, Abbott; SB939, S-Bio). The unit brings about unprecedented opportunities for patients in Singapore and the region to get access to novel treatment therapies and drugs even in their early stages of development.

The Department of Haematology-Oncology is also a pioneering member of the Cancer Therapeutics Research Group (CTRG), an Asia-Pacific Medical Oncology co-operative group comprising member institutions from Singapore, Australia, Hong Kong, Korea and Taiwan, which provides opportunities to conduct co-operative group studies.

The Department will capitalise on its existing strengths, including expertise in oncogenomics and pharmacogenomics, access to cutting edge technologies, and close collaborations with world-class bench scientists in research organisations, to accelerate translational research and improve cancer treatment. For instance, the Department’s clinician scientists worked with bench researchers in the Cancer Science Institute of Singapore, National University Singapore, on epidemiology data in lung cancer, which shows an emerging trend of an increasing incidence of pulmonary adenocarcinomas – a disease seen predominantly in non-smokers and women especially those from Asia. This group of patients has recently been recognised to have a different disease course compared to male smokers with lung cancers, and will account for an increasing proportion of all lung cancer patients in the future. It is vital that an improved understanding of the pathogenesis and clinical course of pulmonary adenocarcinomas be achieved to determine optimal therapeutic strategies and public health interventions for dealing with this disease.
KEY RESEARCH AREAS

• Development of prognostic and predictive assays to individualise therapy
  - Developing prognostic panels to identify patients most likely to benefit from therapy will avoid under- or over-treatment.
  - Similarly, developing highly accurate predictive panels to match the right patient to the most appropriate drug is crucial to reduce futile treatments, prevent excessive toxicities, improve patient outcomes and limit health costs.

• Development of Novel therapies
  - Testing of novel compounds that are developed through collaborations with bench investigators, representing bench to bedside translation of discovery sciences.

• Understanding of genetic risk factors in cancer
  - As part of the breast cancer program, identification of genes that modify breast cancer risks either directly or through interactions with environmental risk factors.

• Elucidating the mechanisms of inter-ethnic differences in disease biology and treatment response
  - To elucidate mechanisms for the observed inter-ethnic difference in incidence of EGFR mutations in non-small cell lung cancer (NSCLC) between Asians and Caucasians, a study in the lung cancer program will be performed in collaboration with Massachusetts General Hospital (Harvard) to determine the association between estrogen exposure and the incidence of EGFR mutations in NSCLC in Asian and Caucasian patients.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: CSI S’pore – Experimental Therapeutics I
PT: Dr Goh Boon Cher
Period: 1 Apr 2009 to 31 Mar 2010

Title: CSI S’pore – Experimental Therapeutics II
PT: A/P Chng Wee Joo
Period: 1 Apr 2009 to 31 Mar 2010

Title: CSI S’pore – Experimental Therapeutics III (Lung Cancer)
PT: Dr Ross Soo
Period: 1 Apr 2009 to 31 Mar 2010

Title: Detection of EGFR mutations in the blood of patients with non-small cell lung cancer - a feasibility study (NHG)
PT: Dr Ross Soo
Period: 2008 to 2010

Title: The ethnic difference in incidence of EGFR mutations: Does estrogen play a role? (NHG)
PT: Dr Chin Tan Min
Period: 2008 to 2010

Title: The ethnic difference in incidence of EGFR mutations: Does estrogen play a role? (NHG)
PT: Dr Chin Tan Min
Period: 2008 to 2009

Title: The NUH-MGH prospective study to explore the role of estrogen exposure in EGFR mutations in non-small cell lung cancer in women (NMRC)
PT: Dr Chin Tan Min
Period: 2008 to 2010
AWARDS AND PRIZES

Year 2009
In November 2009, Professor H. Phillip Koeffler, Deputy Director (Research), National University Cancer Institute, Singapore (NCIS), Senior Consultant, Department of Haematology-Oncoology, NCIS received the Singapore Translational Research (StAR) Investigator Awards to conduct research in Singapore. The award, jointly offered by the Ministry of Health (MOH) and The Agency for Science, Technology and Research (A*STAR), provides research and salary funding to the researchers over a period of five years.

In October 2009, Dr Lee Soo Chin, Assistant Director, Research, National University Cancer Institute, Singapore, received the Clinician Scientist Award (Senior Investigator category) from the National Medical Research Council for her work in the development of predictive biomarkers. These markers span the DNA, RNA and protein levels to offer a comprehensive picture of the effects of novel treatments for breast cancer.

Year 2008
Associate Professor Chng Wee Joo, received a three-year Investigatorship Award in 2008 under the Clinician Scientist Award to further his research into multiple myeloma. Working with researchers at A*STAR’s Institute of Molecular and Cell Biology, Associate Professor Chng and his colleagues will use high-throughput techniques to screen genetic markers associated with myeloma cancer cells. He aims to eventually apply the knowledge gained to early diagnosis and treatments for this cancer.

PATENTS

Year 2008
Title: Gene Signatures to predict pathological response and progression free survival in relation to adriamycin and docetaxel chemotherapy in breast cancer.
US Patent No.: BRC/05037/00/US
Inventor: Soo-Chin Lee, Boon-Cher Goh

Title: Methods for Predicting Tumor Response to Chemotherapy and Selection of Tumor Treatment.
US Patent No.: BRC/05037/01/PCT
Inventor: Soo-Chin Lee, Boon-Cher Goh

RESEARCH ACHIEVEMENTS

International Refereed Publications

Year 2008


Year 2009


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Department of Haematology-Oncology
Name: LIM Seng Cheong, Robert
Designation: Chief and Senior Consultant, Department of Haematology-Oncology, National University Cancer Institute, Singapore (NCIS)
Qualifications: MBChB, ABIM (Internal Medicine, Medical Oncology, Haematology)
Email: ncsi@nuhs.edu.sg
Contact Number: 6772 4626
Research Interests: Colorectal, Upper Gastro-intestinal, Liver, Pancreas.

Division of Medical Oncology
Name: GOH Boon Cher
Designation: Senior Consultant, Director, Research, Department of Haematology-Oncology, National University Cancer Institute, Singapore (NCIS)
Qualifications: Bachelor of Medicine, Bachelor of Surgery (MBBS), Master of Medicine (Internal Medicine with Gold Medal) [M.Med (Int)]
Email: ncsi@nuhs.edu.sg
Contact Number: 6772 4626
Research Interests: pharmacogenomics, experimental therapeutics, clinical pharmacology, Head & Neck, lung cancers.

Top 5 Publications:


Name: LEE Soo Chin
Designation: Senior Consultant, Department of Haematology-Oncology
Assistant Director, Research, National University Cancer Institute, Singapore
Qualifications: MBBS, MRCP, M.Med (Internal Medicine), USMLE
Email: nciis@nuhs.edu.sg
Contact Number: 6772 4626
Research Interests: Breast cancer, Cancer genetics and Pharmacogenetics.

Top 5 Publications:


Name: Ross SOO Andrew
Designation: Senior Consultant, Department of Haematology-Oncology, National University Cancer Institute, Singapore (NCIS)
Qualifications: MB, BS; FRACP; FAMS
Email: nciis@nuhs.edu.sg
Contact Number: 6772 4626
Research Interests: Head & Neck, Lung.

Top 5 Publications:


Name: WONG Eu-Li, John
Designation: Deputy Chief Executive, National University Health System (NUHS); Dean, Yong Loo Lin School of Medicine, National University of Singapore; Director, National University Cancer Institute, Singapore (NCIS); Senior Consultant, Department of Haematology-Oncology, NCIS
Qualifications: MBBS, FAMS, FRCP, FACP
Email: john_wong@nuhs.edu.sg
Contact Number: 6516 1908 / 3534
Research Interests: the development of new drugs and treatment strategies, and differences between Asian and Caucasian cancers.

Top 5 Publications:


Name: CHIN Tan Min
Designation: Consultant
Qualifications: MBBS, MRCP, Oncology Board Certified.
Email: ncis@nuhs.edu.sg
Contact Number: 6772 4626
Research Interests: Lung

Top 5 Publications:


Name: TAN Sing Huang
Designation: Consultant, Department of Haematology-Oncology, NCIS
Qualifications: MBBS, MRCP (UK), MMed (S’pore)
Email: ncs@nuhs.edu.sg
Contact Number: 6772 4626
Research Interests: Treatment of patients with breast cancer. Dr Tan is also actively involved in research such as epigenetics and responses to chemotherapy in various tumour types, as well as the study of biomarkers in relation to early diagnosis.

Top 5 Publications:

Name: WONG Chiung Ing
Designation: Consultant, Department of Haematology-Oncology, NCIS
Qualifications: MBChB, MRCP(UK)
Email: ncs@nuhs.edu.sg
Contact Number: 6772 4626
Research Interests: Gynaecological Cancer, Breast Cancer.

Top 5 Publications:
Name: YONG Wei Peng  
**Designation:** Consultant, Department of Haematology-Oncology, NCIS  
**Qualifications:** Specialist Acreditation Certificate – Medical Oncology (Ministry of Health, Singapore); MRCP (U.K); MB ChB with honors (Aberdeen University, Scotland)  
**Email:** ncsi@nuhs.edu.sg  
**Contact Number:** 6772 4626  
**Research Interests:** Early phase drug development, Gastrointestinal cancers, Pharmacokinetics of anti-cancer agents in the Asian population, The impact of genetic polymorphism on possible differences in pharmacokinetics between ethnic population anti-cancer therapeutics.

**Top 5 Publications:**

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Name: YEO Wee-Lee  
**Designation:** Associate Consultant, Department of Haematology-Oncology, NCIS  
**Qualifications:** MBBS(Singapore), MRCK (UK)  
**Email:** ncsi@nuhs.edu.sg  
**Contact Number:** 6772 4626  
**Research Interests:** Head and Neck, Lung Cancer.

**Top 5 Publications:**
**Name:** ZEE Ying Kiat  
**Designation:** Associate Consultant, Department of Haematology-Oncology, NCIS  
**Qualifications:** MBBS (London), MRCP (UK)  
**Email:** ncis@nuhs.edu.sg  
**Contact Number:** 6772 4626  
**Research Interests:** Colorectal, Upper GI, Liver, Pancreas.

**Top 5 Publications:**

**Division of Clinical Haematology**

**Name:** LIU Te Chih  
**Designation:** Head of Division and Senior Consultant, Division of Clinical Haematology, Department of Haematology-Oncology, National University Cancer Institute, Singapore  
**Qualifications:** MBBS (S’pore), MRCP (UK), FRCPath (Haematology)  
**Email:** ncis@nuhs.edu.sg  
**Contact Number:** 6772 4626  
**Research Interests:** General Haematology, Acute leukaemia, Stem Cells.

**Top 5 Publications:**

Name: TAN Lip Kun
Designation: Senior Consultant, Div of Clinical Haematology, Dept of Haematology-Oncology, NCIS; Programme Director, Stem Cell Transplant Programme, NCIS; Senior Consultant, Div of Laboratory Haematology, Dept of Laboratory Medicine, NUHS; Clinical Director, Dept of Laboratory Medicine, NUHS; Medical Director, Blood Transfusion Service, NUHS; Chairman Blood Usage Committee, NUHS Qualifications: MB ChB (Leics), MRCP (UK), FRCPath (UK)
Email: ncis@nuhs.edu.sg
Contact Number: 6772 4626
Research Interests: Stem Cell Transplant, Leukaemia, Lymphoma.

Top 5 Publications:

Name: CHEE Yen Lin
Designation: Consultant, Division of Clinical Haematology, Department of Haematology-Oncology, National University Cancer Institute, Singapore
Qualifications: MBChB, MRCP, PhD, FRCPath
Email: ncis@nuhs.edu.sg
Contact Number: 6772 4626
Research Interests: Thrombosis and Haemostasis; General Haematology.

Top 5 Publications:
Name: CHNG Wee Joo
Designation: Consultant, Div of Clinical Haematology, Dept of Haematology-Oncology, NCIS
Qualifications: MB ChB, MRCP (UK), FRCPath (UK), FAMS
Email: ncsi@nuhs.edu.sg
Contact Number: 6772 4626
Research Interests: Myeloma, Lymphoma.

Top 5 Publications:


Name: POON Li Mei, Michelle
Designation: Associate Consultant
Qualifications: MBBS, MRCP (UK), FRCPath (Hematology) (UK)
Email: ncsi@nuhs.edu.sg
Contact Number: 6772 4626
Research Interests: bone marrow transplantation, acute and chronic leukaemias, and lymphomas.

Top 5 Publications:


Message on Research Mission from Head of Department

PROFESSOR LEONG PENG KHEONG ADRIAN

Surgery remains an important component of cancer treatment. For solid tumours, surgery is often the most common and effective treatment administered to patients.

The Division of Surgical Oncology conducts and supports research programmes with respect to the cause, diagnosis, prevention, and treatment of cancer, rehabilitation from cancer, and the continuing care of cancer patients and the families of cancer patients.

The Division also initiates and conducts early phase and innovative clinical trials. For example, the Division is conducting an important Multi-centre translational research study on Robotic-Assisted Laparoscopic Resection (ROLARR). The trial has potential to be a landmark clinical trial that leads to change in clinical delivery and adoption of robotic surgery in oncology.
KEY RESEARCH AREAS
The Division conducts research into the following areas:

Gastric Cancer
• Gastric cancer: Stem cells research for the purpose of characterisation & identification.
• Biomarkers Discovery for Locally Advanced Gastric Cancer.
• Genomic-guided chemotherapy for those of gastric cancer patients who are at good risks.
• Particular Role of microRNA and how it effects the gastric cancer in details.
• CDH-17 Marker regarded to be the Novel Target and exploration about this Marker in relation to liver & stomach Cancer.
• Comparison of the outcomes by two different operative techniques & reconstructions targeted for curative treatment of gastric cancer.

Colorectal Cancer
• Robotic-Assisted Laparoscopic Resection (ROLARR) for rectal cancer.

Uro-Oncology
• Bladder Cancer:
  - Intravesical Cytokine Gene Therapy For Bladder Cancer Using Non-viral Vectors.
  - The use of Bacillus Calmette-Guerin plus interferon immunotherapy for high-risk non-muscle invasive Bladder Cancer, as first-line therapy or as salvage therapy.
  - The role of genetic factors that influence response to Bacillus Calmette-Guerin immunotherapy for non-muscle invasive Bladder Cancer.
  - The use of Lactobacillus rhamnosus GG in treating bladder cancer.
  - Urinary Metabonomic Profiling and biomarkers for Bladder Cancer Diagnosis and Surveillance.
  - New forms of targeted therapy for Bladder cancer.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: Development of an Ablation and Division Device with blood-flow sensor feature. (NMRC EDG)
Period: 10 Jul 2008 to 09 Jul 2010
PI: Stephen Chang Kin Yong

Title: Identification of Human Gastric Cancer Initiating cells (MFRC Grant)
Period: From 2009
PI: A/Prof So Bok Yan Jimmy

Title: IRAS: Image-Guided Robot Assisted Surgical Training (SERC)
Period: 01 Sep 2009 to 31 Aug 2011
PI: Stephen Chang Kin Yong

Title: Phase 1 Trial of Intravesical Cytokine Gene Therapy for Bladder Cancer Using Non-viral Vectors in Patients Who are Undergoing Transurethral Resection. (NMRC Grant)
Period: 2009
PI: Kesavan Esuvananthan
Co-PI: Asst Prof Edmund Chiong

Title: A Phase II study of genomic-guided ‘Standard-of-Care’ chemotherapy for Good risk patients (Centre Grant)
Period: From 2009
PI: A/Prof So Bok Yan Jimmy

Title: Real-time continuous perfusion monitoring of liver allograft in liver transplantation with a wireless vascular flow sensor. (Medicine-Engineering Seed Grant)
Period: 2009
PI: Dr Victor Lee, Lian Yong.
Title: TURP - As a day surgery procedure using Gyrus Plasmakinetic Bipolar, a multicenter project (HSDP Grant)
Period: 2008
PI: David Consigliere

Title: Urinary Metabonomic Profiling for Bladder Cancer Diagnosis and Surveillance. (NMRC Grant)
Period: 2009
PI: Kesavan Esuvaranathan

AWARDS AND PRIZES

Dr Victor Lee Tswen Wen won the NHG-MOH HMDP Award (Fellowship in Transplantation), Royal Infirmary Edinburgh, UK in 2008.

Upper Gastrointestinal
“Prospective Randomized Crossover study comparing Video Endoscopic Autofluorescence Imaging followed by Narrow Band Imaging with Standard Endoscopy for detection of high risk lesion in stomach”.

Research related Gold Award for NHG doctor (NHGD) awards 2008 NHG ASC Scientific Paper Competition, 7-8 Nov 2008. Singapore
A/Prof Jimmy So Bok Yan

PATENTS

Title: Gastroduodenal Chute for treatment of obesity and Type 2 DM
Place of Registration: United States of America
Inventor: A/Prof So Bok Yan Jimmy

Title: Novel liposomal technique for transfection for gene therapy.
Place of registration: United States of Ameriac, European Union, Australia & Japan
Inventor: Kesavan Esuvaranathan, Ratha Mahendran, Carmel Lawrencia.

Title: 3D anorectal ultrasound image acquisition, segmentation and reconstruction for anorectal tissue layers (BRC/P/04388/00/US)
Place of registration: Exploit Technologies, A*STAR
US Patent No.: 60/895, 275 – 16 Mar 2007
Inventor: Charles Tsang

Title: A sigmoidoscope coupling for 3D ultrasound probe with internal pulling (BRC/Z/04420) European Patent Office, Method and apparatus for anorectal examination
Place of registration: Exploit Technologies, A*STAR
US Patent No.: 60/895, 276 – 16 Mar 2007
Patent No.: 08724346.5 – 1265 PCT/SG2008000082
Date: 17 March 2008, US/16.03.07/USP 895275
Inventor: Charles Tsang

Hepatobiliary
Title: An Articulating Ablation and Division Device with blood flow sensing capability
Inventors: Stephen Chang; Chui Chee Kong
Place of registration: National University of Singapore Industry Liaison Office, Singapore

Title: Architecture for Image-guided Robot Assisted Surgical training (IRAS)
Place of registration: National University of Singapore Industry Liaison Office, Singapore
1) Institute for Infocomm Research
2) National University Hospital
3) National University of Singapore
4) Institute of High Performance Computing
Title: Perfused Organ Surgical Trainer (POST)
Inventors: Stephen Chang; Chui Chee Kong
Place of registration: National University of Singapore Industry Liaison Office, Singapore

RESEARCH ACHIEVEMENTS
International Refereed Publications

Year 2009


Year 2008


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: LEONG Peng Kheong Adrian
Designation: Head and Senior Consultant, Division of Surgical Oncology
Deputy Director, National University Cancer Institute, Singapore
Qualifications: MBBS (Singapore); FRCS (Edinburgh); M.Med (Surgery); FAMS
Email: adrian_francis_leong@nuhs.edu.sg
Contact Number: 6772 6396
Research Interests: Colorectal

Top 5 Publications:

Name: David Terrence CONSIGLIERE
Designation: Senior Consultant, Division of Surgical Oncology, NCIS
Qualifications: MBBS (Singapore), Faculty of Medicine, University of Singapore; Part 1, FRACS, FRCS (Glasgow), Royal College of Physicians & Surgeons of Glasgow, Scotland, UK; FAMS (Urology), Academy of Medicine, Singapore
Email: david.consigliere@nuhs.edu.sg
Contact Number: 6772 5642
Research Interests: Prostate

Top 5 Publications:
Name: Philip IAU Tsau Choong  
**Designation:** Senior Consultant, Division of Surgical Oncology, NCIS  
**Qualifications:** Accredited Specialist in General Surgery, Specialists Accreditation Board, MOH (Aug 1999); Fellow of the Royal College of Surgeons of Edinburgh (Oct 1994); MBBS National University of Singapore (Mar 1989)  
**Email:** surv6@nus.edu.sg  
**Contact Number:** 6772 6596  
**Research Interests:**  
a) Founder mutations in the BRCA1 gene in Malay Breast and ovarian cancer patients.  
b) Observational study on the safety of omission of axillary clearance in patients with negative sentinel nodes in breast cancer.  
c) Accuracy of sentinel node biopsy in breast cancer following neoadjuvant chemotherapy.  
d) Use of Recombinant Human Factor VII in multiple trauma patients (Trauma 1711).  

Top 5 Publications:  

Name: Kesavan ESUVARANATHAN  
**Designation:** Senior Consultant, Division of Surgical Oncology, NCIS  
**Qualifications:** MBBS (Singapore) 1983; FRCS (Glasgow) 1988; FRCS (Edinburgh) 1988; FAMS (Urology) 1994; MD (Singapore) 2006  
**Email:** kesavan_esuvaranathan@nuhs.edu.sg  
**Contact Number:** 6772 5642  
**Research Interests:** Prostate  

Top 5 Publications:  

**Name:** LOH Kwok Seng, Thomas  
**Designation:** Senior Consultant, Division of Surgical Oncology, NCIS; Chief and Senior Consultant, Department of Otolaryngology - Head & Neck Surgery, Yong Loo Lin School of Medicine, National University of Singapore  
**Qualifications:** MBBS FRCS  
**Email:** enthead@nus.edu.sg  
**Contact Number:** 6772 5372; 6772 5371; 6772 5370  
**Research Interests:** Head and Neck, Reconstructive.

**Top 5 Publications:**

**Name:** Madhavan Krishnakumar  
**Designation:** Senior Consultant, Division of Surgical Oncology, Head of Liver Tumour Group, NCIS; Head, Division of Hepatobiliary & Pancreatic surgery, Department of Surgery, NUH; Director, Liver Transplantation, NUHS  
**Qualifications:** MBBS, MS (Gen Surg), FRCS (Edin) FRCS (Gen)  
**Email:** surkm@nus.edu.sg  
**Contact Number:** 6779 5555; 6772 5730  
**Research Interests:** Hepatocellular carcinoma – Bio Markers, Immunology, Clinical Trials; Pancreatic Carcinoma – Prognostic Factors, Adjuvant Therapy, Surgical Innovations; Cholangiocarcinoma – Surgical innovations.

**Top 5 Publications:**
Name: PRABHAKARAN Krishnan
Designation: Senior Consultant, Division of Surgical Oncology, NCIS; Chief & Senior Consultant, Department of Paediatric Surgery, NUH; Director, Liver Transplant Programme; Director, Paediatric Organ Transplant Programme; Associate Professor, YLL School of Medicine, NUS
Qualifications: MBBS, FRCS(Ed), FRCS(Glas), M.Med, FAMS
Email: k_prabhakaran@nuhs.edu.sg
Contact Number: 6772 2418
Research Interests: Paediatrics; Paediatric Surgery; Liver Transplantation.

Top 5 Publications:

Name: SO Bok Yan Jimmy
Designation: Senior Consultant, Division of Surgical Oncology, NCIS
Qualifications: MBChB, FRCSEd, FRCSG, FAMS
Email: jimmy_so@nuhs.edu.sg
Contact Number: 6772 4240
Research Interests:
a) Biomarker discovery, e.g. proteomic, microRNA for Gastric cancer.
b) Identification and characterization of gastric cancer stem cells.
c) Novel and Personalized therapy for gastric cancer.
d) Bariatric Surgery and metabolic diseases.
e) Endo-luminal treatment of Type II Diabetes Mellitus and obesity.

Top 5 Publications:
Name: TSANG Bih-Shiou Charles  
**Designation:** Senior Consultant, Division of Surgical Oncology, NCIS  
**Qualifications:** MBBS, FRCS(Ed), FRCS(Glas), M.Med, FAMS  
**Email:** medtbsc@nus.edu.sg  
**Contact Number:** 6772 4240  
**Research Interests:** Colorectal.

**Top 5 Publications:**

Name: CHAN Ching Wan  
**Designation:** Consultant, Division of Surgical Oncology, NCIS  
**Qualifications:** MBChB, FRCS (G), FRCS (Edin), PhD (Bristol)  
**Email:** csccw@nus.edu.sg  
**Contact Number:** 6777 4240  
**Research Interests:** Oncoplastic surgery for breast cancer, Breast cancer initiation and metastasis.

**Top 5 Publications:**
Name: CHANG Kin Yong, Stephen
Designation: Consultant, Division of Surgical Oncology, NCIS
Qualifications: Advance Surgical Training Conjoint Exit Exam, Singapore; FRCS Edinburgh (General Surgery); M.Med (Surgery); MRCS (Edinburgh)
Email: surv7@nus.edu.sg
Contact Number: 6772 4225
Research Interests: Dr Stephen Chang is a keen developer of the laparoscopic approach to Hepatobiliary and Pancreatic surgery and eagerly shares his skills with the other surgeons in this region through course and telecommunications. He has since published his experience in several major surgical journals. In addition to his surgical practice, Dr Chang has several research interests including pancreatic diseases, colorectal metastases, minimally invasive approach to biliary and stone diseases as well as robotic surgery. He is currently holding numerous research grants in developing surgical techniques in this area and is the research director in the division of Hepatobiliary and Pancreatic Surgery.

Name: CHEONG Wai Kit
Designation: Senior Consultant, Division of Surgical Oncology, NCIS
Qualifications: MBBS (S’pore), FRCS(Edin), FRCS(Glasgow), M.Med, FAMS, MPH (Clin Epi)
Email: wai_kit_cheong@nuhs.edu.sg
Contact Number: 6772 4240
Research Interests: Colorectal.

Top 5 Publications:
**Name:** HENG Chin Tiong  
**Designation:** Senior Consultant, Division of Surgical Oncology, NCIS  
**Qualifications:** MBBS (Singapore), FRCS (Ed), FAMS (Urology)  
**Email:** chin_tiong_heng@nuhs.edu.sg  
**Contact Number:** 6772 4240  
**Research Interests:** Prostate, shockwave lithotripsy, computer simulation, laparoscopy.

**Top 5 Publications:**

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**Name:** IYER Shridhar Ganpathi  
**Designation:** Consultant, Division of Surgical Oncology, NCIS  
**Qualifications:** MBBS, MS, FRCS, FAMS  
**Email:** surv25@nus.edu.sg  
**Contact Number:** 6772 4240  
**Research Interests:** Liver, Pancreas, Biliary Tract.

**Top 5 Publications:**
Name: Dean Chi-Siong KOH  
**Designation:** Consultant, Division of Colorectal Surgery, University Surgical Cluster, NUH; Consultant, Division of Surgical Oncology, NCIS; Assistant Professor, Department of Surgery, Yong Loo Lin School of Medicine, NUS  
**Qualifications:** MBBS (Singapore); FRCS (Edin); FRCS (Glasg); FRCSed (General Surgery); FAMS (Surgery)  
**Email:** dean_koh@nuhs.edu.sg  
**Contact Number:** 6772 4249  
**Research Interests:**  
a) Laparoscopic colon and rectal surgery – outcomes and impact on cancer survival.  
b) Colorectal cancer – genetics and impact of immune response to survival.  
c) Robotic Assisted Laparoscopic surgery for rectal surgery.  

Top 5 Publications:  

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Name: Victor LEE Tswen Wen  
**Designation:** Consultant, Division of Surgical Oncology, NCIS  
**Qualifications:** MBBS (’s’pore), FRCS (Edin), MMed (Surgery), MSc (Bioinformatics), FAMS  
**Email:** Victor_TW.Lee@nuhs.edu.sg, surv19@nus.edu.sg  
**Contact Number:** 6772 4220  
**Research Interests:** Dr Lee’s research interests encompass two main areas in liver cancer: novel biomarkers and microarray technology for disease prognostication and class discovery, for which he has been awarded several competitive research grants. In addition, he has research interest in liver transplantation and is working on developing a real-time continuous perfusion monitoring for liver allografts. He is keenly involved in the development of a national pancreas transplant programme for diabetics. He is closely involved in optimizing the use of marginal donors and developing a deceased cardiac death donor programme for transplantation.

Top 5 Publications:  


Name: LOH Ser Kheng Dale Lincoln
Designation: Senior Consultant, Division of Surgical Oncology, NCIS
Qualifications: BA MBChB FRCS(Glasg) FRCS(Glasg)(PaedSurg) FAMS(PaedSurg)
Email: dale.lincoln_loh@nuhs.edu.sg
Contact Number: 6772 2621
Research Interest/s: Vascular access and prevention of line sepsis.

Top 5 Publications:


Name: ONG Wei Chen
Designation: Consultant, Division of Plastic, Reconstructive and Aesthetic Surgery, Department of Surgery
Qualifications:MBBS (S’pore), MRCS(Edin), MMed(Surgery), FAMS(Plastic Surgery)
Email: surv13@nus.edu.sg
Contact Number: 6772 4240
Research Interest/s: Reconstructive surgery, Breast reconstruction, Head and neck reconstruction, Facial reconstruction.

Top 5 Publications:


Name: Aileen SEAH Ai Lin  
Designation: Consultant, Division of Surgical Oncology, NCIS  
Qualifications: MBBS (S’pore), FRCS(Edin), FAMS (Surgery), Certified Acupuncturist (GDA)  
Email: aileen_seah@nuhs.edu.sg  
Contact Number: 6772 4240  
Research Interests: Colorectal

Name: TAM John Kit Chung  
Designation: Consultant, Division of Surgical Oncology, NCIS; Assistant Professor, Department of Cardiac Thoracic & Vascular Surgery, NUS  
Qualifications: BSc (Hons), MD, MSc, MEd, FRCSC  
Email: surjtkc@nus.edu.sg  
Contact Number: 6772 2068  
Research Interests: Lung cancer, VATS, minimal invasive thoracic surgery, lung physiology in health and disease.

Top 5 Publications:


MESSAGE ON RESEARCH MISSION FROM DIRECTOR OF NUHCS
ASSOCIATE PROFESSOR TAY HUAY CHEEM

The strategies of NUHCS in Research are as follow:

• To establish the Cardiovascular Research Institute (CVRI) with the appointment of a Director to spearhead basic and translational science research in support of the clinical research at NUHCS.
• To conduct full spectrum of Cardiovascular research areas including laboratory based research, clinical research, clinical trials, health services research, prevention and epidemiology research.
• To be involved in outcomes-related research and set standards for evidence-based best medical practice in Singapore.
• To collaborate with international and national organisations/centres for multinational Multicentre basic and clinical trials.
  - With the National Heart Centre and Duke-NUS Graduate Medical School on research projects.
  - With National Heart Centres, all regional hospitals and Ministry of Health on national benchmark, performance indicators development and audit database system on research for surgical disciplines.
KEY RESEARCH AREAS

NUHCS’ overall most prominent fields of activity are:

• Appointment of Prof Mark Richard as Director of CVRI since Oct 2009.
• Submission of centre grant ($9 million) with the theme of heart failure receiving positive review.
• Collaboration with all hospitals and Duke-NUS GMS in a joint national project on the development of risk prediction model.
• The use of “Dendrite” surgical database system to study surgical outcomes.
• Development of medical/surgical devices for the monitoring, diagnosis and surgical treatment of disease.
• Tissue engineering and the in vitro generation of organ implants.
• Stem cell technology for organ restoration.
• Exploration of robotics surgery for patient treatment.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Cardiac Department

Title: Adiponectin and coronary plaque vulnerability patients undergoing non-urgent percutaneous coronary intervention: An virtual histology- intravascular ultrasound study.
Period: Jun 2008 to Jun 2011
PI: Lee Chi-Hang, Ronald

Title: Combination of Aortic Valve Calcium by Multislice Detector Computed Tomography and Serum pro-BNP levels as Prognostic Indicators of Incremental value in Patients with Aortic Stenosis.
PI: Poh Kian Keong

Title: Coronary microcirculation hemodynamics and its relation to myocardial viability and remodeling (Genetics of AMI).
Period: May 2009 to May 2010
PI: Adrian Low Fatt Hoe

Title: Genetics of Brugada syndrome and Sudden cardiac death.
PI: Seow Swee Chong

Title: Identification of novel genetic determinants of atrial fibrillation in an Asian population.
Period: Apr 2008 to Mar 2011
PI: Ling Lieng Hsi
Co-PI: Wong Ching Chiew Raymond

Title: Mobile phone based ambulatory ECG monitoring.
PI: Seow Swee Chong

Title: Tadalafil in pulmonary arterial hypertension patients.
PI: James Yip
Title: Analysis of Aortic Arch Anatomy of elderly patients using computer tomography data reconstruction.
Period: Mar 2009 to Sep 2010
PI: Jackie Ho Pei
Co-PIs: Lee Heow Pueh, Sudhakar Venkatesh

Title: Athero-express: Differential atherosclerotic plaque expression protein in relation to cardiovascular events and patient characteristics.
Period: Jul 2009 to Jul 2011
PI: Lee Chuen Neng
Co-PIs: Dominique de Kleijn, Theodoros Kofidis, Rajeev Singh, Eng Chon Boon, Sorokin Vitaly

Title: Cellular and Molecular Characterization of CD151 in Human Airway Smooth Muscle Cells.
Period: Jan 2008 to Jan 2010
PI: John Tam Kit Chung

Title: Comparison of Mini-Bypass to conventional cardiopulmonary bypass in small Asian patients undergoing coronary artery bypass grafting surgery.
Period: Jul 2008 to Jul 2011
PI: Ti Lian Kah
Collaborators: Michael Caleb, Ng Bok Lan, Shen Lian

Title: Cryopreserved Cadaveric Vascular Grafts: Studying the Long Term Effects of Cryopreservation.
Period: Apr 2008 to Mar 2010
PI: Steven Chan Kin Yong
Co-PI: Lee Chuen Neng

Title: Development of a biosensor prosthetic vascular graft.
Period: Sep 2009 to Sep 2012
PI: Benjamin Chua
Co-PIs: Peter Robless, Pavel Neuzil, Rama Krishna Kotlanka

Title: Development of a pressure sensor guided steerable endovascular catheter.
Period: Sep 2009 to Sep 2012
PI: Benjamin Chua

Title: Differential cell adhesion on biomaterial substrate with nanotopographical cues: Application in isolating the breast cancer stem cells.
Period: Jun 2008 to Jun 2010
PI: Evelyn Yim KF
Co-PI: Lee Chuen Neng

Title: eSVS external saphenous vein support trial.
Period: Aug 2008 to Feb 2010
PI: Theodoros Kofidis

Title: In vivo Vascularization and Maturation of Bioartifical Grafts for Organ Restoration.
Period: Mar 2008 to Feb 2011
PI: Theodoros Kofidis
Co-PIs: Lee Chuen Neng, Eliana C Martinez

Title: Injectable biopolymers/stem cells for Cardiac Restoration Therapy.
Period: Oct 2009 to Sep 2014
PI: Theodoros Kofidis, Seeram Ramakrishnan

Title: Intravascular ultrasound guided infrainguinal endovascular intervention compared with angiography guided intervention - the pilot study.
Period: Aug 2009 to Jul 2011
PI: Jackie Ho Pei
Title: Multicellular Angiogenic Spheroids to improve engraftment of stem cells and bioartificial tissue for myocardial restoration.
Period: 2008 to 2010
PI: Eliana C Martinez
Co-PI: Theodoros Kofidis

Title: Novel, less invasive mitral valve implantation method involving a bayonet insertion and release mechanism.
Period: Jan 2009 to Jan 2010
PI: Theodoros Kofidis

Title: Novel short-term indwelling biosensor for real-time continuous glucose monitoring for diabetic pt’s in critical care setting.
Period: Aug 2009 to Jul 2011
PI: Ooi Oon Cheong
Co-PIs: Lee Chuen Neng, Gao Zhiqiang, Peng Yanfen

Period: Apr 2008 to Mar 2009
PI: John Tam Kit Chung

Title: A phase III, randomized, double blind, parallel-group study of the efficacy and safety of oral dabigatran etexilate (150mg bid) compared to warfarin (INR 2.0–3.0) for 6 months treatment of acute symptomatic venous thromboembolism, following initial treatment for at least 5 days with a parental anticoagulant approved for this indication. RE-COVER II. (Boehringer Ingelheim).
Period: Jul 2008 to Feb 2011
PI: Peter Robless
Co-PIs: Jackie Ho Pei, Benjamin Chua, Goh Boon Cher, Lee Soo Chin, Teo Swee Guan
Collaborators: Technion-Israel, Eyal Zussman, Lior Gepstein, Shulamit Levenberg

Title: Incidence and prevalence of renal failure in patients undergoing open heart surgery.
Period: Jun 2008 to Jun 2009
PI: Ooi Oon Cheong
Co-PIs: Jimmy Teo Boon Wee, Luo Hai Dong, Li Jialiang

AWARDS AND PRIZES
For Cardiac Department
1. A/Prof Ronald Lee
   Third Prize
   5th National Clinical Quality Improvement Poster Competition 2008
   “Shortening of Medial Door-to-Balloon time in Primary Percutaneous Coronary Intervention at National University Hospital by Simple and Inexpensive Operational Measures: Clinical Practice Improvement Program”.

2. Ms Margaret Choong Poh Hoon
   Merit Prize
   5th National Clinical Quality Improvement Poster Competition 2008
   “Remote monitoring of Warfarin therapy using Information Technology – a novel and safe approach to conventional care”.

3. Ling Lee LF, Shen L, Chai P.
   Best Poster Award (Medical)
   7th NHG Annual Scientific Congress, Singapore, 7-8 Nov 2008
   “A Comparison of Cardiologist versus Noncardiologist Care of Acute Decompensated Heart Failure”.
4. Chong E, Poh KK, Shen L, Soon CY, Ong HY, Tan HC.  
NHG Young Investigator Award (YIA) – Clinical Research (Gold Medal)  
NHG Annual Scientific Congress, Singapore  
“Comparison of Incidence, Risks and Clinical Predictors of Contrast Induced Nephropathy Post Percutaneous Coronary Intervention in Emergency versus Non-Emergency Settings”.

5. Chong, E, Sim HW, Shen L, Hong CT, Lew KH, Tan EC, Soon CY, Ong HY  
NHG Young Investigator Award (YIA) – Clinical Research (Gold Medal)  
Best Oral Presentation Award – Medical Disciplines  
NHG Annual Scientific Congress, Singapore  
“Ethnic and Gender Differences in the Prevalence of Cardiovascular Risk Factors in Asymptomatic Young Adults Attending an Occupational Health Screening Program in Singapore”.

6. Dr Chan Wan Xian  
First Prize  
Singapore Cardiac Society Annual Scientific Meeting Young Investigator's Award 2008.  
“Cardiorespiratory gas exchange analysis during dynamic exercise predicts surgical indications for severe mitral regurgitation”.

7. Dr Carolyn SP Lam  
American Heart Association Women in Cardiology Trainee Award for Excellence.

8. Dr Carolyn SP Lam  
Third Prize for Clinical/Patient Based Research  
Evans Department of Medicine Research Days (Boston University School of Medicine).

9. Dr Lee Li Ching  
First Prize  
Singapore Cardiac Society Annual Scientific Meeting Young Investigators Awards 2009.  
“The incremental effect of obstructive sleep apnoea (OSA) in accelerating aortic structural damage in hypertensive patients”.

For Cardio Thoracic and Vascular (CTVS) Department
1. Ooi Oon Cheong  
Master of Clinical Investigation Course, National University of Singapore, Aug 2008 – present  
National Research Foundation - Ministry of Health Healthcare Research Scholarship.

2. Chua Soo Yeng Benjamin  
New SG Provisional Application  
“Ultra Miniaturized, Highly Sensitive ad Robust Tri-axial Force Sensor for Medical Devices and Method of Forming”.

3. Chua Soo Yeng Benjamin  
SG Provisional Application  
“Implantable Device for Continuous Monitoring of Blood Flow with Wireless Interface and Method of Deploying”.

4. Ho Pei Jackie  

5. Ooi Oon Cheong  
Thoracic Surgery Foundation for Research and Education Scholarship for Leadership Program in Health Policy and Management.  
Brandeis University, Boston, USA, 23-28 Jun 2008

6. Peter Ashley Robless  
NHG HMMP award for FY2009.

7. Lee Chuen Neng  
President  
17th Asian Society for Cardiovascular & Thoracic Surgery (ASCVTS).  
4 Mar 2009 to 3 Mar 2011
PATENTS

For Cardiac Department
Title: Double umbrella: Bioabsorable patent foramen ovale occluder.
Co-Inventor: Dr James Yip (NTU Collaboration)

Title: Chinese lantern design: Bioabsorable atrial septal occluder
Co-Inventor: Dr James Yip (NTU Collaboration)

For Cardio Thoracic and Vascular (CTVS) Department
Title: Novel atrial lift retractor for minimal invasive heart surgery.
Inventor: Theodoros Kofidis

Title: Novel mitral valve implantation method using a bayonet mechanism.
Inventor: Theodoros Kofidis

RESEARCH ACHIEVEMENTS
International Refereed Publications

For Cardiac Department
Year 2008


Year 2009


Mohammed SF, Korinek J, Abdalrhim AD, Lam CS, Simari RD, Chen HH, Burnett JC, Redfield MM. Anti-Remodeling Effects of Chronic Phosphodiesterase-Type-5 Inhibition Are Dependent on Impaired cGMP-Dependent Protein Kinase Signaling. *Journal of Cardiac Failure.* (2009) 15:53.


**International Refereed Publications**

**For Cardio Thoracic and Vascular (CTVS) Department**

**Year 2008**


Year 2009


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

For Cardiac Department

Name: TAN Huay Cheem
Designation: Adjunct Associate Professor
Qualifications: MBBS, MMed (Int Med), FRCP (UK), FAMS, FACC, FSCAI
Email: huay_cheem_tan@nuhs.edu.sg
Contact Number: 6772 5213

Research Interests:
- a) Antithrombotic drug therapy.
- b) Interventional devices and drug therapies.
- c) Interventional imaging.

Top 5 Publications:


Name: Carolyn LAM Su Ping  
Designation: Assistant Professor, Department of Internal Medicine, National University of Singapore; Associate Consultant, Cardiac Department, National University Hospital, Singapore.  
Qualifications: MBBS, MRCP, MS  
Email: carolyn.lam@nuhs.edu.sg  
Research Interests:  
- Heart Failure with Preserved Ejection Fraction: Pathophysiology, Left- and right-sided hemodynamics, Cardiac Geometry, Vascular- Ventricular Coupling, Exercise Hemodynamics, Cardiorenal Physiology.  
- Epidemiology of heart failure: Genetic epidemiology.  
- Echocardiography: diastology.  
- Biomarkers: Natriuretic peptides.  
- Murine Model of Experimental Hypertensive Heart Disease: Role of the Natriuretic Peptide.  
- System and Cardiomyocyte Biology.  
- Canine study of the Cardiorenal Syndrome.  
- Clinical Trials in Heart Failure.  

Top 5 Publications:  

Name: Edgar Lik Wui TAY  
Designation: Associate Consultant  
Qualifications: MBBS, MRCP (UK), MMed (Singapore), FAMS.  
Research Interests: Valvular heart disease, congenital heart disease, pulmonary hypertension.  

Top 5 Publications:  
**Name:** Mark CHAN  
**Designation:** Consultant  
**Qualifications:** MBBS (S’pore), MRCP (UK), MMED (S’pore), Master of Health Sciences (USA)  
**Email:** mark_chan@nuhs.edu.sg  
**Contact Number:** 8126 5760  
**Research Interests:** Acute coronary syndromes, antithrombotic therapy, plasma metabolomics, and platelet transcriptomics.

**Top 5 Publications:**

**Name:** CHIA Boon Lock  
**Designation:** Senior Consultant, Emeritus Professor, Professorial Fellow  
**Qualifications:** MBBS, FRACP, FRCP (Edin), FACC, FAMS  
**Contact Number:** 6772 5211  
**Research Interests:** Electrocardiography in ischaemic heart disease.

**Top 5 Publications:**
**Name:** POH Kian Keong  
**Designation:** Associate Professor and Consultant Cardiologist  
**Qualifications:** MA, MBBChir (Camb), FRCP (Edin), FCCP, FAMS, FACC, FASE  
**Email:** kian_keong_poh@nuhs.edu.sg  
**Contact Number:** 9863 8875  
**Research Interests:**  
a) Endothelial progenitor cells – disease marker, prognostic value and therapeutic uses.  
b) Stem cell therapy – adult bone-marrow, mesenchymal stem cells and myoblasts for ischemic heart disease, heart failure, diabetic cardiomyopathy and peripheral vascular disease.  
c) Early phase cardiovascular clinical trials and translational research.  
d) Echocardiography including imaging angiogenesis, use of contrast echocardiography for perfusion purposes, quantifying strain/strain rate/torsion and novel applications of real-time three-dimensional echocardiography.  
e) Valvular heart disease – novel prognostic markers, comprehensive imaging, elucidation of aetiologies and mechanisms.  
f) Small and big (human-surrogate) animal models of cardiovascular disease.  

**Top 5 Publications:**  

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**Name:** Raymond WONG Ching Chiew  
**Designation:** Consultant  
**Qualifications:** MBBS, MRCP (UK)  
**Email:** Raymond_cc_wong@nuhs.edu.sg  
**Contact Number:** 9635 3183  
**Research Interests:** Heart failure, Cardiac Imaging.  

**Top 5 Publications:**  
Name: LEE Chi-Hang, Ronald
Designation: Associate Professor
Qualifications: MBBS (HK), MD (HK), MRCP (UK), FRCP (Edin), FHKCP, FHKAM (Medicine), FAMS, FACC, FSCAI
Email: mdclchr@nus.edu.sg
Contact Number: 6772 2493, 9126 3120
Research Interests: Acute Myocardial Infarction; Bioimaging; Vulnerable Plaque; Inflammation and Atherosclerosis.

Top 5 Publications:

Name: SEOW Swee Chong
Designation: Consultant
Qualifications: MBBS, MRCP(UK), EHRA(Interventional Cardiac Electrophysiology), EHRA(Cardiac Pacing), FAMS, FESC, FACC
Email: Swee_Chong_Seow@nuhs.edu.sg
Contact Number: 6772 5286, 9113 9747
Research Interests: Arrhythmias, Heart Failure, Cardiac Devices, Electrophysiology and Ablation, Sudden Death.

Top 5 Publications:
For Cardio Thoracic and Vascular (CTVS) Department
Name: Prof LEE Chuen Neng
Designation: Head, Dept of Cardiac, Thoracic and Vascular Surgery, NUHCS; Chair, University Surgical Cluster, NUHS; Deputy Director, NUHCS; Professor of Surgery, Yong Loo Lin School of Medicine, NUS
Qualifications: MBBS, MMed, FRCS(Glas), FRCSEd, FRACS, FAMS
Email: surlcn@nus.edu.sg
Contact Number: 6772 5214
Research Interests:
   a) 3D Bioimaging of complex congenital hearts
   b) Cardiovascular database
   c) Gaseous mediators in arterial wall in human: nitric oxide, hydrogen sulphide
   d) Paracrine effect of the condition media of human ES cell-derived mesenchymal stem cells
   e) Systematic teaching of surgical skills using advanced surgery training center, simulators and animal models.
   f) Tissue engineering of polymer lined with endothelial stem cells and matrix of mesenchymal stem cells.

Top 5 Publications:

Name: Michael George CALEB
Designation: Adjunct Associate Professor, Senior Consultant, Cardiothoracic Surgeon; Director of Mechanical Heart Support
Qualifications: MBBS, MMed, FRCSEd, RVT, FAMS
Email: surmgc@nus.edu.sg
Contact Number: 6772 2067
Research Interests:
   a) Heart failure surgery.
   b) Hybrid procedures.
   c) Open thoracic aneurysm surgery.
   d) Mechanical heart support for heart failure.
   e) Minimal access endoscopic vein harvesting for coronary bypass surgery.
   f) Minimally invasive surgical techniques and robotics.
   g) Mitral valve repair.
   h) Radiofrequency ablation (RFA-MAZE) for atrial fibrillation.
   i) Stentless aortic valve implants.
   j) Ventricular assist devices and implantable long term support devices.

Top 5 Publications:


Name: Peter Ashley ROBLESS  
**Designation:** Associate Professor, Senior Consultant Vascular Surgeon; Director of the Non-invasive Vascular Laboratory  
**Qualifications:** MBChB, FRCS(Ed), FRCS (Gen.Surg.), MD, FEBVS  
**Email:** peter_ashley_robless@nuhs.edu.sg  
**Contact Number:** 6772 2064  
**Research Interests:**  
a) Aortic disease.  
b) Carotid disease.  
c) Endovascular surgery.  
d) Vascular biology.

**Top 5 Publications:**


Name: TAN Tiong Tee Christie
Designation: Senior Consultant Surgeon
Qualifications: MBBS, FRCSEd, FAMS, AM
Email: christie_tt_tan@nuhs.edu.sg
Contact Number: 6772 5287
Research Interests:
a) Ascending and arch aortic surgery.
b) Complex and minimally invasive lung operations.
c) Complex and redo coronary artery bypass surgery.
d) Complex and redo heart valve surgery.
e) Complex vascular operations.

Top 5 Publications:

Name: HO Pei Jackie
Designation: Assistant Professor, Consultant Vascular Surgeon
Qualifications: MBBS, FRCS, FCS, FHKAM
Email: pei.ho@nuhs.edu.sg
Contact Number: 6772 2859
Research Interests:
a) Aortic diseases particularly aneurysm & dissection of thoracic aorta.
b) Atherosclerotic occlusive disease of the lower limb and carotid arteries.
c) Computational fluid dynamic studies of stent grafts post-implantation.
d) Medical device innovation and development.
e) Occupational health.

Top 5 Publications:
**Name: KOFIDIS Theodoros**

**Designation:** Assistant Professor, Consultant Cardiothoracic Surgeon; Director, Robotic Cardiac Surgery Program; Chairman, Initiative for Research and Innovation in Surgery (IRIS)

**Qualifications:** MD, PhD, FAHA, FAMS

**Email:** surtk@nus.edu.sg

**Contact Number:** 6772 2059

**Research Interests:**
- Adult Cardiac Surgery.
- Arrhythmia Surgery.
- Assist Devices.
- Heart Failure Surgery.
- Minimal Invasive Cardiac Surgery.
- Perioperative Care.
- Surgical Research and Development.
- Transplantation.

**Top 5 Publications:**


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**Name: MACLAREN Graeme**

**Designation:** Assistant Professor, Consultant Cardiac Intensivist

**Qualifications:** MBBS, FJFICM, FRACP, FCCP

**Email:** graeme_maclaren@nuhs.edu.sg

**Contact Number:** 9640 3971

**Research Interests:**
- Cardiac intensive care in adults and children.
- Extracorporeal life support.
- Nosocomial infection in critically ill patients.
- Perioperative echocardiography.

**Top 5 Publications:**


**Name: OOI Oon Cheong**  
**Designation:** Consultant Cardiothoracic Surgeon  
**Qualifications:** FRCS  
**Email:** oon_cheong_ooi@nuhs.edu.sg  
**Contact Number:** 6772 2075  
**Research Interests:**
- Antiplatelet therapy in coronary artery bypass grafting.
- Atrial fibrillation in cardiac surgery.
- Glucose monitoring in cardiac surgery.

**Top 5 Publications:**  

**Name: TAM Kit Chung John**  
**Designation:** Associate Professor, Consultant Thoracic Surgeon  
**Qualifications:** HonBSc, MD, MSc, Med, FRCSC  
**Email:** surjtkc@nus.edu.sg  
**Contact Number:** 6772 2068  
**Research Interests:**
- Cellular and Molecular Characterization of CD151 in Human Airway Smooth Muscle Cells
- Minimally invasive thoracic surgery

**Top 5 Publications:**  
Name: TEOH Leok Kheng Kristine  
Designation: Consultant Cardiothoracic Surgeon  
Qualifications: MBBChir(Cantab.), FRCS(Eng.), MS(Lon.), FRCS(C-Th)  
Email: kristine_lk_teoh@nuhs.edu.sg  
Contact Number: 6772 5855  
Research Interests:  
a) Myocardial protection in the setting of ischaemia-reperfusion injury.  
b) Research and innovation in cardiothoracic surgery.  
c) Quality assurance in cardiothoracic surgery.  
Top 5 Publications:  

Name: Winn Maung Maung AYE  
Designation: Consultant Cardiothoracic Surgeon  
Qualifications: MB BCh BAO, LRCS & SI (Ireland), AFRCSI (Ireland), M Med Surgery (Singapore), FRCS CTh (Edinburgh), FAMS  
Email: winn_maung_maung_aye@nuhs.edu.sg  
Contact Number: 6772 2071  
Research Interests:  
a) Essential hypertension, atherosclerosis and expression of nitric oxide synthase genes and sodium, potassium-ATPase genes in human arteries and vein.  
b) Pioneer stem cells research projects in cardiac surgery.  
Top 5 Publications:  
Name: Atasha ASMAT  
Designation: Associate Consultant Thoracic Surgeon  
Qualifications: MB Bch. AFRCS (Ireland), M.Med (Surgery)  
Email: atasha_asmat@nuhs.edu.sg  
Contact Number: 6772 2069  
Research Interests:  
a) Biology of lung cancer.  
b) Genomics / Proteomics in lung cancer.  

Top 5 Publications:  

Name: CHUA Soo Yeng Benjamin  
Designation: Associate Consultant, Vascular & Endovascular Surgery, Dept of CTVS, NUH; Assistant Professor, Dept of Surgery, Yong Loo Lin School of Medicine, NUS; Director, Database & Informatics, University Surgical Cluster, NUHS  
Qualifications: MBBS (S’pore), MHSc (Duke), MRCSEd, FRCSEd (Gen Surg)  
Email: benjamin_sy_chua@nuhs.edu.sg  
Contact Number: 6772 2060  
Research Interests:  
a) Development of large scale surgical databases for comparative analyses.  
b) Development of novel vascular surgical devices.  
c) Outcomes and management of aortic stent graft complications.  
d) Outcomes research in peripheral vascular diseases.  

Top 5 Publications:  
UNIVERSITY CHILDREN’S MEDICAL INSTITUTE
Division of Paediatrics

Message on Research Mission from Head of Department

ASSOCIATE PROFESSOR GOH YAM THIAM, DANIEL

The Department of Paediatrics has a long history of excellence in clinical service, research and teaching that dates back to 1962. Today, our department’s remarkable achievements in these three areas are well acknowledged internationally.

Research in the department has consistently been an area of intense focus. Our research mission is the commitment to shape the future of child health through research on genes, development and disease. The overlapping clinical and academic environments allow our researchers to interact and co-operate in a manner that enable cutting-edge translational research to be carried out, such as pre-implantation genetic diagnosis and minimal residual disease diagnosis in childhood leukemia.

Acknowledging that rigorous programmes in research create a more profound and lasting impact, we are driven to deliver high quality research outputs that in turn enable us to attract generous research funding from the various funding agencies. This is evident in the hundreds of peer reviewed articles published in premier journals, filing of more than 10 patents, spinning-off one company, attracting more than $30m in research funding and the winning of many research awards.

In an era of increasing research collaborations between institutions and countries, we are committed to forging synergistic ties with like-minded individuals and institutions – both locally and abroad. This spans a range of partnerships with other departments within the university to productive collaborations with corporations and international institutions such as St Jude's Children's Research Hospital, John Hopkins University, and the University of California Los Angeles. We have staff holding inter-agency appointments with A*STAR institutes such as IMCB, IMB, SICS and NUS-GIS.

The last year has been a very active and fruitful year for our department. We have continued to stride firmly towards the fulfillment of our research mission through playing a pivotal role in our university and our country's effort towards biomedical research excellence.
KEY RESEARCH AREAS

The University Children's Medical Institute is committed to shaping the future of child health through research on genes, development and disease. Our institute has research strengths in the following three programmes with very strong underpinning from basic scientists with expertise in immunology and genetics:

PEDIATRIC ONCOLOGY RESEARCH PROGRAMME
(VIVA-UNIVERSITY CHILDREN'S CANCER CENTRE)

The main research areas of the Pediatric Oncology Research Group are as follows:

- **Haematopoietic stem cell transplants including alternative donor sources using cord blood stem cells and natural killer cell transplants.**

- **Multicentre trials in the treatment of leukemia:** The Group has organized 2 multi-centre Malaysia-Singapore ALL 2003 and AML 2006 trials since 2003 with a cure rate exceeding 85 per cent for ALL and 60% for AML, comparable to the best centres in the world.

- **Malaysia-Singapore ALL 2003 study involving 4 centres:** University of Malaya Medical Centre, Kuala Lumpur; Subang Jaya Medical Centre, Kuala Lumpur; Kandang Kerbau Children and Women Hospital and National University Hospital.

  **Objective:** Using molecular surrogate markers to monitor minimal residual disease (MRD) in patients, which have been shown to be an important prognostic parameter in determining treatment outcome.

- **Malaysia-Singapore AML 2006 study involving 4 centres:** University of Malaya Medical Centre, Kuala Lumpur; Subang Jaya Medical Centre, Kuala Lumpur; Kandang Kerbau Children and Women hospital and National University Hospital.

  **Purpose:** To reduce anthracycline doses as compared to the former AML MRC 10 protocol so as to minimize long-term risk of cardiomyopathy. Secondly, to monitor disease progression using Flow cytometry for MRD measurement.

- **Malaysia-Singapore ALL 2010 study involving 4 centres:** University of Malaya Medical Centre, Kuala Lumpur; Subang Jaya Medical Centre, Kuala Lumpur; Kandang Kerbau Children and Women hospital and National University Hospital (to be launched in 2010).

  **Objective:** Incorporating pharmacovigilance using pharmacokinetics/pharmacodynamics studies using a randomized Vincristine window.

- **Industrial Collaboration:** Microarray Innovative Leukemia Study with Roche Diagnostics.

  **Purpose:** A multi-centre collaborative study involving 11 participating centres for the purpose of validating ampli-chip produced by Roche Diagnostics. The chip is capable of classifying various molecular subtypes in leukemias.

- **Cancer Research Consortium**

  Collaborating with A/Prof Chia Kee Seng to set up an infrastructure for Clinical Epidemiology and Population-Based Case-Control Studies in Cancer.

- **Clinical Research into Novel Therapies**
  - Multi-disciplinary sarcoma programme that features a cutting-edge chemotherapy regimen with limb-saving surgeries.
  - Cell-based therapy using immune cells against high risk malignancies.
  - Pharmacogenomics and toxicogenomics in Asian children with cancer.
  - Multi-disciplinary vision-sparing treatment for tumours of the eyes (retinoblastomas).
PROGRAMME IN IMMUNE DISORDERS

Laboratory for Allergy and Asthma

The major focus of this laboratory is on the development of therapeutic and prevention modality for allergy and asthma.

The current research focus is in the following areas:

- Vaccines in allergy and immunomodulatory proteins in immunotherapy
  - Oral vaccines for prevention and treatment of allergic diseases.
  - DNA vaccines for allergic diseases.
  - Study of immunomodulatory proteins and their therapeutic potentials in immunotherapy.

These projects involve work on animal models of allergy. The proof of concept research for the development of a lactobacillus-based oral vaccine for allergy has been patented and further exploited for product development by Exploit Pte Ltd., A*STAR. The work on DNA vaccines are currently being evaluated in primates.

- Immunobiology and structural biology of house dust mite allergens
  This project aims at developing immunogenic hypoallergens as potential targets for immunotherapy.

- Epidemiology of asthma and allergic diseases, drug allergy, and treatment policies of asthma
  Our current focus is on the evaluation of food allergies (peanut, tree nut, fish and shellfish) in Singapore school-children.

- Birth cohort studies in allergic disease
  - Role of probiotics in allergic disease.
  - Infant stool microbiota and the development of infant eczema.
  - Persistent rhinitis in young children – role of respiratory viruses.
  - Filaggrin studies in children with eczema.

These clinical studies involve the evaluation of birth cohorts. We are currently following a cohort who has participated in an intervention study on the use of probiotics in the primary prevention of allergic disease. We are also embarking on a new birth cohort to evaluate the role of respiratory viruses in the development of allergic and non allergic rhinitis and the genetics of eczema.

- Quality of life studies in children with eczema and their parents.

- Clinical trials on anti-asthma medication.

Laboratory for Renal Disease and Solid Organ Transplantation

Our research focus is in three main areas:

- Pathogenetic mechanisms in glomerulonephritis, in particular idiopathic nephrotic syndrome in childhood:

- Immune mechanisms in nephrotic syndrome: Our laboratory has developed a Th2-cytokine rat model of nephrotic syndrome, and we are currently studying potential signalling pathways involved in the genesis of proteinuria.

- Genetics of familial nephropathies: We are focusing on the unique differences between the ethnic populations in Singapore and the predominance of end-stage renal disease in particular ethnic groups. We are currently studying the incidence of genetic mutations of the podocyte-specific genes, as well as the function of novel mutations.

- Transplant Immunology where the main focus is on the clinical applications including assessment of the extent of immunosuppression in transplant recipients, and transplant-related infections.

- Clinical research in chronic kidney disease which focuses on clinical outcome indicators and their risk factors. The current research objective is to examine the long-term cardiovascular outcomes, in terms of left ventricular hypertrophy and development of arteriopathy and risk factors influencing this. The program is also a participating center in the International Pediatric Peritonitis Network.
PROGRAMME IN HUMAN GENETICS AND METABOLIC DISORDERS

Laboratory for Metabolic Disorders

The key research areas in this programme include:

- The study of adipocytokines (visfatin and adiponectin) in severely obese children, with the aim of correlating these adipocytokine levels with metabolic parameters, and correlating SNPs of the gene encoding the adipocytokines to selected metabolic parameters.

- The Singapore Adult Metabolism Study (Translational Clinical Research Programme) aims to study the differences in metabolic parameters between ethnic groups, and between individuals with different birth weight categories.

- GUSTO (Growing Up in Singapore towards healthy outcome: birth cohort) study will examine the maternal, in-utero and perinatal factors which influence health, growth, and diseases. The hypothesis in this birth cohort study is to examine epigenetic markers in gene promoters (from DNA in birth tissues) and their interaction with genotype; to study environmental exposures which may predict patterns of future development, and how these may affect the risk of developing obesity and metabolic diseases.

- The Appetite Regulation Study aims to identify factors & brain circuitry that underlie individual differences in feeding behaviour and weight regulation approaches to obesity prevention and treatment. It also aims to use behavioural paradigms to study differences in functional magnetic resonance neuro-imaging.

- The gut microbiota study examines the effect of probiotics administered in the first few months of life on the growth and adiposity through early life programming. It also examines the stool microbiota pattern in the neonate and infant, in an attempt to predict growth patterns and adiposity, as well as the risk of allergy and atopy.

- The ambulatory blood pressure changes in children, adolescents and young adults with diabetes mellitus is being studied for its correlations with albuminuria, and the early prediction of diabetic nephropathy.

Laboratory for Human Genetics

The Human Genetics Research Group focuses on the following areas:

- Study of genetic architecture in Asian populations in contributing towards understanding of disease mechanisms and gene discovery.

- Study of novel methods for genotyping large genes coding for diseases such as Duchenne muscular dystrophy for clinical applications in diagnosis, carrier screening and prenatal diagnosis.

- Investigation of gene repair in Duchenne muscular dystrophy and translational applications for clinical trials in patients.

- Novel molecular diagnostic development for genetic disorders of trinucleotide repeat expansions (e.g. fragile X syndrome and Huntington disease), disorders involving duplicated regions of the genome (e.g. alpha thalassemia and spinal muscular atrophy), and disorders of imprinted gene loci (e.g. Prader-Willi and Angelman syndromes).

- Single cell preimplantation genetic diagnosis and screening, incorporating whole genome amplification and genome-wide microarray-based molecular karyotyping.

- Genetic epidemiology of complex congenital disorders (cleft lip and palate) and pregnancy-induced disorders (pre-eclampsia).

- Functional analysis of candidate craniofacial genes in the zebrafish animal model.

- Genetics of coronary artery disease (CAD). The Cardiovascular Genetics Group studies the effects of more than 30 candidate genes and their contribution to CAD. A coronary artery disease risk assessment (CADRA) system has been developed and patented to predict an individual's risk of CAD based on one's genetic markers and lifestyle factors with an accuracy of 83%. The CADRA test is now commercially available and is used in the clinic.
PAEDIATRIC CLINICAL RESEARCH PROGRAMME

The Paediatric Clinical Research Programme’s main objective is to conduct research into child health, aimed at improving healthcare outcomes in childhood diseases. The Programme has a full-time clinical research nurse to coordinate the various clinical research projects in the Department.

Additional areas of clinical research in 2009 include:

**Paediatric Pulmonary Programme and Sleep Laboratory**
- On-going projects of the Paediatric Sleep laboratory include:
  - Sleep patterns and habits in Singapore children.
  - Factors associated with obstructive sleep apnea-hypopnea syndrome in children.
  - Analysis of snoring in children and the development of a tool for screening of obstructive sleep apnea.
- Paediatric Pulmonary Programme
  Some of the projects include:
  - Development of a wearable system for the recording and analysis of wheeze in children.
  - Evaluation of common myths in childhood asthma management. Phase I: Cold drinks and asthma exacerbation in children.
  - Evaluation of the safety and usefulness of bedside fiberoptic bronchoscopy in the paediatric intensive care unit.

**Paediatric Neurocognitive Research Group**
The Paediatric Neurocognitive Research Group is currently within the neurocognitive domain in the GUSTO (Growing Up Towards Healthy Outcomes: Birth Cohort) study. This involves the study of temperamental characteristics of the children longitudinally from infancy to childhood, with correlation of these to feeding patterns and sleep, as a behavioural model to understanding risks to development of obesity and metabolic syndrome. The effect of specific maternal, in-utero and environmental factors on neurocognitive outcomes will also be determined.

**Paediatric Gastroenterology/Hepatology Programme**
The main areas of focus include:
- Helicobacter pylori infection
  - Studying the clinical presentations and outcomes of treatment.
  - Evaluation of various diagnostic tools such as serology, endoscopy, histology and urea breath test.
- Recurrent abdominal pain in children
  - Studying the role of psychological intervention in the management of recurrent abdominal pain in children.
  - Epidemiological study of inflammatory bowel disease in Asian children.
- Nutrition
  - Evaluation of pre- and post-transplant nutritional status of children undergoing liver transplantation. Malnutrition is an important factor in determining the outcome of disease management.
  - In children with gastroesophageal reflux, malnutrition is common. Various modes of diagnosis and management would be studied and treatment outcome assessed.
<table>
<thead>
<tr>
<th>Title</th>
<th>Period</th>
<th>PI</th>
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<tbody>
<tr>
<td>Ambulatory blood pressure changes in children, adolescents and young</td>
<td>12 Jun 2009 to 01 Jun</td>
<td>A/Prof Loke Kah Yin</td>
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<td>adults with diabetes mellitus and its correlations with albuminuria</td>
<td>Jun 2012</td>
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<td>(NKFRC).</td>
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<td>Development of immunochromatographic lateral flow assay and device</td>
<td>30 Apr 2008 to 30 Apr</td>
<td>Prof Quak Seng Hock</td>
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<td>for specific diagnosis of EV71 or CA16 infections (EDB-POC).</td>
<td>Apr 2009</td>
<td></td>
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<tr>
<td>Development of novel gene delivery methods for cell therapy of</td>
<td>2008 to 2010</td>
<td>Dr Tan Poh Lin</td>
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<tr>
<td>cancer: comparing electroporation, nanoparticles, baculovirus</td>
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<td>gene delivery systems to redirect the specificity of natural killer</td>
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<td>cells and cytokine-induced killer cells with mRNA encoding a dual</td>
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<td>signaling anti-CD19 receptor (NMRC EDG).</td>
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<tr>
<td>Development of recombinant lactobacillus for oral vaccine (COT)</td>
<td>1 Jun 2009 to 30 Jul</td>
<td>Prof Chua Kaw Yan</td>
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<td>Early events in the hepatic cholesterol regulation in an IL-13</td>
<td>2009</td>
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<td>overexpression rat model of minimal change-like nephrotic syndrome</td>
<td>2011</td>
<td></td>
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<tr>
<td>(MCNS) (NKFRC)</td>
<td></td>
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<tr>
<td>Effect of Blood pressure Control using Ambulatory Blood Pressure</td>
<td>01 Jan 2009 to 31 Dec</td>
<td>Dr Ng Kar Hui</td>
</tr>
<tr>
<td>Monitoring on Left Ventricular Hypertrophy and Markers of Early</td>
<td>2011</td>
<td></td>
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<tr>
<td>Arteriopathy in Children and Young Adults (NKFRC).</td>
<td></td>
<td></td>
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<tr>
<td>Evaluation of the anti-inflammatory and beneficial effects of</td>
<td>13 Jun 2008 to 30 Jun</td>
<td>Dr Huang Ching Hui</td>
</tr>
<tr>
<td>recombinant lactobacilli for atopic dermatitis (NMRC NIG).</td>
<td>2010</td>
<td></td>
</tr>
<tr>
<td>Functional analysis of mutations in transient receptor potential cation Channel 6 (TRPC6) identified in a Singapore family with autosomal dominant focal segmental glomerulosclerosis by whole-cell patch clamp electrophysiology (NMRC EDG).</td>
<td>12 Jun 2008 to 30 Jun 2010</td>
<td></td>
</tr>
<tr>
<td>Genetics of Idiopathic Nephrotic syndrome in Singapore (NKFRC).</td>
<td>1 Jul 2008 to 30 Jun 2011</td>
<td>Dr Ng Kar Hui, Dr Wei Chang Li, A/Prof Sam Chong, A/Prof Heng Chew Kiat</td>
</tr>
</tbody>
</table>
Title: Host susceptibility to infectious diseases.  
Period: 2008  
PI: A/Prof Goh Li Meng, Denise

Title: Identification and Development of Biomarkers of Sarcopenia in normal and aging populations (NRF-NTU).  
Period: 1 Apr 2009 to 31 Mar 2014  
PI: A/Prof Stacey Tay

Title: The Immunomodulatory effects of probiotics on the Th2 immune responses: Role of gut dendritic cells (BMRC A*STAR).  
Period: 18 Dec 2008 to 01 Dec 2011  
PI: Prof Chua Kew Yan  
Co-PI: Dr Huang Chiung-Hui

Title: Investigating the role of DEC1 and its underlying molecular mechanisms in the pathogenesis of minimal change nephrotic syndrome (NKFRC).  
Period: Jan 2009 to Jan 2012  
PI: Dr Yeo Wee Song

Title: M'sia-Sin ALL 2007 study - A risk-stratified multi-centre childhood aLL study incorporating pharmacokinetics (BMRC).  
Period: 01 Jan 2008 to 31 Dec 2010  
PI: A/Prof Yeo Eng Juh

Title: Molecular Evaluation of gut microbiota signatures in infants with eczema (BMRC A*STAR).  
Period: 18 Dec 2008 to 31 Dec 2010  
PI: Adj Prof Lee Bee Wah  
Co-PI: Prof Chua Kew Yan, A/Prof Marion Aw, A/Prof Lynette Shek

Title: A multi-centre, multi-faceted therapeutic study incorporating whole genome association and candidate pathway studies for pharmacovigilance and toxicogenomics in childhood acute lymphoblastic leukaemia: M'sia-Sin ALL 2008 study (NMRC CSA).  
Period: 1 Apr 2008 to 31 Mar 2013  
PI: A/Prof Yeo Eng Juh

Title: NHG Researcher-Investigator-Scientist Enabler (Rise) Grant FY2009.  
Period: 1 Apr 2009 to 31 Mar 2011  
PI: A/Prof Lynette Shek

Title: Optimisation and Preclinical studies of prophylactic and therapeutic DNA vaccines for dust mite allergy and allergic asthma (BMRC).  
Period: 18 Dec 2008 to 01 Dec 2011  
PI: Prof Chua Kew Yan  
Co-PI: Adj Prof Lee Bee Wah

Title: Pathogenesis of steroid-resistant nephrotic syndrome: Role of B cells in Rituximab-responsive patients (NMRC NIG).  
Period: 2008 to 2010  
PI: Dr Yeo Wee Song  
Co-PI: Prof Yap Hui Kim

Title: Polarized Innate Immune Response as a basis of MCNS - a systems approach in defining the molecular basis of pathogenicity (SigN Grant).  
Period: 01 Apr 2008 to 31 Mar 2011  
PI: Prof Yap Hui Kim

Title: Polarized Innate Immune Response in An IL-13 overexpression experimental model of minimal change nephrotic syndrome (MCNS) (NKFRC).  
Period: 1 Jul 2008 to 30 Jun 2011  
PI: Prof Quak Seng Hock  
Co-PI: Dr Wei Chang Li
Title: Profiling molecular signals associated with podocyte effacement in minimal change nephrotic syndrome following Th2 cytokine stimulation (NMRC).
Period: 02 Jan 2008 to 31 Mar 2011
PI: Prof Yap Hui Kim

Title: Proposal for the study of Office Blood Pressure in Singapore children (NKF).
Period: Dec 2008 to 09 Dec 2009
PI: Dr Tammi Quek

Title: Rational design of a hypoallergenic major dust mite allergen for allergy immunotherapy (BMRC A*STAR).
Period: 18 Dec 2008 to 01 Dec 2010
PI: Prof Chua Kwaw Yan
Co-PI: Dr Kuo I-Chun

Title: The role of visfatin and adiponectin in severely obese children with metabolic complications (NMRC EDG).
Period: 28 Mar 2008 to 31 Dec 2009
PI: A/Prof Lee Yung Seng

Title: Singapore Childhood Cancer Survivor Study (Singapore-CCSS): A multi-institutional Collaborative Study on Long-term Survivors of Childhood Cancer (SCS).
Period: 2008 to 31 Mar 2009
PI: Dr LeLe Aung

Title: The use of an immunomodulatory protein as a mucosal adjuvant for sublingual immunotherapy for allergic asthma (NMRC EDG).
Period: 30 Oct 2008 to 30 Nov 2010
PI: Dr Huang Chiong Hui

Title: Use of high resolution melting as a screening tool for Podocyte mutations in a South-East Asian population (NMRC).
Period: 2 Jan 2008 to 31 Mar 2011
PI: Prof Yap Hui Kim
Co-PI: Dr Ng Kar Hui, Dr Wei Chang Li

Title: Use of the Cylex Immuknow assay to assess adequacy of immunosuppression in pediatric renal transplant recipients (NKFRC).
Period: Jan 2009 to Jun 2012
PI: Dr Perry Lau

Title: A Wearable System for the Detection, Recording and Analysis of Wheezes (SERC).
Period: Aug 2009 to Nov 2010
PI: A/Prof Daniel Goh

AWARDS AND PRIZES

Year 2008
1. Dr Yeo Wee Song
   ExxonMobil-NUS Research Fellowship for Clinicians
   ExxonMobil-NUS Research Fellowship for Clinicians (Jan 2008)

2. Dr Allen Yeoh
   NMRC Clinician Scientist Award (SI Category)
   Ministry of Health, Singapore (Feb 2008)

3. NUS Paediatrics Safety Committee
   SITP Award - C.S.I. on Chemical Hazard Management
   National University of Singapore (Mar 2008)
4. **NUS Paediatrics Safety Committee**  
   SITP Award - P.A.E.D.S. on Safety Video and Quizzes  
   By National University of Singapore (Mar 2008)

5. **NUS Paediatrics Safety Committee**  
   NUS Annual Safety and Health Performance Award - ASPHA Silver Award  
   By National University of Singapore (Mar 2008)

6. **Prof Yap Hui Kim**  
   National Outstanding Clinical Award (National Medical Excellence Award)  
   By National Medical Research Council (Mar 2008)

7. **Dr Koh Pei Lin**  
   NUS Leadership in Academic Medicine Program - Pitch for Funds Award  
   By National University Hospital (Mar 2008)

8. **Dr Allen Yeoh**  
   Faculty Research Excellence Award FY2006/07  
   By National University of Singapore (May 2008)

9. **Prof Yap Hui Kim**  
   Faculty Outstanding Researcher Award 2008  
   By National University of Singapore (May 2008)

10. **Dr Yeo Wee Song**  
    NRF-MOH Healthcare Research Scholarship - PhD (4 Years)  
    By National Research Foundation (May 2008)

11. **Dr Lele Aung**  
    International Travel Grant Award to the Advances in Neuroblastoma Research Meeting, Chiba, Japan (21-24 May 2008)

12. **A/Prof Lai Poh San**  
    Recipient of NUS-MOE (Gifted Education Branch) Science Research Programme (SRP) Long Service Award presented at the 20th Science Research Congress & Commemorative Celebration at University Hall on 24 May 2008

13. **Prof Low Poh Sim**  
    Recipient of NUS-MOE (Gifted Education Branch) Science Research Programme (SRP) Long Service Award presented at the 20th Science Research Congress & Commemorative Celebration at University Hall on 24 May 2008

14. **Dr Huang Chuing Hui**  
    Best Poster Award: Paediatrics Research Day  
    By Department of Paediatrics, NUS (Sep 2008)

15. **Dr Loo Xiu Ling, Evelyn**  
    Young Investigator Award  
    By Joint Singapore Paediatric Society and APAPARI (Asia Pacific Association of Paediatric Allergy, Respirology and Immunology) (Oct 2008)

16. **TK Maheshwari, GL Lee, HK Yap; WS Yeo, Changli Wei, SC Jordan**  
    Best Poster Award  
    By Joint Singapore Paediatric Society and APAPARI (Oct 2008)

17. **Dr Ong Hian Tat**  
    Merit award - Best Poster - Medical  
    By NHG Annual Scientific Congress 2008 (Nov 2008)

18. **Dr Mali Vidyadhar, A/Prof K Prabhakaran, Ms Kwok Fong Yee, Ms Yvonne Ong, Dr Sucharita Hota and Dr Kao Pao Tang**  
    Best Sustainability Award (6th CPIP Convention and Graduation Ceremony)  
    By NHG Annual Scientific Congress 2008 (Nov 2008)
Year 2009
1. **A/Prof Lynette Shek**
   NHG Scientist Investigator Research Enabler (RISE) - FY2009
   By National Healthcare Group (Feb 2009)

2. **Dr Tan Poh Lin**
   NHG Scientist Investigator Research Enabler (RISE) - FY2009
   By National Healthcare Group (Feb 2009)

3. **Dr Lele Aung**
   NHG Scientist Investigator Research Enabler (RISE) - FY2009
   By National Healthcare Group (Feb 2009)

4. **Dr Nicola Ngiam**
   Best Oral Presentation (Merit) Award - 6th Asia Pacific Medical Education Conference
   By National University of Singapore (Feb 2009)

**PATENTS**

**Title**: A Clinical Method for Genotyping Large Genes for Mutations that Potentially Cause Disease
**Inventor**: A/Prof Lai Poh San
**Patent File No.**: IPOS 200906525-1
**Filing Date**: 29 Sep 2009

**Title**: Identification of a Genetic Factor (HLA-G*0106) Associated with Increased Risk of Pre-Eclampsia.
(CHONG SS 01-US/PRV)
**US Provisional Patent Application No.**: 61/107,376
**Inventor**: Chong SS, Chong YS, Annamalai L, Lee CGL, Ho JFV, Tan CY.
**Filed**: 22 Oct 2008

**Title**: Recombinant nucleic acid useful for inducing protective immune response against allergens
**Patent No.**: 539061 (NZ)
**Inventor**: Prof Chua Kaw Yan
**Issued date**: July 2008

**Title**: Simplified Methylation-Specific PCR Analysis of FMR1 CGG Repeat Expansions. (09206N-US/PRV)
**US Provisional Patent Application No.**: 61/252,182
**Inventors**: Chong SS, Teo CRL, Lee CG.
**Filed**: 16 Oct 2009

**RESEARCH ACHIEVEMENTS**

International Refereed Publications


**BIOSKETCH OF DEPARTMENT FULL-TIME STAFF**

**Name:** Daniel GOH Yam Thiam  
**Designation:** Senior Consultant and Head of Department of Paediatrics  
**Qualifications:** MBBS, MMed(Paeds), FAMS, FRCPCH (UK), FCCP (USA)  
**Email:** paegohyt@nus.edu.sg; daniel_goh@nuhs.edu.sg  
**Contact Number:** 6772 4112  
**Research Interests:** Paediatric pulmonology, Sleep-related breathing disorders in children, chronic respiratory diseases in childhood, and allergic airway diseases in childhood.

**Top 5 Publications:**

**Name:** YAP Hui Kim  
**Designation:** Senior Consultant, Dept of Paediatrics, Head, Division of Paediatric Nephrology, Immunology & Urology  
**Qualifications:** MBBS (S’pore), MMed (Paediatrics), MD, FRCPCH, FRCP (Edin), FAMS  
**Email:** paeyaphk@nus.edu.sg  
**Contact Number:** 6772 4411  
**Research Interests:** Clinical research interest is targeted towards optimization of outcomes in peritoneal dialysis in children, and one of the targets is the promotion of pediatric nephrology care in Asia.
   a) Immune mechanisms in glomerulonephritis.  
   b) Immunogenetics of familial nephritis.  
   c) Identification and characterization of the immunosuppressive effects of Chinese medication used to treat glomerulonephritis.  
   d) Transplant immunology.

**Top 5 Publications:**


Name: Hugo VAN BEVER
Designation: Senior Consultant, Pediatrics – Head of Division of Pediatric Allergy
Email: paevbhps@nus.edu.sg
Contact Number: 6779 4420
Research Interests: Pediatric allergy (asthma, eczema, rhinitis, food allergy, and immunotherapy).

Top 5 Publications:

Name: QUEK Swee Chye
Designation: Head and Senior Consultant, Paediatric Cardiology
Qualifications: MBBS, MMed(Paed), MD, FAMS, DCH(London), FRCPCH(UK), FACC
Email: paeqsc@nus.edu.sg; swee_chye_quek@nuhs.edu.sg
Contact Number: 6772 4420
Research Interests: Paediatric Cardiology.

Top 5 Publications:
Name: LOW Poh Sim  
Designation: Senior Consultant, Paediatric Neurology  
Qualifications: MBBS (S’pore), MMed (Paeds), MD (S’pore), FAMS, FRCP (Edin), FRCPCH (UK), FRACP (Australia)  
Email: paelps@nus.edu.sg; pohsim_low@nuhs.edu.sg  
Contact Number: 6772 4420  
Research Interests: Paediatric Neurology.

Top 5 Publications:

Name: QUAK Seng Hock  
Designation: Senior Consultant, Paediatric Gastroenterology/Hepatology  
Qualifications: MBBS (S’pore), MMed (Paeds), MD (S’pore), FAMS, FRCP (Glas), FRCPCH (UK), MD  
Email: paeyqsh@nus.edu.sg; senghock_quak@nuhs.edu.sg  
Contact Number: 6772 4112  
Research Interests: Paediatric Gastroenterology/Hepatology.

Top 5 Publications:
Name: LEE Yung Seng  
Designation: Associate Professor and Senior Consultant  
Qualifications: MBBS, MMed(Paed), PhD, MRCP(Paed)(UK), MRCPCH, FAMS  
Email: paeleeys@nus.edu.sg  
Contact Number: 6772 4420  
Research Interests: Childhood Obesity, appetite regulation, growth and development.

Top 5 Publications:

Name: Marion M AW  
Designation: Senior Consultant, Associate Professor  
Qualifications: MBBS, MMED (Paeds), MRCP (UK), MD (University of London), FRCPCH (UK), FAMS (S’pore)  
Email: marion_aw@nuhs.edu.sg  
Contact Number: 6772 4420  
Research Interests: Paediatric Gastroenterology, Liver Transplant.

Top 5 Publications:
**Name: Denise Li-Meng GOH**  
**Designation:** Senior Consultant, Paediatrician and Geneticist  
**Qualifications:** MBBS (hons), M.Med, M.D., MRCPCH, FAMS, Dip ABMG, Fellow ACMG  
**Email:** paegohlm@nus.edu.sg  
**Contact Number:** 6779 5555  
**Research Interests:** Genetic disorders.  

**Top 5 Publications:**  

**Name: ONG Hian Tat**  
**Designation:** Senior Consultant & Clinical Associate Professor  
**Qualifications:** M.B;B.S (Singapore); M.Med Paediatrics (Singapore)  
**Email:** Hian_Tat_Ong@nuhs.edu.sg  
**Contact Number:** 6772 4391  
**Research Interests:**  
a) Paediatric epilepsy.  
b) Clinical neurophysiology.  
c) Management of spasticity in children with cerebral palsy using botulinum toxin type A.  

**Top 5 Publications:**  
Name: QUAH Thuan Chong  
Designation: Senior Consultant, Associate Professor  
Qualifications: MBBS, MMed (Peds)  
Email: paeqtc@nus.edu.sg  
Contact Number: 9834 4292  
Research Interest(s): Childhood leukemias.

Top 5 Publications:

Name: Roy JOSEPH  
Designation: Senior Consultant  
Qualifications: MBBS, MMed(Paed), FRCPCH  
Email: paeroyj@nus.edu.sg  
Contact Number: 9625 7657  
Research Interest(s): Transcutaneous bilirubinometry; Medical Ethics Capacity development; Mass newborn screening.

Top 5 Publications:
Name: LOKE Kah Yin  
Designation: Senior Consultant, Paediatric Endocrinology  
Qualifications: MBBS, MMed (Paeds), MRCP(UK), FRCPCH, MD  
Email: paelky@nus.edu.sg  
Contact Number: 6779 5555  
Research Interests: Congenital Adrenal Hyperplasia; Congenital Adrenal Hypoplasia; Paediatric Diabetes.

Top 5 Publications:

Name: TAN Poh Lin  
Designation: Senior Consultant  
Qualifications: MBBS, MMED (PAEDS), FAMS  
Email: poh_lin_tan@nuhs.edu.sg  
Contact Number: 9618 0281  
Research Interests: Blood and marrow stem cell transplantation.

Top 5 Publications:
Name: Zubair AMIN  
Designation: Associate Professor, Department of Pediatrics, Consultant, University Children Medical Institute, Assistant Dean, Curriculum and Assessment, YLL SoM, NUS, Deputy Head, Medical Education Unit, YLL SoM, NUS  
Qualifications: Diplomat; the American Board of Pediatrics; Master in Health Profession Education (MHPE)  
Email: Zubair.Amin@nuhs.edu.sg  
Contact Number: 6772 4572  
Research Interests: Curriculum, student assessment, faculty development, international medical education.

Top 5 Publications:

Name: SHEK Pei-Chi Lynette  
Designation: Associate Professor  
Qualifications: MBBS, MRCP, FRCPCH, FAMS  
Email: paeshekl@nus.edu.sg  
Contact Number: 6772 4420  
Research Interests: Food allergy, drug allergy, and probiotics in immunomodulation.

Top 5 Publications:
Name: Stacey KH TAY  
Designation: Associate Professor, Paediatric Neurology  
Qualifications: MB BS, MRCPCH, MMed (Paeds)  
Email: stacey@nus.edu.sg  
Contact Number: 6779 5555  
Research Interests: Neurometabolic and neurogenetic disorders.

Top 5 Publications:

Name: Cindy HIA Ping Ping  
Designation: Consultant, Paediatric Cardiology  
Qualifications: MB BS, MRCPCH  
Email: paev19@nus.edu.sg; paechpp@nus.edu.sg  
Contact Number: 6772 4420  
Research Interests: Paediatric Cardiology.

Top 5 Publications:

Name: KOH Pei Lin  
Designation: Consultant, Paediatric Critical Care  
Qualifications: MBBS (National University of Singapore), MRCPCH (UK), MMed Paediatrics (Singapore)  
Email: paekpl@nus.edu.sg  
Contact Number: 6772 4420  
Research Interests: Paediatric Critical Care and Paediatric Haematology/Oncology.

Top 5 Publications:
Name: Terence LIM  
Designation: Consultant, Paediatric Cardiology  
Qualifications: MBBS, MRCPCH  
Email: terence_lim@nuhs.edu.sg  
Contact Number: 6772 2602  
Research Interests: Paediatric Cardiology.

Top 5 Publications:

Name: Graeme MACLAREN  
Designation: Consultant  
Qualifications: MBBS FJFICM FRACP FCCP  
Email: gmaclaren@iinet.net.au  
Contact Number: 9640 3971  
Research Interests: Extracorporeal intensive care.

Top 5 Publications:
5. Spelman D, MacLaren G. Transfusion-transmitted bacterial infection. In: UpToDate, Rose BD (Ed), UpToDate, Waltham, MA, (2009).
Name: Mahesh Babu RAMAMURTHY  
Designation: Consultant, Paediatric Pulmonology & Sleep  
Qualifications: M.B.B.S, M.D.(Pediatrics), M.R.C.P (U.K)  
Email: mahesh_babu_ramamurthy@nuhs.edu.sg  
Contact Number: 6772 2607  
Research Interests: Paediatric Pulmonology & Sleep

Name: NG Kar Hui  
Designation: Assistant Professor  
Qualifications: M.B.,B.S., M.Med (Paediatrics), MRCPCH (United Kingdom)  
Email: paenkh@nuhs.edu.sg  
Contact Number: 6772 4411  
Research Interests: Genetics of glomerular diseases

Top 5 Publications:


Name: QUEK Chaey Moon, Tammi  
Designation: Associate Consultant  
Qualifications: MBBS, MRCHcH, M.Med (Paediatrics), FAMS  
Email: paev31@nus.edu.sg  
Contact Number: 9617 8442  
Research Interests: Developmental Paediatrics

Top 5 Publications:


4. Ambulatory Blood Pressure is a Better Predictor of Left Ventricular Hypertrophy than Casual Blood Pressure in Young Patients with End Stage Renal Failure. Quek CM, Ng KH, et al. Presentation at the 1st Scientific Meeting of AST Trainees in Nephrology.

Name: CHEW Su Yah  
Designation: Assoc Consultant, Children’s Emergency  
Qualifications: MBBS (S’pore), MRCPCH (UK), MMed (Paeds)  
Email: paev34@nus.edu.sg  
Contact Number: 6772 2808; 6772 1496  
Research Interests: Children's Emergency.

Name: Christina ONG  
Designation: Senior Registrar, Paediatric Gastroenterology  
Qualifications: MB BS, MRCPCH  
Email: paev21@nus.edu.sg  
Contact Number: 6779 5555  
Research Interests: Inflammatory Bowel Disease, Food Allergy, Recurrent Abdominal Pain.

Top 5 Publications:  

Name: Elizabeth ANG  
Designation: Registrar, Allergy, Immunology & Rheumatology  
Qualifications: MBBS, MRCPCH, MMed (Paed)  
Email: elizabethang@nus.edu.sg  
Contact Number: 6772 4420  
Research Interests: Allergy, Immunology & Rheumatology.

Top 5 Publications:  

Name: Eugene HAN  
Designation: Registrar, Pulmonology & Sleep  
Qualifications: MBBS (S’pore), MRCPCH (UK)  
Email: eugenehan@nus.edu.sg  
Contact Number: 6772 4420  
Research Interests: Pulmonology & Sleep.

Top 5 Publications:  
Name: Mas Suhaila Bte ISA  
Designation: Registrar, Infectious Diseases  
Qualifications: MBBS, MRCPCH, MMed (Paed)  
Email: mas_suhaila@hotmail.com  
Contact Number: 6772 4420  
Research Interests: Infectious Diseases.

Top 5 Publications:  
(Posters submitted at World Society For Pediatric Infectious Disease [WSPID] 2009)  
1. Isa MS, ML Tan, TC Quah, PA Tambyah. Central Venous Access Devices and Bloodstream Infections in Paediatric Haematology-Oncology patients in a Tropical regional referral medical centre.  
2. Isa MS, G Maclaren, EJ Yeoh, N Ngiam, PA Tambyah. Persistent Multi-Resistant Stenotrophomonas maltophilia Bacteremia in a child with Leukemia on Extracorporeal Membrane Oxygenation.

Name: YEO Wee Song  
Designation: Registrar  
Qualifications: MBBS (Singapore); MMED (Paediatric Medicine); MRCPCH (UK)  
Email: cornelius_lionell@yahoo.com  
Contact Number: 9660 6117  
Research Interests: Transplant Immunology; Biomarkers for acute renal injury and transplant allograft dysfunction; Pathogenicity of nephrotic syndrome (MCNS and FSGS).

Top 5 Publications:  

LIST OF ADJUNCT STAFF  
Adjunct Professor:  
Roger Beuerman  
Wallace Foulds  

Adjunct Associate Professor:  
Ecosse  
Leonard Ang Pek Kiang  

Adjunct Assistant Professor:  
Edwin Chow  
Eranga Nishanthie Vithana
Message on Research Mission from Head of Department

ASSOCIATE PROFESSOR K PRABHAKARAN

- Research in the department is clinical based and in areas of liver diseases and urology.
- One of out of the three consultants will be involved in this area of research and will spend about 30% of his time in it.
KEY RESEARCH AREAS
• Liver transplantation and urology.

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: An observational study of the administration of Eovist/Primovist in pediatric subjects (>2months and <18yrs) who are referred for a routine contrast enhance liver MRI because of suspected or known focal liver lesions.
Period: April 2009 to April 2010
PI: A/Prof K Prabhakaran

Title: To investigate the role of TGFβ1, EGF, ET-1 and MCP-1 for the diagnosis and follow-up of children with obstruction at the pelvi-ureteric junction of the kidney.
Period: July 2010 to June 2012
PI: Dr Mali Vidyadhar; A/Prof K Prabhakaran

RESEARCH ACHIEVEMENTS
International Refereed Publications


BIOSKETCH OF DEPARTMENT FULL-TIME STAFF

Name: K PRABHAKARAN
Designation: Senior Consultant & Head of Department
Qualifications: MBBS FRCS(Ed) FRCS Glas, M.Med (Surgery), FAMS (Paediatric Surgery)
Email: surprabh@nus.edu.sg
Contact Number: 67722418
Research Interests: Liver Transplantation.

Top 5 Publications:


Name: LOH Ser Kheng, Dale Lincoln
Designation: Senior Consultant
Qualifications: BA, MB.Ch.B, FRCS (Paediatric Surgery), FAMS (Paediatric Surgery)
Email: dale_lincoln_loh@nuhs.edu.sg
Contact Number: 67722418
Research Interests:

Top 5 Publications:


Name: Vidyadhar MALI
Designation: Consultant
Qualifications: MBBS, MS,MCh, AFRCS, MMED, FRCS(Paed), FAMS
Email: padmakar_vidyadhar_mali@nuhs.edu.sg
Contact Number: 6772 2418
Research Interests:
1) Congenital obstructive nephropathy in children.
2) Tolerance, Tregs and HLA matching in paediatric living related liver transplantation.

Top 5 Publications:


Name: Mohamed Abubacker AHAMED FAIZ ALI
Designation: Registrar
Qualifications: MBBS, MS (India), MRCS (UK), MMed (Singapore)
Email: ahamed_faiz_alimohamed_abubacker@nuhs.edu.sg
Contact Number: 6772 2418

Top 5 Publications:
1. “Clinical Study of Cystic Swelling of Kidney” (Dissertation presented to Kuvempu University in October 1997 India Part of M.S., General Surgery).


Message on Research Mission from Head of Department

DR LEE JIUN

All doctors are to focus on at least one area of research that has clinical impact on patient care and outcome.
KEY RESEARCH AREAS
• Newborn hemodynamics
• Genetics and epidemiology of neonatal jaundice
• Breastfeeding support and promotion
• Medical ethics capacity development
• Infant nutrition

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: Incidence of Immunoprophylaxis failure and hepatitis B surface antibody escape mutants in infants born to hepatitis B carrier mothers in Singapore. (NHG SIG Grant)
Period: June 2009 to July 2011
PI: Dr Lee Le Ye

Title: A new and precise method for continuous bedside monitoring of cardiac output in the intensive care unit. (NMRC EDG)
Period: Jan 2010 to Dec 2010
PI: Dr Lee Jiun

RESEARCH ACHIEVEMENTS
International Refereed Publications

Year 2008


Year 2009


**BIOSKETCH OF DEPARTMENT FULL-TIME STAFF**

**Name:** LEE Jiun
**Designation:** Chief, Department of Neonatology; Assoc Professor, Dept of Paediatrics
**Qualifications:** MBBS, MMed, FAMS
**Email:** Lee_jiun@nuhs.edu.sg
**Contact Number:** 6772 5075
**Research Interests:** Newborn hemodynamics, Preterm patent ductus arteriosus.

**Top 5 Publications:**
Name: **Roy JOSEPH**  
**Designation:** Senior Consultant  
**Qualifications:** MBBS, MMed(Paed), FRCPCH  
**Email:** paeroyj@nus.edu.sg  
**Contact Number:** 9625 7657  
**Research Interests:** Transcutaneous bilirubinometry; Medical Ethics Capacity development; Mass newborn screening.

**Top 5 Publications:**


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Name: **LEE Le Ye**  
**Designation:** Consultant  
**Qualifications:** MBBS, MMed (Paed) Singapore, MRCPCH  
**Email:** le_ye_LEE@nuhs.edu.sg  
**Contact Number:** 6772 4574  
**Research Interests:** Genetic association of neonatal Jaundice, Screening technologies-G6PD, OAE, AABR, IEM, Infant Nutrition.

**Top 5 Publications:**

Name: Yvonne NG Peng Mei  
Designation: Consultant  
Qualifications: M.B.B.S, MRCP, IBCLC  
Email: Yvonne_PM_Ng@nuhs.edu.sg  
Contact Number: 6772 5075  
Research Interests: Breastfeeding support and promotion, Extreme preterms outcome, Family-centered newborn care.

Top 5 Publications:  

Name: Chinnadurai AMUTHA  
Designation: Associate Consultant  
Qualifications: MBBS, D.Ch, MRCPCH, M.Sc (By Research)  
Email: camutha@yahoo.com  
Contact Number: 9623 6580  
Research Interests: Transcutaneous Bilirubinometry; Anthropometry.

Top 5 Publications:  

Name: Krishnamoorthy NIDUVAJE  
Designation: Associate Consultant  
Qualifications: MBBS, MRCP (UK), FAMS  
Email: Krishnamoorthy.NAIDUVAJE@nuhs.edu.sg  
Contact Number: 9622 8203  
Research Interests: Outcome in Very Low Birth Weight (VLBW) infants; Cranial ultrasonography and imaging in the newborn.

Top 5 Publications:  
The Department of Medicine with its large complement of academic staff from a wide range of specialties aims to be a focus of translational research both in Singapore as well as internationally. The Department has important collaborations with many of the leading basic research institutes across Singapore such as Institute of Molecular and Cell Biology (IMCB), Genome Institute of Singapore (GIS), Singapore Institute of Clinical Studies (SICS) and A-STAR. Over the past year, departmental staff have successfully garnered numerous competitive research grants, notably the NUHS Centre Grant for a “NUHS Memory Aging and Cognition Centre” led by A/Prof Christopher Chen, the NMRC Grant for “The Chloroquine for influenza Prevention (CHIP) Trial. A randomised, double-blind, placebo controlled trial of chloroquine in the prevention of influenza: evaluation of its clinical pharmacology and relationship between drug levels and protective efficacy” led by Dr Lawrence Lee Soon U, the NMRC Grant for a “Can oxidative stress markers predict ischemic stroke outcomes? A prospective study using oxidation stress biomarkers, perfusion-weighted imaging and clinical stroke severity scales” led by Dr Raymond Seet, and the NMRC Grant for “A genome-wide association study for cardiovascular and metabolic risk factors in Singaporean Chinese/ High density lipoprotein associated protein variants and their association with diabetes mellitus and cholesterol efflux” led by Associate Prof Tai Ee Shyong. Besides supporting and collaborating with established investigators, the Department places special emphasis on nurturing young research talent. To this end, the Department has initiated an Academic Development Programme as well as an Academic Mentoring Programme to encourage and oversee the efforts of its promising junior academics.
KEY RESEARCH AREAS

Division of Endocrinology
Endocrinology division continues to investigate ethnic differences in the patterns and complications of diabetes mellitus. Importantly, an exciting and new collaboration has been started with the Department of Surgery and the Department of Immunology on the immunology of umbilical cord stem cells, and potential gene therapy of diabetes.

Division of Family Medicine
The Division of Family Medicine is involved in both undergraduate and postgraduate education. Main research areas include clinical care issues – chronic disease management in primary-care; infectious disease control, health services research issues, medical education research, and primary-care geriatrics.

Division of Gastroenterology
The Gastroenterology research focuses on hepatitis B, gastrointestinal cancer, functional gastrointestinal disorders, and novel investigative applications such as robotic diagnostic devices. The programs stretch from basic research to clinical research and clinical trials. For hepatology, research is mainly on hepatitis B with focus on the immunopathology. Clinical research focuses includes the natural history of HBV with characterisation of viral activity following HBeAg seroconversion, and the outcome of therapy in treated patients.

Gastroenterology contributes to the Singapore Gastric Cancer Consortium, a national coalition of leading clinicians and scientists working in gastric cancer research. The specific research projects are: improving early detection of gastric cancer; improving biologic understanding of gastric carcinogenesis; molecular epidemiology of gastric cancer risk, and improving treatment by well-designed clinical trials combined with gene expression profiling of tumours. International collaborations include the International Cancer Biomarker Consortium and the Asia-Pacific Working Group on Gastric Cancer.

Division of Infectious Disease
The Infectious disease group at NUS is part of the Infectious Diseases Themed Group and the Infectious Diseases Interdisciplinary Program which involves extensive collaboration across NUS (with Departments of Mathematics, Computer Science, Biological Sciences and Microbiology) and Research Institutes (IMCB, IBN, GIS), together with industry. The main areas of interest are antimicrobial resistance, device associated infections, emerging infectious diseases including avian and pandemic influenza.

Division of General Medicine and Geriatric Medicine
Both clinical and laboratory research occurs in (a) hypertension and diastolic heart failure, (b) vascular biology (mediators and signal molecules in endothelium and smooth muscle). Division members collaborate with physician scientists in other Divisions (e.g., Cardiology and Endocrinology) and other Departments (e.g. Pharmacology), to carry out studies in the two interrelated streams within cardiovascular medicine. A distinct clinical research effort looks at drug treatment compliance and adverse drug reactions in collaboration with the Department of Pharmacy, NUS Faculty of Science.

Our Geriatric Medicine subdivision also actively collaborates with Biomedical engineers and Basic Scientists and was recently awarded NMRC funding as co-PI on An Integrated Approach to Overcome Sarcopenia and Frailty in Ageing Humans. Division members are also actively involved in NUHS Centre Grant for a “NUHS Memory Aging and Cognition Centre” led by A/Prof Christopher Chen. (http://www.nrf.gov.sg/UploadedFiles/News_and_Events/Press_Release/2009/CRP%20press%20release.pdf)

Division of Nephrology
The current focus in Nephrology Research is on clinical research in several areas related to the epidemiology of chronic kidney disease and kidney failure in Singapore. We are investigating malnutrition in dialysis patients, epidemiology of chronic kidney disease – especially in causes and of mortality and hospitalisation.

We are also validating and deriving glomerular filtration rate estimating equations for different ethnic groups. We also aim to determine if newer biomarkers of renal injury are suitable for use (Cystatin C) in Asian patients and in the process, establish a bio-specimen bank to improve the efficiency of biomarker research in kidney disease. Additionally, we are involved in a collaborative study using RNA microarray analysis of blood specimens in active lupus patients in UK and Singapore.
Another area of research is on the functional genomic characterization of TRIP-Br integrator function and the impact of absence of TRIP-Br2 on growth and development: characterization of TRIP-Br2 knockout mouse as a model for common human disease(s).

Division of Neurology
The division of Neurology has achieved success in “niche-related” work in the field of peripheral nerve disease diagnostics and treatment and is poised to deliver important translational work in this area in the field of diabetic and other polyneuropathies. There is a thriving collaboration with bioengineering as well as clinical and basic science departments. Stroke research has a strong base in clinical trials and is starting to implement promising new treatments with sophisticated transcranial Doppler techniques which are linked to diagnostics of brain embolism in ischemic stroke.

Department of Psychological Medicine
The Department conducts research in ageing and mental health, the mind-body nexus psychiatric neuroscience, psycho-neuro-immunology as well as medical education and training.

The Department is home to the Gerontology Research Programme (GRP), a systematic and coordinated programme of multi-disciplinary research. Genetic, biological, environmental, behavioral, social, clinical, and health services approaches are employed in a large population-based cohort study (Singapore Longitudinal Aging Cohort (SLAS) of ageing and health of the elderly Singaporeans. Areas of research focus include nutrition and cognition, dementia and depression, frailty and active ageing. The Psychoneuroimmunology (PNI) Research Programme has become the pioneer in Asia and performs the state-of-art translational research at the scientific frontier between psychiatry and medicine. The PNI team focuses on the immunological aspects of psychiatric illnesses and psychiatric aspects of chronic inflammatory diseases. Research strategies include laboratory research, functional imaging and advanced statistical techniques such as meta-analysis. Emerging areas include the effects of genetic and environmental stress on cognitive, functional and brain changes in bipolar disorder, and resilience in children.

Division of Respiratory & Critical Care
Respiratory & Critical Care division has put in place several active research programs: rapid molecular diagnosis of tuberculosis, optimal management of pleural sepsis, improving asthma control in a national intervention program, bundle interventions in to improve clinical outcomes in COPD, minimally and most cost-effective diagnosis and staging of lung cancer, optimal liberation from mechanical ventilation, and cost-effective management of pneumonia in the elderly (minimizing mortalities & hospital days).

Division of Rheumatology
The Division of Rheumatology provides tertiary outpatient and inpatient care to patients with rheumatic, soft tissue and metabolic bone disease; and is also actively involved with undergraduate and postgraduate education. The division is also involved in the following research programs:

a) OPTIMAL program (a nation wide disease management program to prevent fractures)
b) Gout management improvement studies
c) A collaborative study using RNA microarray analysis of blood specimens in active lupus patients in UK and Singapore.
d) Rheumatoid arthritis burden of illness cost analysis
e) Studies on lupus-related damages and heir determinants in the musculoskeletal, cardiovascular and neuropsychiatric systems.
f) Psychoneuroimmunology research programme to study the immunological aspects of psychiatric illnesses and vice versa involving basic science laboratory technique, functional imaging and advance statistical methods including meto-analysis.
LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Division of Endocrinology
Title: Elucidating the Potential Cure for Diabetes Mellitus: Molecular Studies of Gene Expression in Obese Individuals with Type 2 Diabetes Mellitus (NUS).
Period: 16 Nov 2009 to 15 Nov 2010
PI: Khoo Chin Meng

Title: A genome-wide association study for cardiovascular and metabolic risk factors in Singaporean Chinese/ High density lipoprotein associated protein variants and their association with diabetes mellitus and cholesterol efflux (NMRC).
Period: Apr 2009 to Mar 2014
PI: Tai Ee Shyong

Title: Islet Transplantation for Type I diabetes using the Edmonton protocol (Kidney Disease Foundation).
Period: From 2008
PI: Lee Kok Onn, Sir Roy Calne

Division of Family Medicine
Title: Improving Communications Skills training for medical students by using role-play and simulated patients (CDTL).
Period: 22 Sep 09 to 31 Jul 10
PI: Wong Teck Yee

Title: RSVP-VCF Phase 1 study on Dementia Prevention (RSVP).
Period:
PI: Goh Lee Gan

Division of Gastroenterology & Hepatology
Title: Critical Determinants of liver stem cell Niche (NMRC).
Period: Feb 2009 to Jan 2011
PI: Dan Yock Young

Title: Ex-vivo hepatocytes for treatment of liver failure (NMRC-CSA).
Period: Apr 2009 to Apr 2012
PI: Dan Yock Young

Title: Genetic Profiling on regulators of human fetal liver progenitor cells (NUS/ARF).
Period: Mar 2009 to Feb 2012
PI: Dan Yock Young

Period: Sep 2008 to Sep 2011
PI: Ho Khek Yu

Title: Targeting Hepatitis B RNA Splicing as a Novel Approach to Inhibit Viral Replication (NMRC).
Period: Apr 2009 to Apr 2011
PI: Lee Guan Huei

Division of General Medicine
Title: Outpatient Infusion Centre (OPIC) (NHG).
Period: 2008 to 2010
PI: Sheila Vasoo

Division of Infectious Disease
Title: The Chloroquine for influenza Prevention (CHIP) Trial. A randomised, double-blind, placebo controlled trial of chloroquine in the prevention of influenza: evaluation of its clinical pharmacology and relationship between drug levels and protective efficacy (NMRC).
Period: Oct 2009 to Apr 2010
Title: Clinical impact of low ceftriaxone MIC ampC- and ESBL-positive Enterobacteriaceae.  
Period: 01 Apr 2009 to 31 Mar 2011  
PI: Hsu Li Yang

Title: Comparative activity of carbapenem testing (etest study) (Jascen & Cilag).  
Period: Aug 2009 to Aug 2010  
PI: Hsu Li Yang

Title: Epidemiology of outcomes associated with infections caused by multidrug-resistant gram-negative bacilli in Singapore hospitals (MOE).  
Period: Jul 2008 to Jul 2010  
PI: Hsu Li Yang

Title: Longitudinal study on chlorhexidine & mupirocin resistance among Staphylococcus spp. Isolates obtained from hemodialysis – dependent patients given mupirocin ointment & chlorhexidine bodywash as prophylaxis against catheter-related infections. (NKF).  
Period: May 2008 to Apr 2011  
PI: Hsu Li Yang  
Co-PI: Teo BW

Title: Microrna based diagnosis and prognosis of H1N1 and related viral diseases (NMRC).  
Period: Jan 2010 to Jan 2013  
PI: Paul A Tambyah  
PI: Lawrence Lee Soon U

Title: MIC Testing of vancomycin against Staphylococcus aureus by agar dilution (Astra Zeneca).  
Period: Mar 2009 to Sep 2010  
PI: Hsu Li Yang

Division of Nephrology

Title: Multiple-biomarker approach to glomerular filtration rate determination in healthy and chronic kidney disease patients (ARF).  
Period: 12 May 2008 to 11 May 2010  
PI: Teo Boon Wee, Jimmy

Title: A randomized controlled trial of the efficacy and safety of Alemtuzumab (MABCAMPATH) for prevention of graft rejection and preservation of renal function in patients receiving kidney transplants (NMRC).  
Period: 01 Apr 2009 to 31 Mar 2012  
PI: A Vathsala

Title: Singapore Kidney Function Study (Phase I) (SKDSI) (NKF).  
Period: 01 Jul 2008 to 30 Jun 2011  
PI: Teo Boon Wee, Jimmy

Title: Singapore Kidney Function Study (Phase II) - Determining glomerular filtration rate measurements in newly diagnosed end-stage renal disease patients (NKF).  
Period: 01 Jan 2009 to 31 Dec 2010  
PI: Chua Horng Ruey

Division of Neurology

Title: Can oxidative stress markers predict ischemic stroke outcomes? A prospective study using oxidation stress biomarkers, perfusion-weighted imaging and clinical stroke severity scales (NMRC).  
Period: 2008 to 2011  
PI: Raymond Seet

Title: Definition of Forearm Digital Muscle Bundle Surface Marking for Botulinum Toxin Injections (NUS ARF).  
Period: 2009 to 2011  
PI: Erle Lim
Title: Intracranial Stenosis in Ischemic Stroke (CRP NRF).  
Period: 2009 to 2014  
PI: Raymond Seet

Title: rTMS as adjunct treatment of primary chronic headache (NHG).  
Period: 2008  
PI: Chan Yee Chuen  
Co-PI: Wilder-Smith

Title: Selection of patients eligible for potential revascularization by multimodality evaluation of cerebral hemodynamics and vasodilatory reserve in presence of symptomatic carotid or middle cerebral artery steno-occlusive disease (NMRC).  
Period: 01 Jan 2009 to 31 Dec 2011  
PI: Vijay K Sharma

Title: A Simple Screening Test for Diabetic Neuropathy* The Enterprise Challenge (TEC) (PMO).  
Period: 2009 to 2011  
PI: Wilder-Smith

Division of Psychological Medicine  
Title: Gerontology Research Programme: Nutritional, Cardiometabolic & Vascular Factors, ApoE4 Gene Interactions, and Dementia and Depression Risk (BMRC).  
Period: 01 Jan 2009 to 31 Dec 2011  
PI: NG Tze Pin

Title: Depressive disorders and bone loss dual roles of inflammation and endothelial dysfunction (NMRC).  
Period: 10 Feb 2009 to 15 Feb 2010  
PI: Roger Ho Chun Man

Division of Rheumatology  
Title: The risk of atherosclerosis and osteoporosis in Patients with depression: A psychoneuroimmunology perspective (NUS-NHG GCRC).  
Period: 2008 to 2009  
PI: Anselm Mak

Title: A comparative transcriptional analysis of Systemic Lupus Erythematosus in Singapore (NMRC-IRG).  
Period: 2008 to 2011  
PI: Paul MacAry  
Co-PI: Anselm Mak

Title: Osteoporosis Patient Targeted and Integrated Management for Active Living (OPTIMAL), a reinvestment fund program under MOH. It is a health service research (but not funded as a research project but a service delivery program). (MOH).  
Period: Apr 2008 to Apr 2013  
PI: Lau Tang Ching

Title: Health Quality Improvement Fund- High-Alert Medication Collaborative (HAM) (MOH).  
Period: 01 Jul 2009 to 30 Jun 2011  
PI: Lau Tang Ching

AWARDS AND PRIZES

Division of Cardiology
1. Carolyn Lam Su Ping  
   3rd Prize for Clinical/Patient Based Research  
   Evans Department of Medicine Research Days – Boston University School of Medicine (2009).

2. Carolyn Lam Su Ping  
   American Heart Association Women in Cardiology Trainee Award for Excellence (2008).
Division of Endocrinology
3. Kurumbian Chandran
   Merit Award for Oral Presentation.
   8th NHG Annual Scientific Congress 2009.

4. Khoo Chin Meng
   Young Investigator Awards – Gold and Bronze.
   8th NHG Annual Scientific Congress 2009.

5. Khoo Yin Hao Eric
   Diabetes UK Type 2 Diabetes Research Award, Diabetes UK (March 2009).

6. Tai E Shyong
   NMRC Clinician Scientist Award

Division of Family Medicine
7. Cheong Seng Kwing
   Best Poster – Primary Care, Merit Award.
   8th NHG Annual Scientific Congress 2009.

8. Cheong Seng Kwing
   Best Poster (Primary Care) Category, Best Poster.
   7th NHG Annual Scientific Congress 2008.

Division of Gastroenterology & Hepatology
9. Andrea Rajnakova
   Winner of Best Oral Presentation (Medical Disciplines).
   8th NHG Annual Scientific Congress 2009.

10. Dan Yock Young
    Winner of Best Oral – Quality, Health Services Research.
    8th NHG Annual Scientific Congress 2009.

11. Dan Yock Young
    2009 Clinician Scientist Award (Investigator).
    Ex-vivo hepatocytes for therapy of Liver failure.

12. Lee Guan Huei
    Best Presentation – Pitch for Fund Round.
    By Clinician Scientist Unit, NUS (28 April 2008).

13. Lee Guan Huei
    By Gastroenterological Society of Singapore.

14. Lim Lee Guan
    Travel Grant of 1000 Euros to GASTRO 2009 United European Gastroenterology Week (UEGW)/World Congress of Gastroenterology (WCOG), London, awarded by the United European Gastroenterology Federation (UEGF) and World Gastroenterology Organization (WGO) for outstanding abstract for oral presentation (2009).

15. Lim Lee Guan
    Scholarship of 100,000 Yens plus free lodging awarded by Kyushu University Hospital, Japan, for one-month clinical attachment with Kyushu University Hospital (2009).

16. Reuben Wong
    Scholarship National Leadership in Academic Medicine (NLAM).
    By NUS Yong Loo Lin School of Medicine (July 2009).
17. **Reuben Wong**  
Young Investigator Award – Clinical Research: Gold.  
8th NHG Annual Scientific Congress 2009.

**Division of Nephrology**

18. **Fareed Khawaja**  
Best Poster – Medical: Merit.  
8th NHG Annual Scientific Congress 2009.

19. **Jimmy Teo Boon Wee**  
NMRC Research Fellowship Dec 4th 2009.

20. **Vathsala Anantharaman**  
Best Paper Award  
“Epidemiology of varicella zoster infections in renal transplant recipients”.  
3rd Scientific Meeting of Advanced Specialty Training in Nephrology (23 Aug 2008).

21. **Vathsala Anantharaman**  
Best Paper Award  
“Impact of Pre and Post Transplant Panel Reactive Antibodies on Long Term Graft Outcomes in Deceased Donor Renal Transplantation”.  
Annual Scientific Meeting of the Society of Transplantation, Singapore (22 Nov 2008).

22. **Division of Nephrology**

23. **Raymond Seet**  
Best Poster Presentation, 5th Asia Pacific Medical Education Conference, 2008.

24. **Raymond Seet**  
Researcher Investigator Scientist Enabler (RISE) Award, By NHG, 2009.

**Division of Rehabilitation Medicine**

25. **Effie Chew**  
Best Poster award  
NHG ASC 2009 Medicine category.

**Division of Rheumatology**

26. **Anita Lim**  
FY09 NUHS Way Quest Outstanding Award (for CPIP project) in Sept 2009.

27. **Anita Lim**  
Silver EXSA Service Award.
PATENTS

Division of Cardiology
Title: Method and Apparatus for Anchoring a Duodenal Sleeve.
US Provisional Patent Application No.: 61/234,832
Our Ref: 09104N-US/PRV
Inventor: So Bok Yan, Ho Pei, Lee Heow Pueh, Ho Khek Yu, Khoo Chin Meng, Asim Shabbir
Filing Date: 18 Aug 2009

RESEARCH ACHIEVEMENTS

International Refereed Publications

Division of Endocrinology


Division of Family Medicine


Division of Gastroenterology


Thamboo TP, Wai CT, Lim LG, Wang SC. Late gastric ulceration and cytomegalovirus infection following selective internal radiation therapy (SIRT) of the liver. Pathology. (2008) 40(3):303-5.


Division of General Medicine/Dermatology/Rehabilitation Medicine


Division of Infectious Diseases


Division of Nephrology


**Division of Neurology**


**Division of Psychological Medicine**


440


Yap PL, Niti M, Yap KB, Ng TP. Orthostatic hypotension, hypotension and cognitive status: early comorbid markers of primary dementia?. Dement Geriatr Cogn Disord. 26(3):239-46.


**Division of Respiratory Medicine**


Division of Rheumatology


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**BIOSKET OF DEPARTMENT FULL-TIME STAFF**

**Division of Dermatology**

**Name:** Aw Chen Wee, Derrick  
**Designation:** Consultant  
**Qualifications:** MBBS, MMED (Int Med), MRCP (UK), FAMS (Derm), GDA (Sing)  
**Email:** derrickaw@nus.edu.sg  
**Contact Number:** 9674 5647  
**Research Interests:** Common dermatological conditions.

**Top 5 Publications:**


Division of Endocrinology

Name: Lee Kok Onn
Designation: Professor and Head of Division
Qualifications: BSc (1st Class honors); MB, BCh; MD; FRCP Ed; FRCP; FRACP
Email: mdcleeko@nus.edu.sg
Contact Number: 6772 4341
Research Interests: Growth Hormone and IGFs, Gene and Cell therapy for Diabetes.

Top 5 Publications:

Name: Cheah Jin Seng
Designation: Professorial Fellow/Emeritus Consultant
Qualifications: MBBS. MRACP, FRACP, MD, FRCP, FAMS
Email: mdccjs@nus.edu.sg
Contact Number: 6772 4357
Research Interests: History of Medicine in Singapore; Management of Obesity.

Top 5 Publications:
Name: Lim Pin
Designation: University Professor; and Senior Consultant, NUH
Qualifications: MA MD(Camb) FRCP(Lond) FRACP FRCPE FACP
Email: mdcplim@nus.edu.sg
Contact Number: 6772 4976
Research Interests:
a) Molecular genetics of young type 2 diabetics.
b) Metabolic changes in healthy relatives of diabetics.
c) Angiotensin II blockade in diabetics with nephropathy (submitted for publication).
d) Endocrine hypertension in diabetics.
f) Adiponectin and insulin resistance.
g) Metabolic Factors and Adipokine Levels of Nondiabetic First-degree Relatives of Type 2 Diabetes in an Asian Population.

Top 5 Publications:

Name: Tai E Shyong
Designation: Associate Professor and Senior Consultant
Qualifications: MB ChB; MRCP; FAMS
Email: mdctes@nuhs.edu.sg
Research Interests: Metabolic diseases (Obesity, dyslipidemia and diabetes mellitus).

Top 5 Publications:
Name: Thai Ah Chuan
Designation: Associate Professor, Senior Consultant
Qualifications: MBBS, MMed (Int Med), FAMS, FRCP (Edin)
Email: mdctac@nus.edu.sg
Contact Number: 6772 4352
Research Interests: Epidemiology, clinical, immunological, metabolic and genetic characterisation of young onset diabetes.

Top 5 Publications:

Name: Chionh Siok Bee
Designation: Senior Consultant in Endocrinology
Qualifications: MBBChBAO, MRCP (UK), FRACP (Australia), FAMS (Endocrinology)
Email: siok_bee_chionh@nuhs.edu.sg
Contact Number: 6779 5555
Research Interests: Diabetes Mellitus, Diabetic Foot problems, Osteoporosis.

Top 5 Publications:
Name: Jagat Jyoti Mukherjee  
**Designation:** Senior Consultant, Division of Endocrinology; Clinical Senior Lecturer, YLL SoM  
**Qualifications:** MD (Medicine); FAMS, Endocrinology (Singapore); FRCP (London)  
**Email:** jagat.jyoti.mukherjee@nuhs.edu.sg  
**Contact Number:** 6772 4298  
**Research Interests:** Pituitary & Adrenal disorders, Endocrine Hypertension, Diabetes Mellitus, Neuroendocrine Tumours.  

**Top 5 Publications:**  

Name: Khoo Chin Meng  
**Designation:** Consultant  
**Qualifications:** MBBS, MRCP (UK), FAMS (endocrine)  
**Email:** mdckcm@nus.edu.sg  
**Contact Number:** 6772 6174  
**Research Interests:** Insulin resistance, obesity and diabetes mellitus.  

**Top 5 Publications:**  

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NUHS Annual Research Report 2008/09
Name: **KHOO Yin Hao Eric**  
**Designation:** Consultant  
**Qualifications:** MbChB (Leicester, UK), MRCP (UK)  
**Email:** mdckyhe@nus.edu.sg  
**Contact Number:** 6772 6083  
**Research Interests:** Role of diet, exercise and pharmacotherapy on metabolic diseases and diabetes mellitus.  

**Top 5 Publications:**  

Name: **Kurumbian Chandran**  
**Designation:** Associate Consultant (Endocrinology)  
**Qualifications:** Basic medical degree from the Royal College of Surgeons in Dublin (Ireland) in 1998. He is a Member of the Royal College of Physicians (United Kingdom) and a Fellow of the Academy of Medicine in Singapore (Endocrinology)  
**Email:** kurumbian_chandran@nuhs.edu.sg  
**Contact Number:** 6772 4380  
**Research Interests:** Diabetes and Metabolic disorders.  

Name: **Yasmin Zuniga**  
**Designation:** Clinical Fellow  
**Qualifications:** MD (Philippines), Diplomate, Philippine Board of Internal Medicine  
**Email:** yasmin_zuniga@nuhs.edu.sg  
**Contact Number:** 9822 4109  
**Research Interests:** Diabetes, Thyroid, Obesity.  

### Division of Family Medicine  
Name: **Goh Lee Gan**  
**Designation:** Senior Consultant, Associate Professor; Head, Division of Family Medicine, University Medicine Cluster, NUHS  
**Qualifications:** MBBS (Singapore), MMed (Int. Med.) (Singapore),FCFP (Singapore), FRCGP, FRACGP  
**Email:** Lee_gan_goh@nuhs.edu.sg  
**Contact Number:** 6516 4978  
**Research Interests:**  
- a) Clinical care issues – chronic disease management ; infectious disease control.  
- b) Health services delivery issues.  
- c) Medical Education delivery issues.  
- d) Geriatrics care issues.  

**Top 5 Publications:**  


Name: Wong Teck Yee
Designation: Consultant / Assistant Professor
Qualifications: MBBS, MMed (Fam Med), MPH
Email: mdcwty@nus.edu.sg
Contact Number: 6516 6930
Research Interests: Chronic diseases in primary-care, Preventive health in primary-care.

Top 5 Publications:


Division of Gastroenterology
Name: Lim Seng Gee
Designation: Head, Division of Family Medicine, University Medicine Cluster, NUHS; Senior Consultant and Associate Professor
Qualifications: MBBS (Hons Monash), FRACP, MD (Monash), FAMS(Gastroenterology), FRCP (London), Cert Immunology (King's College)
Email: mdclimsg@nus.edu.sg
Contact Number: 6772 2983
Research Interests: A/Prof Lim’s research activities include leadership in Hepatology research, which focuses on improving treatment for chronic hepatitis B and C, pathophysiology of hepatitis B disease, HBV virology, immunological mechanisms of HBeAg seroconversion, and loss of immune tolerance to hepatitis B virus. He also has an interest in pathophysiology and treatment of liver cancer, primary hepatocyte culture, hepatocyte function, drug related liver disease and non-alcoholic fatty liver disease.

Top 5 Publications:


Name: Khek-Yu Ho
Designation: Chair, University Medicine Cluster, NUHS; Head, Department of Medicine, Yong Loo Lin School of Medicine; Chief, Department of Medicine, NUH Clinical Director, Endoscopy Centre, NUH
Qualifications: MBBS (Hons, Syd), FRACP, FRCP (Glasgow), FAMS (Gastroenterology)
Email: mdchoky@nus.edu.sg
Contact Number: 6772 4380
Research Interests: Functional Gastrointestinal Diseases, and Innovative Gastrointestinal Endoscopy.

Top 5 Publications:

Name: Khay-Guan Yeoh
Designation: Associate Professor of Medicine and Senior Consultant in Gastroenterology; Vice Chairman
Qualifications: MBBS, MMed (Internal Medicine) (Singapore), FRCP (London), FRCP (Glasgow), FAMS (Gastroenterology)
Email: mdcykg@nus.edu.sg
Contact Number: 6772 2983
Research Interests: Early detection of gastric and colorectal cancers using endoscopic technology and biomarkers.

Top 5 Publications:


Name: DAN Yock Young
Designation: Assistant Professor
Qualifications: MBBS National University of Singapore; MMed(Int Med) National University of Singapore; MRCP United Kingdom; FAMS (Gastro)
Email: mdydy@nus.edu.sg
Contact Number: 6772 2983
Research Interests: Liver Stem Cell / Cost-effectiveness.

Top 5 Publications:


Name: Christopher Jen Lock Khor
Designation: Senior Consultant Gastroenterologist, Deputy Clinical Director of Endoscopy Centre, Department of Gastroenterology and Hepatology, NUHS; Chair, House Officer Training Committee, NUHS
Qualifications: Bachelor of Medicine, Bachelor of Surgery (MBBS), NUS (1987), Member of the Royal College of Physicians of the United Kingdom (MRCP(UK)) (1992), US FMGEMS & ECFMG certification (1993), Specialist Accreditation in Gastroenterology, Singapore Medical Council (2000), Fellow of the Academy of Medicine of Singapore (FAMS) (2000), Fellow of the Royal College of Physicians of Edinburgh (FRCP(Edin)) (2006)
Email: Christopher_Khor@nuhs.com.sg
Contact Number: 6772 2983
Research Interests: Gastric Cancer – Epidemiology, treatment & imaging of early disease, Therapeutic Endoscopy, Endoscopic Ultrasound, ERCP.

Name: Andrea Rajnakova
Designation: Consultant, Department of Gastroenterology & Hepatology
Qualifications: MD (Slovakia, Hons), M Med (Internal Medicine,Slovakia, Hons), M. Med (Internal Medicine)(Singapore), MRCP (UK), FAMS (Gastroenterology), Ph.D (NUS)
Email: csra@nus.edu.sg
Contact Number: 6772 2983

Top 5 Publications:

Name: Bhavesh Kishor Doshi  
Designation: Consultant, Department of Gastroenterology & Hepatology  
Qualifications: BmedSci (Hons) and BMBM (Nottingham), MRCP (London), CCT in Gastroenterology and Internal Medicine UK  
Email: bhavesh_kishor_doshi@nuhs.edu.sg  
Contact Number: 6772 2983  
Research Interests: Advanced Endoscopy. His experience ranges from therapeutc endoscopy such as stenting, Endosonography and advanced ERCP with a special interest in cholangioscopy and photodynamic therapy.

Name: Lee Yin Mei  
Designation: Senior Consultant, Department of Gastroenterology & Hepatology, Director of Training  
Qualifications: SAB (Gastroenterology), MRCP, MBChB  
Email: mdcleeym@nus.edu.sg  
Contact Number: 6772 2983  
Research Interests: Non-Alcoholic Fatty Liver Disease and Liver Transplantation.

Top 5 Publications:  

Name: Lim Li Lin  
Designation: Consultant, Department of Gastroenterology & Hepatology; Director of Clinical Services  
Qualifications: MBBS (Melbourne), MRCP (London, UK)  
Email: cfslll@nus.edu.sg  
Contact Number: 6772 2983  
Research Interests: colorectal cancer and gastrointestinal endoscopy.

Top 5 Publications:  


Name: Vincent Lai Wai Kwan
Designation: Consultant, Department of Gastroenterology & Hepatology
Qualifications: MBChB (Sheffield UK), MRCP (Edinburgh UK), Ph.D (Birmingham UK).
Contact Number: 6772 2983
Research Interests: Adaptive and innate immunity in patients with liver disease particularly in patients with viral hepatitis and liver failure.

Name: David Ong Eng Hui
Designation: Associate Consultant in the Department of Gastroenterology and Hepatology, NUH.
Qualifications: MBChB (Bristol), MRCP (UK), SAB (gastroenterology), FAMS
Contact Number: 6772 2983
Research Interests: Inflammatory Bowel disease and general gastroenterology and hepatology.

Name: Lim Lee Guan
Designation: Associate Consultant
Qualifications: MBBS (Singapore), MRCP (UK)
Email: cfslgl@nus.edu.sg
Contact Number: 6772 2983
Research Interests: The study of Hepatitis B Virus pathogenesis and therapy. His work also involved the development of novel molecular diagnostic techniques.

Top 5 Publications:


Name: Low How Cheng  
**Designation:** Associate Consultant, Department of Gastroenterology & Hepatology  
**Qualifications:** MD (UKM), MMed (UKM), MMed (Singapore), MRCP (UK), FAMS (Gastroenterology)  
**Email:** cfslhc@nus.edu.sg  
**Contact Number:** 6772 2983

Name: Mark Fernandes  
**Designation:** Associate Consultant  
**Qualifications:** B.Sc (Hons), MBChB (Hons, Edin), MRCP (UK), SAB (Gastroenterology)  
**Email:** mark_fernandes@nuhs.edu.sg  
**Contact Number:** 6772 2983  
**Research Interests:** Hepatocellular carcinoma, interventional hepatology and liver transplantation.

Name: Michelle Gowans  
**Designation:** Associate Consultant  
**Qualifications:** MBChB (Otago, NZ), FRACP (NZ), SAB (Gastroenterology)  
**Email:** michelle_angela_gowans@nuhs.edu.sg  
**Contact Number:** 6772 2983  
**Research Interests:** Inflammatory Bowel disease and general gastroenterology and hepatology.

Name: Reuben Kong Min Wong  
**Designation:** Associate Consultant in the Department of Gastroenterology and Hepatology, NUH; Clinical Director of the Gastrointestinal Motility Laboratory of NUHS  
**Qualifications:** MBBS (Singapore), MRCP (UK) FAMS (Gastro)  
**Email:** cfsrwkm@nus.edu.sg  
**Contact Number:** 6772 2983  
**Research Interests:** Functional Gastrointestinal and Motility Disorders and the Irritable Bowel Syndrome.

Top 5 Publications:  


Division of General Medicine

Name: Reshma A Merchant
Designation: Assistant Professor
Qualifications: Head and Consultant Division of General Medicine; Clinician Educator Yong Loo Lin School of Medicine
Email: MBChB(Edin) MRCP(UK) FAMS
Contact Number: reshmaa@nuhs.edu.sg
Research Interests: 6772 4353
   a) Prevention of disability and frailty in the ageing population.
   b) Falls and Cognitive Impairment.
   c) Education – Care of Older Adults.

Top 5 Publications:

Name: Oh Min Sen Vernon
Designation: Senior Consultant Physician, Professor
Qualifications: BA Hons MA MBBChir.MD (Camb) FRCP(Lond) FRCP(Edin) FFPM(UK) FACP
Email: mdcohms@nus.edu.sg
Contact Number: 6772 4353 (O), 9638 9664 (HP)
Research Interests: Hypertension genes, diastolic heart failure, vascular biology, and the evaluation of new drugs and biologicals.

Top 5 Publications:
Name: Toh Kong Leong Terry
Designation: Senior Consultant
Qualifications: MBBS (Hons.) (NUS), MRCP(UK), M.Med. (Int. Med.) Ph.D. (Human Genetics), FAMS
Email: kong_leong_toh@nuhs.edu.sg
Contact Number: 6772 4380
Research Interests: Circadian biology, sleep phase disorders, population genetics.

Top 5 Publications:

Name: Khin Saw Myint
Designation: Consultant
Qualifications: MBBS MRCP(UK) FAMS
Email: khin_saw_myint@nuhs.edu.sg
Contact Number: 6772 4380
Research Interests: Right-siting of Care, Frail elderly, Palliative medicine, End-of-Life Care.

Top 5 Publications:
2. HOT Clinics: A Safe, Right-siting Initiative Preventing Hospital Admissions.
3. Patient containment in Designated Wards and Early Discharge-Revisiting Work Flows Leading to Improved Patient Care.
4. Morning discharges and discipline containment; Sustained results in General Medicine at NUH.

Name: Paul Huggan
Designation: Associate Consultant (ID). Consultant (General Medicine)
Qualifications: BSc(Hons), MBChB, FRACP
Email: paul_john_huggan@nuhs.edu.sg
Contact Number: 9139 7072
Research Interests: Epidemiology of Infection. Systems management.

Top 5 Publications:
Name: Dariusz P. Olszyna  
Designation: Consultant  
Qualifications: MD, PhD  
Email: nuhodp@nus.edu.sg  
Contact Number: 6779 5555  
Research Interests: Urinary Tract Infections, Viral Hepatitis, HIV.

Top 5 Publications:


Name: Aw Chen Wee, Derrick  
Designation: Consultant  
Qualifications: MBBS, MMED (Int Med), MRCP (UK), FAMS (Derm), GDA (Sing)  
Email: derrickaw@nus.edu.sg  
Contact Number: 9674 5647  
Research Interests: Common dermatological conditions.

Top 5 Publications:


Name: Sheila Vasoo  
Designation: Consultant and Rheumatologist, Division of Rheumatology, Department of Medicine, National University Hospital, NUHS, Singapore  
Qualifications: MBBS 1994, National University of Singapore, MRCP 1998, Royal College of Physicians, United Kingdom, FAMS (Rheumatology) 2004, Academy of Medicine Singapore  
Email: sheila_vasoo@nuhs.edu.sg  
Contact Number: 6772 4353 / 6772 4374  
Research Interests: Pregnancy and Rheumatic Diseases; Antiphospholipid Syndrome.  

Top 5 Publications:

Name: Angeline Seah  
Designation: Consultant  
Qualifications: MRCP (UK)  
Email: angeline_st_seah@nuhs.edu.sg  
Contact Number: 6772 4380  
Research Interests: Palliative medicine.  

Name: Goh Wei Ping  
Designation: Resident Physician  
Qualifications: MBBS (Singapore)  
Email: wei.ping.goh@nathealthgroup.com  
Contact Number: 6772 4353  
Top 5 Publications:  
Division of Infectious Disease
Name: Paul Ananth Tambyah
Designation: Associate Professor, Head of Division
Qualifications: MBBS, Dip ABIM (Inf Dis)
Email: mdcpat@nus.edu.sg
Contact Number: 6772 4352
Research Interests: Nosocomial infections and Emerging Infectious Diseases.

Top 5 Publications:

Name: Dale Fisher
Designation: Associate Professor
Qualifications: FRACP
Email: mdcfda@nus.edu.sg
Contact Number: 6772 4352
Research Interests: OPAT, MRSA control, health systems research, outbreak management.

Top 5 Publications:
Name: Annelies Wilder-Smith  
Designation: Associate Professor, Director, Travellers Screening and Vaccination Clinic, Editor, WHO publication “International travel and health”. Joint A/Professor, Emerging Infectious Diseases Program, Duke-NUS  
Qualifications: German National Examination (II) (=Preregistration exams) (2. Staatsexamen) University of Heidelberg, Germany, Approbation and ‘Aerztliches Zeugnis’, Heidelberg, Germany, ECFMG (American basic medical exams), MD Thesis (Doktorarbeit) at the University of Heidelberg, Germany, Diploma in Obstetrics, University of Otago, New Zealand (with distinction), Accredited specialist as Family Physician (‘Facharztprüfung’), University of Heidelberg, Germany, Diploma in Tropical Medicine and Hygiene (DTM&H), London School of Tropical Medicine and Hygiene, U.K., Master in International Health (with distinction), Curtin University, Perth, Australia, PhD; University of Amsterdam, The Netherlands, Specialist Accreditation in Public Health, Singapore Medical Council  
Email: ephwsa@nus.edu.sg  
Contact Number: 6516 4969  
Research Interests: Global Health, Dengue, Vaccine-Preventable Diseases, Emerging Infectious Diseases, Travel Medicine.

Top 5 Publications:

Name: Hsu Li Yang  
Designation: Assistant Professor  
Qualifications: MBBS(Singapore), MRCP(UK), DTMH(Gorgas), MPH(Harvard)  
Email: li_yang_hsu@nuhs.edu.sg  
Contact Number: 9005 7935  
Research Interests: a) Antimicrobial resistance – Epidemiology and control.  
 b) Methicillin-resistant Staphylococcus aureus – Molecular typing and virulence.  
 c) Febrile neutropenia and invasive fungal disease – Diagnostics and resource allocation.

Top 5 Publications:
Name: Sophia Archuleta
Designation: Consultant, Assistant Professor Yong Loo Ling School of Medicine, NUS
Email: sophia@nus.edu.sg
Contact Number: 6772 6188 (O); 6779 4112 (Fax)
Research Interests: HIV/AIDS, Influenza, Dengue.

Top 5 Publications:

Name: Lawrence LEE Soon-U
Designation: Assistant Professor
Qualifications: BSc(Med), MBBS (Hons 1), MRCP (UK), PhD (Johns Hopkins)
Email: mdclisu@nus.edu.sg
Contact Number: 9650 9624
Research Interests:
b) Pharmacological prevention of influenza.
c) Optimizing doses of the cancer chemotherapy drug CPT-11 using a novel probe approach in addition to pharmacogenomics.
d) Phase 2 drug metabolism, in particular optimizing doses and developing probes for drugs cleared by UGTs.
e) Drug development of herbs and compounds derived from herbs.

Top 5 Publications:
Division of Nephrology

Name: A Vathsala
Designation: Professor of Medicine, Head Division of Nephrology
Qualifications: BS, MD, FRCP, FAMS
Email: vathsala@nus.edu.sg
Contact Number: 6772 2544
Research Interests: Pharmacokinetics and pharmacogenomics of immunosuppressive drugs, Outcomes in clinical transplantation, Epidemiology of chronic kidney disease.

Top 5 Publications:

Name: Evan Lee Jon Choon
Designation: Associate Professor
Qualifications: MBBS (Univ of Singapore), MRCP(UK), MD(NUS), FRCP(Ed), FAMS(Singapore)
Email: evan_lee@nuhs.edu.sg
Contact Number: 6772 4732
Research Interests: Clinical problems of malnutrition in chronic dialysis patients ; antioxidants in chronic dialysis patients.

Top 5 Publications:
Name: Titus Lau
Designation: Senior Consultant, NUHS, Director of Hemodialysis Services, NUHS, Program Director, Renal Post-Graduate Education, NUHS
Qualifications: MD, MRCP (UK), FRCP (Edin), USMLE, Harvard School of Public Health (Cert in Epi and Biostats)
Email: titus_lau@nuhs.edu.sg
Contact Number:
Research Interest/s:
   i) Dialysis or end stage kidney disease related issues.
   ii) Chronic kidney disease (in particular diabetic kidney disease).
   iii) Clinical hypertension.

Top 5 Publications:
4. Use of dihydropyridine calcium channel blockers in the management of hypertension in East Asians. *Hypertension Research.* (Scheduled 2010).

Name: Rajat Tagore
Designation: Senior Consultant
Qualifications: MBBS, MD, MRCP (Ire), FRCP (Ire)
Email: rajat_tagore@nuhs.edu.sg
Contact Number: 9634 8120
Research Interest/s: Cardio Vascular Disease in Chronic Kidney Disease; Glomerulonephritis.

Top 5 Publications:
Name: Teo Boon Wee Jimmy  
**Designation:** Assistant Professor  
**Qualifications:** MBCh, BAO, B Med Sci, Board certified Internal Medicine and Nephrology (USA)  
**Email:** mdctbw@nus.edu.sg  
**Contact Number:** 9662 6583  
**Research Interests:** Kidney function estimation and measurement, epidemiology of kidney failure, critical care nephrology.

My current research program focus is on the measurement and estimation of kidney function in a multi-ethnic Asian population. We are assessing the use of novel biomarkers of kidney function (cystatin C and beta-trace protein) and injury (NGAL and KIM-1) in normal and chronic kidney disease patients. The Asian Kidney Disease Study aims to determine the accuracy of the MDRD equation for estimating GFR in a multi-ethnic Asian population. The Singapore Kidney Function Study aims to determine the normal ranges of novel biomarkers in healthy, normal kidney function Asian individuals. The research program will create clinical cohorts with biospecimen banking pegged to reference glomerular filtration rate measurements. This permits research efficiency in the study of novel biomarkers of kidney function and injury identified in the future.

**Top 5 Publications:**

Name: Loh Ping Tyug  
**Designation:** Assistant Professor & Consultant  
**Qualifications:** MB BCh, BA, BAO, MRCP  
**Email:** mdclpt@nus.edu.sg  
**Contact Number:** 6772 2544  
**Research Interests:** Nephrology & Cardiovascular disease.

**Top 5 Publications:**
Name: Yue-Harn Ng
Designation: Consultant
Qualifications: MDCM
Email: Yue_Harn_NG@nuhs.edu.sg
Contact Number: 8198 4135
Research Interests: Transplantation Immunology.

Top 5 Publications:

Name: Claude Jeffrey Renaud
Designation: Associate Consultant Nephrologist
Qualifications: MBChB, MRCP(UK), FAMS(Renal)
Email: claude_Jeffrey_renaud@nuhs.edu.sg
Contact Number: 6772 6051
Research Interests: Vascular access issues and infections in ERSD.

Top 5 Publications:
**Division of Neurology**

**Name:** Benjamin ONG Kian Chung  
**Designation:** Chief Executive (NUHS), Head of Neurology Division (UMC), Associate Professor  
**Qualifications:** MBBS, M.Med (Int Med), FAMS, FRCP (Glasg), FRCP (Ed), FRCP (Lond)  
**Email:** Benjamin_Ong@nuhs.edu.sg  
**Contact Number:** 6516 5836  
**Research Interests:**  
- The immunology and management of Myasthenia Gravis.  
- Demyelinating disorders of the central and peripheral nervous system.  
- The epidemiology and management of headache disorders.  
- Clinical outcomes and the use of IT in closed loop care delivery.

**Top 5 Publications:**  

**Name:** Einar Wilder-Smith  
**Designation:** Professor, Senior Consultant  
**Qualifications:** MD, DTM&H (London), FAMS (Neurology)  
**Email:** mdcwse@nus.edu.sg  
**Contact Number:** 6772 4353  
**Research Interests:** Understanding peripheral nerve disorders and their treatment; Clinical characteristics of Epilepsy; Neurophysiology.

**Top 5 Publications:**  
Name: Bernard PL Chan  
**Designation:** Senior Consultant; Director, Stroke Neurology  
**Qualifications:** MB ChB, MRCP (UK), Dip ABPN, Cert ASN (Neurosonology)  
**Email:** bernard.chan@nuhs.edu.sg  
**Contact Number:** 9662 5360  
**Research Interests:** Thrombolysis in acute stroke, stroke neuroimaging, stroke service organisation.

**Top 5 Publications:**

Name: Erle Lim Chuen Hian  
**Designation:** Associate Professor, Senior Consultant  
**Qualifications:** MBBS, MMed (INT MED), FRCP (Glasgow)  
**Email:** mdcelch@nus.edu.sg  
**Contact Number:** 9183 5033  
**Research Interests:** General Neurology, Movement Disorders (Parkinson’s disease, Dystonia, Spasticity, Botulinum toxin).

**Top 5 Publications:**
Name: N Venketasubramanian Ramani
Designation: Associate Professor, Senior Consultant
Qualifications: MBBS, MMed (Int Med), FAMS (Neurology), Cert Neurosonology (ASN), PG Dip (Epi) (London), M Sc (Epi) (London), DLSHTM (Epi) (London), FRCP (Edin)
Email: ramani_nv@nuhs.edu.sg
Contact Number: 6779 5555
Research Interests: Stroke and cerebrovascular diseases, neurosonology, clinical trials, neuroepidemiology.

Top 5 Publications:

Name: Raymond Seet Chee Seong
Designation: Assistant Professor, Consultant
Qualifications: MBBS, MMed (Int Med), MRCP (UK)
Email: mdcrccs@nus.edu.sg
Contact Number: 6779 5555
Research Interests:
- Acute stroke therapy
- Biology of ischemic stroke
- Oxidative damage in human diseases
- Medical assessments

Top 5 Publications:
Name: June Tan Joo Hui
Designation: Senior Consultant
Qualifications: MBBS (Mal), MRCP (UK), FAMS
Email: june_tan@nuhs.edu.sg
Contact Number: 9817 9681
Research Interests: Parkinson’s disease and other movement disorders.

Top 5 Publications:

Name: Chan Yee Cheun
Designation: Consultant
Qualifications: MBBS (S’PORE), MRCP (UK), FAMS
Email: yee_cheun_chan@nuhs.edu.sg
Contact Number: 9630 4347
Research Interests: Nerve and muscle disorders, Clinical neurophysiology, Headache disorders.

Top 5 Publications:
Name: Vijay Kumar Sharma  
**Designation:** Consultant  
**Qualifications:** MBBS, MRCP (UK), Cert Neurosonology (ASN), RVT  
**Email:** vijay_kurma_sharma@nuhs.edu.sg  
**Contact Number:** 9138 9555  
**Research Interests:** Applications of Neurosonology in ischemic stroke; Assessment of cerebral hemodynamics and vasodilatory reserve in severe arterial stenosis.

**Top 5 Publications:**


Name: Rahul Rathakrishnan  
**Designation:** Consultant  
**Qualifications:** BM (Southampton), MRCP (UK)  
**Email:** rahul_rathakrishnan@nuhs.edu.sg  
**Contact Number:** 9664 0668  
**Research Interests:** 1) Epilepsy 2) Electroencephalography.

**Top 5 Publications:**


Name: Teoh Hock Luen  
Designation: Consultant  
Qualifications: MRCP  
Email: hock_luen_teoh@nuhs.edu.sg  
Contact Number: 91139705  
Research Interest/s: Neurology.

Top 5 Publications:

Name: Kay Ng Wei Ping  
Designation: Registrar  
Qualifications: MBBS, MRCP (UK), M.Med (Singapore)  
Email: kay_wp_ng@nuhs.edu.sg  
Contact Number: 9645 2302  
Research Interest/s: Stroke, epilepsy, critical care.

Top 5 Publications:

Division of Psychological Medicine

Name: Dr Khare Chandrashekhar Bhalchandra  
Designation: Acting Head and Senior Consultant  
Qualifications: MBBS; DPM, MD, MNAMS, FRANZCP, FAMS  
Email: pcmcbk@nus.edu.sg  
Contact Number: 9639 6674  
Research Interest/s: Bipolar Disorder, Psychotherapy, Liaison Psychiatry, Suicide Prevention.

Name: Kua Ee Heok  
Designation: Professor and Senior Consultant  
Qualifications: MBBS; MD, FRCPsych(UK)  
Email: pcmkeh@nus.edu.sg  
Contact Number: 6772 4517  
Research Interest/s: Ageing, Depression, Resilience.

Top 5 Publications:


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**Name: Ng Tze Pin**  
**Designation:** Associate Professor Fellow  
**Qualifications:** MD  
**Email:** pcmngtp@nus.edu.sg  
**Contact Number:** 6772 4514  
**Research Interests:** Nutrition, Cognition and Mood, Healthy Ageing.

**Top 5 Publications:**  


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**Name: Roger Ho**  
**Designation:** Assistant Professor  
**Qualifications:** MBBS (HK), DPM (Ireland), MMED (Psych) (S’pore), MRCPsych (UK)  
**Email:** pcmrhcm@nus.edu.sg  
**Contact Number:** 6772 4511  
**Research Interests:** Psychoneuroimmunology.

**Top 5 Publications:**  


Name: Cornelia Chee Yin Ing  
Designation: Consultant  
Qualifications: M.B.B.S., M.MED (Psychiatry)  
Email: cfscheec@nus.edu.sg  
Contact Number: 9786 2057  
Research Interests: Perinatal psychiatry, women’s mental health.

Top 5 Publications:

Name: Lai Yew Min  
Designation: Consultant  
Qualifications: MBBS, MMed (Psychiatry)  
Email: pcmlaiym@nus.edu.sg  
Contact Number: 6772 4512  
Research Interests: Graduate Medical Education.

Top 5 Publications:

Name: Reehan Sabri  
Designation: Consultant Psychiatrist  
Qualifications: MBBS (London), MSc (Distinction, London) Addictive Behaviour, MRCPsych (UK)  
Email: reehan_sabri@nuhs.edu.sg  
Contact Number: 8301 4247  
Research Interests: Substance abuse.

Top 5 Publications:
Name: Vanessa Keleher  
Designation: Consultant  
Qualifications: MBBS; MMed (Psychiatry); FRANZCP  
Email: Vanessa_keleher@nuhs.edu.sg  
Contact Number: 9620 4348  
Research Interests: Anxiety Disorders, women’s mental health; Liaison Psychiatry.

Name: Birit FP Broekman  
Designation: Adj Assistant Professor/ Associate Consultant  
Qualifications: MD  
Email: pcmle@nus.edu.sg  
Contact Number: 9009 5444  
Research Interests: Anxiety and stress disorders; Child psychiatry.

Top 5 Publications:

Name: Effie Chew  
Designation: Consultant  
Qualifications: MBBS (Melbourne), MRCP (UK), FAMS  
Email: effie_chew@nuhs.edu.sg  
Contact Number: 9365 3542  
Research Interests: Neurorehabilitation, Noninvasive brain stimulation, Neuromodulation, Motor recovery, Rehabilitation Technology, General rehabilitation.

Top 5 Publications:
Division of Respiratory Medicine

Name: Lim Tow Keang
Designation: Professor of Medicine, Head of Division & Senior Consultant
Qualifications: MBBS (Distinction), MMed, FRCP
Email: mdclimtk@nus.edu.sg
Contact Number: 6772 4367
Research Interest/s:

Top 5 Publications:


Name: Khoo Kay Leong
Designation: Senior Consultant
Qualifications: MBBS, M Med (Int Med), FAMS (Respiratory Medicine)
Email: mdclimsg@nus.edu.sg
Contact Number: 6772 4969
Research Interest/s: Dr Khoo Kay Leong's research interests include lung cancer diagnosis and staging including bronchoscopic techniques eg EBUS-TBNA, pleural diseases including medical thoracoscopy.

Top 5 Publications:


Name: Mukhopadhyay Amartya  
Designation: Consultant & Clinical Director, MICU  
Qualifications: MBBS, MD, MRCP (UK), EDIC, FRCP (London)  
Email: martya_mukhopadhay@nuhs.edu.sg  
Contact Number: 6772 4358  
Research Interests: Critical Care, Tuberculosis, Asthma, Infection.

Top 5 Publications:


Name: Gerald Chua Seng Wee  
Designation: Consultant  
Qualifications: MBBS, MRCP (UK), DiplICM (EuroSocICM)  
Email: cfscswg@nus.edu.sg  
Contact Number: 6772 2384  
Research Interests: Hemodynamic monitoring and renal support therapy in the intensive care unit; Medical and nursing education.

Top 5 Publications:


**Name:** Khoo See Meng  
**Designation:** Consultant  
**Qualifications:** MBBS, MRCP (UK), MMed(Sleep Medicine) (Sydney)  
**Email:** see_meng_khoo@nuhs.edu.sg  
**Contact Number:** 6772 2544  
**Research Interests:** Sleep Medicine, Aerosol therapies, asthma.

**Top 5 Publications:**


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**Name:** Jason Phua  
**Designation:** Consultant  
**Qualifications:** MBBS, MRCP(UK), EDIC  
**Email:** jason_phua@nuhs.edu.sg  
**Contact Number:** 6772 4377  
**Research Interests:** Dr Phua’s research interests include severe sepsis, acute lung injury and non-invasive ventilation.

**Top 5 Publications:**


Name: Chua Ai Ping  
Designation: Consultant  
Qualifications: MBBS, MRCP (UK), MMed  
Email: cfscap@nus.edu.sg  
Contact Number: 6772 4363  
Research Interests: Asthma, sleep medicine, chronic obstructive lung disease, pleural diseases and bronchology.

Top 5 Publications:

Name: Felicia Teo  
Designation: Associate Consultant  
Qualifications: B Med Sci (Hon), BM BS, MRCP (UK)  
Email: Felicia_SW_Teo@nuhs.edu.sg  
Contact Number: 6772 4377  
Research Interests: Pulmonary infections, Asthma and airway disorders, Intensive Care Medicine, Pulmonary physiology.

Top 5 Publications:
Name: Low Seow Ping  
Designation: Associate Consultant  
Qualifications: MBBS, MRCP (UK), MMed  
Email: cfslsp@nus.edu.sg  
Contact Number: 6772 5299  
Research Interests: Respiratory.

Division of Rheumatology  
Name: Lau Tang Ching  
Designation: Senior Consultant, Associate Professor  
Qualifications: MBBS (Singapore), MMed (Internal medicine, Singapore), MRCP (UK), FRCP (Edinburgh), M.Med Sc (Clinical Epidemiology), GD Acupuncture (Singapore)  
Email: mdltc@nus.edu.sg  
Contact Number: 6772 4380  
Research Interests: Osteoporosis, Pharmacoeconomic Evaluation and Evidence-Based Medicine.

Top 5 Publications:  

Name: Anselm Mak  
Designation: Assistant Professor of Medicine  
Qualifications: MBBS(HK), MMedSc (HK), MRCP(UK), FRCP(Edin), FAMS(Rheumatology)  
Email: mdcam@nus.edu.sg  
Contact Number: 9665 8432  
Research Interests:  
a) Chronic damage in systemic lupus erythematosus, especially neuropsychiatric, cardiovascular and bone damages.  
b) Inflammation and vascular damages.  
c) Evidence-based medicine and meta-analysis.

Top 5 Publications:  


Name: Aisha Lateef
Designation: Consultant
Qualifications: MBBS, MRCP(UK), M.Med(Singapore)
Email: aisha_lateef@nuhs.edu.sg
Contact Number: 6772 4370
Research Interests: Obstetric Rheumatology.

**Top 5 Publications:**


Name: Anita Lim Yee Nah
Designation: Consultant
Qualifications: MB ChB (Glasg), MRCP (UK), CCST (Rheumatology)
Email: anita_lim@nuhs.edu.sg
Contact Number: 6772 4360
Research Interests: Inflammatory arthritides, gout, primary systemic vasculitis and paediatric rheumatology.

**Top 5 Publications:**


Name: Manjari Lahiri
Designation: Consultant
Qualifications: MD, MRCP, Specialist in Internal Medicine and Rheumatology
Email: manjari_lahiri@nuhs.edu.sg
Contact Number: 6772 2994
Research Interests: Rheumatic disease epidemiology and health services research.

Top 5 Publications:

Name: TENG Gim Gee
Designation:
a) Consultant in Rheumatology division.
b) Core faculty member, subspecialty coordinator and clinic supervisor in the Internal Medicine Residency of NUH. Member of the NHG Domain-Specific Review Board (DSRB) E.
c) Vice-president of the Singapore Society of Rheumatology.
d) Member of the Lupus Association of Singapore and Osteoporosis Society of Singapore.
Qualifications: MBBS, American Board (Internal Medicine), American Board (Rheumatology)
Email: gim_gee_teng@nuhs.edu.sg
Contact Number: 6772 4380
Research Interests: Rheumatoid Arthritis, Gout, Osteoporosis and health services research in rheumatic diseases.

Top 5 Publications:
Name: Sheila Vasoo
Designation: Consultant
Qualifications: MBBS (Singapore), MRCP (UK), FAMS (Rheumatology)
Email: sheila_vasoo@nuhs.edu.sg
Contact Number: 6772 4380
Research Interest(s): Pregnancy and Rheumatic Diseases and Antiphospholipid Syndrome.

LIST OF ADJUNCT STAFF

Adjunct Assistant Professor:
Lawrence Lee Soon-U

Visiting Consultant:
Patrick Fung

Research Assistant:
Anna Chua
The Department is actively engaged in research that spans from basic science to translational research and clinical applications of new technologies. Our research mission is to advance science through a multidisciplinary strategy for the development of translational solutions to improve the outcomes of management of musculoskeletal trauma, disorders and diseases. Over the years, the Department has built a reputation for quality basic and translational research in orthopaedic surgery, especially in the areas of musculoskeletal tissue engineering, spine research, bone and joint research, and orthopaedic bioengineering, as well as in emerging areas such as bone and soft tissue tumour research.

Senior staff members from the department also spearheaded the establishment of the University wide-research programme on Tissue Engineering (NUSTEP) under the Life Sciences Institute. The department has over the years, established well-equipped core facilities and is committed to providing the latest equipment and technology for orthopaedic research. Basic infrastructural facilities established and maintained by staff members include the biomechanics laboratory, cadaveric dissection laboratory, motion analysis laboratory, bone densitometry laboratory, tissue engineering laboratory as well as histological and imaging facilities.

Our surgeons and scientists are at the cutting edge of research and surgical techniques. Our Principal Investigators have strong research track records capable of attracting research grants from external funding bodies and are well published in international journals in their areas of expertise.

We currently have more than 30 on-going research projects and a dedicated team of researchers comprising post-doctoral fellows, research assistants and laboratory staff. Our current emphasis is on translational research where we aim to bring our findings from the laboratory to the patient’s bedside in the form of novel and useful therapies. This is achieved through collaborations with many agencies and departments, both locally and internationally. Some highlights of these collaborations include:

1. Preventing local recurrence in the musculoskeletal oncology patient using cryosurgery.
2. World’s first human trial repairing large cartilage lesions in the human knee using microfracture and injectable mesenchymal stem cell therapy.
3. Cross-Faculty Research Group specializing in the development of new and improved bioactive implant materials, and their interactions with bone and stem cells.
4. Biomimetic 3D nanofibrous scaffold/MSCs composites for bone graft applications.

In the last 5 years, we have received approximately S$15.3m in competitive research grant funding and published more than 100 Tier 1 journal articles including in Spine, Journal of Orthopaedic Research, Stem Cells, Tissue Engineering, Biomaterials and Science. We have also won numerous awards for excellence in research at national and international meetings. The Department has produced 5 PhDs, 1 MD and 4 MSc graduate students in the last 5 years. There are currently 12 registered graduate students pursuing their MSc and PhD in the department.
KEY RESEARCH AREAS
• Stem Cells
• Spine
• Osteoporosis and Bone
• Osteoarthritis and Cartilage
• Joint Biomechanics and Repair
• Arthroplasty
• Soft tissue and tumor
• Hand and reconstructive microsurgery

LIST OF COMPETITIVE GRANT FUNDING AWARDED IN 2008/09

Title: Control release of recombinant human bone morphogenetic protein type 2 from heparin conjugated multilayered alginate microbeads to enhance new bone formation in spine fusion (NMRC EDG).
Period: 12 Jun 2008 to 30 Jun 2010
PI: Prof Wong Hee Kit
Co-PI: Prof James Goh, Dr SA Abbah, A/Prof Li Jun

Title: Development and characterization of xeno-serum-free medium for the enhancement of human bone marrow mesenchymal stem cells ex vivo expansion suitable for efficient clinical cellular therapy (NMRC EDG).
Period: 1 Jan 2008 to 31 Dec 2010
PI: Dr Yang Zheng
Co-PI: Prof Lee Eng Hin, A/Prof James Hui

Title: Development of a functional tissue engineered bone ligament bone graft with novel fixation device to bone tunnels for ACL reconstruction (BMRC).
Period: 1 Jan 2008 to 31 Dec 2010
PI: Prof James Goh
Co-PI: A/Prof Toh Siew Look, Prof Lee Eng Hin, A/Prof Too Heng Phon

Title: Effects of dynamic tension and growth factor on degenerated human annulus fibrosus and nucleus pulposus cells in vitro (NMRC).
Period: 4 Jun 2008 to 30 Jun 2010
PI: A/Prof Hee Hwan Tak
Co-PI: Prof Wong Hee Kit

Title: The effect of graft enhancement with a stem cell - PGA membrane on osteointegration of hamstring tendon graft in ACL reconstruction. An experimental study in porcine model (NUS-LSI Baden- Wurrtemberg).
Period: 1 Sep 2009 to 31 Aug 2011
PI: A/Prof James Hui
Co-PI: A/Prof Christoph Erggelet, Dr Peter Kreuz

Title: Fabrication of tissue engineered intervertebral disc using both non or pre tensioned human annulus fibrosus and nucleus pulposus cells and PNmPh nanofibrous scaffold in vivo (NMRC).
Period: 18 Jul 2009 to 31 Aug 2011
PI: A/Prof Hee Hwan Tak
Co-PI: Dr Yang Zheng, Mr Wu Yingnan

Title: Generating a high quality immortal mesenchymal stem cell line for chondrogenesis (NMRC)
PI: Prof Lee Eng Hin
Co-PI: Prof Teoh Swee Hin, Dr Lim Bing (GIS), A/Prof James Hui
Title: Imaging of transplanted bone marrow derived stem cells by MRI in chondral defect, meniscus injury and diabetic neuropathy (SBIC).
Period: 1 Feb 2008 to 1 Feb 2011
PI: Prof James Hui
Co-PI: A/Prof Einar Wilder Smith, Dr Yang Zheng

Title: An integrated approach to overcome sarcopenia and frailty in humans. Project 5 - Investigating if there is a signature joint instability gait pattern that is associated with transition to frailty with aging adults (NRF CRP).
Period: 1 Apr 2009 to 31 Mar 2014
PI: Dr Barry Pereira

Title: Investigating neurotrophic factors that regulate axonal regeneration in muscle lacerations (ARF).
Period: 1 Dec 2008 to 20 Nov 2010
PI: Dr Barry Pereira
Co-PI: A/Prof Mridula Sharma, A/Prof Suresh Nathan

Title: Modeling growth plate function with bone marrow derived mesenchymal stem cells to develop improved treatments for growth plate defects in children (NMRC).
Period: 1 Jan 2008 to 31 Dec 2010
PI: Prof Lee Eng Hin
Co-PI: Prof Teoh Swee Hin, Dr Lim Bing (GIS), A/Prof James Hui

Title: A multi centre randomised controlled trial evaluating a novel minimally invasive technique of cartilage repair in the human knee using autologous mesenchymal stem cells and hyaluronic acid (NHG SIG).
Period: Apr 2009 to Apr 2012
PI: Dr Kevin Lee
Co-PI: A/Prof James Hui

Title: Peptide as therapeutic agents for arthritis and bone disease (NUHS).
Period: 1 Sep 2009 to 30 Aug 2010
PI: Prof VP Kumar
Co-PI: Prof P Gopalakrishakone

Title: A phase two study of the use of mesenchymal stem cells for enhancing meniscal lesions repair in the human knee (NMRC NIG).
Period: 1 Apr 2008 to 31 Mar 2011
PI: Dr Tan Chyn Hong
Co-PI: Dr Kevin Lee, Dr Andrew Dutton, A/Prof James Hui

Title: Physiologic parameters in the milieu of solid tumors have the potential to indicate their sensitivity to chemotherapeutic agents (ARF).
Period: 1 Apr 2008 to 31 Mar 2011
PI: A/Prof Suresh Nathan
Co-PI: Dr Barry Pereira, Dr Chen Fun Gee, Dr Goh Boon Cher, A/Prof Andre Wijnen

Title: Translational Study of Autologous Bone Marrow Stem Cell In TGF-beta 1 Loaded Fumarate Based Hydrogel for Chondral Defect Repairing (NMRC).
Period: 1 Jan 2008 to 31 Dec 2009
PI: A/Prof James Hui
Co-PI: Prof Lee Eng Hin, Dr Antonios G Mikos, Dr Sandy Chian KS

Title: Tissue engineering approaches to the repair and regeneration of anterior cruciate ligament (BMRC).
Period: 1 Apr 2009 to 31 Mar 2011
PI: Prof James Goh
Co-PI: Prof Lee Eng Hin, Prof Casey Chan, A/Prof Toh Siew Lok, A/Prof James Hui
Title: Tri-phasic silk/stem cell based bone ligament bone construct in the repair of medial collateral ligament in rabbits (NMRC).
Period: 1 Jan 2008 to 31 Dec 2009
PI: Prof James Goh
Co-PI: A/Prof Toh Siew Lok, A/Prof James Hui

Title: Shoulder biomechanics in massive rotator cuff tears (NMRC EDG).
Period: 1 Jan 2008 to 31 Dec 2010
PI: Prof V P Kumar

AWARDS AND PRIZES

Year 2009
1. Dr Wang Tzong-Jing Victor
   Young Orthopaedic Investigator Award

2. Dr Hitendra Doshi
   Young Orthopaedic Investigator Award, 1st runner up
   Hitendra Doshi, Ho Saey Tuan, Yong Soon Chiong, Dietmar W Hutmacher, Hui Hoi Po James. Cartilage tissue engineering using biphasic osteochondral implant with mesenchymal stem cells 32nd Annual Scientific Meeting of Singapore Orthopaedic Association, Singapore, 18-21 Nov 2009.

3. A/Prof Suresh Nathan
   14th Yahya Cohen Memorial Lecture Award 2009

Year 2008
1. Dr SA Abbah
   Outstanding Oral Paper Award

2. Mr Ho Saey Tuan
   Outstanding Poster Paper Award

3. Mr Yeow Chen Hua
   Young Investigator Award (3rd Prize)

4. Dr SA Abbah
   N Balachandran Best Paper Award

5. Prof Wong Hee Kit
   Award winner for the Best Deformity Paper
6. **A/Prof Hee Han Tak**  
Award winner  
Effects of dynamic tension on degenerated human annulus fibrosus and nucleus pulposus cells’.  

**PATENTS**

**Title**: Engineering high quality mesenchymal stem cells by introducing ZNF145 for cartilage differentiation.  
(USA patent filed 22 Sep 2008).  
**ETPL Reference.**: GIS/04873/00/US  
**Inventor**: Liu TM, Lim B, Lee EH.

**RESEARCH ACHIEVEMENTS**

**International Refereed Publications**

**Year 2009**


**Year 2008**


BIOSKETCH OF DEPARTMENT
FULL-TIME STAFF

Name: WONG Hee Kit
Designation: Professor and Head, Department of Orthopaedic Surgery; Chair, University Orthopaedics, Hand & Reconstructive Microsurgery Cluster; Head, University Spine Centre, National University Health System (NUHS).
Qualifications: MBBS, MMed, FRCS(Glas), MCh(Orth) Liv, FAMS
Email: doswhk@nus.edu.sg
Contact Number: 6772 4342
Research Interests:
  a) Low back pain and sciatica.
  b) Spinal deformity.
  c) Idiopathic scoliosis.
  d) Spinal fusion & instrumentation.
  e) Minimally invasive spinal surgery.

Top 5 Publications:
Name: Shamal DAS DE
Designation: Professor, Department of Orthopaedic Surgery; Head & Senior Consultant, Division of Adult Reconstruction, UOHC, NUHS.
Qualifications: MBBS, FRCS(Edin), FRCS (Eng), MChOrth (Liv), FRCSOrth(Edin), MD
Email: dosdasde@nus.edu.sg
Contact Number: 6772 4325

Research Interests:

a) Osteoarthritis of the hip in the local community – A study of the nature and evaluation of the disease.
b) Vascular pedicle graft using gluteus minimus and medius and its insertion in greater trochanter
c) Arthrodesis of the hip
d) Epidemiology of hip fractures in Singapore
e) Hip morphology in Singaporeans – Radiological Analysis
f) Results of total hip replacement – Cemented and Uncemented
g) Morphology of the upper femur in Asians Serial changes in Bone Mineral Density (BMD) at the bone-implant interface.
h) Anatomical study of the vasculature of the ankle and foot
i) Recurrent dislocation of peroneal tendons: Results of a new technique of repair
k) Osteoporosis in SLE: Effect of calcium and calcitonin on the Bone Mineral Density
l) Patello-femoral osteoarthritis: The Elmslie-Trillat procedure
m) Reconstruction of the unstable ankle
n) Avascular necrosis of the femoral head and revascularization procedures
o) Assessment of insufficiency fractures and incident knee osteoarthritis in pre and post -menopausal women using dual energy x-ray absorptiometry.
p) Over suppression of bone turnover (OSBT) using long term bisphosphonates in osteoporosis.

Top 5 Publications:


Name: V PREM KUMAR
Designation: Professor, Department of Orthopaedic Surgery; Head & Senior Consultant, Division of Sports Medicine, UOHC, NUHS.
Qualifications: MBBS (S’pore), FRCS (Ed), FRCS (Glas), FAM
Email: doskumar@nus.edu.sg
Contact Number: 6772 4322
Research Interests:
a) Biomechanics of the shoulder.
b) Myofascial compartments of the hand and foot.

Top 5 Publications:

Name: K SATKUNANATHAM
Designation: Professor & Senior Consultant, Department of Orthopaedic Surgery
Qualifications: MBBS (Sing), MMedSurg (Sing), FRCS (Ed), FAMS (Sing)
Email: satku_Kandiah@nuhs.edu.sg
Contact Number: 6772 4342
Research Interests:
a) Innervation of bones and joints.
b) Biomechanics of the wrist joint.
c) Epidemiology of osteoarthritis of the knee.
d) Osteonecrosis around the knee and other joints.
e) Gait in osteoarthritic knees.
f) Results of total knee replacement.

Top 5 Publications:
Name: LEE Eng Hin
Designation: Professor & Senior Consultant, Department of Orthopaedic Surgery
Qualifications: MD (W. Ont), FRCS(C), FRCS (Edin), FRCS (Glas), FAMS (Sing)
Email: dosleeh@nus.edu.sg
Contact Number: 6772 5676
Research Interests:
- a) Stem Cell Biology, especially Mesenchymal Stem Cells (MSCs).
- b) Mechanisms and modulation of chondrogenic differentiation of MSCs.
- c) Use of mesenchymal stem cells and chondrocytes for the treatment of partial growth arrest and articular cartilage defects.
- d) Investigation of biodegradable scaffolds for tissue engineering.
- e) Gait analysis in neuromuscular disorders.
- f) Paediatric Orthopaedics and rehabilitation.
- g) Injuries in Children.
- h) Neuromuscular disorders in children.

Top 5 Publications:

Name: Aziz NATHER
Designation: Associate Professor & Senior Consultant, Department of Orthopaedic Surgery
Qualifications: MBBS, FRCS (Ed), FRCS (Glas), MD
Email: dosnathe@nus.edu.sg
Contact Number: 6772 4323
Research Interests:
- a) Bone and allograft transplantation.
- b) Biological and biomechanical properties of bone and ligament allografts.
- c) Social study on the attitude of public and medical personnel towards tissue donation.
- d) Anterior spinal reconstruction using allografts.
- e) Spinal and scoliosis surgery.

Top 5 Publications:


**Name:** HUI Hoi Po James  
**Designation:** Associate Professor & Senior Consultant, Department of Orthopaedic Surgery, UOHC, NUHS  
**Qualifications:** MBBS(Sing), FRCS(Edin), FAMS(Sing), MD  
**Email:** doshui@nus.edu.sg  
**Contact Number:** 6772 4321  
**Research Interests:**  
- a) Glenoid version in children with Erb's palsy.  
- b) Gait analysis in cerebral palsy.  
- c) Prevalence of scoliosis in Singapore.  
- d) Bone age and growth in children.  
- e) Healing of articular cartilage defects using mesenchymal stem cells and chondrocytes.  
- f) Effect of growth factors on the physis.

**Top 5 Publications:**  

**Name:** HEE Hwan Tak  
**Designation:** Associate Prof and Senior Consultant  
**Qualifications:** MBBS, FRCS (Ed), FRCS (Glas), FAMS  
**Email:** doshht@nus.edu.sg  
**Contact Number:** 9828 3132  
**Research Interests:** Spine disorder and intervertebral disc degeneration.

**Top 5 Publications:**  


Name: Saminathan Suresh NATHAN
Designation: A/Professor & Consultant
Qualifications: MBBS (Sing), US Medical Licensure, FRCS (Ed), MMed(Surg), FAMS (Orthopedics)
Email: dossn@nus.edu.sg
Contact Number: 9127 9866
Research Interests:
 a) Musculoskeletal oncology as it relates to systems biology.
 b) Novel therapeutic delivery and disease surveillance in musculoskeletal oncology.
 c) Quality of life improvement in musculoskeletal metastasis.

Top 5 Publications:

Name: WANG Ee Jen, Wilson
Designation: Asst Professor & Senior Consultant
Qualifications: MBBS (London), FRCS (Glas), D.Phil. (Oxford)
Email: doswangw@nus.edu.sg
Contact Number: 9829 3342
Research Interests:
 a) Total joint replacements of hips and knees.
 b) Cellular biology of bone resorption and bone formation, including pathological conditions of periprosthetic osteolysis and osteoporosis.
 c) Improvements of biomaterials used in implants.
 d) Tissue engineering of bone and bone-cartilage constructs.

Top 5 Publications:


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**Name:** Joseph S THAMBIAH  
**Designation:** Head & Senior Consultant, Division of Orthopaedic Trauma; University Orthopaedics, Hand & Reconstructive Microsurgery Cluster, NUHS  
**Qualifications:** MBBS, M.Med(Surg), FRCS(Ed), FAMS(Orth)  
**Contact Number:** 6772 4591

**Top 5 Publications:**

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**Name:** Naresh Satyanarayan KUMAR  
**Designation:** A/Professor & Senior Consultant, University Spine Centre; University Orthopaedics, Hand & Reconstructive Microsurgery Cluster, NUHS  
**Qualifications:** MBBS, MS(Orth), FRCS(Ed) FRCS(Orth & Trauma)  
**Email:** Naresh.Kumar@nuhs.edu.sg  
**Contact Number:** 6772 5611

**Research Interests:**
a) Spinal tumour surgery.  
b) Spinal biomechanics with a view to develop spinal implants.

**Top 5 Publications:**
Name: Gabriel LIU Ka Po  
Designation: Asst Professor & Consultant, University Spine Centre; University Orthopaedics, Hand & Reconstructive Microsurgery Cluster, NUHS  
Qualifications: MBBS, MS(Orth), FRCS(Ed) FRCS(Orth & Trauma)  
Email: gabriel_liu@nuhs.edu.sg  
Contact Number: 67724330  
Research Interests: Degenerative spinal disease.

Top 5 Publications:

Name: Kevin LEE Boon Leng  
Designation: Consultant, Department of Orthopaedic Surgery, NUHS; Adjunct Assistant Professor, Yong Loo Lin School of Medicine  
Qualifications: MBBS, MRCS (Edinburgh), MMed (Ortho), FRCS (Ortho)(Edinburgh)  
Email: kevlee69@hotmail.com  
Contact Number: 9365 3521  
Research Interests: Cartilage repair including stem cell therapy; Joint replacement and tribology.

Top 5 Publications:
Name: LINGARAJ Krishna  
Designation: Consultant, University Orthopaedics, Hand & Reconstructive Microsurgery Cluster, NUHS  
Qualifications: MBBS, MS(Orth), FRCS(Ed) FRCS(Orth & Trauma)  
Email: Lingaraj_Krishna@nuhs.edu.sg  
Contact Number: 9638 8784  
Research Interests: Articular cartilage physiology; Clinical outcomes in Trauma and Joint Replacement surgery.

Top 5 Publications:

Name: Andrew DUTTON  
Designation: Consultant, Department of Orthopaedic Surgery, NUHS; Adjunct Assistant Professor, Yong Loo Lin School of Medicine  
Qualifications: MBBS, BSc(Aust), M.Med(Orth)(Sing), FRCSEd(Orth)  
Email: Andrew_Dutton@nuhs.edu.sg  
Contact Number: 9820 0874  
Research Interests: Stem cells; Joint arthroplasty; Ligament reconstruction.

Top 5 Publications:
Name: Fareed HY KAGDA
Designation: Senior Consultant, University Orthopaedics, Hand & Reconstructive Microsurgery Cluster, NUHS
Qualifications: MBBS (S’pore), FRCS(Glas), FRCSEd(Orth)
Email: Fareed_HY_Kagda@nuhs.edu.sg
Contact Number: 6772 4378
Research Interests:
a) Correction of limb deformities, limb length inequalities (by limb lengthening).
b) Treatment of bone defects.

Top 5 Publications:

Name: Hitendra K. DOSHI
Designation: Associate Consultant
Qualifications: Bac.Med.Sc (Hons), M.D. (M’sia), MRCS (Edin), AFRCSI (Dublin), FRCS Ed (Ortho), M.Med. Ortho (S’pore), M.E.B.O.T (Europe), Dip. SICOT
Email: hitendra_k_doshi@nuhs.edu.sg or sai_hkdoshi@yahoo.com
Contact Number: 9617 5043
Research Interests: Trauma related clinical study.

Top 5 Publications:
Name: TAN Ken Jin  
Designation: Associate Consultant  
Qualifications: MBBS, MMed, FRCS  
Email: ken_jin_tan@nuhs.edu.sg  
Contact Number: 6772 4342  
Research Interests: Musculoskeletal disorders and trauma.  

Top 5 Publications:  

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Name: TAN Chyn Hong  
Designation: Associate Consultant  
Qualifications: MBBS, MRCS(Ed), MMED(orth), FRCSOrth(Ed)  
Email: tanchynhong@hotmail.com  
Contact Number: 9109 9857  
Research Interests: Cartilage Regeneration.  

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Name: GOH Cho Hong James  
Designation: Professor, Department of Orthopaedic Surgery, YLL School of Medicine, NUS; Director of Research, Orthopaedic Surgery, NUHS'; Coordinator, Orthopaedic Diagnostic Centre, NUHS  
Qualifications: BSc (Hons), PhD, CEng  
Email: dosgoh@nuhs.edu.sg  
Contact Number: 6516 5259  
Research Interests:  
a) Musculoskeletal Biomechanics.  
b) Functional Tissue Engineering.  
c) Orthopaedic Implants and Devices.  

Top 5 Publications:  
Name: Barry P PEREIRA
Designation: Research Fellow, Yong Loo Lin School of Medicine
Qualifications: Ph.D., M.Eng, B.Eng. (Sing)
Email: barry_p_pereira@nuhs.edu.sg
Contact Number: 6516 5182
Research Interests:
   a) Determining the moment arms and lines of action of skeletal muscles that cross the forearm axis.
   b) The role of intramuscular innervation in the functional recovery of lacerated skeletal muscles after repair - investigating morphological and molecular changes after repairing the intramuscular nerve branch.
   c) Upper Limb Biomechanics.
   d) The adaptability of skeletal muscle.
   e) Mechanics of Musculoskeletal Disorders.

Top 5 Publications:

Name: ABBAH Sunny Akogwu
Designation: Research Fellow
Qualifications: MBBS; PhD
Email: abbah_sunny_akogwu@nuhs.edu.sg
Contact Number: 6516 5397
Research Interests:
   a) Spine fusion.
   b) Musculoskeletal tissue engineering.
   c) Controlled drug delivery.

Top 5 Publications:

Name: REN Xiafei
Designation: Research Fellow
Qualifications: MBBS, MSc, PhD
Email: dosrxf@nus.edu.sg
Contact Number: 8113 4058
Research Interests: Biomedical research with the methods of cell biology, biochemistry, immunology and molecular biology.

Top 5 Publications:

Name: LIU Tongming
Designation: Research Fellow
Qualifications: Ph.D.
Email: dosltm@nus.edu.sg
Contact Number: 6808 8229
Research Interests:
a) Signaling pathway of genes regulating cartilage differentiation.
b) Gene engineering of stem cells for regenerative medicine in regeneration and repair of cartilage defect and injuries.
c) Mechanism study of mesenchymal stem cells maintaining their stemness.

Top 5 Publications:
Name: YANG Zheng  
Designation: Research Fellow  
Qualifications: PhD  
Email: dosyz@nus.edu.sg  
Contact Number: 6516 5398  
Research Interests: Stem cells & cartilage tissue engineering.

Top 5 Publications:

Name: Sambit SAHOO  
Designation: Research Fellow (A)  
Qualifications: MBBS, MMST, PhD  
Email: dosss@nus.edu.sg  
Contact Number: 6516 5447  
Research Interests:  
a) Orthopaedic tissue engineering using biomimetic scaffolds and stem cells.  
b) Animal models and translational approaches in regenerative medicine.

Top 5 Publications:
Name: Kerrie LIM  
Designation: Research Fellow  
Qualifications: PhD  
Email: doslgck@nus.edu.sg  
Contact Number: 6874 5951  
Research Interests: Adult stem cell research and applications in the field of cell based therapies and regenerative medicine.

Name: PENG Yeong Pin  
Designation: Head & Consultant, Department of Hand & Reconstructive Microsurgery; Reconstructive Microsurgery Cluster (UOHC), NUH  
Qualifications: FRCS, Edinburgh  
Email: cfspyp@nus.edu.sg  
Contact Number: 6772 5549  
Research Interests:  
a) Microsurgical Reconstruction of Upper/Lower Limbs.  
b) Hand Trauma.  
c) Clinical Database.

Top 5 Publications:  

Name: Aymeric LIM Yu Tang  
Designation: A/Professor & Senior Consultant, Dept of Orthopaedic Surgery; Dept of Hand & Reconstructive Microsurgery, UOHC, NUHS; Chairman, Medical Board, NUH  
Qualifications: MBBS (S’pore), FRCS (Glasgow), FAMS (Hand Surgery)  
Email: aymiecr_yt_lim@nuhs.edu.sg  
Contact Number: 6772 5549  
Research Interests:  
a) Free Flaps.  
b) Nerve and brachial plexus surgery as well as tendon transfers.  
c) Intra-muscular innervations of the muscles of the forearm.

Top 5 Publications:  
Name: Dr Alphonsus KS CHONG
Designation: Consultant, Dept of Hand & Reconstructive Microsurgery, UOHC, NUHS
Qualifications: MBBS (Sing), FRCS (Edin), MMed (Surg), FAMS (Hand Surgery)
Email: Alphonsus_Chong@nuhs.com.sg
Contact Number: 6772 5549
Research Interests:
- Hand surgery & reconstructive microsurgery.
- Paediatric Hand Surgery.
- Reconstruction of congenital hand anomalies.

Top 5 Publications:

Name: Dr TAN Ter Chyan
Designation: Consultant, Dept of Hand & Reconstructive Microsurgery, UOHC, NUHS
Qualifications: MB, BCh, BAO(NUI), MMed(Ortho, NUS) MRCS(Edinburgh), FAMS(Hand)
Email: ter_chyan_tan@nuhs.edu.sg
Contact Number: 6772 5549
Research Interests: Nerve regeneration; Surgical rehabilitation in tetraplegia.

Top 5 Publications:
Name: Amitabha LAHIRI  
Designation: Associate Consultant  
Qualifications: MBBS, FRCS, FAMS  
Email: amitabha_lahiri@nuhs.edu.sg  
Contact Number: 9012 2397  
Research Interests: Muscle and nerve; Simulation and training models in surgery.

Top 5 Publications:


Name: Mark Edward PUHAINDRAN  
Designation: Consultant  
Qualifications: MBBS, MMED (Surg), MRCS (Edin)  
Email: Mark_E_Puhaindran@nuhs.edu.sg  
Contact Number: 6772 5549  
Research Interests: Hand Surgery; Musculoskeletal Oncology.

Top 5 Publications:


**Name:** TAN Meng Kiat David  
**Designation:** Associate Consultant  
**Qualifications:** MBBS (Singapore), MRCS (Edinburgh), MMED (Surgery)  
**Email:** malt1974@yahoo.com.sg  
**Contact Number:** 9662 3649  
**Research Interests:**  
a) Distal radius fractures, carpal instability.  
b) Instability of the distal-radioulnar joint.  
**Top 5 Publications:**  

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**Name:** Sandeep Jacob SEBASTIN  
**Designation:** Associate Consultant  
**Qualifications:** MBBS, MMed (Surgery), Exit Certification Hand Surgery  
**Email:** sandeep_jacob_sebastin@nuhs.edu.sg  
**Contact Number:** 6772 5549  
**Research Interests:** Muscle healing; Nerve repair and regeneration; Local flaps in the hand.  
**Top 5 Publications:**  
MESSAGE ON RESEARCH MISSION FROM HEAD OF DEPARTMENT
PROFESSOR LEE CHUEN NENG

The practice of surgery has changed dramatically in recent history and will continue to do so in the foreseeable future. The Department of Surgery, as the principal academic surgical centre in Singapore, aspires to be at the forefront of such change, not for its own sake, but, ultimately, for the sake of our patients. The primacy of our patients’ interests is easily forgotten, cannot be overemphasized, and must guide all action.

Our research mission flows from this guidance. On the one hand, we will explore avenues of inquiry that deepen our understanding of disease processes that have an impact on, or are impacted by, the practice of surgery. On the other, we seek ways to extend our reach, to benefit more patients than we can possibly operate on. The latter can only happen through innovation, and then by bringing innovation to the patient. To this end, we intend to devote significant resources to the development of innovative medical devices, an endeavour which I believe will draw upon, focus, and crystallize our competitive advantage as surgeons.

As we move forward, we look forward to collaborating with our colleagues in the other medical specialties, the other faculties in the larger University community, as well as researchers in other institutions of higher learning and research institutes. We firmly believe that free and frequent exchange of ideas across disciplines will bring the academic community together, foster innovation, and make us all better at what we do.

Prominent Field of Activity
- Minimal invasive surgery.
- Organ restoration using stem cells.
- Epidemiology.
- Development of new surgical techniques.
- Foundation of infrastructure for research and academic enterprise.
KEY RESEARCH AREAS

Included under the umbrella of University Surgical Cluster, some key research areas and strengths are the generation of minimal invasive endoscopic tools and related intellectual properties. We manufacture biosensors, flow sensors, less invasive surgical retractors and scopes.

We also develop methodology to make heart and vascular surgery, more efficient and safer. In the colorectal field, we strive to improve the outcome in colorectal diseases by promoting minimal invasive surgical routes, targeting benign, anorectal disease as well as colorectal cancer. Colorectal cancer, pelvic floor disorders are further priorities, moreover, we use stem cells to address gastric cancer and discover biomarkers for locally advanced gastric cancer.

We use Genomic-guided chemotherapy for gastric cancer patients who are at good risks and to address diabetes mellitus and obesity, we explore new Endoluminal Device for Duodenal exclusion for better control in the treatment of Type II diabetes and obesity.

In Plastic, Reconstructive & Aesthetic Surgery, we pursue scaffold technologies, adult stem cells for tissue regeneration as well as the usage of bio-imaging to better understand pathology & pathophysiology e.g. in facial trauma.

All surgical developments have to aim at reducing patient burden, pain and surgical trauma, to distribute high standards of care to wide masses of the population in the region and the world. Without research and investment in research projects, without research infrastructure and academic commitment, medicine and surgery stagnate. Progress is eliminated. However, diseases spread and change within evolving megatrends, as countries become more industrialized, lifestyle changes and people become older. New pandemics emerge. Without research and innovative surgical therapies many organs, organ systems, human lives cannot be salvaged. It is our vocation, in alignment with the most primary principles of health care, to lead the way to the future with research, teaching and innovation, and hopefully turn scientific concepts of today to useful therapies tomorrow.

In the period under review, the University Surgical Cluster won a total of $16.85 million in competitive grant funding. The following are the most significant:

1. Restorative Surgery
   a. Myocardial restoration, open and endoscopic, via stem cells and tissue engineering technologies (Theodoros Kofidis).
   b. Breast restoration following partial resection (Chan Ching Wan).
   c. Hepatobiliary regeneration via liver tissue engineering.

2. Epidemiology, molecular biology, diagnosis, and treatment of:
   b. Breast Cancer (Philip Iau, Mikael Hartmann, Chan Ching Wan).
   c. Metobonomic profiling for bladder cancer diagnosis and surveillance; intravesicle cytokine gene therapy (Kesavan Nathan).
   d. Abdominal cancers.

3. Medical Device Development
   b. Wireless vascular (extra- and intra-) flow sensors (Benjamin Chua).
   c. Pressure-steerable endovascular catheters (Benjamin Chua).
   d. Training simulators and robots (Charles Tsang, Stephen Chang).
   e. Laparoscopic implements (Charles Tsang, Stephen Chang).
   f. New, less invasive mitral valve implantation using bayonet mechanism (Theodoros Kofidis).

4. Transplant and Immunology
   b. Split liver transplantation.
   c. Organ procurement and perfusion.
<table>
<thead>
<tr>
<th>Title</th>
<th>Period</th>
<th>PI</th>
<th>Co-PIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D Anorectal Ultrasound Image Acquisition System.</td>
<td>15 Oct 2007 to 15 Jan 2009</td>
<td>Charles Tsang</td>
<td></td>
</tr>
<tr>
<td>Analysis of Aortic Arch Anatomy of Elderly Patients Using Computer</td>
<td>Mar 2009 to Sep 2010</td>
<td>Jackie Ho Pei</td>
<td>Lee Heow Pueh, Sudhakar Venkatesh</td>
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<tr>
<td>Tomography Data Reconstruction.</td>
<td></td>
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<tr>
<td>CT Analysis of Structural Buttresses in the Traumatised Nose – A basis for decision making for early open rhinoplasty and biomechanical study of nasal structural support.</td>
<td>2009</td>
<td>Lee Shu Jin</td>
<td></td>
</tr>
<tr>
<td>Development of an Ablation and Division Device with Blood-Flow Sensor Feature.</td>
<td>10 Jul 2008 to 9 Jul 2010</td>
<td>Stephen Chang Kin Yong</td>
<td></td>
</tr>
<tr>
<td>Development of a Pressure Sensor Guided Steerable Endovascular Catheter.</td>
<td>Sep 2009 to Sep 2012</td>
<td>Benjamin Chua</td>
<td></td>
</tr>
<tr>
<td>Identification of Human Gastric Cancer Initiating cells.</td>
<td>2009</td>
<td>Jimmy So Bok Yan</td>
<td></td>
</tr>
<tr>
<td>To Investigate the Role of Transforming Growth Factor beta 1, Epidermal Growth Factor, Endothelin-1 and Monocyte Chemoattractant Peptide 1 for the Diagnosis and Follow-up of Children with Obstruction at the Pelvi-Ureteric Junction of the Kidney.</td>
<td>2008 to 2009</td>
<td>Mali Vidyadhara Padmakoan</td>
<td></td>
</tr>
<tr>
<td>IRAS: Image-Guided Robot Assisted Surgical Training.</td>
<td>1 Sep 2009 to 31 Aug 2011</td>
<td>Stephen Chang Kin Yong</td>
<td></td>
</tr>
<tr>
<td>Liver progenitor cells in chronic liver injury – A Potential Source of Autologous Cells for Liver Tissue Engineering.</td>
<td>2008</td>
<td>Ong Wei Chen</td>
<td></td>
</tr>
</tbody>
</table>
Title: Myocardial Restoration.
Period: 2009
PI: Lee Chuen Neng, Theodoros Kofidis, Seeram Ramakrishna

Title: A New Endoluminal Device for Duodenal Exclusion in Treatment of Type 2 Diabetes Mellitus and Obesity.
Period: 2009
PI: Jimmy So Bok Yan

Title: Novel, Less Invasive Mitral Valve Implantation Method involving a Bayonet Insertion and Release Mechanism.
Period: Jan 2009 to Jan 2010
PI: Theodoros Kofidis

Title: Phase 1 Trial of Intravesical Cytokine Gene Therapy for Bladder Cancer Using Non-viral Vectors in Patients who are Undergoing Transurethral Resection.
Period: 2009
PI: Kesavan Esuvaranathan

Title: TURP - As a Day Surgery Procedure using Gyrus Plasmakinetic Bipolar, a Multicenter Project.
Period: 2008
PI: David Consigliere

Title: Urinary Metabonomic Profiling for Bladder Cancer Diagnosis and Surveillance.
Period: 2009
PI: Kesavan Esuvaranathan

AWARDS AND PRIZES

Cardio Thoracic and Vascular
1. Prof Lee Chuen Neng
   President (4 Mar 2009 to 3 Mar 2011)
   17th Asian Society for Cardiovascular & Thoracic Surgery (ASCVTS)

2. Dr Ooi Oon Cheong
   Excellent Service Award (Executive) (Gold)
   National University Hospital, Singapore, August 2008

3. Dr Ooi Oon Cheong
   Go the Extra Mile (GEMS) Award
   National University Hospital, March 2008

4. A/Prof Peter Ashley Robless
   NHG HMDP Award 2009

5. Dr Ooi Oon Cheong
   MRF - MOH Healthcare Research Scholarship
   Master of Clinical Investigation Course (NUS), Aug 2008 – present

6. Dr Ho Pei Jackie
   Society of Vascular Surgery (SVS) International Vascular Fellowship 2010

7. Dr Ooi Oon Cheong
   Thoracic Surgery Foundation for Research and Education Scholarship for Leadership Program in Health Policy and Management.
   Brandeis University, Boston, USA, 23-28 Jun 2008
Upper GI Digestive System

1. **A/Prof Jimmy So Bok Yan**  
   Research related Gold Award for NHG doctor (NHGD) Awards 2008.  
   NHG ASC Scientific Paper Competition, 7-8 Nov 2008, Singapore.  
   Prospective Randomized Crossover Study Comparing Video Endoscopic Autofluorescence Imaging followed by Narrow Band Imaging with Standard Endoscopy for Detection of High Risk Lesion in Stomach.

Plastic, Reconstructive & Aesthetic

1. **Dr Shenthilkumar s/o Sritharan Naidu**  
   Young Investigator’s Award 2008.  
   Singapore Malaysian Congress of Medicine.

2. **Dr Matthew Yeo**  
   Best Poster Presentation at NHG Annual Scientific Meeting (2008).  
   Preliminary results of Lymphaticovenular Anastomosis: a Novel Treatment for Lymphedema.

Urology

1. **Dr Edmund Chiong**  
   ASCO Cancer Foundation Merit Award.  
   American Society of Clinical Oncology 2009 Genitourinary Cancers Symposium (Orlando, Florida, USA, 26 to 28 Feb 2009).  
   Abstract: Micropapillary Bladder Cancer: Comparison of Outcomes with Up Front Cystectomy and Neoadjuvant Chemotherapy.

2. **Dr Edmund Chiong**  
   Young Investigator Merit Award (Basic Science / Translational Research category).  
   NHG 8th Annual Scientific Congress (Singapore, 16 to 17 October 2009).  

3. **Dr Edmund Chiong**  
   Best Poster Presentation Award (Surgical Disciplines category).  
   NHG 8th Annual Scientific Congress (Singapore, 16 to 17 Oct 2009).  
   Abstract: Predictors of the Risk of Androgen-Independent Progression After Salvage Radical Prostatectomy For Locally Recurrent Prostate Cancer Following Initial Radiation Therapy.

4. **Mr Allen Wong**  
   Best Poster Presentation - Merit Award.  

PATENTS

Cardio Thoracic and Vascular

**Title**: Implantable Device for Continuous Monitoring of Blood Flow with Wireless Interface and Method of Deploying.  
**New SG Provisional Application**.  
**ETPL Ref**: IME/Z/05711  
**IME Ref**: PAT09-044/BEP-010 4  
**Inventor**: Dr Chua Soo Yeng Benjamin

**Title**: Novel Atrial Lift Retractor for Minimal Invasive Heart Surgery.  
**Inventor**: A/Prof Kofidis Theodoros

**Title**: Novel Mitral Valve Implantation Method Using a Bayonet Mechanism.  
**Inventor**: A/Prof Kofidis Theodoros
Title: Ultra Miniaturized, Highly Sensitive and Robust Tri-Axial Force Sensor for Medical Devices and Method of Forming.
New SG Provisional Application.
ETPL Ref: IME/P/05712/00/SG  IME Ref: PAT09-045/BEP-011
Inventor: Dr Chua Soo Yeng Benjamin

Colorectal
Title: 3D Anorectal Ultrasound Image Acquisition, Segmentation and Reconstruction for Anorectal Tissue Layers.
Inventor: Charles Tsang, Exploit Technologies (A*STAR)

Title: Method and Apparatus for Anorectal Examination.
European Patent Office, Patent No.: 08724346.5 – 1265 PCT/SG2008000082
Date: 17 March 2008, US/16.03.07/USP 895275
Inventor: Charles Tsang, Exploit Technologies (A*STAR)

Title: A Sigmoidoscope Coupling for 3D Ultrasound Probe with Internal Pulling.
BRC/Z/04420.
Inventor: Charles Tsang, Exploit Technologies (A*STAR)

Upper Gastrointestinal
Title: Endoscopic Sleeve for Duodenal Exclusion for Treatment of Obesity and Type 2 Diabetes Mellitus.
Inventor: Assoc Prof Jimmy Soh
Place of registration: USA

Title: Gastroduodenal Chute for Treatment of Obesity and Type 2 Diabetes Mellitus.
Inventor: Assoc Prof Jimmy Soh
Place of registration: USA

Hepatobiliary
Title: An Articulating Ablation and Division Device with Blood Flow Sensing Capability.
Inventors: Stephen Chang (NUH), Chui Chee Kong (NUS)
Place of registration: National University of Singapore Industry Liaison Office, Singapore

Title: Architecture for Image-guided Robot Assisted Surgical training (IRAS).
Inventors:
b) National University Hospital (NUH): Stephen Chang.
c) National University of Singapore (NUS): Chui Chee Kong.
d) Institute of High Performance Computing (IHPC): Su Yi.
Place of registration: National University of Singapore Industry Liaison Office, Singapore

Title: Perfused Organ Surgical Trainer (POST).
Inventors: Stephen Chang (NUH), Chui Chee Kong (NUS)
Place of registration: National University of Singapore Industry Liaison Office, Singapore

Urology
Title: Novel Liposomal Technique for Transfection for Gene Therapy.
Inventors: Kesavan Eswaranathan, Ratha Mahendran, Carmel Lawrenca
Place of registration: USA, European Union, Australia & Japan


**BIOSKETCH OF DEPARTMENT FULL-TIME STAFF**

**Name:** CHANG Kin Yong, Stephen  
**Designation:** Consultant and Research Director, Division of Hepatobiliary and Pancreatic Surgery, NUHS  
**Qualifications:** MBBS (Singapore), MRCSEd, MMed Surgery, FRCS (Gen Surg)  
**Email:** surv7@nus.edu.sg  
**Contact Number:** 6772 4225 (O); 6777 8427 (Fax)  
**Research Interests:**  
Dr Stephen Chang is a keen developer of the laparoscopic approach to Hepatobiliary and Pancreatic surgery and eagerly shares his skills with the other surgeons in this region through course and telecommunications. He has since published his experience in several major surgical journals. In addition to his surgical practice, Dr Chang has several research interests including pancreatic diseases, colorectal metastases, minimally invasive approach to biliary and stone diseases as well as robotic surgery. He is currently holding numerous research grants in developing surgical techniques in this area and is the research director in the division of Hepatobiliary and Pancreatic Surgery.

**Name:** Dean Chi-Siong KOH  
**Designation:** Consultant, Division of Colorectal Surgery; University Surgical Cluster, NUH, Singapore  
Consultant, Division of Surgical Oncology, National University Cancer Institute; Assistant Professor, Department of Surgery, Yong Loo Lin School of Medicine, NUS  
**Qualifications:** MBBS (Singapore), FRCS (Edin), FRCS (Glasg), FRCSEd (General Surgery), FAMS (Surgery)  
**Email:** dean_koh@nuhs.edu.sg  
**Contact Number:** 6772 4249  
**Research Interests:**  
a) Laparoscopic colon and rectal surgery – outcomes and impact on cancer survival.  
b) Colorectal cancer – genetics and impact of immune response to survival.  
c) Robotic Assisted Laparoscopic surgery for rectal surgery.

**Top 5 Publications:**
Name: Davide LOMANTO
Designation: Associate Professor, Senior Consultant, Director Minimally Invasive Surgical Centre; Director KTP Advanced Surgical Training Centre, Department of Surgery; Visiting Consultant Surgeon at Department of Paediatric Surgery; Yong Loo Lin School of Medicine, NUS
Qualifications: MD, PhD, FAMS (Surg)

Top 5 Publications:

Name: TSANG Bih-Shiou Charles
Designation: Senior Consultant, Division of Surgical Oncology, National University Cancer Institute, Singapore
Qualifications: MBBS, FRCS(Ed), FRCS(Glas), M.Med, FAMS
Email: medtbsc@nus.edu.sg
Contact Number: 6772 4240
Research Interests: Colorectal.

Top 5 Publications:
Name: HO Pei Jackie
Designation: Consultant Vascular & Endovascular Surgeon, NUHS; Assistant Professor, Department of Surgery, NUS
Qualifications: MBBS, FRCS, FCS, FHKAM
Email: jackie_ho@nuhs.edu.sg
Contact Number: 6772 2859
Research Interests:
- Aortic diseases particularly aneurysm & dissection.
- Atherosclerotic occlusive disease of the lower limb and limb salvage.
- Atherosclerotic disease of carotid arteries and stroke prevention.
- Computational fluid dynamic studies of stent grafts post-implantation.
- Medical device innovation and development.
- Occupational health.

Top 5 Publications:

Name: Dr. SO Bok Yan, Jimmy
Designation: Associate Professor and Senior Consultant Surgeon; Director of Upper Gastrointestinal Surgery; Department of Surgery, NUH and NUS
Qualifications: MBChB  FRCSI  FRCSG  FAMS
Email: jimmyso@nus.edu.sg
Contact Number: 6772 4236
Research Interests:
- Biomarker discovery eg proteomic, microRNA for Gastric cancer.
- Identification and characterization of gastric cancer stem cells.
- Novel and Personalized therapy for gastric cancer.
- Bariatric Surgery and metabolic diseases.
- Endo-luminal treatment of Type II Diabetes Mellitus & obesity.

Top 5 Publications:
**Name:** CHEONG Wai Kit  
**Designation:** Senior Consultant, Division of Surgical Oncology; National University Cancer Institute, Singapore  
**Qualifications:** MBBS (S’pore), FRCS(Edin), FRCS(Glasgow), M.Med, FAMS, MPH (Clin Epi)  
**Email:** wai_kit_cheong@nuhs.edu.sg  
**Contact Number:** 6772 4240  
**Research Interests:** Colorectal.  

Top 5 Publications:  

**Name:** Aileen Seah Ai LIN  
**Designation:** Consultant, Division of Surgical Oncology, National University Cancer Institute, Singapore  
**Qualifications:** MBBS (S’pore), FRCS(Edin), FAMS (Surgery),Certified Acupuncturist (GDA)  
**Email:** aileen_seah@nuhs.edu.sg  
**Contact Number:** 6772 4240  
**Research Interests:** Colorectal.  

**Name:** Frances LIM Sheau Huei  
**Designation:** Consultant, Division of Surgical Oncology, National University Cancer Institute, Singapore  
**Qualifications:** Adv Dep Med Sci (IMU), MD (Canada), Associate Fellow ACS (USA)  
**Email:** Frances_Lim@nuhs.edu.sg  
**Contact Number:** 6772 4240  
**Research Interests:** Colorectal.  

**Name:** Lata Raman Nee Mani  
**Designation:** Research Assistant  
**Qualifications:** MBBS (India), MAS (Master of Advanced Studies in Clinical Research from University of California San Diego)  
**Email:** lata.raman@nuhs.edu.sg  
**Contact Number:** 6772 5643  
**Research Interests:** Training researchers on DSRB/IRB regulations and Good Clinical Practice guidelines. Study designing, designing data collection instruments and databases.  

Top 5 Publications:  
Name: YU Rui Qi, Rachel  
Designation: Research Assistant  
Qualifications: B.Sc (Concentration in Molecular and Cell Biology), NUS  
Email: rachel_yu@nuhs.edu.sg  
Contact Number: 97695847  
Research Interests: Microbiology, General Surgery.

Top 5 Publications:

Name: Hing Chor HOONG, Eileen  
Designation: Laboratory Technologist  
Qualifications: Diploma in Nursing, Advanced Diploma in Operating Theatre  
Email: surhch@hotmail.com  
Contact Number: 9639 6866  
Research Interests: Facial Reconstruction

Name: Dr Min Htet Zaw  
Designation: Research Assistant  
Qualifications: MB,BS; D.M.P.R  
Email: surmhz@nus.edu.sg  
Contact Number: 8176 4697  
Research Interests: Cardiac and Thoracic surgery; Mental health and quality of life of patients with major CVS diseases.

Top 5 Publications: