# 2018 SingHealth_Duke-NUS_Duke Collaborative Surgical Research Workshop

**Friday, November 2, 2018**  
*Supported by the Duke Office of Duke-NUS Affairs*

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:30a-12:30p</td>
<td><strong>Buffet Lunch – TSCHE, Rooms 3020-3021</strong></td>
</tr>
<tr>
<td>12:30p-1:15</td>
<td><strong>Symposium - TSCHE, Rooms 3051-3052</strong></td>
</tr>
<tr>
<td>12:30p–1:15</td>
<td><strong>Welcome and Introduction</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Associate Professor Tan Hiang Khoon</strong></td>
</tr>
<tr>
<td></td>
<td>Academic Chair, Surgery Academic Clinical Program</td>
</tr>
<tr>
<td></td>
<td>SingHealth Chairman, Division of Surgery, Singapore General Hospital</td>
</tr>
<tr>
<td></td>
<td><strong>Symposium Goals</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Michael “Luke” James, MD</strong></td>
</tr>
<tr>
<td></td>
<td>Associate Professor of Anesthesiology &amp; Neurology, Duke School of Medicine</td>
</tr>
<tr>
<td></td>
<td>Faculty Liaison to Duke-NUS_SingHealth</td>
</tr>
<tr>
<td></td>
<td><strong>Successful Collaboration</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Sabino Zani, MD</strong></td>
</tr>
<tr>
<td></td>
<td>Asst Professor of Surgery, Surgical Oncology, Duke School of Medicine</td>
</tr>
<tr>
<td></td>
<td><strong>Professor Pierce Chow</strong>, Sr Consultant Surgeon, Singapore General Hospital</td>
</tr>
<tr>
<td></td>
<td>Sr Consultant National Cancer Centre, SingHealth</td>
</tr>
<tr>
<td></td>
<td><strong>Description of Duke_Duke-NUS_SingHealth RFA</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Patricia Joseph, MS, MBA</strong></td>
</tr>
<tr>
<td></td>
<td>Director, Duke Office of Duke-NUS Affairs</td>
</tr>
<tr>
<td></td>
<td>Liaison Office-Collaborative Initiatives with Duke-NUS_SingHealth</td>
</tr>
<tr>
<td>1:15p-1:25p</td>
<td><strong>Welcome from Duke Surgery</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Allan D. Kirk, MD, PhD</strong></td>
</tr>
<tr>
<td></td>
<td>David C. Sabiston, Jr., Professor of Surgery at Duke University</td>
</tr>
<tr>
<td></td>
<td>Chair, Department of Surgery</td>
</tr>
<tr>
<td></td>
<td>Professor in Pediatrics</td>
</tr>
<tr>
<td></td>
<td>Professor in the Department of Immunology</td>
</tr>
<tr>
<td>1:25-1:30</td>
<td><strong>Break &amp; Transfer to Workshop Rooms</strong></td>
</tr>
</tbody>
</table>
# Symposium Organizers

**Michael “Luke” James, MD**  
Associate Professor of Anesthesiology & Neurology  
Department of Anesthesiology, Duke School of Medicine  
Faculty Liaison to Duke-NUS_SingHealth

**Asst Professor Tan Hiang Khoon**  
Academic Chair, Surgery Academic Clinical Program  
SingHealth Chairman, Division of Surgery, Singapore General Hospital (SGH)

**Shelly Hwang, MD, MPH**  
Professor of Surgery & Radiology  
Vice Chair Research, Chief Section of Breast Surgery  
Department of Surgery, Duke University School of Medicine

**Sabino Zani, Jr, MD**  
Asst Professor of Surgery, Surgical Oncology, Duke School of Medicine

---

## 1:30p-3:30p  WorkGroups

<table>
<thead>
<tr>
<th>Outcomes Group</th>
<th>Device Group</th>
<th>HPB Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCHE, Room 3023</td>
<td>TSCH, Room 3022</td>
<td>TSCHE, Room 3023</td>
</tr>
<tr>
<td><strong>Group Leader: Christopher Mantyh, MD</strong></td>
<td><strong>Group Leader: Howard Levinson, MD</strong></td>
<td><strong>Group Leader, Sabina Zani, Jr, MD</strong></td>
</tr>
<tr>
<td><strong>Duke Members:</strong></td>
<td><strong>Duke Members:</strong></td>
<td><strong>Duke Members:</strong></td>
</tr>
<tr>
<td>Suresh Balu, MBA. MS</td>
<td>Muath Bishawi, MD</td>
<td>Michael Lidsky, MD</td>
</tr>
<tr>
<td>Eric S. Huang, MD, PhD</td>
<td>Josh Broder, MD</td>
<td>Stuart Knechtle, MD</td>
</tr>
<tr>
<td>Sandya Lagoo-Deenadalayan, MD, PhD</td>
<td>Mark Palmeri, MD, PhD</td>
<td></td>
</tr>
<tr>
<td>Gina-Maria Pomann, PhD</td>
<td>Eric S Richardson, MD</td>
<td></td>
</tr>
<tr>
<td>Kevin Shah, MD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joshua Watson, MD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zhifei Sun, MD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SingHealth Members:</th>
<th>SingHealth Members:</th>
<th>SingHealth Members:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asst Professor Chong Tze Tec</td>
<td>Cheong Wai Chye, Senior Manager, MTO</td>
<td>Professor Pierce Chow</td>
</tr>
<tr>
<td>Sean Lam Shao Wei, PhD</td>
<td>Dr. Rena Dharmawan</td>
<td>Assoc Prof Brian K. P. Goh</td>
</tr>
<tr>
<td>Adj. Asst Professor Amos Loh</td>
<td>Adj Asst Prof Wong Ting Hway</td>
<td>Dr Koh Ye Xin: Ass Consultant</td>
</tr>
<tr>
<td>Asst Professor Tan Kwong Wei Emile John</td>
<td>Assoc Professor Yenn Heng Wai</td>
<td></td>
</tr>
<tr>
<td>Adj. Asst Professor Tang Tjung Yip</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 3:30p-5:00p  Work Group Presentations for Feedback  (20 Minutes Each)

## 5:00p-5:30p  Closing and Next Steps

---

**Symposium Organizers**

---

---
Assoc Prof Tan Hiang Khoon
Academic Chair, Surgery Academic Clinical Program, SingHealth
Chairman, Division of Surgery, Singapore General Hospital (SGH)
Director, Community Outreach & Philanthropy, National Cancer Centre Singapore (NCCS)
Senior Consultant, SingHealth Duke-NUS Head & Neck Centre, NCCS & SGH

Biography
Assoc Prof Tan Hiang Khoon is a Head and Neck surgeon specialising in resection of complex head and neck malignancies and is one of the pioneers in the development of endoscopic and robotic Head and Neck & Thyroid surgery in Singapore. He is a strong proponent of multi-disciplinary and inter-professional collaboration to advance patient centric care. Until his current appointment as Chair of Surgery, Dr Tan was the Head, Singhealth Duke-NUS Head and Neck Centre. In that role, he was instrumental in the conceptualization and establishment of the first SDDC in Singhealth.

His research interest is in the clinical outcome and QOL research on Head and Neck malignancies. He is also actively involved in Surgical Device innovation including cost-conscious device development. He is co-investigators of several on-going clinical trials.

He holds several concurrent positions in NCCS, SGH and SingHealth. He is the Academic Chair of Surgery Academic Clinical Program and the Chairman, Division of Surgery, Singapore General Hospital. In these roles, he has helped advance the cause for Academic Surgery and has led multiple QI initiatives to optimise OT resources, enable easy access to care and improve surgical outcome.

He is also the Director, Division of Community Outreach and Philanthropy, National Cancer Centre Singapore and a strong advocate for the role of philanthropy in an Academic Medical Centre.
Allan D. Kirk is the David C. Sabiston, Jr. Distinguished Professor of Surgery at Duke University. He also holds secondary professorships in Immunology and Pediatrics, and serves as Chairman of the Department of Surgery and Surgeon-in-Chief for the Duke University Health System. Dr. Kirk received his MD and PhD in Immunology at Duke, and completed a surgery residency at Duke. He completed an organ transplant fellowship at the University of Wisconsin. Dr. Kirk served as a Senior Investigator at the NIH and as Chief of the Transplantation Branch for NIDDK from 2001-2007. In 2007, he moved to Emory University, as Professor and Vice Chair for Surgical Research. Since 2014, he has been in his current position at Duke. His scientific work has been focused on translational development of anti-rejection therapies in organ transplantation. He has published >300 manuscripts in the peer reviewed literature, and maintains a clinical kidney transplant practice and a laboratory effort with active NIH, FDA and DoD funding. He is also the Editor-in-Chief for the American Journal of Transplantation, a Fellow of the American College of Surgeons, and a member of the National Academy of Medicine.
Shelley Hwang, MD, MPH
Professor and Vice Chair of Research
Chief of Breast Surgery
Department of Surgery

Training:
MD, University of California–Los Angeles David Geffen School of Medicine
MPH, University of California–Berkeley

Residency:
General Surgery, Kaiser Permanente–Los Angeles (California)
General Surgery, Cornell University New York Hospital

Fellowship:
Breast Surgery, Memorial Sloan-Kettering Cancer Center (New York)
Surgical Oncology, Singapore General Hospital

Clinical Interests:
Dr. Shelley Hwang is Chief of Breast Surgery and Professor and Vice Chair of Research, Duke University Department of Surgery where she leads translational research activities in early stage and in situ breast cancer. Dr. Hwang has received local and national recognition for both her clinical expertise and research to improve both cancer and quality of life outcomes in patients affected by breast cancer. Her research interests include establishing feasibility for less invasive treatments for preinvasive breast cancers, and identifying tumor- and stroma-associated determinants of cancer progression which could be targeted for breast cancer prevention. She is the PI of a national cooperative group study (CALGB 40903) evaluating the role of preoperative endocrine treatment for low risk DCIS, as well as a national randomized controlled trial of active surveillance for DCIS. Her laboratory is focused on understanding the evolutionary basis of cancer progression, based on mathematical modeling and cancer genomics. She also leads a team which seeks to re-engineer electronic data systems to improve delivery of breast cancer care. She serves as a member of the NCI Breast Cancer Steering Committee, the NCCN Breast Cancer Screening and Diagnosis Panel and Co-Chairs the Locoregional Working Group of the Translational Breast Cancer Research Consortium. Her research is supported by the NIH, DOD, PCORI, the Susan G. Komen Foundation, the Breast Cancer Research Fund, and The American Cancer Society.
Following residencies in neurology and anesthesiology with fellowships in neurocritical care, neuroanesthesia, and vascular neurology, I joined an active clinical practice in neuro-anesthesia. Our center consistently handles a high volume of neuro-vascular neuro-surgical cases, which require the neuro-anesthesia subspecialization. This small group of neuro-anesthesiologists handles patient care and research opportunities during the perioperative period, as patients move between the emergency department, neuro-intensive care unit, operative suites, and neuro-interventional suites. Further, I am or have been a principal investigator (PI) on several clinical trials involving patients with intracerebral hemorrhage. As part of the Translational Acute Brain Injury Research Center at Duke, I have been the Duke site-PI for large, multi-center trials funded by the National Institutes of Health, including CLEAR-IVH, MISTIE, ERICH, and HI-Def studies.
Patricia Joseph, M.S, MBA Director, Office of Duke NUS Affairs

As the Director, Office of Duke-NUS Affairs, Ms. Joseph manages all collaboration and liaison activities between Duke, Duke-NUS and SingHealth. Prior to this position she served as Chief Administrator for 17 years in the Department of Psychiatry, Duke School of Medicine. In this position, she managed a research portfolio of $50 million annually. She has experience managing outpatient clinics in an academic setting. She developed a network of outpatient mental health clinics throughout rural North Carolina. She has experience managing in a for-profit service industry and in a community hospital setting.

Professional Experience:
Duke University School of Medicine – 27 years
Director, Duke Office for Duke NUS Affairs 2008 – Current
Chief Administrator, Department of Psychiatry and Behavioral Science – 1993-2010
Duke Mental Health Network and Marketing Manager, Department of Psychiatry- 1991-1993
AP Community Hospital, North Carolina – 3 years
Director, Marketing and Planning
ARA Services, Chicago, IL – 7 years
District Manager and Director, Health Care Division

Education:
Wake Forest University, Winston-Salem, NC
Master of Business Administration
Wake Forest University, Tokyo, Japan
Satellite Program: Japanese Management Learning On Site
Vanderbilt University, Nashville, TN
Organizational Development
George Peabody College of Vanderbilt University, Nashville, TN
Master of Science- Psychology, Child Development
Duquesne University, Pittsburgh, PA
Bachelor of Arts-Clinical and Experimental Psychology

Continuing Professional Education:
Corporate Education Group
Professional Certification in Business Process Management
Professional Certification in Project Management
I am a colorectal surgeon and researcher who has been at Duke for about 25 years. I see patients who have issues with the small bowel, colon, rectum and anus. These issues include benign tumors, cancers, hemorrhoids and fistulas. The best part of my job is operating. The operating room is a special place, where we have been able to put a number of processes in place so things run smoothly and we can give patients the best chance at a good outcome. The fact that you can take a condition, operate and potentially cure a patient is fascinating to me. As a faculty member, I also enjoy when I have the chance to teach residents during the operation.

My research interests include surgical outcomes and quality. I am deeply committed to understanding how physicians can make our clinical outcomes better. I am the departmental leader in quality and the surgical champion for the National Quality Improvement Projects. In addition, I am interested in all aspects of research into colorectal cancer, including basic science and examining large databases to compare techniques and optimize cancer survival.
Suresh Balu serves as Associate Dean for Innovation and Partnership for the School of Medicine and as Program Director, for the Duke Institute for Health Innovation (DIHI)

In his role as Associate Dean, Suresh is responsible for creating, implementing, and sustaining innovation and partnership initiatives for the School of Medicine, specifically, to support the strategic priorities for clinical and translational research. As Program Director for DIHI, Suresh works closely with Duke Health leadership to develop innovation frameworks and approaches across healthcare delivery, education and research. His responsibilities include, strategic evaluation of opportunities, developing competitive landscape for healthcare and research initiatives, complex strategic, operational and financial analyses and recommendations for Duke Health leadership and corporate development for global and US-based collaborations as they relate to an innovation platform.

Suresh’s experience prior to Duke spans academia, management consulting, venture capital and private equity. As a corporate and competitive strategy consultant, Suresh worked with leading life sciences and technology firms to develop strategies for innovation, revenue generation, organizational restructuring and product portfolio planning. His PE/VC experiences include product and technology due diligence, deal structuring and portfolio company management. As an entrepreneur, Suresh was responsible for program management, market and product strategy at a venture-funded firm that focused on visualization and diagnostic products. Suresh has operational and business development experience in Asia and Europe, where he helped to establish sales channels serving government and academic clients. He is an inventor named on more than 20 US and international patents.

Suresh holds MS (Computer Science) and MBA (Corporate Finance) degrees as well as a Master’s degree in Informatics and Bachelor’s degree in

Suresh Balu, MBA, MS
Associate Dean for Innovation and Partnership
Dr. Huang’s research interests span applied machine learning, research provenance and data infrastructure. Projects include building data provenance tools funded by the NIH’s Big Data to Knowledge program, regulatory science funded by the Burroughs Wellcome Foundation. Applied machine learning applications include “Deep Care Management,” a highly interdisciplinary project with Duke Connected Care, Duke’s Accountable Care Organization, that integrates claims and EHR data for predicting unplanned admissions and risk stratifying patients for case management; CALYPSO, a collaboration with the Department of Surgery for utilizing machine learning to predict surgical complications, and a CTSI-funded program for working with nephrologists to develop an “early warning” system for chronic kidney disease.

As Co-Director of Duke Forge, Dr. Huang is working with Robert Califf, former Commissioner of the FDA to build a data science culture and infrastructure across Duke University that focuses on actionable health data science. The Forge emphasizes scientific rigor, awareness that technology does not supersede clinicians’ responsibilities and human relationship with their patients, and the role of data science in society.
Sandhya Lagoo-Deenadayalan, MD, PhD, FACS is Associate Professor of Surgery at Duke University and the Durham VA Medical Center (DVAMC) and Co-Director of the Peri-operative Optimization of Senior Health (POSH) program. She is a Senior Fellow in the Center of Aging and Human Development at Duke and serves as a member of the American College of Surgeons Geriatric Task Force. She is a Core Development Team Member of the Coalition for Quality in Geriatric Surgery. She has participated in studies focusing on outcomes following surgery in the elderly and on innovative interventions that address unmet needs in this patient population.

Sandhya is an American Geriatric Society 2002 Dennis W. Jahnigen scholar and received an R21 from the NIA to study the biology of Aging and Sepsis in 2007. She has been an advocate of Geriatrics training for surgery residents and was co-PI on a Hartford Geriatrics Subspecialty Residency (GSR) Program. She was also co-PI of the Duke Team to receive a 2012 Chief Resident Immersion Training (CRIT) program grant, a program which fosters collaboration among disciplines in the management of medically complex older patients. In 2014, her team received a 3 year grant from the Office of Academic Affiliations at the Veterans Administration, Specialty Centers of Excellence, to establish a clinical and educational Perioperative Optimization of Senior Health (POSH) Program at the Durham VA.
Gina-Maria Pomann PhD
Statistical Research Scientist
Director, Duke CTSI Biostatistics, Epidemiology and Research Design (BERD) Methods Core

Gina-Maria Pomann is a Statistical Scientist and the Manager of the Clinical Translational Science Institute Biostatistics Core. She earned her PhD in Statistics from North Carolina State University where she was an AT&T and National Science Foundation graduate research fellow. Her primary interests are in image analysis, functional data, case-control sampling, observational data, statistical education, and promoting diversity.
Kevin Shah is a Hepatobiliary surgeon and Surgical Oncologist working at Duke Raleigh Hospital and Duke University Hospital. His clinical practice focuses on benign and malignant disease of the liver and pancreas, as well as other upper gut malignancies like gastric and small bowel cancers. His research interests are similarly focused on improving outcomes in hepatobiliary surgery and surgical education.

Kevin completed his general surgery residency at the Cleveland Clinic prior to coming to Duke for a two year fellowship in Hepatobiliary Oncologic Surgery. He joined the staff of Duke Raleigh and Duke University hospitals following his fellowship four years ago.

Kevin can be contacted via email at kevin.n.shah@duke.edu
Joshua Watson, MD
House Staff, General Surgery Residency Program
I am currently a fourth year Duke General Surgery resident and have completed my research fellowship with an emphasis in health services research and surgical innovation. In addition to conducting studies in colorectal surgery outcomes, I led a team in creating predictive models of surgical complications and co-founded a company aimed at predicting patient surgical risk and connecting interventions to high-risk patients. My goal is to leverage my experience in outcomes research, entrepreneurship, and clinical medicine to create clinically-relevant and commercially-viable solutions to clinical and operational problems.
Asst Prof Chong Tze Tec
Vice-Chair (Undergraduate Education), Surgery Academic Clinical Program, Singapore General Hospital
Head & Senior Consultant, Department of Vascular Surgery, Singapore General Hospital
Assistant Dean, Duke-NUS Graduate Medical School

Biography
Dr Chong graduated from the University of Sydney with MBBS (First class honours). He did his general surgery training at Johns Hopkins Hospital, Baltimore and Tufts New England Medical Center, Boston. Upon being awarded the John Homan’s fellowship, he pursued his subspecialty training in vascular and endovascular surgery at Brigham and Women’s Hospital, Harvard Medical School. He is double boarded by the American Board of Surgery in general surgery and vascular surgery.

He was then recruited to Brown Alpert School of Medicine to develop their vascular and endovascular surgery program at The Miriam and Rhode Island Hospitals. After four successful years of practice, he has relocated to Singapore with his family to be at SGH. His clinical interests are in all aspects of vascular and endovascular surgery including carotid artery surgery and stenting, aortic aneurysm repair (open and minimally invasive), lower extremity revascularization, and varicose vein treatments.

He also strongly believes in medical education of the next generation of doctors, he is currently the Vice Chair Undergraduate Education in Surgery ACP and Assistant Dean at Duke-NUS Graduate Medical School.
Dr Sean Lam  
Head of Data Science, Singapore Health Services (SingHealth), Duke NUS Academic Medicine Centre  
Assistant Professor, Duke-NUS Medical School

Biography
Dr Sean Lam is the Head of Data Science in the Singapore Health Services (SingHealth) Duke NUS Academic Medicine Centre. Sean is also an Assistant Professor with the Duke-NUS Medical School. Sean has a PhD in Industrial and Systems Engineering and Decision Sciences and he is overseeing a team of data scientists and analytics professionals for the development of Data Science and Artificial intelligence capabilities for the enhancement of patient care and outcomes. He is an experienced data scientist and health services researcher who has won multiple research accolades over the past years.
Amos Loh Hong Pheng  
Associate Consultant  
Department of Paediatric Surgery, KK Hospital

Professional Experience:
Current Position(s):
- Consultant, KK Women’s and Children’s Hospital
- Adjunct Assistant Professor, Duke-NUS Medical School
- Director, Clinician Scientist Development Office, Surgery Academic Clinical Programme
- Chairman, VIVA-KKH Paediatric Brain and Solid Tumour Programme

Previous Appointments:
- Pediatric Surgical Oncology Fellow, Department of Surgery, St Jude Children’s Research Hospital, Memphis TN

Academic Qualifications:

<table>
<thead>
<tr>
<th>Degree/year</th>
<th>Institution</th>
<th>Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBBS / 2002</td>
<td>National University of Singapore</td>
<td>Medicine, Surgery</td>
</tr>
<tr>
<td>MRCSEd / 2006</td>
<td>Royal College of Surgeons of Edinburgh</td>
<td>General Surgery</td>
</tr>
<tr>
<td>MMed (Surgery) / 2007</td>
<td>National University of Singapore</td>
<td>General Surgery</td>
</tr>
<tr>
<td>FAMS (Paed Surgery) / 2011</td>
<td>Academy of Medicine Singapore</td>
<td>Paediatric Surgery</td>
</tr>
</tbody>
</table>

Current Research Activities (max ½ page)
My academic interests are in the area of clinical and translational research in paediatric solid tumours, specifically: (i) Use of ‘omics and next-generation sequencing platforms for the discovery of biomarkers for risk prognostication and therapeutic stratification, particularly neuroblastoma, osteosarcoma, and paediatric renal tumours. (ii) The development of orthotopic xenograft and explant models of paediatric solid tumors for comprehensive preclinical testing of novel multimodal therapeutic strategies. My current focus is on the use of novel targeted agents, as adjuncts or window agents to standard-of-care therapies, and testing of these novel therapeutic strategies using structured preclinical trials.
A/Prof Tan Kwong Wei Emile John
Consultant, Department of Colorectal & General Surgery, Singapore General Hospital
Director, Gastrointestinal Function Unit, Singapore General Hospital
Co-Director, Health Services Research, Singapore General Hospital
Adjunct Associate Professor, Duke-NUS

Biography
Emile studied medicine at University College London Medical School and subsequently trained in general surgery with colorectal sub-specialty interest under the London Northwest Sector Deanery Programme. He was awarded an Academic Clinical Fellowship between 2008-2010 by the National Institute for Health Research (NIHR) UK, and subsequently an Academic Clinical Lectureship between 2011-2014. For the duration of his lectureship he was based at the Academic Health Science Centre at Imperial College London.

His academic track record includes a combination of lab-based, technological, clinical and health service related research. His portfolio has included the research themes of colorectal cancer, inflammatory bowel disease and pelvic floor/functional bowel disease. Emile completed a year-long fellowship in oncological/exenterative surgery and spent another year in St Mark’s Hospital, Harrow (UK), in his colorectal sub-specialty interest, completing stints in inflammatory bowel, pelvic floor, intestinal failure and advanced/recurrent cancer. In October 2014 he was appointed Consultant and Clinical Senior Lecturer at Imperial College London, working between the Chelsea & Westminster Hospital and the Royal Marsden in Fulham, London. Emile moved to join SGH in Feb 2016 and is a Consultant in Colorectal and General Surgery, with the academic rank of Adjunct Associate Professor, Duke-NUS.

Emile also serves as Director of the SGH Gastrointestinal Function Unit and as Co-Director of Health Services Research.
Dr Tang graduated from Queens' College in Cambridge, UK and qualified from Addenbrooke's Hospital, Cambridge in 2000 with a Distinction in Surgery. He trained on the higher surgical training program in East Anglia, UK and was awarded his Doctorate of Medicine (MD) by the University of Cambridge in 2009 for research into carotid plaque inflammation. Just after completion of surgical training in late 2012, he was awarded a prestigious Cook British Society of Endovascular Therapy (BSET) fellowship and undertook further endovascular training at Leicester Royal infirmary, UK and completing a postgraduate fellowship at the Prince of Wales Hospital in Sydney, Australia. He was a consultant in vascular and endovascular surgery at Changi General Hospital for the past 4 years. He has an active subspecialty interest in diabetic foot salvage, endovenous surgery and renal access. He has active research interests in endovenous surgery and outcome modeling in vascular surgery and has published widely on these subjects. He has over 140 peer-reviewed publications. He is a Fellow of both the Royal College of Surgeons of England and Royal College of Physicians and Surgeons of Glasgow.
Howard Levinson, MD, FACS is a board certified Plastic and Reconstructive Surgeon at Duke University Medical Center (DUMC). He is an Associate Professor in the Departments of Surgery, Dermatology, and Pathology. Dr. Levinson is: (1) an expert in wound repair and scarring, (2) the Director of Plastic Surgery Research and the PI of the Wound Healing and Fibrosis Laboratory at DUMC, and (3) a nationally recognized key opinion leader. He has been an ad hoc member of multiple Department of Defense and NIH study sections, including SBIR/STTR committees, and has been PI of NIH phase I and phase II STTR and SBIR grants, NCI biotech grants, a Coulter translational grant, a Duke Translational Medical Institute Translational Grant, and MedBlue translational grant. He holds several patents, and has expertise in translational research in medical device development. He is Founder of Deep Blue Medical Advances, a medical device company that is commercializing a hernia mesh to prevent recurrence.

Dr. Levinson cares for patients both at DUMC and the Veterans Administration Hospital in Durham, North Carolina. His practice is >90% reconstructive and frequently includes reconstruction of complex wounds and abdominal wall defects. He is recognized by his peers on a national level for his clinical expertise as can be noted by his serving as a speaker and moderator for multiple loco-regional and national meetings.

Dr. Levinson’s interdisciplinary team uses in vitro and in vivo pre-clinical models to understand disease pathogenesis and develop new technologies. He works closely with biomedical engineers and basic scientists on different translational projects. He designs and oversees clinical trials. His research is funded by intramural as well as extramural grants. He is past Chairman of the Plastic Surgery Foundation Research Fundamentals Workshop, Chairman of the Plastic Surgery Foundation Research Education Committee and Basic Science Study Section, and Chairman of the Plastic Surgery Research Council. He is a member of the Board of Directors for the American Society of Plastic Surgery and Wound Healing Society, and President of the International Society of Simulation Surgery.
I am a resident in Cardiothoracic Surgery and pursuing a PhD in Biomedical Engineering at Duke. I am interested in translational and biomedical engineering approaches to studying cardiovascular function and end stage heart failure (mechanical assist devices and heart transplantation). I also have a strong interest in medical device design and Entrepreneurship. I have co-founded an early stage startup and currently lead with Ken Gall from Mechanical Engineering. My PhD research is focused on using Tissue Engineered Blood Vessels (TEBVs) to model endothelial and cardiovascular function. An additional focus is ex-vivo modification of donor hearts to improve cardiac transplantation outcome. My future career goals are to bridge the gap between cardiovascular surgery and engineering through research-based biotech innovation aimed at improving patient outcomes and costs.

Additionally, I serve as an associate for the Duke Angel Network (DAN) reviewing and performing diligence on startups applying for angel investments. My focus has been on companies in the medical device arena. I was also a fellow of the InnovateMD program, and currently a fellow of the .406 ventures fund. I helped mentor some of the undergraduate engineering students at Duke working with Mark Palmari as part of the design courses. Finally I am a member of Medx, focused on bridging the gap between engineering and medicine at Duke.
Joshua S. Broder, MD, FACEP
Director, Emergency Medicine Residency Program
Vice-Chief for Education, Division of Emergency Medicine
Associate Professor of Surgery

Dr. Broder is a North Carolina native and earned a bachelor’s degree in biology from Duke University in 1994. After graduating from the Yale School of Medicine, he trained and was Chief Resident in Emergency Medicine at the University of Maryland. Dr. Broder received the American College of Emergency Physicians National Emergency Medicine Faculty Teaching Award and Council of Emergency Medicine Residency Directors (CORD) National Faculty Teaching Award in 2007. He was chosen as a "Distinguished Educator" for Enduring Educational Materials by the CORD Academy for Scholarship in Education in Emergency Medicine in 2013. He was recognized with the Duke University School of Medicine Master Clinician-Teacher Award in 2016. Dr. Broder has taught medical student, graduate medical education, and continuing medical education courses for the past 16 years.

Dr. Broder wrote and edited *Diagnostic Imaging for the Emergency Physician*, which received the 2011 American Publishers Award for Clinical Medicine. His research and education initiatives focus on appropriate use of emergency diagnostic imaging. He conducts clinical research in diagnostic imaging in the Emergency Department at Duke, funded by the Stanford-Coulter Foundation and GE/Emergency Medicine Foundation, and is an inventor of a novel system for converting 2D ultrasound images into 3D. He is President of OmniSono, Inc., a medical startup company. He serves on multiple national committees including the American College of Emergency Physicians Clinical Policies Committee and American College of Radiology Appropriateness Criteria Committee.
Mark L. Palmeri, PhD

Associate Professor of the Practice in the Department of Biomedical Engineering

Mark L. Palmeri received his B.S. degree in Biomedical and Electrical Engineering from Duke University, Durham, NC, in 2000. He was a James B. Duke graduate fellow and received his Ph.D. degree in Biomedical Engineering from Duke University in 2005 and his M.D. degree from the Duke University School of Medicine in 2007. He is currently an Assistant Research Professor in Biomedical Engineering and Anesthesiology at Duke University. He is an Associate Editor for Ultrasound in Medicine and Biology and IEEE Transactions in Medical Imaging, and he serves as a member of the RSNA Quantitative Imaging Biomarker Alliance (QIBA) committee for ultrasound shear wave speed imaging. His research interests include acoustic radiation force shear wave elasticity imaging, ultrasonic imaging, finite element analysis of soft tissue response to acoustic radiation force excitation, medical image processing and medical instrumentation design.

APPOINTMENTS AND AFFILIATIONS

- Associate Professor of the Practice in the Department of Biomedical Engineering
- Assistant Research Professor of Anesthesiology
Eric S. Richardson, PhD
Associate Professor of the Practice in the Department of Biomedical Engineering

Eric’s research and teaching interests focus on medical device design and innovation in global markets. Richardson came from Rice University, where he was the Founding Director of the Global Medical Innovation Program, which develops and implements medical technology in emerging markets. He was also the Associate Director of the Texas Medical Center Bodesign Fellowship, a program that offers venture formation curriculum to create digital health and medical device startups. Prior to Rice, he was a Principal R&D Engineer at Medtronic in California, where he developed transcatheter heart valves that currently serve over 100,000 patients worldwide. Richardson has several publications, patents and book chapters related to cardiac medical devices, and is involved with several startups.
Cheong Wai Chye  
Senior Manager, Medical Technology Office, SingHealth

**Biography**

Wai Chye completed undergraduate degree in Department of Electrical Engineering, University of Edinburgh, and post-graduate degree in School of Electrical and Electronics Engineering, Nanyang Technological University, before joining Institute of Bioengineering and Nanotechnology (IBN) as a post-doctoral fellow.

Prior joining SingHealth Medical Technology Office (MTO), together with like-minded colleagues in IBN, he start-up a IVD diagnostic company. In this current appointment with MTO, he leads a multi-disciplinary engineering team that work very closely with clinicians and researchers to develop healthcare-inspired devices as well as nurturing young clinician innovators. MTO a core platform under SingHealth Office of Research (OoR) that exists to create solutions to unmet clinical needs. The MTO is engaged in the process of bringing innovative new solutions to the bedside. This involves a process of discovering and validating unmet clinical needs, innovating new solutions, prototyping and guiding engineering development, engaging in risk assessment and ISO13485 requirements, and finding strategies to move solutions through the regulatory and reimbursement process to actual use in clinical settings with industry buy-in.

MTO teams compromises of comprises engineers, clinicians and scientists with industry and/or startup experience, who have been trained in the Stanford Biodesign systematic approach to medical technology innovation. While this office has focused mainly on devices, MTO also handle projects involving diagnostics or apps. MTO provide services in project management, quality control and ISO13485 documentation, risk evaluation, regulatory requirements, reimbursement strategy and towards medical technologies commercialization. MTO are in touch with a wide network of researchers, scientists, investors, entrepreneurs, companies and organizations in the local and regional match ecosystem.
Dr Rena Dharmawan  
Associate Consultant, Department of General Surgery, Singapore General Hospital  
Clinician Advisor, Medtech Office (MTO), Singhealth  
Co-Founder, Privi Medical & JagaMe

Biography
Rena strongly believes that with the right innovation, one can improve the lives of millions. She is currently an Associate Consultant in the Department of General Surgery, Singapore General Hospital (SGH). In 2014, she was one of four nationally-selected Singapore-Stanford Biodesign Fellows. A one-year medtech innovation fellowship that aims to develop medical devices and technology for unmet clinical needs.

She is the co-founder of Singapore-based start-ups, Privi Medical and JagaMe. Privi Medical is developing a simple home-based solution for millions of haemorrhoid sufferers world-wide. Instalief, which recently received US FDA approval and now beginning first-in-human trials in Asia. JagaMe is an app and online platform that hopes to be the “Uber of HomeCare” by providing on-demand quality nursing services and care coordination to patients in the comfort of their homes.

On top of this, Rena is also part of the Medtech Office (MTO) at Singhealth as a clinician advisor. Prior to medicine, Rena graduated summa cum laude with a BSE in Biomedical Engineering from the University of Michigan, Ann Arbor. She then joined the inaugural batch and completed her medical degree at Duke-NUS Medical School (Singapore) in 2011.
Dr Wong Ting Hway
Senior Consultant, General Surgery, Singapore General Hospital

Biography
Dr Ting Hway Wong is a trauma and acute care general surgeon at the Singapore General Hospital. She studied medicine, Spanish and Arabic at Cambridge University and believes she was successful in two of the three endeavors. Since then, she has worked with Doctors without Borders in Angola, as well as the International Committee of the Red Cross in Nepal.

She did a Masters in Public Health at Johns Hopkins University, studying trauma systems with Ellen MacKenzie, followed by trauma fellowship with Zsolt Balogh, upon completion of surgical training. Her current research focuses on trauma in the elderly, multi-disciplinary care, and unmet needs in emergency surgical populations, for which she has obtained over $1m in grant funding. Her journey with her late mother’s dementia inspired her to develop her first medical device, for which a patent is pending. In her spare time, she used to belly-dance, but since actually developing a belly post-partum, prefers to dance hip-hop with her toddlers instead.
A/Prof Yuen Heng Wai is currently a Senior Consultant ENT surgeon with the Department of Otorhinolaryngology – Head & Neck Surgery in Changi General Hospital, where he spearheads the Otology, Neurotology and Hearing Implant services in CGH. At CGH, he set up first dedicated Adult Cochlear Program in Singapore in 2010. He graduated from the National University of Singapore, and was conferred the Membership of the Royal College of Surgeons of Edinburgh in 2000, Masters of Medicine in Otorhinolaryngology by the National University of Singapore in 2004, and the Diploma in Otolaryngology – Head & Neck Surgery by the Royal College of Surgeons of England in 2005.

In 2007, he was admitted as a Fellow of the Academy of Medicine of Singapore and was awarded the Health Manpower Development Program (HMDP) scholarship from the Ministry of Health for advanced subspecialty training in Otology, Neurotology and Lateral Skull Base Surgery. He trained with Professor Julian Nedzelski and Professor Joseph Chen at the Sunnybrook Health Sciences Centre, University of Toronto, Canada. Subsequently, he did further training in the Ear Science Institute Australia, University of Western Australia with Professor Marcus Atlas. He received extensive training in management of ear diseases, cochlear implants, and skull base tumors. A/Prof Yuen is well known for his clinical work and has conducted multiple international workshops in Otology, and been an invited speaker and guest faculty at numerous regional and international conferences.

A/Prof Yuen has been active in research since he was a training surgeon. In 2001, he clinched the Overseas Training Award by the National Healthcare Group and spent a year at the University of Pennsylvania doing basic science research into tumor biology with the Department of Otolaryngology-Head & Neck Surgery under the supervision of Professor Randal Weber. His work was published in the journal *Experimental Cell Research*. He continues to conduct research and publish regularly in peer-reviewed journals. His current clinical research interests include single sided deafness, cochlear implantation and surgical education.

A/Prof Yuen also has deep interest in medical education; he obtained a Masters in Health Professions Education (MHPE) program with Maastricht University in 2018. At the same time, he is closely involved in undergraduate and postgraduate medical education with the National University of Singapore Yong Loo Lin School of Medicine, as well as the Singhealth Otolaryngology (ENT) Residency program. He was the previous Associate Program Director, and currently a core faculty of the ENT program. Currently he is also the Director of the Center for Advanced Clinical and Surgical Skills (CACS) in Changi General Hospital, as well as the Co-Director of the Singhealth Institute of Medical Simulation (SIMS).

In addition, A/Prof Yuen is also a strong advocate of teaching and applying innovation in medicine and healthcare. He is an adjunct faculty with the Singapore University of Technology & Design (SUTD) where he works closely with students, engineers and designers to apply innovative solutions to healthcare, including 3-D printing solutions, device development, microfluids and drug delivery. At same time, he is the Program Director of the SUTD-Duke-NUS Special Track program that currently aims to develop clinician-innovators who will contribute to the advances in science and medicine.
Following completion of my HPB/Surgical Oncology fellowship I was hired as an Assistant Professor of Surgery at Duke University Medical Center. Over the last 6 years I have been building expertise in the area of hepatic and pancreatic disease, both in the realm of oncology and benign processes. I utilize a myriad of techniques including open surgery and minimally invasive surgery (including laparoscopic, robotic surgery, and ablative techniques) to offer patients the latest surgical approaches to their care. Additionally, I oversee our institutional multidisciplinary conference for these disease processes working closely with Medical Oncology, Radiation Oncology, Radiology, Gastroenterology and Pathology. This offers me a distinct advantage to working with patients with liver and pancreatic cancers in a multidisciplinary fashion. As such I am an active participant in the recruitment of pathologic specimens to our university Biobank that allows our physician scientists and myself the ability to study these unique disease processes.
Dr. Stuart Knechtle is the Mary and Deryl Hart Professor of Surgery and Executive Director of the Duke Transplant Center. He is an honors graduate of Princeton University (biochemistry) and Cornell Weill School of Medicine. He trained in surgery at Duke University under Dr. David C. Sabiston and in abdominal transplant surgery at the University of Wisconsin, Madison under Dr. Folkert O. Belzer. He joined the faculty of University of Wisconsin in 1991, becoming the first Ray D. Owen Professor of Transplantation in 2005. He served as Director of the Kidney and then Liver Transplant programs there between 2004-2008, and started the living donor liver transplant program. He moved to Emory University, Atlanta in 2008 as Director of Liver Transplantation, becoming the Transplantation Division Chief, the Director of Transplantation at Children’s Healthcare of Atlanta, and the Carlos and Marguerite Mason Professor of Liver Transplantation. In 2015 he moved back to Duke University School of Medicine to help start the Duke Transplant Center. He has directed a continuously NIH-funded research laboratory in transplant immunology for over 27 years, published over 300 peer reviewed papers, over 50 book chapters, edited four textbooks, and serves on the editorial board of Annals of Surgery and as Co-editor in Chief of Transplantation Reviews. He has trained more than 100 students of transplantation surgery and immunology and led numerous clinical trials in transplantation. His inventions include 12 published patents. His clinical interests include kidney and liver transplantation and hepatobiliary surgery.
My clinical interest is in caring for patients with pre-cancerous and cancerous conditions of the liver, bile ducts, and pancreas. I enjoy treating each patient with a personalized and holistic therapeutic plan, oftentimes using creativity to tailor treatment specifically to them. My research explores genomic and molecular pathways of resistance to chemotherapy for hepatobiliary cancers. Specifically, we use a pre-clinical model for primary hepatic malignancies, such as intrahepatic cholangiocarcinoma, to recapitulate critical events in these tumors so that we can identify mechanisms driving tumor growth, metastasis, and resistance to chemotherapy. Ultimately, this model serves as a vehicle for the discovery of new or more efficacious therapies.
Prof Pierce Chow
Co-Director (Surgical) & Senior Consultant, Comprehensive Liver Cancer Clinic, National Cancer Centre Singapore
Professor & Course Director, Duke-NUS Medical School Singapore
Senior Consultant, Singapore General Hospital

Biography
Prof Pierce Chow is senior consultant and Co-Director (Surgical) at the Comprehensive Liver Cancer Clinic at the National Cancer Centre Singapore and Senior Consultant Surgeon at the Singapore General Hospital. He is concurrently Professor and Course Director at Duke-NUS Medical School Singapore.

Prof Chow was the Chapter of Surgeon’s Gold Medallist at the conjoint Royal College of Surgeons of Edinburgh/M.Med (Surgery) examination in 1994 and subsequently completed a clinical fellowship in Liver Transplantation at the Queensland Liver Transplant Service with Professor Russell Strong. In 1995, he was recipient of the Young Surgeon’s Award of the Academy of Medicine Singapore.

In addition to managing a busy HPB surgical oncology service, Prof Chow has researched extensively on hepatocellular carcinoma (HCC). He leads collaborative research on the genomic heterogeneity of HCC and applications in precision medicine. He co-founded the Asia-Pacific Hepatocellular Carcinoma Trials Group in 1997 and has been the protocol chair of 5 multi-national trials. In 2012 the National Medical Research Council Singapore conferred him the National Outstanding Clinician-Scientist Award for improving clinical outcomes of patients with his research on Liver Cancer.

In 2016 Prof Chow was awarded the NMRC Translational-Clinical Research Grant for the National Flagship Program in Liver Cancer and in 2017 he received funding from BMRC for the multi-institutional PuRPOSE Program to develop a patient-specific diagnostic and predictive platform to improve treatment of liver cancer.
Assoc Prof Brian K. P. Goh  
Deputy Head, SingHealth-Duke NUS Liver Transplant Center  
Senior Consultant, Department of Hepatopancreatobiliary and Transplant Surgery, Singapore General Hospital

Biography
Associate Professor Brian K. P. Goh is senior consultant at the Department of Hepatopancreatobiliary (HPB) and Transplant Surgery, Singapore General Hospital and Deputy Head, SingHealth-Duke National University of Singapore Liver Transplant center. He underwent advanced fellowship training in both HPB surgery at Singapore General Hospital and the American Society of Transplant Surgeons accredited abdominal organ transplantation (liver, kidney, pancreas) fellowship program at the Mayo Clinic Rochester. His current surgical practice focuses on the treatment of benign and malignant HPB conditions and living/deceased donor liver/kidney transplantation.

Dr Goh is presently one of the key developers and leaders of minimally invasive HPB surgery in Southeast Asia. He is also a pioneer of the application of the Da Vinci Robotic Surgery technology for HPB surgery in the region. He has personally performed close to 300 major minimally-invasive HPB/Transplant operations including over 80 major robotic HPB operations since completing surgical training and become a board-certified surgeon. Dr Goh has a Master of Science in research and is active in both clinical and translational research. He has held over SGD 25 million in grant funding as PI or CoI and has authored or co-authored over 180 PubMed indexed articles. He has a H index of 38 and his work has been cited over 4000 times. Dr Goh is frequently invited to share his clinical and research expertise and has delivered over 100 scientific presentations at scientific meetings world-wide. He has also received several international awards for his contributions to the field.
Dr Koh Ye Xin
Associate Consultant, Department of Hepatopancreatobiliary/Transplant Surgery, Singapore General Hospital

Biography
Dr Koh Ye Xin is an associate consultant with the Department of Hepatopancreatobiliary and Transplant Surgery at the Singapore General Hospital. He graduated from the National University Singapore, Yong Loo Lin School of Medicine and obtained the Master of Medicine (General Surgery) Fellowship of the Royal College of Surgeons (Edinburgh) in 2017. He was the Asia-Pacific Awardee for an Observership to Hokkaido University by the Japanese Society of Hepato-Biliary-Pancreatic Surgery in 2018. He is currently collaborating with other researchers in the Nanyang Technological University (NTU), Institute of molecular and cell biology (IMCB) to study bioscaffolds and decellularisation of solid organs to develop solutions for pancreatic islet cell carriage. His other collaborative work with Duke-NUS involves research on immune tolerance for liver transplantation.