

PROGRAMME OVERVIEW

TIME	DESCRIPTION	VENUE
8:00 - 8:45	<u>Registration</u>	
8:45 - 9:15	<u>Opening Ceremony</u>, Professor James Goh BES President & Head, Department of Bioengineering	Ngee Ann Kongsi Auditorium
9:15 - 9:45	<u>Plenary Session</u>, Professor Lam Kong Peng Director of Bioprocessing Technology Institute (BTI)	Ngee Ann Kongsi Auditorium
9:45- 10:00	Tea	
10:00 - 12:00	<u>Technical Session 1</u> Junior college, SR 1 Polytechnic, SR2 Undergraduate, SR3 Graduate, SR 8	Seminar rooms (SR) 1, 2, 3, 8
12:00 - 12:30	Lunch	
12:30 - 13:30	<u>Poster Session</u>	
13:30 - 15:30	<u>Technical Session 2</u> Junior college, SR 1 Polytechnic, SR2 Undergraduate, SR3 Graduate, SR 8	Seminar rooms (SR) 1, 2, 3, 8
15:30 - 15:45	High Tea	
15:45 - 16: 15	<u>Plenary Session</u>, Mr Jeffrey Schmidt Vice President of International Research and Development at Welch Allyn	Ngee Ann Kongsi Auditorium
16:15- 16:30	<u>Award Presentation</u>	Ngee Ann Kongsi Auditorium

PLENARY SPEAKERS

Professor Lam Kong Peng

Director of Bioprocessing Technology Institute



Kong-Peng Lam obtained his BA (summa cum laude) at the University of Minnesota and his M.A., M.Phil and PhD at Columbia University in the USA. Thereafter he joined the Institute for Genetics at the University of Cologne in Germany as a postdoctoral research scientist, where he was awarded both the EMBO and HFSP long-term fellowships. He returned to Singapore in 1998 and assumed the position of Principal Investigator at the Institute of Molecular and Cell Biology (IMCB). In 2002-3, he attended the Sloan Fellow Program at Stanford University Graduate School of Business where he graduated with an MSc (Mgmt) degree. He was seconded to A*STAR Biomedical Research Council where he served as Director (2003), Deputy Executive Director (2004) and Acting Executive Director (2005-2006) while concurrently heading a research laboratory at the Center for Molecular Medicine (CMM). He returned to full-time research in October 2006 and as Executive Director, helped established the Singapore Immunology Network. He joins BTI in May 1 2008. Kong-Peng also holds Adjunct Full Professorships at the National University of Singapore and Nanyang Technological University and sits on various BMRC and NMRC grant review committees.

Mr Jeffrey Schmidt

Vice President of International Research and Development at Welch Allyn



Jeffrey Schmidt is Vice President of International Research and Development at Welch Allyn, a privately-held manufacturer of medical equipment headquartered in Skaneateles Falls, New York. Jeffrey joined the company in 2003 as the Global Director for Field and Remote Services, eventually becoming responsible for the company's global service business. In 2007, he was promoted to Vice President International Research and Development with responsibility for two international development centers; one in Ireland and one in Singapore. Over the past four years he has been responsible for the release of 11 new medical products ranging from exam lights to 12 lead electrocardiographs.

Prior to Welch Allyn, Jeffrey was Vice President and General Manager of Systems Integration for a US\$220M wireless integration and software company with responsibility for professional services, product development, and software. Jeffrey has also held senior positions as a CTO in the CPG Industry, an Internet Enterprise Consultant for Sun Microsystems, engineering management positions at McDonnell Douglas, and management positions in the US Air Force. He holds a Bachelor's Degree in Aerospace Engineering from Saint Louis University and a Master's of Engineering from West Coast University.

Jeffrey resides in Singapore with his wife and two children.

TECHNICAL PROGRAMME (AM)

Pre-Tertiary – High School / Junior College

Venue: Seminar Room 1

Time	Topic	Title of Presentation / Speaker	Page
1000 – 1015	Medicine	Alterations of Cav1.2 channels in cerebral blood vessels under hypoxia <u>Chiu Qi Yun Angela</u> , <i>National Junior College</i>	27
1015 – 1030	Cellular and molecular biology	An investigation on the inhibition of inhibitor of apoptosis proteins (IAPs) and its effects on existing cancer therapy treatments for breast cancer <u>Yan Wenqing</u> , <i>Dunman High School</i>	27
1030 – 1045	Biomedical Computing, Biomedical Informatics	Decoding EEG signals for a Brain-Computer-Interface Virtual Speller <u>Liu Jiani Sherry</u> , <i>Hwa Chong Junior College</i>	28
1045 – 1100	Regenerative Medicine	Effect of oxygen tensions on growth and differentiation of human fetal mesenchymal stem cells in bone regeneration <u>Lim Hui Yi Grace & Rebecca Zhang Xiaoyun</u> <i>Raffles Institution</i>	28
1100 – 1115	Others	Evaluation on the Anti-Cancer Effects of Imidazolium Salt (IMS) on Hepatocellular Carcinoma Cells (HCC) <u>Xu Xinming</u> , <i>Raffles Institution</i>	29
1115 – 1130	Biotechnology	Expression and Purification of Functional Wnt Receptor <u>Paveta Rengarajoo</u> , <i>National Junior College</i>	29
1130 – 1145	Biomaterials for drug delivery	Injectable self-assembled hydrogels formed by siloxane-PEG polymer and cyclodextrin for controlled drug delivery <u>Li Han Yi</u> , <i>Hwa Chong Institution</i>	30

Pre-Tertiary – Polytechnic

Venue: Seminar Room 2

Time	Category	Title of Presentation / Speaker	Page
1000 – 1015	Others	Low Cost Synthesis of CdSe Nanoparticles <u>Chan Weng Leong, Joshua Cheng Jiunn Jye,</u> <i>Nanyang Polytechnic</i>	35
1015 – 1030	Biomechanics	Wireless fall detection sensors using gyroscope and accelerometer for elderly <u>Chua Wang An, Lim Zi Chuan</u> <i>Ngee Ann Polytechnic</i>	35
1030 – 1045	Bioinstrumentation	Development of a non-occluding portable system to estimate ankle brachial index <u>Daniel Lit Ngai Bun,</u> <i>Ngee Ann Polytechnic</i>	36
1045 – 1100	Biomechanics and bioimaging	Stress analysis of dento-osseous structures using photoelastic techniques <u>Hasinah Pharvin, Sehin Shahnawaz</u> <i>Ngee Ann Polytechnic</i>	36
1100 – 1115	Biomechanics	Physico-mechanical properties of nanocomposites <u>Jessica Kim Tendj,</u> <i>Republic Polytechnic</i>	37
1115 – 1130	Biotechnology	Implementation and testing of FES control system for rehabilitation <u>Lam Jiong Le, Song Zhen</u> <i>Ngee Ann Polytechnic</i>	37
1130 – 1145	Nanotechnology	Quantum Dots-Labelled Baculoviral Vector for Cell-Based Gene Delivery <u>Leong Yan Yi,</u> <i>Temasek Polytechnic</i>	38

Undergraduate

Venue: Seminar Room 3

Time	Category	Title of Presentation / Speaker	Page
1000 – 1015	Others	Edema Monitoring Device <i>Aaron Wong, National University of Singapore</i>	43
1015 – 1030	Nanobiotechnology	Targeted and Enhanced RNAi using Rare Earth Metal Doped NaYF₄ Nanoparticles <i>Akshaya Bansal, National University of Singapore</i>	43
1030 – 1045	Biotechnology	Bioprocessing case study: application of factorial and Taguchi parameter design for optimisation of multi-phase in-vitro erythropoiesis process <i>Chua Shunjie, Duke NUS GMS</i>	44
1045 – 1100	Biomaterials and Healthcare	Specific binding of anticancer drug with carrier protein <i>Dea Meitry Dilista, Nanyang Technological University</i>	44
1100 – 1115	Biomechanics	A biomechanical study on the role of Medial Patellofemoral Ligament (MPFL) reconstruction and tibial tubercle surgical procedures on patella subluxation/ dislocation <i>Favian Ng, National University of Singapore</i>	45
1115 – 1130	Biotechnology	Improving Photoelectrochemical Cell Performance by Screening for Electron Mediators <i>Jaspreet, Nanyang Technological University</i>	45
1130 – 1145	Others	Development of a personalized treatment model for type 1 diabetic: an in silico study <i>Jiang Yichao, National University of Singapore</i>	46

Graduate

Venue: Seminar Room 8

Time	Category	Title of Presentation / Speaker	Page
1000 – 1015	Biomechanics	Biomechanics of porcine cardiac extracellular matrix construct for myocardial tissue engineering <i>Au-Yeung Chi Ting, Nanyang Technological University</i>	51
1015 – 1030	Regenerative Medicine	3D neurite bridging between PHBV microspheres in a microsphere-hydrogel biocomposite system <i>Chen Wenhui, National University of Singapore</i>	51
1030 – 1045	Bioimaging	Three dimensional imaging and quantification of nanoparticles in a whole cell <i>Chen Xiao, National University of Singapore</i>	52
1045 – 1100	Regenerative Medicine	Induction of Neuronal Phenotypes from NG2+ Glial Progenitors by Inhibiting Epidermal Growth Factor Receptor (EGFR) in Mouse Spinal Cord Injury <i>Ju Peijun, Nanyang Technological University</i>	52
1100 – 1115	Biomechanics	Spatially-resolved microrheology of heterogeneous biopolymer hydrogels with covalently-bound microspheres <i>Kat Wong Long Hui, Singapore-MIT Alliance</i>	53
1115 – 1130	Biomaterials for drug delivery	Supramolecular micelles as vectors for stimuli-responsive drug release <i>Jiajing Li, National University of Singapore</i>	53
1130 – 1145	Biomaterials	Engineered Biodegradable Hyperbranched Hydrogel with Mechano-responsive Property for Easy Cell Recovery Application <i>Li Zibiao, National University of Singapore</i>	54

TECHNICAL PROGRAMME (PM)

Pre-Tertiary – High School / Junior College

Venue: Seminar Room 1

Time	Category	Title of Presentation / Speaker	Page
1330 – 1345	Bioinformatics and virology	Investigating the genetics of human papillomavirus (HPV) infection <u>Tay Wan Jing</u> , <i>National Junior College</i>	30
1345 – 1400	Molecular Biology	Molecular Cloning of Human LaminA variants <u>Ayushi Pitchika, Swathi Bhat</u> <i>Meridian Junior College</i>	31
1400 – 1415	Medicine and Health	Monitoring compliance with isolation precautions in a Singapore tertiary hospital context. <u>Timothy Zhong</u> , <i>Victoria Junior College</i>	31
1415 – 1430	Ecology	Native Predators, Alien Prey: A Novel Role For Invasive and Alien Species in Singapore's ecosystems? <u>Woo Meiling, Yong Ding Li, Alene Ang, Clarissa Ho</u> <i>National Junior College</i>	32
1430 – 1445	Biochemistry	Optimization of the expression of <i>Trigonopsis variabilis</i> D-amino acids oxidase in <i>Pichia pastoris</i> <u>Yeo Min Xiu Sherlin</u> , <i>National Junior College</i>	32
1445 – 1500	Cellular and Molecular Biology	The Role of PID-1 in Insulin Resistance <u>Chia Ming Li</u> , <i>National Junior College</i>	33
1500 – 1515	Medicine and Health	To determine the effectiveness of mycoglucans and mycoproteins extracted from basidiomycete fungi in eliciting immunological responses from T and B cells <u>Enya Ong Hui Wen</u> , <i>Dunman High School</i>	33

Pre-Tertiary – Polytechnic

Venue: Seminar Room 2

Time	Category	Title of Presentation / Speaker	Page
1330 – 1345	Bioimaging	3D histology image reconstruction <u>Muhd Amirul Syafiq B A</u> , <i>Nanyang Polytechnic</i>	38
1345 – 1400	Biomedical Engineering	Recent Studies on the Inoculation of Liquid Media for E. coli Growth in Ultraviolet Sterilization Methods <u>S. Ravichandran</u> , <i>Temasek Polytechnic</i>	39
1400 – 1415	Nanotechnology	Galactose-functional Polymeric Micelles as a Delivery Carrier of Anti-Cancer Drugs in Cancer Therapy <u>Sukainah Binte Shahri</u> , <i>Temasek Polytechnic</i>	39
1415 – 1430	Others	Biomedical Sample Transport System <u>Tan Kai Xiong</u> , <i>Singapore Polytechnic</i>	40
1430 – 1445	Regenerative Medicine	A Comparison Between Neonatal and Adult Fibroblasts on Endothelial Cell Capillary Formation in Fibrin Gel <u>Teo Hui Min</u> , <i>Temasek Polytechnic</i>	40
1445 – 1500	Others	Lifelogging Device <u>Wu Qiyi</u> , <i>Singapore Polytechnic</i>	41
1500 – 1515	Bioimaging	Data mining framework for breast cancer detection in mammograms: a texture features paradigm <u>Zheng Jiawei, Ratna Yanti</u> <i>Ngee Ann Polytechnic</i>	41

Undergraduate

Venue: Seminar Room 3

Time	Category	Title of Presentation / Speaker	Page
1330 – 1345	Electrophysiology	Role of the Purkinje System in Cardiac Arrhythmias <u>Joshua Chng Ya Song</u> , <i>National University of Singapore</i>	46
1345 – 1400	Biotechnology	Synthesis of core-shell nano-structures and surface functionalization <u>Song Xia</u> , <i>National University of Singapore</i>	47
1400 – 1415	Bioimaging	Fusion of 3D Heart Images in MRI and blood pressure in echocardiography using LabVIEW <u>Tan King Keong</u> , <i>SIM University</i>	47
1415 – 1430	Bioimaging	Development of a two photon florescence and optical coherence tomography bi-functional bioimaging system <u>Terence Lim</u> , <i>National University of Singapore</i>	48
1430 – 1445	Rehabilitation Engineering	Electro-analgesia of Temporomandibular joint disorders: A recent study <u>Then Tze K</u> , <i>National University of Singapore</i>	48
1445 – 1500	Biomechanics	Simulation of Blood Vessel using Microfluidics Device and Endothelial Cell Seeding <u>Wu Mengyun</u> , <i>National University of Singapore</i>	49
1500 – 1515	Regenerative Medicine	Microfluidic Cell Culture Platform <u>Zayim Razina</u> , <i>Nanyang Technological University</i>	49

Graduate

Venue: Seminar Room 8

Time	Category	Title of Presentation / Speaker	Page
1330 – 1345	Bioimaging	In vivo diagnosis of stomach cancer using Raman spectroscopy at clinical endoscopy <u>Mads Bergholt</u> , <i>National University of Singapore</i>	54
1345 – 1400	Regenerative Medicine	The Effect of Hyperconfluent Culture Duration on Differentiation Capabilities of Adipose-Derived Mesenchymal Stem Cells. <u>Neo Puay Yong</u> , <i>National University of Singapore</i>	55
1400 – 1415	Bionanotechnology	Molecularly Imprinted Polymeric Nanoparticles for preventing viral infections: A synthetic antibody approach <u>Niranjani Sankarakumar</u> , <i>National University of Singapore</i>	55
1415 – 1430	Infectious diseases therapies	Layer by Layer Human Smooth Muscle Cell Culture on Biodegradable Polymeric Films with 3d Micro-walls for Phenotype Control <u>Shahrzad Rayatpisheh</u> , <i>Nanyang Technological University</i>	56
1430 – 1445	Biomechanics	Mathematical Modelling of Calcium Dependent Active Contraction in a Gastrointestinal Smooth Muscle Cell <u>Viveka Gajendiran</u> , <i>National University of Singapore</i>	56
1445 – 1500	Biotechnology	Phosphate Removal Using Genetically Modified Magnetotactic Bacteria <u>Wiktor Lisowski</u> , <i>Nanyang Technological University</i>	57
1500 – 1515	Biomedical device	Development of an in vitro physiological fluidic set-up for assessment of vascular stenosis in hemodialysis patients <u>Yeow Siang Lin</u> , <i>National University of Singapore</i>	57

POSTER PRESENTATIONS

No.	Title of Presentation / Speaker	Page
Pre-tertiary (High School/Junior College)		
P01	An Integrated Asymmetric PCR and Microarray Assay for the Diagnosis and Epidemiological Study of Acute Bacterial Meningitis Using Lab-On-Chip Technology Ryan Chen Yanwa, Hilary Goh Siu Ying, Lai Yi Wye, Research mentors: Jeffrey Lee, Josephine Neo, <i>Raffles Institution</i>	59
P02	Baby's Cognitive Abilities in Relation to Prenatal Maternal Health Tan Si Jia, Colin Hu, Dr Anne-Rifkin Graboi, <i>National Junior College</i>	59
P03	Delivery of Potential Cancer Related Proteins Using a Novel Polymer Tultul Das, <i>National Junior College</i>	60
P04	Development of a Serotonin Biosensor Using Serotonin Receptors Expressed in Mammalian Cells Nur Arina Binte Mohd Adom, Jun Hui Soh, Dr Charlotte Hauser, <i>National Junior College</i>	60
P05	Development of diagnostic array platform for medically important mosquito-borne viral pathogens Kwa Jing Eugene and Lam Chi Dat, Research Mentor: Dr. Chu Jang Hann, Justin, <i>National Junior College and St. Andrew's Junior College</i>	61
P06	Effect of collagen gel structure on fibroblast phenotype Lim Hui Yi Grace, <i>Raffles Institution</i>	61
P07	Expression and Localization of Secretory Phospholipase A2 Group III Yang Yi Chao, <i>National Junior College</i>	62
P08	Finite Element Analysis of Bones Dexter Thng, <i>Victoria Junior College</i>	62
P09	Recycling Fruit Skins for Purposeful Uses Jolyn Goh Xin Yi , Eunice Tan Wen Juan, Quek Hong Lan, <i>Victoria Junior College</i>	63
P10	Identification of age biomarkers in fingerprints Chew Ying Ying, Koh Yan Matilda, Lim Jie Min Corliss, Qiuzhu Pan, <i>River Valley High School</i>	63
Pre-tertiary (Polytechnic)		
P11	Portable Wireless Balance Platform Agustinus Wellson Tencourritius, Lavanya Devi D/O Mathivananpuah Jun Wen, Lim Jia Hui, Sim Jin Yee, <i>Republic Polytechnic</i>	64
P12	Intelli-Sense Bed Andrew Sng Bing Xiang , Chia Min Yang Barry, Hew Chong Cheng, Janet Lau Shan Xiu, <i>Singapore Polytechnic</i>	64
P13	Automatic Arteries Occlusion Detection System Eindra Thet Tun , Wint May Thaw, May Thu Kyaw, Eindra Thet Tun, Song Ying, Zhou Hai Wen, <i>Republic Polytechnic</i>	65
P14	Outdoor Location Tracking of Dementia Patients using Zigbee Wireless Technology Lim Jia-Min, Kenneth Teo, Tok Kheng Leng, <i>Ngee Ann Polytechnic</i>	65
P15	Development of Automated Exercise Control Programs for Patient Sensing Treadmill Sim Yi Ting Noel Katrina, Toh Shuqin, Mr Johnny Chee, Mr Chua Kuang Chua, <i>Ngee Ann Polytechnic</i>	66
P16	Mechanical Properties Characterization of Bone Goh Ling Lee, Zann Quek ShiYing, Debra Ng Pei Rong, Leona Wee Hui Wen, Muhamad Raszali Bin Abdul Rashid, <i>Republic Polytechnic</i>	66
Undergraduate		
P17	Monitoring Device Lo Chih Hung, X. Su, Melanie H. Y. Chan, Germaine X. Y. Tan, Justin K. S. Tan, <i>National</i>	67

	<i>University of Singapore</i>	
P18	Modify the "Vault" for a Better Drug Delivery Capsule Mao Ning, Yu Kang, Amye Sinha, <i>Nanyang Technological University</i>	67
P19	BFA-9 IV injection training arm Ng Yuwei Rachel, Ho Sin Chi, Khin Phone May, Arjun Subramanian, <i>National University of Singapore</i>	68
P20	Edema Detection Device Tan Pei Ting, Lakshmi Sameera, Alex Choh Chaw Tat, Aaron Wong, Tan Yi Xiang, Liu Quanyi, <i>National University of Singapore</i>	68
P21	Developing a spherical lens coupled miniature fiber optic Raman probe capable of in vivo detection of early stage gastric-intestinal track (GI track) cancer or pre-cancer on real time basis, by optimizing probe geometries to achieve a superior Raman to fluorescence signal ratio and depth selectivity for superficial tissue Peng Han, <i>National University of Singapore</i>	69
P22	Probing the deformability of human and mouse malaria infected erythrocytes using micropipette aspiration Davin Mahardhika Wangsa, <i>National University of Singapore</i>	69
Graduate		
P23	Ex vivo expansion of hematopoietic stem cells with bone marrow stromal cells in hollow fiber bioreactor Cao Xue, Mayasari Lim, <i>Nanyang Technological University</i>	70
P24	Modelling bacterial chemotaxis and quorum formation Cheng, Zi Yi Nicholas, Buist, Martin Lindsay, <i>National University of Singapore</i>	70
P25	Quantification of gastric tissue viscoelasticity Chung Cheuk Wang, Martin Lindsay BUIST, <i>National University of Singapore</i>	71
P26	Genomic, transcriptomic, and metabolomic variations in a monoclonal antibody producing CHO cell line Faraaz Yusufi, Bernard Loo, Ying Swan Ho, Muriel Bardor, <i>National University of Singapore</i>	71
P27	Photosystem screening for development of photovoltaic device Herlina Arianita Dewi, Chun Xian Guo, Chang Ming Li, Sierin Lim, <i>Nanyang Technological University</i>	72
P28	Microneedle-mediated Transdermal Delivery of Lidocaine Hydrochloride for the Management of Neuropathic Pain Jaspreet Singh Kochhar, Shui Zou, Lifeng Kang, PhD, <i>National University of Singapore</i>	72
P29	Modeling Influenza Infection to Guide Discovery of Novel Treatments Li Liang, <i>National University of Singapore</i>	73
P30	Novel graphene-based nanocarriers for loading and delivery of poorly water-soluble drug Mitali Kakran, Lin Li, <i>Nanyang Technological University</i>	73
P31	Personalized Blood Glucose (BG) Models for Type 1 Diabetic (T1D) Children for Meal and Insulin Interventions Naviyn Prabhu Balakrishnan, Gade Pandu Rangaiah, Lakshminarayanan Samavedham, <i>National University of Singapore</i>	74
P32	A novel quantitative description of intestinal smooth muscle activity Poh Yong Cheng, <i>National University of Singapore</i>	74
P33	Chemokine mediated anti-cancerous response of Upconversion Nanoparticle - A new approach of cancer therapy Pradeepa Mohan Bethuraj, Zhang Yong, Lim Yaw Chyn, <i>National University of Singapore</i>	75
P34	Bolus Injection in Microfluidics: Generating bound ligand gradients for live cell studies Ramesh Ramji, Partha Roy, <i>National University of Singapore</i>	75
P35	A Metabolic labeling strategy for Imaging Inositol Lipids Shareef Mohideen Ismail, Sandip Pasari, Martin J. Lear, Markus R. Wenk, <i>National University of Singapore</i>	76

P36	In vivo Raman spectroscopy for the diagnosis of cervical precancer Shiyamala Duraipandian, Zhiwei Huang, <i>National University of Singapore</i>	76
P37	Is There a Place for Fresh Medicinal Plants in Healthcare? Siew Yin Yin, S. Zareisedehizadeh, C.H. Tan, H.L. Koh, <i>National University of Singapore</i>	77
P38	Electrospinning of a naturally derived proteins for tissue engineering Sow Wan Ting, <i>Nanyang Technological University</i>	77
P39	A novel perfusion bioreactor for cardiomyogenesis Teo Ailing, Lim, Mayasari, Mantalaris, Athanasios, <i>Nanyang Technological University & Imperial College London</i>	78
P40	Pericytes are more than just MSCs -- functional comparison of both cell populations Wang Yingting, Anna BLOCKI, Michael RAGHUNATH, <i>National University of Singapore</i>	78
P41	Modeling the role of PDGFRα+ Cells in Enteric Inhibitory Neurotransmission Yeoh Jing Wui, <i>National University of Singapore</i>	79
P42	Vascular effects on the treatment of liver tumor in cryosurgery Zhao Xing, K.J.Chua, <i>National University of Singapore</i>	79
P43	Biphasic Hybrid Silk Scaffold for Ligament Regeneration and Bone Tunnel Healing in the Rabbit Model Teh Kok Hiong Thomas, <i>National University of Singapore</i>	80
P44	Bio-conjugated polycaprolactone membrane for wound healing Teo Yiling, Erin, <i>Nanyang Technological University</i>	80