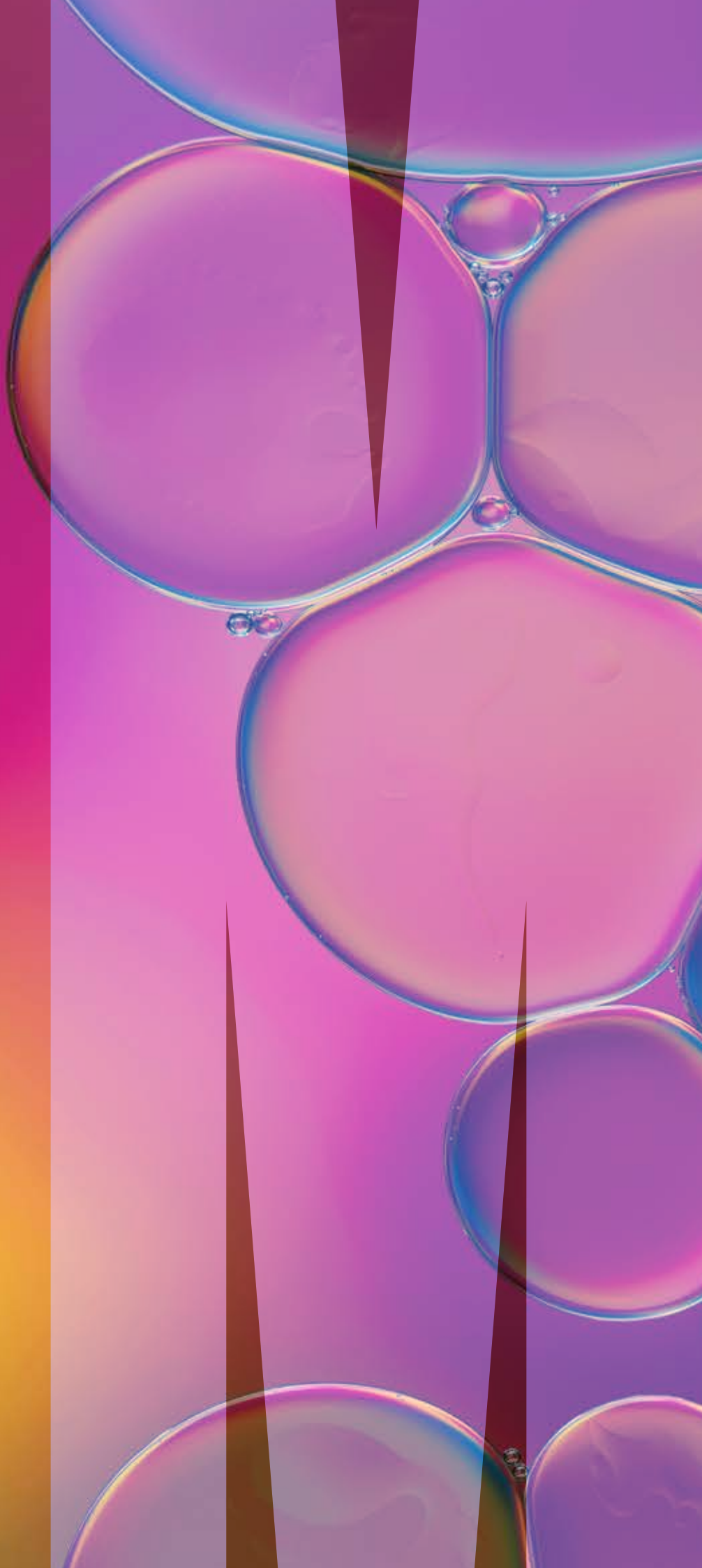
MONASH University
MALAYSIA

MONASH RESEARCH

monash.edu.my



MONASH UNIVERSITY MALAYSIA 20 Years

CELEBRATING 20 YEARS OF DELIVERING AUSTRALIAN EDUCATION IN MALAYSIA

CONTENTS

MESSAGE FROM THE OFFICE OF THE VICE PRESIDENT (RESEARCH & DEVELOPMENT)

An 'Asian-Platform' contributing to nation-building in the region

Monash University Malaysia is a premier research intensive institution established in 1998 with a vision to nurture visionary, responsible and effective leaders who are empowered with the skills to serve national and global communities. Since establishment, Monash University Malaysia has produced more than 12,000 graduates and currently has more than 7,000 students from 71 countries. We are home to close to 700 researchers, with state-of-the-art research facilities and support services.

As a leading international research university, our researchers take a multidisciplinary approach to addressing grand challenges that impact the various communities in the region.

Our researchers are pushing the boundaries of knowledge; and will provide you with the best research training and solutions to enable your organisation to achieve sustainable development and enhance competitiveness in an increasingly knowledge-intensive and globally inter-networked world.

I welcome you to engage our 'explorers', who are charting new frontiers and discoveries that are contributing to nation building in the region.

Professor Mahendhiran S. Nair
Vice President (Research & Development),
Monash University Malaysia
Chief Executive Officer,
Monash Malaysia Research and Development Sdn Bhd

Monash University Malaysia

Your Australian university in KL

Get a world class degree closer to home. Located in the vibrant, fully integrated township of Sunway, we are just 30 minutes south of Kuala Lumpur – one of Asia's most commercial, dynamic, exciting and culturally diverse capital cities.

Our students come from all over the world to enjoy a quality tertiary education and like them, you will learn how to challenge the status quo, engage on a global level, and graduate with the skills and confidence to make positive change to your life and to the lives of those around you.

What We Believe In

VISION

We are a premier research intensive institution committed to nurturing visionary, responsible and effective leaders who are empowered with the skills to serve our national and global communities.

MISSION

We offer an internationally recognised Australian education, enriching the student experience and employability through educational innovation, high impact research, student mobility, social entrepreneurship and industry engagement.

10 Reasons To Choose Monash Malaysia

Obtain a **prestigious, internationally recognised** Monash University degree. Recognised by the Malaysian Ministry of Higher Education and the Malaysian Qualifications Agency, and quality assured by Monash University Australia and the Australian Tertiary Education Quality and Standards Agency (TEQSA)

Opportunity to spend some time as an exchange student at Monash University Australia, or to **transfer to Monash University Australia** after completing at least one year at Monash University Malaysia

Tuition and living expenses significantly less than studying and living in Australia, the US or UK, providing **value for money**

Simplified admissions, payment and visa procedures, and the **availability of scholarships** for academically meritorious students

Access to high quality **research-active academic staff** with strong industry connections, and state-of-the-art teaching and research facilities

Safe, secure and affordable on-campus accommodation, and a lifestyle offering a range of extra-curricular, sporting and recreational opportunities

Multicultural student population providing support and cultural networks in a dynamic, cosmopolitan, and moderate Muslim environment

Proximity to countries in the Indian sub-continent and Asian regions

Excellent **employment and career prospects** upon completion of studies

Lifelong worldwide connections through a **global alumni network.**

At a glance

7,115
students from 71 countries*

13,284
graduates (1998-2016)*

Self-accrediting private university for 18 years

Rated Tier 6
by the Ministry of Higher Education, Malaysia

Rated 4 Stars
in research by the Ministry of Higher Education, Malaysia

842
academic and professional staff from 33 countries^

82%
of our academic staff hold a PhD degree^

37%
of our academic staff are expatriate^

RM90.29mil
worth of scholarships awarded (2004-2016)

RM6.4mil
obtained in external research funding (2016)

*As of March 2017 ^As of April 2017

Learn, play, and discover; that's life at Monash.

Watch us at
monash.edu.my/discover

ONE DEGREE, SAME PRESTIGE

Monash University is the largest university in Australia and one of the most highly regarded in the world. We have been consistently ranked among the world's Top 100 universities, reflecting our excellent research pursuits as well as high commitment towards the delivery of teaching and learning innovations. Our students leave with a greater sense of purpose, a global outlook, and the skills and confidence to make positive change in people's lives.

At Monash University Malaysia, you will enjoy a quality tertiary education experience on par with your peers in Australia. Our courses are accredited in Malaysia and Australia, ensuring you of an education that is locally relevant and internationally recognised.

TOP 100

Ranked top 100 in the world

21	60	78	80	90
21 in the world	60 in the world	78 in the world	80 in the world	90 in the world
Times Higher Education World's Most International Universities 2017	QS World University Rankings 2018	Academic Ranking of World Universities 2017	Times Higher Education World University Rankings 2017	Nature Index 2017

Monash also takes Australian top spot in the global rankings of the influential Nature Index, which measures universities' contribution to high-quality scientific research papers.

RANKED 28

QS STARS RATED FOR EXCELLENCE 2016 PLUS

Reuters Top 75: Asia's Most Innovative Universities 2017

The Monash Warwick Alliance is a partnership between The University of Warwick and Monash University. Established since 2009, a key aim of the Alliance is to produce graduates with a global education and to undertake research that addresses world-relevant and strategically important problems.

ACCREDITED

Our courses are accredited by professionalbodies such as:

ENGINEERS AUSTRALIA · victorian institute of teaching · acs · AACSB ACCREDITED · EFMD EQUIS ACCREDITED · ASSOCIATION OF MBAS AMBA ACCREDITED

Monash Business School is one of the few business schools across the globe, and the only one within the Group of Eight, with the esteemed 'triple crown' accreditation of AACSB, EQUIS and AMBA.

GLOBAL

4	100+	5
Australian locations	**International partner universities**	**International locations**
Clayton, Caulfield Parkville, Peninsula		Kuala Lumpur, Malaysia; Prato, Italy; Suzhou, China; Mumbai, India; Ruimsig, South Africa.

Ranked top 50 in the world for 25 subjects

Accounting and Finance
Anatomy and Physiology
Art and Design
Arts and Humanities
Biological Sciences
Business and Management Studies
Chemical Engineering
Chemistry
Civil and Structural Engineering
Development Studies
Economics and Econometrics
Education and Training
Engineering and Technology
English Language and Literature
Environmental Studies
Geography
History
Hospitality and Leisure Management
Law and Legal Studies
Life Sciences and Medicine
Nursing
Pharmacy and Pharmacology
Psychology
Social Sciences and Management
Sociology

QS World University Rankings by Subject 2017

Some programs offered in our Australian campuses may differ from programs offered at Monash University Malaysia. Our Future Students Office can guide you on this.

MONASH MALAYSIA R&D SDN BHD (MMR&D)

OUR VISION

To inspire, influence and impact industries and organisations in Malaysia to invest in research and development that will enable Malaysia to be an innovation-driven economy.

OUR MISSION

To develop and provide leading-edge research and development expertise to industries and organisations to discover innovative solutions that enhance their global competitiveness.

WHO WE ARE

- A wholly owned subsidiary of Monash University Malaysia Sdn Bhd (Co. No. 458601-U)
- A registered company with Suruhanjaya Syarikat Malaysia (SSM)
- Malaysian Investment Development Authority (MIDA) approved R&D Status Company

BENEFITS TO INDUSTRIES AND ORGANISATIONS

- Double deduction on non-capital expenditure for research and development; including cash contributions, donations and payments for research
- Specific R&D needs to raise productivity and competitiveness of firms
- Access to various world class R&D testing facilities
- Industry-linked PhD programs, internships, work placements and experiential learning opportunities – continuous access to next generation talent for the industry
- Workshops and training for industry and organisation in technical and non-technical areas
- Access to global research networks and talent
- Creation of IPs, Patents, Trademarks and other commercialisation opportunities

CONTACT

Professor Mahendhiran S. Nair
Chief Executive Officer
E mahendhiran.nair@monash.edu
T +603 5514 6166

Mr Daniel Lee Lih Wei
Senior Manager
E daniel.lee@monash.edu
T +603 5514 5635

Monash Malaysia R&D Sdn Bhd
(Co. No. 1157117-M)
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

www.monash-rnd.com.my

SCHOOL OF ARTS AND SOCIAL SCIENCES

The School of Arts and Social Sciences (SASS), which includes the Humanities, focuses its research on issues of sociopolitical transformations and developments in Southeast Asia, with both local and global perspectives in mind. Ranging from International Studies and Politics to Anthropology and Gender Studies, our Social Sciences' arm adopts rational, objective and empirical methods to investigate issues relating, for example, to human rights and social movements, the role of governance, and the impact of new media.

Our Humanities' arm comprising literary and screen studies, on the other hand, enlists interpretative and reflective methods to consider questions about the human condition, such as what is beauty and truth, the meaning of good and evil, and how cultural products signify according to history. Both, however, encourage research that is interdisciplinary in nature, and emphasize critical and ethical thinking that is also theoretically informed in the pursuit of knowledge.

MONASH IS RANKED

#51-100

in the world for Communications and Media Studies

QS World University Rankings by Subject 2017

Top 100

in the world for Social Sciences

Times Higher Education World University Subject Rankings 2016/17

CONTACT

Associate Professor Andrew Ng Hock Soon

Deputy Head of School (Research)

E ng.hock.soon@monash.edu
T +603 5514 6127

Ms Eswary Sivalingam

Research Manager

E eswary@monash.edu
T +603 5515 9632

School of Arts and Social Sciences

Building 2, Level 6
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

monash.edu.my/sass

RESEARCH CAPABILITIES

There are four main clusters under which SASS's research is categorised:

- Politics, Development and Governance
- Culture, Religion and Gender
- Communication, Media and Society
- Literature, Cinema and Society

We are also currently developing two platforms – Populism and Internet Studies – that are each dedicated to an area of research with a growing interest in recent years.

RESEARCH PROGRAMS

We offer 100% research Master of Arts (MA) and Doctor of Philosophy (PhD) degrees. The research degree is presented and assessed as a thesis and its aim is to produce an original work of scholarship that will contribute substantially to the understanding of the subject matter.

SPECIALIST SERVICES

Various academics of the School also provide specialist services to industry, non-governmental organisations, and government bodies. Some of these services (past and present) include:

- External democracy promotion and constitutional design
- Advising on human rights issues
- Advising on issues intersecting gender, sexuality and theology for the World Student Christian Federation (WSCF)
- Providing expert views on health and equity issues.

SCHOOL OF BUSINESS

The School of Business at Monash University Malaysia is an entrepreneurial and culturally diverse school. We are driven by a mission to have meaningful impact on the way business is conducted in Asia through high quality research, educational excellence and extensive engagement with industry and community. The School is structured into six departments which are: Accounting & Finance, Business Law & Taxation, Econometrics & Business Statistics, Economics, Management and Marketing.

We prepare students for an exciting and rewarding career with a research-informed and industry-driven business degree, developing future global business leaders who can deal with real-world problems in real-life situations.

MONASH IS RANKED

#26	#31	#45
in the world for Accounting and Finance	in the world for Business and Management Studies	in the world for Economics and Econometrics

QS World University Rankings by Subject 2017

RESEARCH CAPABILITIES

Entrepreneurship and Innovation

- Strategy and Competitiveness
- Decision-making Neuroscience
- Social Entrepreneurship and Corporate Social Responsibility
- Technology, Innovation and Industry disruption
- Internationalisation of SMEs

Corporate Governance and Ethics

- Money Laundering and Informal Banking
- Earning Management, Policy Choice and Voluntary Disclosure
- Corporate Governance and Financial Deepening
- Minority Shareholder Protection
- Business Ethics and Society

Banking, Law and Taxation

- Banking and Finance
- Productivity of Commercial Banks
- Banking and Economic Growth
- Tax Compliance and Distributive Effects of Goods and Services Tax
- International Trade Law
- Human Rights

CONTACT

Professor Pervaiz Ahmed
Deputy Head of School (Research)
E pervaiz.ahmed@monash.edu
T +603 5514 6281

Stephanie Pang
Research Manager
E steph.pang@monash.edu
T +603 5514 6274

School of Business
Building 6, Level 4
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

monash.edu.my/business

Economic Development, Trade and Policy

- Development Economics in East Asia
- International Trade and Finance
- Trade and Economic Policy
- Monetary Integration
- Productivity and Technical Change
- Sustainable Development
- Data Analytics

Marketing and Consumer Studies

- Marketing in Emerging Economics
- Relationship and Network Marketing
- E-commerce, Virtual Communities and Social Networks
- Business-to-Business Marketing
- Marketing and Sustainability

Organisation Management and Behaviour

- High Performance Work Systems
- Training and Workforce Development
- Work-life Balance
- Gender and Leadership
- Labour Markets and Industrial Relations

RESEARCH PROGRAMS

In the **Master of Philosophy** and **Doctor of Philosophy** programs, research may be undertaken in key areas including accounting and finance, business law and taxation, econometrics and business statistics, economics, management, and marketing.

The **Postgraduate Diploma in Business and Commerce** is a structured one-year program that introduces students to business-related research at an advanced level. It develops technical and analytical skills, and reinforces critical and independent thinking.

The **Bachelor of Business and Commerce (Honours)** is an additional or fourth year of advanced study in one of the School's specialised business areas. It teaches students how to conduct business-related research at an advanced level.

KEY RESEARCH FACILITIES

Business Simulation Lab

Allows researchers to observe the interaction of capital market concepts and behaviour through simulated trading, and students to learn the mechanics of various types of financial instruments such as equities, currencies, options and futures.

Neurobusiness Lab

Advanced technology in the Lab can measure unobservable physiological reactions, enabling researchers to explore behavioural finance, behavioural economics, consumer behaviour and marketing.

Focus Group Discussion Room

Provides a space for groups of 6 to 12 people to focus on a particular issue, idea, product or service in a guided discussion led by a moderator. The interaction provides a richer understanding of the research issue.

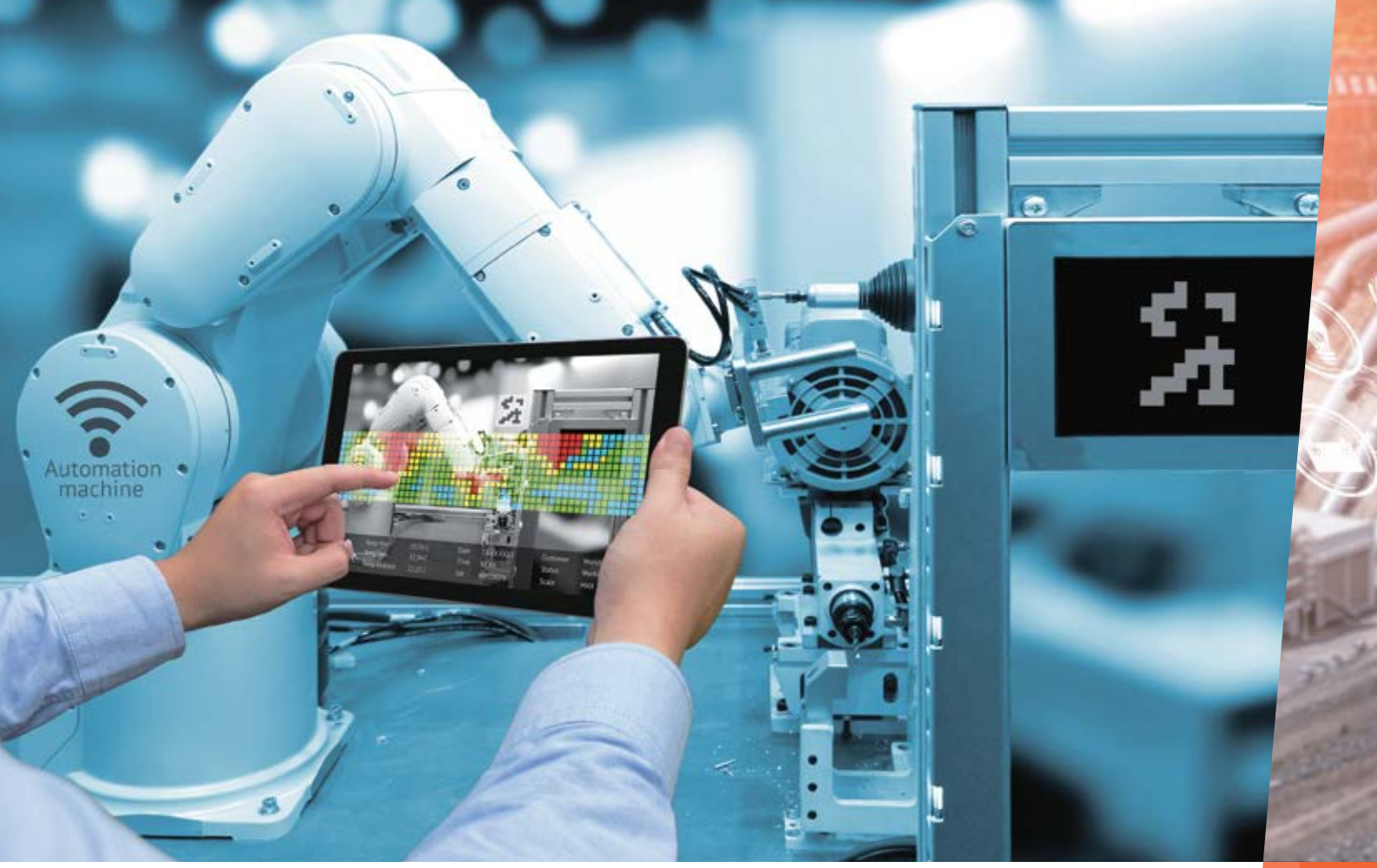
Other facilities include:

- Bloomberg Room
- High Speed Computer Room
- DataStream Terminal

SPECIALIST SERVICES

Our highly skilled staff are able to provide:

- Contract research and consultancy
- Workshops and training
- Professional courses
- Technical help and access to our research facilities
- Survey design and statistical consulting services



SCHOOL OF ENGINEERING

The School of Engineering is a research-intensive School which places great emphasis in research excellence and commitment to contributing to Monash University's desire of making a difference. The excellence and diversity of our research span across the disciplines of Chemical Engineering, Civil Engineering, Electrical and Computer Systems Engineering, Mechanical Engineering, Mechatronics Engineering and Software Engineering with focus on seven (7) multidisciplinary research clusters: Energy Sustainability, Materials & Nanotechnology, Medical Engineering & Biological Sciences, Waste & Environment, Intelligent Lighting, Critical Infrastructure, and Smart Industry & Living. The School actively engages with industry through collaborative research and professional consulting. Equipped with the world-class research infrastructures and state-of-the-art equipment, our researchers and students undertake cutting-edge and high impact research projects providing solutions to industry needs and addressing global problems.

MONASH IS RANKED

#28
for
Chemical Engineering

#29
for
Civil and Structural Engineering

#51-100
in the world for
Mechanical Engineering

#51-100
in the world for
Electrical and Electronic Engineering

QS World University Subject Rankings 2017

CONTACT

Professor Chai Siang Piao
Deputy Head of School (Research)
E chai.siang.piao@monash.edu
T +603 5514 6234

Wan Nurul Rukiah Binti Wan Rasdi
Research & Development Manager
E wan.nurul@monash.edu
T +603 5514 6224

School of Engineering
Building 5, Level 4
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

monash.edu.my/engineering

RESEARCH CLUSTERS

Energy Sustainability
- Solar Cells
- Fuel Cells
- Artificial Photosynthesis
- Bio-energy
- Heat Integration and Simulation
- Thermal Management

Materials & Nanotechnology
- Emerging Materials
- Membrane Technology
- NEMS and MEMS
- Wearable Electronics
- Ionic Liquids
- Molecular Dynamics Simulation
- Nanosensors

Medical Engineering & Biological Sciences
- Protein Separation
- Image Analysis for Disease Prediction
- Biosensors
- Pharmaceuticals
- Drug delivery

Waste & Environment
- Solid Waste Management
- Wastewater Treatment
- Carbon Capture and Utilisation
- Biogas and Biomass Conversion

Intelligent Lighting
- Visible Light Communications
- Smart Lighting for Home
- Facial Expression
- Gesture Recognition

Critical Infrastructure
- Sustainable Drainage and Flood Management
- Transportation and Traffic
- Building Materials
- Geotechnics

Smart Industry & Living
- Robotics and Automation
- Condition Monitoring and Fault Diagnosis
- Autonomous Systems
- Optimisation

RESEARCH PROGRAMS

We are committed to training the next generation of research leaders who are capable of solving some of world's most pressing problems. We offer the following:

Full-time research programs:
- Master in Engineering Science (Research) (MEngSc)
- Doctor of Philosophy (PhD)

Postgraduate coursework program:
- Master of Advanced Engineering (Energy and Sustainability)

KEY RESEARCH FACILITIES
- Food and Pharmaceutical Laboratory
- Energy Research Laboratory
- Wastewater and Environmental Laboratory
- Biotechnology Laboratory
- Cell Biology and Microbiology Laboratory
- Chemical Instrumentations Laboratory
- Photonics and Communication Laboratory
- Intelligent Lighting Laboratory
- Micro and Nano Devices Laboratory
- Robotics Research Laboratory
- Sports Research Laboratory
- Soil and Geotechnical Laboratory
- Fluid Mechanics Laboratory
- Biomechanics Research Laboratory
- Computer Integrated Manufacturing Laboratory
- Nano-Analytical Platform
- Advanced Computing Platform

SPECIALIST SERVICES

We provide contract research, analytical services, professional development courses, training and workshops to industries, Institutes of Higher Learning (IHLs) and research agencies. We also offer a range of consultancy services and industrial R&D related to our research expertise across the six (6) disciplines in the School.

SCHOOL OF INFORMATION TECHNOLOGY

The world we live in today has been transformed by the rapid adoption of technology. This has impacted every aspect of our lives, from our homes, to our schools, industry, key infrastructure and social spaces, enhancing how we live, learn, work and play. It is why Monash has dedicated a whole faculty just to teaching and learning IT – the only university to do so in the prestigious Group of Eight. We are committed to innovating theoretical and applied research to meet the technology challenges of the 21st century, and our outstanding labs and research facilities empower this to happen.

MONASH IS RANKED

#51-100

in the world for Computer Science and Information Systems

QS World University Rankings by Subject 2017

CONTACT

Associate Professor Wong Kok Sheik

Associate Head (Research)

E wong.koksheik@monash.edu
T +603 5514 6090

Ms Misha Supremaniam

Senior Administrative Executive (Operations and Research)

E misha.supremaniam@monash.edu
T +603 5514 4939

School of Information Technology

Building 2, Level 4
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

monash.edu.my/it

RESEARCH CAPABILITIES

Our experts are grouped into three broad research clusters:

- **Computational Intelligent Systems**
  Big Data, Cognitive Robotics, Data Mining, Human Computer Interaction, Internet of Things, Machine Learning
- **Software Engineering and Advancement**
  Agile Methods, Cloud Correctness, Software Maintenance, Software Quality, Software Testing
- **Information processing, networking and security**
  Biometrics, Computer Vision, Healthcare, Multimedia Encryption, Wireless Communication, Network Security

RESEARCH PROGRAMS

A variety of research domains can be explored and pursued through our Master Philosophy (MPhil) and Doctor of Philosophy (PhD) programs. In addition to the fundamental and core research topics of computer science such as algorithm and machine learning, our experts carry out applied research such as networking and biometrics, as well as interdisciplinary research including medical imaging and tactical analysis in sports. Laboratory attachment programs are also available through external funding and collaborations. Some of our ongoing research projects include:

- Human Rights Commission of Malaysia (SUHAKAM) going digital with Monash
- Frontiers in Intelligent Medicine working group projects
- Protected fingerprint template recognition and encrypted matching
- A novel predictive model for early diagnosis of Alzheimer's disease and related dementias among Malaysians using Artificial Intelligence techniques
- Innovative high dynamic range imaging – From information hiding to its applications.

KEY RESEARCH FACILITIES

- Robots for AI research, including turtlebots, Kobuki, Quadrotar and NAO robot
- 3D printer (UPBOX)
- Virtual Reality set (Leapmotion)
- Screen beam and clickers
- Access to the High Performance Computing facility in our Sunway and Australian campuses
- High dynamic range monitor

SPECIALIST SERVICES

We provide consultation in three broad areas, namely in computational intelligence, software engineering, as well as computer networking and security.

JEFFREY CHEAH SCHOOL OF MEDICINE AND HEALTH SCIENCES

The Jeffrey Cheah School of Medicine and Health Sciences aims to establish and sustain a research culture that fosters collaboration, mentoring and the production of high quality research which contributes to the disciplines of medicine, health, and the biological sciences with the goal of improving the health and well-being of individuals, populations and society.

We do this by supporting research activities of research active staff, providing guidance and mentoring to junior researchers, providing opportunities for students to engage in research, and encouraging research-led teaching and innovation.

MONASH IS RANKED

#29	#41	#42
in the world for Medicine	in the world for Clinical, Pre-Clinical and Health	in the world for Psychology

QS World University Rankings by Subject 2017

RESEARCH CAPABILITIES

Community Health and Non-Communicable Diseases

Emphasizes on fundamental research, population genetics, biomedical sciences, clinical endocrinology, biostatistics, medical education and community engagement.

Infectious Diseases and Health

Investigates infections caused by pathogenic microorganism such as bacteria, virus, fungi, and parasites as well as their immune responses and defence mechanisms.

Ageing and Neuroscience

Explores social, behavioural and neuroscience research including age-related human neurodegenerative diseases such as Alzheimer's and Parkinson's diseases.

CONTACT

Professor Iekhsan Othman
Deputy Head of School (Graduate Research)
E iekhsan.othman@monash.edu
T +603 5514 6332

Ms Kong Li San
Research and Development Manager
E kong.li.san@monash.edu
T +603 5514 6300

Ms Lee Ching Teng
Senior Administrative Executive (Research)
E lee.ching.teng@monash.edu
T +603 5514 5697

Jeffrey Cheah School of Medicine and Health Sciences
Building 3, Level 2
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

med.monash.edu.my

Bioactive Compounds, Natural Products and Drug Discovery
Discovers bioactive natural products from plants, animals and microbials sources for the development of new pharmaceuticals or nutraceuticals.

Clinical Research
Explores the evidence for best clinical practice to address the improvement in outcomes on patient care. Conducts clinical trials and research in endocrinology and cardiovascular disease.

Medical Education Research
Develops innovative technologies to enhance teaching and learning across medical and health professionals.

RESEARCH PROGRAMS

In the **Doctor of Philosophy** program, research may be undertaken in the principal areas of including anatomy, biochemistry and molecular biology, endocrinology, epidemiology and preventive medicine, general practice, medical education, medicine, microbiology, neuroendocrinology, paediatrics, pharmacology, physiology, psychological medicine, psychology, surgery, toxicology, and rural health.

The **Master of Biomedical Science** involves the independent investigation of a research problem which you are to formulate. It is expected that the research undertaken will make a significant contribution to the discipline in which you are enrolled.

The **Postgraduate Diploma in Biomedical Science** is a qualifying degree designed for those who do not hold an honours degree or equivalent, who wish to further undertake a higher degree by research.

KEY RESEARCH FACILITIES

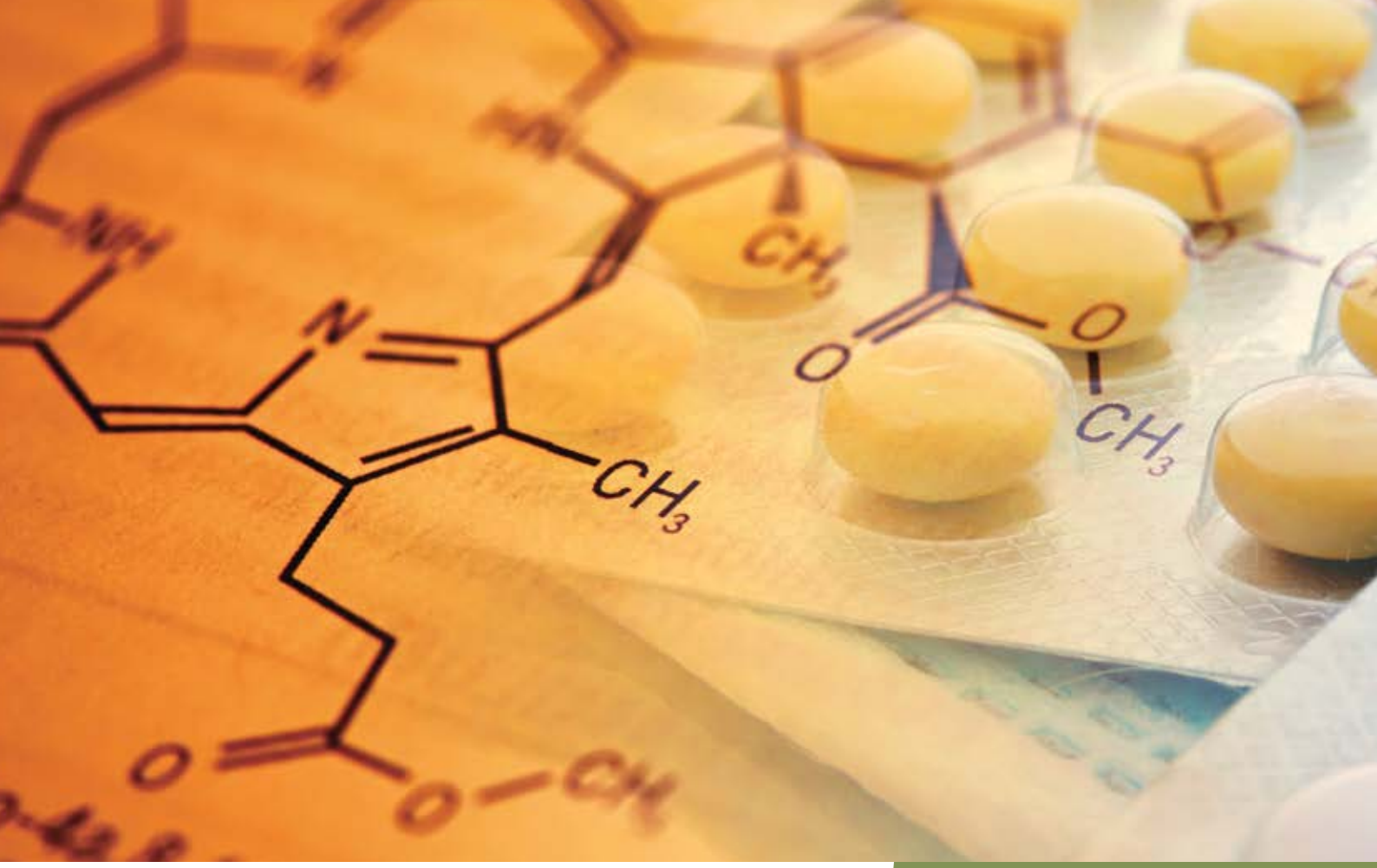
Multidisciplinary Research Platforms
- Brain Research Institute Monash Sunway (BRIMS)
- South East Asia Community Observatory (SEACO)

Infrastructure Platforms
- LC-MS laboratory
- Bioimaging facility
- Drug discovery platform

Dedicated Research Facilities
- Biomedical research laboratories in virology, cancer and molecular biology, proteomic and small molecules analysis
- Neuroscience laboratories in neurogenomics, neuroproteomics, neuropharmacology, neuromorphology, and neuroimaging
- Medicinal chemistry, a drug discovery platform for nanoparticles and natural products
- Monash-Agilent / DNA / RNA Microarray Service Centre for genomics research
- Global Public Health Research Centre
- Clinical Research Centre
- Psychological Science Research Centre

SPECIALIST SERVICES

We provide contract research, analytical services, professional development courses, training and workshops to industries, Institutes of Higher Learning (IHLs) and research agencies. We also offer a range of consultancy services and industrial R&D related to our research expertise.



SCHOOL OF PHARMACY

As the Malaysian arm of Australia's leading Faculty of Pharmacy and Pharmaceutical Sciences, we are at the forefront of both research and education in our field. We are a global proponent of pharmacy education and are internationally renowned as a key research centre. Our challenging undergraduate, postgraduate and research courses prepare students for frontline roles in modern patient care and drug discovery and development.

MONASH IS RANKED

#1 in Australia | **#2** in the world

for Pharmacy and Pharmacology

QS World University Rankings by Subject 2017

RESEARCH CAPABILITIES

Research at the School is structured around three focus areas that closely align with the national health priorities:

Clinical Pharmacy and Pharmacy Practice

- Behavioural Sciences and Patient's Concordance
- Clinical Pharmacokinetics and Therapeutic Drug Monitoring
- Evidence-based Pharmacotherapy
- Health Promotion and Medicine Information
- Interprofessional Education and Practice
- Pharmacovigilance
- Pharmacy and Health Care Education
- Pharmacy Management
- Pharmacy Law and Ethics
- Quality Use of Medicine and Drug Use Evaluation
- Social Pharmacy

Health Economics

- Evidence-based Medicine
- Health Policy and System Research
- Health Technology Assessment
- Pharmacoeconomics
- Pharmacoepidemiology

CONTACT

Associate Professor Dr Anton V. Dolzhenko

Deputy Head of School (Research)

E anton.dolzhenko@monash.edu
T +603 5514 5867

Ms Norhayati Binti Abdul Malek

Senior Administrative Executive (Research)

E norhayati@monash.edu
T +603 5515 9629

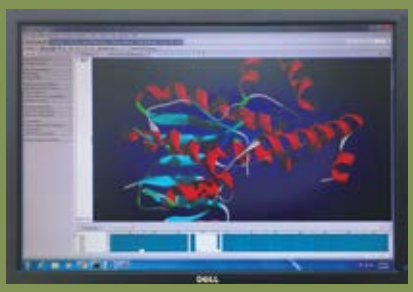
School of Pharmacy

Building 2, Level 5
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

monash.edu.my/pharmacy

Drug Discovery and Development

- Drug Delivery Using Nanoparticles and Microspheres
- Drug Design
- Gene Targeting Anti-Cancer Drug Delivery
- Green Chemistry and Pharmacy
- Heterocyclic Chemistry
- Medicinal Chemistry
- Microencapsulation
- Microwave-assisted Organic Synthesis
- Multicomponent Reactions
- Natural Product Chemistry
- Neurophysiology and Neuroscience
- Neurotoxicity
- NMR Spectroscopy



RESEARCH PROGRAMS

Our Doctor of Philosophy (PhD) program is ideal for talents who intend to advance into careers as excellent researchers, inspirational innovators, and future leaders of pharmaceutical industry and pharmacy practice.

Areas of research include:

- Anticancer Therapeutics
- Clinical Pharmacy
- Drug Delivery
- Drug Discovery and Development
- Health Economics
- Medicinal Chemistry
- Microbiology
- Organic and Biomolecular Chemistry
- Pharmaceutical Analysis
- Pharmacology
- Pharmacy Practice
- Phytochemistry

KEY RESEARCH FACILITIES

General Analysis

HPLC, Mastersizer, IR Spectrometers, UV Spectrophotometers, XRD and XRF Analyzer etc.

The School also hosts the Nuclear Magnetic Resonance Campus Infrastructure Platform with a Bruker Fourier 300 NMR spectrometer.

Organic Synthesis

CEM Discover SP and Anton Paar Monowave 400 Monomode Microwave Reactors, Preparative HPLC, Flash Chromatography Systems etc.

Formulation

Coating Pan, Spray Dryer, Tablet Dissolution Tester, Industrial Ultrasonic Probe Sonicator etc.

Tissue Culture and Molecular Biology

Protein Purification System, PCR Machines, Microplate Readers etc.

SPECIALIST SERVICES

We offer service and training in:

- NMR spectroscopy analysis and
- Microwave-assisted synthesis.

We also provide consultancy advice in the areas of our expertise.

SCHOOL OF SCIENCE

Science at Monash is home to a vibrant, dynamic and world-renowned community at the forefront of innovation, discovery and learning. Our courses have a strong regional focus, but are globally relevant with many of our units identical to those offered at the Clayton campus in Australia. We offer broad choices for specialisation in fields like biotechnology, applied microbiology, psychology, tropical environmental biology, medicinal chemistry, and more – discipline areas where there is strong demand for quality graduates in Malaysia, the region and beyond.

MONASH IS RANKED

#45
in the world for Chemistry
QS World University Rankings by Subject 2017

#44
in the world for Chemistry
Academic Ranking of World Universities 2015 by Subject

#51-100
in the world for Biological Sciences and Environmental Sciences
QS World University Rankings by Subject 2017

TOP 150
for Natural Science and Mathematics
Academic Ranking of World Universities 2016 by Field

CONTACT

Associate Professor Kumaran Narayanan

Deputy Head of School (Research)

E kumaran.narayanan@monash.edu
T +603 5514 5807

Dr Tan Wooi Boon

Research Manager

E tan.wooiboon@monash.edu
T +603 5514 6121

School of Science

Building 4, Level 8
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

monash.edu.my/science

RESEARCH CAPABILITIES

The School of Science is well-equipped to meet the demands of industrial collaboration. The University is housed in a RM 200-million campus with dedicated space for research in science, pharmacy, and medicine within a 73,000 m² complex.

Our new, state-of-the art laboratories with focuses on chemistry, bioscience, food science, and environmental science support approximately 100 PhD, MSc, and Honours students, giving the School a strong research profile. As we are a part of the global Monash research effort, researchers based in Malaysia will have full access to Monash Australia's infrastructure.

RESEARCH PROGRAMS

Engaging in graduate studies at Monash means you will be a member of a dynamic community of scholars and contribute to the advancement of knowledge within your specialist area. We offer the Master of Science (MSc) and Doctor of Philosophy (PhD), with a broad range of study areas so you can find the path that best suits your intellectual and vocational passions.

- Biodiversity and Conservation
- Chemistry
- Environmental Science
- Food Science and Technology
- Genetics and Genomics
- Medical Bioscience
- Natural Products and Drug Discovery
- Microbiology
- Biotechnology
- Tropical Biology
- Infectious Disease

KEY RESEARCH FACILITIES

Our research is supported by well-equipped facilities that meet the demands of academic research and industrial collaborations. The School of Science hosts the Monash University Malaysia Genomics Facility which provides next generation DNA sequencing services. Other major facilities and equipment include flow cytometry, luminescence spectrometry, Fourier Transform Infrared Spectroscopy (FTIR), Atomic Absorption Spectroscopy (AAS), fluorescence microscopy, High Performance Liquid Chromatography, Gas Chromatography, and Fast Protein Liquid Chromatography.

SPECIALIST SERVICES

- Consultancy advice to industry, e.g. analytical services
- Contract research for industry partners

ADVANCED COMPUTING PLATFORM

The Monash Malaysia-Advanced Computing Platform (MMACC) infrastructure was established in Monash University Malaysia to support research activities, providing effective and powerful computing services. The centre aims to support multidisciplinary research in the natural and social sciences such business, medicine, pharmacy, information technology and engineering. It is currently used for research in the (but not limited to) following fields of study – computer vision, image processing, optical network, machine learning, pattern recognition, combustion, turbulent flow, nanomaterials, genomes analysis, disease association studies.

KEY INSTRUMENTATION

12 units of E5-2650 v2 Processors

- 192 processor cores
- 3 terabytes RAM
- 120 TB storage

WORKING WITH US

- Fee for service
- Collaborative research
- Training
- Software development

SPECIALIST SERVICES

Through this facility, researchers can access a variety of High Performance Computing (HPC) facilities such as batch computing for purposes of scientific computing, including simulation and data processing. Researchers also can request the installation of specific software related to their research field as long as it is supported by the system.

CONTACT

Associate Professor Tan Chee Pin
E tan.chee.pin@monash.edu
T +603 5514 6205

Advanced Computing Platform
ITS Server Room, Building 9, Level 5
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

www.monash.edu.my/research/infrastructure/high-performance-computing

EXPERTISE

The facility is supported by a dedicated team provided by the Information Technology Services (ITS) department at Monash University Malaysia. They are specialists in advanced computing, informatics and IT, and work in collaboration with researchers and in partnership with service providers to mobilise tools, infrastructure and expertise as required.

Significant research activities currently supported by the platform are in genomics, and the generation and control of fluid turbulence.

BUSINESS SIMULATION LAB

The Business Simulation Lab provides students, researchers and industry professionals a unique learning and research experience to understand behaviour and decision making through simulation of challenging real world situations. It incorporates both scenario-based and numeric-based problems. The Lab can be used for research as well as skills and competency development. It provides a range of learning simulations, including strategic thinking, decision making, crises management, financial analysis, market analysis, operations management, teamwork and leadership to develop deeper understanding as well as hone decision making competencies in specific settings.

KEY INSTRUMENTATION

- Interpretive Simulations
- Crisis Management Simulations
- Strategic Marketing Simulations
- Financial Trading System

CAPABILITIES

The Business Simulation Lab provides an integrated simulation laboratory to teach and train research students and professionals. It can simulate real time business challenges across a range of settings that can be used for teaching and research purposes. The lab challenges and enhances conventional thinking and decision making.

WORKING WITH US

- Educational teaching and learning
- Collaborative research
- Training
- Consultancies

EXPERTISE

The Business Simulation Lab combines extensive human expertise in business, economics, arts and sciences with ICT infrastructure. It integrates simulation packages, expert academics from various disciplines of the University and specially trained technicians to develop skills and competencies to tackle a wide array of situations and contexts. It can be used by large and small enterprises, NGOs and public agencies. It can also be used by researchers to explore specific challenging situations.

CONTACT

Associate Professor Jothee Sinnakkannu

E jothee. sinnakkannu@monash.edu
T +603 5514 6297

Business Simulation Lab

Building 6B, Level 4
Monash University Malaysia
Jalan Lagoon Selatan, 47500, Bandar Sunway
Selangor Darul Ehsan, Malaysia

www.monash.edu.my/research/infrastructure/simulated-trading-room

SPECIALIST SERVICES

Customised Simulation Development

The Simulation Lab has extensive expertise in the development of simulations and scenarios along with a well-established ICT infrastructure, superior project management and expertise in a wide variety of discipline areas. It can create simulations that would reflect challenges faced by industrial, technological, marketing and other aspects of any business and society. It is a perfect place for researchers, students and professionals to challenge decisions based on existing or customised inputs across any business sector.

Education and Training

A great coaching tool and a perfect testing ground for behavioural and decision making skills, the lab provides integrated development tools and advanced functionality, making it possible to create educational and training programs for the development of a variety of skills and competencies. The data support system through various integrated data bases can be pooled together to support data analytics and research.

Strategy and Crises Management Sessions

The Lab offers an opportunity to simulate possible results of strategic decisions, envision the impact of certain innovations, and foresee possible feedback from colleagues, agencies and competitors on your planned moves. It trains participants to deal with unexpected developments using either their own custom-created simulation or from off-the-shelf templates developed by our industry partners. Participants can develop their own simulations and develop exclusive repeatable, measurable training exercises.

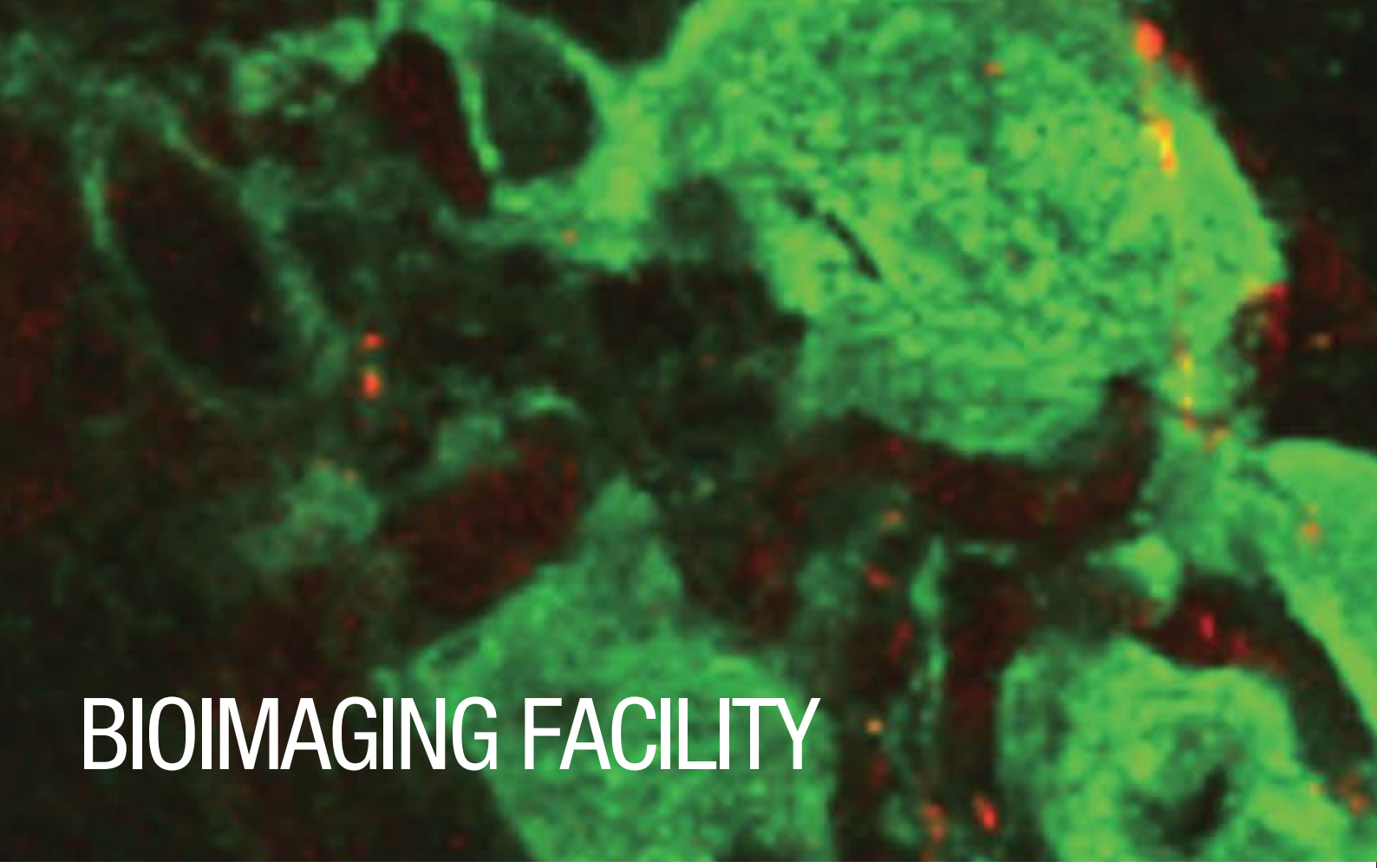
The Lab can simulate many crisis situation by integrating communications from a variety of stakeholders and directs communication to different crisis management node(s) – through mobile, email, Twitter, Facebook, blogs, etc.

Market Simulation Games

Market simulation games offer students (especially postgraduate students) and professionals a risk-free platform to test theories and make effective market decisions, such as new product development and business continuity. Market strategy simulation games demonstrate real life market challenges based on a variety of complex factors and interactions customised according to marketplace requirements, such as competitive moves, sales, distribution, R&D and advertising. Each team's actions have direct consequences on the market, thus competitive analysis becomes an integral part of the game. Competitor actions and reactions, new product launches, sales and distribution strategies all define how teams manage their product portfolio, R&D projects, positioning, pricing and distribution channels.

Stock Trading and Investment Risk Management

The Lab incorporates stock trading simulators that allow students and participants to explore the stock market without risking real money. With stock trading simulations participants can pick and trade securities, make trades and track outcomes without investing actual dollars. Stock trading simulations provide existing data to run possible trends, and track a stock's performance in real time. Besides, stock trading the Lab is also equipped with real time data from stock markets to execute trading. It also can incorporate use of derivative instruments to control trading risks. Trading instruments are not limited to stocks but can involve financial trading instruments, such as Fixed Income Securities, FOREX and financial derivatives.



BIOIMAGING FACILITY

The Bioimaging Facility is a state-of-the-art imaging facility, consisting of a micro-imaging and histology facility. It is operated by the Brain Research Institute (BRIMS), Jeffrey Cheah School of Medicine and Health Sciences.

The Bioimaging Facility supports a wide range of bioimaging analysis such as fluorescence microscopy, confocal microscopy, multiphoton microscopy, laser capture microdissection, and digital slide scanning. In addition, the instruments available can be widely utilised for research materials in the field of material science and engineering. Workstations are also available for offline image processing and analysis, including volume rendering, neuron tracing, 3D measurement and 3D particle tracking. We also provide technical support and service for molecular histology and morphology analysis for biological and pathological sample specimens.

KEY INSTRUMENTATION

- Upright bright field microscope: Nikon 50i, Olympus BM50
- Upright fluorescence microscope: Nikon 90i
- Inverted fluorescence microscope: Nikon TE2000
- Live cell imaging system: Leica AF6000
- Confocal laser microscope: Nikon C1si
- Multiphoton microscope: Leica TSC SP8 MP
- Digital slide scanning system (bright field and fluorescent): Zeiss MIDI MIRAX
- Laser capture microdissection microscope (bright field and fluorescent): Arcturus XT (Nikon TE2000)
- Stereoscopic microscope (bright field and fluorescent): Nikon SMZ745, SMZ1500
- Cryostat: Leica CM1900, CM1950, CM1860UV
- Microtome: Leica RM2035, RM2235
- Vibratome: Vibratome 3000
- Imaging Analysis softwares (NIS Elements, Image-Pro Plus)
- Glass micropipette puller: Sutter Instrument Model P-97

WORKING WITH US

- Collaborative research
- Fee for service
- Training

CAPABILITIES

- Multiple fluorescent imaging of sample specimen and materials
- High resolution 3D imaging
- Fast speed and high resolution deep tissue imaging
- Time-lapse live cell imaging
- Morphological analysis of sample or pathological specimen (tissue, organisms) and materials (solid, gel)
- Molecular histological analysis (including immunohistochemistry, in situ hybridization)

CONTACT

Dr Satoshi Ogawa

E satoshi.ogawa@monash.edu
T +603 5514 6351

Bioimaging Facility

Building 3, Level 3
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

www.monash.edu.my/research/infrastructure/bioimaging-lab

EXPERTISE

- Microscopy analysis
- Histological sample preparation and analysis
- Technical advice, consultation and service

SPECIALIST SERVICES

- Training and consultation
  - Microscopy and imaging
  - Histology analysis
  - Project planning
- Imaging/Histology analysis service
  - Image capturing
  - Data analysis
  - Specimen preparation
  - Histology
- Specialist workshops and courses
  - Microscopy and imaging
  - Histology techniques

DRUG DISCOVERY PLATFORM: FISH FACILITY

Fish has great advantages as a model organism for biomedical research for a variety of human diseases and conditions. The fish facility holds wild-type zebrafish (danio rerio) and tilapia (oreochromis niloticus) and various genetically modified strains of zebrafish introduced from several research institutions including Japan, Hong Kong, China, Singapore, Canada, Germany and the United States. We also have the capability to create transgenic and mutant zebrafish lines using CRISPR/Cas9 technique. We have also established behaviour systems for fish models to study neurodegenerative disease, social stress, addiction, neuropsychiatryic disorders and cognition. This facility is operated by the Brain Research Institute (BRIMS), Jeffrey Cheah School of Medicine and Health Sciences.

KEY INSTRUMENTATION

- Fish holding facility (tilapia and zebrafish)
- Fish breeding room
- Transgenic fish holding room
- Fish behaviour analysis room
- Photoperiod controlled fish holding rack
- ZebTEC Stand-Alone Rack with Active Blue technology (self-cleaning system with water quality monitoring unit)
- Fish behaviour tracking system: Limelight
- Operation microscope: Nikon SZM
- Microinjection system: Eppendorf Femtojet

EXPERTISE

- Fish facility operation and monitoring
- Fish maintenance and breeding
- Generation of transgenic/mutant zebrafish strains
- Fish tissue sample preparation
- Fish behavioural analysis

CAPABILITIES

- 24hr maintenance of fish holding system
- In-house breeding of fish
- Photoperiod controlled experiment
- Fish behaviour analysis
- Generation of transgenic and mutant zebrafish
- Custom designing of siRNAi and gRNA (for CRISPR/Cas9 system)
- Artificial fertilisation
- Fish genotyping

CONTACT

Associate Professor Tomoko Soga

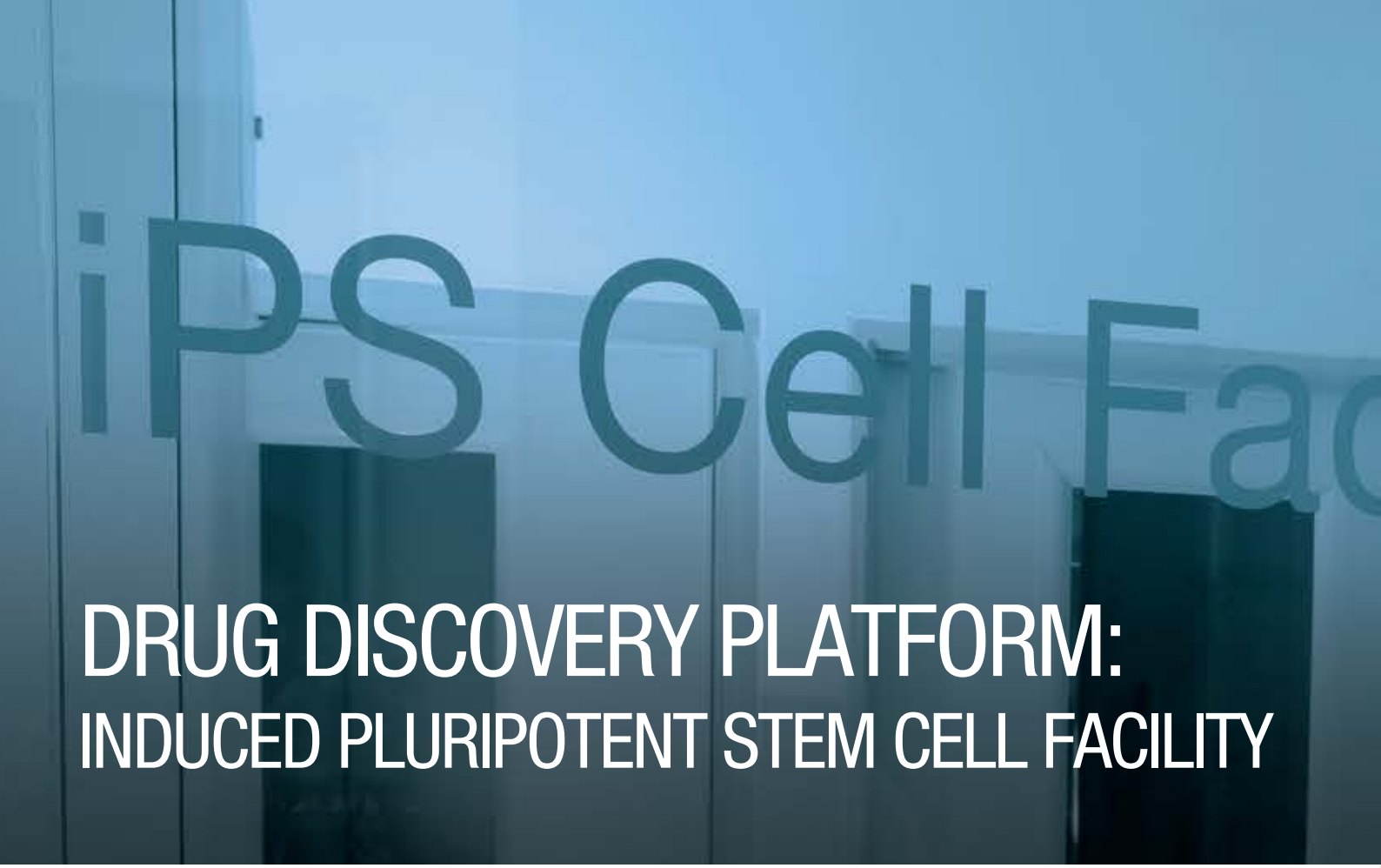
E tomoko.soga@monash.edu
T +603 5514 6223

Drug Discovery Platform

Building 3, Level 3
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

SPECIALIST SERVICES

- Training and consultation service
  - Microscopy and Imaging
  - Histology analysis
  - Microinjection
- Providing fish (embryo) strains
  - Wild type strains
  - Mutant strains
  - Transgenic strains
- Supports for handling of special fish strains
- Importation
- Exportation
- Animal ethics application
- Specialist workshops and courses
- Fish handling and tissue dissection
- Fish husbandry
- Fish behavioural analysis



DRUG DISCOVERY PLATFORM:
INDUCED PLURIPOTENT STEM CELL FACILITY

The induced pluripotent stem (iPS) cell system to generate adult human cells is an in vitro approach for drug discovery. iPS cells were discovered by Professor Yamanaka who was awarded he 2012 Nobel Prize. iPS cells can be transformed into any other cell type. The iPS cell system has created huge advances in drug discovery and cell therapy for individual patients as donor-free regenerative medicine. The iPS cells facility is operated by the Brain Research Institute (BRIMS), Jeffrey Cheah School of Medicine and Health Sciences.

KEY INSTRUMENTATION

- Biosafety cabinets (Class II)
- CO2 incubator with O2 regulation
- Single cuvette based transfection system

EXPERTISE

- Maintaining iPS cells on feeder cell culture
- Evaluation of iPS cell quality and passaging
- Banking and cryopreservation
- Establish and characterisation iPS cell

WORKING WITH US

- Consultancies
- Collaborative research
- Training program
- Education program

SERVICES AVAILABLE

- Characterisation iPS cells
- Pharmacological study

CONTACT

Associate Professor Tomoko Soga

E tomoko.soga@monash.edu
T +603 5514 6223

Drug Discovery Platform

Building 3, Level 3
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

SPECIALIST SERVICES

iPS cell system

Our iPS cell facility supplies and maintains human iPS cell and cover a wide range of iPS cells as below.

- Generation and characterisation of human iPS cells
- Material distribution related to human iPS cell
- Human iPS cell stock

DRUG DISCOVERY PLATFORM: SPF ANIMAL FACILITY

The SPF Animal Facility is Malaysia's first Specific Pathogen Free (SPF) facility and home to approximately 1,000 mice and rats. We have SPF rats and C57BL6N mice with health certifications and two transgenic lines of Wister rats. This platform provides laboratory animal research services. It is operated by the Brain Research Institute (BRIMS), Jeffrey Cheah School of Medicine and Health Sciences

KEY INSTRUMENTATION

- Anaesthetic machine
- Microinjection system
- Fume hood
- Rodent behaviour analysis system
- Rodent holding facility

EXPERTISE

- Rodent supply and customised breeding
- Supply technical and surgical support
- Access to surgical facilities

WORKING WITH US

- Collaborative research
- Consultancies
- Training program
- Education program

SERVICES AVAILABLE

- Operation of Animal
- Pharmacological study
- Behaviour test

CONTACT

Associate Professor Tomoko Soga

E tomoko.soga@monash.edu
T +603 5514 6223

Drug Discovery Platform

Building 3, Level 3
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

SPECIALIST SERVICES

Behaviour system

Our SPF animal facility supplies and maintains rodents. Our rodent behaviour analysis systems cover a wide range of animal behaviour test as below.

- Anxiety-like behaviour (open field test, light-dark transition test, elevated plus maze)
- Depressive behaviour (force swimming test, sucrose preference test)
- Circadian rhythm, sleep disorder (home cage activity)
- Schizophrenia-like behaviour (prepulse inhibition test)
- Social interactive behaviour (social interaction test, aggressive behaviour, sexual behaviour)
- Learning and memory (object placement test, eight-arm radial maze)
- Addiction (conditioned place preference test)

GENOMICS PLATFORM

The Monash University Malaysia Genomics Facility (MUMGF) is a research oriented infrastructure platform that provides genomics and bioinformatics services to researchers, students and clients, both internal and external, local and international. With compliance to ISO 9001 standards, MUMGF is committed to providing users and clients with the highest quality of services that will help achieve research objectives. Continuous assessment and improvement of management system also ensure high-throughput and fast turn-around time with maximum efficiency and consistency.

KEY INSTRUMENTATION

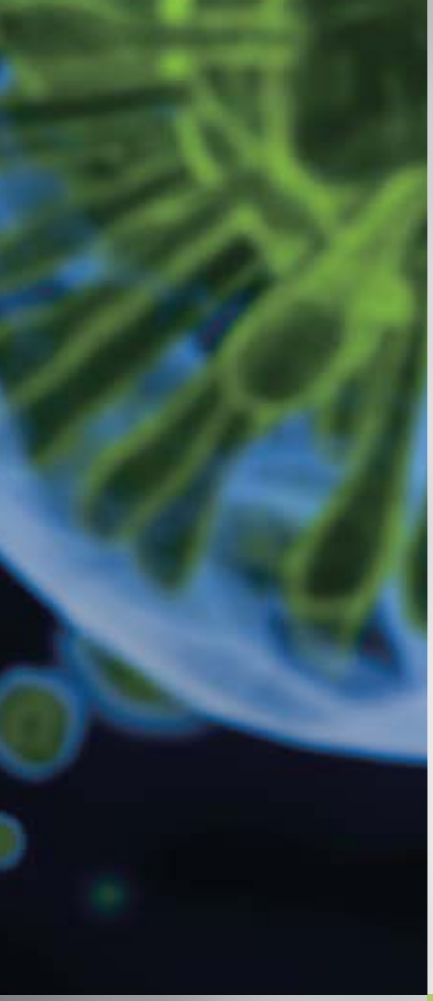
- Illumina MiSeq Sequencing System
- Oxford Nanopore Technology MinION Sequencer
- BluePippin Automated DNA Size Selection
- Agilent 2200 TapeStation
- Agilent 2100 Bioanalyzer
- Nanodrop 2000 UV-Vis Spectrophotometer
- Qubit® 2.0 Fluorometer
- Covaris M220 Focused-Ultrasonicator™
- Eco Real-Time PCR System
- High Performance Computers (up to 32 cores, 256GB RAM, Linux OS)

WORKING WITH US

- Fee for service
- Collaborative research
- Bioinformatics support
- Workshops

EXPERTISE

MUMGF staff are qualified and experienced to provide high quality services including preparation of samples, quality control, generation of DNA sequences, troubleshooting technical problems and bioinformatics support. MUMGF also supports the undergraduate science teaching program in genomics and bioinformatics.



CONTACT

Professor Sadequr Rahman
E sadequr.rahman@monash.edu
T +603 5514 6083 (Direct)

Mr Wilhelm Eng
E wilhelm.eng@monash.edu
T +603 5514 6000 (Ext:61727)

Ms Lee Yin Peng
E lee.yin.peng@monash.edu
T +603 5514 6000 (Ext:61878)

Genomics Platform
Building 3, Level 3, Room 3-3-20
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

www.monash.edu.my/mdp/tmb/research-clusters/genomics-facility
www.monash.edu.my/research/infrastructure/genomics

Certified System™
Quality
ISO 9001

SPECIALIST SERVICES

We support diverse fields of study and interdisciplinary research by providing the following services:

- Illumina Next-Generation Sequencing (ISO 9001 certified)
- Quantitative real-time PCR
- Microsatellite development
- DNA fragmentation
- DNA/RNA integrity assessment and quantification
- Microbial genome assembly and annotation

GERONTECHNOLOGY PLATFORM

The Gerontechnology Lab is a research platform that undertakes interdisciplinary research focused on developing technology for the aging population. The platform aims to translate research into new products and services as well as shape public policies to improve health and wellbeing of older people. Researchers apply scientific approach to understand the challenges and opportunities of longevity and provide in-depth and comprehensive insights into the real needs of the aging population, design age-friendly products and services, and promote an active and independent lifestyle.

WORKING WITH US

- Fee for service
- Consultancies
- Collaborative research
- Training

CAPABILITIES AND EXPERTISE

The Gerontechnology Lab was set up to deepen awareness and understanding as well as conduct research on the health and well-being, active aging and safe living of older adults using assistive technology. In addition, the Lab also serves as a centre for education and training, assessment and consultation concerning gerontechnology, home safety and independent living environment.

The design of the Gerontechnology Lab is based on the core of gerontechnology which focus on the impact of assistive technologies across five domains of human activity: (1) Health and Self-esteem; (2) Housing and Daily Living; (3) Mobility and Transport; (4) Communication and Governance and; (5) Work and Leisure. The Lab consists of four stations:

- Health Station – A locus for accommodating simple health checks and medical research.
- Cognitive Station – Consists of a range of gerontechnologies that involve cognitive processes.
- Kitchen Station – A gerontologically-designed kitchen housing various assistive household apparatuses.
- Living Hall Station – Features gerontological furniture and implements for the household.

CONTACT

Associate Professor Teh Pei Lee

E teh.pei.lee@monash.edu
T +603 5514 4971

Gerontechnology Platform

Building 6, Level 1
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

SPECIALIST SERVICES

Research

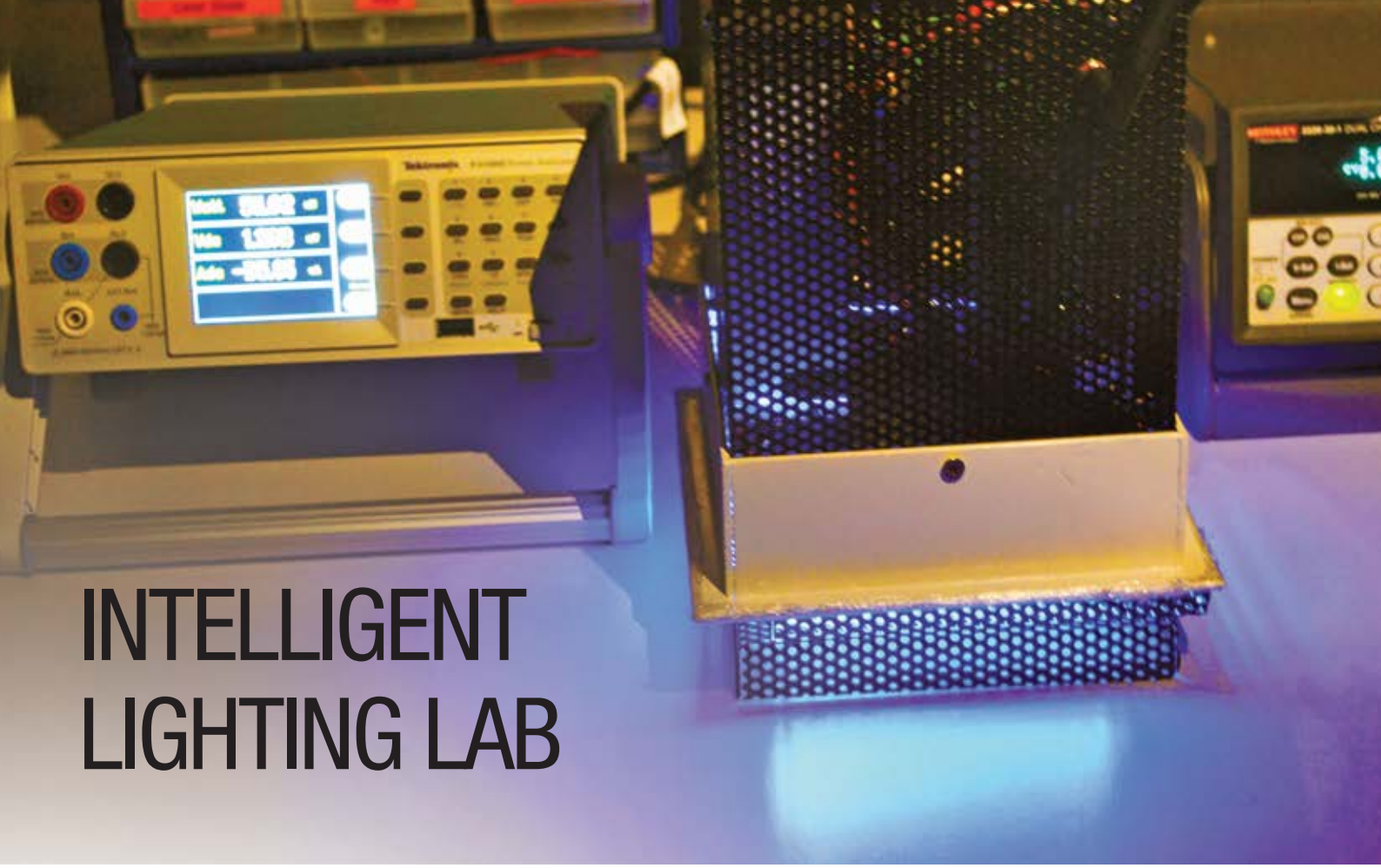
The lab engages students and researchers across Monash and partners in universities, business and government, locally and internationally. We have a pool of multidisciplinary research capabilities in engineering, robotics, information technology, usability, social science, psychology, health and medical fields that are of relevance to older adults. We undertake research and consultancy projects which help product developers, service providers and policy makers to improve the quality of life of older adults.

Age Simulation Suit

The age simulation suit is a modular design suit that can be worn by students, scientists, researchers, product developers, marketing personnel, caregivers and others to experience the physical conditions associated with aging. The age simulation suit has been calibrated to approximate age-related impairments such as joint stiffness, narrowing of the visual capacity and reduced grip ability. The suit can be used in teaching and learning as well as for research within home, community, retail and workplace settings.

Subject Registry

We have established a network to recruit subjects to participate in experiments and survey research on aging. We work in partnership with housing communities, non-governmental organisations (NGOs) and local hospitals and physicians to recruit a diverse range of volunteer older adults.



INTELLIGENT LIGHTING LAB

The Intelligent Lighting Laboratory exists to develop lighting systems which are human-centric, with a focus on the human user experience and well-being. It is a multidisciplinary infrastructure facility for research focusing on solid state lighting (SSL) and its applications in intelligent lighting, visible light communications (VLC) of lighting pattern recognition, gesture-based and mobile control and micro and nano devices. It has research links with multinational and Malaysian lighting companies, Sleep Research Centre (Monash Australia), and other leading centres of excellence in the region and Europe.

KEY INSTRUMENTATION

The ILL is equipped with state-of-the-art equipment such as

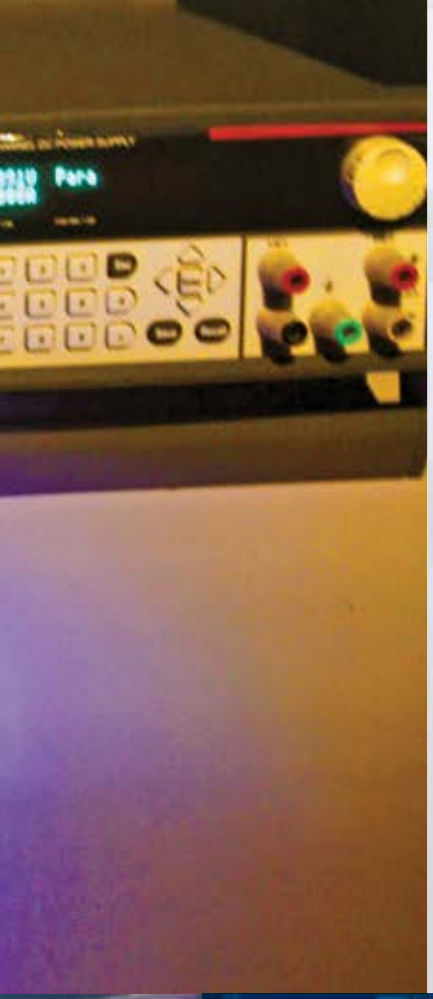
- Spectrophotometers, integrating spheres, light booths, tunable light sources
- Multi-spectral camera
- VLC test bed
- RF Magnetron sputtering and thermal evaporator for thin-film fabrication
- RF Probe station
- Chemical vapor deposition facility
- Semi-clean room fabrication facility for 4-inch wafer level fabrication

WORKING WITH US

- Collaborative research
- Fee for service
- Training

CAPABILITIES

- Photometry and radiometry
- Multispectral imaging
- Light profiling
- LED characterisation
- Wirelessly controlled lighting systems
- VLC system characterisation
- Micro and nano device manufacturing



CONTACT

Dr Vineetha Kalavally

E vineetha@monash.edu
T +603 55146253

Associate Professor Tan Chee Pin

E tan.chee.pin@monash.edu
T +603 55146205

Intelligent Lighting Lab

Building 5, Level 8
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

www.monash.edu.my/research/infrastructure/intelligent-lighting-lab

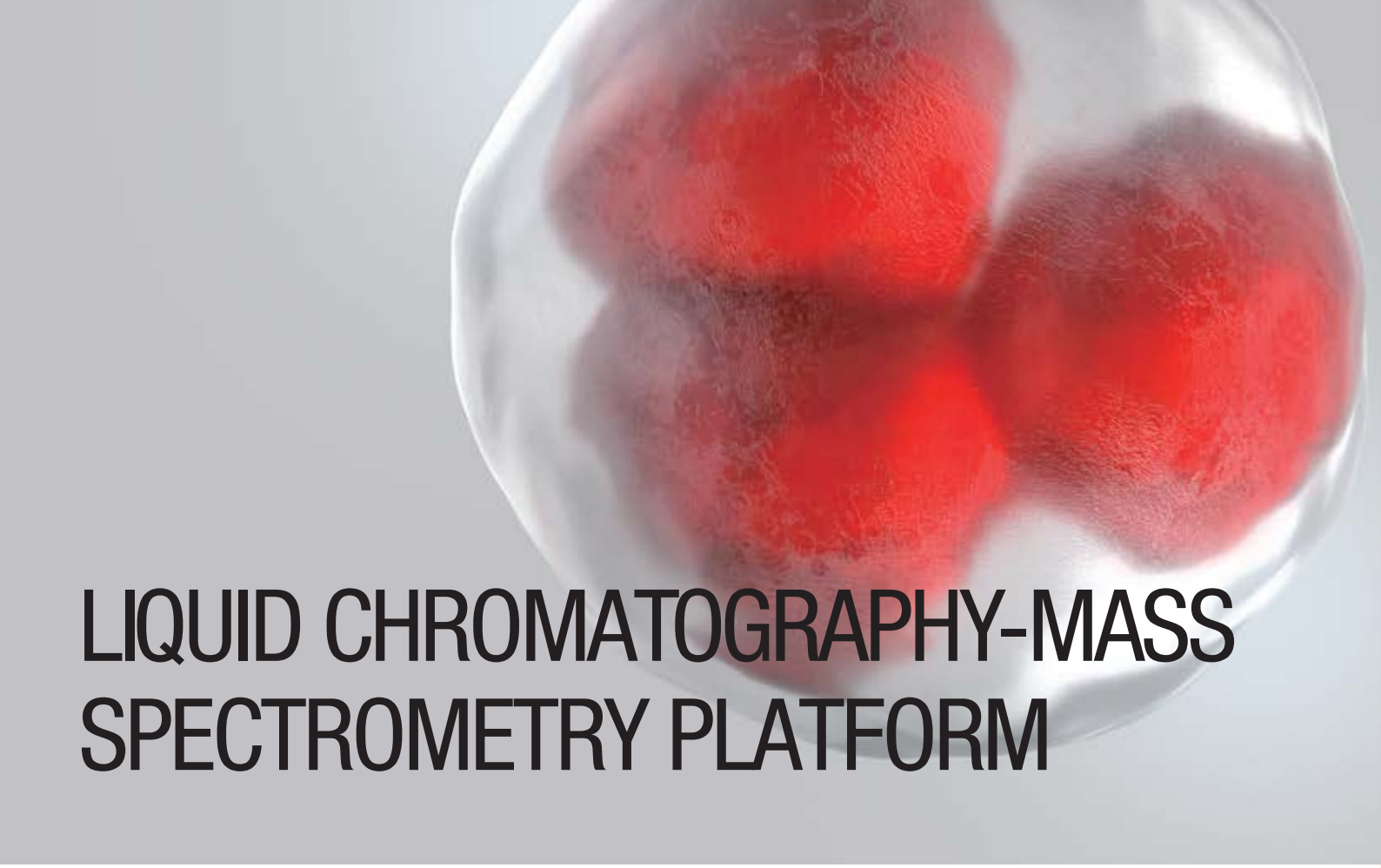
EXPERTISE

Our team works in collaboration with industry and academic partners and are specialists in

- Designing systems that employ LED luminaires equipped with sensors and spectral tuning features, tunable circadian lux, building mobile apps for lighting control, and control automation leading to future smart lighting systems.
- Using computer vision techniques to improve living conditions in smartly-lit rooms.
- Enhancing pattern recognition capability using optimised background lighting designed through state-of-the-art statistical machine learning algorithm.
- Developing effective hardware and software solutions for using LEDs and Laser Diodes for communication, lighting and positioning with a special emphasis on capacity crunch of upcoming Li-Fi systems.
- Designing and developing micro and nano devices for sensing purposes and UV LED based photolithography.

SPECIALIST SERVICES

- Photometric and Radiometric Characterisation of LEDs
- Spectral Imaging
- Calibrated Light Sources
- Light Booths with Standard Illuminants
- RF Magnetron Sputtering



LIQUID CHROMATOGRAPHY-MASS SPECTROMETRY PLATFORM

Liquid chromatography-mass spectrometry (LC-MS) is an extremely versatile analytical technique, which is used for the analysis and identification of small organic molecules, proteins and peptides that are present in animal, plant and microbial samples. These analyses are exceptionally crucial in the discovery of novel compounds and detection of trace organic molecules in complex mixtures. The capability of LC-MS system makes it useful in diverse fields, such as translational research, clinical diagnostics, drug discovery, environmental sciences, food and beverage assessment and industrial materials.

WORKING WITH US

- Collaborative research
- Training
- Consultancy
- Research services

KEY INSTRUMENTATION

Mass Spectrometers

- 6550 iFunnel Q-TOF coupled with either Chipcube nano-ESI source or Jet stream ESI source
- 6520 Accurate Mass Q-TOF with dual-ESI source
- 6210 Triple Quadrupole with ESI source

HPLC systems

- 1290 Infinity II UHPLC System (Agilent Technologies)
- 1290 Infinity I UHPLC System (Agilent Technologies)
- 1200 Series Nano and Capillary System (Agilent Technologies)

EXPERTISE

We work with research students, academics and commercial researchers to resolve their research questions on the identification, confirmation and quantification of their compound of interest, such as proteins or small molecules.

CONTACT

Professor Iekhsan Othman

E iekhsan.othman@monash.edu

Ms Nurziana Sharmilla Nawawi

Senior Technical Officer

E nurziana.sharmilla@monash.edu
T +603 5514 4405

LC-MS/MS Laboratory

Building 3, Level 2, Room 46
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

www.med.monash.edu.my/research/infrastructure/lc-ms-ms-laboratory

CAPABILITIES AND EXPERTISE

Discovery of unknown compounds

Be it small molecule like metabolites or large molecule like proteins, we are able to identify the molecules with the aid of our accurate mass Q-TOF systems and professional softwares such as Mass Hunter Workstations and PEAKS studio.

Confirmation of known compounds

Identity of a compound can be validated via targeted MS/MS analysis with the aid of comprehensive MS/MS database search.

Quantitative studies

By using targeted methodologies such as multiple reaction monitoring (MRM), we are able to quantify your compound of interest.

Intact mass determination

Determination of peptide or intact protein masses.

NANO-ANALYTICAL PLATFORM

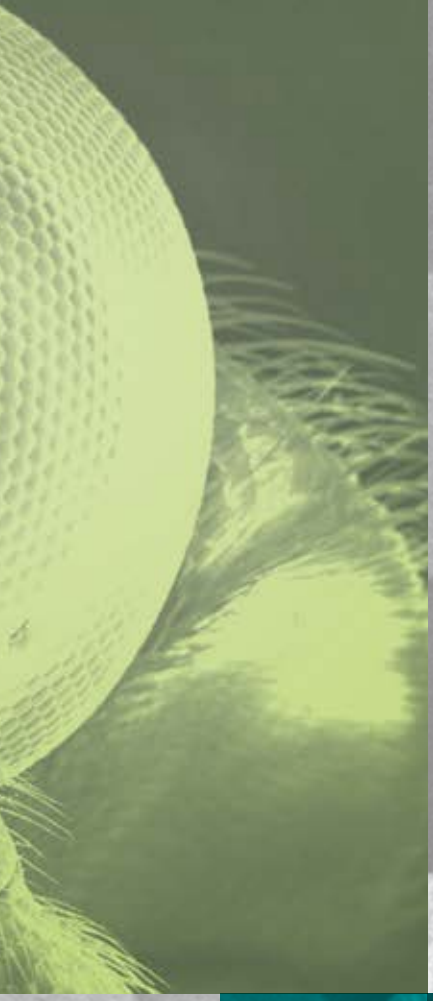
The Nano-Analytical Platform (NAP) is a multidisciplinary research infrastructure platform for nanoscale materials characterisation. NAP hosts 6 state-of-the-art instrumentations which facilitate the imaging and analytical investigation of materials from a wide range of scientific disciplines. With world-class facilities, we offer a diverse range of research and commercial capabilities. We welcome samples from industries, research institutions and universities as well as collaborations with researchers from the region and across the globe.

KEY INSTRUMENTATION

- High-Resolution Transmission Electron Microscope (HR-TEM) (FEI Tecnai G2 20 S-TWIN)
- Field-Emission Scanning Electron Microscope (FE-SEM) (Hitachi SU8010)
- Variable-Pressure Scanning Electron Microscope (VP-SEM) (Hitachi S3400N-II)
- Atomic Force Microscope (AFM) (Bruker Multimode 8)
- X-Ray Diffractometer (XRD) (Bruker D8 Discover)
- Raman-Photoluminescence Spectroscopy (Raman-PL) (Horiba LabRAM HR Evolution)

WORKING WITH US

- Collaborative research
- Training
- Fee services
- Consultancies



CONTACT

Mr Azarudin Ahmad
E azarudin.ahmad@monash.edu
T +603 5514 5649

Professor Chai Siang Piao
E chai.siang.piao@monash.edu
T +603 5514 6234

Nano-Analytical Platform
Building 5, Level 1
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

www.mum.soe.services@monash.edu
www.monash.edu.my/research/infrastructure/nano-analytical-platform

CAPABILITIES

Scanning and Transmission Electron Microscopy

- Secondary and backscattered electrons imaging
- High-resolution transmission imaging (200 kV)
- STEM analysis (via FE-SEM, HR-TEM)
- High angle annular dark field (HAADF)
- EDX analysis (via FE-SEM, HR-TEM)
- Ultramicrotomy

X-Ray Diffraction

- Small angle X-ray scattering (SAXS)
- Thin film analysis
- High resolution and 2D diffractometry
- Phase identification and quantification
- Lattice parameter measurement

Atomic Force Microscopy

- General imaging
- Lateral Force Microscopy (LFM)
- Electric Force Microscopy (EFM)
- Magnetic Force Microscopy (MFM)
- Conductive AFM (CAFM)
- Tunneling AFM (TUNA)
- Scanning Capacitance Microscopy (SCM)
- Surface Potential Mapping
- Electrochemical STM (ECSTM)
- Electrochemical AFM (ECAFM)
- Scanning Electrochemical Potential (SECPM)
- Piezoresponse Force Microscopy (PFM)
- Nanoidentation
- Force volume imaging and modulation

Raman-PL Spectroscopy

- Ultra-fast confocal Raman analysis and mapping
- 3 laser sources (325nm, 514nm, 785nm) covering UV-VIS-NIR region
- Photoluminescence analysis

NUCLEAR MAGNETIC RESONANCE PLATFORM

Nuclear Magnetic Resonance (NMR) spectroscopy is one of the most powerful and informative analytical techniques to take a closer look inside the matter of molecules. With its non-destructive character, this type of instrumental analysis allows a full recovery of the original sample.

KEY INSTRUMENTATION

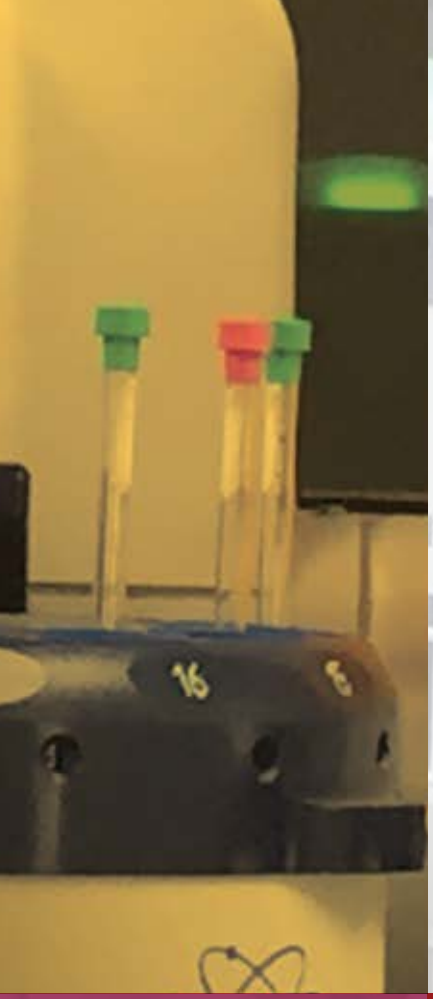
High resolution NMR Fourier 300 spectrometer (Bruker) with a dedicated dual 1H and 13C probe.

EXPERTISE

We offer advanced NMR expertise and state-of-art support for industrial, government and academic research. Together with routine NMR experiments, our experts offer help in identification of unknown materials, determination of chemical structures, properties of novel products, quantification of components in a mixture and analysis of conformational and molecular dynamics.

WORKING WITH US

- Collaborative research
- Training
- Fee services
- Analytical services



CONTACT

Associate Professor Anton Dolzhenko

E anton.dolzhenko@monash.edu

T +603 5514 5867

Nuclear Magnetic Resonance Platform

Building 4, Level 6
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

www.monash.edu.my/research/infrastructure/nuclear-magnetic-resonance

CAPABILITIES

The full range of solution NMR experiments are offered at operating frequency of 300 MHz, including routine 1- and 2D proton and carbon-13 experiments. Advice on experiment selection and data interpretation is also available.

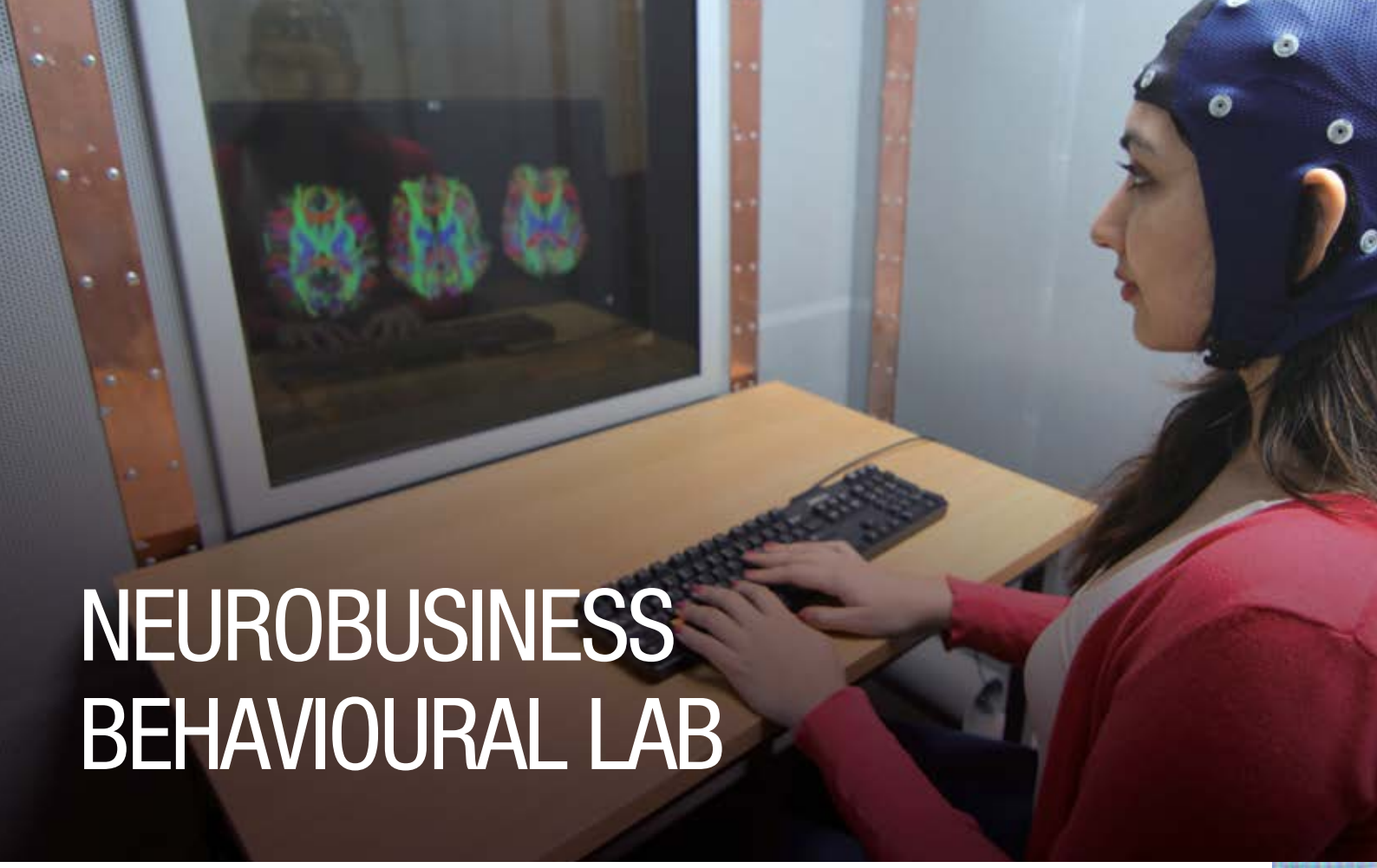
We provide service on NMR analysis, consultancy and training for internal and external customers.

You can outsource NMR analysis and let your facility focus on strategic projects while we guarantee rapid turnaround for your routine NMR sample analysis.

Typical analysis includes:

- Preparation of the sample using our tubes and solvents
- Data acquisition, processing and plotting of the spectrum with integrals, peak lists and expanded plots as needed
- Spectral interpretation, if requested
- Creation of a .pdf document containing spectral plots
- Multiplet analysis with coupling constant calculation
- Providing raw data files, if requested
- Return or disposal of the sample as requested

Trainings include workshops and individual (small group) training tailored to the customers' needs.



NEUROBUSINESS BEHAVIOURAL LAB

The Neurobusiness Behavioural Laboratory (NBL) is a research facility dedicated to human cognitive neuroscience with a special focus on applying high-level neuroscientific and behavioural research methods to social, economic and business topics. Researchers linked to the NBL investigate a wide variety of topics such as consumer behaviour, behavioural economics, the effects of poverty on brain development, the effects of lighting on brain activity and behavioural performance, the neuroscience of decision-making, human emotions, cross-cultural differences in decision-making, usability testing, behavioural finance and leadership behaviour. Our facilities include high-density EEG setups, eye-trackers, psychophysiological measurement setups, advanced behavioural testing facilities, data servers and specialist software.

KEY INSTRUMENTATION

- ANT EEG system – 32-channels
- EGI EEG system – 64-channels
- Cognionics EEG system – 32-channels, Wireless and portable.
- Two Tobii desktop-mounted eye-trackers
- A mobile Tobii eye-tracker
- Advanced behavioural setups (E-Prime software, response boxes, etc.)
- Faraday cage
- Data analysis servers & scientific software.
- Solutions for mental chronometry.

WORKING WITH US

- Collaborative research
- Training
- Consultancy
- Research services

CONTACT

Associate Professor Alexandre Schaefer
E alexandre.schaefer@monash.edu

Associate Professor Motoki Watabe
E motoki.watabe@monash.edu

Dr Nobuhiko Goto
E nobuhiko.goto@monash.edu

Neurobusiness Behavioural Lab
Building 6B, Level 4
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

www.monash.edu.my/research/infrastructure/neurobusiness-behavioural-lab

CAPABILITIES AND EXPERTISE

Brain Activity Measurement

Our lab has the capability to measure a wide range of electrical brain activity patterns including EEG oscillations and Event-Related potentials. This capability enables researchers to measure physiological markers of several psychological processes, including (but not restricted to) attention, memory, emotional arousal, prediction error and decision-making. The laboratory environment, which includes a Faraday cage, various specialist pieces of equipment and trained technical staff, enables researchers to optimally use these techniques for both fundamental and applied research studies.

Eye-tracking Research

With eye-trackers, a detailed and objective assessment of visual attention patterns can be measured. For instance, eye-tracking methods applied to website usability can provide insights on which sections of a website or advertisement poster attract the most or the least attention from users. This technique also allows the understanding of patterns.

Behavioural and Cognitive Experiments

Most laboratory-based cognitive processes (memory, attention, perception, decision-making, consumer behaviour, etc.) can be investigated using our behavioural experimentation setups that include research-dedicated desktops and laptops, specialist software to design and present stimuli on screen, and solutions to design experiments aimed at measuring mental chronometry.

ADVANCED ENGINEERING PLATFORM

The Advanced Engineering Platform (AEP) aims to undertake frontier research and educational innovation in engineering and technology that will contribute to the sustainable socioeconomic development in Southeast Asia. Our vision is to strive towards becoming the regional and international centre of research in the area of advanced engineering to support smart and sustainable living.

KEY FOCUS AREAS

AEP focuses on four clusters in:

Smart Industry, Smart Living

Develops various technologies and applications that can support industries in achieving higher productivity and also improve the daily living of humans.

Clean Energy and Portable Water

Envisions an equitable and sustainable society where everyone has clean water, renewable energy and a healthy environment in which to grow and thrive.

Smart Health Care

Focuses on using data to improve health care.

Nanotechnology

Focuses on engineering materials and systems at the nanoscale, and explores into the endless possibilities of nanotechnology for the benefits of human society.

KEY EXPERTISE

- Smart Industry, Smart Living – Internet of things, Automation, System integration, Data analytics, Autonomous vehicles (including drones)
- Clean Energy and Portable Water – Research and development of renewable energy technologies; Design, fabrication and characterisation of energy materials; Application of surface acoustic wave and filmwise evaporation; Water treatment and distillation, and water sensitive urban design implementation.
- Smart Health Care – Designing and building sensors and wearables to collect data; to develop data analytics to diagnose, assess risk, understand disease dynamics; and to provide early warning of disease onset, biosensor development and smart drug delivery.
- Nanotechnology Cluster – Our expertise lies in the fields of nanoenergy, nanomaterials synthesis, nano-fabrication, nano-bioengineering, and molecular dynamics simulations.

CONTACT

Professor Tey Beng Ti
Director
E tey.beng.ti@monash.edu
T +603 5514 6240

Professor Khu Soon Thiam
Deputy Director
E soon.thiam.khu@monash.edu
T +603 5515 9659

Ms Mohanapriya Iyadorai
Administrative Executive
E mohanapriya.iyadorai@monash.edu
T +603 5514 5607

Advanced Engineering Platform
Building 5, Level 4
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

monash.edu.my/mdp/aep

SPECIALIST SERVICES

Smart Industry and Living
- Contract research
- Fundamental research
- Prototyping
- System design

Clean Energy and Portable Water
- Contract research
- Training courses on renewable energy
- Water treatment technologies

Smart Health Care
- Consultancy

Nanotechnology Cluster
- Characterisation and testing of nanomaterials
- Contract research

BRAIN RESEARCH INSTITUTE AT MONASH SUNWAY (BRIMS)

The Brain Research Institute at Monash Sunway (BRIMS) is an internationally recognised Neuroscience platform affiliated with the Jeffrey Cheah School of Medicine and Health Sciences at Monash University Malaysia. BRIMS has contributed significantly to the growth of Brain Science since its establishment in 2006 as a small research lab. Today, BRIMS takes pride on its cutting-edge facilities for researchers to conduct world-class research in Malaysia by providing our technical expertise as well as training opportunities.

KEY FOCUS AREAS

BRIMS focuses on the following five research areas:

Depression

This group aims to understand the cause of depression and anxiety from a range of aspects including biochemical, physiological, pharmacological, genetic, behavioural, environmental and social factors.

Drug Discovery

This group aims to establish human pluripotent stem cells (PSCs) and zebrafish as models for human brain diseases and for drug screening.

Addiction

This group aims to understand neuronal circuits linking negative emotion and addiction.

Neurodegeneration

This group utilises genomics approaches (transgenic and knock-out), single-cell gene expression analysis, DNA microarray, RNAi, and microRNA to address the molecular mechanism of age-related neurodegenerative diseases such as Alzheimer's and Parkinson's diseases.

Autism

Autism spectrum disorder (ASD) is associated with difficulties in social interaction, verbal and nonverbal communication and repetitive behaviours. This group aims to understand the neurochemical basis of autism.

CONTACT

Professor Ishwar Parhar
Director
E ishwar@monash.edu
T +603 5514 6304

Dr Shogo Moriya
Senior Research Fellow
E moriya.shogo@monash.edu
T +603 5514 6164

Associate Professor Tomoko Soga
Drug Discovery Platform
E tomoko.soga@monash.edu
T +603 5514 6223

Ms Nicola Ng
Senior Administrative Executive
E nicola.ng@monash.edu
T +603 5514 6372

Dr Satoshi Ogawa
Bioimaging Platform
E satoshi.ogawa@monash.edu
T +603 5514 6351

Brain Research Institute at Monash Sunway
Jeffrey Cheah School of Medicine and Health Sciences
Building 3, Level 3
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

med.monash.edu.my/research/platforms/brims

KEY EXPERTISE

- Bioimaging
- Functional Genomics
- Neurochemistry
- Stem cell (iPS cell)
- SPF Rodent / Transgenic Fish

SPECIALIST SERVICES

- Histology / Morphology
- In-situ Hybridisation
- Laser Capture Micro Dissection
- Deep Tissue 3D Imaging of Fixed Sample
- Immunohistochemistry / Cytochemistry
- Fluorescent In Situ Hybridisation
- Fluorescent Immunohistochemistry / Cytochemistry
- High Speed Live Confocal Imaging
- Ca^{2+} Imaging
- Photostimulation Analysis
- Extraction, Isolation and Characterisation (plant / compound)
- Toxicity Test (In Vitro)
- Pharmacological Screening (In Vitro)
- Molecular Pharmacological Study (In Vitro / In Vivo)
- Reporter Assay (In Vitro)
- Behaviour Analysis

GLOBAL ASIA IN THE 21ST CENTURY

In the modern world, Asia features prominently on the global stage – be it in the shape of social, economic, cultural, religious, political or technological change. This coming of age, increasingly called the "Asia Turn", defines the focus of the Global Asia in the 21st Century (GA21) research platform. GA21 takes a leading role in identifying and researching key issues that impact Asia, its communities and beyond. It locates 'Asia in the Global' and the 'Global in Asia' through a multidisciplinary focus on people, organisations and society.

RESEARCH CLUSTERS

Market Analytics

Explores the intersectionality between markets, industry and society to understand behaviours for improving the socioeconomic well-being of communities and countries in the Asian region. This cluster focuses on how Asian firms interact with and respond to the dynamics of changing market structures. It studies consumer behaviour within specific institutional, national and regional socio-political contexts using empirical methods to understand how these dynamics impact societies in the region and globally.

CORE EXPERTISE AND CAPABILITIES

- Behaviour of Consumers, Firms and Society
- Data Analytics for Decision-Making
- Innovation and Industry Competitiveness

Sustainable Development

Focuses on economic growth and development that is socially inclusive, environmentally benign and prosperous for society. The cluster promotes sustainable development in Asia by integrating economic, environmental and social dimensions of development to enhance awareness amongst researchers, policy makers and the general public.

CORE EXPERTISE AND CAPABILITIES

- Sustainable Development
- Poverty, Income Inequality and Climate Change
- Pollution and Natural Resource Scarcity

Society and Culture

Asian societies are undergoing rapid change in their social and cultural spheres. These rapid and often multiple transformations put Asian societies under tremendous pressures to adapt to the challenges of regionalisation and globalisation. This research cluster looks into the dynamic formation of social and cultural change, actors and coalitions involved, and the newly emerging forms of governance.

CORE EXPERTISE AND CAPABILITIES

- Social and Cultural Change
- Human Rights, Gender, Citizenship and Freedom
- Social Novements and Non-governmental Organisations (NGOs)
- Politics and Governance

CONTACT

Professor Pervaiz K Ahmed

Director

E pervaiz.ahmed@monash.edu
T +603 551 46281

Global Asia in the 21st Century

Building 6, Level 4
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

Halal Ecosystem

Researchers of this cluster are committed to working with individuals, institutes and nation states for the betterment and benefit of global society. The cluster aims to shape policies and programs for the nurturance of vibrant national halal ecosystems, and advance understanding through a process of conducting rigorous research on a wide range of issues impacting Muslims and Muslim societies and their interactions with broader global society.

CORE EXPERTISE AND CAPABILITIES

- Holistic Understanding of the Halal Ecosystem
- Halal as Driver of Economic Development
- Marketing and Branding for Halal Consumer Markets

Health and Wellbeing

This multidisciplinary cluster examines health and wellbeing in the workplace, rural villages and urban cities, family health and aging in relation to culture, globalisation and societal changes. It also explores traditional or indigenous medicines in relation to culture and religion.

CORE EXPERTISE AND CAPABILITIES

- Communicable and Noncommunicable Diseases
- Drug Discovery and Development
- Psychology and Counseling
- Global Health and Evidence Synthesis
- Work, Wellness and Stress

Science, Technology and Society

Science and technology interact with and shape society in a complex dynamic manner and enable corporations, social groups and individuals to connect with and create novel and transformative experiences. Advances in science and technology increasingly define the nature of life, work and play. Researchers in this cluster explore transformative changes taking place across a vast range of arenas, from mundane automation of daily chores to complete re-imagination of social spaces, economic activity and life.

CORE EXPERTISE AND CAPABILITIES

- Social Networks and Media Communications
- Technology, Science and Health
- Industry Transformation Through Advanced Technologies
- Technology and Economic Development

KEY EXPERTISE

The platform supports diverse research clusters where communities of multidisciplinary scholars come together to establish and critically interrogate research themes that explore Asia's economic, social, political and social emergence on the global platform.

SPECIALIST SERVICES

- Collaborative research
- Fee for service
- Training
- Analytical services
- Consultancy

MONASH-INDUSTRY PALM OIL EDUCATION AND RESEARCH

Palm oil is the world's most produced and consumed oil. The industry is a key economic driver for Indonesia and Malaysia and contributes an export revenue of about USD 18 billion and USD 12 billion, respectively. The global demand for palm oil continues to rise, owing to population growth and insufficient production of competing oils.

In Malaysia, the government has identified palm oil industry as one of the twelve National Key Economic Areas (NKEA). To stay at the forefront of this industry, the government has formulated key strategies to improve productivity and to expand downstream high-value oleo derivatives. By 2020, the industry's contribution to Gross National Income is expected to increase to USD 40 billion, along with the creation of approximately 180,000 new jobs.

Monash-Industry Palm Oil Education and Research (MIPO) is a platform for university-industry-government cooperation aimed to improve the competitiveness and sustainability of the palm oil industry in the country and beyond.

CONTACT

Professor Chan Eng Seng

Director

E chan.eng.seng@monash.edu
T +603 5514 5821

Monash-Industry Palm Oil Education and Research

Building 5, Level 4
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

KEY EXPERTISE

The platform supports and promote university-industry linkages and cross-disciplinary collaboration to develop innovative solutions for the palm oil industry through research, education and training. We have expertise in the following four clusters:

Food Innovation and Security

This cluster will focus on the development of innovative palm oil-based food, nanoemulsion and specialty oils and fats, the delivery of palm phytonutrients, reduction of process contaminants (3-MCPD, 2-MCPD, GE) and other related innovations.

Social and Environmental Sustainability

Social and environment sustainability aims to enhance environmental management practices of oil palm growers and social-economic and health sustainability of plantation community.

Waste to Wealth

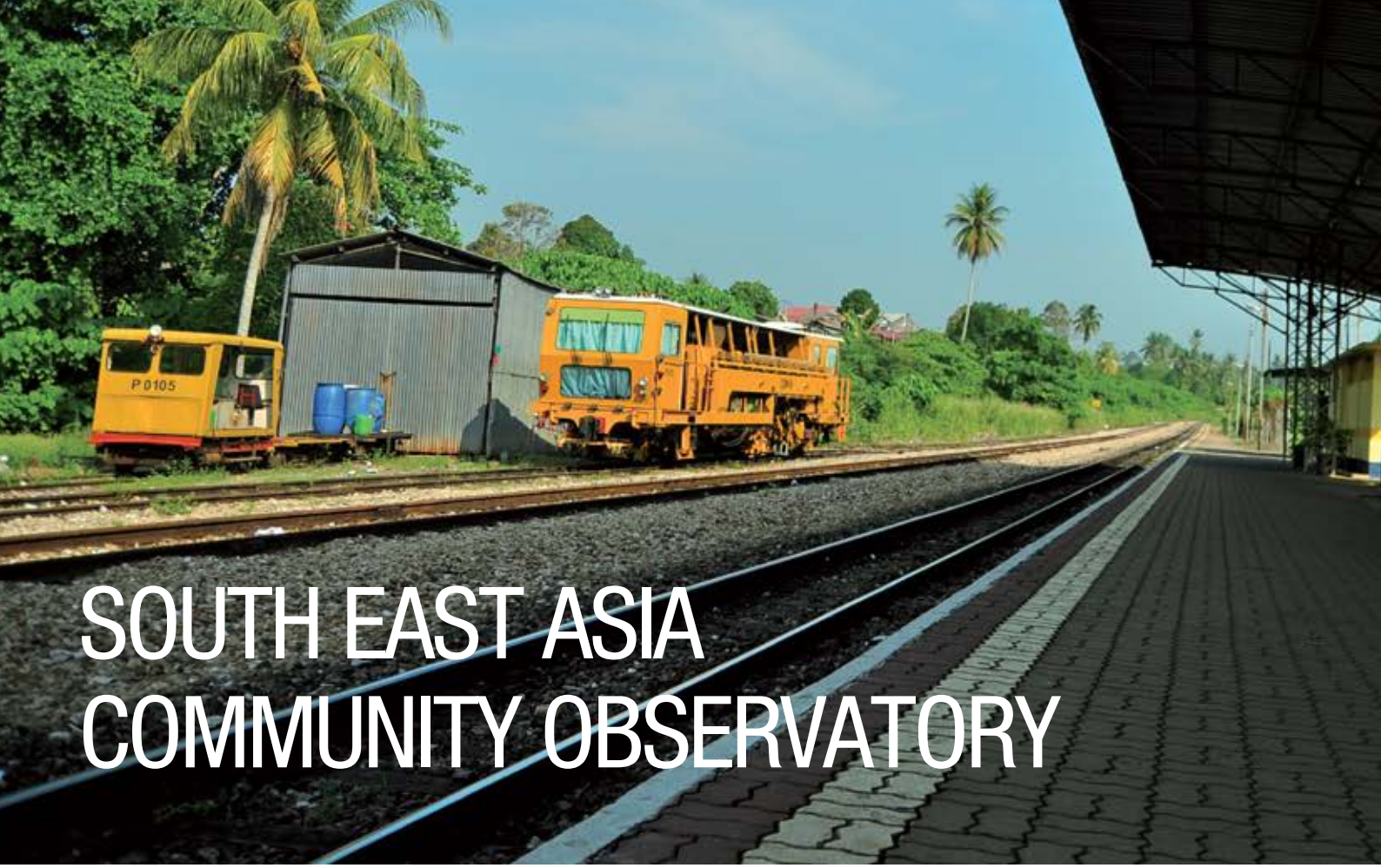
This cluster will focus on fractionation of palm biomass, production of energy and functional materials from palm waste, evaluation of biological activities of palm biomass, etc.

Palm Oil Production and Derivatives

The cluster on palm oil production and derivatives will focus on refining and downstream processing of palm oil, production of biodiesel, specialty oils and fats, oleochemicals and other related derivatives.

SPECIALIST SERVICES

- Collaborative research
- Fee for service
- Training
- Analytical services
- Consultancy



SOUTH EAST ASIA COMMUNITY OBSERVATORY

The Monash South East Asia Community Observatory (SEACO) is a research platform in population health and wellbeing in regional Malaysia – a high middle-income country.

Launched in late 2011, the platform's primary purpose in Segamat is to collect salient and high-quality data to gain insights into the factors that affect health in a whole of life context.

SERVICE MODELS

We offer our partners and collaborators access to unique data as well as the capability to research specific health and social issues on an existing platform. All primary data collection is governed by strict ethics protocols to protect the privacy of the participants, regardless of the service model.

Industry funded trials

These range across health promotion technologies, diagnostics, drugs and vaccines. They can be used from sampling frames to the complete implementation of community-based clinical trials.

Inclusion of specific questions

Have your research questions included in our routine surveys.

Data collection

We can help with undertaking your data collection on a sample independent of our routine update rounds.

High degree placements

We can place higher degree by research students who would use SEACO infrastructure to undertake their primary data collection.

EXPERTISE

We are not a traditional cohort study. Our expertise lies in us being a partner with the community of Segamat. People from the community work with us, and for us. We have many volunteers who dedicate their time and efforts because they are passionate about improving their community. We are supported by high-profile researchers nationally and internationally. SEACO is cross-faculty, cross-disciplinary and multi-institutional. Our major supporters are the Faculty of Arts (Monash University) and the Jeffrey Cheah School of Medicine and Health Sciences.

WORKING WITH US

- Collaborative research
- Fee for service
- Training

CONTACT

Nirmala Devarajan

E info@seaco.asia
T +607 9310240

South East Asia Community Observatory (SEACO)

6th. Floor, Wisma Centrepoint
Jalan Sia Her Yam, Segamat
85000 Johor Darul Takzim, Malaysia

www.seaco.asia

SPECIALIST SERVICES

By collecting salient, high-quality data, we are able to provide the medical research community, government and industry with a solid understanding of the health and social issues facing middle-income communities. This, in turn, allows greater insight into the impact of policy and commercial decisions on the health and wellbeing within these populations.

Data collection

The strength in our data is its relevance to the community. We work in partnership with all levels of the Segamat community through activities such as family days, health clinics, professional seminars and medical education programs.

Research

Our platform provides an ideal setting for higher degree by research students, including masters and PhDs. We also support research students from other institutions who are interested in undertaking research through primary data collection, taking advantage of the research infrastructure or through the analysis of secondary data collected by our platform.

TROPICAL MEDICINE AND BIOLOGY

The advances in physics in the early twentieth century transformed the way we use inanimate materials. Similarly, the significant developments in biology in the past 50 years are now enhancing our ability to understand and shape the biosphere. This platform aims to drive this transformation in our region and for the tropics.

We are energetic leaders in research, teaching and outreach in tropical medicine and biology that is locally relevant and globally significant. Our researchers generate and capture new advances, solve research problems, and acquire new knowledge within our areas of expertise – all that are relevant to Malaysia and the tropics, and benefit the wider community.

KEY FOCUS AREAS

Food Security and Biodiversity

Food security and biodiversity are crucial to our shared vision of a sustainable and prosperous planet, and this cluster's focus is on maximising the value of the rice crop and protecting our bioresources. Our research has involved the examination of allelic variation in rice lines at genome level, mutation in domestication genes, changes in agronomic traits of weedy rice, the analysis of chloroplasts, amyloplasts and rice starch biosynthesis, the isolation of bacteria from extreme environments, and population genetics of birds.

Telemedicine

This cluster is committed to the use of ICT to improve the sustainability, affordability and accessibility of healthcare. We are involved in all aspects of eHealth ranging from technologies to monitor health and illness, and deliver healthcare at a distance; centralising health records to improve healthcare planning, to strategizing eHealth Ecosystem at the national level.

We also run annual telemedicine conferences for policy discussions and applications, as well as the Telemedicine Innovation Challenge to encourage ideas in eHealth related translational research.

CONTACT

Professor Sadequr Rahman
Director
Food Security and Biodiversity
E sadequr.rahman@monash.edu
T +603 5514 6083

Associate Professor Wong Chee Piau
Telemedicine
E wong.chee.piau@monash.edu
T +603 5514 6338

Associate Professor Sharifah Hassan Syed
Immunity and Infection
E sharifah.syedhassan@monash.edu
T +603 5514 6340

Professor Shajahan Yasin
Clinical Research
E shah.yasin@monash.edu
T +603-5514 6000

Professor Maude Phipps
Human Genomics
E maude.phipps@monash.edu
T +603 - 5514 5848

Professor Sunil Lal
Systems Biology
E sunil.lal@monash.edu
T +603 5515 9606

Associate Professor Qasim Ayub
Genomics
E qasim.ayub@monash.edu
T +60 3 5514 6106

Tropical Medicine and Biology
Building 3, Level 3
Monash University Malaysia
Jalan Lagoon Selatan, 47500 Bandar Sunway
Selangor Darul Ehsan, Malaysia

monash.edu.my/mdp/tmb

Immunity and Infection

This cluster provides a platform for microbiologists, immunologists, epidemiologists, pathologists, biochemists, geneticists, clinicians and sociologists to venture into research involving pathogens, their hosts and the impacts on environment and society. With a particular focus on dengue and mosquito-borne diseases, we work with diverse groups in providing insights into the incidence, diagnosis and treatment of viral diseases.

Clinical Research

This developing cluster uses Monash University Malaysia's expertise and access in the study of clinical conditions to provide stronger links between lab-based and bed-based observations and insights. We aim to harness the capabilities of Monash clinicians based in Johor Bahru.

Human Genetics

Our evolutionary history, with its various footnotes and implications for health and disease, are just beginning to be told. Our researchers have track records in the areas of community fieldwork, indigenous and multi-ethnic engagements, biomedical studies, population genetics, human-microbiome interactions, big data analyses and bioinformatics. We utilise the latest techniques to study our shared genomic histories and the unique genetic features that can inform the fields of human migration, evolution, adaptation to various environments, genomic medicine and health.

Systems Biology

Insights into how cells and organisms carry out their functions has led to the appreciation that the cell is more than just a catalogue of the constituent molecules. We are developing this area using model systems, particularly influenza infections of human cell lines. Gene expression data of the host or the virus has contributed to our knowledge on virulence factors, biomarkers, host immunity and dynamics of infection. Our underlying aim is to identify the interacting partners that help virus establish a successful infection in the host.

Genomics

High throughput sequencing of DNA and RNA permits unprecedented insights into the genome and transcriptome and aids in understanding its organisation and regulation. This technology platform stands alone but is closely aligned to TMB. For further details of its capabilities, please visit monash.edu.my/mdp/tmb/research-clusters/genomics-facility

KEY EXPERTISE

- Genomics and Epigenomics of Rice Nuclear, Chloroplast and Mitochondrial DNA
- Rice Starch Quality
- Population Genetics
- Community Engagement
- Indigenous Health
- Microbiology
- Microbiome Studies
- Novel Foods
- Diagnostics at a Distance
- Smart Biomedical Devices
- Virology, particularly Dengue and Influenza
- Small RNAs
- Human Evolutionary Genetics
- NGS and Bioinformatics (see Genomics website)

SPECIALIST SERVICES / TRAINING PROGRAMS

- Sequencing and bioinformatics services (see Genomics website)
- Determination of DNA methylation
- Periodic training programmes in human genomics, research ethics, good laboratory practice, bioinformatics
- Virus culture
- Growth facilities for temperate plants
- Identification and culture of bacteria

CONTACT US

Business hours:
Monday to Friday 8.30am – 6.00pm

Counselling hours for course enquiries:
Monday to Friday 8.30am – 6.00pm

Closed on weekends and public holidays.

Enquiries

T +60 3 5514 6000
F +60 3 5514 6001
E mum.info@monash.edu

Address

Monash University Malaysia
Jalan Lagoon Selatan
47500 Bandar Sunway
Selangor Darul Ehsan
Malaysia

monash.edu.my

monashmalaysia

Produced by Campus Research Management with Marketing and Future Students, Monash University Malaysia

DULN002(B)

December 2017

Co. No. 458601-U
(Date of establishment: 20 March 2000)

Monash University Malaysia is a joint venture

Jeffrey Cheah Foundation | MONASH University

Research in Automation
MONASH UNIVERSITY MALAYSIA

Dr. Veera Ragavan S
Senior Lecturer, Mechatronics

17 Years Industrial Experience; 10 Years in Teaching

- ✓ Design, integration, installation, and maintenance of Automation and Robotic Systems for various industries
- ✓ Trained engineers on Automation and Robotic Systems
- ✓ Trained engineering undergraduate and postgraduate research students on designing and building Automation and Mechatronics Systems
- ✓ Conduct scholarly research in Industry 4.0
- ✓ Consultant to various industries on Automation

Dr. Veera Ragavan S
Senior Lecturer, Mechatronics

- **Factory Automation Design expertise related to Rubber Industries**
  - ✓ Pneumatics, Electro Pneumatics, Valve Terminals
  - ✓ Hydraulics,Electro-Hydraulics, RTU's
  - ✓ Servo and Proportional Pneumatics and Hydraulics
  - ✓ Industrial Control : PLC's , DCS, SCADA networks, Fieldbus and Industrial Networking
  - ✓ Robots and Industrial Drives
  - ✓ Telematics

Dr. Veera Ragavan S
Senior Lecturer, Mechatronics

Recent and Current Industrial Engagements

- ✓ **2015:** Remote monitoring and Fault detection in Monorail Bogies (Scomi Rail)
- ✓ **2017:** Low-Cost Factory Automation Project (MetTube)
- ✓ **2017:** Connected vehicle project (APM)
- ✓ **2017:** Research on automation solutions for the textile and apparel industry (MATAC)

Dr. Veera Ragavan S
Senior Lecturer, Mechatronics

Research Publications in Automation:

- ✓ Simple low-cost autopilot system for UAVs (2011)Towards an ontology for autonomous robots (2012)
- ✓ Design of a mechatronic drive train with regenerative braking (2012)
- ✓ Applied ontologies and standards for service robots (2013)
- ✓ Machine vision for intelligent semi-autonomous transport (2012)
- ✓ Rapid automation application deployment framework for real-time process and industrial automation systems (2014)
- ✓ Design of a pneumatic drive train with regenerative braking (2015)
- ✓ Engineering cyber-physical systems - mechatronics wine in new bottles? (2016)
- ✓ Towards a general framework for design synthesis and development of mechatronics and cyber-physical systems (2016)

Dr. Tan Chee Pin
Associate Professor, Mechatronics

- Trained engineering undergraduate students on principles of modelling and feedback control theory for process regulation/improvement
- Conduct scholarly research and trained postgraduate research students in area of modelling, state estimation and condition monitoring of dynamic engineering systems

Dr. Tan Chee Pin
Associate Professor, Mechatronics

Recent and Current Industrial Engagements

- ✓ **2015:** Compact robotic manipulator for automated storage and retrieval system (ABB)
- ✓ **2017:** Research on automation solutions for the textile and apparel industry (MATAC)
- ✓ **2017:** Development of mobile platform for collaborative robots (ABB)
- ✓ **2017:** Smart robotic cell for machine parts inspection (ABB)
- ✓ **2017:** Visual inspection system for defect detection of corrugated boxes (BoxPak)
- ✓ **2017:** Speed monitoring system for forklifts (Kian Joo)

Dr. Tan Chee Pin
Associate Professor, Mechatronics

Research Publications in Automation:

- ✓ A Robust Fault Estimation Scheme for a Class of Nonlinear Systems (2017)
- ✓ A common functional observer scheme for three systems with unknown inputs (2016)
- ✓ Fault detection in a rotational system with an eccentric load using sliding mode observer (2015)
- ✓ New results in robust functional state estimation using two sliding mode observers in cascade (2014)