

MONASH INSTITUTE OF PHARMACEUTICAL SCIENCES

Better Medicines by Design





WORLD-CLASS PHARMACY AND PHARMACEUTICAL SCIENCE RESEARCH

Monash Institute of Pharmaceutical Sciences (MIPS) can trace its roots to 1881. Today, MIPS is a dynamic, innovative and ambitious centre of research and learning, with a growing emphasis on cutting edge global projects.

More than 450 MIPS scientists research drug discovery, design, delivery and use. Our therapeutic strengths lie in neuroscience and mental health, cardiovascular and metabolic health and global health

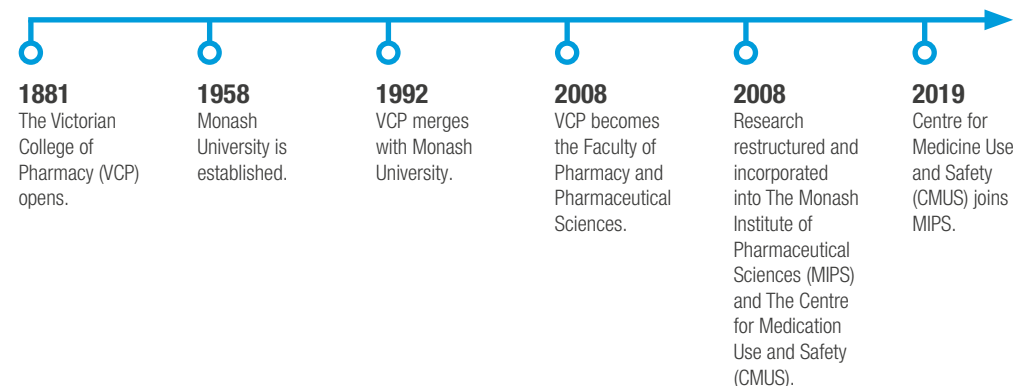
We are committed to research translation and have made major contributions to collaborative drug

discovery programs that have progressed more than 30 novel drug candidates into clinical development.

MIPS is housed at the Monash University Parkville campus, the university's most research-intensive campus.

In addition to our research scientists and graduate students, the Parkville campus is also home to approximately 2000 undergraduate students. Our major undergraduate programs are the Bachelor/Master of Pharmacy, and Bachelor of Pharmaceutical Science.

MIPS HISTORY



MIPS BY THE NUMBERS

#1 

in Australia and Asia Pacific for Pharmacy
and Pharmacology (QS 2016-2021)

Top 2

globally for Pharmacy
and Pharmacology (QS 2021)

>\$35

million external research income

>350

publications per year


200

PhD candidates

260 

staff

MONASH UNIVERSITY BY THE NUMBERS

#1



Australia's largest university with
the broadest international profile and
footprint

>\$400

million in research annually

#59

globally in the 2019 QS world
rankings



75,000+

students

#28

worldwide in Life Sciences and
Medicine





AREAS OF EXPERTISE

RESEARCH SPECIALISATION

Our research programs focus on:

- drug discovery biology
- medicinal chemistry
- drug delivery, disposition and dynamics
- drug candidate optimisation
- medicine use and safety.

Within these broad areas we have particular skills in:

- the pharmacology of G protein-coupled receptors (GPCRs) and the role of allosteric and biased signalling in receptor pharmacology
- structure-based drug design and the use of fragment-based screening in drug discovery
- identification of optimal pharmaceutical properties for drug molecules during hit-to-lead and lead optimisation through to candidate selection
- oral and pulmonary drug delivery and the use of nanomedicines in optimised drug therapy
- pharmacoepidemiology and pharmacometrics.

THERAPEUTIC PROGRAM AREAS

Much of our collaborative work in medicinal chemistry, drug delivery, lead optimisation and medicine use is disease agnostic, however, we have an internal focus in three main therapeutic areas:

- neuroscience and mental health
- cardiovascular and metabolic health
- global health.

Within these areas we have major programs in neuropsychiatric disorders, metabolic disease, heart failure, fibrosis, chronic pain, addiction and malaria.

INFRASTRUCTURE

We operate a range of research facilities directed towards translational drug discovery.

These include state-of-the-art imaging covering optical (confocal, super-resolution, CARS) and electron microscopy (single particle cryo-EM); MALDI mass spectrometry imaging and in vivo imaging (2-photon, tomographic fluorescence, CT); chemical profiling and bioanalysis (NMR, mass spectrometry); proteomics and metabolomics; fragment-based drug screening (NMR, SPR); pharmacometrics and ADME-PK profiling.



SAVING LIVES AT BIRTH

Inhaled Oxytocin

Excessive bleeding during or after birth is the largest pregnancy-related cause of death. Oxytocin, given by injection in developed countries, manages this risk. However, current injectable products require refrigeration and training to administer and in resource-poor settings, this often limits access.

A MIPS team is developing an oxytocin formulation that is stable at room temperature and administered by inhaling into the lungs, something that can be done with non-medically trained staff.

Now in Phase 2 of clinical trials, current partners include Johnson & Johnson, the McCall MacBain Foundation and Saving Lives at Birth. Previous support was also provided by GSK.

OUR RESEARCH THEMES

DRUG DISCOVERY BIOLOGY

Our work in pharmacology and drug discovery has a sustained impact on the understanding and treatment of major global health burdens.

Our five major research capability strengths are structural biology, chemical biology, cellular biology, integrated biology and translational biology.

Our principal therapeutic focus areas are neurological disease, cardiovascular disease and metabolic disease. We also have interests in pain, inflammatory disease and cancer. We also serve as the headquarters of the ARC Training Centre for Cryo-Electron Microscopy of Membrane Proteins for Drug Discovery.

We have specific interests in: the structure and function of G protein-coupled receptors (GPCRs), the role of allostery and bias in receptor signalling, particularly in neuroscience, the genes, proteins and pathways that are important in metabolic disease and the development of new treatments for heart failure resulting from interruptions in coronary blood supply (such as in heart attack) or as a result of diabetes.

MEDICINAL CHEMISTRY

Our major areas of research focus are in synthetic medicinal chemistry, structure-based drug design, fragment screening and academic drug discovery.

Our research strengths also include peptide science, chemical-biology and computational chemistry.

We headquarter the ARC Training Centre for Fragment Based Design, a national training centre with collaborators from Griffith University and the University of Sydney and research partners including CSIRO, Takeda, and Vernalis. We are also home to the Australian Translational Medicinal Chemistry Faculty.

Historically, our achievements include Zanamivir (Relenza®), a first in-class antiviral drug developed to treat and prevent influenza. More recently we have spun out start-ups including Cincera and Inosi Therapeutics to develop novel agents to treat metabolic disease and fibrosis.

DRUG DELIVERY, DISPOSITION AND DYNAMICS (“D4”)

We are focussed on the design and development of drug delivery systems that efficiently target drugs to the right place at the right time, be that via oral administration, inhalation or injection.

We are leaders in drug delivery and nanomedicine and have particular strengths in lipid based drug delivery and lymphatic transport.

Our major programs address the challenges of:

- delivering drugs that have very low solubility
- switching the need to administer drug by injection to using other routes such as inhalation
- better understanding the subcellular trafficking of drug molecules
- targeting anticancer medicines to tumours
- understanding drug transport into the brain
- profiling the relationship between delivery system structure and function using field leading analytical capabilities such as the Australian Synchrotron
- targeting drugs to the lymphatic system to better treat immune and metabolic disease.

CENTRE FOR DRUG CANDIDATE OPTIMISATION (CDCO)

We foster drug discovery innovation through large multi-disciplinary collaborative programs with commercial partners, not-for-profit organisations and academic research institutes.

We specialise in identifying the optimal physicochemical and biopharmaceutical properties of drugs and translating drug candidates from discovery into clinical development.

We run all major in vitro and in vivo ADME-PK platforms to fulfil candidate selection and progression criteria.

These include screens for solubility, metabolism, permeability, transporters, CYP inhibition, protein binding, absorption and hepatic, renal and biliary clearance.

We have extensive experience in drug discovery for tropical infectious diseases but work in other therapeutic areas including cancer, CNS disorders, cardiovascular and metabolic disease.

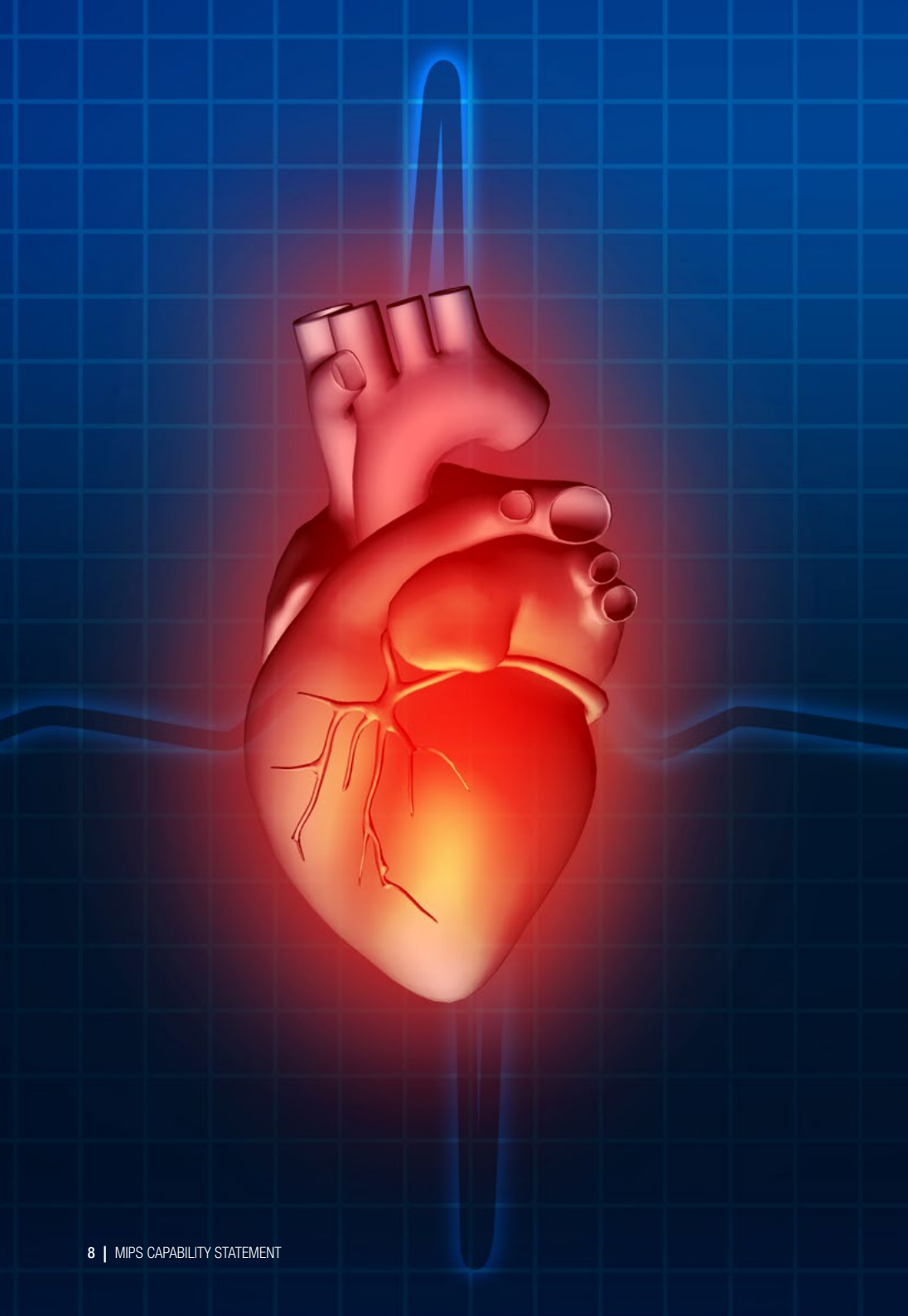
CENTRE FOR MEDICINE USE AND SAFETY (CMUS)

We make medicine use safer in Australia and globally.

We run major collaborative multidisciplinary projects to investigate medicine use issues and problems, propose interventions and evaluate implementation strategies.

We use pharmacoepidemiology and pharmacometric techniques to investigate profiles of medicine use and to probe interventions that enhance patient treatment and safety.

We are Australasia’s leading practice-based research group, and work closely with clinicians and medical researchers from within and outside the pharmacy profession address major issues of medicine use and safety.



THERAPEUTIC PROGRAM AREAS

Our Therapeutic Program Areas (“TPAs”) unite researchers from across different themes and research groups around a common disease focus.

These Therapeutic Program Areas represent research strengths across MIPS, however we also undertake research in areas such as cancer, pain and inflammatory and infectious disease.

Cardiovascular and Metabolic Health

The TPA works to develop cardiovascular and metabolic disease therapeutics. Its expertise runs from basic research through to animal disease models and on to translational human disease.

Its work is informed by the perspectives of patients and clinicians in combination with engagement from the pharmaceutical industry and utilisation of national data sources.

Neuroscience and Mental Health

The neuroscience and mental health TPA encompasses multidisciplinary approaches to unmet medical needs in psychiatry, neurodegeneration, pain, and other mental health disorders.

Working with clinicians and colleagues in medicines use and safety, our collaborative drug discovery teams combine medicinal chemistry, structural biology, analytical pharmacology, drug disposition, and translational models of disease to improve patient outcomes.



Global Health

The Global Health TPA works to improve health and achieve equity in health for all people worldwide.

Our major activities focus on infectious diseases and maternal, child and reproductive health, along with capacity-building programs for pharmacy globally.

Our research ranges from the discovery of new drugs, vaccines and diagnostics, to improving medicines and treatment regimens to suit specific populations.

Existing collaborations operate in the Pacific, South and Southeast Asia and sub-Saharan Africa and we look to expand our reach further, aligning our activities with local, national and international frameworks to make a positive impact on global health



NEW WEAPONS IN A GLOBAL FIGHT

Malaria drug discovery

The Centre for Drug Candidate Optimisation's (CDCO) long-term research partnership with the Medicines for Malaria Venture (MMV), discovers and develops new malaria drugs.

The partnership has produced seven candidates that have progressed into clinical development, and one drug that has been approved in India (Synriam®) and registered in several African countries. Three additional early stage drug discovery programs are ongoing.



OUR RESEARCH INFRASTRUCTURE

AUSTRALIAN TRANSLATIONAL MEDICAL CHEMISTRY FACILITY (ATMCF)

ATMCF is a purpose-designed, outward-facing, collaborative facility that supports early stage medicinal chemistry-led drug discovery. ATMCF provides medicinal chemistry insight and expertise and a translational bridge between early-stage biology and translational lead optimisation and pre-clinical development.

CENTRE FOR DRUG CANDIDATE OPTIMISATION (CDCO)

In addition to its role as a research theme at MIPS, CDCO also constitutes a major university research platform providing expertise and infrastructure in ADME lead optimisation to multidisciplinary drug discovery teams for improved compound design, selection and progression through to drug candidate selection.

COMPUTATIONAL CHEMISTRY FACILITY

Our well-equipped computational chemistry facility has an open access laboratory with more than 30 Linux workstations available to all Faculty researchers. It also has a wide range of academic and commercial software to support research programs in computational chemistry, X-ray crystallography, NMR spectroscopy and bioinformatics.

Cryo-EM STRUCTURAL BIOLOGY PLATFORM

We have a major research collaboration with Thermo Scientific to develop and streamline workflows in elucidating the structure of membrane proteins (in particular GPCRs) by cryo-EM and utilizing this information in structure-based drug design. We have a Thermo Scientific Talos L120C G2 on site, shared access to a Thermo Scientific Glacios and access to Thermo Scientific Krios through the Monash Ramaciotti Cryo-EM Centre and via the Bio21 Institute at the University of Melbourne.

FRAGMENT BASED DRUG DISCOVERY – MONASH FRAGMENT PLATFORM (MFP)

The Monash Fragment Platform (MFP) designs and runs fragment-based drug discovery (FBDD) campaigns for new therapeutic targets. FBDD screening uses a high-quality, in-house fragment library designed to maximise chemical space coverage and enable rapid hit optimisation. Screening cascades are tailored and use a variety of physical techniques such as NMR and surface plasmon resonance (SPR). Bespoke medicinal chemistry support subsequently facilitates Rapid Elaboration of Fragments into Leads (REFIL), to power translation.

HELEN MACPHERSON SMITH (HMS) TRUST LABORATORY

This open-access analytical facility uses sophisticated physical and chemical characterisation techniques to overcome challenges faced in modern drug development. Academic and industry researchers can access a comprehensive suite of advanced chemical characterisation instruments.

IMAGING, FACS AND ANALYSIS CORE (IFAC) at MIPS

IFAC uses the latest imaging, flow cytometry and analysis platforms for samples ranging from single molecules to whole animals. Our extensive range of ultra-precision microscopes include widefield, high throughput, holographic, hyper-spectral, electron, super-resolution, confocal, multiphoton, lifetime imaging and label free confocal. We also provide analytical and sorting flow cytometry (FACS) capabilities.

MELBOURNE CENTRE FOR NANOFABRICATION (MCN)

MCN Director Nico Voelcker has a joint appointment at MIPS providing MIPS researchers with streamlined access to MCN and the broader Australian National Fabrication Facility (ANFF). ANFF is a network organisation with eight nodes offering service capabilities such as micro and nano fabrication, characterisation, device fabrication, packaging and testing. MCN is the Victorian node of ANFF and the Southern Hemisphere's largest open-access fabrication facility.

MEDICINES MANUFACTURING INNOVATION CENTRE (MMIC)

MMIC is an initiative established with the Victorian State Government to bring academic and industrial scientists together to optimise manufacturing processes, enhance current and new product development and build a highly skilled, industry-ready, workforce. MMIC provides specialist analytical and formulation development services via a team of experienced industrial scientists.

MONASH BIOMEDICAL IMAGING (MBI)

The MIPS node of Monash Biomedical Imaging includes three pre-clinical imaging systems for imaging and tracking disease in vivo. Instrumentation based at MIPS allows for in vivo tomographic fluorescence imaging, bioluminescence imaging and CT imaging. The broader MBI platform provides access to 3T MRI, MR-PET and CT clinical imaging capabilities.

MONASH PROTEOMICS AND METABOLOMICS FACILITY (MPMF)

The MPMF's Parkville node provides cutting-edge metabolomics, lipidomics and proteomics capabilities for MIPS researchers and the wider research community. Our analytical methods are suitable for samples arising from cell culture, animal studies or clinical trials, and our workflows are ideally suited to untargeted comparative analyses.

MURINE DISEASE MODEL FACILITY (MDMF)

Our full barrier animal house and holding facilities for mice and rats provide a range of rooms and systems to maximise research capabilities and minimise animal stress. They include microisolator housing and facilities for open and closed cages, surgical suites and a range of behaviour rooms containing assessment capabilities including pre-pulse inhibition chambers and water mazes.

PEPTIDE SYNTHESIS FACILITY

This facility features three Protein Technologies Automated Peptide Synthesizers, which allow the routine solid phase synthesis of peptides of up to 30 amino acids in length. They provide the base capacity to develop larger or modified peptides, cyclic peptides, peptidomimetics or small molecules.

SPECTROSCOPY FACILITY

Housing NMR spectroscopy and chromatography instrumentation, this facility supports a broad range of research, most notably synthetic medicinal chemistry and fragment-based drug discovery. Equipment includes two 400 MHz and one 600 MHz NMR spectrometers, four LC-MS spectrometers and analytical and preparative HPLC systems.

THE AUSTRALIAN SYNCHROTRON

MIPS researchers use X-ray crystallography beamlines at the Australian Synchrotron to solve protein structures and evaluate drug-protein interactions rapidly and with high definition atomic resolution. We also use the SAXS/WAXS beamline at the Australian Synchrotron to investigate nano-structure in drug delivery systems.



TAKING AIM AT METABOLIC DISEASE

TACKLING THE OBESITY CRISIS

Cincera Therapeutics is developing new therapies for conditions relating to an unhealthy Western diet, including common obesity-associated diseases.

The company is initially focusing on treatments for the emerging liver disease epidemic.

Cincera was launched in 2018 with venture capital commitment from the Medical Research Commercialisation Fund (MRCF).



TACKLING A GROWING PROBLEM

New treatments for Type 2 Diabetes

Type 2 diabetes affects more than 1.5 million Australians and costs the national healthcare system more than \$6 billion annually.

An international study, led by a team at MIPS, has uncovered that a compound called IC7Fc could improve glucose metabolism and prevent weight gain, enabling it to be an effective treatment for conditions including type 2 diabetes, obesity and loss of muscle mass.

With no current drug on the market with these multiple, positive benefits on overall health and metabolism, this is the first time that pharmacological evidence has presented a potential solution to treating a suite of metabolic diseases with a single drug.

DEMENTIA RISK REDUCTION

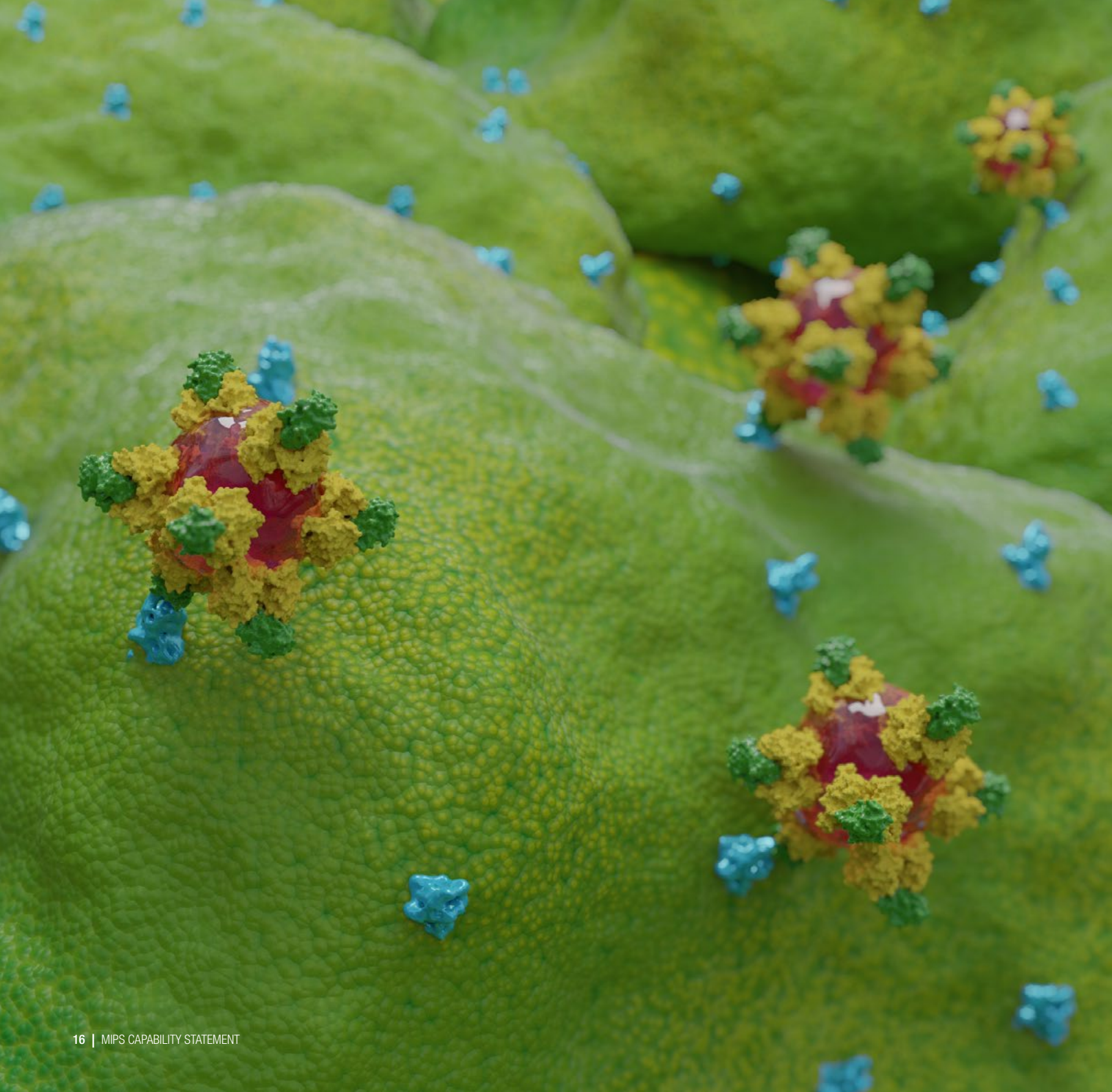
The Holistic Approach in Primary care for Preventing Memory Impairment and Dementia (HAPPI MIND) study, funded through a NHMRC Boosting Dementia Research Grant, is the first multidomain dementia prevention intervention in primary care targeting middle-aged adults. The interdisciplinary project led by Centre for Medicine Use and Safety researchers involves comprehensive dementia risk assessment, personalised risk-reduction interventions delivered through their primary healthcare professionals, and a self-management smart phone application. The personalised interventions include a pharmacist medication review to optimise medicine use. Deakin University, University of Melbourne, University of Newcastle, University of New South Wales, North West Melbourne Primary Health Network and CSIRO are partners on this innovative model of care targeting a leading global health burden which can have significant impacts on our society, healthcare and the economy.



NEUROLOGICAL AND MENTAL HEALTH GLOBAL EPIDEMIOLOGY NETWORK NEUROGEN

The Centre for Medicine Use and Safety has established and co-leads a 10-country collaboration called NeuroGEN to harness the power of big data to generate new high-quality evidence on medication benefits and risks. NeuroGEN facilitates analyses of medication and health outcome data for more than 100 million people with and without dementia. NeuroGEN includes representatives from the disciplines of pharmacy, neurology, geriatrics, cardiology, health economics, social sciences, biostatistics and epidemiology. NeuroGEN evolved out of the International Pharmaceutical Informatics Initiative: Big Data Research Platform that was originally funded through the PharmAlliance partnership between Monash University, University College London and University of North Carolina at Chapel Hill. NeuroGEN has received subsequent funding through the Victorian Medical Research Acceleration Fund and Dementia Australia Research Foundation – Yulgilbar Innovation Grant.





DELIVERING BETTER OUTCOMES IN CANCER

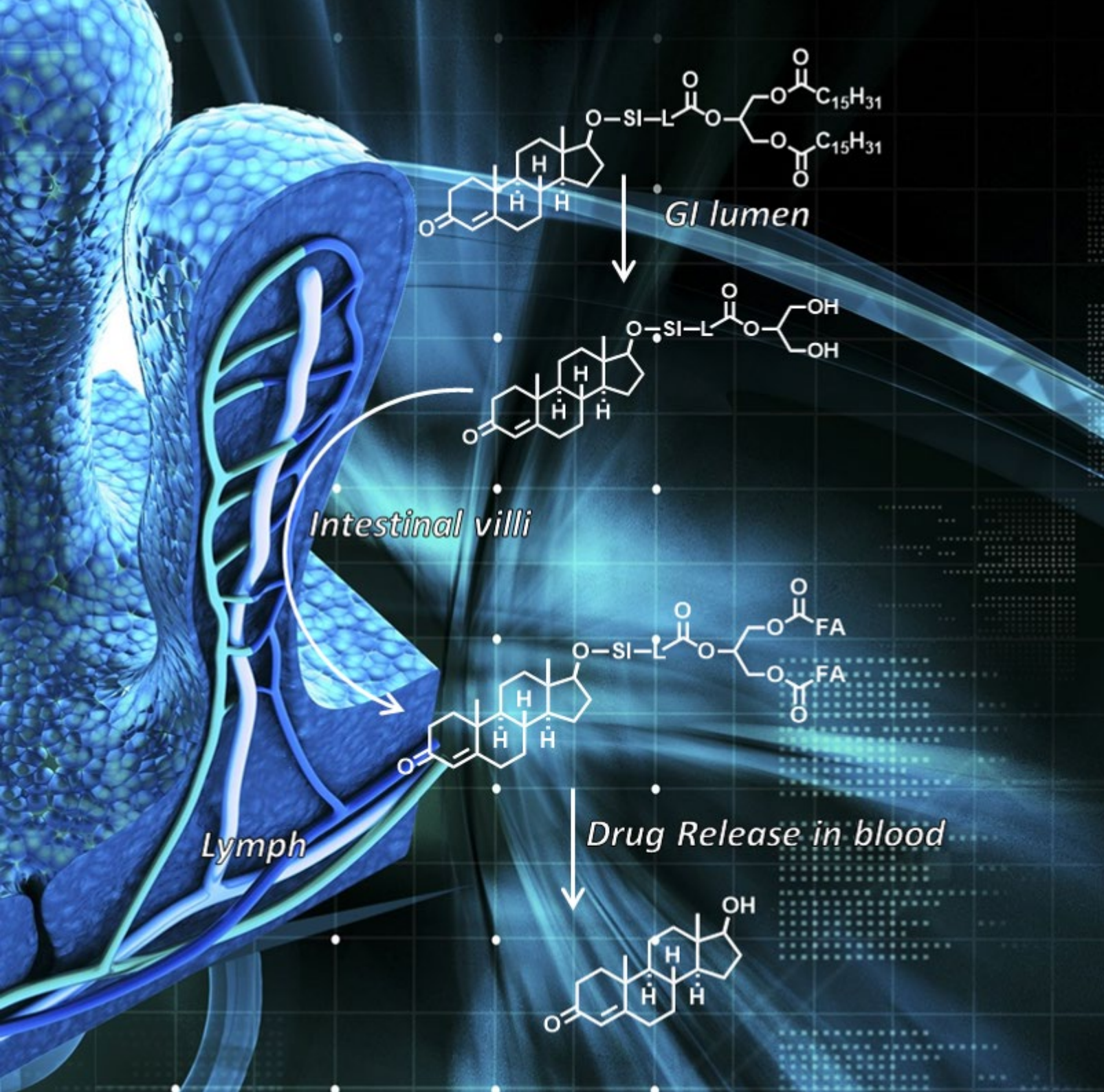
MIPS scientists have been working with the Melbourne-based biotechnology company Starpharma to design and develop innovative drug delivery systems that provide for enhanced drug therapy in oncology. This program has explored the use of bespoke dendritic polymers ("dendrimers") as drug delivery vectors to address arguably the single biggest challenge in cancer – to maximise tumour killing at the same time as minimising toxicity to other cells. Starpharma's 'DEP®' drug delivery platform currently underpins three drug candidates in Phase 2 clinical trial and a major collaboration with AstraZeneca to develop products from their worldwide oncology portfolio using the DEP® technology.

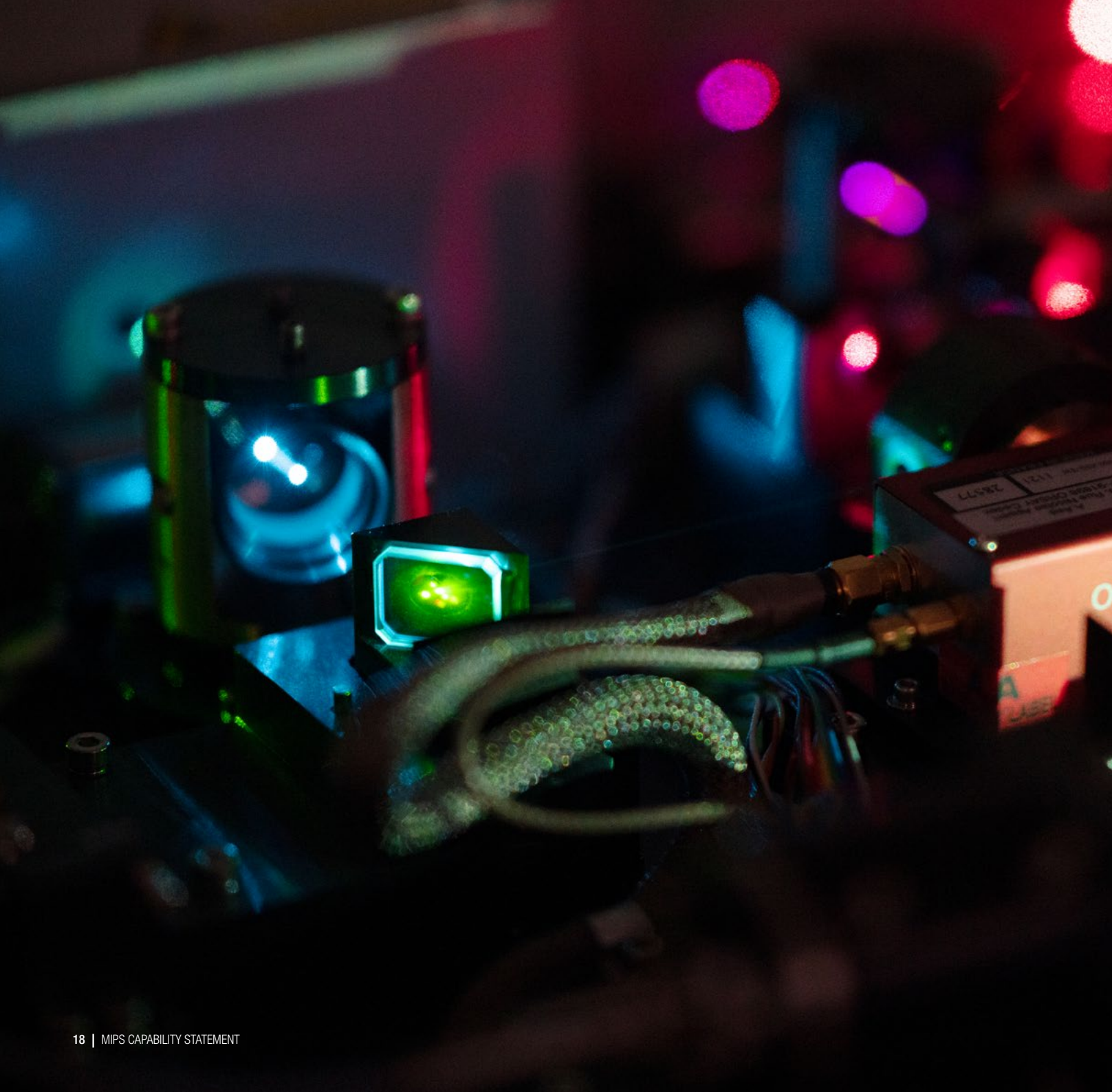
MIMICKING DIETARY LIPID TO PROMOTE DRUG EXPOSURE

Lymph-directed prodrugs

We have developed modified drugs (prodrugs) that are based on the chemical structure of dietary lipids to take advantage of natural lipid processing pathways. Unlike most drugs that are absorbed from the gut into blood capillaries, lipids (and lipid-mimetic prodrugs) are taken up into the lymphatic system.

This has two major benefits. First, trafficking via the lymphatics bypasses metabolic effects in the liver that can limit drug exposure and utility. Second targeting the intestinal lymph delivers drugs directly to sites of immune response and therefore has great potential for improved immunomodulation. This technology is being developed in partnership with PureTech Health, a Boston based biotechnology company.





INNOVATION. COLLABORATION. IMPACT.

The discovery, development and optimal use of medicines is a complex, international enterprise.

To make significant change, our researchers partner with industry, government and philanthropic organisations across the world to improve global health.

These partnerships range from the discovery of new antimalarial drugs to better control of neuropsychiatric disease to international approaches to education innovation.

Our many successes are the result of our collaborative, multidisciplinary approach to research excellence, our “Better Medicines by Design” philosophy and a determination to make a real impact on the health of the broad community we serve.

INCREASING IMPACT THROUGH PARTNERSHIP

GLOBAL WOMEN'S HEALTH

Every year, up to 60,000 women die of blood loss after childbirth, an outcome that can be prevented by injection of the drug oxytocin. Together with philanthropic organisations and international Pharma partners we are developing a novel aerosol system for oxytocin delivery that allows the drug to be inhaled from a simple, disposable device, making it accessible and affordable in resource poor communities.



BREAST CANCER

Breast cancer is the most common cancer affecting Australian women. We are collaborating with clinical colleagues at the European Institute of Oncology in Milan and the Peter MacCallum Cancer Centre in Melbourne to evaluate the role of anaesthetic choice and chronic stress on breast cancer progression. This work will clinically validate optimal anaesthetic regimens during cancer surgery and identify drugs that inhibit the stress response to reduce cancer metastasis.



PARASITIC INFECTIOUS DISEASES

Parasitic infectious diseases are responsible for millions of deaths each year in the world's poorest countries. Together with major public-private partnerships such as the Medicines for Malaria Venture (MMV) and Drugs for Neglected Diseases *initiative* (DNDi) we are discovering and developing life-saving drugs to treat malaria, as well as neglected diseases such as human African trypanosomiasis, Leishmania and Chagas disease.



BIOMEDICAL TRANSLATION

BioCurate is an \$80 million partnership between Monash University and The University of Melbourne that aims to traverse the "valley of death" between early drug discovery and the clinical validation and development pipeline. BioCurate will target this critical phase of pre-clinical and early clinical development and provide the commercial focus, expertise and funding necessary to boost successful translation and commercialisation.



DRUG DISCOVERY

Drug discovery is one of the most complex interdisciplinary challenges in science. MIPS scientists work with biologists, chemists, and delivery scientists within Australia and internationally to drive advances in drug discovery in devastating diseases including microbial and parasitic infection, cancer, CNS and metabolic disorders and cardiovascular disease.



NEW DRUG TARGETS

G protein-coupled receptors (GPCRs) are the targets for approximately 40% of modern medicines. MIPS researchers are involved in a major collaboration with French pharmaceutical company Servier to develop new drugs against GPCR targets to treat diseases such as psychiatric and metabolic disorders and cardiovascular disease. The collaboration seeks to identify novel GPCR targets, understand their role in disease and discover new drugs that modulate GPCR activity.



NEW TECHNOLOGIES FOR DRUG DELIVERY

Even the most potent drugs fail in the clinic if they are not effectively delivered to the target tissue. MIPS scientists are working with Pharma partners, including Starpharma, PolyActiva and GSK to promote drug absorption after oral administration, target highly toxic cancer drugs specifically to tumour sites and to sustain and control drug delivery to reduce dosing frequency and avoid toxicity.



INNOVATIVE MEDICINES MANUFACTURING

MIPS is home to the Medicines Manufacturing Innovation Centre (MMIC), an industry hub led by MIPS researchers with investment from the Victorian State Government. The Centre supports pharmaceutical manufacturers and allied industries by providing innovative formulation and analytical expertise to current and new product development programs.



NANOMEDICINES

Nanomedicines and nanotechnologies are on the cusp of revolutionising diagnosis and therapy in many diseases.

Our multi-disciplinary research teams aim to understand and control the interaction of nano-materials with biological systems and in doing so progress the design of the drugs, delivery systems and biosensors of tomorrow.

MIPS is the headquarters of the Australian Research Council Centre of Excellence in Convergent Bio-Nano Science & Technology, a national and international partnership comprising close to forty collaborators.



PHARMALLIANCE

PharmAlliance is an international partnership between three global leaders in pharmacy and pharmaceutical science: Monash University, the University of North Carolina at Chapel Hill and University College London. Together with our PharmAlliance partners we work collaboratively to address major international challenges in education, professional engagement and research and to inspire and train tomorrow's leaders.



IMPROVED HEALTH OUTCOMES SOLUTIONS

Our researchers are partnering with Certara, a leading drug development stewardship organisation, to utilise the most scientifically-advanced modelling and simulation methods to enhance health outcomes. These approaches span the discovery, preclinical and clinical stages of drug development, enabling data-driven decisions, more precisely designed trials, reduced risks of clinical failure and improved patient safety.





TRAINING LEADERS IN SCIENCE AND HEALTH CARE

OUR COURSES

MIPS is part of the Monash Faculty of Pharmacy and Pharmaceutical Sciences, which prepares students for careers leading change in healthcare and research.

Our courses include:

- Australia's first integrated Bachelor and Master of Pharmacy
- The Bachelor of Pharmaceutical Science, providing highly skilled employees for Australia's biotech and pharma industries
- The Bachelor of Pharmaceutical Science (Advanced,) is a four-year variant of our standard Bachelor of Pharmaceutical Science degree that provides students with a guaranteed place in our honours program
- Honours degree in Pharmaceutical Science, a standalone 1-year program
- Master of Philosophy
- Australia's premier pharmaceutical sciences PhD program, training tomorrow's research leaders

BETTER TRAINING THROUGH PARTNERSHIPS

Certara

MIPS is partnering with global drug development consultants Certara to incubate the next generation of drug development scientists.

The \$2.7m program is funded by Certara and the Medical Technologies and Pharmaceuticals Industry Growth Centre (MTPConnect).

It will provide access to Certara's Pharmacometrics software for clinical pharmacology, pharmacometrics and regulatory science training to keep Australia's medical research sector sustainable.

This will boost an existing MIPS-Certara d3 Medicine group partnership on modeling and simulation projects ranging from pandemic infectious disease preparedness programs to new respiratory viral agents and anti-cancer therapies.



MIPS AT A GLANCE



RESEARCH THEMES

Drug Discovery Biology

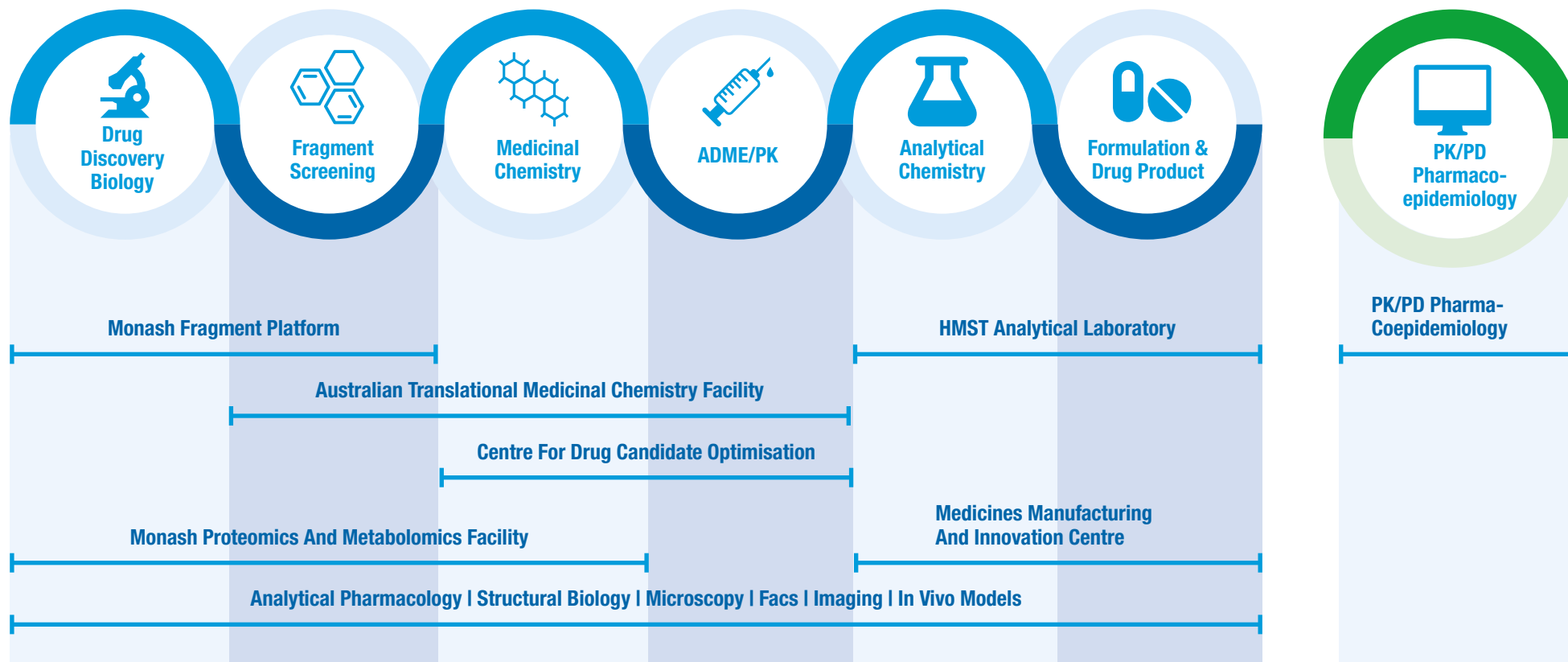
Medicinal Chemistry

Centre for Drug Candidate Optimisation

Drug Delivery, Disposition & Dynamics

Centre for Medicine Use and Safety

RESEARCH PLATFORMS



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