HONOURS AND GRADUATE RESEARCH
2021 PROJECTS
CENTRAL CLINICAL SCHOOL

A partnership between:

MONASH UNIVERSITY
Alfred Health
Baker Heart & Diabetes Institute
Burnet Institute

monash.edu/medicine/ccs
Cover: Ms Jessica Garzarella, 2020 BMedSc(Hons) student, with supervisor Professor Karin Jandeleit-Dahm, Department of Diabetes
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Honours and Graduate Research study through the Central Clinical School

Monash University’s Central Clinical School (CCS) undertakes translational research – developing insights from laboratory bench research for use in clinical therapies and treatments. Our departments and research affiliates have strong links with health care providers, ensuring that our research rapidly translates to clinical practice.

Undertaking Honours and postgraduate study with us will give you a wide range of opportunities to continue your studies and develop your career path into many areas of medical and clinical research.

Projects are listed under the following headings:
- Australian Centre for Blood Diseases (ACBD)
- Baker Institute
- Burnet Institute
- Department of Allergy, Immunology and Respiratory Medicine (AIRMed)
- Department of Diabetes
- Department of Gastroenterology
- Department of Immunology and Pathology
- Department of Infectious Diseases
- Department of Medicine (Alfred)
- Department of Medicine (Peninsula)
- Department of Neuroscience
- Department of Surgery
- Medical Education
- Melbourne Sexual Health Centre (MSHC)
- Monash Alfred Psychiatry research centre (MAPrc)

How to use this index booklet
This index booklet lists the Honours/Masters/PhD projects on offer for 2021. For further information about a particular research project, see the project description in the online database at:

supervisorconnect.med.monash.edu/research-projects

For further information regarding individual research projects, students should approach the nominated researcher associated with that project. This booklet is meant as a guide only, as project ideas will be refined between student and supervisor.

Making your application
Applications are completed centrally through Monash University. Prospective applicants should complete an application form, which can be downloaded or obtained from the Faculty Office.

https://www.monash.edu/study/how-to-apply
Further information links and entry requirements:
BMedSc(Hons) at CCS:
https://www.monash.edu/medicine/ccs/education/future-students/bmedsc-hons
Honours in Immunology & Human Pathology:
https://www.monash.edu/medicine/ccs/education/future-students/honours
Scholarships:
https://www.monash.edu/medicine/ccs/fees-scholarships/scholarships
Graduate research & Grad Cert:
https://www.monash.edu/medicine/ccs/translational/about

For information regarding Honours and postgraduate study at CCS
CCS General Honours Coordinators
A/Prof Justin Hamilton (Human Pathology) 
E: justin.hamilton@monash.edu
A/Prof Margaret Hibbs (Immunology)  
E: margaret.hibbs@monash.edu
Dr Vilija Jokubaitis (Neuroscience) 
E: vilija.jokubaitis@monash.edu

CCS BMedSc(Hons) Coordinators
Prof Karin Jandeleit-Dahm  
E: karin.jandeleit-dahm@monash.edu
Prof Merlin Thomas  
E: merlin.thomas@monash.edu

For general information regarding Honours and postgraduate study at CCS
Dr Joanne Mouser  
CCS Honours Student Services  
E: ccs.honours@monash.edu
P: 9903 0784

Ms Sharmila Ramesh  
CCS Graduate Research Student Services  
E: ccs.hdr@monash.edu
P: 9903 0368
Career pathways in medical and clinical research at the Central Clinical School

The Central Clinical School accepts Undergraduate applications in both the Bachelor of Medical Science (BMedSc) and General (Bachelor of Biomedical Science and Bachelor of Science) Honours streams. Graduate research project applications accepted include both Doctoral (PhD) and Masters (Master of Clinical Research – Translational Medicine stream [new in 2021], Master in Biomedical Science, Master in Biostatistics, or Master of Biomedical and Health Sciences) applications, as well as Graduate Diploma (Grad Dip) and Graduate Certificate (Grad Cert) applications. Short projects in Translational Research are also available. As our medical and translational research streams are taught by experts based in Monash’s rich network of educators, researchers as well as industry and clinical partnerships, this will provide excellent foundations and networks for future career pathways.

This booklet lists current projects available for a number of streams at the Central Clinical School.
Australian Centre for Blood Diseases (ACBD)

Dr Warwick Nesbitt (centre) and his group conduct novel lab-on-a-chip research.

The Australian Centre for Blood Diseases (ACBD) has many research groups investigating blood cancers, thrombosis, and bleeding disorders.

ACBD is a national and international blood diseases centre with recognised research, treatment, and educational programs for blood diseases. ACBD is affiliated with Monash University, Alfred Health, Eastern Health and Southern Health, and is organised into three integrated divisions:

- Clinical and Diagnostic Haematology/Oncology
- Clinical and Basic Research Programs
- Teaching and Education

The ACBD’s research falls into two main areas, Non-Malignant Haematology, and Malignant Haematology & Stem Cell Transplantation.

See more:
www.monash.edu/medicine/ccs/blood-disease

PROJECTS AVAILABLE:

Genetic modelling of Acute Erythroleukaemia
Supervisor(s): Dr Catherine Carmichael
Email: Catherine.Carmichael@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc, Grad Dip

Therapeutic targeting of EMT modulators in cancer
Supervisor(s): Dr Catherine Carmichael
Email: Catherine.Carmichael@monash.edu
Applicable for: Honours, BMedSc(Hons)

Preventing graft versus host disease using post-transplant cyclophosphamide
Supervisor(s): Professor David Curtis and Assoc Prof Menno Van Zelm
Email: David.Curtis@monash.edu
Applicable for: PhD

Defining the substrates of protein arginine methyltransferases by mass spectrometry
Supervisor(s): Professor David Curtis and Dr Ralf Schittenhelm
Email: David.Curtis@monash.edu
Applicable for: PhD

Releasing the differentiation block in acute myeloid leukaemia
Supervisor(s): Assoc Prof Ross Dickins and Dr Steven Ngo
Email: Ross.Dickins@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Myeloid lineage co-stimulation mechanisms in cancer immunotherapy
Supervisor(s): Assoc Prof Ross Dickins and Dr Katharine Goodall
Email: Ross.Dickins@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Glucose responsive insulin nanoparticle for the treatment of diabetes
Supervisor(s): Assoc Prof Christoph Hagemeyer, Dr Ting-Yi Wang, Dr Francesca Cavalieri
Email: Christoph.Hagemeyer@monash.edu
Applicable for: Masters, Hons, BMedSc, Short projects

Recombinant agents for efficient and safe anticoagulation and thrombolysis
Supervisor(s): Assoc Prof Christoph Hagemeyer and Dr Be’eri Niego
Email: Christoph.Hagemeyer@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc, Short projects

Single-chain antibody-targeted nanoparticles for diagnosis of vascular diseases
Supervisor(s): Assoc Prof Christoph Hagemeyer and Dr Ting-Yi Wang
Email: Christoph.Hagemeyer@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc, Short projects

Targeted virus particles for genetic transfer of fusion proteins to inhibit atherosclerosis
Supervisor(s): Assoc Prof Christoph Hagemeyer and Assoc Prof Paul Gregorevic
Email: Christoph.Hagemeyer@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc, Short projects

Targeting (homing) stem cells for the treatment of atherosclerosis, myocardial infarction and stroke
Supervisor(s): Assoc Prof Christoph Hagemeyer, and Dr Ting-Yi Wang
Email: Christoph.Hagemeyer@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc, Short projects
Inhibition of the platelet thrombin receptor PAR4 to prevent thrombosis in coronary artery disease
Supervisor(s): Assoc Prof Justin Hamilton
Email: Justin.Hamilton@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Using new drugs to target a novel mechanism for improved anti-thrombotic therapy
Supervisor(s): Assoc Prof Justin Hamilton
Email: Justin.Hamilton@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

The role of the homeobox transcription factor Hhex in Acute Myeloid Leukaemia
Supervisor(s): Assoc Prof Matthew McCormack and Dr Benjamin Shields
Email: Matthew.McCormack@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Identification of self-renewal networks in T-cell leukemia
Supervisor(s): Assoc Prof Matthew McCormack and Dr Benjamin Shields
Email: Matthew.McCormack@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Identification of non-invasive biomarkers of disease progression in proteasome inhibitor refractory multiple myeloma patients utilising metabolomics
Supervisor(s): Dr Sridurga Mithraprabhu, Prof Andrew Spencer, Dr Ioanna Savvidou, and Dr Tiffany Khong
Email: Durga.Mithraprabhu@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Development of lab-on-a-chip systems for high content cardiovascular drug screening and development
Supervisor(s): Dr Warwick Nesbitt, Assoc Prof Justin Hamilton, Dr Crispin Szydzik, and Prof Arnan Mitchell (External)
Email: Warwick.Nesbitt@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Blood platelet mechano-sensing of hyper-shear gradients at stenosis and mechanical circulatory support
Supervisor(s): Dr Warwick Nesbitt, Assoc Prof Justin Hamilton, Prof Ivan Marusic (External)
Email: Warwick.Nesbitt@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc
The Baker Institute is an independent medical research facility. The Institute’s work extends from the laboratory-based research to wide-scale community studies with a focus on diagnosis, prevention, and treatment of diabetes and cardiovascular disease. The Institute’s main laboratory facilities are located at the Alfred Research Alliance.

See more: https://www.baker.edu.au

PROJECTS AVAILABLE:

The effect of statins on lipid metabolism and the risk of cardiovascular disease
Supervisor(s): Prof Peter Meikle and Dr Anna Calkin
Email: Peter.Meikle@monash.edu
Applicable for: PhD, Masters, Hons

The role of branched chain amino acids and fatty acids in type 2 diabetes
Supervisor(s): Prof Peter Meikle and Dr Graeme Lancaster
Email: Peter.Meikle@monash.edu
Applicable for: PhD, Masters, Hons

Plasmalogen modulation: a potential therapeutic approach for metabolic diseases
Supervisor(s): Prof Peter Meikle and Dr Graeme Lancaster
Email: Peter.Meikle@monash.edu
Applicable for: PhD

Investigating the role of protein phosphatases in the heart
Supervisor(s): Dr Kate Weeks and Assoc Prof Julie McMullen
Email: Kate.Weeks@monash.edu
Applicable for: PhD, Masters, Hons

How does ageing affect the heart’s response to a heart attack?
Supervisor(s): Dr Anna Calkin and Dr Adele Richart
Email: anna.calkin@monash.edu
Applicable for: Hons

Activated platelets targeted drug therapy
Supervisor(s): Dr Xiaowei Wang and Prof Karlheinz Peter
Email: Xiaowei.Wang@monash.edu
Applicable for: PhD, Masters by research, Hons, BMedSc(Hons), Joint PhD/Exchange Program

Diagnosis and therapy of inflammatory diseases using molecular ultrasound imaging
Supervisor(s): Dr Xiaowei Wang and Prof Karlheinz Peter
Email: Xiaowei.Wang@monash.edu
Applicable for: PhD, Masters by research, Joint PhD/Exchange Program

Diagnosis and therapy of thrombotic and inflammatory diseases using molecular magnetic resonance imaging
Supervisor(s): Dr Xiaowei Wang and Prof Karlheinz Peter
Email: Xiaowei.Wang@monash.edu
Applicable for: PhD, Masters by research, Hons, BMedSc(Hons), Joint PhD/Exchange Program

Developing nanoparticles for targeted theranostics delivery of drug and gene therapeutics
Supervisor(s): Dr Xiaowei Wang and Prof Karlheinz Peter
Email: Xiaowei.Wang@monash.edu
Applicable for: PhD, Masters by research, Hons, BMedSc(Hons), Joint PhD/Exchange Program

Skeletal muscle metabolism and its role in health and disease
Supervisor(s): Dr Brian Drew and Dr Anna Calkin
Email: Brian.Drew@monash.edu
Applicable for: PhD, Masters by research, Hons

Brown Adipose Tissue Extracellular Vesicles: Are They Metabolic Messengers?
Supervisor(s): Dr Brian Drew and Dr Simon Bond
Email: Brian.Drew@monash.edu
Applicable for: PhD, Hons

Investigations into a new gene in the brain that regulates appetite and body weight
Supervisor(s): Dr Brian Drew and Dr Yi Wang
Email: Brian.Drew@monash.edu
Applicable for: PhD, Hons

Investigating the role of OIP5-AS1 in cardiovascular diseases
Supervisor(s): Dr Brian Drew and Dr Aowen Zhuang
Email: Brian.Drew@monash.edu
Applicable for: PhD, Masters by research, Hons
Characterising a New Target to Treat Fatty Liver Disease
Supervisor(s): Dr Anna Calkin and Dr Brian Drew
Email: anna.calkin@monash.edu
Applicable for: Hons

Developing gold nanoparticles for CT imaging of cardiovascular disease
Supervisor(s): Prof Karlheinz Peter and Prof Geoff Pietersz
Email: Karlheinz.Peter@monash.edu
Applicable for: PhD, Masters by research, Hons

Development of innovative anti-inflammatory drugs
Supervisor(s): Prof Karlheinz Peter and Dr James McFadyen
Email: Karlheinz.Peter@monash.edu
Applicable for: PhD, Masters by research, Hons

PET imaging of activated platelets as an early diagnostic tool for cardiovascular disease and cancer
Supervisor(s): Prof Karlheinz Peter and Prof Geoff Pietersz
Email: Karlheinz.Peter@monash.edu
Applicable for: PhD, Masters by research, Hons

Sympathetic activation in adults with inadequate sleep
Supervisor(s): Dr Stephanie Yiallourou and Prof Vaughan Macefield
Email: stephanie.yiallourou@hudson.org.au
Applicable for: PhD, Hons

Long-term Influence of Fertility Treatment on Cardiovascular Events - The LIFE registry
Supervisor(s): Dr Stephanie Yiallourou and Assoc Prof Melinda Carrington
Email: stephanie.yiallourou@hudson.org.au
Applicable for: PhD, Hons

Understanding the role of the mineralocorticoid receptor (MR) for regulating the PI3K pathway in female and male hearts.
Supervisor(s): Dr Morag Young and Assoc Prof Julie McMillen
Email: morag.young@hudson.org.au
Applicable for: PhD, Masters by research, Hons

Understanding the role of the circadian molecular clock in the development of dilated cardiac myopathy and atrial fibrillation.
Supervisor(s): Dr Morag Young and Assoc Prof Julie McMillen
Email: morag.young@hudson.org.au
Applicable for: PhD, Masters by research, Hons
The Burnet Institute combines medical research in the laboratory and at a population level with public health action and advocacy to address major health issues of disadvantaged populations in Australia and communities in the developing world. Three major health themes underpin the Burnet’s work: impact of infectious diseases, health and social issues of drug use, and age-specific health issues (maternal and child health, young people’s health, healthy ageing).

See more: https://www.burnet.edu.au

Developing new diagnostic tests for malaria and other infectious diseases
Supervisor(s): Dr Jack Richards Assoc Prof David Anderson
Email: Jack.Richards@monash.edu
Applicable for: PhD, Masters, Hons

Advancing vaccine development for infectious diseases by identifying targets and mechanisms of protective immunity
Supervisor(s): Dr Jack Richards and Dr Ricardo Ataide
Email: Jack.Richards@monash.edu
Applicable for: PhD, Masters, Hons

Novel tools and approaches for malaria elimination
Supervisor(s): Dr Jack Richards and Dr Ricardo Ataide
Email: Jack.Richards@monash.edu
Applicable for: PhD, Masters, Hons

Persistence of immune dysfunction following HCV cure.
Supervisor(s): Dr Anna Hearps
Email: Anna.Hearps@monash.edu
Applicable for: Hons

Exploring the impact of immune ageing on response to infectious diseases in older people.
Supervisor(s): Dr Anna Hearps and Assoc Prof Anthony Jaworowski
Email: Anna.Hearps@monash.edu
Applicable for: Hons

Contraceptives, female reproductive tract inflammation and HIV risk
Supervisor(s): Dr Lindi Masson
Email: Lindi.Masson@monash.edu
Applicable for: PhD

Microbial functional properties that modulate inflammation and HIV risk in African women
Supervisor(s): Dr Lindi Masson and Prof Gilda Tachedjian
Email: Lindi.Masson@monash.edu
Applicable for: PhD, Masters by research, Hons

Using mathematical models to reduce malnutrition among children
Supervisor(s): Dr Nick Scott and Prof David Wilson
Email: Nick.Scott@monash.edu
Applicable for: PhD, Masters by research, Hons

Management of infectious disease outbreaks using agent-based models
Supervisor(s): Dr Nick Scott and Dr Rachel Sacks-Davis
Email: Nick.Scott@monash.edu
Applicable for: PhD, Masters by research, Hons

Evaluating the effectiveness and cost-effectiveness of interventions to eliminate infectious diseases
Supervisor(s): Dr Nick Scott and Dr Alisa Pedrana
Email: Nick.Scott@monash.edu
Applicable for: PhD, Hons, BMedSc(Hons)

Public health interventions to achieve Hepatitis B elimination and reduce liver cancer
Supervisor(s): Dr Jess Howell and Dr Joseph Doyle
Email: Jess.Howell@monash.edu
Applicable for: PhD, Masters by research, Hons

Understanding risky single occasion drinking and links to harms among young Australians
Supervisor(s): Dr Megan Lim
Email: Megan.Lim@monash.edu
Applicable for: Masters by research, Hons

Coping with Covid19: Young people’s health and wellbeing
Supervisor(s): Dr Megan Lim
Email: Megan.Lim@monash.edu
Applicable for: Masters by research, Hons

The experiences of participants completing a SuperMIX survey: A qualitative investigation
Supervisor(s): Dr Peter Higgs and Dr Shelley Walker
Email: Peter.Higgs@monash.edu
Applicable for: Masters by research, Hons

Informing priorities in the HIV response in Australia
Supervisor(s): Dr Mark Stoove
Email: Mark.Stoove@monash.edu
Applicable for: PhD, Masters by coursework, Hons
The impacts of COVID-19 on the health and well-being of people who use drugs
Supervisor(s): Professor Paul Dietze
Email: Paul.Dietze@monash.edu
Applicable for: PhD, Masters by coursework, Hons

Quantifying tobacco and vaping use and quitting among people who injects drugs, and exploring the acceptability of and access to tools for quitting
Supervisor(s): Professor Paul Dietze
Email: Paul.Dietze@monash.edu
Applicable for: PhD, Masters, Hons

Prevention and treatment of postpartum haemorrhage
Supervisor(s): Dr Joshua Vogel
Email: Joshua.Vogel@monash.edu
Applicable for: PhD, Masters by research, Hons

Improving the quality and coverage of intrapartum care globally
Supervisor(s): Dr Joshua Vogel
Email: Joshua.Vogel@monash.edu
Applicable for: PhD, Masters by research, Hons

Optimising the use of induction of labour
Supervisor(s): Dr Joshua Vogel and Prof Caroline Homer
Email: Joshua.Vogel@monash.edu
Applicable for: PhD, Masters by research, Masters by coursework, Hons

Cost-effectiveness of maternal and perinatal health interventions for global implementation
Supervisor(s): Dr Joshua Vogel and Dr Nick Scott
Email: Joshua.Vogel@monash.edu
Applicable for: PhD, Masters by research, Hons

Self care interventions in pregnancy and childbirth
Supervisor(s): Dr Joshua Vogel
Email: Joshua.Vogel@monash.edu
Applicable for: PhD, Masters by research, Hons

Discovering the mechanisms and targets of immunity against malaria
Supervisor(s): Prof James Beeson, Dr Herbert Opi, Dr JoAnne Chan, Dr Linda Reiling
Email: James.beeson@monash.edu
Applicable for: PhD, Masters by research, Hons, BMedSc(Hons)

Healthy Mothers, Healthy Babies: the impact of infections and nutrition on the health of pregnant women and infants
Supervisor(s): Prof James Beeson, Assoc Prof Freya Fowkes, Dr Michelle Scoullar (External)
Email: James.beeson@monash.edu
Applicable for: PhD, Masters by research, Hons, BMedSc(Hons)

Understanding malaria transmission and immunity to inform malaria elimination
Supervisor(s): Prof James Beeson, Dr JoAnne Chan
Assoc Prof Freya Fowkes
Email: James.beeson@monash.edu
Applicable for: PhD, Masters by research, Hons, BMedSc(Hons)

Developing vaccines against malaria
Supervisor(s): Prof James Beeson, Dr Gaoqian Feng, Dr Herbert Opi
Email: James.beeson@monash.edu
Applicable for: PhD, Masters by research, Hons, BMedSc(Hons)
Department of Allergy, Immunology and Respiratory Medicine (AIRMed)

The Department of Allergy, Immunology and Respiratory Medicine (AIRMed) is co-located with the Alfred Hospital, the Central Clinical School Departments of Immunology & Pathology and Medicine, the Baker and the Burnet research institutes enables extensive collaboration between all these groups.

AIRMed’s research questions are clinically driven, with the goal of improving clinical care and treatment. The safe, rapid, informed translation of laboratory based research into clinical practice is a priority. The department’s research spans a unique spectrum of expertise in advanced lung diseases from asthma and sleep apnoea to pulmonary hypertension, lung transplantation and cystic fibrosis.

See more: [https://www.monash.edu/medicine/ccs/airmed](https://www.monash.edu/medicine/ccs/airmed)

PROJECTS AVAILABLE:

Remote oxygen saturation and pulse rate monitoring in people with chronic lung disease - a validation study.
Supervisor(s): Professor Anne Holland and Dr Narelle Cox
Email: Anne.Holland@monash.edu
Applicable for: Hons
The Department of Diabetes has state-of-the-art laboratory facilities.

The Department of Diabetes is the first – and only – university department in Australia solely dedicated to diabetes research and its complications. It has a broad range of translational research investigating both causes and clinical therapies for diabetes and its complications including kidney disease, heart disease and blindness. Some of the most important discoveries in diabetes and its complications are yet to be unravelled and converted into innovative treatments and clinical outcomes.

See more: www.monash.edu/medicine/ccs/diabetes

PROJECTS AVAILABLE:

**Exploring the molecular consequences of processed food intake**
Supervisor(s): Assoc Prof Melinda Coughlan and Dr Matthew Snelson
Email: Melinda.Coughlan@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Characterising the complement cascade in diabetic kidney disease**
Supervisor(s): Assoc Prof Melinda Coughlan and Dr Sih Min Tan
Email: Melinda.Coughlan@monash.edu
Applicable for: PhD, Hons, BMedSc

**Investigating pathways of mitochondrial quality control in diabetic kidney disease**
Supervisor(s): Assoc Prof Melinda Coughlan
Email: Melinda.Coughlan@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Dietary fibre as an adjunct therapy for reducing kidney injury in diabetes**
Supervisor(s): Assoc Prof Melinda Coughlan, Assoc Prof Elif Ekinci (External), and Dr Matthew Snelson
Email: Melinda.Coughlan@monash.edu
Applicable for: Masters, Hons, BMedSc

**The protective effects of Lipoxin A4 against diabetic nephropathy**
Supervisor(s): Dr Phillip Kantharidis and Dr Madhura Bose
Email: Phillip.Kantharidis@monash.edu
Applicable for: PhD, Hons, BMedSc

**Novel anti-inflammatory agents targeting atherosclerosis development in diabetes**
Supervisor(s): Dr Phillip Kantharidis and Dr Madhura Bose
Email: Phillip.Kantharidis@monash.edu
Applicable for: PhD, Hons, BMedSc

**Topical wound healing formulations in the context of diabetic complications**
Supervisor(s): Dr Tom Karagiannis
Email: Tom.Karagiannis@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Molecular mechanisms of action of dietary antioxidants and chromatin modifying compounds**
Supervisor(s): Dr Tom Karagiannis
Email: Tom.Karagiannis@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc
The Department of Gastroenterology undertakes research in gastroenterology and intestinal health and disease in a variety of specialist areas including nutrition, chronic liver and bowel disease, viral hepatitis and endoscopy. It is internationally recognised for its high-impact research and clinical expertise, including the invention of the low FODMAP (fermentable oligo-, di-, mono-saccharides and polyols) diet.

See more: [www.monash.edu/medicine/ccs/gastroenterology](http://www.monash.edu/medicine/ccs/gastroenterology)

**PROJECTS AVAILABLE:**

- [Dietary habits of patients with pouch-related habits](#)
  
  Supervisor(s): Dr Chu (CK) Yao and Dr Zaid Ardalan
  
  Email: [Chu.Yao@monash.edu](mailto:Chu.Yao@monash.edu)
  
  Applicable for: Hons, BMedSc, Short projects
The Monash University Department of Immunology and Pathology is internationally renowned for its combined expertise in research, teaching and service delivery in immunology and immunopathology.

There are extensive research programs in basic and translational immunology, including highly successful collaborations with the Alfred hospital and other ARA partners. The department's research activities target diseases including allergy, asthma, autoimmunity, inflammation, immunodeficiency, lupus, organ fibrosis, cancer and helminth infection. The department also focuses on investigating novel treatments, such as the regulation of the microbiota in disease.

See more: www.monash.edu/medicine/ccs/immunology

PROJECTS AVAILABLE:

**Targeting the blood feeding pathway of the hookworm parasites**
Supervisor(s): Prof Nicola Harris and Dr Tiffany Bouchery
Email: Nicola.Harris@monash.edu
Applicable for: Hons

**The role of the microbiota in the protection against re-infection with intestinal parasitic worms**
Supervisor(s): Prof Nicola Harris and Dr Mati Moyat
Email: Nicola.Harris@monash.edu
Applicable for: Hons

**Investigating immunity during “trickle” infection by helminth parasites**
Supervisor(s): Prof Nicola Harris and Dr Gillian Coakley
Email: Nicola.Harris@monash.edu
Applicable for: Hons

**Investigating the contribution of a newly identified myeloid cell gene - resistin-like gamma (mRetnlg) - during host immune responses**
Supervisor(s): Prof Nicola Harris and Prof Benjamin Marsland
Email: Nicola.Harris@monash.edu
Applicable for: PhD

**Exploring new pathways that control microglial signalling and neuroinflammation**
Supervisor(s): Assoc Prof Margaret Hibbs and Dr Bridgette Semple
Email: Margaret.Hibbs@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Defining the factors underpinning steroid-insensitive asthma**
Supervisor(s): Assoc Prof Margaret Hibbs
Email: Margaret.Hibbs@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Targeting the microbiome to prevent asthma**
Supervisor(s): Prof Benjamin Marsland and Dr Tomasz Wypych
Email: Benjamin.Marsland@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Does dietary protein intake influence susceptibility to respiratory diseases?**
Supervisor(s): Prof Benjamin Marsland and Dr Olaf Perdijk
Email: Benjamin.Marsland@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Therapeutic targeting of interleukin-22 for severe urinary tract infection and associated renal complications**
Supervisor(s): Dr Malcolm Starkey and Dr Bernadette Jones-Freeman
Email: Malcolm.Starkey@monash.edu
Applicable for: PhD, Hons

**Manipulating immunisation to achieve preferred outcomes**
Supervisor(s): Prof David Tarlinton and Dr Isaak Quast
Email: David.Tarlinton@monash.edu
Applicable for: PhD

**Using anti-venom antibodies to resolve toxicity, relatedness and improve protection**
Supervisor(s): Prof David Tarlinton, Assoc Prof Steven Rockman (External), and Prof Andrew Lew (External)
Email: David.Tarlinton@monash.edu
Applicable for: PhD
Department of Infectious Diseases

The Department of Infectious Diseases, Central Clinical School and Alfred Health, incorporates a large clinical service with active research programs in the fields of HIV, viral hepatitis, infections in the immunosuppressed (such as those with malignancy, in intensive care, and post-splenectomy), influenza, drug resistant organisms, antibiotic use and infection prevention and hospital epidemiology. The Department of Infectious Diseases integrates clinical services with clinical and basic science research with laboratories based within the Burnet Institute building.

See more: www.monash.edu/medicine/ccs/infectious-diseases

PROJECTS AVAILABLE:

**Using whole genome sequencing to understand the evolution of Shigella and enteroinvasive E. coli**
Supervisor(s): Dr Jane Hawkey and Prof Kathryn Holt
Email: Jane.Hawkey@monash.edu
Applicable for: Masters, Hons, BMedSc

**Surrogate Markers of Cardiovascular Disease in People with HIV**
Supervisor(s): Dr Janine Trevillyan and Prof Jennifer Hoy
Email: Janine.Trevillyan@monash.edu
Applicable for: BMedSc

**Genomics and metabolic modelling of Klebsiella, a drug resistant priority pathogen**
Supervisor(s): Dr Kelly Wyres and Prof Kathryn Holt
Email: Kelly.Wyres@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Comparative genomics analysis of Klebsiella oxytoca: an emerging cause of multi-drug resistant hospital infections**
Supervisor(s): Dr Kelly Wyres and Dr Jane Hawkey
Email: Kelly.Wyres@monash.edu
Applicable for: Masters, Hons, BMedSc

**Data surveillance, modelling for hepatitis B elimination**
Supervisor(s): Dr Joseph Doyle and Dr Jessica Howell
Email: Joseph.Doyle@monash.edu
Applicable for: PhD, Masters by research, Hons BMedSc(Hons)

**Public health interventions to achieve hepatitis B elimination and reduce liver cancer**
Supervisor(s): Dr Joseph Doyle and Dr Jessica Howell
Email: Joseph.Doyle@monash.edu
Applicable for: PhD, Masters by research, Hons BMedSc(Hons)

**Elimination of hepatitis C through rapid testing and treatment**
Supervisor(s): Dr Joseph Doyle
Email: Joseph.Doyle@monash.edu
Applicable for: PhD, Masters by research, Hons, BMedSc(Hons)

**Investigating plasmid transmission in clinical pathogens**
Supervisor(s): Dr Margaret Lam and Prof Kathryn Holt
Email: Margaret.Lam@monash.edu
Applicable for: Hons, BMedSc

**Combating antimicrobial resistance through use of genomics and artificial intelligence**
Supervisor(s): Dr Nenad Macesic
Email: Nenad.Macesic1@monash.edu
Applicable for: PhD, Masters, BMedSc, Short projects

**Which bug to blame? Determining the impact of co-infections on heart disease risk in people living with HIV**
Supervisor(s): Dr Janine Trevillyan and Prof Jennifer Hoy
Email: Janine.Trevillyan@monash.edu
Applicable for: BMedSc
The research expertise of the Department of Medicine spans six laboratories, working on health issues crucial to today’s society including skin cancer, multiple sclerosis, dermatology, developmental biology, endocrinology, neuroscience, and oncology. Many programs are closely integrated with clinical services at Alfred Health, which allows findings to be rapidly translated to therapeutics and health care.

See more: https://www.monash.edu/medicine/ccs/medicine-alfred

PROJECTS AVAILABLE:

Does loss of GRHL3 in neural crest cause spina bifida?

Supervisor(s): Dr Marina Carpinelli and Prof Stephen Jane

Email: Marina.Carpinelli@monash.edu

Applicable for: Hons, BMedSc
Department of Medicine (Peninsula)
The Academic Unit, Medicine, Peninsula Health, is comprised of researchers with varied but complementary skill sets whose goal is to conduct high quality translational research into chronic conditions affecting the ageing population. Expertise spans from clinical medicine, bioinformatics and imaging, health services research including data linkage, and biostatistics. Major initiatives include the study of poor metabolic health (e.g. obesity, type 2 diabetes) and dementia, cerebrovascular disease and dementia, frailty and delirium in hospitalized older people, novel technologies for designing health service delivery for stroke, and community systems of care for people with dementia. Members of the group have several local, national and international collaborations.

See more: [https://www.monash.edu/medicine/ccs/medicine-alfred/research/srikanth-group](https://www.monash.edu/medicine/ccs/medicine-alfred/research/srikanth-group)

PROJECTS AVAILABLE:

**Childhood determinants of midlife brain health**
Supervisor(s): Assoc Professor Michele Callisaya, Ms Taya Collyer, and Assoc Prof Seana Gall
Email: Michele.Callisaya@monash.edu
Applicable for: PhD, Hons

**Differences in physical activity predict differences in cognition between twin pairs discordant for diabetes**
Supervisor(s): Prof Velandai Srikanth and Dr Chris Moran
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Google based geospatial mapping of primary care uptake in patients with stroke**
Supervisor(s): Prof Velandai Srikanth, Dr Nadine Andrew, and Assoc Prof Richard Beare
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Rehabilitation in elective surgery**
Supervisor(s): Prof Velandai Srikanth, Dr Ashwin Subramanian, and Dr Ravindranath Tiruvoipati
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Dupuytrens disease patient-reported outcomes and a new treatment paradigm - multicentre study**
Supervisor(s): Prof Velandai Srikanth, Prof David Hunter-Smith, and Prof Warren Rozen
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Exploring artificial intelligence in vascular imaging for free-flap reconstructive surgery**
Supervisor(s): Prof Velandai Srikanth, Prof David Hunter-Smith, and Prof Warren Rozen
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Virtual and augmented reality in surgical training and patient education**
Supervisor(s): Prof Velandai Srikanth, Prof Warren Rozen, and Prof David Hunter-Smith
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Correlates of physical activity and brain structure in midlife in the UK Biobank**
Supervisor(s): Prof Velandai Srikanth and Dr Chris Moran
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Google-based geospatial mapping of hospital readmissions - towards identifying “hot spots”**
Supervisor(s): Prof Velandai Srikanth, Assoc Prof Richard Beare, and Dr Nadine Andrew
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Studying the patterns of emergency call-out and outcomes for older people living with a personal alarm system**
Supervisor(s): Prof Velandai Srikanth and Dr Nadine Andrew
Email: Velandai.Srikanth@monash.edu
Applicable for: Masters, Hons, BMedSc

**Exploring artificial intelligence in vascular imaging for free-flap reconstructive surgery**
Supervisor(s): Prof Velandai Srikanth, Prof David Hunter-Smith, and Prof Warren Rozen
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Virtual and augmented reality in surgical training and patient education**
Supervisor(s): Prof Velandai Srikanth, Prof Warren Rozen, and Prof David Hunter-Smith
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Dupuytrens disease patient-reported outcomes and a new treatment paradigm - multicentre study**
Supervisor(s): Prof Velandai Srikanth, Prof David Hunter-Smith, and Prof Warren Rozen
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Exploring artificial intelligence in vascular imaging for free-flap reconstructive surgery**
Supervisor(s): Prof Velandai Srikanth, Prof David Hunter-Smith, and Prof Warren Rozen
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Virtual and augmented reality in surgical training and patient education**
Supervisor(s): Prof Velandai Srikanth, Prof Warren Rozen, and Prof David Hunter-Smith
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc
Non-invasive volume clamp measurement of cardiac output - reliability studies
Supervisor(s): Prof Velandai Srikanth, Dr Ashwin Subramanian and Dr Ravindranath Tiruvoipati
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

ECG changes with coronary contrast injection as a marker of coronary microvascular dysfunction
Supervisor(s): Prof Velandai Srikanth and Dr Jamie Layland
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Evaluating sleep in intensive care unit - combining classic and novel tools
Supervisor(s): Prof Velandai Srikanth and Prof Ravindranath Tiruvoipati
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Validity of Surface Electromyography (sEMG) for the assessment of ICU acquired weakness
Supervisor(s): Prof Velandai Srikanth and Prof Ravindranath Tiruvoipati
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

The quality of GP care following stroke
Supervisor(s): Prof Velandai Srikanth and Dr Nadine Andrew
Email: Velandai.Srikanth@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc
Department of Neuroscience

The Department of Neuroscience has over 200 researchers and graduate students across a wide spectrum of neurological disorders. The specialist areas of the department are investigation of neurological, neuroscience, neurobehavioural, pharmacological and imaging based projects with respect to cognition and various brain disorders including epilepsy, neuroinflammation, neurodegenerative diseases, brain tumours, stroke and traumatic brain injury.

See more: www.monash.edu/medicine/ccs/neuroscience

PROJECTS AVAILABLE:

Making sense of the evidence regarding prevention of stroke and other arterial disease complications using non-procedural methods
Supervisor(s): Assoc Prof Anne Abbott and Prof Terry O’Brien
Email: Anne.Abbott@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc, Short projects

Novel neuro-cognitive markers of epileptiform activity
Supervisor(s): Dr Rubina Alpitsis, Dr Charles Malpas, Dr Joshua Laing, and Dr Genevieve Rayner
Email: Rubina.Alpitsis@monash.edu
Applicable for: Masters, Hons, BMedSc

Investigating the role of a Cav3.2 calcium channel mutation in contributing to the epileptic phenotype using congenic rat strains
Supervisor(s): Dr Pablo Casillas-Espinosa, and Prof Terence O’Brien
Email: Pablo.Casillas-Espinosa@monash.edu
Applicable for: PhD, Masters, Hons

Neuropharmacological strategies for disease modification and prevention of the development of epilepsy
Supervisor(s): Dr Pablo Casillas-Espinosa, Prof Terence O’Brien, Assoc Prof Sandy Shultz, and Assoc Prof Nigel Jones
Email: Pablo.Casillas-Espinosa@monash.edu
Applicable for: Masters, Hons, BMedSc

Biomarkers of epileptogenesis and epilepsy disease progression
Supervisor(s): Dr Pablo Casillas-Espinosa, Prof Terence O’Brien, Dr Idrish Ali, Assoc Prof Nigel Jones, and Assoc Prof Sandy Shultz
Email: Pablo.Casillas-Espinosa@monash.edu
Applicable for: PhD, M, Hons

Genetic determinants of temporal lobe epilepsy - a translational investigation
Supervisor(s): Dr Pablo Casillas-Espinosa, Prof Terence O’Brien, Assoc Prof Piero Perucca, Dr Alison Anderson, and Dr Bridgette Semple
Email: Pablo.Casillas-Espinosa@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Evaluating novel therapies to prevent post-stroke epilepsy and associated neurological impairments
Supervisor(s): Dr Pablo Casillas-Espinosa, Assoc Prof Sandy Shultz, and Prof Terence O’Brien
Email: Pablo.Casillas-Espinosa@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Drug repurposing in neurological disorders
Supervisor(s): Dr Pablo Casillas-Espinosa, Prof Terence O’Brien, Assoc Prof Piero Perucca, Dr Alison Anderson, and Dr Ralph Schittenhelm
Email: Pablo.Casillas-Espinosa@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Real-world health economic impact of first seizure and newly diagnosed epilepsy
Supervisor(s): Dr Zhibin Chen and Prof Patrick Kwan
Email: Ben.Chen1@monash.edu
Applicable for: Masters, Hons, BMedSc

One of the Department of Neuroscience's many strengths is in multiple sclerosis research. Our researchers celebrate Red Lab Coat Day.
Developing a drug-resistant epilepsy prediction score and modelling the health economic impact of its application
Supervisor(s): Dr Zhibin Chen, Prof Patrick Kwan, and Prof Danny Liew
Email: Ben.Chen1@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Exploring the neuropathological underpinnings of visual snow using MRI techniques
Supervisor(s): Assoc Prof Joanne Fielding, Dr Meaghan Clough, and Dr Scott Kolbe
Email: Joanne.Fielding@monash.edu
Applicable for: PhD, Hons, BMedSc

Characterising cognitive impairments in patients with neuromyelitis optica spectrum disorder
Supervisor(s): Assoc Prof Joanne Fielding, Prof Owen White, and Dr Meaghan Clough
Email: Joanne.Fielding@monash.edu
Applicable for: PhD, Masters, Hons

Exploring the cognitive profile of the migraineur
Supervisor(s): Assoc Prof Joanne Fielding, Dr Meaghan Clough, and Prof Owen White
Email: Joanne.Fielding@monash.edu
Applicable for: PhD, Masters

Multiple sclerosis and fluctuations in cognitive function: medication effects
Supervisor(s): Assoc Prof Joanne Fielding and Dr Meaghan Clough
Email: Joanne.Fielding@monash.edu
Applicable for: Masters, Hons

Longitudinal assessment of cognitive change in multiple sclerosis
Supervisor(s): Assoc Prof Joanne Fielding and Dr Meaghan Clough
Email: Joanne.Fielding@monash.edu
Applicable for: Masters, Hons, BMedSc

Neuromaging in Spinocerebellar Degeneratve Diseases: Quantifying Structural and Functional Changes in the Human Dentate Nucleus
Supervisor(s): Dr Ian Harding and Dr Will Khan
Email: Ian.Harding@monash.edu
Applicable for: Masters, Hons, BMedSc

Brain Networks in Subcortical Neurodegenerative Diseases: Using Neuroimaging to Characterise the Interactions between Cerebral, Striatal, and Cerebellar Systems
Supervisor(s): Dr Ian Harding and Dr Adeel Razi
Email: Ian.Harding@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Human MRI and PET imaging of Neuroimflammation, Oxidative Stress, and Metabolic Dysfunction: Common Pathways in Neurodegeneration
Supervisor(s): Dr Ian Harding and Prof Gary Egan
Email: Ian.Harding@monash.edu
Applicable for: PhD

MRI Studies of Brain Structure, Function, and Connectivity in Cerebellar Diseases
Supervisor(s): Dr Ian Harding, Dr David Szmulewicz, and Assoc Prof Louise Corben (External)
Email: Ian.Harding@monash.edu
Applicable for: PhD

Using light to control brain activity
Supervisor(s): Dr Matt Hudson and Assoc Prof Nigel Jones
Email: Matt.Hudson@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Diet and Multiple Sclerosis
Supervisor(s): Dr Vilija Jokubaitis, Ms Neha Kaul, Assoc Prof Anneke van der Walt, and Prof Helmut Butzkueven
Email: Vilija.Jokubaitis@monash.edu
Applicable for: Hons, BMedSc

Mendelian Randomisation studies in Multiple Sclerosis
Supervisor(s): Dr Vilija Jokubaitis and Dr Jim Stankovich
Email: Vilija.Jokubaitis@monash.edu
Applicable for: Hons, BMedSc

Does stress contribute to epilepsy?
Supervisor(s): Assoc Prof Nigel Jones and Dr Idrish Ali
Email: Nigel.Jones@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Neural oscillations and cognition
Supervisor(s): Assoc Prof Nigel Jones and Dr Matt Hudson
Email: Nigel.Jones@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

NMDA receptors, neural oscillations and cognition
Supervisor(s): Assoc Prof Nigel Jones and Dr Matt Hudson
Email: Nigel.Jones@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Stress and seizures
Supervisor(s): Assoc Prof Nigel Jones
Email: Nigel.Jones@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Does sugar really impair cognition?
Supervisor(s): Assoc Prof Nigel Jones and Dr Rachel Hill
Email: Nigel.Jones@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Antidepressants and post-traumatic epilepsy
Supervisor(s): Assoc Prof Nigel Jones
Email: Nigel.Jones@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

The role of microglial cells in epilepsy pathogenesis
Supervisor(s): Assoc Prof Nigel Jones, Dr Idrish Ali, and Dr Bridgette Semple
Email: Nigel.Jones@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc
**A new brain stimulation paradigm to treat depression**
Supervisor(s): Assoc Prof Nigel Jones, Dr Matt Hudson, and Dr Bridgette Semple
Email: Nigel.Jones@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Stimulating the brain to treat epilepsy**
Supervisor(s): Assoc Prof Nigel Jones, Dr Matt Hudson, Dr Idrish Ali, and Dr Juliana Silva
Email: Nigel.Jones@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Investigating the role of individual differences in sleep and sleep deprivation in risk for alcohol use disorder**
Supervisor(s): Dr Bianca Jupp
Email: Bianca.Jupp@monash.edu
Applicable for: Hons, BMedSc

**Development of a low cost, point-of-care diagnostic platform**
Supervisor(s): Prof Patrick Kwan and Dr Jianxiong Chan
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Acquired epilepsy in Alzheimer's disease**
Supervisor(s): Prof Patrick Kwan and Assoc Prof Nigel Jones
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Management and prognosis of first seizure and newly diagnosed epilepsy**
Supervisor(s): Prof Patrick Kwan and Dr Zhibin Chen
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Wearable devices for non-invasive, ambulatory seizure monitoring and prediction**
Supervisor(s): Prof Patrick Kwan and Prof Terence O'Brien
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Clinical utility and cost-effectiveness of genomic sequencing for epilepsy**
Supervisor(s): Prof Patrick Kwan and Dr Alison Anderson
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Predictors and mechanisms of cutaneous adverse drug reactions: a multi-omic approach**
Supervisor(s): Prof Patrick Kwan and Dr Alison Anderson
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Long-term Prognosis of Antiepileptic Drug Therapy in People with Newly Diagnosed and Treated Epilepsy**
Supervisor(s): Prof Patrick Kwan and Dr Zhibin Chen
Email: Patrick.Kwan@monash.edu
Applicable for: Masters, Hons, BMedSc

**Treatment Gap in People with Newly Diagnosed Epilepsy in Australia**
Supervisor(s): Prof Patrick Kwan and Dr Zhibin Chen
Email: Patrick.Kwan@monash.edu
Applicable for: Masters, Hons, BMedSc

**Curating structural variants in epilepsy**
Supervisor(s): Prof Patrick Kwan and Dr Alison Anderson
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, Masters, Hons

**Understanding personality profiles of the epilepsy syndromes**
Supervisor(s): Prof Charles Malpas, Dr Genevieve Rayner, and Assoc Prof Rubina Alpitsis
Email: Charles.Malpas@monash.edu
Applicable for: Masters, Hons, BMedSc

**Modelling the dynamics of fundamental cognitive functions during video electroencephalography monitoring**
Supervisor(s): Dr Charles Malpas, Dr Genevieve Rayner, and Assoc Prof Rubina Alpitsis
Email: Charles.Malpas@monash.edu
Applicable for: Masters, Hons, BMedSc

**Early Identification of Psychological Comorbidities in People with Epilepsy to Improve Outcomes**
Supervisor(s): Dr Charles Malpas, Dr Genevieve Rayner and Assoc Prof Rubina Alpitsis
Email: Charles.Malpas@monash.edu
Applicable for: Masters, Hons, BMedSc

**Neurobiological mechanisms of vulnerability to repeated concussions**
Supervisor(s): Dr Stuart McDonald, Assoc Prof Sandy Shultz, and Assoc Prof Richelle Mychasiuk
Email: Stuart.McDonald@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**The effect of human amnion epithelial cells on traumatic brain injury outcomes**
Supervisor(s): Dr Stuart McDonald and Dr Bridgette Semple
Email: Stuart.McDonald@monash.edu
Applicable for: Hons

**Circulating microRNA as biomarkers of concussion**
Supervisor(s): Dr Stuart McDonald and Assoc Prof Sandy Shultz
Email: Stuart.McDonald@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Cracking one of the brain codes: Mathematical-computational model of the multiscale brain network dynamics in patients with epilepsy**
Supervisor(s): Dr Steve Mehrkanoon
Email: Steve.Mehrkanoon@monash.edu
Applicable for: PhD, Masters, Hons

**Localising the epileptogenic-zone in the brain: A dynamic network connectivity approach**
Supervisor(s): Dr Steve Mehrkanoon, Dr Andrew Neal, Prof Patrick Kwan, and Prof Terry O'Brien
Email: Steve.Mehrkanoon@monash.edu
Applicable for: PhD, Masters, Hons
Modelling complex spatiotemporal dynamics of multiscale networked biological systems:
Computational spike propagation
Supervisor(s): Dr Steve Mehrkanoon
Email: Steve.Mehrkanoon@monash.edu
Applicable for: PhD, Masters

Social rehabilitation to rescue social deficits after paediatric brain injury
Supervisor(s): Dr Bridgette Semple
Email: Bridgette.Semple@monash.edu
Applicable for: Hons, BMedSc

The Role of the Microbiome in Recovery from Repetitive Mild Traumatic Brain Injury
Supervisor(s): Assoc Professor Richelle Mychasiuk
Email: Richelle.Mychasiuk@monash.edu
Applicable for: PhD, Masters, Hons

Exploring new pathways that control microglial signalling and neuroinflammation
Supervisor(s): Dr Bridgette Semple and Assoc Prof Margaret Hibbs
Email: Bridgette.Semple@monash.edu
Applicable for: Masters, Hons, BMedSc

Quality of life, satisfaction and tolerability associated with stereo-EEG
Supervisor(s): Dr Andrew Neal and Dr Genevieve Rayner
Email: Andrew.Neal@monash.edu
Applicable for: PhD, Masters

Infections and epilepsy after traumatic brain injury
Supervisor(s): Dr Bridgette Semple and Prof Terrence O’Brien
Email: Bridgette.Semple@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Developing a signature of the epileptogenic zone with stereo-EEG and cortical stimulation
Supervisor(s): Dr Andrew Neal, Assoc Prof Nigel Jones, and Dr Matthew Hudson
Email: Andrew.Neal@monash.edu
Applicable for: PhD, Masters

A Pharmacogenomics study of the teratogenicity valproate based on the prospective Australian Register for Anti-epileptic Drugs in Pregnancy
Supervisor(s): Prof Terence O’Brien, Prof Frank Vajda (External), Dr Alison Anderson, Dr Charles Malpas, and Dr Piero Perucca
Email: Terence.OBrien@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc, Grad Dip, Short projects

Identifying Predictors of Death in Patients with Epileptic and Psychogenic Seizures
Supervisor(s): Prof Terence O’Brien, Prof Patrick Kwan, Dr Shobi Sivathamboo, and Dr Charles Malpas
Email: Terence.OBrien@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc, Grad Dip, Short projects

Sodium Selenate as a Disease Modifying Treatment for Probable Behavioural Variant Front-temporal Dementia
Supervisor(s): Prof Terence O’Brien, Dr Lucy Viviash, Dr Charles Malpas, and Prof Dennis Velakoulis (External)
Email: Terence.OBrien@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc, Grad Dip, Short projects

Whole genomic sequencing analysis of genetic and acquired rat strains
Supervisor(s): Prof Terence O’Brien, Dr Pablo Casillas-Espinosa, and Dr Bridgette Semple
Email: Terence.OBrien@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc, Grad Dip, Short projects

Social rehabilitation to rescue social deficits after paediatric brain injury
Supervisor(s): Dr Bridgette Semple
Email: Bridgette.Semple@monash.edu
Applicable for: Hons, BMedSc

Exploring new pathways that control microglial signalling and neuroinflammation
Supervisor(s): Dr Bridgette Semple and Assoc Prof Margaret Hibbs
Email: Bridgette.Semple@monash.edu
Applicable for: Masters, Hons, BMedSc

Infections and epilepsy after traumatic brain injury
Supervisor(s): Dr Bridgette Semple and Prof Terrence O’Brien
Email: Bridgette.Semple@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc
Department of Surgery

Assoc Prof Heather Cleland and Dr Shiva Akbarzadeh with a colleague in the lab.

The Department of Surgery, part of the CCS’s Division of Clinical Sciences, is a centre for clinical and surgical research and education, contributing to Monash’s MBBS and offering postgraduate study programs.

Surgical techniques and applications are constantly evolving. Research in the Department of Surgery includes programs in a wide variety of areas such as trauma, burns, cardiothoracic, colorectal, endocrine, upper gastrointestinal, urology, orthopaedics, spine injury, general surgery and neurosurgery specialisations.

The Department of Surgery is closely associated with the National Trauma Research Institute.

See more: www.monash.edu/medicine/ccs/surgery-alfred

PROJECTS AVAILABLE:

Investigating the use of Lectins for epidermal stem and progenitor cells enrichment
Supervisor(s): Dr Shiva Akbarzadeh and Assoc Prof Heather Cleland
Email: Shiva.Akbarzadeh@monash.edu
Applicable for: PhD, Masters

Measuring the inflammatory response to bariatric surgery
Supervisor(s): Dr Paul Burton
Email: Paul.Burton@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Outcomes of gastro-oesophageal cancer in Victoria
Supervisor(s): Dr Paul Burton
Email: Paul.Burton@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Examining the inflammatory profile of adipose tissue in oesophageal cancer
Supervisor(s): Dr Paul Burton
Email: Paul.Burton@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Comparative outcomes of sleeve gastrectomy and adjustable gastric banding
Supervisor(s): Dr Paul Burton
Email: Paul.Burton@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Outcomes of major bariatric surgical procedures
Supervisor(s): Dr Paul Burton
Email: Paul.Burton@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

The role of oesophageal manometry in Upper GI surgery
Supervisor(s): Dr Paul Burton
Email: Paul.Burton@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

Intravenous Nanotechnology for Haemorrhage Control in Trauma
Supervisor(s): Professor Mark Fitzgerald, Dr Joseph Mathew and Prof Nicolas Voelcker
Email: Mark.Fitzgerald@monash.edu
Applicable for: PhD

Understanding uveitis and steroid induced cataract
Supervisor(s): Adj Clin Assoc Prof Anthony Hall and Assoc Prof Lyndell Lim (External)
Email: Anthony.Hall@monash.edu
Applicable for: BMedSc

Diabetic retinopathy during pregnancy
Supervisor(s): Adj Clin AssProf Anthony Hall and Assoc Prof Lyndell Lim (External)
Email: Anthony.Hall@monash.edu
Applicable for: BMedSc

Care Pathways for Patients with Rib Fractures
Supervisor(s): Dr Teresa Howard and Dr Kate Martin
Email: Teresa.Howard@monash.edu
Applicable for: BMedSc

What is the evidence base required to introduce new surgical techniques: The Rib Fixation Study
Supervisor(s): Dr Silvana Marasco and Prof Mark Fitzgerald
Email: smarasco@monash.edu
Applicable for: Masters, Hons, BMedSc

Obesity related systemic inflammation as a driver of Non-alcoholic fatty liver disease
Supervisor(s): Dr Paul Burton
Email: Paul.Burton@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc
The M-Ed Precinct at the Central Clinical School is responsible for coordinating teaching for Monash MBBS students in their final three clinical years (Years 3B, 4C & 5D). The key goals of M-Ed are focused on teaching patient centred bedside skills, as well as providing the students with in depth theoretical medical knowledge and clinical skills training. With these comprehensive teaching elements acting together we hope to give the students the best opportunities within a challenging and supportive learning environment. Here we place emphasis on quality teaching with exceptional resources and using engaging teaching tools to set our medical students up for their future practice.

Our research projects focus on the area of medical education and how educational ideas and tools can be best utilised within the medical education program.

See more:
https://www.monash.edu/medicine/ccs/education/umed
Melbourne Sexual Health Centre (MSHC)

The Melbourne Sexual Health Centre (MSHC) is a specialised unit for the prevention, diagnosis, treatment and management of sexually transmissible infections (STIs, including HIV). It is a principal centre for training health professionals in Victoria. The Centre conducts epidemiological, public health, and clinical research primarily aimed at improving the services offered at MSHC and to advance standards of sexual health in the community.

See more:
www.monash.edu/medicine/ccs/sexual-health
www.mshc.org.au

PROJECTS AVAILABLE:

**Novel approaches to diagnosing and controlling bacterial sexually transmitted infections**
Supervisor(s): Assoc Prof Eric Chow, Assoc Prof Marcus Chen, and Prof Christopher Fairley
Email: Eric.Chow@monash.edu
Applicable for: PhD, Hons, BMedSc

**HIV testing trends and patterns among heterosexuals in Melbourne**
Supervisor(s): Assoc Prof Eric Chow and Prof Christopher Fairley
Email: Eric.Chow@monash.edu
Applicable for: PhD, Hons, BMedSc, Short projects

**Trend in different contraception methods among women in Melbourne**
Supervisor(s): Assoc Prof Eric Chow and Prof Christopher Fairley
Email: Eric.Chow@monash.edu
Applicable for: Hons, BMedSc, Short projects

**Nudging people to attend medical consultations**
Supervisor(s): Dr Jason Ong
Email: Jason.Ong@monash.edu
Applicable for: Grad Dip, Hons, BMedSc, Short projects

**Cost-effectiveness of molecular resistance assays to guide individual treatment strategies for gonorrhoea in Indigenous and other populations at higher risk of infection**
Supervisor(s): Dr Jason Ong
Email: Jason.Ong@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Targeting HIV testing using risk-based tools: a systematic literature review**
Supervisor(s): Dr Jason Ong
Email: Jason.Ong@monash.edu
Applicable for: Grad Dip, Grad Cert, Hons, BMedSc, Short projects

**Leaving no one behind: community-driven approaches to eliminate HIV in Australia**
Supervisor(s): Dr Jason Ong
Email: Jason.Ong@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc, Short projects

**Patient delivered partner therapy for chlamydia**
Supervisor(s): Dr Jason Ong
Email: Jason.Ong@monash.edu
Applicable for: Masters, Grad Dip, Grad Cert, Hons, BMedSc, Short projects

**Cost-effectiveness of molecular resistance assays to guide individual treatment strategies for gonorrhoea in Indigenous and other populations at higher risk of infection**
Supervisor(s): Dr Jason Ong
Email: Jason.Ong@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc

**Targeting HIV testing using risk-based tools: a systematic literature review**
Supervisor(s): Dr Jason Ong
Email: Jason.Ong@monash.edu
Applicable for: Grad Dip, Grad Cert, Hons, BMedSc, Short projects

**Leaving no one behind: community-driven approaches to eliminate HIV in Australia**
Supervisor(s): Dr Jason Ong
Email: Jason.Ong@monash.edu
Applicable for: PhD, Masters, Hons, BMedSc, Short projects
Monash Alfred Psychiatry research centre (MAPrc)

MAPrc researchers

Monash Alfred Psychiatry research centre (MAPrc) is one of Australia’s largest clinical research centres in psychiatry. The centre has a long track record of producing world class research with direct clinical translation.

The key goal of MAPrc is to conduct clinical research aimed at developing new treatments with direct, effective, and immediate applications. The research covers all ages and many different mental illnesses. MAPrc research is integrated with clinical practice, based in the Alfred Hospital in affiliation with Monash University.

We have a multidisciplinary group of researchers with a research agenda that meets clinical and social needs and has a short 1–5 year timeline to real clinical impact.

See more: www.maprc.org.au

PROJECTS AVAILABLE:

Is heart rate activity more dynamically modulated by neural activity in mindfulness meditators?
Supervisor(s): Dr Neil Bailey
Email: Neil.Bailey@monash.edu
Applicable for: PhD, Hons, BMedSc

EEG measures of mindfulness meditation - a meta-analysis
Supervisor(s): Dr Neil Bailey
Email: Neil.Bailey@monash.edu
Applicable for: Hons, BMedSc

Can cognitive or resting EEG data reveal biomarkers related to mental illness diagnoses?
Supervisor(s): Dr Neil Bailey and Assoc Prof Kate Hoy
Email: Neil.Bailey@monash.edu
Applicable for: Hons, BMedSc

Do cognition related EEG measures show similar brain activity across tasks? A large-scale replication study.
Supervisor(s): Dr Neil Bailey and Assoc Prof Kate Hoy
Email: Neil.Bailey@monash.edu
Applicable for: Hons

Diversity and Clinical Neuroscience: Increasing the equity and generalisability of neuroscience based treatments.
Supervisor(s): Dr Neil Bailey and Assoc Prof Kate Hoy
Email: Neil.Bailey@monash.edu
Applicable for: PhD, Masters

Cognitive functioning and emotion processing during the menopause transition
Supervisor(s): Dr Caroline Gurvich, Prof Jayashri Kulkarni, and Dr Natalie Thomas
Email: Caroline.Gurvich@monash.edu
Applicable for: PhD, Hons, BMedSc

Impact of type and timing of childhood trauma on adult cognition and psychopathology
Supervisor(s): Dr Caroline Gurvich, Prof Jayashri Kulkarni, and Dr Natalie Thomas
Email: Caroline.Gurvich@monash.edu
Applicable for: PhD, Hons, BMedSc

Sex hormones and cognitive changes with aging
Supervisor(s): Dr Caroline Gurvich and Assoc Prof Kate Hoy
Email: Caroline.Gurvich@monash.edu
Applicable for: PhD, Hons, BMedSc

Genital Self-Image Concerns in Adolescents: The Rise of Cosmetic Genital Surgery
Supervisor(s): Dr Gemma Sharp and Prof Jayashri Kulkarni
Email: Gemma.Sharp@monash.edu
Applicable for: PhD, Hons, BMedSc

Snapchat Dysmorphia: The role of social media in body image concerns
Supervisor(s): Dr Gemma Sharp and Prof Jayashri Kulkarni
Email: Gemma.Sharp@monash.edu
Applicable for: PhD, Hons, BMedSc

Body Image and Eating Disorder Interventions Using Artificial Intelligence
Supervisor(s): Dr Gemma Sharp and Prof Jayashri Kulkarni
Email: Gemma.Sharp@monash.edu
Applicable for: PhD, Masters, Hons

Cognitive Functioning in Women with Polycystic Ovary Syndrome
Supervisor(s): Dr Lizzie Thomas and Dr Caroline Gurvich
Email: Elizabeth.Thomas@monash.edu
Applicable for: Hons, BMedSc

Diversity and Clinical Neuroscience: Increasing the equity and generalisability of neuroscience based treatments.
Supervisor(s): Dr Neil Bailey and Assoc Prof Kate Hoy
Email: Neil.Bailey@monash.edu
Applicable for: PhD, Masters

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Email: Caroline.Gurvich@monash.edu
Applicable for: PhD, Hons, BMedSc

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Applicable for: PhD, Hons, BMedSc

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Email: Caroline.Gurvich@monash.edu
Applicable for: PhD, Hons, BMedSc

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Email: Gemma.Sharp@monash.edu
Applicable for: PhD, Hons, BMedSc

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Supervisor(s): Dr Gemma Sharp and Prof Jayashri Kulkarni
Email: Gemma.Sharp@monash.edu
Applicable for: PhD, Masters, Hons

Cognitive Functioning in Women with Polycystic Ovary Syndrome
Supervisor(s): Dr Lizzie Thomas and Dr Caroline Gurvich
Email: Elizabeth.Thomas@monash.edu
Applicable for: Hons, BMedSc

Diversity and Clinical Neuroscience: Increasing the equity and generalisability of neuroscience based treatments.
Supervisor(s): Dr Neil Bailey and Assoc Prof Kate Hoy
Email: Neil.Bailey@monash.edu
Applicable for: PhD, Masters

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Email: Gemma.Sharp@monash.edu
Applicable for: PhD, Masters, Hons

Cognitive Functioning in Women with Polycystic Ovary Syndrome
Supervisor(s): Dr Lizzie Thomas and Dr Caroline Gurvich
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