HONOURS AND GRADUATE RESEARCH
2019 PROJECTS
CENTRAL CLINICAL SCHOOL

A partnership between:

monash.edu/medicine/ccs
Cover: Dr Tom Karagiannis, Department of Diabetes research leader with members of his lab.
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Honours and Graduate Research study through 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 Diabetes
- Department of Gastroenterology
- Department of Immunology and Pathology
- Department of Infectious Diseases
- Department of Medicine
- Department of Neuroscience
- Department of Surgery
- Melbourne Sexual Health Centre (MSHC)
- Monash Alfred Psychiatry research centre (MAPrc)

How to use this index booklet

This index booklet lists the Honours/PhD projects on offer for 2019. 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.

Further information links and entry requirements:

- BMedSc(Hons) at CCS
- Immunology & Human Pathology
- Masters and GR
- Graduate Certificate
- AMREP Scholarships

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 GR Student Services
E: ccs.hdr@monash.edu
P: 9903 0368
Key for projects at the Central Clinical School

This booklet lists projects suitable for a number of streams at the Central Clinical School, listed below. Each project has a key for the applicable stream:

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Translational Research Pathways

Intake and Education Options

- Domestic and International Applications
  - UNDERGRADUATE: Biomedical Science, Science, Medical Science, Health Sciences, Allied Health Degree
  - POSTGRADUATE: Graduate Certificate in Translational Research, Masters in Biostatistics, Masters in Biomedical and Health Sciences
  - DOCTORAL: Translational Research

Career Paths

- MEDICINE
  - Translational Research
  - Flexibility with career prospects: Clinician-Scientist, Biopharmaceutical Industry, Clinical Research Associate, Clinical Trials, Business Development Manager, Patent Law, Spin-out Company Director, Research and Development Scientist, Post-doctoral Scientist, Academic, NHMRC Administrator

- SCIENCE
  - ALLIED HEALTH

www.monash.edu/medicine/ccs/education
Australian Centre for Blood Diseases (ACBD)

ACBD has many research groups investigating blood clotting and cancer diseases. Pictured here is Prof Andrew Perkins (left), 2018 Honours student Shezlie Rae Malelang and Research Officer, Graham Magor

The Australian Centre for Blood Diseases (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 Healthl, 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](http://www.monash.edu/medicine/ccs/blood-disease)

PROJECTS AVAILABLE:

**Platelet Analysis**

**Supervisor(s):** Assoc Professor Robert Andrews

Email: Rob.Andrews@monash.edu

**Applicable for:** PhD, Hons, BMedSc

**Impact of Prmt5-mediated inhibition of splice factors on Myelodysplastic syndrome**

**Supervisor(s):** Assoc Professor David Curtis & Dr Christina Tebartz

Email: David.Curtis@monash.edu

**Applicable for:** Hons, BMedSc

**Investigating a novel target of the epigenetic regulator Prmt5 in Acute Myeloid Leukaemia**

**Supervisor(s):** Assoc Professor David Curtis & Dr Emma Toulin

Email: David.Curtis@monash.edu

**Applicable for:** Hons, BMedSc

**Investigating the role of the methyltransferase Prmt5 in haematopoietic cells**

**Supervisor(s):** Assoc Professor David Curtis & Dr Stefan Sonderegger

Email: David.Curtis@monash.edu

**Applicable for:** Hons, BMedSc

**Stimulating cell cycle to sensitize leukemic cells to chemotherapy**

**Supervisor(s):** Assoc Professor David Curtis & Dr Cedric Tremblay

Email: David.Curtis@monash.edu

**Applicable for:** Hons, BMedSc

**Releasing the differentiation block in acute myeloid leukaemia**

**Supervisor(s):** Assoc Professor Ross Dickins & Assoc Prof Matthew McCormack

Email: Ross.Dickins@monash.edu

**Applicable for:** PhD, M, Hons, BMedSc

**Glucose responsive insulin nanoparticle for the treatment of diabetes**

**Supervisor(s):** Assoc Professor Christoph Hagemeyer & Dr Ting-Yi Wang

Email: Christoph.Hagemeyer@monash.edu

**Applicable for:** PhD, M, Hons, BMedSc, Short projects

**Recombinant agents for efficient and safe anticoagulation and thrombolysis**

**Supervisor(s):** Assoc Professor Christoph Hagemeyer & Dr Be’eri Niego

Email: Christoph.Hagemeyer@monash.edu

**Applicable for:** PhD, M, Hons, BMedSc, Short projects

**Single-chain antibody-targeted nanoparticles for diagnosis of vascular diseases**

**Supervisor(s):** Assoc Professor Christoph Hagemeyer & Dr Karen Alt

Email: Christoph.Hagemeyer@monash.edu

**Applicable for:** PhD, M, Hons, BMedSc, Short projects

**Targeting (homing) stem cells for the treatment of atherosclerosis, myocardial infarction and stroke**

**Supervisor(s):** Assoc Professor Christoph Hagemeyer & Dr Ting-Yi Wang

Email: Christoph.Hagemeyer@monash.edu

**Applicable for:** PhD, M, Hons, BMedSc, Short projects

**Targeted virus particles for genetic transfer of fusion proteins to inhibit atherosclerosis**

**Supervisor(s):** Assoc Professor Christoph Hagemeyer & Dr Ting-Yi Wang

Email: Christoph.Hagemeyer@monash.edu

**Applicable for:** PhD, M, Hons, BMedSc, Short projects

Professor Andrew Perkins (left) and his group have recently joined ACBD
Inhibition of the platelet thrombin receptor PAR4 to prevent thrombosis in coronary artery disease
Supervisor(s): Assoc Professor Justin Hamilton
Email: Justin.Hamilton@monash.edu
Applicable for: PhD, M, Hons, BMedSc

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

Impact of inhibition of methyltransferase Prmt5 on Myelodysplastic syndrome
Supervisor(s): Dr Christina Makhlouf
Email: Christina.Makhlouf@monash.edu
Applicable for: Hons, BMedSc

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

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

The effect of anti-fibrinolytic agents on the immune and inflammatory response following major trauma
Supervisor(s): Professor Robert Medcalf
Email: Robert.Medcalf@monash.edu
Applicable for: PhD, Hons, BMedSc

To evaluate new drugs to improve the response to traumatic brain injury
Supervisor(s): Professor Robert Medcalf
Email: Robert.Medcalf@monash.edu
Applicable for: PhD, Hons, BMedSc

t-PA effects on the blood-brain barrier in a mouse model of ischaemic stroke; evaluation of new drug delivery system
Supervisor(s): Professor Robert Medcalf
Email: Robert.Medcalf@monash.edu
Applicable for: PhD, Hons, BMedSc

Adhesion-receptor-independent platelet mechano-sensing of shear acceleration gradients at stenosis
Supervisor(s): Dr Warwick Nesbitt, Assoc Professor Justin Hamilton & Prof Arnann Mitchell(External)
Email: Warwick.Nesbitt@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Development of biophotonic blood sensors for cardiac biomarker testing
Supervisor(s): Dr Warwick Nesbitt & Prof Arnann Mitchell(External)
Email: Warwick.Nesbitt@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Gene editing of a master regulator of transcription to cure sickle cell disease
Supervisor(s): Professor Andrew Perkins & Dr Kevin Gillinder
Email: Andrew.Perkins@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Genomics and Pre-clinical Models of Erythroleukaemia
Supervisor(s): Professor Andrew Perkins & Dr Catherine Carmichael
Email: Andrew.Perkins@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Reprogramming differentiated adult cells into hematopoietic stem cells
Supervisor(s): Professor Andrew Perkins & Dr Kevin Gillinder
Email: Andrew.Perkins@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Analysing new targets of JAK-STAT signalling in normal blood development and blood cancers
Supervisor(s): Professor Andrew Perkins & Dr Kevin Gillinder
Email: Andrew.Perkins@monash.edu
Applicable for: PhD, M, Hons, BMedSc

www.monash.edu/medicine/ccs/education
The Baker Institute is an independent medical research facility. The Institute’s work extends from the laboratory 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 on the Alfred Medical Research and Education Precinct.

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

PROJECTS AVAILABLE:

**Novel Regulation of Lipid Metabolism**
Supervisor(s): Dr Anna Calkin & Dr Brian Drew
Email: anna.calkin@monash.edu
Applicable for: PhD, Hons, BMedSc

**Activating the major regulator of oxidative stress, Nrf2, with novel small molecules to limit diabetic vascular disease**
Supervisor(s): Dr Judy De Haan-Klein & Dr Arpeeta Sharma
Email: Judy.De.Haan-Klein@monash.edu
Applicable for: PhD, M, Hons, BMedSc

**Antioxidant and anti-inflammatory effect of pomegranate polyphenols on diabetic cardiovascular disease**
Supervisor(s): Dr Judy De Haan-Klein & Prof Rebecca Ritchie
Email: Judy.De.Haan-Klein@monash.edu
Applicable for: PhD, Hons, BMedSc

**Improving endothelial dysfunction through the use of Nrf2 activators as a novel treatment strategy to lessen diabetes-associated hypertension**
Supervisor(s): Dr Judy De Haan-Klein, Prof Geoff Head & Dr Arpeeta Sharma
Email: Judy.De.Haan-Klein@monash.edu
Applicable for: PhD, M, Hons, BMedSc

**Inhibition of the NLRP3-inflammasome as a novel strategy to limit diabetic cardiomyopathy**
Supervisor(s): Dr Judy De Haan-Klein & Prof Rebecca Ritchie
Email: Judy.De.Haan-Klein@monash.edu
Applicable for: PhD, M, Hons, BMedSc

**Targeting novel regulators of exercise induced heart growth to treat heart failure and complications including atrial fibrillation**
Supervisor(s): Adj Assoc Professor Julie McMullen, Dr Bianca Bernardo, Dr Kate Weeks & Dr Jenny Ooi
Email: Julie.McMullen@monash.edu
Applicable for: PhD, M, Hons, BMedSc

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

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

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

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

**Plasmalogen modulation: a potential therapeutic approach for metabolic diseases**
Supervisor(s): Professor Peter Meikle & Dr Graeme Lancaster
Email: Peter.Meikle@monash.edu
Applicable for: PhD
Burnet Institute

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: Infectious diseases, maternal and child health, and young people’s health.

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

PROJECTS AVAILABLE:

Developing vaccines against malaria
Supervisor(s): Professor James Beeson & Dr Herbert Opi
Email: James.Beeson@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Discovering the mechanisms and targets of immunity against malaria
Supervisor(s): Professor James Beeson & Dr Gaoqian Feng
Email: James.Beeson@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Healthy Mothers, Healthy Babies: maternal nutrition and inflammation and their impact on pregnancy outcomes
Supervisor(s): Professor James Beeson, Assoc Prof Freya Fowkes & Dr Philippe Boeuf(External)
Email: James.Beeson@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Understanding malaria transmission and immunity to inform malaria elimination
Supervisor(s): Professor James Beeson, Dr JoAnne Chan(External) & Assoc Prof Freya Fowkes
Email: James.Beeson@monash.edu
Applicable for: PhD, M, Hons, BMedSc
Department of Diabetes

PhD student Matthew Snelson (right) is supervised by A/Prof Melinda Coughlan

The newly instituted Monash University Department of Diabetes 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. It is the first and only university department in Australia solely dedicated to diabetes research.

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

PROJECTS AVAILABLE:

Characterization of the prototype inhibitor of CDA1, CHA-061, in diabetic nephropathy in Akita mice
Supervisor(s): Dr Zhong-Lin Chai & Prof Mark Cooper
Email: Zhonglin.Chai@monash.edu
Applicable for: PhD, M, Hons, BMEdSc

Characterization of the prototype inhibitor of CDA1, CHA-061, in diabetic nephropathy in db/db mice
Supervisor(s): Dr Zhong-Lin Chai & Prof Mark Cooper
Email: Zhonglin.Chai@monash.edu
Applicable for: PhD, M, Hons, BMEdSc

To improve the potency of CHA-061, the prototype peptide inhibitor of CDA1
Supervisor(s): Dr Zhong-Lin Chai & Dr David Chalmers
Email: Zhonglin.Chai@monash.edu
Applicable for: PhD, M, Hons, BMEdSc

Exploring the molecular consequences of processed food intake
Supervisor(s): Assoc Professor Melinda Coughlan
Email: Melinda.Coughlan@monash.edu
Applicable for: PhD, M, Hons, BMEdSc

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

Targeting the C5a-C5aR1 axis in diabetic nephropathy
Supervisor(s): Assoc Professor Melinda Coughlan & Dr Sih Min Tan
Email: Melinda.Coughlan@monash.edu
Applicable for: PhD, M, Hons, BMEdSc

Clinical epigenetics and molecular based therapies
Supervisor(s): Professor Sam El-Osta, Dr Harikrishnan K.N. & Dr Jun Okabe
Email: Sam.El-Osta@monash.edu
Applicable for: PhD, Hons, BMEdSc

Epigenetics of diabetes, mapping the human methylome and building the epigenomic atlas of Type 1 Diabetes
Supervisor(s): Professor Sam El-Osta, Dr Ishant Khurana & Prof Mark Cooper
Email: Sam.El-Osta@monash.edu
Applicable for: PhD, Hons, BMEdSc

Role of non-coding RNAs in vascular disease
Supervisor(s): Professor Sam El-Osta & Dr Jun Okabe
Email: Sam.El-Osta@monash.edu
Applicable for: PhD, Hons, BMEdSc

Set7 methyltransferase as a target to reduce the burden of diabetic complications
Supervisor(s): Professor Sam El-Osta & Dr Jun Okabe
Email: Sam.El-Osta@monash.edu
Applicable for: PhD, Hons, BMEdSc

The legacy of memory
Supervisor(s): Professor Sam El-Osta, Prof Mark Cooper & Dr Jun Okabe
Email: Sam.El-Osta@monash.edu
Applicable for: PhD, Hons, BMEdSc

The role of Nox5 in diabetes associated complications
Supervisor(s): Dr Jay Jha & Prof Karin Jandeleit-Dahm
Email: Jay.Jha@monash.edu
Applicable for: PhD, M, Hons, BMEdSc, Grad Cert

The role of Nox5 in diabetic kidney disease
Supervisor(s): Dr Jay Jha & Prof Karin Jandeleit-Dahm
Email: Jay.Jha@monash.edu
Applicable for: M, Hons, BMEdSc, Grad Cert, Short projects

Novel anti-inflammatory agents targeting atherosclerosis development in diabetes
Supervisor(s): Dr Phillip Kantharidis
Email: Phillip.Kantharidis@monash.edu
Applicable for: PhD, Hons, BMEdSc
RNA biomarkers predictive of the development of diabetic nephropathy
Supervisor(s): Dr Phillip Kantharidis
Email: Phillip.Kantharidis@monash.edu
Applicable for: PhD, Hons, BMedSc

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

Molecular mechanisms of action of dietary antioxidants and chromatin modifying compounds
Supervisor(s): Mr Tom Karagiannis
Email: Tom.Karagiannis@monash.edu
Applicable for: PhD, M, Hons, BMedSc

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

Augmenting the expression and activity of glyoxalase-1 as a means to slow ageing
Supervisor(s): Professor Merlin Thomas & Dr Raelene Pickering
Email: Merlin.Thomas@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Cell penetrating peptides as a means to deliver intracrine hormones
Supervisor(s): Professor Merlin Thomas & Dr Carlos Rosado
Email: Merlin.Thomas@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Modulating ACE2 shedding to prevent diabetic complications
Supervisor(s): Professor Merlin Thomas & Dr Christos Tikellis
Email: Merlin.Thomas@monash.edu
Applicable for: M, Hons, BMedSc

Do renal nerves contribute to the development of nephropathy in diabetes and hypertension?
Supervisor(s): Dr Anna Watson
Email: Anna.Watson@monash.edu
Applicable for: PhD, Hons, BMedSc

Immunotherapy as a treatment for blindness in diabetes
Supervisor(s): Professor Jennifer Wilkinson-Berka & Dr Devy Deliyanti
Email: Jennifer.Wilkinson-Berka@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Immunotherapy as a treatment for vision loss in premature children
Supervisor(s): Professor Jennifer Wilkinson-Berka & Dr Devy Deliyanti
Email: Jennifer.Wilkinson-Berka@monash.edu
Applicable for: PhD, M, Hons, BMedSc
Department of Gastroenterology

Department of Gastroenterology (DoG) undertakes research in gastroenterology and intestinal health and disease in a variety of specialist areas. It is internationally recognised for its high-impact research and clinical expertise, including the invention of the low FODMAP diet.

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

PROJECTS AVAILABLE:

**Piecing the puzzle together: compositional assessment of food components potentially harmful for patients with inflammatory bowel disease**
Supervisor(s): Dr Emma Halmos & Dr CK Yao
Email: Emma.Halmos@monash.edu
Applicable for: M, Hons, BMedSc, Grad Cert

**Reducing FODMAPs to improve gastrointestinal symptoms in the everyday athlete**
Supervisor(s): Dr Marina Iacovou
Email: Marina.Iacovou@monash.edu
Applicable for: M, Hons, BMedSc

**Investigating the effects of acetylated high amylose maize starch (HAMSA) on colonic fermentation-dependent parameters, bowel habit and systemic immune markers in healthy humans**
Supervisor(s): Assoc Professor Jane Muir & Dr Jane Varney
Email: Jane.Muir@monash.edu
Applicable for: Hons, BMedSc

**Comparing the role of a specific carbohydrate vs low FODMAP dietary approach in patients with inflammatory bowel disease**
Supervisor(s): Dr Chu (CK) Yao & Assoc Prof Jane Muir
Email: Chu.Yao@monash.edu
Applicable for: PhD, M, Hons, BMedSc
The Monash University Department of Immunology and Pathology is internationally renowned for its combined expertise in research, teaching and service delivery in immunology and immuno-pathology.

There are extensive research programs in basic and translational immunology, including highly successful collaborations with The Alfred hospital and other AMREP partners. The department's research activities target diseases including allergy, asthma, autoimmunity, inflammation, diabetes, lupus, organ fibrosis, cancer and malaria. The department also focuses on engineering novel treatments such as nanoparticle-based vaccines in cancer and infection.

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

PROJECTS AVAILABLE:

Function and regulation of alternatively activated Macrophages
Supervisor(s): Professor Nicola Harris & Dr Tiffany Bouchery
Email: Nicola.Harris@monash.edu
Applicable for: Hons, BMedSc

Targeting the blood feeding pathway of the hookworm parasites
Supervisor(s): Professor Nicola Harris & Dr Tiffany Bouchery
Email: Nicola.Harris@monash.edu
Applicable for: Hons, BMedSc

Defining mechanisms underlying pathogenic inflammation in lupus
Supervisor(s): Assoc Professor Margaret Hibbs
Email: Margaret.Hibbs@monash.edu
Applicable for: PhD, M, Hons, BMedSc

The role of the Hck tyrosine kinase in B cell development and function
Supervisor(s): Assoc Professor Margaret Hibbs
Email: Margaret.Hibbs@monash.edu
Applicable for: PhD, M, Hons, BMedSc

The use of diet as a mechanism to subvert the progression of chronic lung disease
Supervisor(s): Assoc Professor Margaret Hibbs
Email: Margaret.Hibbs@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Clinical implications of trans-kingdom microbial interactions in the transplanted lung
Supervisor(s): Professor Benjamin Marsland
Email: Benjamin.Marsland@monash.edu
Applicable for: M, Hons, BMedSc

Implications of antibody repertoires for microbiome composition and susceptibility to asthma
Supervisor(s): Professor Benjamin Marsland & Dr Tomasz Wypych
Email: Benjamin.Marsland@monash.edu
Applicable for: M, Hons, BMedSc

Targeting fungal and bacterial cross-talk for the prevention of asthma
Supervisor(s): Professor Benjamin Marsland
Email: Benjamin.Marsland@monash.edu
Applicable for: PhD

Molecular basis of CD4+ T cell differentiation and function during tumour development
Supervisor(s): Professor David Tarlinton, Dr Zhoujie Ding & Dr Isaak Quast
Email: David.Tarlinton@monash.edu
Applicable for: Hons, BMedSc

What are the mechanisms allowing protective immunity while preventing autoimmunity?
Supervisor(s): Professor David Tarlinton & Dr Isaak Quast
Email: David.Tarlinton@monash.edu
Applicable for: PhD, Hons, BMedSc

Resolving the conundrum of antibody deficiency and autoimmunity in patients with primary immunodeficiency
Supervisor(s): Assoc Professor Menno Van Zelm & Dr Emily Edwards
Email: Menno.VanZelm@monash.edu
Applicable for: PhD, M, Hons, BMedSc
Immune specificity and memory in asthma and allergic disease
Supervisor(s): Assoc Professor Menno Van Zelm & Dr Craig McKenzie
Email: Menno.VanZelm@monash.edu
Applicable for: PhD, M, Hons, BMedSc

B-cell - T-cell interactions driving granulomatous inflammation in Crohn's disease
Supervisor(s): Assoc Professor Menno Van Zelm
Email: Menno.VanZelm@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Tetraspanins are key regulators of inflammation
Supervisor(s): Assoc Professor Mark Wright, Prof Michael Hickey & Prof Jennifer Wilkinson-Berka
Email: Mark.Wright@monash.edu
Applicable for: PhD, Hons, BMedSc
Department of Infectious Diseases

The Department of Infectious Diseases (DID), 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. DID integrates clinical services with clinical and basic science research. It offers undergraduate and postgraduate study programs.

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

PROJECTS AVAILABLE:

Innovative use of AI for reporting fungal diseases in clinical trials for blood cancer
Supervisor(s): Dr Michelle Ananda-Rajah & Dr Trisha Peel
Email: Michelle.Ananda-Rajah@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Barriers to hepatocellular carcinoma screening uptake in Victoria
Supervisor(s): Dr Joseph Doyle & Dr Jessica Howell
Email: Joseph.Doyle@monash.edu
Applicable for: M, Hons, BMedSc

Clinical utility and cost-effectiveness of screening for latent tuberculosis among health care workers in Australia
Supervisor(s): Dr Joseph Doyle & Prof Allen Cheng
Email: Joseph.Doyle@monash.edu
Applicable for: Hons, BMedSc

Eliminating hepatitis C infection in Victoria through treatment scale up: helping prescribers initiate treatment
Supervisor(s): Dr Joseph Doyle, Dr Alisa Pedrana & Prof Margaret Hellard
Email: Joseph.Doyle@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Elimination of hepatitis C through rapid testing and treatment
Supervisor(s): Dr Joseph Doyle, Prof Margaret Hellard & Dr Alisa Pedrana
Email: Joseph.Doyle@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Hepatitis B screening and antiviral prophylaxis during immunosuppression: understanding current clinical practice and acceptability of clinical guidelines
Supervisor(s): Dr Joseph Doyle & Dr Jess Howell
Email: Joseph.Doyle@monash.edu
Applicable for: Hons, BMedSc

Predicting and reducing hepatitis C reinfection following treatment
Supervisor(s): Dr Joseph Doyle & Prof Margaret Hellard
Email: Joseph.Doyle@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Assessing the number of people in Victoria in HIV care and methods to improve retention in HIV care
Supervisor(s): Dr James McMahon & Prof Jennifer Hoy
Email: James.McMahon@monash.edu
Applicable for: Hons, BMedSc

Clinical and Molecular Epidemiology of Mycobacterium Abscessus Isolation Pre- and Post-Lung Transplantation
Supervisor(s): Dr Orla Morrissey, Prof Greg Snell & Prof Anton Peleg
Email: Orla.Morrissey@monash.edu
Applicable for: PhD

Elucidating Fungal Immune Responses in Haematology Patients undergoing Chemotherapy: Novel Methods for Developing Improved Antifungal Strategies
Supervisor(s): Dr Orla Morrissey, Assoc Prof Nicole Mifsud & Prof Andrew Spencer
Email: Orla.Morrissey@monash.edu
Applicable for: PhD

Immune Function in Patients Undergoing Treatment for Myeloma
Supervisor(s): Dr Orla Morrissey, Assoc Prof Erica Wood, Dr Zoe McQuilten & Dr Claire Dendle
Email: Orla.Morrissey@monash.edu
Applicable for: Hons, BMedSc

Tracking functional immune reconstitution following allogeneic haematopoietic stem cell transplantation to guide optimal timing for antimicrobial prophylaxis and post-transplant vaccination
Supervisor(s): Dr Orla Morrissey, Assoc Prof Nicole Mifsud & Assoc Prof Rose Ffrench
Email: Orla.Morrissey@monash.edu
Applicable for: Hons, BMedSc

www.monash.edu/medicine/ccs/education
The Central Clinical School’s Department of Medicine within the Division of Clinical Sciences is based at the Alfred Medical Research and Education Precinct (AMREP). Co-located with a number of world class research institutions and Alfred Health, the Department of Medicine is a premier centre for clinical and biomedical research and education, offering undergraduate and postgraduate study programs.

Research in the Department of Medicine encompasses programs in Dermatology, Developmental biology, Hormones and Vasculature, Molecular Endocrinology, Neuroscience, Oncology, Pathology and Skin Cancer. Many of the research programs are integrated with clinical services at Alfred Health, facilitating the translation of basic research findings to medical practice, therapeutics and improved health care.

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

PROJECTS AVAILABLE:

**Frequency, nature and consequence of adverse events sustained by children admitted to a combined general and cardiac paediatric intensive care unit (PICU)**
Supervisor(s): Dr David Brewster & Assoc Prof Warwick Butt
Email: David.Brewster@monash.edu
Applicable for: Hons, BMedSc

**Regulating Lipid Metabolism via the IDOL Pathway**
Supervisor(s): Dr Anna Calkin
Email: anna.calkin@monash.edu
Applicable for: PhD, Hons, BMedSc

**Identifying Grainyhead-like 3 target genes in headlight cells**
Supervisor(s): Dr Marina Carpinelli & Prof Stephen Jane
Email: Marina.Carpinelli@monash.edu
Applicable for: M, Hons, BMedSc

**Identifying proteins that bind to Grainyhead-like 3 in skin**
Supervisor(s): Dr Marina Carpinelli & Prof Stephen Jane
Email: Marina.Carpinelli@monash.edu
Applicable for: Hons, BMedSc

**Oesophageal Squamous Cell Carcinoma: identification of molecular pathogenesis**
Supervisor(s): Dr Smitha Georgy
Email: Smitha.Georgy@monash.edu
Applicable for: Hons, BMedSc

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

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

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

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

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

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

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

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A/Prof Richard Beare (left) and Prof Velandai Srikanth
Non-invasive volume clamp measurement of cardiac output - reliability studies  
Supervisor(s): Professor Velandai Srikanth, Dr Ashwin Subramanian & Dr Ravindranath Tiruvoipati 
Email: Velandai.Srikanth@monash.edu  
Applicable for: PhD, M, Hons, BMedSc

Rehabilitation in elective surgery  
Supervisor(s): Professor Velandai Srikanth, Dr Ashwin Subramanian & Dr Ravindranath Tiruvoipati 
Email: Velandai.Srikanth@monash.edu  
Applicable for: PhD, M, Hons, BMedSc

Virtual and augmented reality in surgical training and patient education  
Supervisor(s): Professor Velandai Srikanth, Prof Warren Rozen & Assoc Prof David Hunter-Smith  
Email: Velandai.Srikanth@monash.edu  
Applicable for: PhD, M, Hons, BMedSc
Department of Neuroscience

The Department of Neuroscience has over 150 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 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](http://www.monash.edu/medicine/ccs/neuroscience)

PROJECTS AVAILABLE:

**PET imaging of neuroinflammation as biomarker of post-traumatic epilepsy**
Supervisor(s): Mr Idrish Ali, Dr Lucy Vivash & Prof Terence O'Brien
Email: Idrish.Ali@monash.edu
Applicable for: Hons, BMedSc

**Plasma biomarkers for epileptogenesis and epileptic seizures**
Supervisor(s): Mr Idrish Ali, Prof Terence O'Brien & Dr Pablo Casillas
Email: Idrish.Ali@monash.edu
Applicable for: PhD, M, Hons, BMedSc

**Do cognitive or gait markers best predict outcomes in normal pressure hydrocephalus?**
Supervisor(s): Dr Rubina Alpitsis, Dr Charles Malpas & Dr Genevieve Rayner
Email: Rubina.Alpitsis@monash.edu
Applicable for: PhD, M

**Assessing the effects of Neuropeptide Y in drug-resistant epilepsy**
Supervisor(s): Dr Ana Antonic-Baker, Prof Terence O'Brien & Prof Patrick Kwan
Email: Ana.Antonic-Baker@monash.edu
Applicable for: PhD, M, Hons, BMedSc

**Development and characterisation of an animal model of neurological heterotopic ossification**
Supervisor(s): Dr Rhys Brady & Assoc Prof Sandy Shultz
Email: Rhys.Brady@monash.edu
Applicable for: M, Hons, BMedSc

**The effect of epilepsy on bone**
Supervisor(s): Dr Rhys Brady, Assoc Prof Sandy Shultz & Dr Pablo Casillas-Espinosa
Email: Rhys.Brady@monash.edu
Applicable for: M, Hons, BMedSc

**Altered Vitamin D responsiveness in Multiple Sclerosis Immune Cells**
Supervisor(s): Professor Helmut Butzkueven & Dr Jim Stankovich
Email: Helmut.Butzkueven@monash.edu
Applicable for: PhD, M

**Statistical Analysis of Individual Progression Risk in people with Multiple Sclerosis (MS)**
Supervisor(s): Professor Helmut Butzkueven & Dr Jim Stankovich
Email: Helmut.Butzkueven@monash.edu
Applicable for: Hons, BMedSc

**Evaluating sodium selenate as a new therapy to prevent post-stroke epilepsy and associated neurological impairments**
Supervisor(s): Mr Pablo Casillas-Espinosa, Assoc Prof Sandy Shultz & Prof Terence O'Brien
Email: Pablo.Casillas-Espinosa@monash.edu
Applicable for: PhD, M, Hons, BMedSc

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

**Metabolic profile of the first seizure and its predictive value of seizure recurrence**
Supervisor(s): Dr Marco Fedi, Prof Terence O'Brien & Prof Patrick Kwan
Email: Marko.Fedi@monash.edu
Applicable for: Hons, BMedSc

**The Epidemiology of burn injury from seizure activity at a state-wide burns service, 2000 to 2017**
Supervisor(s): Dr Marco Fedi, Prof Patrick Kwan & Prof Terence O'Brien
Email: Marko.Fedi@monash.edu
Applicable for: Hons, BMedSc, Short projects

**Visual snow: a behavioural perspective**
Supervisor(s): Assoc Professor Joanne Fielding, Dr Meaghan Clough & Prof Owen White
Email: Joanne.Fielding@monash.edu
Applicable for: PhD, Hons, BMedSc
Assessment of a Survey to capture environmental factors impacting Multiple Sclerosis
Supervisor(s): Dr Vilija Jokubaitis & Prof Helmut Butzkueven
Email: Vilija.Jokubaitis@monash.edu
Applicable for: Hons, BMedSc

Environmental determinants of disability accumulation in Multiple Sclerosis
Supervisor(s): Dr Vilija Jokubaitis & Prof Helmut Butzkueven
Email: Vilija.Jokubaitis@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Genotype-Phenotype Correlations in Multiple Sclerosis
Supervisor(s): Dr Vilija Jokubaitis, Prof Helmut Butzkueven & Dr Jim Stankovich
Email: Vilija.Jokubaitis@monash.edu
Applicable for: PhD

Pharmacogenomic studies in Multiple Sclerosis
Supervisor(s): Dr Vilija Jokubaitis, Prof Helmut Butzkueven & Dr Jim Stankovich
Email: Vilija.Jokubaitis@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Women’s Health in multiple sclerosis: Investigating impact of pregnancy on MS outcomes, and the impact of MS therapies on cervical dysplasia risk
Supervisor(s): Dr Vilija Jokubaitis, Assoc Prof Anneke van der Walt, Prof Helmut Butzkueven & Assoc Prof Julia Brotherton(External)
Email: Vilija.Jokubaitis@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Does stress contribute to epilepsy?
Supervisor(s): Assoc Professor Nigel Jones
Email: Nigel.Jones@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Does sugar really impair cognition?
Supervisor(s): Assoc Professor Nigel Jones
Email: Nigel.Jones@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Neural oscillations and cognition
Supervisor(s): Assoc Professor Nigel Jones
Email: Nigel.Jones@monash.edu
Applicable for: PhD, M, Hons, BMedSc

NMDA receptors, neural oscillations and cognition
Supervisor(s): Assoc Professor Nigel Jones
Email: Nigel.Jones@monash.edu
Applicable for: PhD, M, Hons, BMedSc

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

Acquired epilepsy in Alzheimer’s disease
Supervisor(s): Professor Patrick Kwan
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Clinical utility and cost-effectiveness of genomic sequencing for epilepsy
Supervisor(s): Professor Patrick Kwan
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Development of a low cost, point-of-care diagnostic platform
Supervisor(s): Professor Patrick Kwan
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Investigating the role of genetic variants in drug-resistant epilepsy
Supervisor(s): Professor Patrick Kwan, Prof Terence O’Brien, Dr Piero Perucca & Dr Alison Anderson
Email: Patrick.Kwan@monash.edu
Applicable for: Hons

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

Management and prognosis of first seizure and newly diagnosed epilepsy
Supervisor(s): Professor Patrick Kwan
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Predictors and mechanisms of cutaneous adverse drug reactions: a multi-omic approach
Supervisor(s): Professor Patrick Kwan
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Treatment Gap in People with Newly Diagnosed Epilepsy in Australia
Supervisor(s): Professor Patrick Kwan
Email: Patrick.Kwan@monash.edu
Applicable for: M, Hons, BMedSc

Wearable devices for non-invasive, ambulatory seizure monitoring and prediction
Supervisor(s): Professor Patrick Kwan
Email: Patrick.Kwan@monash.edu
Applicable for: PhD, M, Hons, BMedSc

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

Modelling the dynamics of fundamental cognitive functions during video electroencephalography monitoring
Supervisor(s): Dr Charles Malpas, Dr Genevieve Rayner & Assoc Prof Rubina Alpitsis
Email: Charles.Malpas@monash.edu
Applicable for: M, Hons, BMedSc
Modelling the predictors of subjective cognitive complaint in epilepsy
Supervisor(s): Dr Charles Malpas, Dr Genevieve Rayner & Assoc Prof Rubina Alpitis
Email: Charles.Malpas@monash.edu
Applicable for: M, Hons, BMedSc

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

Activated microglia in human brain tumours: a translational study
Supervisor(s): Dr Mastura Monif, Prof Terence O'Brien & Prof David Williams (External)
Email: Mastura.Monif@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Microglial activation and neurological disease
Supervisor(s): Dr Mastura Monif, Prof Helmut Butzkueven & Prof Terry O'Brien
Email: Mastura.Monif@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Monocytes in Multiple Sclerosis
Supervisor(s): Dr Mastura Monif, Prof Terence O'Brien & Prof Helmut Butzkueven
Email: Mastura.Monif@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Oculomotor function in autoimmune encephalitis
Supervisor(s): Dr Mastura Monif, Assoc Prof Joanne Fielding, Dr Meaghan Clough & Prof Owen White
Email: Mastura.Monif@monash.edu
Applicable for: PhD, M, Hons, BMedSc

The cellular and molecular mechanisms of Multiple Sclerosis related fatigue
Supervisor(s): Dr Mastura Monif
Email: Mastura.Monif@monash.edu
Applicable for: PhD, M, Hons, BMedSc

The contribution of P2X7R and microglial activation in the neurological deficits of temporal lobe epilepsy
Supervisor(s): Dr Mastura Monif & Prof Terry O'Brien
Email: Mastura.Monif@monash.edu
Applicable for: PhD, M, Hons, BMedSc

The role of microparticles in traumatic brain injury
Supervisor(s): Dr Mastura Monif & Prof Terence O'Brien
Email: Mastura.Monif@monash.edu
Applicable for: PhD, M, Hons, BMedSc

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

Identifying Predictors of Death in Patients with Epileptic and Psychogenic Seizures
Supervisor(s): Professor Terence O'Brien, Prof Patrick Kwan, Dr Anne Macintosh & Dr Charles Malpas
Email: Terence.OBrien@monash.edu
Applicable for: PhD, M, Hons, BMedSc, Grad Cert, Short projects

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

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

Investigating the genetics of focal epilepsies
Supervisor(s): Dr Piero Perucca, Prof Terence O'Brien, Prof Patrick Kwan, Prof Samuel Berkovic(External) & Dr Alison Anderson
Email: Piero.Perucca@monash.edu
Applicable for: PhD, M

Cardiac dysfunction in epilepsy: A translational study investigating molecular and epigenetic mechanisms
Supervisor(s): Dr Kim Powell & Prof Terence O'Brien
Email: Kim.Powell@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Does epilepsy cause a secondary cardiac channelopathy?
Supervisor(s): Dr Kim Powell & Prof Terence O'Brien
Email: Kim.Powell@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Is telomere length associated with cardiac dysfunction in chronic epilepsy?
Supervisor(s): Dr Kim Powell, Prof Terence O'Brien & Dr Anne McIntosh
Email: Kim.Powell@monash.edu
Applicable for: M, Hons, BMedSc
Stargazin and AMPA receptor expression at cortical synapses in epileptic rats
Supervisor(s): Dr Kim Powell & Dr Pablo Casillas
Email: Kim.Powell@monash.edu
Applicable for: M, Hons, BMedSc

Does peripheral inflammation contribute to epileptogenesis after traumatic brain injury?
Supervisor(s): Dr Bridgette Semple & Assoc Prof Sandy Shultz
Email: Bridgette.Semple@monash.edu
Applicable for: M, Hons, BMedSc

How do concussive head impacts affect the skull?
Supervisor(s): Dr Bridgette Semple, Assoc Prof Sandy Shultz & Dr Stuart MacDonald(External)
Email: Bridgette.Semple@monash.edu
Applicable for: M, Hons, BMedSc

Myelin repair after traumatic brain injury in early life
Supervisor(s): Dr Bridgette Semple & Dr Jessica Fletcher(External)
Email: Bridgette.Semple@monash.edu
Applicable for: M, Hons, BMedSc

Neuroimaging and neuropathological biomarkers of social dysfunction after paediatric brain injury
Supervisor(s): Dr Bridgette Semple & Dr Akram Zamani
Email: Bridgette.Semple@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Seizure susceptibility and inflammation as risk factors for post-traumatic epilepsy
Supervisor(s): Dr Bridgette Semple & Dr Pablo Casillas-Espinosa
Email: Bridgette.Semple@monash.edu
Applicable for: M, Hons, BMedSc

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

Biomarkers for sports concussion
Supervisor(s): Assoc Professor Sandy Shultz
Email: Sandy.Shultz@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Can a common parasite alter brain injury outcomes?
Supervisor(s): Assoc Professor Sandy Shultz
Email: Sandy.Shultz@monash.edu
Applicable for: PhD, M, Hons, BMedSc

How does aging affect traumatic brain injury pathology and outcomes?
Supervisor(s): Assoc Professor Sandy Shultz
Email: Sandy.Shultz@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Investigating whether mild traumatic brain injuries cause neurodegenerative disease
Supervisor(s): Assoc Professor Sandy Shultz
Email: Sandy.Shultz@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Cervical dysplasia risk factors and HPV vaccination status in women with MS
Supervisor(s): Assoc Professor Anneke Van Der Walt, Dr Vilija Jokubaitis & Assoc Prof Julia Brotherton(External)
Email: Anneke.VanDerWalt@monash.edu
Applicable for: M

Computerized assessments of subclinical decline in progressive multiple sclerosis: development of a platform to improve trial design in Progressive MS
Supervisor(s): Assoc Professor Anneke Van Der Walt, Prof Helmut Butzkueven, Dr Vilija Jokubaitis & Assoc Prof Adam Vogel(External)
Email: Anneke.VanDerWalt@monash.edu
Applicable for: PhD

Dynamic visual acuity and pupillometry
Supervisor(s): Assoc Professor Owen White & Assoc Prof Joanne Fielding
Email: Owen.White@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Dynamic visual acuity in Parkinson’s disease
Supervisor(s): Assoc Professor Owen White & Assoc Prof Joanne Fielding
Email: Owen.White@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Imaging of neurodegenerative diseases
Supervisor(s): Dr Lucy Vivash
Email: Lucy.Vivash@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Sodium selenate as a treatment for behavioural variant fronto-temporal dementia
Supervisor(s): Dr Lucy Vivash, Dr Charles Malpas & Prof Terry O’Brien
Email: Lucy.Vivash@monash.edu
Applicable for: Hons, BMedSc

The effect of anti-epileptic drugs on cerebellar volume and metabolism in patients with epilepsy
Supervisor(s): Dr Lucy Vivash, Dr Ben Sinclair & Prof Terry O’Brien
Email: Lucy.Vivash@monash.edu
Applicable for: Hons, BMedSc

Blurred vision?
Supervisor(s): Assoc Professor Owen White & Assoc Prof Joanne Fielding
Email: Owen.White@monash.edu
Applicable for: PhD, M, Hons, BMedSc
**Chronic traumatic encephalopathy**  
Supervisor(s): Assoc Professor Owen White & Assoc Prof Joanne Fielding  
Email: Owen.White@monash.edu  
Applicable for: Hons, BMedSc

**Dynamic stereoscopy in multiple sclerosis**  
Supervisor(s): Assoc Professor Owen White & Assoc Prof Joanne Fielding  
Email: Owen.White@monash.edu  
Applicable for: PhD, M, Hons, BMedSc

**Visual snow**  
Supervisor(s): Assoc Professor Owen White & Assoc Prof Joanne Fielding  
Email: Owen.White@monash.edu  
Applicable for: PhD, M, Hons, BMedSc

**Assessing Glymphatic Pathway function in Motor Neuron Disease using MRI**  
Supervisor(s): Mr David Wright  
Email: David.Wright@monash.edu  
Applicable for: PhD, M

**New Biomarkers for mild Traumatic Brain Injury: CEST MRI**  
Supervisor(s): Mr David Wright  
Email: David.Wright@monash.edu  
Applicable for: PhD, M

**Sodium Imaging in mild Traumatic Brain Injury**  
Supervisor(s): Mr David Wright  
Email: David.Wright@monash.edu  
Applicable for: PhD, M
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.

Research in the Department of Surgery includes programs in a wide variety of areas including 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:

Human Derived Feeder and Serum for the Xeno-free Expansion of Adult Keratinocytes
Supervisor(s): Dr Shiva Akbarzadeh & Assoc Prof Heather Cleland
Email: Shiva.Akbarzadeh@monash.edu
Applicable for: M, Hons, BMedSc, Grad Cert

Intravenous Access for Traumatic Shock
Supervisor(s): Professor Mark Fitzgerald
Email: Mark.Fitzgerald@monash.edu
Applicable for: 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, M, Hons, BMedSc

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

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

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

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

Prospective, randomised, controlled trial studying the analgesic effects of intravenous lignocaine on donor site pain in patients with burns.
Supervisor(s): Dr Heather Cleland & Dr Kerry McLaughlin
Email: Heather.Cleland@monash.edu
Applicable for: M, Hons, BMedSc, Grad Cert

Venous thromboembolism in burn injured patients: are we underestimating the risk and under-dosing for prophylaxis?
Supervisor(s): Dr Heather Cleland & Dr Cheng Lo
Email: Heather.Cleland@monash.edu
Applicable for: M, Hons, BMedSc, Grad Cert

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

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

Investigating use of Platelet Lysate as a substitute for Bovine Serum for Human Adult Keratinocyte Isolation and Expansion
Supervisor(s): Dr Shiva Akbarzadeh, Assoc Prof Justine Hamilton & Assoc Prof Heather Cleland
Email: Shiva.Akbarzadeh@monash.edu
Applicable for: PhD, M, Hons, BMedSc, Grad Cert

Intravenous Access for Traumatic Shock
Supervisor(s): Professor Mark Fitzgerald
Email: Mark.Fitzgerald@monash.edu
Applicable for: Hons, BMedSc

Reviewing the impact of The Alfred international trauma training programs
Supervisor(s): Professor Mark Fitzgerald
Email: Mark.Fitzgerald@monash.edu
Applicable for: Hons, BMedSc

Pilot of a novel smartphone rehabilitation application to evaluate time to unaided full weight bearing
Supervisor(s): Dr Teresa Howard & Dr Joseph Matthew
Email: Teresa.Howard@monash.edu
Applicable for: Hons, BMedSc
Melbourne Sexual Health Centre

The Melbourne Sexual Health Centre (MSHC) is a specialised unit for the diagnosis and treatment of sexually transmissible infections (STI/HIV) and 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.

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

PROJECTS AVAILABLE:

**Characteristics and sexually transmitted infections between men who have sex with men only (MSMO) and men who have sex with men and women (MSMW)**
Supervisor(s): Dr Eric Chow & Prof Christopher Fairley
Email: Eric.Chow@monash.edu
Applicable for: Hons, BMedSc

**Comparing access to sexual health services between Medicare beneficiaries and non-Medicare beneficiaries**
Supervisor(s): Dr Eric Chow & Prof Christopher Fairley
Email: Eric.Chow@monash.edu
Applicable for: Hons, BMedSc

**Sequence of sexual activities among men who have sex with men**
Supervisor(s): Dr Eric Chow & Prof Christopher Fairley
Email: Eric.Chow@monash.edu
Applicable for: Hons, BMedSc

**Studies in Sexual Health Medicine**
Supervisor(s): Professor Christopher Fairley & Dr Eric Chow
Email: Christopher.Fairley@monash.edu
Applicable for: PhD, M, Hons, BMedSc
Monash Alfred Psychiatry research centre

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:

Enhancing plasticity induction using brain stimulation
Supervisor(s): Dr Robin Cash & Prof Paul Fitzgerald
Email: Robin.Cash@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Exploring the neurobiology of depression with brain stimulation
Supervisor(s): Dr Robin Cash & Prof Paul Fitzgerald
Email: Robin.Cash@monash.edu
Applicable for: PhD, M, Hons, BMedSc

The neurobiology of borderline personality disorder
Supervisor(s): Dr Robin Cash & Prof Paul Fitzgerald
Email: Robin.Cash@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Brain stimulation combined with an adjunctive non-pharmaceutical treatment for the relief of persistent pain
Supervisor(s): Dr Bernadette Fitzgibbon
Email: Bernadette.Fitzgibbon@monash.edu
Applicable for: PhD, M

Exploring cognition and personality and its role in pain modulation following transcranial Direct Current Stimulation (tDCS)
Supervisor(s): Dr Bernadette Fitzgibbon
Email: Bernadette.Fitzgibbon@monash.edu
Applicable for: PhD, M, Hons, BMedSc

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

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

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

Family Experiences of Single Session Therapy at headspace/ CYMHS
Supervisor(s): Dr Liza Hopkins & Dr Stuart Lee
Email: Liza.Hopkins@monash.edu
Applicable for: Hons, BMedSc, Grad Cert

Outcomes for Young People with serious mental illness who undertake Open Dialogue at headspace YEPP
Supervisor(s): Dr Liza Hopkins & Dr Stuart Lee
Email: Liza.Hopkins@monash.edu
Applicable for: PhD, M, Hons, BMedSc, Grad Cert, Short projects

Physical Health promotion for Young People with a mental health condition
Supervisor(s): Dr Liza Hopkins & Dr Stuart Lee
Email: Liza.Hopkins@monash.edu
Applicable for: Hons, BMedSc, Grad Cert

The role of Discovery College in improving recovery for young people with mental health conditions
Supervisor(s): Dr Liza Hopkins & Dr Stuart Lee
Email: Liza.Hopkins@monash.edu
Applicable for: PhD, M, Hons, BMedSc
Increasing the speed of thought: Using brain stimulation to enhance speed of information processing
Supervisor(s): Assoc Professor Kate Hoy & Dr Bernadette Fitzgibbon
Email: Kate.Hoy@monash.edu
Applicable for: Hons, BMedSc

Investigating the neurobiology of chemotherapy induced cognitive impairment (CICI) using non-invasive brain stimulation
Supervisor(s): Assoc Professor Kate Hoy & Dr Stuart Lee
Email: Kate.Hoy@monash.edu
Applicable for: PhD

Does tACS have potential as a new treatment for depression in young people?
Supervisor(s): Dr Manreena Kaur, Assoc Prof Kate Hoy, Dr Neil Bailey & Dr Bernadette Fitzgibbon
Email: Manreena.Kaur@monash.edu
Applicable for: Hons, BMedSc

Case control study of neonatal intensive care / special care nursery (NICU/SCN) admissions and antipsychotic exposure using data from the National Register of Antipsychotic Use in Pregnancy (NRAMP)
Supervisor(s): Professor Jayashri Kulkarni & Dr Carolyn Breadon
Email: Jayashri.Kulkarni@monash.edu
Applicable for: Hons, BMedSc

Cognitive functioning and emotion processing associated with perimenopausal depression (healthy control subjects compared with depressed patient data)
Supervisor(s): Professor Jayashri Kulkarni & Dr Caroline Gurvich
Email: Jayashri.Kulkarni@monash.edu
Applicable for: PhD, Hons, BMedSc

Cross sectional study of borderline personality disorder symptomatology and trauma history in women with polycystic ovary syndrome compared to healthy controls
Supervisor(s): Professor Jayashri Kulkarni, Dr Caroline Gurvich & Dr Natalie Thomas
Email: Jayashri.Kulkarni@monash.edu
Applicable for: PhD, Hons, BMedSc

Cross sectional study of trauma history, personality and psychopathology in a community sample
Supervisor(s): Professor Jayashri Kulkarni, Dr Caroline Gurvich & Dr Natalie Thomas
Email: Jayashri.Kulkarni@monash.edu
Applicable for: PhD, Hons, BMedSc

Depression and the oral contraceptive pill: substudy of types of pill used and depressive mood
Supervisor(s): Professor Jayashri Kulkarni, Dr Caroline Gurvich & Dr Natalie Thomas
Email: Jayashri.Kulkarni@monash.edu
Applicable for: PhD, Hons, BMedSc

Impact of type and timing of childhood trauma on adult cognition and emotion regulation in borderline personality disorder (BPD)
Supervisor(s): Professor Jayashri Kulkarni, Dr Caroline Gurvich & Dr Natalie Thomas
Email: Jayashri.Kulkarni@monash.edu
Applicable for: PhD, Hons, BMedSc

Investigating comorbid diagnosis of eating disorders and borderline personality disorder: prevalence and symptomatology
Supervisor(s): Professor Jayashri Kulkarni, Dr Caroline Gurvich & Dr Natalie Thomas
Email: Jayashri.Kulkarni@monash.edu
Applicable for: PhD, Hons, BMedSc

Study of premenstrual dysphoric disorder (PMDD) in women with borderline personality disorder (BPD)
Supervisor(s): Professor Jayashri Kulkarni, Dr Caroline Gurvich & Dr Carolyn Breadon
Email: Jayashri.Kulkarni@monash.edu
Applicable for: PhD, Hons, BMedSc

Toddler and pre-school development in children (1-5 years) born to women who took antipsychotic medication during pregnancy, using data from the National Register of Antipsychotic Medication in Pregnancy (NRAMP)
Supervisor(s): Professor Jayashri Kulkarni & Dr Carolyn Breadon
Email: Jayashri.Kulkarni@monash.edu
Applicable for: Hons, BMedSc

Does contact with a Suicide Prevention Assertive Outreach Team improve state hope and coping self-efficacy to reduce suicidal ideation and hospitalisation?
Supervisor(s): Dr Stuart Lee, Dr Angela Wright(External), Dr Bernadette Fitzgibbon & Dr Daniel Rylatt(External)
Email: Stuart.Lee@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Using machine learning to model clinical factors that predict the use of restrictive interventions during aggression episodes across three public hospitals
Supervisor(s): Dr Stuart Lee, Dr Michelle Ananda-Rahaj & Dr Dhanya Nambar
Email: Stuart.Lee@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Binocular rivalry mechanisms in the healthy and bipolar brain
Supervisor(s): Dr Steven Miller & Dr Phillip Law
Email: Steven.Miller@monash.edu
Applicable for: PhD, M, Hons, BMedSc

Vestibular neuromodulation in psychiatric and neurological conditions
Supervisor(s): Dr Steven Miller & Dr Phillip Law
Email: Steven.Miller@monash.edu
Applicable for: PhD, M, Hons, BMedSc