THE UNIVERSITY of ADELAIDE

2022 RESEARCH OPPORTUNITIES GUIDE

Faculty of Health and Medical Sciences

health.adelaide.edu.au

CONTENTS

THIRD YEAR RESEARCH PLACEMENTS

The purpose of the Research Placement course is to provide small group research experiences (in consecutive semesters, as parts 1 and 2) for all third year Bachelor of Health and Medical Sciences (BHMS), Bachelor of Health and Medical Sciences (Advanced) and Bachelor of Health Sciences (Advanced) students, supervised by academic and research staff. A cross-disciplinary research conference event will be a highlight of the course.

This Research Opportunities Guide provides a link to available projects for 2022 via individual's researcher profiles.

How to apply

Students will be invited by email to nominate their project preferences online during a single week in January for students who are starting part 1 at the beginning of the year (semester 1). Most of the communication will be via MyUni so it is important that you enrol for Part 1 of the Research Placement course as soon as possible.

(Mid-year entries into part 1 will be invited to nominate project preferences during a time window before semester 2, to be announced closer to the date).

Other Information

Students can only be placed in projects for which they are eligible, based on majors and other criteria as listed in the project descriptions. Students who enrol after the preference round, who do not submit preferences, or whose preferences cannot be accommodated, will be assigned by course coordinators into projects that are appropriate to their majors.

Assignments into projects by course coordinators will be final, and not open to requests for reassignment.

Students are allowed to contact supervisors only after their placement with that supervisor has been confirmed in mid February.

To best fit to the field of work, research activities may be spaced weekly, or packed into a shorter span of days, to achieve 20 hours of research contact time per semester, as determined by the supervisor in consultation with the students in the group.

Special requirements

Note that police clearances, immunisations, or other special requirements if specified in the guide must be organised by students in advance of the research project start date, at their own expense.

Timeline

- At the end of November the Research Placement Guide will be posted online.
- Mid-January: project preferences will be accepted from students (online poll website) for a limited time only. The precise dates will be posted on MyUni.
- Mid-February: Students will be notified of their project group by e-mail.
- Week 3 of the semester: Students have their introductory meetings with their supervisors, setting the planned schedule of contact meetings for the semester, discussing relevant reports or literature to be read, and completing orientation and induction requirements as needed for the research project.

WHY STUDY HONOURS OR A HIGHER DEGREE BY RESEARCH?

Study with us and open the door to a range of rewarding career opportunities. Become a part of a community of alumni that includes Nobel Prize winners, pioneering researchers and world-renowned leaders in health. Our research programs are held in high regard, their quality and impact respected by peers and the community.

Studying Honours or a Higher Degree by Research can provide you with the skills and experience to pursue different career opportunities, particularly a career in research. Employers recognise that the research ability and broad range of transferable skills which University of Adelaide graduates possess equip them well for challenging and diverse roles in industry, government and business, as well as in research and academic organisations.

By undertaking a research degree with us, you will be involved in discovery, innovation and cutting-edge research. Our strong focus on addressing global challenges creates a highly stimulating setting for our postgraduate students interested in changing the world.

APPLYING FOR HONOURS

Three easy steps in applying for honours

1

Identify an area of interest

Discover current research opportunities in this publication, or browse our research areas on the **Faculty of Health and Medical Sciences website**.

2

Complete the relevant form

To initiate an expression of interest, download and **complete the relevant form** according to the instructions for the honours program you wish to undertake.

3

Submit

Submit your completed expression of interest, a copy of your academic transcript, and any other additional documents required to **fhsresed@adelaide.edu.au**

Further information

Please note: To be considered for the below scholarships, applicants are strongly encouraged to submit an expression of interest by 30 November (semester 1 start) or July 1 (semester 2 start). All Semester 2 applicants will be ranked with the following years Semester 1 applications.

The University offers **scholarships** to undergraduate students. These scholarships, as well as many others funded by industry and non-profit organisations, are available to potential and currently enrolled students.

Students enrolled in the Bachelor of Medicine and Bachelor of Surgery degree at the University of Adelaide will need to apply for a leave of absence and supply a banding letter. Students can request this by emailing **fhsassessment@adelaide.edu.au**

Are you currently studying at another university?

If you are completing undergraduate studies at another institution, you will need to provide a copy of your academic transcript once your final results are available.

Closing deadlines and next steps

Once final results for the semester are available (in July or December), Honours coordinators will finalise their recommendations for honours projects. Successful students will then be emailed with instructions to submit a formal application for admission to the honours degree via a university internal transfer or, for external applicants, via SATAC.

APPLYING FOR A HIGHER DEGREE BY RESEARCH (HDR)

1

Determine what type of HDR you wish to apply for, and check the entry requirements.

Information on the different degrees and their eligibility is available on the Degree Finder website at **adelaide.edu.au/degree-finder**

Information on scholarships is available at **adelaide.edu.au/scholarships**

2

HDR PORTFOLIO SUBMISSION

To be considered by a Postgraduate Coordinator for Higher Degree by Research studies in one of our Schools, prospective students must submit a portfolio, including all of the below listed items in a single PDF formatted file.

What degree are you applying for – e.g. Doctor of Philosophy/Master of Philosophy/Master of Clinical Science.
Refer to **adelaide.edu.au/degree-finder**

1. The names of up to three potential Supervisors from the School with which you wish to study.
   More information on our Researchers and their availability to Supervise is online: **researchers.adelaide.edu.au**
2. A short statement of your research interests and what you would like to research for your degree (maximum 200 words)
3. Your English Proficiency Certificate. We only accept IELTS/TOEFL/PTE/CAE with scores per **adelaide.edu.au/graduatecentre/future-students/how-to-apply/english-language-requirements**
4. Your academic resume;
5. Your Google Scholar ID and/or ORCiD ID; and
6. Your academic transcripts for your undergraduate and postgraduate studies;
7. Your certificates for all your university degrees and diplomas (please do not include any other certificates, such as merit awards or for non-degree training);
8. A summary of the main findings from the research component of any Masters and/or Honours degree, and from any other research experience;
9. Include the full Vancouver or Harvard reference of any peer-reviewed publications with a statement regarding your contribution to each;
10. The names and contact details of two academic referees who can comment on your research performance to date and on your aptitude for HDR studies; at least one of these referees should be able to comment on the research component of any Masters and/or Honours degree, preferably having been your principal supervisor.

Important: Please note that incomplete portfolios or documents that are not combined into a single pdf file, will not be considered further. PDF converters are available for you to download from the Adelaide Graduate Centre website: **adelaide.edu.au/graduatecentre/orbit-help-pages/pdf-conversion-utilities**

3

Refining your research topic and supervisor interview

After circulating your portfolio to the academic staff within the school, supervisors who are interested in your portfolio will contact you directly. The supervisor will discuss your research topic with you, and will book a time to interview you (either in person or via Skype). If the supervisor then agrees to support your application, you will receive written confirmation to proceed with your application.

4

Apply online

Having secured the support of your school, supervisor and postgraduate coordinator, the next step is to formally apply online through the Adelaide Graduate Centre at **adelaide.edu.au/graduatecentre**

Note that domestic and international scholarships have specific closing dates. You will be required to upload many of the documents that you have previously provided to the school, referee reports, and the written confirmation from your supervisors that they have agreed to support your project.

5

University ranking and award

Scholarship applications undergo ranking and selection through a series of faculty and university selection panels. There is intense competition for scholarship places, so preparing a compelling application (per steps 1-3 above) is essential. The administration and admission of HDR students is managed through the Adelaide Graduate Centre **adelaide.edu.au/graduatecentre**

Further information direct all inquiries to **fhsresed@adelaide.edu.au**

INTERNATIONAL STUDY OPPORTUNITIES FOR PHD STUDENTS

In 2015, the University of Adelaide and our priority partners, Nagoya University (Japan) and the University of Freiburg (Germany) signed formal agreements to offer Joint PhD programs in the area of medical and biomedical research. In these programs, PhD students are enrolled in both the University of Adelaide and the respective partner university and will be supervised by experts from each university. At PhD completion, students will receive a jointly awarded PhD degree.

Students undertaking the joint PhD program will spend most of their candidature at the University of Adelaide and at least one year under academic supervision within the School of Medicine, Nagoya University or International Spemann Graduate School of Biology and Medicine at the Albert-Ludwigs-University/University of Freiburg. All instruction is undertaken in English.

For more information, visit:
health.adelaide.edu.au/our-research/honours-and-higher-degrees-by-research#higher-degrees-by-research

AGEING, FRAILTY AND MOBILITY

AGEING, FRAILTY AND MOBILITY RESEARCH GROUPS

An increasing number of Australians are living for several decades beyond their retirement. As such, up to 4 million Australians are predicted to be impacted by frailty by 2050, making it a major personal, public, societal and economic health issue for our community.

Experts from geriatric medicine, general practice, nursing, pharmacy, orthopaedics and rehabilitation medicine, together with researchers in knowledge translation, health economics, epidemiology and demography are working together to identify the prevalence, impact and distribution of frailty in the community and developing health care interventions that are appropriate and translatable to patient care.

Furthermore, researchers are working collaboratively to explore the nature of ageing and frailty in order to develop and deliver models of care—benefiting individuals and our entire community.

Researchers across the faculty are focused on:

- identifying the associations and long-term impact of frailty on health outcomes such as resilience, quality of life, susceptibility to disease complications and disability
- examining the impact of medications on frailty to determine if frailty is a driver of susceptibility to adverse drug events
- understanding the community environment and its contribution to frailty to enable design of new environments that support healthy ageing
- developing and testing frailty health economics models
- developing and testing new interventions and technologies to support, treat and reverse frailty in older people
- identifying early predictors of frailty to evaluate early interventions to minimise or avoid the progression of the individual to frailty
- developing and assessing technologies in hospital to monitor movement and behaviours of elderly patients at high risk of falling to minimise these events.

AGEING, FRAILTY AND MOBILITY RESEARCH OPPORTUNITIES

TRANSLATIONAL RESEARCH IN ORAL HEALTH SCIENCE

Lead Researcher: Dr Graham Ellender

Contact: graham.ellender@adelaide.edu.au

Research Summary

Research currently being undertaken is a systematic review of crossmodal integration of the senses with a focus on those between olfaction and gustation in aging. The background to this field of study arises through a background of clinical dental practice and experimental pathology along with experience in winemaking, foods and sensory studies.

An earlier study (submitted for publication) reviews the smell and taste alteration in patients receiving chemotherapy and the potential role of extrinsic factors associated with eating to ameliorate the impacts of sensory loss. Current research considers the crossmodal influences of audition through music experience in maintaining olfactory function in aging.

These current studies recognise a perceived lack of appreciation both in laity and in clinical practice of the essential functions of the senses of smell and taste.

For available projects please view Dr Ellender's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/graham.ellender

Projects available for

Honours; Masters

Maximum Number of Students

2

Category

Human Research; Systematic Review

Research Areas

Ageing, Frailty and Mobility

Neuroscience, Behaviour and Brain Health

Oral Health

Dr Graham Ellender

CANCER BIOLOGY AND CLINICAL ONCOLOGY

CANCER BIOLOGY AND CLINICAL ONCOLOGY RESEARCH GROUPS

Cancer is a general term for more than 100 diseases that are characterised by the abnormal growth of cells. Cancer affects a large portion of Australians, with one in two diagnosed by the age of 85.

Our cancer biology research seeks to understand the fundamental mechanisms by which cancers arise, progress and respond to treatment.

Clinical oncology consists of three primary disciplines: medical oncology (the treatment of cancer with medicine, including chemotherapy); surgical oncology (the surgical aspects of cancer, including biopsy, staging, and surgical resection of tumours); and radiation oncology (the treatment of cancer with therapeutic radiation).

Understanding the causes of cancer will enable the development of innovative approaches to treat both liquid cancers (leukaemia and myeloma) and solid cancers (breast, prostate, ovarian and gastrointestinal cancer).

Researchers across the faculty are focused on:

- identifying the molecular and cellular basis of cancer
- developing preclinical models that closely resemble human cancer
- understanding the mechanisms involved in cancer spread and resistance to chemotherapy
- identifying novel biomarkers for detection of cancer
- developing and evaluating new drugs to treat cancer.

CANCER BIOLOGY AND CLINICAL ONCOLOGY RESEARCH OPPORTUNITIES

ACUTE LYMPHOBLASTIC LEUKAEMIA (ALL) – CANCER PROGRAM / PRECISION MEDICINE THEME – SAHMRI

Lead Researcher: Professor Deborah White

Contact: deborah.white@sahmri.com

Research Summary

Acute Lymphoblastic Leukaemia (ALL) is the most common childhood cancer and leading cause of non-traumatic death in children. Adolescents and young adults (AYA) with ALL the therapeutic outcomes are poor. Most older adults will die of their disease.

Genomic studies have identified new lesions known to confer high-risk for which the biological and clinical implications remain unclear. In addition, recent studies have implicated the human microbiome in ALL development, treatment response and life-long comorbidities. The aim is to incorporate genomic knowledge into clinical care and to systematically identify druggable targets to improve patient outcomes. In addition, immunotherapies have shown efficacy in some settings. However, not all high-risk/relapsed ALL patients are eligible for immunotherapy with 50% of patients experiencing hypersensitivity reactions. As the National Referral Centre for genomic screening of ALL cases we sequence a large number of patients, identifying a significant number of alterations and novel gene fusions for investigation.

All projects will involve a range of techniques which may include genomic sequencing, flow cytometry, cytokine measurement, molecular biology and cloning techniques including primer design, PCR Sanger sequencing, bacterial work and tissue culture. In addition, patient derived xenografts (PDX)/mouse avatars/germ free mice) models of ALL may be used.

For available projects please view Professor White's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/deborah.l.white

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

Category

Wet Laboratory

Research Areas

Cancer Biology and Clinical Oncology

Professor Deborah White

AQUAPORIN PHYSIOLOGY AND DRUG DISCOVERY RESEARCH PROGRAM

Lead Researcher: Professor Andrea Yool

Contact: andrea.yool@adelaide.edu.au

Research Summary

A major focus in our group is drug discovery for aquaporins, membrane channels found in all kingdoms of life. Increased levels of aquaporin-1 (AQP1) are localised in the leading edges of rapidly moving cells, and are a characteristic feature of aggressive cancers such as human glioblastoma, breast and colon subtypes. Pharmacological modulators developed by our team are being evaluated as tools for controlling migration in cancer cell lines. New agents limiting metastasis could be of substantial interest for cancer therapy.

For available projects please view Professor Yool's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/andrea.yool

Projects available for

Third Year

Maximum Number of Students

4

Category

Wet Laboratory

Research Areas

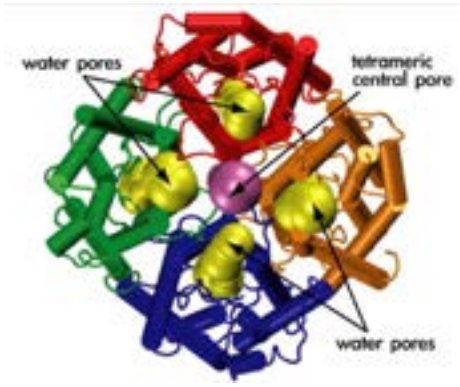
Cancer Biology and Clinical Oncology

Neuroscience, Behaviour and Brain Health

Innovative Therapeutics

Cardiac, Respiratory and Vascular Health

Professor Andrea Yool



Aquaporin - 1 channel

BREAST BIOLOGY AND CANCER RESEARCH GROUP

Lead Researcher: Associate Professor Wendy Ingman

Contact: wendy.ingman@adelaide.edu.au

Research Summary

The breast is a unique organ, because it goes through the majority of its development a long time after birth. The major phases of breast development occur during puberty, where the cellular structures develop to maturity, and pregnancy where the cells become altered, so as to enable milk production during lactation. The extensive changes that occur in the breast pose some unique immunological challenges. The immune system is programmed to maintain the status quo by mounting attacks against invading bacteria and viruses, and preventing rogue cells from developing into tumours. So when a tissue undergoes such extensive changes as the breast does, the immune system must develop particular strategies to allow this to happen. Our research investigates the immunology of the breast and how immune system cells affect cancer risk and development of mastitis.

For available projects please view Associate Professor Ingman's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/wendy.ingman

Projects available for

Honours; HDR; Masters

Maximum Number of Students

5

Category

Wet Laboratory; Human Research

Research Areas

Cancer Biology and Clinical Oncology

Early Origins of Health

Associate Professor Wendy Ingman

Amita Ghadge, Joe Wrin, Pallave Dasari, Leigh Hodson, Maddison Archer, Sarah Bernhardt, and Wendy Ingman

BREAST AND PROSTATE CANCER RESEARCH – DAME ROMA MITCHELL CANCER RESEARCH LABORATORIES

Lead Researchers: Professor Wayne Tilley and Associate Professor Theresa Hickey

Contact: wayne.tilley@adelaide.edu.au; theresa.hickey@adelaide.edu.au

Research Summary

The Dame Roma Mitchell Cancer Research Laboratories (DRMCRL) have an international reputation for research into sex hormone action in hormone-dependent cancers, with a particular emphasis on breast and prostate cancers.

This world-class cancer research centre brings together expertise spanning more than 30 years in basic and translational prostate and breast cancer research. It is the leading centre in Australia with a multidisciplinary team of scientists, clinicians and patient advocates dedicated to understanding how sex hormones and their receptors control tumour behaviour in both disease contexts with research programs spanning discovery, drug development and clinical translation.

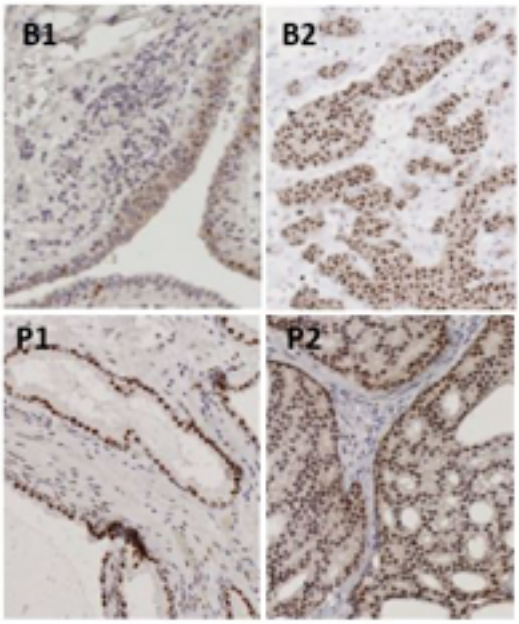
Our laboratory has pioneered integration of genomic technologies with unique preclinical models of human breast and prostate cancers, especially patient-derived explant cultures and xenograft models, to better understand disease mechanisms and facilitate translation of breast and prostate cancer research into the clinic.

We publish in high impact journals and our research is well supported by funding from nationally and internationally competitive grants. The DRMCRL offers students a wide array of projects that span cutting-edge biomedical research using contemporary pre-clinical models, genome-wide technologies and access to large proteomic/genomic databases.

For available projects please view Professor Wayne Tilley and Dr Theresa Hickey's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/wayne.tilley

researchers.adelaide.edu.au/profile/theresa.hickey



Immunostaining of androgen receptor (AR). Brown spots represent cells that express AR in normal breast (B1) and prostate (P1) vs. cancerous breast (B2) and prostate (P2) tissue.

Projects available for

Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory

Research Areas

Cancer Biology and Clinical Oncology

Innovative Therapeutics

Translational Health Outcomes

Professor Wayne Tilley

Associate Professor Theresa Hickey

CANCER TREATMENT TOXICITIES GROUP

Lead Researcher: Associate Professor Joanne Bowen

Contact: joanne.bowen@adelaide.edu.au

Research Summary

The group investigates underlying mechanisms and treatments for some of the most common toxicities of cancer therapies, including diarrhoea, vomiting, and neuroinflammation. My particular interest is how the gastrointestinal tract responds to exposure to chemotherapy, radiation and small molecule inhibitors used in treatment of solid tumours. My current projects focus on establishing new interventions for mitigation of gastrointestinal side effects that target interactions between the gut microbiome and immune system at the level of the mucosal barrier. We work with industry partners and conduct studies from the in vitro level through to clinical trials.

For available projects please view Associate Professor Bowen's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/joanne.bowen

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

8

Category

Wet Laboratory; Human Research

Research Areas

Cancer Biology and Clinical Oncology

Neuroscience, Behaviour and Brain Health

Oral Health

Associate Professor Joanna Bowen

CHRONIC MYELOID LEUKAEMIA (CML) – CANCER PROGRAM/PRECISION MEDICINE THEME – SAHMRI

Lead Researcher: Professor Timothy Hughes

Contact: tim.hughes@sahmri.com

Research Summary

The treatment of chronic myeloid leukaemia (CML) has been one of the most remarkable cancer success stories this century. The improvement in 10-year survival for CML patients from 20% in the 1990s to over 80% today has been achieved through the clinical application of tyrosine kinase inhibitors (TKI) therapy targeting BCR-ABL1. Despite the improvements in outcomes, around 30% of CML patients respond poorly to TKI therapy. Even among those patients who respond well, many will remain dependent on TKI therapy for life, leading to a massive cost burden, organ damage, and impairment of quality of life. The current focus of research in CML centres on the following:

1. Identification of patients at risk of failing frontline therapy and working out whether these patients may benefit from novel anti-CML therapy. An inter-related question concerns patients who have suboptimal responses - can adding novel agents to TKI therapy further improve disease response?

2. Patients who have responded well to TKIs usually have undetectable circulating disease. Some patients in this group can stop therapy without disease recurrence, whilst others experience rapid relapse. Identifying differences between these patients may hold the key to minimizing the proportion of patients who need lifelong therapy.

For available projects please view Professor Timothy Hughes' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/timothy.hughes

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

2

Category

Wet Laboratory

Research Areas

Cancer Biology and Clinical Oncology

Translational Health Outcomes

Professor Timothy P. Hughes

GENE REGULATION IN CANCER LABORATORY

Lead Researcher: Dr Philip Gregory

Contact: philip.gregory@adelaide.edu.au

Research Summary

In the last decade, our conception of the complexity of the mammalian transcriptome has been revolutionized by the annotation of the human genome and the advent of deep sequencing technologies. It is now clear that the majority of the genome is transcribed into protein-coding and non-coding regulatory RNAs, however the functional consequences of the majority of these RNAs remains unknown.

During cancer progression, tumour cells undergo significant changes in cellular function. For epithelial tumour cells to metastasise they must acquire abilities to invade, survive and then colonise distant sites.

Epithelial cell plasticity (or epithelial-mesenchymal transition) plays a major role in the metastatic cascade. Our lab is examining how EMT and cancer metastasis are regulated by non-coding RNAs. In particular, our research focusses on how microRNAs alter the cancer cell transcriptome using in vitro and in vivo cancer models coupled with next generation sequencing.

For available projects please see Dr Gregory's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/philip.gregory

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

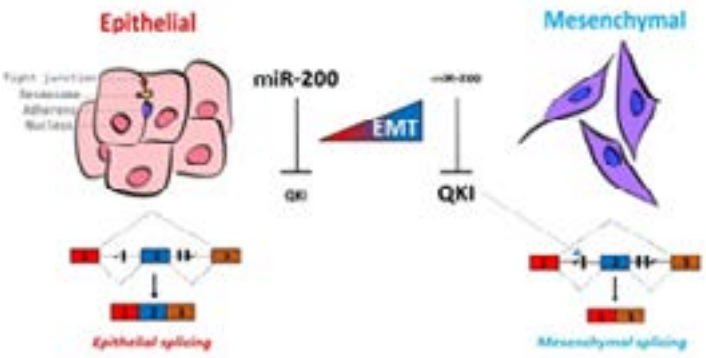
3

Category

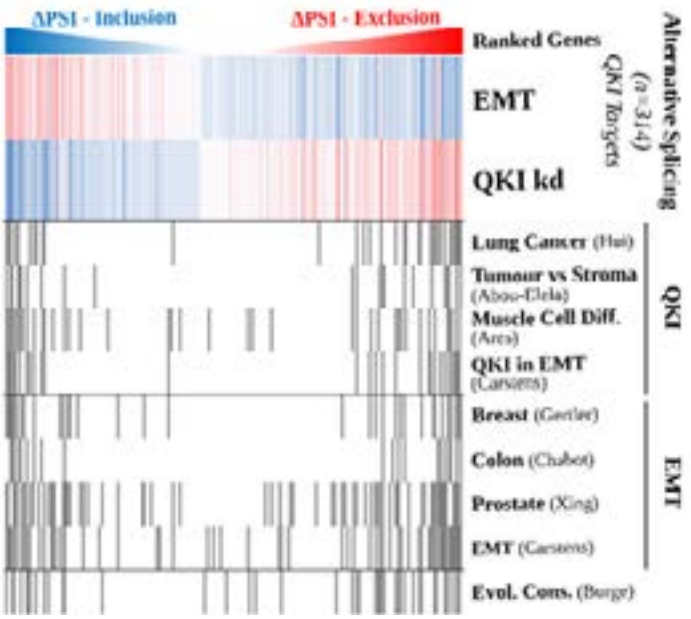
Wet Laboratory; Dry Laboratory

Research Areas

Cancer Biology and Clinical Oncology



Regulation of alternative splicing during epithelial-mesenchymal transition



Heat map showing conservation of alternative splicing during epithelial-mesenchymal transition

GENE REGULATION NETWORKS GROUP

Lead Researcher: Dr Cameron Bracken

Contact: cameron.bracken@adelaide.edu.au

Research Summary

Because they have many targets, microRNAs are ideally suited to act as network regulators via their simultaneous targeting of multiple components within a signalling pathway. Utilising cutting-edge methodologies and mass sequencing techniques, we are investigating how microRNAs select and regulate their target genes and how these genes interact to regulate the invasive capacity of cancer cells. We are also investigating new or poorly understood roles for microRNAs in cancer, including the impact of naturally occurring microRNA sequence variants and the potential for microRNAs to directly regulate transcription within the nucleus, a mechanism for which there is good evidence but little recognition. We aim to publish high impact papers of direct relevance to microRNA function in the context of human cancer.

For available projects please view Dr Bracken's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/cameron.bracken

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

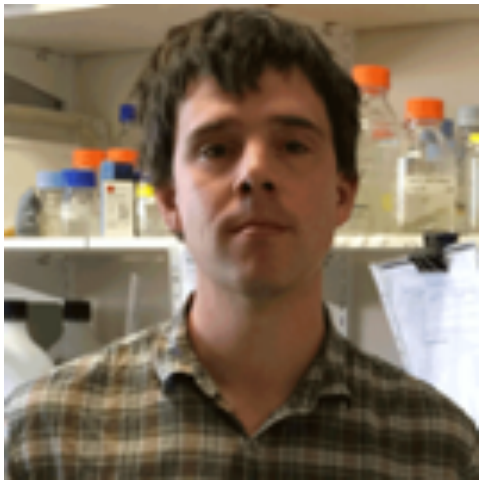
Flexible

Category

Wet Laboratory

Research Areas

Cancer Biology and Clinical Oncology



Dr Cameron Bracken

GUT CANCER RESEARCH GROUP

Lead Researcher: Dr Susan Woods

Contact: susan.woods@adelaide.edu.au

Research Summary

Projects in the lab focus on finding the hidden, early cancers that are not found by current population bowel cancer screening tests. We combine recent technological advances to develop new tests to better detect these lesions and predict which will become killers. We will rapidly move our best candidates to existing clinical cohorts for evaluation, to expedite translation to the clinic.

Together with our Australian research and US-based corporate partners, we also assess personalised treatment regimes for advanced disease using patient samples grown in a dish. If this works, it will guide therapy choice for patients, reducing unwarranted side-effects and picking the treatment that will work most effectively for each patient.

Projects in the lab also investigate how the bacterial community in our gut is changed in cancer, and the role this plays in promoting this disease. This may lead to a probiotic supplement for high risk people to assist with bowel cancer detection or prevention in the future.

For available projects please see Dr Wood's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/susan.woods

Projects available for

Honours; HDR

Maximum Number of Students

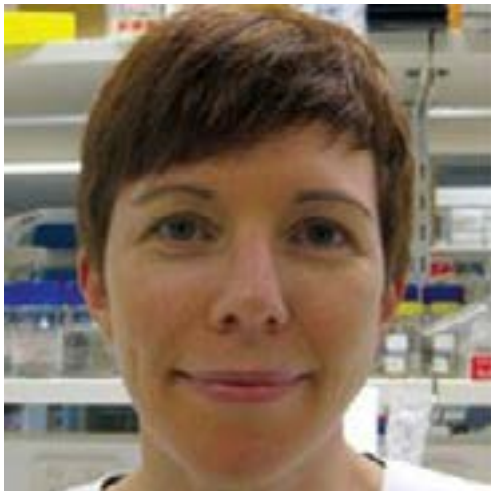
3

Category

Wet Laboratory; Dry Laboratory; Human Research

Research Areas

Cancer Biology and Clinical Oncology



Dr Susan Woods

LEUKAEMIA RESEARCH GROUP, SAHMRI CANCER PROGRAM, PRECISION MEDICINE

Lead Researcher: Dr Laura Eadie

Contact: laura.eadie@sahmri.com

Research Summary

Acute Lymphoblastic Leukaemia (ALL) is an extremely heterogeneous disease with subtypes of patients exhibiting a diverse range of genetic mutations. Certain subtypes of ALL can be treated with drugs already in clinical use. Laura undertook her Fulbright fellowship (2016-2017) at St. Jude Children's Research Hospital in Memphis, Tennessee where she learned mouse models of high-risk ALL. Laura is now leading in vivo mouse studies for high-risk ALL with a specific focus on T-cell ALL. Laura research assesses targeted therapies in mouse models of ALL through ongoing generation of 1) patient derived xenografts from patient samples received in our laboratory and 2) transgenic models. This will enable the evaluation of novel and combination therapeutic approaches compared with the current standard of care. Mouse models of drug resistance will also be developed and pre-emptive intervention in the resistant disease setting investigated. These studies will ultimately inform clinical practice, impacting significantly on response to therapy and overall survival of adults and children with high-risk ALL.

For available projects please see Dr Eadie's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/laura.eadie

Projects available for

HDR; Mphil

Maximum Number of Students

1

Category

Wet Laboratory

Research Areas

Cancer Biology and Clinical Oncology

Dr Laura Eadie

MYELOID METABOLISM AND EPIGENETICS

Lead Researcher: Dr Daniel Thomas

Contact: daniel.thomas@adelaide.edu.au

Research Summary

The way we understand and treat cancer is changing rapidly due to next generation sequencing and new insights into cancer stem cell epigenetics and metabolism. My research studies acute myeloid leukemia as a test-bed for precision oncology to assign the best non-chemotherapeutic treatment to the right patient. Acute myeloid leukemia is a poor prognosis blood cancer with a high recurrent mutation rate, stable karyotype and intra-clonal heterogeneity but a low total mutation burden, making it a perfect disease to discover and design mutation-specific therapies for cancer. My lab uses drug screens, CRISPR/Cas9, humanized mouse models, bioinformatics, Seahorse analyser and pre-leukemic stem cells to discover novel metabolic vulnerabilities that are specific to recurrent mutations in cancer. Our work has discovered several new targets for the IDH1 mutation in cancer and novel epigenetic druggable pathways for WT1 mutations, IDH2 mutations and TET2 mutations. Hopefully these discoveries will translate into effective therapy for solid cancers as well!

For available projects please see Dr Thomas' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/daniel.thomas

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory; Human Research; Systematic Review; Meta-analysis

Research Areas

Cancer Biology and Clinical Oncology

Dr Daniel Thomas

MYELOMA RESEARCH GROUP

Lead Researcher: Professor Andrew Zannettino

Contact: andrew.zannettino@adelaide.edu.au

Research Summary

Professor Zannettino's Myeloma Research Laboratory, within the Precision Medicine Theme at SAHMRI, has a team of senior researchers whose efforts are primarily focussed on the bone marrow cancer multiple myeloma (MM). MM is a haematological malignancy characterised by the clonal proliferation of plasma cells, a cell type that normally protects against infection. MM is the second most common blood cancer, with more that 140,000 people diagnosed annually worldwide. Despite recent advances, myeloma remains universally fatal and has a 10-year survival rate of 28%.

Research projects focus on: a mechanistic understanding of intrinsic (cancer cell specific) and extrinsic (tumour microenvironment derived) drivers of myeloma tumour growth and spread; elucidation of novel blood-based biomarkers of disease progression; discovery of new therapeutic targets and novel drug delivery systems. Research is also being conducted on skeletal mesenchymal stem cell biology, bone development, acute lymphoblastic leukaemia, and metastatic breast cancer. The endocrine properties of bone marrow cells are also being investigated, together with novel approaches to treat diet-induced insulin resistance.

We use multi-faceted research approaches including: analyses of human patient samples, cell and molecular biology, genomics/proteomics, complex bioinformatics, and mouse models of cancer and metabolic disease.

For available projects please view individual Researcher Profiles under "My Research"

researchers.adelaide.edu.au/profile/duncan.hewett

researchers.adelaide.edu.au/profile/kate.vandyke

researchers.adelaide.edu.au/profile/stephen.fitter

researchers.adelaide.edu.au/profile/melissa.cantley

researchers.adelaide.edu.au/profile/jacqueline.noll

researchers.adelaide.edu.au/profile/bill.panagopoulos

researchers.adelaide.edu.au/profile/krzysztof.mrozik

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Wet Laboratory; Human Research; Dry Laboratory

Research Areas

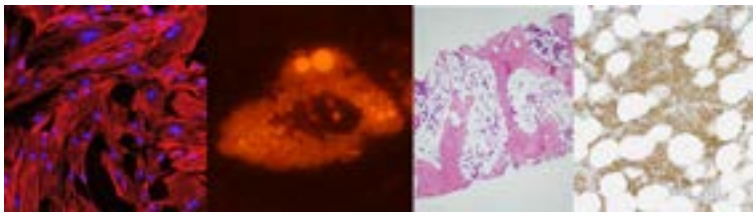
Cancer Biology and Clinical Oncology

Innovative Therapeutics

Nutrition and Metabolic Health

Translational Health Outcomes

Myeloma Research Laboratory, SAHMRI



Bone Marrow Images. L to R: mesenchymal stem cells, adipocytes, myeloma patient trephine, malignant plasma cells (brown).

ONCOGASTROENTEROLOGY RESEARCH GROUP

Lead Researcher: Dr Hannah Wardill

Contact: hannah.wardill@adelaide.edu.au

Research Summary

The human gut is home to trillions of bacteria, viruses and fungi, collectively termed the microbiome. Dr Wardill's research aims to understand how the microbiome influences the outcomes of cancer therapy and how host-microbe interactions can be exploited to predict and prevent complications of cancer therapy. Dr Wardill is currently leading several collaborative research projects aiming to

1) establish a faecal transplantation service for people with blood cancer, and

2) develop a paediatric biobank for the comprehensive evaluation of the factors that determine a child's response to chemotherapy, and their risk of long-term health implications after treatment.

In addition her clinical research projects, Hannah is also working on developing a murine model of graft versus host disease in which she is refine faecal transplantation processes for optimal clinical translation.

For available projects please view Dr Wardill's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/hannah.wardill

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

4

Category

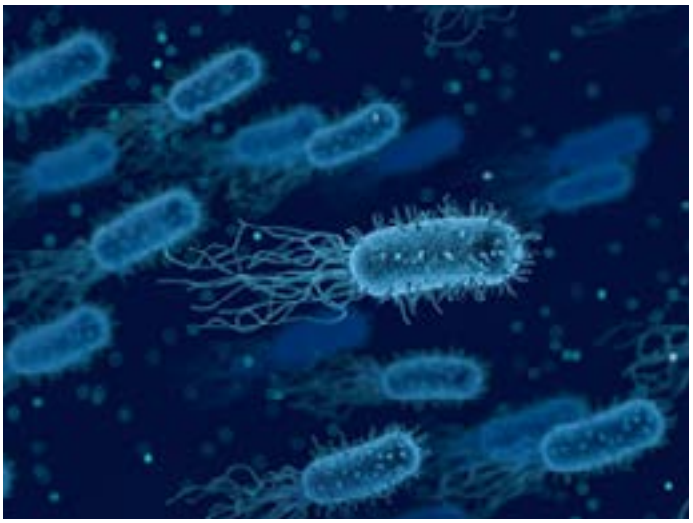
Wet Laboratory; Dry Laboratory; Human Research

Research Areas

Cancer Biology and Clinical Oncology

Immunology and Infection

Nutrition and Metabolic Health



E coli: one of trillions of bacteria that are found within the human gut

REPRODUCTIVE CANCER RESEARCH GROUP

Lead Researcher: Dr Carmela Ricciardelli

Contact: carmela.ricciardelli@adelaide.edu.au

Research Summary

Understanding the cross-talk between ovarian cancer cells and the tumour micro-environment may allow us to understand how ovarian cancer spreads, its resistance to chemotherapy, and how to identify novel biomarkers for ovarian cancer detection and novel therapeutic targets for treatment.

Our current studies focus on the interactions of peritoneal cancer cells and ovarian cancer cells, and the mechanisms of how tumour cells communicate with the tumour micro-environment to promote motility, tumour spread and chemotherapy resistance in ovarian cancer.

For available projects please view Dr Carmela Ricciardelli's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/carmela.ricciardelli

Projects available for

Third Year; Honours; HDR, Masters, Mphil

Maximum Number of Students

2

Category

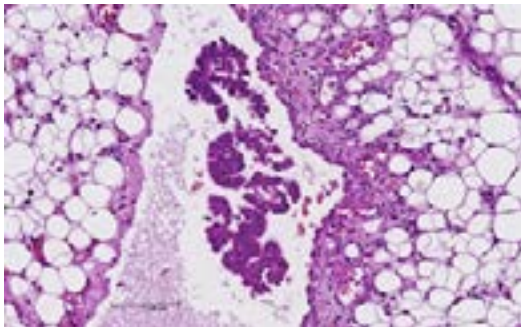
Wet Laboratory; Human Research

Research Areas

Cancer Biology and Clinical Oncology

Translational Health Outcomes

Dr Carmela Ricciardelli



Ovarian cancer peritoneal implant

ROYAL ADELAIDE HOSPITAL COLORECTAL RESEARCH GROUP

Lead Researcher: Associate Professor Tarik Sammour

Contact: tarik.sammour@gmail.com

Research Summary

Colorectal cancer is estimated to become the second most commonly diagnosed cancer in Australia by the end of this year, and it is currently the second most common cause of cancer related mortality. Similarly, benign colorectal conditions such as diverticulitis and inflammatory bowel disease, also constitute a considerable patient burden with well documented quality of life implications. The impact of surgery on colorectal patient care, both in terms of short and long-term outcomes is significant, and for many patients this episode of care may be the single most important event in their treatment journey. However, despite this, the quality and extent of clinical outcomes based research activity in colorectal surgery has historically been lacking, particularly in comparison to efforts underway in medical oncology, molecular biology, and basic science research.

We have identified several patient centred outcomes that are in need of urgent investigation and have formulated both short and long-term plans to address these within our unit.

Details can be found here: colorectalresearch.org

For available projects please view Associate Professor Sammour's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/tarik.sammour

Projects available for

HDR; Masters

Maximum Number of Students

Flexible

Category

Systematic Reviews; Meta-analysis; Human Research

Research Areas

Cancer Biology and Clinical Oncology

Surgical and Health Systems Innovation

Translational Health Outcomes

Royal Adelaide Hospital

SOLID TUMOUR GROUP, BASIL HETZEL INSTITUTE

Lead Researcher: Dr Eric Smith

Contact: eric.smith@adelaide.edu.au

Research Summary

The Solid Tumour Group, incorporating the SAHMRI Colorectal Cancer Node, is headed by Professor Timothy Price, and investigates the molecular and cellular mechanisms underlying the carcinogenesis and therapeutic resistance of solid tumours, to identify novel prognostic and predictive factors, biomarkers of drug resistance, therapeutic targets, and to develop and trial new therapeutic agents in pre-clinical models, with translation to the clinical setting.

For available projects please view Dr Smith's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/eric.smith

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

2

Category

Wet Laboratory

Research Areas

Cancer Biology and Clinical Oncology

Solid Tumour Group, Basil Hetzel Institute, The Queen Elizabeth Hospital

SUPPORTIVE ONCOLOGY RESEARCH GROUP

Lead Researcher: Dr Hannah Wardill

Contact: hannah.wardill@adelaide.edu.au

Research Summary

More people than ever are now surviving cancer, especially children. While this represents major advances in our ability to treat cancer, it also means we are faced by a growing number of people who are burdened by the complications of their treatment. Dr Wardill's program of research aims to improve the outcomes of cancer therapy by delivering innovative and personalised supportive care solutions that prevent debilitating complications of treatment and promote long-term, quality survivorship in people affected by cancer.

Her group has a particular focus on how the gastrointestinal microenvironment, including gut microbes, regulate an individual's response to treatment and their risk of side effects, including bloodstream infection and graft versus host disease. While focused on translational approaches to support people with cancer, Dr Wardill's program of research reveals, and aims to answer, biologically relevant questions and appraise health policy to impact the quality of care people receive. As such, her group offers a range of projects suitable to fundamental, translational, clinical and policy-focused researchers with the central goal of improving the outcomes of cancer therapy.

For available projects please view Dr Wardill's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/hannah.wardill

Projects available for

Third Year; Honours; HDR; Masters; MPhil

Maximum Number of Students

4

Category

Wet Laboratory; Systematic Review

Research Areas

Cancer Biology and Clinical Oncology

Immunology and Infection

Nutrition and metabolic health

Neuroscience, behaviour and brain health

Dr Hannah Wardill

SURGICAL SCIENCE RESEARCH GROUP

Lead Researcher: Professor Guy Maddern

Contact: guy.maddern@adelaide.edu.au

Research Summary

The Surgical Science Research Group is primarily interested in clinical research and translational benchtop to bedside medicine in the surgical setting

Laparoscopic Simulation Skills Program (LSSP)

Current access to surgical simulation training in Australia is limited and the best format for delivery is yet to be established. Self-directed learning has the potential to limit the costs associated with simulation training, as well as improve access through increased flexibility of training times. The aim of the LSSP is to develop and assess the efficacy and feasibility of training times. The aim of the LSSP is to develop and assess the efficacy and feasibility of a self-directed simulation-based training program, and to determine if a period of more formal (supervised) training is required.

Coaching to Enhance Surgeons' Non-Technical Skills

The concept of coaching for performance improvement is an accepted and well established approach in fields such as sports, education, business and music. It has only been recently recognised that application of this model of learning, which is grounded in established adult learning and psychological concepts, may be of particular value when applied in health care settings. This project is investigating whether surgical coaching is a potentially valuable tool to enhance surgeons' non-technical skills and whether it would be beneficial to develop a surgical coaching program for General Surgeons for the purpose of improving surgeons' ongoing professional development.

Developing novel diagnostic tools and preventative therapies for metastatic colorectal cancer

The majority of colorectal cancer (CRC) related deaths are attributable to liver metastasis – the most critical prognostic factor observed in CRC patients. However, there is no clinical test to predict metastatic risk and allow informed selection of preventative treatment regimen. The translation challenge is to validate immune checkpoint biomarkers controlling metastasis. We have identified potential proteomic and lipidomic targets from stored tissue and blood of CRC patients and are currently validating these in a larger patient cohort.

Systematic reviews of surgical topics

- The use of antibiotic coated sutures
- What is informed consent
- Do Multi-Disciplinary Teams Meetings work?
- Should asymptomatic contra-lateral inguinal hernias found at laparotomy be repaired?
- Tele-surgery: what is the evidence?

Audit of surgical mortality

- Trocar injury deaths in Australia
- Deaths in patients under 30 years of age
- Surgical deaths in the patients older than 90
- Surgical deaths following delay in transfer

Health System Research

- How to deliver rural general surgery
- Advanced recovery programs
- What is the surgical learning curve for a
  - liver resection
  - oesophagectomy
  - inguinal hernia repair
  - whipples resection
  - open abdominal aortic aneurysm

Health Technology Assessment

Students will participate in the reviews of new surgical Health Technology Assessment reports being continuously undertaken

For available projects please view Professor Maddern's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/guy.maddern

Projects available for

Third Year; Honours; HDR; Masters; MPhil

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory; Human Research; Systematic Review; Meta-analysis

Research Areas

Cancer Biology and Clinical Oncology

Translational Health Outcomes

Surgical and Health Systems Innovation

Professor Guy Maddern

Surgical Science Research Group

TRANSLATIONAL IMMUNOLOGY AND ONCOLOGY (SURGICAL SCIENCE RESEARCH GROUP AND ENT SURGERY)

Lead Researcher: Dr Kevin Fenix

Contact: kevin.fenix@adelaide.edu.au

Research Summary

I am a Research Fellow located at the Basil Hetzel Institute for Translational Health Research in the discipline of Surgery working with both the Surgical Science Research Group (SSRG) and ENT Surgery (ENT).

Research projects include:

1. Developing drugs and immunotherapy for colorectal cancer liver metastasis (SSRG).
2. Investigating microbiome: tumour interactions in head and neck cancer (ENT).

For available projects please see Dr Fenix's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/Kevin.Fenix

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

2

Category

Human Research; Wet Laboratory

Research Areas

Cancer Biology and Clinical Oncology

Immunology and Infection

Innovative Therapeutics

Dr Kevin Fenix

TRANSLATIONAL ONCOLOGY LABORATORY

Lead Researcher: Dr Alex Staudacher

Contact: alex.staudacher@adelaide.edu.au

Research Summary

In a bench to bedside effort, researchers in the Translational Oncology Laboratory are applying advances in immunotherapeutic technologies to the treatment of melanoma, ovarian, brain and lung cancers, which affect millions around the world. The two major technologies of interest are antibody therapies using antibody drug conjugates and radioimmunotherapy to target and kill cancer cells, and chimeric antigen receptors (CARs) for re-directing lymphocytes toward cancers.

We are developing pre-clinical and clinical approaches for the treatment of these cancers to aid in diagnosis, therapy monitoring and treatment. Much of our research is collaborative, working in association with the RAH Cancer Clinical Trials Unit and partnering with other laboratories within the Centre for Cancer Biology and SAHMRI as well as national and international collaborations.

Projects in our Laboratory cover the development of novel non-invasive imaging techniques to monitor responses to anti-cancer therapy, using radiolabelled antibodies to target and irradiate tumours from the inside out, identifying novel targets and payloads for antibody drug conjugate therapy and using the bodies own immune system to kill cancer cells through immunotherapy and CAR T-cell therapy.

For available projects please view Dr Staudacher's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/alex.staudacher

Projects available for

Honours; HDR; Masters

Maximum Number of Students

4

Category

Wet Laboratory

Research Areas

Cancer Biology and Clinical Oncology

Innovative Therapeutics

Dr Alex Staudacher

TRANSLATIONAL ONCOLOGY LABORATORY (T CELL IMMUNOTHERAPIES STREAM)

Lead Researcher: Dr Lisa Ebert

Contact: lisa.ebert@adelaide.edu.au

Research Summary

Dr Lisa Ebert is a Senior Research Fellow in the Translational Oncology Laboratory at the Centre for Cancer Biology, and an Affiliate Senior Lecturer of the University of Adelaide. The Translational Oncology Laboratory (directed by Professor Michael Brown) has a clear focus on the development of new and better therapies for cancer, and the translation of these research discoveries to the clinic. There are two major research streams: one focussed on T cell-based cancer immunotherapies, and the other on antibody-targeted diagnostics and therapeutics.

Dr Ebert directs a research program within the T Cell Immunotherapies stream. Our team has a major interest in chimeric antigen receptor (CAR)-T cell therapies, where our studies range from the identification of new target antigens, to the design, manufacturing and testing of novel CAR-T cell therapies, and all the way to clinical trials. Our other major interest is in Immune Checkpoint Inhibitor therapies. We use patient blood and tissue specimens to better understand the mechanism of action of these novel agents, with the hope of improving the number of patients that can benefit. We also are developing a blood test to predict those patients who will respond well to ICI therapy, thus ensuring that each patient gets the best treatment for their cancer.

For available projects please view Dr Ebert's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/lisa.ebert

Projects available for

Honours; HDR; Masters

Maximum Number of Students

3

Category

Wet Laboratory; Dry Laboratory; Human Research

Research Areas

Cancer Biology and Clinical Oncology

Immunology and Infection

Innovative Therapeutics

Dr Lisa Ebert

CARDIAC, RESPIRATORY AND VASCULAR HEALTH

CARDIAC, RESPIRATORY AND VASCULAR HEALTH RESEARCH GROUPS

Healthy heart, lungs, arteries and veins are vital to overall good health. Despite being largely preventable, cardiovascular disease is one of Australia's leading health problems, affecting one in six people and accounting for nearly 30% of deaths.

Our researchers conduct interdisciplinary research to understand the mechanisms which underlie the development of coronary heart disease, peripheral arterial disease, and vascular and heart rhythm disorders. Utilising the skills of physicians, bioengineers, research scientists and computational modelers, research is focused on translating biomedical discoveries to clinical practice.

Furthermore, researchers undertake clinical trials and epidemiological studies into cardiovascular disorders with the objective of improving health outcomes for patients.

Researchers across the faculty are focused on:

- understanding the molecular and cellular mechanisms underlying cardiac and vascular disorders including peripheral arterial disease, atherosclerosis and cardiac arrhythmias
- exploring the relationship between atrial fibrillation, blood clotting and stroke
- developing improved cardiovascular imaging and disease detection methods
- understanding the relationship between high density lipoproteins (HDL) and cardiovascular risk
- developing strategies to modify cardiovascular risk through the control of obesity and obesity-related conditions
- applying evidence-based medicine, recommendations and guidelines to target education and improve health outcomes for at risk cardiac patients
- developing new approaches to treat airway inflammation in asthma and chronic obstructive pulmonary disease (COPD)
- developing cell and gene therapy approaches for diseases affecting lung blood vessels (pulmonary hypertension) and lung transplant.

CARDIAC, RESPIRATORY AND VASCULAR HEALTH RESEARCH OPPORTUNITIES

CARDIOVASCULAR PATHOPHYSIOLOGY AND THERAPEUTICS GROUP

Lead Researcher: Dr Yuliy Y. Chirkov

Contact: yuliy.chirkov@adelaide.edu.au

Research Summary

I have a major interest in platelet responsiveness to cyclic nucleotides, which mediate anti-aggregatory responses. In particular, platelets from patients with angina, heart failure and diabetes are "resistant" to the effects of nitric oxide and prostacyclin. I am now extending these observations to evaluate the causes of coronary artery spasm and of the development of heart failure in patients affected by influenza.

Furthermore, I have recently demonstrated that agents which are intended to prevent thrombosis after coronary artery stenting have variable effects related to post-receptor signaling, and it is likely that this variability impinges on the safety of such drugs: this is under ongoing investigation.

For available projects please view Dr Chirkov's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/yuliy.chirkov

Projects available for

Honours; HDR; Masters

Maximum Number of Students

3

Category

Wet Laboratory; Human Research

Research Areas

Cardiac, Respiratory and Vascular Health

Dr Yuliy Chirkov

CARDIOVASCULAR PATHOPHYSIOLOGY AND THERAPEUTICS GROUP

Lead Researcher: Emeritus Professor John D. Horowitz

Contact: john.horowitz@adelaide.edu.au

Research Summary

The Cardiovascular Pathophysiology and Therapeutics Group reflects the combined interests of members of The Queen Elizabeth Hospital's (TQEH) cardiology and clinical pharmacology groups. This research collaboration has existed for over the past 20 years at TQEH.

We are mainly interested in developing a better understanding of the" new' cardiovascular epidemics of the 21st century, including atrial fibrillation, systolic hypertension, aortic valve disease, stress" Tako-Tsubo' syndrome and metabolic heart disease. We recognise that these conditions are responsible for impaired quality of life, as well as increased mortality rates. Therefore, we consider the development of effective treatment modalities as a major priority.

For available projects please view Emeritus Professor Horowitz's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/john.horowitz

Projects available for

Honours; HDR; Masters

Maximum Number of Students

4

Category

Wet Laboratory; Human Research

Research Areas

Cardiac, Respiratory and Vascular Health

Professor John Horowitz

CENTRE FOR HEART RHYTHM DISORDERS

Lead Researcher: Dr Adrian Elliott

Contact: adrian.elliott@adelaide.edu.au

Research Summary

The Centre for Heart Rhythm Disorders (CHRD) is an internationally-renowned group of research focussing on prevalence, mechanisms and treatment of cardiac arrhythmias and sudden cardiac death. The Exercise and Integrative Physiology Group within CHRD has a specific focus on

1) the physiological mechanisms promoting arrhythmias,

2) the benefit of exercise interventions in the management of patients with cardiac arrhythmias and/or heart failure,

3) the mechanisms promoting clinical symptoms and exercise intolerance amongst arrhythmia patients and

4) the prevalence and mechanisms of cardiac arrhythmias amongst endurance athletes.

These interests are investigated using a wide range of techniques including; cardiopulmonary exercise testing, exercise-based cardiac imaging (echocardiography and MRI), invasive haemodynamic assessment, and blood analysis. We have also developed expertise in autonomic nervous system assessment.

For available projects please view Dr Elliott's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/adrian.elliott

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Human Research; Wet Laboratory

Research Areas

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Dr Adrian Elliott

CENTRE FOR HEART RHYTHM DISORDERS

Lead Researcher: Dr Jeroen Hendriks

Contact: jeroen.hendriks@adelaide.edu.au

Research Summary

The Centre for Heart Rhythm Disorders is an internationally-renowned group of research focussing on prevalence, mechanisms and treatment of cardiac arrhythmias and sudden cardiac death. Our multidisciplinary team includes cardiologists, basic scientists, allied health professionals and exercise physiologists. We have a broad range of interests using novel research approaches that lead to scientific discovery and the improvement of patient outcomes.

Specific projects can be viewed with the research profiles of our team; **Professor Prash Sanders**, **Associate Professor Dennis Lau**, **Dr Jeroen Hendriks**, **Dr Adrian Elliott**, **Dr Celine Gallagher**, **Associate Professor Dominik Linz**, **Dr Christopher Wong**, **Dr Melissa Middeldorp**, **Dr Rajiv Mahajan**.

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Human Research; Wet Laboratory

Research Areas

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Dr Jeroen Hendriks

CENTRE FOR HEART RHYTHM DISORDERS

Lead Researcher: Associate Professor Dennis Lau

Contact: dennis.lau@adelaide.edu.au

Research Summary

The Centre for Heart Rhythm Disorders is an internationally-renowned group of research focussing on prevalence, mechanisms and treatment of cardiac arrhythmias and sudden cardiac death. Our multidisciplinary team includes cardiologists, basic scientists, allied health professionals and exercise physiologists. We have a broad range of interests using novel research approaches that lead to scientific discovery and the improvement of patient outcomes

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Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Human Research; Wet Laboratory

Research Areas

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Associate Professor Dennis Lau

CENTRE FOR HEART RHYTHM DISORDERS

Lead Researcher: Associate Professor Dominik Linz

Contact: dominik.linz@adelaide.edu.au

Research Summary

The Centre for Heart Rhythm Disorders is an internationally-renowned group of research focussing on prevalence, mechanisms and treatment of cardiac arrhythmias and sudden cardiac death. Our multidisciplinary team includes cardiologists, basic scientists, allied health professionals and exercise physiologists. We have a broad range of interests using novel research approaches that lead to scientific discovery and the improvement of patient outcomes

Specific projects can be viewed with the research profiles of our team; **Professor Prash Sanders**, **Associate Professor Dennis Lau**, **Dr Jeroen Hendriks**, **Dr Adrian Elliott**, **Dr Celine Gallagher**, **Associate Professor Dominik Linz**, **Dr Christopher Wong**, **Dr Melissa Middeldorp**, **Dr Rajiv Mahajan**.

Projects available for

Honours; HDR

Maximum Number of Students

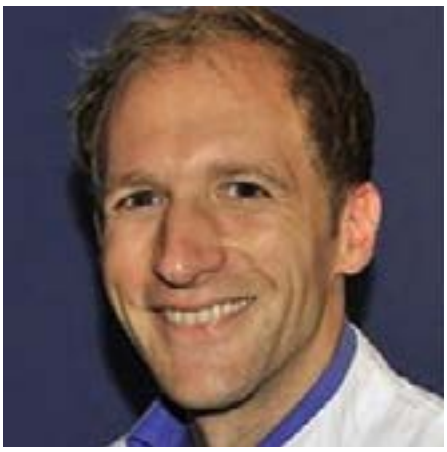
Flexible

Category

Wet Laboratory; Human Research

Research Areas

Cardiac, Respiratory and Vascular Health



Associate Professor Dominik Linz

CENTRE FOR HEART RHYTHM DISORDERS

Lead Researcher: Dr Melissa Middeldorp

Contact: melissa.middeldorp@adelaide.edu.au

Research Summary

The Centre for Heart Rhythm Disorders is an internationally-renowned group of research focussing on prevalence, mechanisms and treatment of cardiac arrhythmias and sudden cardiac death. Our multidisciplinary team includes cardiologists, basic scientists, allied health professionals and exercise physiologists. We have a broad range of interests using novel research approaches that lead to scientific discovery and the improvement of patient outcomes.

Specific projects can be viewed with the research profiles of our team; **Professor Prash Sanders**, **Associate Professor Dennis Lau**, **Dr Jeroen Hendriks**, **Dr Adrian Elliott**, **Dr Celine Gallagher**, **Associate Professor Dominik Linz**, **Dr Christoher Wong**, **Dr Melissa Middeldorp**, **Dr Rajiv Mahajan**.

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Human Research; Wet Laboratory

Research Areas

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Dr Melissa Middeldorp

CENTRE FOR HEART RHYTHM DISORDERS

Lead Researcher: Professor Prashanthan Sanders

Contact: prash.sanders@adelaide.edu.au

Research Summary

The Centre for Heart Rhythm Disorders is an internationally-renowned group of research focussing on prevalence, mechanisms and treatment of cardiac arrhythmias and sudden cardiac death. Our multidisciplinary team includes cardiologists, basic scientists, allied health professionals and exercise physiologists. We have a broad range of interests using novel research approaches that lead to scientific discovery and the improvement of patient outcomes. Specific projects can be viewed with the research profiles of our team; **Professor Prash Sanders**, **Associate Professor Dennis Lau**, **Dr Jeroen Hendriks**, **Dr Adrian Elliott**, **Dr Celine Gallagher**, **Associate Professor Dominik Linz**, **Dr Christopher Wong**, **Dr Melissa Middeldorp**, **Dr Rajiv Mahajan**

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Wet Laboratory; Human Research

Research Areas

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Professor Prashanthan Sanders

CENTRE FOR HEART RHYTHM DISORDERS

Lead Researcher: Dr Gijo Thomas

Contact: gijo.thomas@adelaide.edu.au

Research Summary

The Centre for Heart Rhythm Disorders is an internationallyrenowned group of research focussing on prevalence, mechanisms and treatment of cardiac arrhythmias and sudden cardiac death. Our multidisciplinary team includes cardiologists, basic scientists, allied health professionals and exercise physiologists. We have a broad range of interests using novel research approaches that lead to scientific discovery and the improvement of patient outcomes.

For available projects please see Dr Thomas's Profile under "My Research"

researchers.adelaide.edu.au/profile/gijo.thomas

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Wet Laboratory; Human Research

Research Areas

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Neuroscience, Behaviour and Brain Health

Dr Gijo Thomas

CENTRE FOR HEART RHYTHM DISORDERS

Lead Researcher: Dr Christopher X. Wong

Contact: c.wong@adelaide.edu.au

Research Summary

I am an academic cardiologist with broad clinical and research interests in cardiovascular medicine, heart rhythm disorders, and public health. My research interests span the spectrum of heart rhythm disorders from atrial fibrillation through to ventricular arrhythmias and sudden cardiac death. We employ a variety of methodological approaches to investigate these conditions, including epidemiological/population based studies (e.g. using cohort studies, routine data sources, systematic reviews/meta-analyses), mechanistic studies (e.g. using electrophysiological studies, electroanatomic mapping, cardiac imaging, animal models), and intervention studies (e.g. management approaches for arrhythmias, clinical trials of pharmacologic/device/ablation therapies).

For available projects please view Dr Wong's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/c.wong

Projects available for

Honours; Masters; HDR; Mphil

Maximum Number of Students

4

Category

Human Research; Systematic Reviews; Meta-Analysis

Research Areas

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Nutrition and Metabolic Health

Innovative Therapeutics

Dr Christopher X. Wong

CENTRE FOR HEART RHYTHM DISORDERS

Lead Researcher: Dr Celine Gallagher

Contact: celine.gallagher@adelaide.edu.au

Research Summary

The Centre for Heart Rhythm Disorders is an internationally-renowned group of research focussing on prevalence, mechanisms and treatment of cardiac arrhythmias and sudden cardiac death. Our multidisciplinary team includes cardiologists, basic scientists, allied health professionals and exercise physiologists. We have a broad range of interests using novel research approaches that lead to scientific discovery and the improvement of patient outcomes. Specific projects can be viewed with the research profiles of our team; **Professor Prash Sanders**, **Associate Professor Dennis Lau**, **Dr Jeroen Hendriks**, **Dr Adrian Elliott**, **Dr Celine Gallagher**, **Associate Professor Dominik Linz**, **Dr Christopher Wong**, **Dr Melissa Middeldorp**, **Dr Rajiv Mahajan**

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Wet Laboratory; Human Research

Research Areas

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Dr Celine Gallagher

CHRONIC INFLAMMATORY LUNG DISEASE RESEARCH GROUP

Lead Researcher: Professor Sandra Hodge

Contact: sandra.hodge@adelaide.edu.au

Research Summary

We are part of the Lung Research Unit, at the Department of Thoracic Medicine at the Royal Adelaide Hospital and The University of Adelaide. Our research program largely focusses on mechanisms of disease in chronic inflammatory lung diseases including COPD/emphysema, lung cancer and cystic fibrosis, and identifying new therapeutic approaches.

For available projects please view Professor Hodge's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/sandra.hodge

Projects available for

Honours; HDR, Masters

Maximum Number of Students

2

Category

Wet Laboratory; Dry Laboratory; Human Research

Research Areas

Cardiac, Respiratory and Vascular Health

The Chronic Inflammatory Lung Disease Research Team

Professor Sandra Hodge

CYSTIC FIBROSIS AIRWAY RESEARCH GROUP (CFARG)

Lead Researchers: Dr Martin Donnelley, Dr Alexandra McCarron

Contact: martin.donnelley@adelaide.edu.au, alexandra.mccarron@adelaide.edu.au

Research Summary

The CFARG goal is to develop an effective genetic therapy for prevention or treatment of Cystic Fibrosis airway disease. Our research themes are currently focussed on several complementary areas; achieving effective lentiviral CFTR vector gene delivery, lentiviral vector development, upscaling vector production, transducing airway stem cells in situ to enable extended gene expression, creating and testing new delivery methods, and developing rapid and accurate outcome measures for assessment of airway disease using X-ray imaging. We have access to a range of animal models (including CF mice and rats, and large animals), a dedicated state-of-the-art research laboratory in the Gilbert Building at the WCH, and access to the SPring-8 Synchrotron in Japan and the Australian Synchrotron in Melbourne. Our 2021 Honours and HDR projects can be tailored to focus on any aspect of this work, and may be related to gene therapy studies in CF rats, assessment of in vivo gene expression, stem cell analyses including FACS analyses, LV vector production improvements, or X-ray image-based outcome assessment.

For available projects please view Dr Donnelley or Dr McCarron's Researcher Profiles under "My Research"

researchers.adelaide.edu.au/profile/martin.donnelley

researchers.adelaide.edu.au/profile/alexandra.mccarron

Projects available for

Honours; HDR; Masters

Lab work

Maximum Number of Students

Flexible

Category

Wet Laboratory; Systematic Reviews; Animal Research

Research Areas

Cardiac, Respiratory and Vascular Health

Child and Adolescent Health

Innovative Therapeutics

The CFARG Team in our WCH laboratory

MOLECULAR PHYSIOLOGY OF VASCULAR FUNCTION RESEARCH GROUP

Lead Researcher: Dr David P Wilson

Contact: david.p.wilson@adelaide.edu.au

Research Summary

The objectives of our research group are to identify and investigate mechanisms and therapies for vasomotor disorders. The research involves investigation of vasospasm of large or small vessels and mechanisms contributing to vasodilatory septic shock. The research team is involved in both preclinical, basic research, and translational research using a three-pronged approach, which includes:

- Clinical characterization of vasomotor disorders
- Discovery of underlying molecular mechanisms
- Exploring novel therapies in basic & clinical studies.

For available projects please view Dr Wilson's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/david.p.wilson

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

4

Category

Wet Laboratory; Dry Laboratory; Human Research

Research Areas

Cardiac, Respiratory and Vascular Health

Dr David P Wilson

NORTHERN CARDIOVASCULAR RESEARCH GROUP

Lead Researcher: Associate Professor Margaret Arstall

Contact: margaret.arstall@sa.gov.au or emily.aldridge@adelaide.edu.au

Research Summary

Our research group aims to improve outcomes for people with cardiovascular disease in northern Adelaide. Our main research themes include management of coronary heart disease, pregnancy complications and postpartum health, and heart disease in women. We are a passionate team of clinicians and scientists with a strong focus on collaborative clinical research in a hospital setting. The diversity of our research strengths and methods means that there are many opportunities for students to explore and develop their own research interests. Our group currently has more than 15 projects ranging from observational clinical studies, laboratory and banking projects, clinical trials, and registries.

For available projects please see Associate Professor Arstall's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/margaret.arstall

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Wet Laboratory; Systematic Reviews; Human Research

Research Areas

Cardiac, Respiratory and Vascular Health

Pregnancy and Birth

The Northern Cardiovascular Research Group

NORTHERN HEALTH PROJECT – CARDIOLOGY RESEARCH

Lead Researcher: Dr Rajiv Mahajan

Contact: rajiv.mahajan@adelaide.edu.au

Research Summary

Dr Mahajan has established an electrophysiology research program focused on cardiac arrythmias at the Lyell McEwin Hospital. His previous work has focussed on several aspects in the management of patients with atrial fibrillation such as subclinical atrial fibrillation (AF), risk factors for AF and ablation strategies. His current research projects where we wish to attract students are:

AF and cognitive function: This research investigates the association of subclinical AF and dementia and evaluating the role in AF screening and whether treatment of subclinical AF may have an impact on dementia in the community.

Health literacy, digital health and AF: This research will produce knowledge on whether a digitally-informed critical health literacy intervention can help people living with AF better manage their disease, change health behaviours and therefore improve health outcomes.

For available projects please view Dr Mahajan's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/rajiv.mahajan

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Dr Rajiv Mahajan

PAEDIATRIC SLEEP DISORDERS GROUP

Lead Researcher: : Professor J Declan Kennedy and Dr Anna Kontos

Contact: anna.kontos@adelaide.edu.au and declan.kennedy@adelaide.edu.au

Research Summary

Our aim is to understand the impact of bad sleep on the health of the developing child. A large proportion of the population both adults and children suffer from sleep disorders. Our multidisciplinary team of researchers primarily focuses on the effects of sleep disordered breathing (SDB), which is commonly known as sleep apnoea and its effects on neurocognition, cardiovascular development, immune system, metabolic and nervous system function. SDB in children is common with as many as 10 % of children confirmed to snore on a regular basis. A spectrum disorder, SDB ranges from primary snoring (snoring more than 3 time a week, but no evidence of obstruction and no change in blood oxygen concentration), to the more severe obstructive sleep apnoea (snoring, obstructive events known as apnoea's and hypopnea's and reduction in blood oxygen levels and increase in carbon dioxide).

We are also interested in understanding the risk factors that predispose children to the disorder.

For available projects please view Professor Kennedy's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/declan.kennedy

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

4

Category

Human Research; Systematic Reviews; Meta-analysis

Research Areas

Cardiac, Respiratory and Vascular Health

Child and Adolescent Health

Early Origins of Health

Dr Anna Kontos

Professor J Declan Kennedy

PRIMARY CARE AND HEALTH SERVICES RESEARCH GROUP

Lead Researcher: : Professor Nigel Stocks and Dr Carla Bernardo

Contact: nigel.stocks@adelaide.edu.au
carla.bernardo@adelaide.edu.au

Research Summary

Current research focuses on trends and preventive health interventions in Australian general practice, as well as understanding general practitioner attitudes and activities. Researchers in the discipline work collaboratively, bringing different areas of methodological and research expertise. Research methodologies include controlled clinical trials, cross-sectional and longitudinal studies, large data-set analysis, mixed methods research, and qualitative research.

The discipline has a strong research focus on chronic disease, vaccination, preventive health and patient perspectives of health care. Current projects in this area include increasing vaccination and screening in general practice via targeted and opportunistic patient reminders, as well as mapping trends in vaccination rates over time. We are also working with large datasets to assess the effect of the COVID-19 pandemic on chronic disease monitoring, diagnosis and management activities in general practice.

Other research currently undertaken focuses on trends and patient/clinician experiences, including:

- Cardiovascular risk and preventive strategies
- Hypertension, diabetes and prediabetes diagnosis and management in general practice
- Treatment and perspectives of patients' physical and psychological trauma following motor-vehicle accidents
- Exploring opioids and psychotropic prescriptions in general practice
- General practitioner perspectives of sleep disorder management.

For available projects please see Professor Stocks and Dr Bernardo's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/nigel.stocks

researchers.adelaide.edu.au/profile/carla.bernardo

Projects available for

Honours; HDR; Masters

Maximum Number of Students

3

Category

Human Research; Systematic Reviews; Meta-analysis

Research Areas

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Nutrition and Metabolic Health

Child and Adolescent Health

Primary Care and Health Services Research Group, from L-R: Professor Nigel Stocks, Dr Carla Bernardo, Associate Professor David Gonzalez and Dr Elizabeth Hoon.

Associate Professor David Gonzalez, Dr Elizabeth Hoon and Dr Oilver Frank from the Discipline of General Practice.

PSALTIS GROUP, VASCULAR RESEARCH CENTRE, LIFELONG HEALTH THEME

Lead Researcher: Associate Professor Peter Psaltis

Contact: peter.psaltis@adelaide.edu.au

Research Summary

Our group has discovered for the first time the existence of a new type of stem cell, called haemangioblasts, in different postnatal tissues in mice and humans. These stem cells are derived from embryonic yolk sac and are maintained after birth locally and independently of circulatory input or bone marrow haematopoiesis. Tissue-resident haemangioblasts are able to produce both endothelial cells and macrophages, and in turn facilitate tissue repair after insults such as ischaemia and wound injury. Honours and HDR projects with our group are available to explore the following topics:

1) The presence and characteristics of haemangioblasts from human umbilical cord blood vessels, including their ability to repair skin wounds and peripheral tissue ischaemia in immunodeficient NOD-SCID mice.

2) The reparative properties of adipose-resident haemangioblasts from mice and how these are affected by high fat diet and obesity.

The work involved will require in vivo and ex vivo mouse experiments, and the collection and use of samples from human patients. Students will obtain expertise in cell culture, surgical models, flow cytometry, RT-PCR and immunostaining and confocal microscopy.

For available projects please view Associate Professor Psaltis' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/peter.psaltis

Projects available for

Honours; HDR; Masters

Maximum Number of Students

3

Category

Human Research; Systematic Reviews; Meta-analysis

Research Areas

Cardiac, Respiratory and Vascular Health

Early Origins of Health

Nutrition and Metabolic Health

Dr Carla Bernardo

TRANSLATIONAL VASCULAR FUNCTION RESEARCH COLLABORATIVE

Lead Researcher: : Professor John Beltrame

Contact: john.beltrame@adelaide.edu.au

Research Summary

The Translational Vascular Function Research Group's objective is to improve the health outcomes for patients with coronary heart disease and peripheral artery disease.

Our current research undertakes basic, clinical and epidemiological studies into cardiovascular disorders, approaches that can be applied to other vascular disorders.

We conduct interdisciplinary research using a collaborative approach and directly integrate our results into clinical practice, so we can see the impact on patients' lives. This involves a combination of different types of research, including:

- Integrated laboratory and clinical research, or "bench to bedside" research, which sees discoveries generated in the laboratory and then developed through clinical trials.
- Exploring ways of applying evidence-based medicine, recommendations or guidelines to clinical practice in order to yield knowledge about real world settings.

Our team consists of both physicians and medical scientists located at the Basil Hetzel Institute, University of Adelaide Medical School, and various teaching hospitals. The integrative nature of the group ensures that our innovative research is translated from bench to bedside to health outcome's as well as the reverse.

For available projects please view Professor Beltrame's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/john.beltrame

Projects available for

Honours; HDR

Maximum Number of Students

2

Category

Wet Laboratory; Dry Laboratory; Meta-analysis; Human Research

Research Areas

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Members of the Translational Vascular Function Research Collaborative based at the Basil Hetzel Institute for Translational Health Research

VASCULAR RESEARCH CENTRE, SAHMRI

Lead Researcher: Dr Achini Vidanapathirana

Contact: achini.vidanapathirana@sahmri.com

Research Summary

As a researcher of the ARC Centre of Excellence for Nanoscale Biophotonics and SAHMRI, Dr. Vidanapathirana's current research focus biological and biomedical applications of light based novel technologies in early detection and treatment of cardiovascular disease.

Three research projects are available for Honours or HDR (with Dr. Christina Bursill).

1) Biological sensing of cellular changes in atherosclerosis using novel nanoscale sensors. Our local and international collaborations provide access to novel nanoscale sensors with different imaging capabilities. This project broadly involves molecular and nanoscale fluorescent sensors, which will be tested first in in vitro and in vivo models, prior to future human/clinical applications in cardiovascular disease.

2) Novel platforms for wound healing and angiogenesis. This project incorporates bio-compatibility assessments and identifying properties of novel scaffolds and senor platforms to support wound healing.

3) Understanding the role of asialoglycoprotein receptor 1 (ASGR1) in the development and progression of atherosclerosis.

For available projects please view Dr Vidanapathirana's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/achini.vidanapathirana

Projects available for

Honours; HDR

Maximum Number of Students

2

Category

Wet Laboratory

Research Areas

Cardiac, Respiratory and Vascular Health

Dr Achini Vidanapathirana

VASCULAR RESEARCH GROUP

Lead Researcher: Dr Christina Bursill

Contact: christina.bursill@sahmri.com

Research Summary

The research projects in our laboratory will give the student the opportunity to gain experiences in a host of different vascular biological techniques from in vitro cellular mechanistic and functional analyses through to in vivo surgical models and assessments. There are a range of different projects. Some are investigating the effect of a nanoparticle, therapeutic agent or the deletion of a novel protein target on the development of atherosclerosis in models of stable disease, unstable disease and stenting. Other projects will look at novel mechanisms of angiogenesis and the effect of diabetes. This can include models of myocardial infarction, peripheral artery disease and wound healing. All projects can be catered towards Third Year / Honours / HDR / Masters / Mphil studies and will be based in the SAHMRI laboratories.

For available projects please see Dr Bursill's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/christina.bursill

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

4

Category

Wet Laboratory

Research Areas

Cardiac, Respiratory and Vascular Health

Team led by Christina Bursill within the Vascular Research Centre

ZINC IN CARDIOVASCULAR HEALTH GROUP

Lead Researcher: Dr Achini Vidanapathirana

Contact: achini.vidanapathirana@sahmri.com

Research Summary

As a researcher of the ARC Centre of Excellence for Nanoscale Biophotonics and SAHMRI, Dr. Vidanapathirana's current research focus biological and biomedical applications of light based novel technologies in early detection and treatment of cardiovascular disease.

Three research projects are available for Honours or HDR (with Dr. Christina Bursill).

1) Biological sensing of cellular changes in atherosclerosis using novel nanoscale sensors. Our local and international collaborations provide access to novel nanoscale sensors with different imaging capabilities. This project broadly involves molecular and nanoscale fluorescent sensors, which will be tested first in in vitro and in vivo models, prior to future human/clinical applications in cardiovascular disease.

2) Novel platforms for wound healing and angiogenesis. This project incorporates bio-compatibility assessments and identifying properties of novel scaffolds and senor platforms to support wound healing.

3) Understanding the role of asialoglycoprotein receptor 1 (ASGR1) in the development and progression of atherosclerosis.

For available projects please view Dr Vidanapathirana's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/achini.vidanapathirana

Projects available for

Honours; HDR

Maximum Number of Students

2

Category

Wet Laboratory

Research Areas

Cardiac, Respiratory and Vascular Health

Dr Achini Vidanapathirana

ZINC IN CARDIOVASCULAR HEALTH GROUP

Lead Researcher: Dr Peter Zalewski

Contact: peter.zalewski@adelaide.edu.au

Research Summary

The group of Dr Zalewski developed the first Zn fluorophore Zinquin and co-discovered the existence of a special type of mobile Zn in the body (labile Zn). Labile Zn regulates processes as diverse as insulin secretion, hippocampal neuronal plasticity and anti-inflammatory actions of nitric oxide in the vascular endothelium. Our pilot plasma Zn study has revealed low levels of labile Zn in a subset of patients with angina. Defects in transporter-mediated uptake of Zn (associated with a relatively common genetic polymorphism as well as by cigarette smoking) have the potential to further deplete vascular Zn. Therefore, it is important to develop new ways to assess vascular Zn levels in patients. To advance this research, we have developed a technique to recover arterial endothelial cells from peripheral and coronary arteries of patients undergoing coronary angiography and interventions. Our studies have brought to attention the importance of maintaining healthy Zn levels as we age and our current research is directed at developing new strategies and guidelines for the management and treatment of underlying Zn deficiency in cardiovascular disease patients as an adjunct therapy for conventional treatments and medications.

For available projects please see Dr Zalewski's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/Peter.Zalewski

Projects available for

Honours; HDR; Masters

Maximum Number of Students

2

Category

Human research, Wet Laboratory

Research Areas

Cardiac, Respiratory and Vascular Health

Nutrition and Metabolic Health

Translational Health Outcomes

Dr Peter Zalewski

CHILD AND ADOLESCENT HEALTH

CHILD AND ADOLESCENT HEALTH RESEARCH GROUPS

Research is ongoing to detect, prevent and treat the many chronic physical and mental disorders that originate in childhood, to improve the health of all children and adolescents.

Internationally, the Robinson Research Institute is known for achieving advances in childhood and adolescent mental health and diabetes. It is also recognised nationally as being at the forefront of immunisation research.

The Robinson Research Institute leads our child and adolescent health research, and an in-depth explanation of this research area is available on the **Robinson Research Institute's website**.

CHILD AND ADOLESCENT HEALTH RESEARCH OPPORTUNITIES

BETTERSTART HEALTH AND DEVELOPMENT RESEARCH

Lead Researcher: Professor John Lynch

Contact: betterstart@adelaide.edu.au

Research Summary

BetterStart Health and Development Research is led by John Lynch, Professor of Epidemiology and Public Health. We have an interdisciplinary team with backgrounds in epidemiology, public health, nutrition, criminology, paediatrics, social work, biostatistics and psychology. Our aim is to generate better evidence to inform policy and practice to improve health, wellbeing, and development outcomes.

More information about BetterStart is available at: health.adelaide.edu.au/betterstart

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: researchers.adelaide.edu.au/profile/john.lynch

Projects available for

Honours; HDR; Mphil

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Child and Adolescent Health

Pregnancy and Birth

BetterStart Child Health and Development Research Group

CHILD AND ADOLESCENT HEALTH BEHAVIOURS

Lead Researcher: Dr Clare Hume

Contact: clare.hume@adelaide.edu.au

Research Summary

My research focuses on social and environmental influences on the health behaviours of children and young people. How these behaviours, and the influences on these behaviours change over time, is of particular interest. Additionally, I am interested in the development of unique intervention strategies to promote physical activity, reduce sedentary behaviours as well as improve nutritional and environmental outcomes among youth in both the family and school settings.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: researchers.adelaide.edu.au/profile/clare.hume

Projects available for

Third Year; Honours; Masters; Mphil

Maximum Number of Students

2

Category

Dry Laboratory; Systematic Review

Research Areas

Child and Adolescent Health

Translational Health Outcomes

Dr Clare Hume

COUNSELLING AND PSYCHOTHERAPY RESEARCH GROUP

Lead Researcher: Dr Alexandra Bloch-Atefi

Contact: alexandra.bloch-atefi@adelaide.edu.au

Research Summary

Application and use of Trauma-Informed Care and Practice in Australia.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: **researchers.adelaide.edu.au/profile/alexandra.bloch-atefi**

Projects available for

HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Systematic Reviews; Meta-analysis; Human Research

Research Areas

Child and Adolescent Health

Dr Alexandra Bloch-Atefi

DEVELOP WELL

Lead Researcher: Dr Nicole Nelson

Contact: nicole.nelson@adelaide.edu.au

Research Summary

Dr Nicole Nelson examines how children and adults learn about and understand emotional expressions and other non-verbal information. Her research examines how we integrate facial, postural, and vocal expression cues, how children attend to and learn about new emotions and non-verbal information, and what our emotional expressions look like during daily interactions. Dr Nelson received her PhD from Boston College, was an NSF-funded Postdoctoral Fellow at Brock University in Canada, and after several years at the University of Queensland, in 2020 she joined the School of Psychology at the University of Adelaide.

For available projects please see Dr Nelson's Researcher Profile under "My Research"
researchers.adelaide.edu.au/profile/Nicole.Nelson

Projects available for

Honours; HDR; Masters

Maximum Number of Students

3

Category

Human Research; Systematic Review; Meta-analysis

Research Areas

Child and Adolescent Health

Dr Nicole Nelson

DEVELOP WELL: ADELAIDE CHILD & FAMILY RESEARCH GROUP

Lead Researcher: Dr Mark Kohler

Contact: mark.kohler@adelaide.edu.au

Research Summary

Develop Well is a new research concentration in the School of Psychology with a core focus on factors effecting child and family well-being. There are a number of researchers from this group represented here, so look for other 'Develop Well' entries if this is an area of interest. Work under Dr Kohler focusses on: 1) characterising the state of well-being in Australian children and youth and exploring factors impacting this well-being; 2) investigating the impact of time in nature on child well-being, connectedness to nature, learning, and environmental behaviour.

For available projects please see Dr Kohler's Researcher Profile under "My Research"
researchers.adelaide.edu.au/profile/Mark.Kohler

Projects available for

Honours

Maximum Number of Students

4

Category

Human Research; Systematic Review; Meta-analysis

Research Areas

Child and Adolescent Health

Neuroscience, Behaviour and Brain Health

Dr Mark Kohler

PSYCHOLOGY

Lead Researcher: Dr Alyssa Sawyer

Contact: alyssa.sawyer@adelaide.edu.au

Research Summary

My research focuses broadly on children's development and mental health, postnatal mental health and support for new parents, and epidemiology. I have an interest in using population data from longitudinal cohorts and surveys, and population-level interventions designed to improve outcomes for children. I am interested in providing supervision for students who wish to focus their research on the mental health of children, adolescents or families.

For available projects please view Dr Sawyer's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/alyssa.sawyer

Projects available for

Honours; Masters; HDR

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Child and Adolescent Health

Dr Alyssa Sawyer

THE VISION 2020 PROJECT

Lead Researcher: Professor Mary Butler

Contact: mary.butler@adelaide.edu.au

Research Summary

Childhood vision challenges are frequently overlooked and critical to the success of our children. We provide intuitive tools for in-classroom vision screening. The Vision 20/20 Project is a multi-disciplinary research collaboration between occupational therapy, product design, optometry and primary teachers.

You can learn more about this project here: **vision2020forkids.org**

For available projects please see Professor Butler's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/Mary.Butler

Projects available for

Honours; HDR; Masters; MPhil

Maximum Number of Students

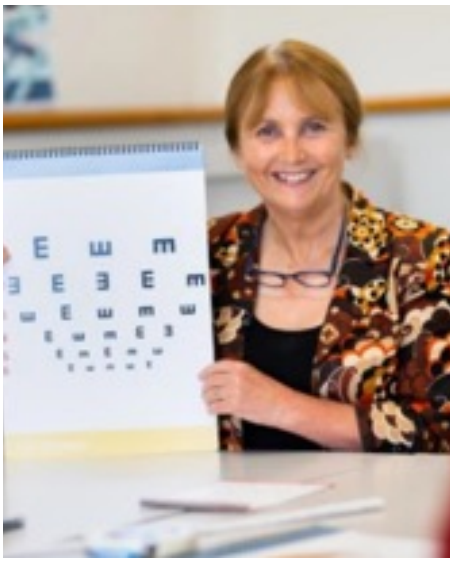
Flexible

Category

Qualitative Research

Research Areas

Child and Adolescent Health



Professor Mary Butler

WOMEN'S AND CHILDREN'S HOSPITAL ORTHOPAEDICS

Lead Researcher: Dr Christy Graff

Contact: chygraff@gmail.com

Research Summary

Dr Christy Graff is a paediatric orthopaedic surgeon at the Women's and Children's Hospital in North Adelaide. She is especially interested in investigating areas of paediatric orthopaedics associated with paediatric trauma. She is currently undertaking two systematic reviews, as well as reviewing the hospital's data, in paediatric supracondylar fractures and paediatric re-fractures of radius and/or ulna fractures.

For available projects please see Dr Graff's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/christy.graff

Projects available for

Third Year; Honours; Masters

Maximum Number of Students

4

Category

Human Research

Research Areas

Child and Adolescent Health

Musculoskeletal Health

Dr Christy Graff MBBS MHMSc FRCS FRACS

EARLY ORIGINS OF HEALTH

EARLY ORIGINS OF HEALTH RESEARCH GROUPS

The health trajectory of every child—including their metabolic, cardiovascular, immune and reproductive health, and neurological function—is profoundly influenced by their parents' health and wellbeing prior to conception, throughout pregnancy, and during early postnatal life.

The Robinson Research Institute leads our research in the early origins of health and is well placed to tackle this challenge, having conducted some of the largest trials in the world investigating interventions in pregnant women and newborn infants to improve outcomes for the mother and child.

A more in-depth explanation of this research area is available on the **Robinson Research Institute's website**.

EARLY ORIGINS OF HEALTH RESEARCH OPPORTUNITIES

CRANIOFACIAL BIOLOGY RESEARCH GROUP

Lead Researcher: Ms Michelle Bockmann

Contact: michelle.bockmann@adelaide.edu.au

Research Summary

My research focuses on understanding health and disease states, and how humans grow and develop.

I am interested in understanding how the interplay between genes, epigenome, environment, behaviour and the commensal bacteria (the microbiome) can influence the health and well-being outcomes of children and young adolescents.

Key current research areas include:

1.The role of the oral microbiome in health and disease

2.Pre-natal influences on oral health in mid-childhood

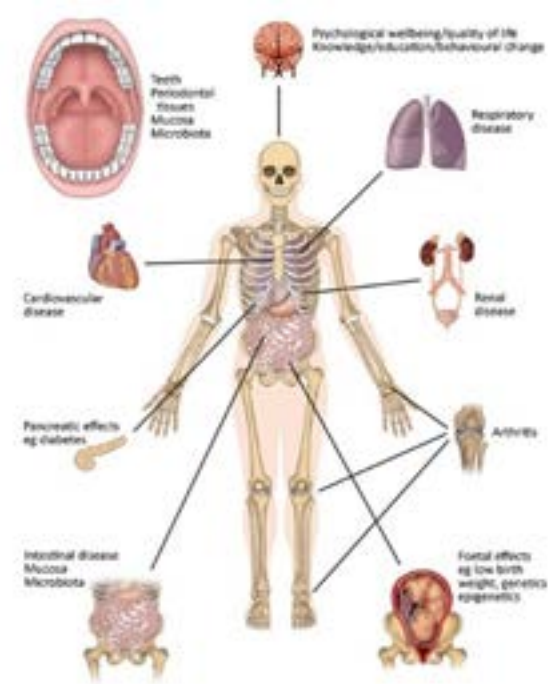
3.The role of diet in early development

4.Dental anthropology and forensics

Our group has a broad range of projects available that enable students to tailor their experience to attain specific skills. We operate both wet and dry laboratories, have a strong track record in bioinformatics and big data analysis, and have some very active collaborations with other groups (and potential co-supervisors) in Sydney and the USA.

For available projects please view Ms Bockmann's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/michelle.bockmann



Diagramatic representation of reported associations between oral disease and systemic diseases and disorders

Projects available for

Third Year; Honours

Maximum Number of Students

3

Category

Wet Laboratory; Dry Laboratory; Human Research

Research Areas

Early Origins of Health

Child and Adolescent Health

Oral Health

Nutrition and Metabolic Health

CRANIOFACIAL BIOLOGY RESEARCH GROUP

Lead Researcher: Associate Professor Toby Hughes

Contact: toby.hughes@adelaide.edu.au

Research Summary

My research has a broad focus on early life factors that influence health and development throughout childhood and early adult life. I am interested in the nexus between oral and systemic conditions, and specifically in interactions between the genome, the epigenome, the environment and the commensal bacteria (the microbiome). Key current research areas include:

1) The role of the oral microbiome in health and disease

2) Speech development and the role of the oral anatomy

3) Pre-natal influences on oral health in mid-childhood

4) The role of diet in early development

5) Craniofacial development in children

6) Physical anthropology and forensics

My group has a broad range of projects available that enable students to tailor their experience to attain specific skills. We operate both wet and dry laboratories, have a strong track record in bioinformatics and big data analysis, and have some very active collaborations with other groups (and potential co-supervisors) in Sydney, Melbourne and the USA.

For available projects please view Associate Professor Hughes' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/toby.hughes

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory; Systematic Reviews; Meta-analysis; Human Research

Research Areas

Early Origins of Health

Child and Adolescent Health

Oral Health

Nutrition and Metabolic Health

Oral and systemic health represent a complex interaction between an individual's genetics, their environment and their microbiome

Cell Host & Microbe
Article

Host Genetic Control of the Oral Microbiome in Health and Disease

Andres Gomez,[1,8] Josh L. Espinoza,[2,8] Derek M. Harkins,[3] Pamela Leong,[4] Richard Saffery,[4] Michelle Bockmann,[5] Manolito Torralba,[1] Claire Kuelbs,[1] Rohith Kodukula,[6] Jason Inman,[3] Toby Hughes,[5] Jeffrey M. Craig,[4] Sarah K. Highlander,[1] Marcus B. Jones,[7] Chris L. Dupont,[2] and Karen E. Nelson[1,3,9,*]

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[6]JCVI Summer Intern Program, Torrey Pines High School, San Diego, CA 9213, USA
[7]Human Longevity Institute, La Jolla, CA 92037, USA
[8]These authors contributed equally
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http://dx.doi.org/10.1016/j.chom.2017.08.013

SUMMARY

Host-associated microbial communities are influenced by both host genetics and environmental factors. However, factors controlling the human oral microbiome and their impact on disease remain to be investigated. To determine the combined and relative effects of host genotype and environment on oral microbiome composition and caries phenotypes, we profiled the supragingival plaque microbiome of 485 dizygotic and monozygotic twins aged 5–11. Oral microbiome similarity always increased with shared host genotype, regardless of caries state. Additionally, although most of the variation in the oral microbiome was determined by environmental factors, highly heritable oral taxa were identified. The most heritable oral bacteria were not associated with caries state, did not tend to co-occur with other taxa, and decreased in abundance with age and sugar consumption frequency. Thus, while the human oral microbiome composition is influenced by host genetic background, potentially cariogenic taxa are likely not controlled by genetic factors.

INTRODUCTION

Although there has been a tremendous expansion in human microbiome research, with hundreds of projects underway globally (Blaser, 2014; Human Microbiome Project Consortium, 2012), the oral microbiome has not received the same level of attention as its gut counterpart. Indeed, this microbial ecosystem is a critical component of oral and systemic human health. For instance, although dental caries, the most common chronic disease in children (Benjamin, 2010), is of a multifactorial nature, it usually occurs when frequent sugar intake is metabolized by a specific bacterial milieu in the oral cavity, resulting in increased acidity and dental demineralization (Takahashi and Nyvad, 2011). In periodontitis, a chronic disease affecting adults, specific bacterial ecology elicits inflammatory responses in the host, leading to the destruction of periodontal tissue, pocket formation, and tooth loss (Loesche, 2011). Likewise, non-plaque-associated bacteria, viruses, and fungi can trigger gingival lesions associated with herpes and candidiasis (Holmstrup, 1999), and there is mounting evidence pointing to a specific microecosystem characterizing cancerous tissue in oral cancer (Schmidt et al., 2014). Interestingly, the connections between oral microbes and health extend beyond the oral cavity, as cardiometabolic, respiratory, and immunological disorders; gastrointestinal cancers; and obstetric complications are thought to have oral microbial associations (Beck et al., 2000; Rubinstein et al., 2013; Seymour et al., 2007).

Consequently, unraveling the forces that shape and define the oral microbiome is crucial for the understanding of both oral and broader systemic health. Research on development and maturation of the human microbiome in the early years of postnatal life has mainly been centered on the gut, pointing at mode of delivery and breastfeeding as important early driving forces (Azad et al., 2013; Dominguez-Bello et al., 2010) and diet and environment as subsequent determinants (Walter and Ley, 2011). Moreover, twin studies have shown that the gut microbiome similarity increases with host genetic background, that some gut taxa are driven by additive genetic effects, and that the abundance of specific gut taxa is linked to genes associated with immune and metabolic functions in the host (Goodrich et al., 2014, 2016). Nonetheless, the available evidence on the forces shaping the oral microbiome is scarce. For example, just as in the gut, oral microbial communities seem to be initially influenced by perinatal factors (Holgerson et al., 2013; Lif Holgerson et al., 2011, 2015). However, reports on the heritable fraction of the oral microbiome are conflicting. For instance, contrary to what has been found in the gut, twin studies on the genetic control of the oral microbiome (saliva and plaque) have shown less or no apparent influence of additive genetic factors (Papapostolou et al., 2011; Stahringer et al., 2012). Yet other twin studies have focused on the abundance

A recent article from our group in Cell Host & Microbe

EARLY ORIGINS OF HEALTH AND DISEASE RESEARCH GROUP

Lead Researcher: Dr Kathy Gatford

Contact: kathy.gatford@adelaide.edu.au

Research Summary

The Early Origins of Health and Disease Research Group aims to understand how exposures in pregnancy impact later health, and to develop and test interventions during and after pregnancy to reduce the impact of these exposures and improve health of offspring from birth to adulthood. We use intensive studies in preclinical models with a large network of collaborators to investigate mechanisms and evaluate interventions independent of potential confounding, as well as evaluating evidence from human cohorts.

For available projects please see Dr Gatford's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/kathy.gatford

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Early Origins of Health

Dr Kathy Gatford

ISLET EPIGENETICS RESEARCH GROUP

Lead Researcher: Dr Lisa Marie Nicholas

Contact: lisa.nicholas@adelaide.edu.au

Research Summary

The broad research aim of her group is to understand how a sub-optimal maternal metabolic environment both before and during pregnancy programs disadvantage in the offspring leading to health effects that persist across the life course.

For available projects please view Dr Nicholas' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/lisa.nicholas

Projects available for

Third Year; Honours; HDR; Masters; MPhil

Maximum Number of Students

2

Category

Wet Laboratory; Dry Laboratory

Research Areas

Early Origins of Health

Nutrition and Metabolic Health

Pregnancy and Birth

Dr Lisa Marie Nicholas

NEONATAL MEDICINE

Lead Researcher: Associate Professor Michael Stark

Contact: michael.stark@adelaide.edu.au

Research Summary

Associate Professor Stark leads the Neonatal Medicine Research group within the RRI and is the Clinical Theme Leader (Early Origins of Health). The Neonatal Medicine Research Group conducts clinical studies focusing on the health of preterm newborns. These studies include NHMRC and MRFF funded multi-centre randomised trials and prospective cohort trials. Particular areas of interest include oxygen physiology with a focus on perinatal brain injury, transfusion medicine, and the immunological basis for preterm lung disease. The projects will involve students becoming active members of the research team within the neonatal intensive care nursery in addition to laboratory based studies with a strong clinical and translational focus. This is a multi-disciplinary team which currently comprises Honours, PhD and clinical researchers.

For available projects please view Associate Professor Stark's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/michael.stark

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

3

Category

Dry Laboratory; Human Research

Research Areas

Early Origins of Health

Pregnancy and Birth

Immunology and Infection

Child and Adolescent Health

Associate Professor Michael Stark

NEUROGENETICS

Lead Researcher: Professor Jozef Gecz

Contact: jozef.gecz@adelaide.edu.au

Research Summary

The Neurogenetics Group aims to understand the neurobiology of human brain function by studying major neurological disorders which are genetically determined. By identifying and characterising the mutations implicated in intellectual disability, epilepsy and cerebral palsy, a greater understanding of the role of specific genes and proteins in normal brain function can be discovered.

Identification of genes and understanding of molecular mechanisms leading to intellectual disabilities, autisms and some epilepsies represents a challenge of significant medical importance. With a broad range of state-of-the-art human genetics and genomics skills, our team has discovered or contributed to the discovery of more than 200 different genes. Many of these genes pointed to new and unexpected biological pathways essential for normal brain function (e.g. non-sense mediated mRNA decay, NMD).

The four key areas of our research focus are:

- genomics and bioinformatics
- molecular mechanisms of neurodevelopmental disability
- molecular neuroscience

The NEURO team is complemented by a large number of national and international clinical and basic science collaborators.

For available projects please view Professor Gecz's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/jozef.gecz

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

Flexible

Category

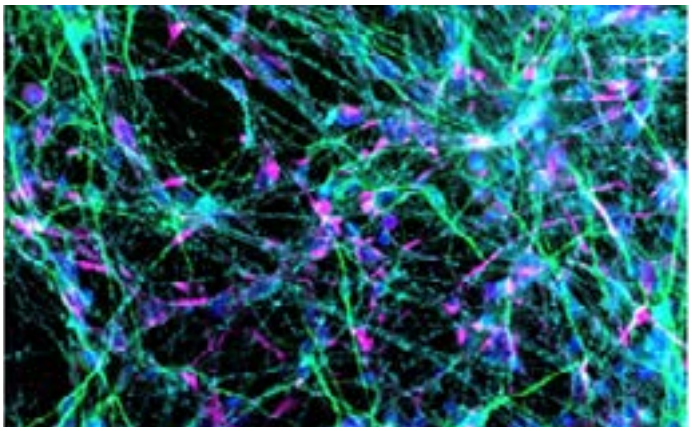
Wet Laboratory; Dry Laboratory

Research Areas

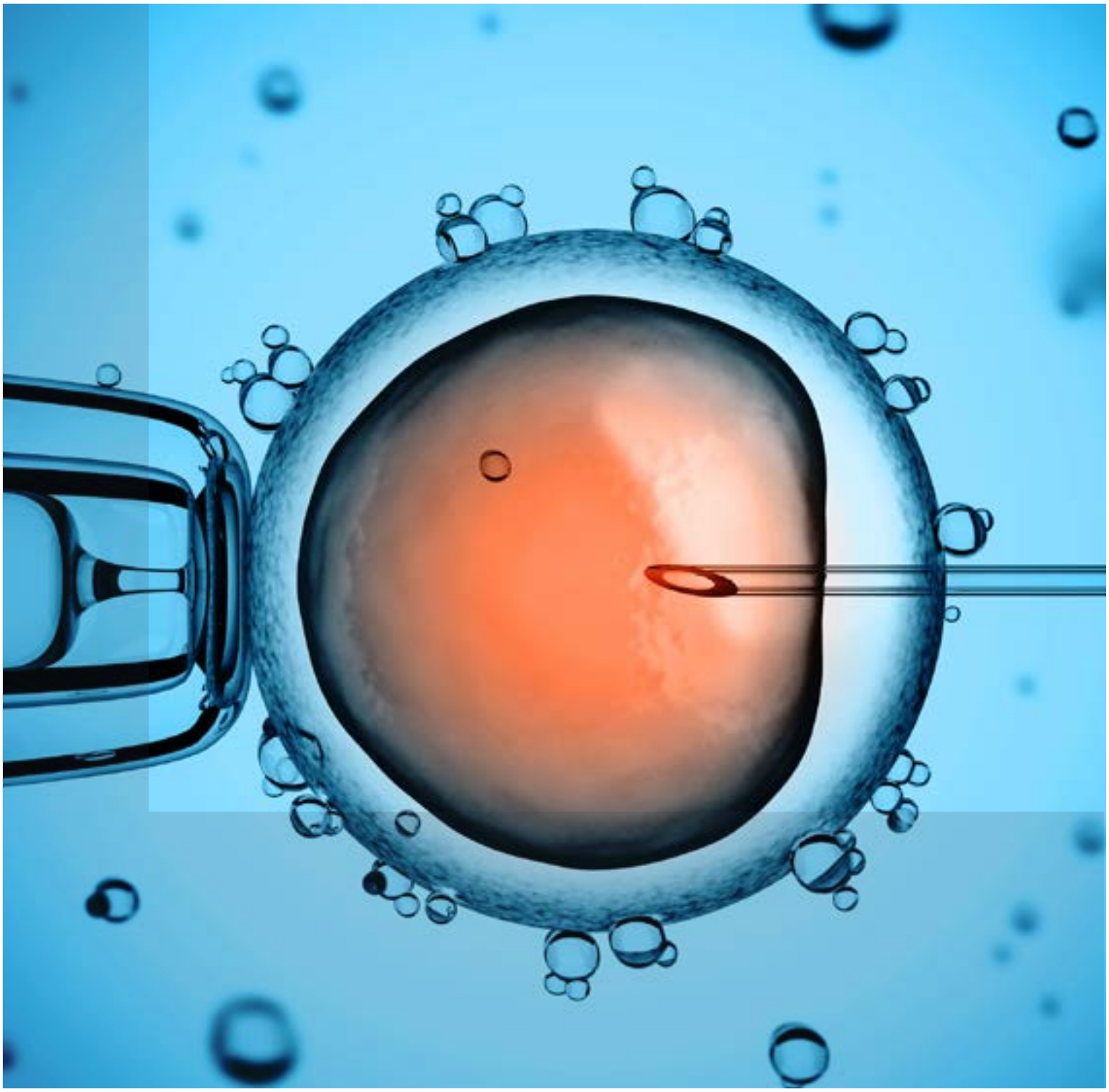
Early Origins of Health

Neuroscience, Behaviour and Brain Health

Translational Health Outcomes



iPSC-Derived Human Cortical Neurons. Claire Homan, PhD student.



FERTILITY AND CONCEPTION

FERTILITY AND CONCEPTION RESEARCH GROUPS

Conception is the foundation event for each new life, with every child's development, growth trajectory and health over the life course set in motion from the moment sperm and oocyte unite to form an embryo.

Our research in this area is led by the Robinson Research Institute, which is internationally recognised for its work in fertility and conception. A more in-depth explanation of this research area is available on the **Robinson Research Institute's website.**

FERTILITY AND CONCEPTION RESEARCH OPPORTUNITIES

ENDOMETRIOSIS AND ENDOMETRIUM

Lead Researcher: Associate Professor Louise Hull

Contact: louise.hull@adelaide.edu.au

Research Summary

The endometriosis group is developing a digital platform for endometriosis. We are undertaking a prospective study to determine the diagnostic test accuracy of ultrasound and MRI in an artificial intelligence algorithm in detecting endometriosis. There are several clinical trials being undertaken.

For available projects please see Associate Professor Hull's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/louise.hull

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

2

Category

Human Research; Digital Technology; Diagnostic test accuracy trials; Cohort studies; Systematic Reviews; Meta-analysis; Clinical Therapeutic Trials; Animals models; Genomic research; Qualitative research; Artificial intelligence

Research Areas

Fertility and Conception

Associate Professor Louise Hull

FEMALE REPRODUCTIVE FUNCTION

Lead Researcher: Professor Raymond Rodgers

Contact: ray.rodgers@adelaide.edu.au

Research Summary

Ray Rodgers undertakes novel and internationally competitive research (>140 publications) in the area of female reproductive function, particularly ovarian function. Each step of his research career has resulted in novel discoveries, and ones in which many other researchers have followed. His strength has been to mount multidisciplinary approaches to areas not tackled previously, or not successfully. Developing new areas is generally less productive but more rewarding if successful. Ray Rodgers has been singularly successful at doing both. His earlier discoveries are now in textbooks.

Since the early 1980's, Ray Rodgers has made many unique and substantial contributions to our understanding of how ovaries produce hormones and it is now very clear that the regulation of hormone production is unlike that of any other endocrine organ. The pattern of hormone secretion by the ovary changes on a day-to-day basis depending on the state of the development or regression of the endocrine organs, follicles and corpora lutea, within the ovary. Tissue development remodeling and regression involve cell division, differentiation, migration and apoptosis and Ray Rodgers has used several experimental strategies, including physiology, histology, electron microscopy, morphometry, cell isolation and culture and molecular biology, to study these processes.

For available projects please view Professor Rodgers' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/ray.rodgers

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Human Research; Systematic Reviews; Wet Laboratory; Dry Laboratory

Research Areas

Fertility and Conception

Early Origins of Health

Professor Ray Rodgers

HEALTH, DISABILITY AND LIFESPAN DEVELOPMENT RESEARCH GROUP

Lead Researcher: Dr Melissa Oxlad

Contact: melissa.oxlad@adelaide.edu.au

Research Summary

My research interests involve the contributions psychology can make to reproductive health and to people living with chronic illness. With regards to reproductive health my areas of interest include fertility knowledge, motivations for parenthood, attitudes to fertility preservation, attitudes to infertility and infertility treatments, help-seeking in relation to infertility, coping with infertility, health behaviours to aid conception, donor conception, surrogacy, pregnancy-related anxiety, pregnancy loss and stillbirth. In the area of chronic illness my interests include how people make sense of, adjust to, and live with chronic illness, health literacy, health information seeking, help-seeking behaviour, health communication and peer support for people with migraine, cancer, diabetes and cardiac health issues. I undertake research using quantitative, qualitative or mixed methods.

For available projects please view Dr Oxlad's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/melissa.oxlad

Projects available for

Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Dry Laboratory; Human Research

Research Areas

Fertility and Conception

Pregnancy and Birth

Cancer Biology and Clinical Oncology

Cardiac, Respiratory and Vascular Health

Dr Melissa Oxlad

MALE REPRODUCTIVE LIFE COURSE

Lead Researcher: Dr Nicole McPherson

Contact: nicole.mcpherson@adelaide.edu.au

Research Summary

We know that the responsibility of fathers starts well before conception. While, men make up half of all heterosexual couples when trying to conceive, they are often forgotten when it comes to family planning or pre-conception health care, despite the compelling evidence for their involvement in the establishment of a health pregnancy and child and the current declining worldwide sperm counts. Furthermore, the reproductive health of men in their early 20s is a predictor of life expectancy. Promoting 'healthy fathering', may motivate men to improve their own health and in doing so, create healthier men and children. Our research examines the biology of how altered male health at conception is transferred via sperm at fertilisation and uses this knowledge to develop tests of risks and interventions for use in family planning and infertility treatments.

For available projects please view Dr McPherson's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/nicole.mcpherson

Projects available for

Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Wet Laboratory; Human Research; Dry Laboratory

Research Areas

Fertility and Conception

Men's Health

Pregnancy and Birth

Nutrition and Metabolic Health

Dr Nicole McPherson

MITOCHONDRIAL GENETICS GROUP

Lead Researcher: Professor Jus St John

Contact: jus.stjohn@adelaide.edu.au

Research Summary

Our research focuses on how the nuclear and mitochondrial genomes interact during development in order that the cells, tissues and organs of the resultant offspring function efficiently. To do this, we employ a number of assisted reproductive technologies that are either used clinically or are at various stages of development or validation. We are applying the knowledge we accumulate from this work to develop reproductive strategies for women that suffer from repeated failed fertilisation outcome or embryo developmental arrest; and for those who are carriers of severe mitochondrial disorders that are at risk of having affected children.

For available projects please view Professor St John's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/jus.stjohn

Projects available for

Honours; HDR; Masters; Mphil; PhD

Maximum Number of Students

Flexible

Category

Wet Laboratory

Research Areas

Fertility and Conception

Professor Jus St John

OVARIAN CELL BIOLOGY AND EMBRYOLOGY

Lead Researcher: Professor Rebecca Robker

Contact: rebecca.robker@adelaide.edu.au

Research Summary

The Ovarian Cell Biology and Embryology research group is led by Prof Rebecca Robker. The team investigates biological mechanisms by which cells in the ovary nurture the oocyte, endow it with the essential components to form an embryo, and trigger its release into the oviduct for fertilisation. Discovering this information is essential for understanding the foundations of reproduction and the earliest stages of embryogenesis.

We are investigating the cellular mechanisms that control when the oocyte is released from the ovary (ovulation), focusing on how hormones induce proteolytic genes in ovarian cells. Our studies are also examining how oocytes and sperm are affected by obesity and age, and the impact on embryogenesis and offspring health. We are actively involved in identifying therapies, both pharmaceutical and lifestyle, that can rejuvenate damaged gametes and improve embryo development. We use mouse models for our basic research and collaborate with human fertility clinics to translate our findings.

Our vision is to discover cellular mechanisms by which maternal physiological signals influence ovarian cells, to control ovulation and the healthy development of offspring. We use this knowledge to improve female (and male) reproductive health, generate new approaches to treat infertility and optimise embryo growth in all pregnancies.

For available projects please view Professor Robker's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/rebecca.robker

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

Flexible

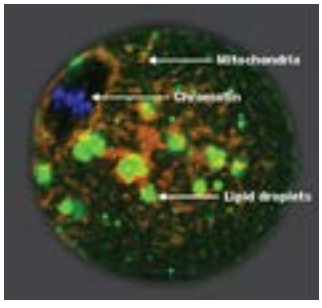
Category

Wet Laboratory; Human Research

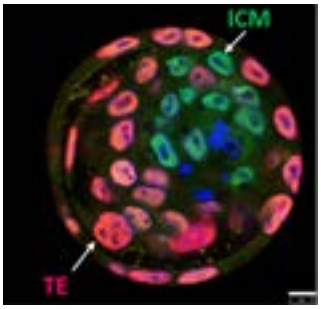
Research Areas

Fertility and Conception

Early Origins of Health



Oocytes contain lipid droplets (green), mitochondria (red) and DNA. Our lab is investigating how obesity and age affect oocytes and their abiltiy to form an embryo.



A blastocyst stage embryo contains the Inner Cell Mass (ICM) which becomes the fetus and the trophectoderm cells (TE) which form the placenta. Our lab identifies potential therapies to improve embryogenesis and fertility.

OVARIAN MOLECULAR ENDOCRINOLOGY

Lead Researcher: Professor Darryl Russell

Contact: darryl.russell@adelaide.edu.au

Research Summary

Reproductive organs are the centre of a high fidelity hormone axis which controls most aspects of physiology. Female hormones produced by the ovary set the reproductive cycle which in turn controls ovarian function. Our group is focussed on understanding the molecular mechanism of ovarian hormone action. We use functional genomics, bioinformatics and molecular biology to investigate potent hormonal modulation of gene expression and explain the diversity of response to hormones in their different target organs. This research is important for health applications, including understanding reproductive processes, causes of infertility and the effects of endocrine disrupting chemicals on health. In particular we are focussed on applying the knowledge gained to develop advanced contraceptives with more tailored action in order to reduce undesirable side effects and increase their acceptability.

For available projects please view Professor Russell's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/darryl.russell

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory, Human Research

Research Areas

Fertility and Conception

Cancer Biology and Clinical Oncology

Innovative Therapeutics

Translational Health Outcomes

Professor Darryl Russell

REPRODUCTIVE BIOLOGY RESEARCH GROUP

Lead Researcher: Dr Sean O'Leary

Contact: sean.oleary@adelaide.edu.au

Research Summary

My research focuses broadly on the factors that influence pregnancy success leading to healthy outcomes for mothers and babies, and developing reproductive strategies to improve livestock production.

Research Interests:

- Improving reproductive strategies in livestock species
- Investigating the role of ovarian factors as predictors of fertility and pregnancy success
- The role of progesterone during pregnancy and the endocrine/immune crosstalk between the ovary, fetus, placenta and endometrium
- Nutritional determinants of pregnancy success and how lifestyle factors including maternal micronutrient status and obesity can lead to complications of pregnancy
- Factors in seminal plasma that drive early responses in the maternal reproductive tract leading to increased embryo survival
- Developing surgical techniques in large animal models to facilitate the study of human genetic diseases and infertility

For available projects please view Dr O'Leary's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/sean.oleary

Projects available for

Third Year; Honours; HDR; Masters; Mphil; PhD

Maximum Number of Students

3

Category

Wet Laboratory

Research Areas

Fertility and Conception

Dr Sean O'Leary

REPRODUCTIVE BIOTECHNOLOGY GROUP

Lead Researcher: Associate Professor Mark Nottle

Contact: mark.nottle@adelaide.edu.au

Research Summary

The Reproductive Biotechnology Group has an international reputation in the general areas of reproductive biology and the development of associated technologies for biomedical and agricultural applications. In collaboration with a number of university, institute and hospital research groups in Australia as well as overseas, current research is focused in the general area of regenerative medicine in particular stem cell research. Research is also focused on the development of human assisted reproductive technologies in particular in vitro oocyte maturation as a safer, patient friendly and more cost effective alternative to hormonal stimulation to produce multiple eggs for human IVF.

For available projects please view Associate Professor Nottle's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/mark.nottle

Projects available for

Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

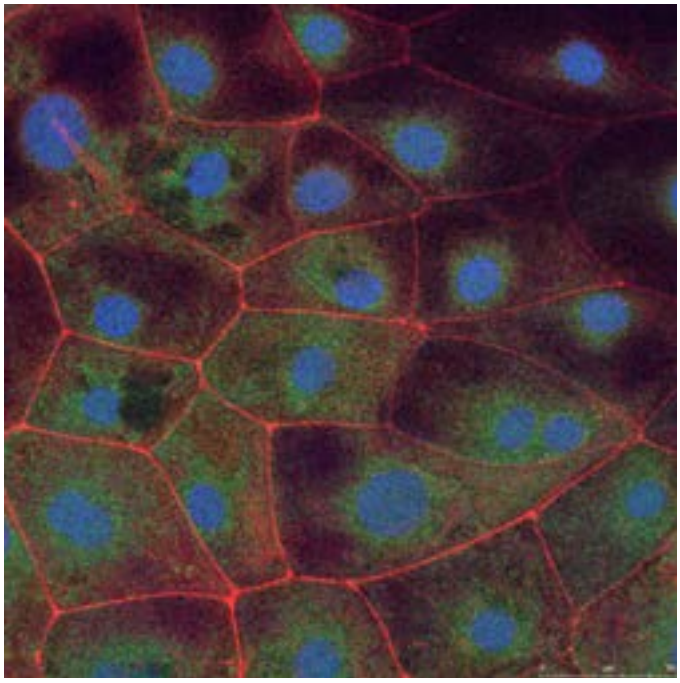
Wet Laboratory

Research Areas

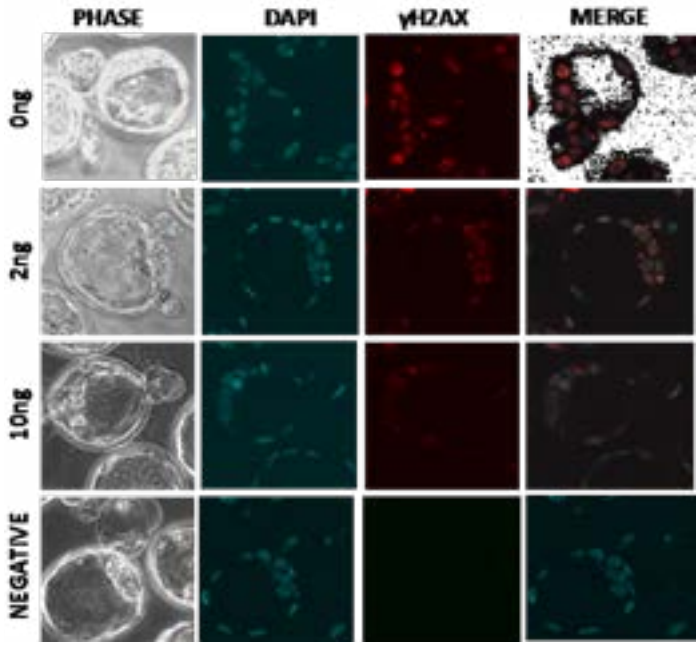
Fertility and Conception

Innovative Therapeutics

Pregnancy and Birth



Porcine retinal pigment epithelial cells derived from a new type of stem cell isolated in our Laboratory.



DNA damage in mouse blastocysts produced using oocytes matured in different media.

REPRODUCTIVE IMMUNOLOGY

Lead Researcher: Professor Sarah Robertson

Contact: sarah.robertson@adelaide.edu.au

Research Summary

The focus of research in the Reproductive Immunology group is immune regulation of fertility and pregnancy, and its contribution to mammalian reproduction and development, particularly in human and mouse models. Our work strives to advance understanding of the fundamental immunobiology of conception, embryo implantation and early development, and to apply this to develop new approaches for managing infertility and pregnancy disorders.

The research by the Reproductive Immunology group centres on three related themes:

- Immune control of female reproductive investment and function
- Pregnancy tolerance and its impact on embryo implantation, placental development, and pregnancy and offspring outcomes
- Male seminal fluid factors that influence female pregnancy tolerance

We are working to understand how the immune system enables healthy conception and pregnancy and is the key in infertility and inflammatory disorders of pregnancy, including preeclampsia, fetal growth and restriction and preterm birth.

For available projects please view Professor Robertson's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/sarah.robertson

Projects available for

Third Year; Honours; HDR; Masters; MPhil

Maximum Number of Students

4

Category

Human Research; Wet Laboratory

Research Areas

Fertility and Conception

Pregnancy and Birth

Early Origins of Health

Immunology and Infection

Professor Sarah Robertson

REPRODUCTIVE SUCCESS

Lead Researcher: Dr Kylie Dunning

Contact: kylie.dunning@adelaide.edu.au

Research Summary

Increasingly, people are delaying starting a family until later in life. The expectation of conceiving children is often disrupted by infertility (1 in 6 Australian couples). Such a diagnosis can lead to reduced productivity, financial hardship, relationship breakdown and mental illness. Infertility is typically addressed by in vitro fertilization (IVF). Whilst IVF has seen major advancements, it still faces numerous challenges, most notably low success rates: only 18% of Australian and New Zealand initiated IVF cycles deliver a live birth. One of the reasons for the low success rate is the inability to select the healthiest embryo. In this project you will utilise cutting edge microscopy techniques combined with post-imaging assessments to better understand the pre-implantation embryo development period. You will be comparing normal healthy embryos with poor quality embryos: those which fail to complete the preimplantation period or lead to implantation failure or pregnancy loss. Our research is clinically relevant, and we are passionate about translating outcomes into the human IVF clinic and in agriculture. Don't hesitate to contact us to discuss further.

For available projects please view Dr Dunning's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/kylie.dunning

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

2

Category

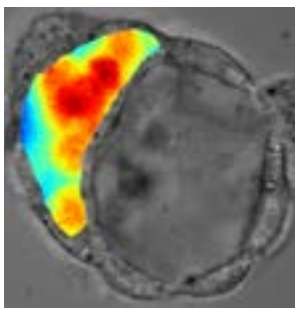
Wet Laboratory

Research Areas

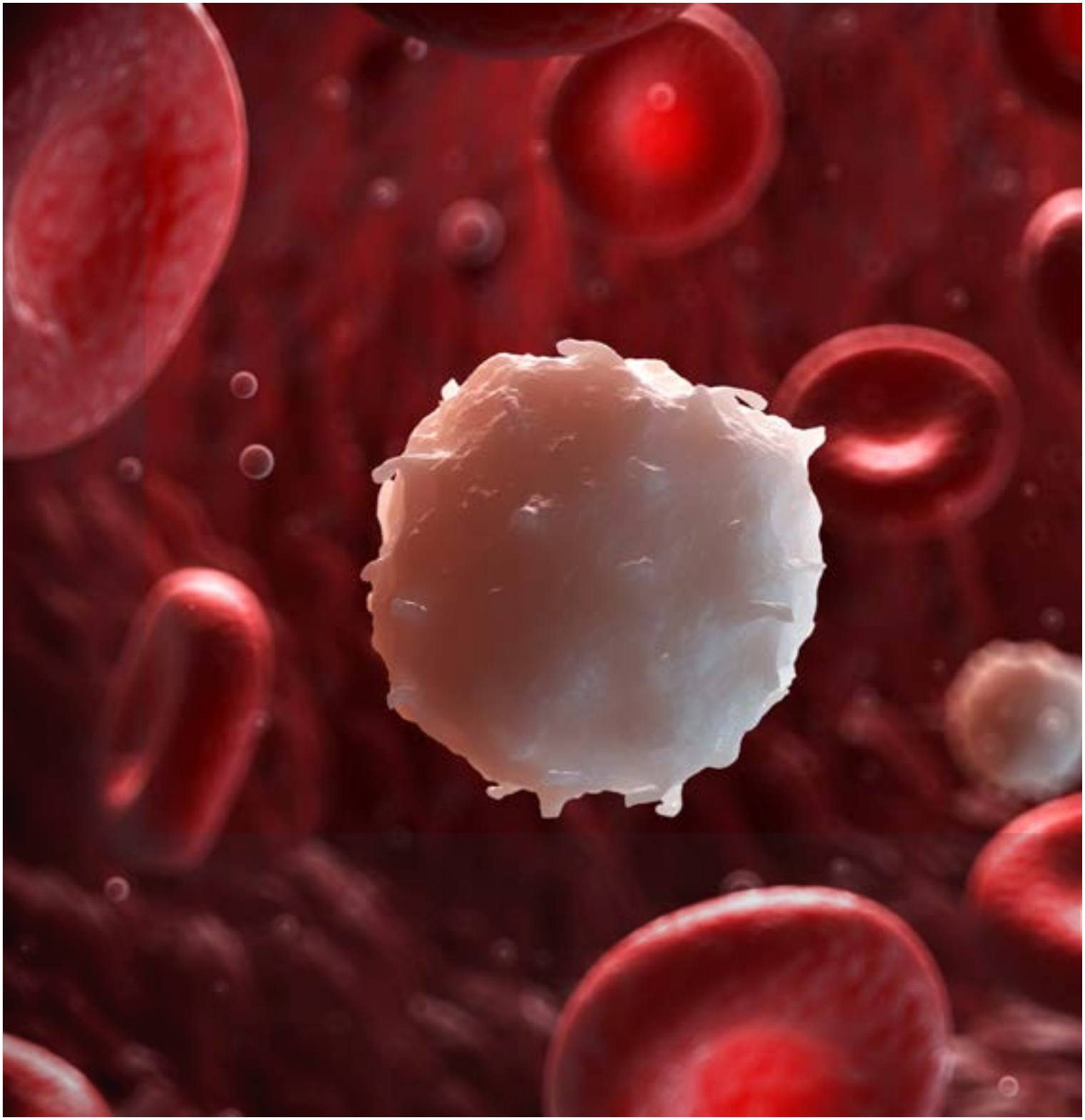
Fertility and Conception

Early Origins of Health

Reproductive Success Lab Group



FAD intensity within inner cell mass of a mouse blastocyst



IMMUNOLOGY AND INFECTION

IMMUNOLOGY AND INFECTION RESEARCH GROUPS

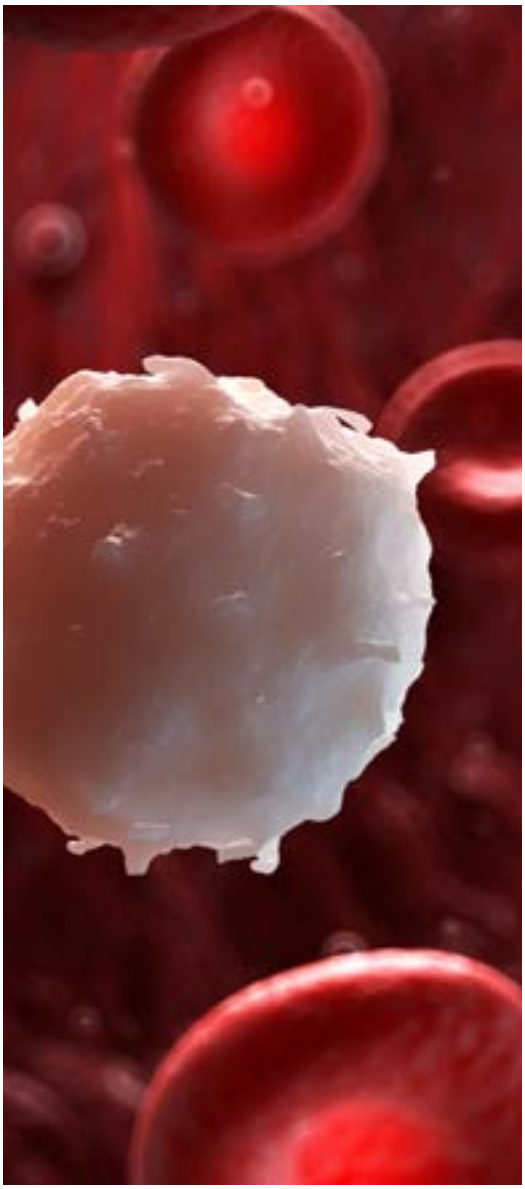
Our immune system is at the front line for controlling infection from foreign pathogens, including bacteria and viruses. A healthy, functioning immune system is fundamental to our overall health and wellbeing.

Our research is focused on understanding how our body's elaborate, innate and adaptive immune systems can distinguish foreign pathogens from self-tissue. Malfunction of the immune system can result in the development of autoimmune disorders including type 1 diabetes, inflammatory bowel disease, multiple sclerosis, psoriasis and rheumatoid arthritis.

Furthermore, inappropriate immune responses are also implicated in central nervous system diseases such as anxiety, depression, epilepsy and stroke and have been proposed to play a role in addictions and pain. Understanding immune responses, and how to control and modulate them is crucial to the successful treatment of patients requiring life-saving transplantation therapies. It is also critical for the development of safe and effective vaccines, which enable significant improvements worldwide in the health status of many communities.

Researchers across the faculty are focused on:

- developing new vaccines
- identifying novel targets in autoimmune diseases such as rheumatoid arthritis
- understanding the role of immune cells in neural tissue (glial cells) in normal healthy brains to elucidate their role in chronic pain, drug addiction and epilepsy and identifying new targets to treat these conditions
- developing immune interventions to prevent or modulate pathologies of pregnancy and graft rejection (in transplantation settings)
- conducting clinical trials to evaluate tolerability, safety and effectiveness of new agents to control infections in patients suffering chronic infections.



IMMUNOLOGY AND INFECTION RESEARCH OPPORTUNITIES

ENT SURGERY GROUP

Lead Researcher: Dr Mahnaz Ramezanpour

Contact: mahnaz.ramezanpour@adelaide.edu.au

Research Summary

Dr Mahnaz Ramezanpour is a biomedical researcher that completed her PhD in medical biotechnology in 2015 at Flinders University, Australia and authored > 42 peer-reviewed articles and 1 book chapter.

Her research program largely focusses on evaluating causes of chronic rhinosinusitis (CRS), identifying new diagnostic markers and treatment strategies to the benefit of CRS patients. She collaborates widely in multidisciplinary teams of scientists, clinicians and industry partners to ensure a real-world impact of her work. As lead investigator, her research has led to the development of new soon to be released medical treatments for CRS.

She is using the state-of-the-art stem cell and organoid technologies on establishing airway organoids. The stem cell based organoid technology allows the culturing and expansion of a patient's own cells in vitro in order to test and select the most effective drug. She has established and characterised the nasal organoids derived from CRS patients. She is using cells, macrophages, and clinical bacteria isolates from CRS patients to evaluate and compare the infective capacity and immune response pathways of infection in the nasal organoids. Her research focus is on developing effective treatments against CRS patients and translating them from the lab to real-life applications.

For available projects please see Dr Ramezanpour's Researcher Profile

researchers.adelaide.edu.au/profile/mahnaz.ramezanpour

Projects available for

Honours; HDR; Masters; MPhil

Maximum Number of Students

Flexible

Category

Wet Laboratory; Human Research

Research Areas

Immunology and Infection

Translational Health Outcomes

Surgical Health Systems and Innovation

Innovative Therapeutics

Dr Mahnaz Ramezanpour

RICHTER LAB, SURGERY DEPARTMENT

Lead Researcher: Dr Katharina Richter

Contact: Katharina.Richter@adelaide.edu.au

Research Summary

Superbugs, or antibiotic-resistant bacteria, pose one of the greatest threats to human health worldwide, claiming 700,000 deaths every year. Bacteria naturally reside in biofilms as complex communities encased in a self-assembled slime. This lifestyle protects bacteria from medical therapies and promotes resistance contributing to therapeutic failure and exacerbation. The rise of superbugs stresses the need for novel treatments.

The Richter Lab is dedicated to improve medical therapies, changing the lives of patients suffering from superbug infections, such as surgical site infections, non-healing wounds and implant infections. We furthermore collaborate with veterinary scientists to innovate industry decontamination processes for better animal wellbeing and safer food production.

Our research focus is on

1. Developing effective treatments against antibiotic-resistant bacteria and translating them from the lab to real-life applications, and
2. Improving health literacy of the society by effective science communication through public speaking, science outreach activities and STEM workshops at schools.

We collaborate widely in multidisciplinary teams of scientists, clinicians and industry partners to ensure a real-life impact of our work.

For available projects please see Dr Richter's Researcher Profile

researchers.adelaide.edu.au/profile/katharina.richter

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

2 for each program

Category

Wet Laboratory

Research Areas

Immunology and Infection

Innovative Therapeutics

Surgical Health Systems and Innovation

Translational Health Outcomes

Dr Katharina Richter

VACCINOLOGY AND IMMUNOLOGY RESEARCH TRIALS UNIT

Lead Researcher: Professor Helen Marshall

Contact: helen.marshall@adelaide.edu.au

Research Summary

The research program at the Vaccinology and Immunology Research Trials Unit (VIRTU) is directed to address urgent priorities in infectious disease prevention and includes clinical trials in investigational vaccines, infectious and social epidemiology and public health. VIRTU conducts ongoing research on meningococcal, influenza, pneumococcal and pertussis vaccines and suitable HDR projects within these broad areas can be developed after discussion with Prof. Helen Marshall, Director of the Unit. One of the main areas of current research at VIRTU includes meningococcal disease.

Meningococcal disease causes significant morbidity and mortality worldwide and invasive meningococcal disease can result in long-term disability. VIRTU currently conducts several projects on meningococcal disease including the following:

1.The "B Part of It study, the largest study of its kind globally assessing the herd immunity impact of meningococcal B vaccine.

2.Assessing long-term physical, neurocognitive, economic and societal impact of invasive meningococcal disease in Australian adolescents and young adults

3.Evaluation of the newly implemented South Australian immunisation program against meningococcal B disease

In addition to projects suitable for HDR students, VIRTU routinely conducts systematic reviews and meta-analyses on infectious diseases and vaccines which are suitable for third year undergraduate research students.

For further information please see Professor Marshall's Researcher Profile

researchers.adelaide.edu.au/profile/helen.marshall

Projects available for

Third Year; HDR; Honours; Masters; Mphil

Maximum Number of Students

5

Category

Systematic Reviews; Meta-analysis; Human Research

Research Areas

Immunology and Infection

Professor Helen Marshall, Director of Vaccinology and Immunology Research Trials Unit

VIRAL IMMUNOLOGY GROUP

Lead Researcher: Dr Branka Grubor-Bauk

Contact: branka.grubor@adelaide.edu.au

Research Summary

Viral Immunology Group is focused on focused on the development of promising Zika virus, hepatitis C and HIV vaccines, and recently SARS-CoV-2, employing various cutting edge techniques in viral vaccine design and development, supported by broad experience in animal models, including infection models, in vitro and in vivo vaccine validation assays (antigen presentation, B, T cell assays, in vivo epitope mapping, fluorescent target array assay), multi-parametric flow cytometry, antibody and cytokine assays (ELISA, neutralisation assays, intracellular cytokine staining). Viral Immunology Group has student projects available for Honours, Masters and PhD studies. The projects cover vaccine development against different viruses such as SARS-CoV-2, Zika, dengue and hepatitis C with options for industry collaborations. We also have clinical immunology projects available in areas of HIV and COVID-19 disease.

For available projects please view Dr Grubor-Bauk's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/branka.grubor

Projects available for

Honours; HDR; Masters

Maximum Number of Students

3

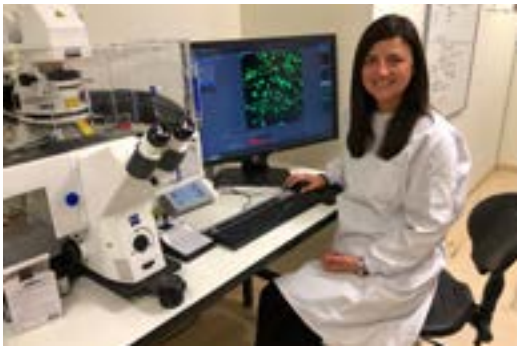
Category

Wet Laboratory

Research Areas

Immunology and Infection

Pregnancy and Birth



Dr Branka Grubor-Bauk

INDIGENOUS HEALTH AND HEALTH EQUITY

INDIGENOUS HEALTH AND HEALTH EQUITY

Closing the gap in health equality between Aboriginal, Torres Strait Islander people and other disadvantaged Australians is a national priority. Focused effort is required to understand and resolve the underlying basis for the inequalities of health care and health care outcomes across our most vulnerable Australian community members.

There are many factors impeding the availability and delivery of health care to ensure good health outcomes for Indigenous and disadvantaged groups in Australia. These include: physical access to services for rural and remote communities; cultural appropriateness of treatment; education on the maintenance of health; and financial restrictions.

Our researchers are investigating ways to overcome these barriers and provide an improved understanding of the health and health care amongst Indigenous and disadvantaged communities. This understanding is essential for the development and implementation of informed, effective public health policy.

Researchers across the faculty are focused on:

- reducing the burden of disease and health inequalities, arising from chronic dental diseases among Indigenous children
- monitoring and surveying Indigenous oral health and use of dental services
- working with Indigenous women to develop culturally-appropriate care in order to improve the outcomes for mothers and their babies
- working with the Indigenous community to use existing knowledge on best-practice chronic disease prevention and treatment to improve the coverage and appropriateness of health services and care
- conducting interventional clinical trials to provide evidence for optimal management of HIV/AIDS across high-, middle- and low-income communities.

INDIGENOUS HEALTH AND HEALTH EQUITY

IMPROVING ABORIGINAL HEALTH CARE RESEARCH GROUP

Lead Researcher: Dr Janet Kelly and Ms Penelope Smith

Contact: janet.kelly@adelaide.edu.au
penelope.smith@adelaide.edu.au

Research Summary

Improving Aboriginal health care is a local, state and national priority. We work collaboratively with Aboriginal patients, family members and communities, and a range of health professionals and services to address complex clinical and cultural care needs. Together we identify gaps and strengths and seek to improve Aboriginal health care and patient journey experiences and outcomes.

We have a 5 year NHMRC funded project: AKction2 Aboriginal Kidney Care Together – Improving Outcomes Now.

This collaborative action research project positions Aboriginal people with kidney disease and their families as experts, working alongside health professionals, renal services, health and support services, universities and other key stakeholders. This project focuses on effective and meaningful involvement of community members in health care redesign, decision making, guidelines development, governance, models of care, evaluation and decolonisation.

The project has four substudies:

Indigenous governance (Centring the voices and experiences of First Nations people);

Kidney Journey Mapping (Improving models of kidney care by assessing kidney care experiences);

Peer support needs (Identity that support needs of First Nations kidney care patients and their family members during dialysis and transplant workup); and

Cultural safety in kidney care (Identify the cultural safety training needs of South Australian kidney health staff).

For available projects please view Dr Kelly's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/janet.kelly

Projects available for

Third Year; Honours; Masters; HDR; MPhil

Maximum Number of Students

3

Category

Dry Laboratory; Human Research; Systematic Review; Meta-analysis

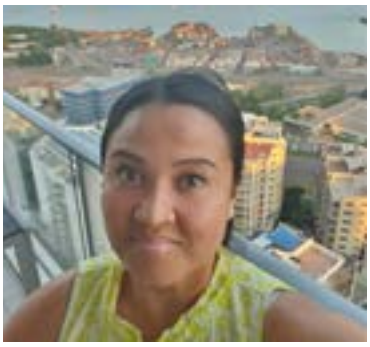
Research Areas

Indigenous Health and Health Equity

Translational Health Outcomes

Dr Janet Kelly

aKction Pt Augusta



Ms Penelope Smith

NORTHERN ADELAIDE LOCAL HEALTH NETWORK CLINICAL RESEARCH PROGRAM

Lead Researcher: Professor Mark Boyd

Contact: mark.boyd@adelaide.edu.au

Research Summary

We have a rapidly growing and diverse research portfolio. Given the substantial disadvantage of many of the inhabitants of the catchment area the hospital serves we have a particular interest in addressing the social determinants of health. It is well known and understood that the social environment exerts substantial influence on the health and well being of communities and individuals. Despite that, the healthcare system tends to stick with biomedical aspects of health. For many clinicians working at the Lyell McEwin Hospital, they feel that they simply patch people up and send them back into a war without addressing that war.

In similar high-income countries around the world there is a movement towards a transformation in healthcare in which the healthcare system not only implements biomedical 'fixes' (e.g tablets) but effectively addresses significant social stressors. This is not simple as the healthcare system is large and cumbersome and change is not readily accepted or implemented. Nevertheless there is a growing belief that genuinely transformational improvements in human health in the future will not simply come from more pharmaceutical magic bullets, but with a concerted, collaborative effort to improve people's social situation and context. This is the research we prosecute.

For available projects please view Professor Boyd's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/mark.boyd

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

3

Category

Human Research

Research Areas

Indigenous Health and Health Equity

Immunology and Infection

Innovative Therapeutics

Child and Adolescent Health

Professor Mark Boyd BA, BM, BS, MD, FRACP

OCCUPATIONAL JUSTICE

Lead Researcher: Dr Emma George

Contact: emma.george@adelaide.edu.au

Research Summary

We are interested in research that explores policy, health equity and justice. Our research interests include policy implementation and equity, the health and well-being of Aboriginal and Torres Strait Islander people, and the recovery from exploitation and modern slavery in Australia and overseas. From an occupational therapy perspective, we are fascinated by the role and importance of occupation for health and well-being. In our research, we want to learn more about occupational injustices (marginalisation, alienation, deprivation, imbalance, apartheid and dysfunction) in order to promote equity and justice, culturally safe practice and trauma informed care.

For available projects please view Ms George's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/emma.george

Projects available for

Honours; HDR; Mphil

Maximum Number of Students

2

Category

Human Research

Research Areas

Indigenous Health and Health Equity

Dr Emma George

UNIVERSITY OF ADELAIDE–WHO COLLABORATING CENTRE

Lead Researcher: Associate Professor Robert Ali

Contact: robert.ali@adelaide.edu.au
matthew.stevens@adelaide.edu.au

Research Summary

Our research lab is a World Health Organization collaborating centre, which focuses on screening, brief intervention and referral to treatment (SBIRT) for substance use disorders. The Alcohol, Smoking and Substance Involvement Screening Test ('ASSIST') is a purpose-built SBIRT framework developed by WHO researchers, including A/Prof Ali which our lab promotes through education, research and training in primary and acute healthcare settings.

Our research focus for 2022 involves adapting the ASSIST for other populations, including older age groups, indigenous populations, those in community mental health settings and other vulnerable populations.

For available projects please view Associate Professor Ali and Ms Harland's Researcher Profiles under "My Research"

researchers.adelaide.edu.au/profile/robert.ali

researchers.adelaide.edu.au/profile/jennifer.harland

Projects available for

Third Year; Masters

Maximum Number of Students

4

Category

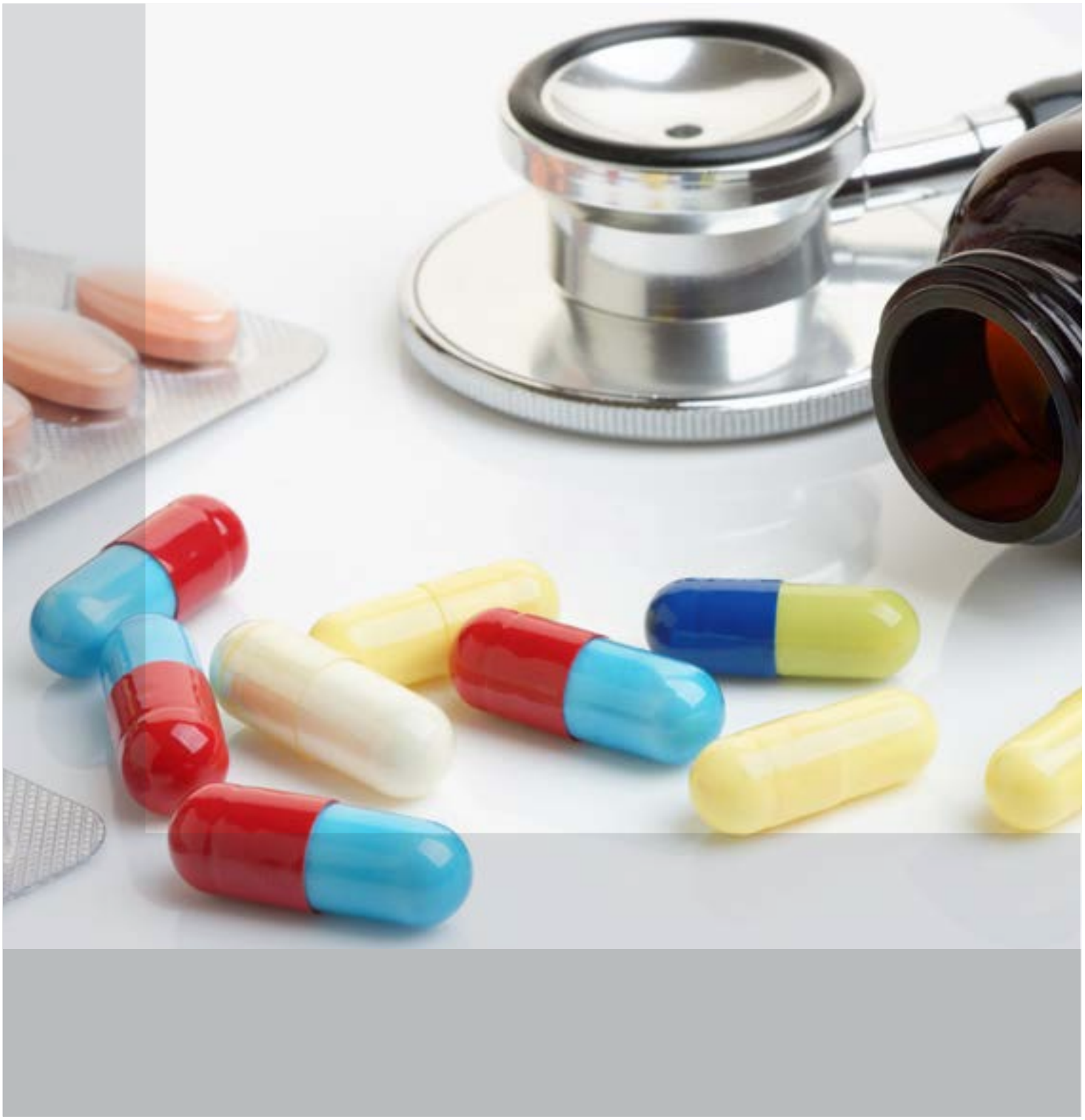
Human Research

Research Areas

Indigenous Health and Health Equity

Translational Health Outcomes

Associate Professor Robert Ali



INNOVATIVE THERAPEUTICS

INNOVATIVE THERAPEUTICS RESEARCH GROUPS

Research in innovative therapeutics aims to identify new, economically sustainable therapeutic approaches that can deliver better outcomes for patients and the community.

From 2001 to 2014, health care expenditure in Australia doubled to $140 billion (9.5% GDP), and has since been increasing at a rate of 7.7% per annum. The various tiers of government fund 68% of these costs, 11.5% of which can be attributed to pharmaceuticals alone.

The development of new and cost-effective therapeutics is critical for sustaining and advancing the delivery of health care to the Australian community. Our research aims to produce novel therapeutic approaches to enhance efficacy and specificity; lower the side effects; provide greater safety; and reduced need for hospitalisation or other health services.

Researchers across the faculty are focused on:

- identifying novel targets for therapy to prevent metastasis and modulate the progression of cancers
- identifying new biomarkers to identify disease, predict disease trajectories and monitor response to treatment
- developing tissue regeneration technologies to address tissue injuries and disease
- developing cost-effective in vitro models to replace animal models for testing therapeutic efficacy
- developing rigorous clinical evaluation approaches of novel combinations of existing therapeutic agents, including development of novel modes of delivery.

INNOVATIVE THERAPEUTICS RESEARCH OPPORTUNITIES

ADELAIDE HEALTH TECHNOLOGY ASSESSMENT

Lead Researcher: Dr Drew Carter

Contact: drew.carter@adelaide.edu.au

Research Summary

My current research focusses on ethical resource allocation. I am analysing the ethical principles that ought to inform intensive care unit (ICU) admission and discharge, especially when the ICU is full and additional patients require admission. I am researching the ethics of managed-entry agreements, where governments provisionally fund new health interventions on the condition that research is undertaken to reduce uncertainty concerning the intervention's effectiveness or cost-effectiveness, for example. I am also researching how national bodies such as the Pharmaceutical Benefits Advisory Committee (PBAC) and the Medical Services Advisory Committee (MSAC) ought to include more than conventional cost-effectiveness in their judgements of the value for money that a health intervention provides. Finally, I am interested in developing a framework that evaluation agencies can use to more easily assess the ethical dimensions of genomic health technologies.

For available projects please view Dr Carter's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/drew.carter

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

4

Category

Systematic Reviews

Research Areas

Innovative Therapeutics

Surgical and Health Systems Innovation

Translational Health Outcomes

Dr Drew Carter

CLINICAL PHARMACOLOGY, BASIL HETZEL INSTITUTE

Lead Researcher: Professor Betty Sallustio

Contact: benedetta.sallustio@sa.gov.au

Research Summary

As part of The Queen Elizabeth Hospital, researchers at the Basil Hetzel Institute for Translational Health Research can work closely with the hospitalâ€™s clinical divisions, and this has led to a focus on translational health research, an innovative â€˜bench to bedsideâ€™ approach in which scientific discoveries can be quickly translated into improved patient care and treatment. Prof Sallustio heads the Clinical Pharmacology Unit, which is affiliated with the Discipline of Pharmacology of the University of Adelaide. It provides a clinical therapeutic drug monitoring service coupled with an active research program in the areas of heart disease, kidney transplantation and cancer. Specific research projects include:

Developing New Treatments for Heart Disease and Cancer

1) Investigating the efficacy of new myocardial metabolic agents in the treatment of heart failure and ischaemic heart disease.

2) Developing new therapies for chemotherapy-induced myocardial toxicity in cancer patients

Individualising Immunosuppressant Therapy in Transplantation

1) Investigating how genetic variability in both kidney donors and recipients determines intra-renal and intra-lymphocyte exposure to immunosuppressants, and its association with rejection and long-term function of the transplanted kidney.

2) Investigating how immunosuppressant therapy can be better monitored in transplant recipients who become pregnant to improve safety for both mother and baby.

For available projects please view Professor Sallustio's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/benedetta.sallustio

Projects available for

Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Wet Laboratory; Human Research

Research Areas

Innovative Therapeutics

Cardiac, Respiratory and Vascular Health

Cancer Biology and Clinical Oncology

Immunology and Infection

The Clinical Pharmacology team headed by Prof Sallustio (centre) at the Basil Hetzel Institute.

CPHRG

Lead Researcher: Ms Paula Gillespie-Fotheringham

Contact: paula.gillespie-fotheringham@adelaide.edu.au

Research Summary

Art psychotherapy, play therapy, family therapy, child development, developmental trauma, attachment related issues.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here:

researchers.adelaide.edu.au/profile/paula.gillespie-fotheringham

Projects available for

Third Year; Honours; Masters

Maximum Number of Students

2

Category

Systematic reviews

Research Areas

Innovative Therapeutics

Surgical and Health Systems Innovation

Translational Health Outcomes

NEURODEGENERATIVE AND GASTROINTESTINAL THERAPIES

Lead Researcher: Dr Scott Smid

Contact: scott.smid@adelaide.edu.au

Research Summary

Current research interests span a number of projects in the medical cannabis space. Cannabis contains hundreds of phyto-cannabinoids aside from just THC and we have very little information on their effectiveness and safety, either individually or collectively. More Australians will be expected to access cannabis for medicinal purposes and as complementary medicines, so research in this area will assist the emergent industry and provide further clinical insight and patient and community awareness.

We have a range of in vitro projects characterising novel cannabis phytochemicals for neuroprotective (e.g. dementia) and gastrointestinal (e.g. anti-inflammatory) applications, in addition to projects aimed at understanding toxicity related to cannabis-drug interactions. We also have other natural product research interests; some projects can be tailored to student interests in this field or more generally in experimental therapeutics with applications in dementia and GI research.

For available projects please see Dr Smid's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/scott.smid

Projects available for

Honours; HDR

Maximum Number of Students

2

Category

Wet Laboratory

Research Areas

Innovative Therapeutics

Neuroscience, Behaviour and Brain Health

Nutrition and Metabolic Health

Dr Scott Smid

PERINATAL AND INFANT MENTAL HEALTH SERVICES, WOMENS AND CHILDREN'S HEALTH NETWORK

Lead Researcher: Dr Anne Sved Williams

Contact: Anne.SvedWilliams@sa.gov.au

Research Summary

Perinatal borderline personality disorder (PBPD) has previously been extremely under-identified and concerns raised about inadequate management of women with this condition and the flow-on effects for their infants. Thus a new treatment programs to treat PBPD and significant emotional dysregulation has been developed (mother-infant dialectical behaviour therapy) and is currently being further refined with analysis of qualitative interviews following group completion and at one year follow-up. Comparison with other therapy groups is under way.

A recent development is the production of a shorter form of MI-DBT (7 sessions compared to the original 24) in parents attending a child protection agency. If initial evaluation shows benefit for this approach, further evaluation is planned, using a comparison group to enable an understanding of its benefits.

Research projects available:

- Antenatal identification of borderline personality disorder in an antenatal clinic and prospective follow-up to evaluate birth outcomes
- Postnatal follow-up of identified women to evaluate progress in postnatal year including use of services and effects on infants
- Identification of rates of undiagnosed BPD in perinatal women attending primary care practitioners for mental health support
- Identification of rates of undiagnosed BPD in women seeking help for their infants in child-based services

For available projects please see Dr William's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/anne.williams

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

3

Category

Human Research

Research Areas

Innovative Therapeutics

Early Origins of Health

Pregnancy and Birth

Dr Anne Sved Williams

MUSCULOSKELETAL HEALTH

MUSCULOSKELETAL HEALTH RESEARCH GROUPS

Good musculoskeletal health is important at every stage of life and plays a vital role in keeping us on our feet. More than six million Australians (approximately 14% of the population) suffer from some kind of musculoskeletal condition, such as back pain, arthritis, osteoporosis and fractures.

Musculoskeletal health is a multidisciplinary area of research involving connective tissue biology (including bone, cartilage and muscle), diseases of connective tissue (including arthritis and osteoporosis), biomechanics and surgical/clinical interventions to treat traumatic bone injury and other conditions.

Researchers across the faculty are focused on:

- understating the cellular and molecular basis of normal and pathological bone turnover
- how to best repair fractures after traumatic injury with novel surgical approaches and post-operative management
- how to optimise the outcomes of joint replacement surgery in order to provide better and longer lasting outcomes for patients
- performing gait analysis and activity monitoring to evaluate the success of interventions across all musculoskeletal conditions
- developing better ways to manage spinal cord injury patients to improve their outcomes
- identifying links between bone cells and the molecules they produce and bone health.

MUSCULOSKELETAL HEALTH RESEARCH OPPORTUNITIES

BHI/TQEH RHEUMATOLOGY RESEARCH GROUP

Lead Researcher: Professor Catherine Hill

Contact: catherine.hill@adelaide.edu.au

Research Summary

The Rheumatology Research Group based at The Queen Elizabeth Hospital and the Basil Hetzel Institute is a highly skilled and productive group with research expertise in population epidemiology, randomised clinical trials, qualitative research, biobanking and quality improvement. The Research Group has experts in epidemiology, statistics, biobanking, qualitative methods, evidence-based medicine and outcome measurement. It is the South Australian hub of Australian Arthritis and Autoimmune Biobank (A3BC). The group has research in many aspects of rheumatic disease including vasculitis, Sjogren's syndrome, polymyalgia rheumatica, osteoarthritis and gout. The team includes clinical trial coordinators, postdoctoral researchers and clinical PhD and Master's students. Each of the senior clinicians (Prof Catherine Hill, Prof Maureen Rischmueller, Dr Sam Whittle) have experience in supervising students. The group includes expertise in statistics and qualitative research.

For available projects please see Professor Hill's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/catherine.hill

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

2

Category

Wet Laboratory; Dry Laboratory; Human Research; Systematic Review; Meta-analysis

Research Areas

Musculoskeletal Health

Translational Health Outcomes

Immunology and Infection

Innovative Therapeutics

Back row: Maureen Rischmueller, Sam Whittle, Sue Lester, Carlee Ruediger, Sarah Downie-Doyle
Front row: Jem Ninan, Rachel Black, Joanna Tieu

BIOMEDICAL ORTHOPAEDIC RESEARCH GROUP

Lead Researcher: Professor Gerald Atkins, PhD, FIOR

Contact: gerald.atkins@adelaide.edu.au

Research Summary

Located in the AHMS building, Centre for Orthopaedic and Trauma Research, The Biomedical Orthopaedic Research Group led by Professor Gerald Atkins performs world class basic, translational and clinical research into the pathobiology of the human musculoskeletal system, with a focus on the molecular and cell pathobiology underlying diseases encountered by orthopaedic surgeons.

Our research uses patient clinical samples and human molecular, primary cell and cell line in vitro models, supported by non-human in vitro and animal models. Our work has contributed to understanding in a number of key areas including human osteoclast, osteoblast and osteocyte biology and has had an impact on the development and use of important therapies for diseases involving these cells and their secreted products.

We apply our basic findings to the clinical problems of fracture repair, aseptic loosening of orthopaedic implants and infectious osteomyelitis associated with prosthetic joint infections. We are also studying mechanisms of bone destruction and tumour cell survival associated with primary cancers of bone, such as Giant Cell Tumour of Bone (GCTB) and osteosarcoma. Collaborative studies with other University of Adelaide researchers involve the interactions of bone cells with nano-modified implant materials, the pathobiology of human movement and the microbiology of chronic bone infections.

For available projects please see Professor Atkin's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/gerald.atkins

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

8

Category

Wet Laboratory; Human Research

Research Areas

Musculoskeletal Health

Immunology and Infection

Professor Gerald Atkins

BONE AND JOINT OSTEOIMMUNOLOGY GROUP

Lead Researcher: Associate Professor Tania Crotti

Contact: tania.crotti@adelaide.edu.au

Research Summary

The Bone and Joint Osteoimmunology Laboratory is focused on understanding and regulating the mechanisms responsible for pathological bone remodelling in inflammatory conditions such as Rheumatoid Arthritis (RA), Periodontal Disease and Peri-implant osteolysis associated with failed orthopaedic implants. In collaboration with clinicians at the Royal Adelaide Hospital, Dental Hospital and Flinders Clinical Centre and the Centre for Nanoscalebiophotonics the laboratory carries out analysis on human tissues retrieved during surgery to understand the pathways involved. Complementary in vivo and in vitro models of these diseases are employed to further unravel processes and response to treatments. Techniques include hyperspectral imaging, real-time quantitative PCR, ELISA and microCT imaging.

In collaboration with the Paediatric Rheumatology Clinic at the WCH research is also being carried out to better understand the patient experience and clinical outcomes of our patients with Juvenile Idiopathic Arthritis using a recently established data bank.

For available projects please view Associate Professor Crotti's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/tania.crotti

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

2

Category

Wet Laboratory; Dry Laboratory; Human Research; Systematic Review; Meta-analysis

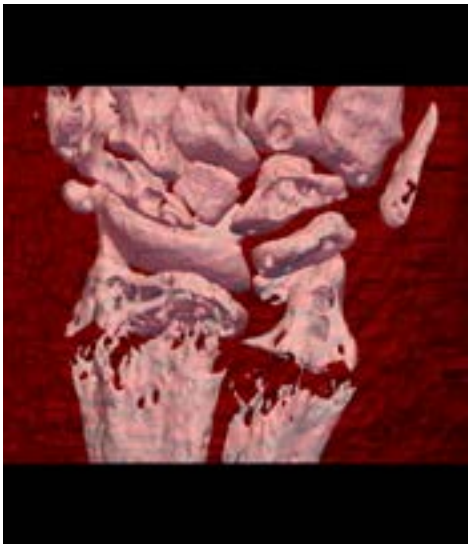
Research Areas

Musculoskeletal Health

Oral Health

Child and Adolescent Health

Immunology and Infection



MicroComputer Tomography (microCT) imaging of bone and paw inflammation in a model of inflammatory arthritis (provided by Bonnie Williams)

Associate Professor Tania Crotti

BONE AND JOINT RESEARCH GROUP, CENTRE FOR ORTHOPAEDIC AND TRAUMA RESEARCH

Lead Researcher: Dr Julia Kuliwaba

Contact: julia.kuliwaba@adelaide.edu.au

Research Summary

The Centre for Orthopaedic and Trauma Research (COTR) was formed in 2012 and its members include orthopaedic surgeons, clinical researchers, and biomedical scientists and engineers. This diverse combination of researcher expertise enables the scientific study of highly clinically relevant topics pertaining to the human musculoskeletal system. The research aims to better understand bone and joint diseases and conditions, including osteoarthritis and joint replacement, pathological bone loss, infection, spinal conditions and fracture.

The COTR team of biomedical scientists and engineers and their laboratories are located in the new Adelaide Health and Medical Sciences building (AHMS) on North Terrace.

The Bone and Joint Research Group focus on understanding the pathobiology of osteoarthritis, osteoporosis, and other musculoskeletal conditions. The laboratory is internationally recognised for human tissue-level analyses, utilising a well-established human musculoskeletal tissue bank. The research involves a multidisciplinary approach utilising numerous tissue-level techniques: ranging from molecular to microstructural to clinical imaging.

For available projects please view Dr Kuliwaba's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/julia.kuliwaba

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

10

Category

Wet Laboratory; Dry Laboratory; Human Research

Research Areas

Musculoskeletal Health

Ageing, Frailty and Mobility

Nutrition and Metabolic Health

Translational Health Outcomes

Dr Julia Kuliwaba

CENTRE FOR ORTHOPAEDIC AND TRAUMA RESEARCH (MUSCULOSKELETAL GAIT GROUP)

Lead Researcher: Associate Professor Dominic Thewlis

Contact: dominic.thewlis@adelaide.edu.au

Research Summary

Our group works at the interface between clinical medicine, physiology, medical physics and mechanical engineering. We are working on: (1) understanding the role biomechanics plays in the onset and progression of lower limb arthritis; (2) using deep learning techniques to make use of our rich datasets so we can predict surgical outcomes (primary and revision joint replacement) from baseline biomechanical data; and (3) using wearable sensors to take the biomechanics lab into the clinic and beyond.

For available projects please view Associate Professor Thewlis' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/dominic.thewlis

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

5

Category

Human Research with in silico modelling

Research Areas

Musculoskeletal Health

Associate Professor Dominic Thewlis

ENVIRONMENTAL ALLIED HEALTH

Lead Researcher: Dr Jessica Stanhope

Contact: jessica.stanhope@adelaide.edu.au

Research Summary

The health of the natural environment can impact many aspects of human health, including mental health, pain, respiratory health, and birth outcomes. We draw upon multidisciplinary expertise to broadly investigate

1. how ecosystem health impacts human health

2. how people utilise greenspaces

3. health professional perceptions of ecohealth and

4. how allied health professionals can utilise greenspace to improve human health outcomes.

Ultimately, we aim to improve human health through clinical and public health recommendations for the optimisation and utilisation of greenspaces, and the restoration and conservation of the natural environment.

For available projects please view Ms Stanhope's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/jessica.stanhope

Projects available for

Honours; HDR; Masters; MPhil

Maximum Number of Students

5

Category

Human Research; Systematic Review; Meta-analysis; Wet Laboratory; Dry Laboratory

Research Areas

Musculoskeletal health

Neuroscience, behaviour and brain health

Early origins of health

Ms Jessica Stanhope

ENVIRONMENTAL AND OCCUPATIONAL HEALTH SCIENCES: OCCUPATIONAL HEALTH

Lead Researcher: Dr Paul Rothmore

Contact: paul.rothmore@adelaide.edu.au

Research Summary

We are interested in the link between work, the working environment and worker health and safety. We have diverse backgrounds in ergonomics, workplace injury and illness management and public health and we employ an array of quantitative and qualitative methodologies. We work closely with industry and government to develop, design and evaluate evidence-based interventions to improve the health, safety and longevity of working populations.

Current research projects include:

- The ageing workforce
- Heat and work injury
- The design and evaluation of evidence-based workplace interventions
- Behavioural approaches to workplace injury prevention

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: researchers.adelaide.edu.au/profile/paul.rothmore

Projects available for

Honours; Masters

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Musculoskeletal Health

Dr Paul Rothmore

MESENCHYMAL STEM CELL LABORATORY

Lead Researcher: Professor Stan Gronthos

Contact: stan.gronthos@adelaide.edu.au

Research Summary

Postnatal mesenchymal stem cells (MSC) derived from connective tissues are capable of developing into multiple cell lineages (myelosupportive stroma, adipocytes, smooth muscle cells, myoblasts, ligament cells, chondrocytes and osteoblasts). Our Lab examines the transcriptional, epigenetic and signalling factors that regulate MSC self-renewal, proliferation, multi-differentiation and immune cell modulation. These molecular processes are being investigated as underlying mechanisms mediating tissue repair, inflammation, tumour cell development and aged related diseases.

For available projects please view Professor Gronthos' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/stan.gronthos

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Wet Laboratory

Research Areas

Musculoskeletal Health

Cancer Biology and Clinical Oncology

Mesenchymal Stem Cell Laboratory Group

NECK PAIN RESEARCH GROUP

Lead Researcher: Dr Rutger de Zoete

Contact: rutger.dezoete@adelaide.edu.au

Research Summary

Rutger's research focuses on investigating mechanisms underlying chronic neck pain. With his clinical background and advanced neuroscience knowledge and laboratory skills, he investigates the immunological and neurological mechanisms of neck pain. He aims to improve conservative management options for those with chronic neck pain, and is particularly interested in the role of physiotherapy. Rutger's research has been published in leading physiotherapy, medical, and rehabilitation journals, demonstrating the clinical relevance of his work. He has established a strong collaborative network with Australian and global pain researchers, emphasising the importance of interdisciplinary work in this field.

For available projects please view Dr de Zoete's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/rutger.dezoete

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Human Research; Systematic Review; Meta-analysis

Research Areas

Musculoskeletal Health

Neuroscience, Behaviour and Brain Health

Dr Rutger de Zoete

NORTHERN ORTHOPAEDICS GROUP

Lead Researcher: Associate Professor Andrew Kurmis

Contact: andrew.kurmis@adelaide.edu.au

Research Summary

Associate Professor Andrew Kurmis is an Australian-trained Orthopaedic Surgeon, based in Adelaide, with subspecialty training expertise in hip and knee replacement surgery.

He is an active researcher working towards improving patient outcomes having published nearly 50 peer reviewed journal articles. He has also presented work extensively within Australia and internationally, often as an invited speaker.

Special Interests include primary & revision hip and knee replacement surgery, Computer-navigated and Robot-assisted surgery, 'Patient-specific' implant systems, and General Orthopaedics.

For available projects please view Associate Professor Kurmis' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/andrew.kurmis

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Musculoskeletal Health

Surgical and Health Systems Innovation

Translational Health Outcomes

Associate Professor Andrew Kurmis

NORTH WEST ADELAIDE HEALTH STUDY MUSCULOSKELETAL HEALTH GROUP

Lead Researcher: Dr Tiffany Gill

Contact: tiffany.gill@adelaide.edu.au

Research Summary

My research is in the area of musculoskeletal epidemiology. I use data collected as part of the North West Adelaide Health Study, a cohort study with 20 years of data collection in the northern and western suburbs, which has one of the largest population-based musculoskeletal data collections in Australia. The data enable us to examine the prevalence, incidence, risk and other factors associated with musculoskeletal conditions in the population.

For available projects please view Dr Gill's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/tiffany.gill

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Musculoskeletal Health

Dr Tiffany Gill

SPINAL AND INJURY BIOMECHANICS RESEARCH GROUP

Lead Researcher: Dr Claire Jones

Contact: claire.jones@adelaide.edu.au

Research Summary

My team engages in diverse research themes across orthopaedics and injury, predominantly related to spinal disorders and trauma, and neurotrauma. Our research bridges medicine and engineering, and we develop and use experimental methods using cadaveric and animal models, medical imaging, computer models, clinical data and human volunteers. Some of our current research projects include understanding the injury mechanisms of cervical spine facet dislocation and fracture, creating pre-clinical models of spinal cord injury and brain injury, determining the relationship between imaging biomarkers of spinal osteoarthritis and bone biomechanics, and understanding the mechanical behaviour and structure of musculoskeletal and neural tissues.

For available projects please view Dr Jones' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/claire.jones

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

8

Category

Wet Laboratory; Dry Laboratory; Human Research

Research Areas

Musculoskeletal Health

Neuroscience, Behaviour and Brain Health

Ageing, Frailty and Mobility

Dr Claire Jones

WCH PAEDIATRIC ORTHOPAEDIC CLINICAL RESEARCH TEAM

Lead Researcher: Associate Professor Nicole Williams

Contact: nicole.williams01@adelaide.edu.au

Research Summary

The Research Team at the Department of Orthopaedic Surgery, Women's and Children's Hospital (WCH) comprises orthopaedic surgeons, doctors-in-training, medical and research/higher degree students. It is supported by a Clinical Research Manager, Research Scientist and Research Assistant. The Department has a long track record of internationally recognised research activity and publications including basic science and clinical research investigating a range of paediatric musculoskeletal conditions.

Current areas of interest for the Research Team at the WCH Department of Orthopaedics include mechanisms of bone growth and repair, paediatric musculoskeletal infections, the management of congenital and developmental musculoskeletal deformities such as scoliosis and lower limb deformity and paediatric trauma.

Clinical Research aims to provide the benchmarks for clinical audit and quality management issues to be undertaken in a structured manner. The Department of Orthopaedic Surgery has a high clinical workload, which enhances the opportunities for organised clinical orthopaedic research.

For available projects please view Associate Professor Williams' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/nicole.williams01

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Systematic reviews; Meta-analysis; Human Research

Research Areas

Musculoskeletal Health

Child and Adolescent Health

Dr Nicole Williams

NEUROSCIENCE, BEHAVIOUR AND BRAIN HEALTH

NEUROSCIENCE, BEHAVIOUR & BRAIN HEALTH RESEARCH GROUPS

NEUROSCIENCE, BEHAVIOUR AND BRAIN HEALTH RESEARCH

The brain and spinal cord comprise the central nervous system of the body. Damage and disease of the brain or spinal cord can lead to developmental delay, intellectual or physical disability, loss of cognitive function and behavioural and psychological disorders.

Neuroscience is an interdisciplinary science that focuses on the study of neurochemistry and experimental psychology. It deals with the structure and normal function of the nervous system and brain that impact on behaviour, cognitive function and neurological dysfunction.

Our researchers investigate these areas with the aim of developing therapies and informing improved health service provision for individuals.

Researchers across the faculty are focused on:

- understanding the function of genes that cause neurodevelopmental disorders, such as intellectual disability and epilepsy
- investigating the causes of diseases of the brain, spine or nervous system (including Parkinson's disease and Alzheimer's disease) to inform diagnosis, prevention and treatment
- understanding the cellular and molecular basis of cognition, perception and neuropsychology
- developing therapies, and translating results into the treatment and prevention of neurological diseases
- understanding the health psychology, healthy development across the lifespan, and disability to inform and assess rehabilitation and health service delivery
- developing innovative biological computation technologies to enable large-scale epidemiological studies that can inform health care policy and service provision.

NEUROSCIENCE, BEHAVIOUR AND BRAIN HEALTH RESEARCH OPPORTUNITIES

ADELAIDE BRAIN AND COGNITIVE DEVELOPMENT LAB

Lead Researcher: Dr Mark Kohler

Contact: mark.kohler@adelaide.edu.au

Research Summary

Research in the ABCDlab is focussed on child learning and cognitive development. We have a particular emphasis on how lifestyle factors, such as sleep, physical activity, outdoor play or media use, effect cognitive functioning in childhood. Current research is investigating the benefits of nature for attention and learning, sleep and memory consolidation, media use and youth mental health, and predictors of child mental well-being.

For further information please view Dr Kohler's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/mark.kohler

Projects available for

Honours

Maximum Number of Students

4

Category

Human Research; Systematic Review; Meta-analysis

Research Areas

Neuroscience, Behaviour and Brain Health

Child and Adolescent Health

ABCD Laboratory

The ABCD lab investigates cognitive development

APPLIED COGNITION AND EXPERIMENTAL PSYCHOLOGY (ACEP) LAB

Lead Researcher: Associate Professor Carolyn Semmler

Contact: carolyn.semmler@adelaide.edu.au

Research Summary

The Applied Cognition and Experimental Psychology (ACEP) research group focuses on the application of theories and models of cognition, judgement and decision-making to defence, legal and medical contexts. We are interested in understanding human interaction with intelligent agents using computational models to describe and explain human-machine interaction. We use experimental methods and modelling of cognitive processes to understand and improve human decision-making in important contexts, such as health, policing and national security. Our research is focused on understanding how individuals who are proficient in unfamiliar face matching achieve high levels of performance and how technology might be used to enhance proficiency. We are working to improve the decisions of people in areas of law, including defence personnel, police, eyewitnesses and jurors. We are also active in areas of health, where our focus is on methods to improve the decisions of health consumers and health care workers in relation to vaccination, food consumption and diagnosis from radiological data.

For available projects please view Associate Professor Semmler's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/carolyn.semmler

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

2

Category

Dry Laboratory; Meta-analysis; Human Research; Systematic Review

Research Areas

Neuroscience, Behaviour and Brain Health

Associate Professor Carolyn Semmler

Human-machine interfaces for detecting, monitoring and managing psychological stress

BEHAVIOURAL NEUROSCIENCE

Lead Researcher: Dr Alexandra Whittaker

Contact: alexandra.whittaker@adelaide.edu.au

Research Summary

Current work is examining chemotherapy-induced cognitive impairment. This common condition experienced by cancer patients treated with chemotherapy causes a long-lasting reduction in cognitive and executive functions, and attention. Effects range from subtle to profound with a consequent impact on quality of life. We believe that, akin to other neurodegenerative conditions such as Alzheimers, this cognitive dysfunction may be brought about through neuroimmune changes occurring in the brain bringing about neurotoxicity. If we can better understand the mechanism of this action we may be in a position to prevent its onset at the time of chemotherapy treatment. This could potentially prevent cognitive decline occurring.

For available projects please view Dr Whittaker's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/alexandra.whittaker

Projects available for

Third Year; Honours

Maximum Number of Students

3

Category

Wet Laboratory; Dry Laboratory; Systematic reviews

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Whittaker

BODY IMAGE, EATING DISORDERS, AND PERSONALITY

Lead Researcher: Sophie Dahlenburg

Contact: Sophie.dahlenburg@adelaide.edu.au

Research Summary

As well as a focus on body image broadly, my research interests also include the intersection of body image and sexual orientation, eating disorders, and the impact these conditions can have on an individual and their families. I also work as a researcher for the Borderline Personality Disorder Collaborative, and would be happy to supervise a student across both domains. I have a keen interest in social psychology, and personality disorders, broadly.

I have experience with both qualitative and quantitative research methodologies, with a special flare for systematic review/meta-analyses.

I do not have set projects, but would prefer to discuss any research proposal that may align with the above areas.

For available projects please see Sophie's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/sophie.dahlenburg

Projects available for

Third Year; Honours

Maximum Number of Students

1

Category

Human Research; Systematic Review; Meta-analysis

Research Areas

Neuroscience, Behaviour and Brain Health

Sophie Dahlenburg

BRAIN AND COGNITION RESEARCH

Lead Researcher: Dr Lance Storm

Contact: lance.storm@adelaide.edu.au

Research Summary

Anomalistic Psychology, including Parapsychology: Testing parapsychological effects, including synchronicity, alleged psychic ability, intuition, and presentiment. The psychology of parapsychology, including

1) quantitative analyses of theories and constructs that attempt to explain alleged paranormal phenomena (a.k.a. psi),

2) quantitative investigations into the psychology of paranormal belief (e.g., testing correlates of psi belief), and

3) interpretations of alleged paranormal phenomena in academia and the wider community.

Analytical Psychology: Archetype Theory and meaningfulness. Research into the qualitative aspects of symbols, including numbers and images, and their psychological impact and relevance to various cultures.

Personality and Individual Differences: Includes comparative studies of psychological types using various Jungian "type" measures and other personality measures. Self-reported (explicit) measurement of beliefs and attitudes towards outcomes, transliminality and their correlates.

For available projects please see Dr Storm's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/lance.storm

Projects available for

Honours

Maximum Number of Students

2

Category

Meta-analysis; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Lance Storm

BRAIN AND COGNITION RESEARCH GROUP

Lead Researcher: Dr Matthew Dry

Contact: matthew.dry@adelaide.edu.au

Research Summary

Honours project opportunities.

1.Predictors of academic achievement: Investigating the role of personality,intellectual ability and factors such as stress, motivation, metacognition, creativity, perfectionism, etc on academic outcomes such as grades, satisfaction, post-graduate employment etc.

2.Human performance on the Traveling Salesperson Problem (TSP): The TSP is a computationally difficult optimization problem - understanding the cognitive processes underlying human performance on this task provides insight into our ability to perform computationally difficult tasks with apparent ease.

For available projects please view Dr Dry's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/matthew.dry

Projects available for

Honours

Maximum Number of Students

4

Category

Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Matt Dry

BRAIN STIMULATION, IMAGING AND COGNITION GROUP

Lead Researcher: Dr Nigel Rogasch

Contact: nigel.rogasch@adelaide.edu.au

Research Summary

The brain is a remarkably dynamic organ that is continually reorganising and adapting its structure and function. These rapid and long term changes give rise to our thoughts, govern how we perceive our environment and allow us to either retain information in our mind for brief periods or to store information over many years. Even subtle disruptions in the mechanisms governing brain dynamics can have devastating effects on social and cognitive functioning and possibly underlie mental illnesses such as schizophrenia.

One method particularly suited to studying the dynamic brain is transcranial magnetic stimulation (TMS), a non-invasive method of stimulating cortical brain regions in living humans. TMS is a versatile technique which can be used to probe specific excitatory and inhibitory cortical circuits, to map connectivity between brain regions and to temporarily alter brain function by inducing neuroplasticity (i.e. transiently reorganising brain circuits).

My research concentrates on combining TMS with neuroimaging techniques (EEG, MRI) to understand the role of excitatory/inhibitory mechanisms, brain organisation (oscillations, connectivity) and plasticity in healthy and unhealthy brain function. I have a particular focus on the neural mechanisms underlying short-term memory and psychiatric disorders such as schizophrenia and depression.

For available projects please see Dr Rogasch's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/nigel.rogasch

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Nigel Rogasch

CENTRE FOR AUTOMOTIVE SAFETY RESEARCH

Lead Researcher: Dr Lisa Wundersitz

Contact: lisa.wundersitz@adelaide.edu.au

Research Summary

The Centre for Automotive Safety Research (CASR) has been at the forefront of road safety research for over forty years. Our human factors team are dedicated to understanding the human behavioural side of road safety.

Located within the North Terrace campus, students will have access to one of the largest road safety specific libraries in Australia and a research librarian. HDR students could use large existing South Australian crash databases for their projects, including: a database of police-reported crashes, a database of CASR's own in-depth at-scene crash investigations, a database of hospital information relating to serious injury crashes, and a database of information related to fatal crashes.

Students will be able to develop projects within the many areas of road user behavioural research. These include, but are not limited to, distraction (e.g., mobile phone use), the association between mental health and crashes (as a cause and consequence of crash involvement), road safety education, hazard perception abilities, cognitive and functional testing for relicensing, safety and mobility of older and younger drivers, the association of fatigue and crashes, and risky driving behaviour (alcohol/drug use, speeding).

For available projects please see Dr Wundersitz's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/lisa.wundersitz

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Ageing, Frailty and Mobility

Child and Adolescent Health

Dr Lisa Wundersitz

COGNITION, AGEING AND NEURODEGENERATIVE DISEASE LABORATORY (CANDL)

Lead Researcher: Dr Lyndsey Collins-Praino

Contact: lyndsey.collins-praino@adelaide.edu.au

Research Summary

Within CANDL, our research utilises an innovative "dish to deathbed" approach to identify novel predictors of the risk/rate of cognitive decline both in healthy ageing and in neurodegenerative diseases, such as Alzheimer's and Parkinson's disease. We are particularly interested on the role of neuroinflammation in this process.

Currently, there are a number of projects ongoing. Some of these include

1. Investigation of whether targeting aberrant neuroinflammation can improve functional outcomes and slow dopamine neuron degeneration in pre-clinical models of Parkinson's disease.

2. Identification of novel methods to prevent the spread of pathological proteins in neurodegenerative disease.

3. Investigation of whether growth factor administration is able to prevent neurodegeneration and reduce chronic inflammation following traumatic brain injury.

4. Use of novel genomic analyses and cognitive data to predict risk and rate of cognitive decline in healthy ageing and Parkinson's disease.

5. Investigation of whether a neuroinflammatory signature is predictive of conversion to dementia in Parkinson's disease.

6. Assessment of the role of microglia in pathological transmission of alpha synuclein.

7. Use of cognitive training to improve cognitive function in Parkinson's disease.

8. Tracking the evolution of parkinsonian like-pathology following traumatic brain injury.

For available projects please view Dr Collins-Praino's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/lyndsey.collins-praino

Projects available for

Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory; Systematic reviews; Meta-analysis; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Ageing, Frailty and Mobility

Dr Lyndsey Collins-Praino, Head of CANDL

COGNITIVE NEURAL SCIENCES LABORATORY

Lead Researcher: Dr Irina Baetu

Contact: irina.baetu@adelaide.edu.au

Research Summary

My research focuses on understanding the mechanisms that underpin human learning and memory. I supervise projects that investigate learning and memory processes in healthy individuals. This involves running lab-based experiments in which participants learn by trial-and-error to perform correct responses, or to associate co-occurring stimuli. The aim of this research is to test different theories of learning (oftentimes mathematical models), or to investigate individual differences in learning that may be related to variables such as impulsivity or subclinical anxiety.

For available projects please view Dr Baetu's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/irina.baetu

Projects available for

Honours

Maximum Number of Students

Flexible

Category

Dry Laboratory; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Irina Baetu

DASSA-WHO COLLABORATING CENTRE

Lead Researcher: Cognition, Nutrition and Neuroplasticity Lab

Contact: amy.reichelt@adelaide.edu.au

Research Summary

My primary research goal is to define neural mechanisms that control cognition and underpin cognitive impairment – including the study of behaviour, neurons and the extracellular microenvironment that surrounds them. I have a key research interest on the impact of obesity and nutrition on the brain. This research program has immediate relevance to a growing public health issue in a country where nearly a third of all children, and two thirds of all adults, are overweight or obese.

Research techniques span from cutting-edge touchscreen-based behavioural tasks and functional neuromodulation – including transgenic mice (cre-lox, conditional knock-outs and models of dementia), fiber-photometry to measure biosensors and neuron calcium dynamics, chemogenetics and optogenetics. This is combined with molecular, genetic and chemical profiling of the post-mortem rodent brain to provide a comprehensive neurobiological picture from the micro- to macro-scale.

Projects include:

1. The contribution of perineuronal nets to memory and executive function
2. Manipulating the extracellular matrix to fight obesity-induced cognitive impairment
3. The role of diet in mediating the effect on cognitive impairment and cortical perineuronal net alterations following traumatic brain injury
4. Protecting perineuronal net integrity as a therapy for Alzheimer's disease-induced dementia

For available projects please view Dr Reichelt's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/amy.reichelt

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory; Systematic Review; Meta-analysis

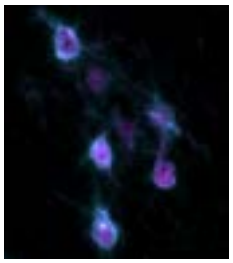
Research Areas

Neuroscience, Behaviour and Brain Health

Innovative Therapeutics

Nutrition and Metabolic Health

Dr Amy Reichelt



Perineuronal nets (cyan) surrounding parvalbumin neurons (magenta) in the mouse prefrontal cortex

DISCIPLINE OF PSYCHIATRY

Lead Researcher: Dr Scott Clark

Contact: scott.clark@adelaide.edu.au

Research Summary

My research broadly focuses on two key areas:

1. Modelling of medication response, cognition and function in severe mental illness combining blood based (-omics), EEG and clinical data for personalised psychiatry.

2. Epidemiology and monitoring of adverse health outcomes in serious mental illness: Myocarditis, Severe infection

For available projects please view Dr Clark's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/scott.clark

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

3

Category

Wet Laboratory; Systematic reviews; Meta-analysis; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Child and Adolescent Health

Translational Health Outcomes

Innovative Therapeutics

Dr Scott Clark

DISCIPLINE OF PSYCHIATRY

Lead Researcher: Dr Natalie Mills

Contact: natalie.mills@adelaide.edu.au

Research Summary

Anxiety disorders are very common, yet very few studies have investigated novel biological factors which may be responsible for treatment refractory illness. The project 'Investigating the longitudinal relationship between inflammation and anxiety disorders'aims to examine the role of the immune system in anxiety disorders. Although research has shown increased activity of the immune system in depression and psychosis, there is little research examining immune activity in people with anxiety-based disorders other than posttraumatic stress disorder. The project investigates the role of the immune system by measuring inflammatory markers (small proteins in the blood) over time and inflammatory marker genes, in individuals with and without a history of anxiety disorders. Clinical and biological data are collected at baseline, and at follow-up 6 months later. Clinical data assesses for anxiety disorders, and anxiety severity. The blood sample at each visit collects serum for measurement of inflammatory markers (including cytokines), DNA for genotyping, and RNA for gene expression. This research addresses a significant gap in the literature, and will inform new avenues for treatment, which in future studies can be translated into improved treatment outcomes.

Collaborators: Associate Professor Scott (UQ), Professor Galletly, Dr Toben, Dr Jawahar, Dr Clark, Associate Professor Schubert

For available projects please view Dr Mill's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/natalie.mills

Projects available for

HDR

Maximum Number of Students

1

Category

Wet Laboratory; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Natalie Mills

DISCIPLINE OF PSYCHIATRY

Lead Researcher: Associate Professor Oliver Schubert

Contact: oliver.schubert@adelaide.edu.au

Research Summary

My research focuses on 3 broad areas:

1.'Omics' for Mental Health

I undertake genomic, transcriptomic, and proteomic studies that explore the molecular underpinnings of schizophrenia, bipolar disorder, and major depression. The aim is to define biological signatures of homogenous patient subgroups within these diagnostic entities, and to detect genetic and molecular substrates associated with treatment response. These biomarkers might be of use for personalised prescribing and for development of novel treatments in psychiatry.

2. Longitudinal Mental Health Research in Youth

Measuring mental health outcomes repeatedly over time adds valuable information to cross-sectional clinical assessments. In large datasets, longitudinal research can delineate typical trajectories of treatment response, recovery, or deterioration; my projects aim to predict trajectories for individual patients so treatments can be better tailored to their needs, and to identify and improve gaps in current service provision.

3. The Interface of Mental Health and Physical Illness

The importance of mental health factors for outcomes in medicine at large is widely recognized. I conduct collaborative studies with colleagues working in anaesthesia, O&G, respiratory medicine, infections diseases, and rheumatology with the aim of improving treatment outcomes by assessing and addressing mental health concerns in their patient populations.

For available projects please view Associate Professor Schubert's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/oliver.schubert

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

3

Category

Wet Laboratory; Dry Laboratory; Systematic reviews; Meta-analysis; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Translational Health Outcomes

Pregnancy and Birth

Innovative Therapeutics

Associate Professor Oliver Schubert

DISCIPLINE OF PSYCHIATRY

Lead Researcher: Dr Catherine Toben

Contact: catherine.toben@adelaide.edu.au

Research Summary

A strong association between stressful life events and the onset of mental health disorders is often linked with chronic low grade inflammation. As a molecular immunobiologist I am particularly interested in gaining a better understanding of the bidirectional and molecular link between brain function and immune system responses to stress. Specifically my work focuses on the identification of transcriptomic and proteomic signatures associated with alterations in particular symptom domains (such as cognition) of psychiatric disorders including depression, PTSD and schizophrenia. A further research focus is how interventions such as altered nutrition and/or mindfulness based practices can harness inherent neuro – regenerative and protective immune mechanisms to reduce stress induced psychiatric symptoms. Ongoing collection of empirical data from clinical cohorts as well as animal models of early and later life chronic stress is an important component of my methodology.

For available projects please view Dr Toben's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/catherine.toben

Projects available for

Third Year; Honours

Maximum Number of Students

Flexible

Category

Wet Laboratory; Systematic reviews; Meta-analysis; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Catherine Toben

ELITE PERFORMANCE, EXPERTISE AND COGNITION LAB

Lead Researcher: Dr Jaime Auton

Contact: jamie.auton@adelaide.edu.au

Research Summary

I am a registered organisational psychologist and an applied human factors researcher. Within this field of research, I am particularly interested in the assessment and development of expertise of operators working within high-risk, high-consequence technical environments such as power distribution control, emergency medicine, motor vehicle driving and aviation. Specifically, I am interested in the cognitive mechanisms that underpin expert performance in the workplace and the individual differences that contribute to the development of such cognitive skills as situation assessment and diagnosis. For example, what are the individual differences that explain why some people are more susceptible to phishing emails? I largely rely on quantitative techniques to carry out this applied experimental psychology research, using several data collection methods such as simulators (driving, train, flight), eye tracking devices and other physiological measures of workload (such as EEG, blood pressure monitor, fNIRs, heart rate monitors).

For available projects please see Dr Auton's Researcher Profile

researchers.adelaide.edu.au/profile/jaime.auton

Projects available for

Honours; HDR; Masters

Maximum Number of Students

4

Category

Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Jaime Auton

EXPERT COGNITION LAB

Lead Researcher: Dr Rachel Searston

Contact: rachel.searston@adelaide.edu.au

Research Summary

Professionals in a variety of domains are capable of extraordinary feats of expertise. What gives rise to the ability to diagnose a rare disease, develop an elegant solution to a programming problem, spot a suspect's face in a crowd, or discriminate highly degraded samples of evidence left at a crime-scene? How do experts' mental representations and decision processes differ from novices' in these areas? What predicts expert performance? What is the best way to optimise the development of expertise with training and experience?

The Expert Cognition Lab focuses on fundamental questions about the nature and development of expertise as they apply to practical problems in industry. We are interested in understanding how best to create expert performance in contexts such as medicine, forensic science, security, and education. We are working to develop a scientific basis for the selection, training, and assessment of expert performers.

For further information please view Dr Searston's Researcher Profile

researchers.adelaide.edu.au/profile/rachel.searston

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Fingerprint expert challenge

FACE PERCEPTION AND RECOGNITION LABORATORY

Lead Researcher: Dr Daniel Carragher

Contact: daniel.carragher@adelaide.edu.au

Research Summary

The human face is a remarkably complex social stimulus. Despite nearly all faces having the same basic structure (i.e., two eyes, above a nose, above a mouth), we can still identify thousands of individuals from their facial appearance alone. But the human face also serves a communicative function – we can infer an individual's current emotional state based on their facial expressions. Often, these judgments of emotional expression, whether real or imagined, can spill over to create rapid impressions about an individual's likely traits and characteristics (e.g., their trustworthiness) based on their facial appearance.

The Face Perception and Recognition Laboratory conducts research that seeks to understand how we recognise faces and emotional expressions, perform identity matching tasks, as well as how we make first impressions from facial appearance. My work also examines the factors that help or hinder performance on these tasks. Current lines of research include investigating how COVID-19 face masks affect identity and emotion recognition, how we make first impressions of faces in naturalistic social scenes, and how humans perform face recognition and matching tasks when working with others or automated facial recognition systems.

For available projects please see Dr Carragher's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/daniel.carragher

Projects available for

Honours

Maximum Number of Students

3

Category

Human Research; Dry Laboratory

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Daniel Carragher

GENDER, HELP-SEEKING, AND HEALTH

Lead Researcher: Dr Jen Fish

Contact: jen.fish@adelaide.edu.au

Research Summary

I am a lecturer and researcher in psychology, with a broad interest in health psychology. I am interested in psycho-oncology (prevention and supportive care), men's health and wellbeing, help-seeking behaviour, and health decision making.

My research aims to investigate and establish effective strategies for improving help-seeking for health and psychological symptoms. I am particularly interested in health-seeking and help-seeking behaviour among men in the areas of cancer prevention and support. I explore constructs from social cognition models, as well as theories of masculine gender roles socialisation and gender norms.

Possible new projects include comparing attitudes and health beliefs among men who usually seek help promptly and those who do not seek professional advice, investigating correlates of help-seeking intentions and behaviours, developing and testing interventions to improve help-seeking, or exploring the role of different healthcare professionals in facilitating help-seeking and early detection behaviours. These projects could use a range of research methods, including interviews, focus groups, survey, or experiment.

For available projects please view Dr Fisher's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/jen.fish

Projects available for

Honours; HDR; Masters

Maximum Number of Students

2

Category

Human Research; Systematic Review

Research Areas

Neuroscience, Behaviour and Brain Health

Men's Health

Dr Jen Fish

GENOMICS OF MENTAL WELLBEING AND HEALTHY AGEING — ENABLING RESEARCH GROUP

Lead Researcher: Dr Azmeraw Amare

Contact: azmeraw.amare@adelaide.edu.au

Research Summary

Our DNA carries the basic instructions needed to reproduce, develop, survive and restore cellular damages. Unpacking DNA information and understanding the mechanisms of how the instruction in DNA is converted into proteins and interacts with the external environment is vital for a personalised approach to treatment, disease prevention and/or health promotion — to ultimately realise century's vision of precision medicine. Our group applies state-of-the-art data science techniques to understand the genetic and environmental determinants underlying the variability of human complex phenotypes including risk to diseases and response to treatment. Specifically, we are interested in studying the omics of complex phenotypes across the discipline of mental health and healthy ageing, including genomics (DNA), epigenomes, transcriptomics (RNA), proteomics (Protein), metabolomics and microbiomes.

Leveraging genomic data obtained from international biobanks, our research applies advanced bioinformatic techniques to explore the "omics" of (a) risk and pharmacological treatment response to mental health disorders (depression, bipolar disorder, schizophrenia), (b) neurodegenerative disorders (Alzheimer's disease and other dementias), (c) ageing traits (frailty, longevity, cognition and intrinsic capacity) and (d)mechanism of genetic overlap across physical medical and mental health disorders.

For available projects please see Dr Amare's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/azmeraw.amare

Projects available for

Honours; HDR; Masters; MPhil

Maximum Number of Students

5

Category

Dry Laboratory; Human Research; Systematic Review; Meta-analysis

Research Areas

Neuroscience, Behaviour and Brain Health

Ageing, Frailty and Mobility

Translational Health Outcomes

Innovative Therapeutics

Dr Azmeraw Amare

HEAD INJURY LABORATORY

Lead Researcher: Dr Frances Corrigan

Contact: frances.corrigan@adelaide.edu.au

Research Summary

Our research is interested in investigating how a traumatic brain injury alters the environment within the brain encompassing acute events including neuroinflammation and oedema and chronic events whereby a history of traumatic brain injury is a risk factor for the later onset of dementia. We are interested in how age at injury may alter the neuroinflammatory response and thereby the acute and chronic effects of injury and also the role that sex plays in altering the response to injury. We are currently investigating how a traumatic brain injury promotes the spread of abnormal tau and whether key brainstem areas may be the initiating site for this event, as well as evaluating novel therapeutics to improve outcome following traumatic brain injury.

For available projects please view Dr Corrigan's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/frances.corrigan

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Wet Laboratory

Research Areas

Neuroscience, Behaviour and Brain Health

Child and Adolescent Health

Dr Frances Corrigan

HEALTH PSYCHOLOGY

Lead Researcher: Professor Anna Chur-Hansen

Contact: anna.churhansen@adelaide.edu.au

Research Summary

As well as a focus on research in best practice education for health professionals, my research interests are broadly around food and eating; sex and relationships; physical pain; and death and dying. I am also interested in companion animals and their impact on human health (psychological, social and physical). Much of my research and teaching is around a biopsychosociocultural framework, and I use qualitative methods (as well as quantitative and mixed methods). I do not have set projects, but rather, I am keen to discuss proposals with students that relate to the areas outlined above. I am happy to consider other areas as long as they are broadly related to Health Psychology or Health Professional Education.

For further information please view Professor Chur-Hansen's Researcher Profile

researchers.adelaide.edu.au/profile/anna.churhansen

Projects available for

Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Systematic Reviews; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Professor Anna Chur-Hansen

HUMAN FACTORS

Lead Researcher: Dr Daniel Sturman

Contact: daniel.sturman@adelaide.edu.au

Research Summary

My research focuses on predicting and preventing errors in high-risk environments, including driving and cybersecurity. Current research projects are examining the relationships between individual differences, cognitive ability, cognitive load, sustained attention, and performance in a range of technical domains. I have a particular focus on applied research, with the goal of developing assessment tools and interventions that can be used to assist industry partners in the selection, training and management of experienced personnel.

For available projects please see Dr Sturman's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/Daniel.Sturman

Projects available for

Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Daniel Sturman

INTEGRATIVE HUMAN NEUROPHYSIOLOGY LAB

Lead Researcher: Dr Simran Sidhu

Contact: simran.sidhu@adelaide.edu.au

Research Summary

The research conducted in this laboratory investigates how the central nervous system coordinates the movement of our bodies and how it is reorganized as a consequence of exercise. The lab focuses on the area of exercise (in)tolerance in health, aging and disease. The research involves the application of various novel and non-invasive electro-physiological techniques such as Transcranial Magnetic Stimulation (TMS), peripheral nerve stimulation, and electromyography (EMG) in experiments involving human subjects.

For available projects please view Dr Sidhu's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/simran.sidhu

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

4

Category

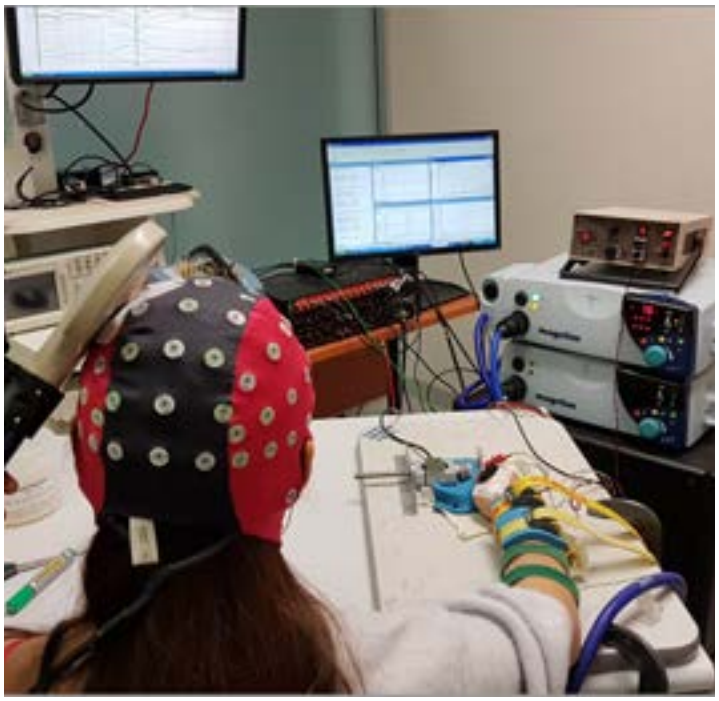
Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Ageing, Frailty and Mobility

Dr Simran Sidhu



Research Lab

INTELLECTUAL DISABILITY RESEARCH GROUP

Lead Researcher: Associate Professor Cheryl Shoubridge

Contact: cheryl.shoubridge@adelaide.edu.au

Research Summary

Children with intellectual disability have a high incidence of seizures, movement disorders and autism. Identifying which genetic mutation(s) contributes to these disease symptoms is a substantial challenge. Even with a genetic diagnosis, there are limited treatment options available, highlighting a critical need to develop disease-modifying therapies for these debilitating life-long disorders.

My labs investigations establish the drivers of cellular and molecular deficits of intellectual disability and childhood seizures due to genetic mutations. We interrogate the genetic data from patients and use clinically relevant experimental models to reveal the basis of pathogenesis. For example, investigating the effect of severe loss-of-function mutations driving the phenotype in patients, including the emerging female-specific phenotype using a mouse modelling the knockout (KO) of Iqsec2 that we have generated. These approaches are necessary to translate knowledge from basic research through to clinical utility.

We interrogate the capacity of potential treatments to improve disease pathology. We use measures at the level of neurons in the cell culture dish through to complex models of cognition, seizures and behavior, including animal models of genetic disease. These approaches provide platforms to comprehensively and robustly identify and evaluate potential therapeutic approaches to improve disease outcomes due to these genetic causes.

For available projects please see Associate Professor Shoubridge's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/Cheryl.Shoubridge

Projects available for

Third year; Honours

Maximum Number of Students

2

Category

Wet Laboratory

Research Areas

Neuroscience, Behaviour and Brain Health

Child and Adolescent Health

Early Origins of Health

Associate Professor Cheryl Shoubridge

LANGUAGE, COGNITION AND NEUROSCIENCE

Lead Researcher: Dr Conrad Perry

Contact: conrad.perry@adelaide.edu.au

Research Summary

My research focuses largely on written and spoken language processing. I use ideas from cognitive psychology, linguistics, neuroscience, and mathematics to examine both theoretical and practical questions, such as what causes dyslexia and the best way children with it can be helped. I also examine other aspects of higher-level cognition that are typically but not always related to language processing including semantics, emotion, theory of mind and altruism.

I have experience running behavioural and neuroscience experiments on both normal and disordered groups. I am also interested in examining data using more modern machine learning techniques.

More specific research areas: Cognitive science, cognitive neuroscience, reading, bilingualism, education, prosody, phonology, theory of mind, altruism.

For available projects please see Dr Conrad's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/conrad.perry

Projects available for

Honours; HDR

Maximum Number of Students

2

Category

Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Conrad Perry

LIFESPAN HUMAN NEUROPHYSIOLOGY GROUP

Lead Researcher: Dr Mitchell Goldsworthy

Contact: mitchell.goldsworthy@adelaide.edu.au

Research Summary

My research employs various non-invasive brain stimulation (TMS, tES) and recording (EEG) techniques to characterise the neurophysiological determinants of cognitive function in healthy ageing and dementia. The overarching aim of this research is to provide new mechanistic insights into the roles of brain connectivity and plasticity in supporting late life cognitive health, with the potential to inform novel strategies for dementia prevention and therapy.

For available projects please view Dr Goldsworthy's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/mitchell.goldsworthy

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

3

Category

Dry Laboratory; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Ageing, Frailty and Mobility

Dr Mitchell Goldsworthy

MISINFORMATION AND MEMORY

Lead Researcher: Dr Matthew Kaesler

Contact: matthew.kaesler@adelaide.edu.au

Research Summary

I conduct behavioural research that focuses on understanding memory and decision making in applied contexts. The aim is to address applied questions using rigorous analytical methods adapted from theoretical research, particularly mathematical and computational cognitive models. I am interested in investigating the factors that affect sensitivity to detecting mis/disinformation at the individual level and also the transmission of mis/disinformation at the group level. My previous research focused on eyewitness memory, employing signal detection modelling to investigate the effect on witness decision behaviour of presenting the faces in a police lineup sequentially as opposed to simultaneously.

For available projects please see Dr Salem's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/matthew.kaesler

Projects available for

Honours

Maximum Number of Students

2

Category

Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Matthew Kaesler

MORAL EMOTIONS RESEARCH GROUP

Lead Researcher: Dr Michael Proeve

Contact: michael.proeve@adelaide.edu.au

Research Summary

The Moral Emotions Research Group is concerned with the impact of moral emotions in mental health, interpersonal relationships, and the legal system. These emotions include the influence of shame, guilt and compassion in mental health and interpersonal relationships, and the influence of remorse in the legal system and in rehabilitation of offenders. Studies include investigation of relationships between these emotions and mental health outcomes in community and clinical participants, and the influence of psychological interventions, in particular mindfulness-related interventions, on shame. Studies in legal and offender rehabilitation domains include the influence of remorse in sentencing and the relevance of moral emotions for offender rehabilitation.

For available projects please view Dr Proeve's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/michael.proeve

Projects available for

Honours; HDR; Masters

Maximum Number of Students

8

Category

Systematic reviews; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Michael Proeve

NEIL SACHSE CENTRE FOR SPINAL CORD RESEARCH

Lead Researcher: Dr Ryan O'Hare Doig

Contact: ryan.doig@sahmri.com

Research Summary

Dr. O'Hare Doig's lab looks to help develop novel techniques to provide a more accurate diagnosis and prognosis of spinal cord injury (e.g. PET-CT imaging), identify potential treatment strategies for clinical settings (e.g. stem cell therapy), and improve the quality of life (e.g. sexual function) of individuals with spinal cord injury.

Key research areas of his group include: Molecular biology, neuroinflammation, nuclear imaging (PET-CT), functional imaging (fMRI), nanomedicine and stem cell biology.

For available projects please see Dr O'Hare Doig's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/ryan.oharedoig

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

5

Category

Wet Laboratory; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Ryan O'Hare Doig

NEUROIMMUNOPHARMACOLOGY GROUP

Lead Researcher: Professor Mark Hutchinson

Contact: mark.hutchinson@adelaide.edu.au

Research Summary

Currently, our research is focused on identifying and measuring pain associated with common husbandry and management practices in livestock, with the main aim of developing innovations in pain mitigation for these species.

For available projects please view Professor Hutchinson's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/mark.hutchinson

Projects available for

Third Year; HDR

Maximum Number of Students

2

Category

Wet Laboratory, Dry Laboratory, Field Work

Research Areas

Neuroscience, Behaviour and Brain Health

Professor Mark Hutchinson

Neuroimmunopharmacology Group

NEUROIMMUNOPHARMACOLOGY GROUP

Lead Researcher: Dr Sanam Mustafa

Contact: sanam.mustafa@adelaide.edu.au

Research Summary

The lives of 1 in 5 Australians are directly impacted by chronic pain – a debilitating condition of physical and mental consequence.

The challenges of chronic pain are:

1. No proven safe treatments to effectively treat chronic pain long term;

2. Opiates, the gold standard for pain management, come with many problems (respiratory suppression, addiction and enhanced pain);

3. Many pain research programs do not address the complex biology of chronic pain;

4. The last drug was developed over 20 years ago.

Limited progress supports the urgent unmet need for exploring new avenues for better pain management.

The innate immune system is now understood to play a critical role in the development and maintenance of chronic pain. However, due to a lack of tools and understanding of innate immune receptor signalling, currently there are no available treatments that target these receptors for chronic pain management.

Dr Sanam Mustafa is developing innovative technologies to investigate innate immune receptor signalling and develop novel drugs to alleviate chronic pain.

For available projects please see Dr Sanam's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/sanam.mustafa

Projects available for

HDR

Maximum Number of Students

1

Category

Wet Laboratory

Research Areas

Neuroscience, Behaviour and Brain Health

Immunology and Infection

Translational Health Outcomes

Innovative Therapeutics

Neuroimmunopharmacology Group

NEUROPHARMACOLOGY OF DRUG ABUSE

Lead Researcher: Dr Abdallah Salem

Contact: abdallah.salem@adelaide.edu.au

Research Summary

Understanding how drugs of abuse interact with the cells in our body to cause their effects is fundamental to the development of strategies to deal with many of the social and health problems associated with these drugs. This requires understanding of the chemistry of the drugs, associated neuroscience and their neuropharmacology. We use a number of methods and techniques to pursue this understanding including in vivo radiotelemetry and microdialysis. The drugs currently under investigation include ecstasy and associated amphetamines.

For available projects please see Dr Salem's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/abdallah.salem

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

3

Category

Wet Laboratory; Dry Laboratory

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Abdallah Salem

NEUROMOTOR PLASTICITY AND DEVELOPMENT RESEARCH GROUP

Lead Researcher: Dr Carolyn Berryman

Contact: carolyn.berryman@adelaide.edu.au

Research Summary

My current research focus is to determine the contribution of neuronal plasticity to pain conditions such as chronic pain, complex regional pain syndrome, and fibromyalgia. I use non-invasive brain stimulation techniques in combination with electroencephalography (EEG) and magnetic resonance imaging to assess and quantify cortical neuroplastic responses.

For available projects please view Dr Berryman's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/carolyn.berryman

Projects available for

Honours; HDR; Masters

Maximum Number of Students

2

Category

Human Research

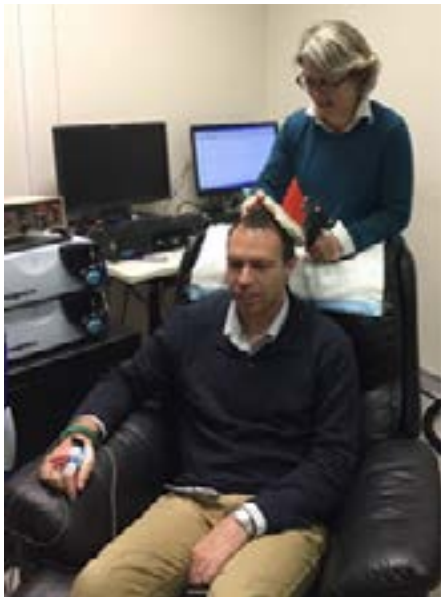
Research Areas

Neuroscience, Behaviour and Brain Health

Musculoskeletal Health

Translational Health Outcomes

Early Origins of Health



Non-invasive Brain Stimulation techniques

NEUROPHYSIOLOGY OF HUMAN MOVEMENT

Lead Researcher: Associate Professor John Semmler

Contact: john.semmler@adelaide.edu.au

Research Summary

Research in this laboratory bridges neuroscience, physiology and exercise science disciplines to examine how the brain controls human movement throughout the life span. We specialise in the use of brain stimulation techniques to painlessly and non-invasively measure how the brain controls skeletal muscles under diverse conditions, such as ageing, exercise, training and disuse. The overall goal is to understand how the healthy nervous system adapts to different challenges, and how it may be boosted to improve motor function in conditions involving brain injury or disease.

The four key areas of our research focus are:

- Brain plasticity and motor function in older adults
- Neurophysiology of exercise and training
- Predictors and modulators of motor system plasticity and learning
- Neurophysiology of concussion.

For available projects please view Associate Professor Semmler's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/john.semmler

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

Flexible

Category

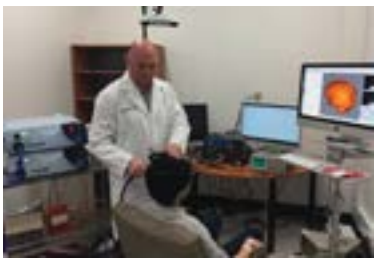
Human Research; Dry Laboratory

Research Areas

Neuroscience, Behaviour and Brain Health

Ageing, Frailty and Mobility

Associate Professor John Semmler



Associate Professor John Semmler performing brain stimulation on a research participant.

NEUROPHYSIOLOGY OF HUMAN MOVEMENT

Lead Researcher: Dr George Opie

Contact: george.opie@adelaide.edu.au

Research Summary

My research utilises non-invasive brain stimulation techniques in conjunction with advanced neuroimaging to better understand how neurophysiological processes contribute to function. In particular, I am interested in how mild forms of traumatic brain injury modify the brain, and how these changes cause the development of symptoms post-injury. The overarching aim of this work is to develop techniques that may be clinically relevant for identifying individuals that are neurophysiologically compromised post injury. This information will be critical for the development of brain stimulation-based interventions for managing the recovery from head injury.

For available projects please view Dr Opie's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/george.opie

Projects available for

Honours; HDR; Masters

Maximum Number of Students

2

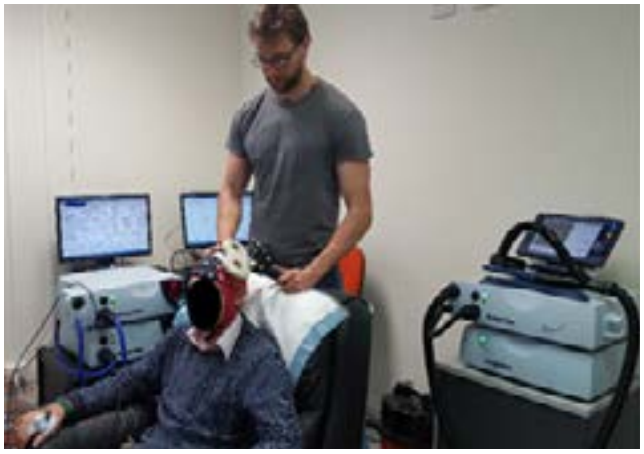
Category

Dry Laboratory; Systematic reviews; Meta-analysis; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Ageing, Frailty and Mobility



Participant receiving brain stimulation with EEG

OPHTHALMOLOGY

Lead Researcher: Professor Robert Casson

Contact: robert.casson@adelaide.edu.au

Research Summary

Our lab are world leaders in retinal neuroprotection and its translation to the clinic. We are particularly focussed on bioenergetic neuroprotection and unravelling the basic science of retinal metabolism. We have state-of-the-art retinal imaging equipment and molecular biology tools. We have the world's best retinal immunohistochemistry and retinal cell cultures. We are have a number of in vitro and in vivo models of disease and collaborate with local industry. Students have the opportunity to engage in and publish world leading ophthalmic research.

For available projects please see Professor Casson's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/robert.casson

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

3

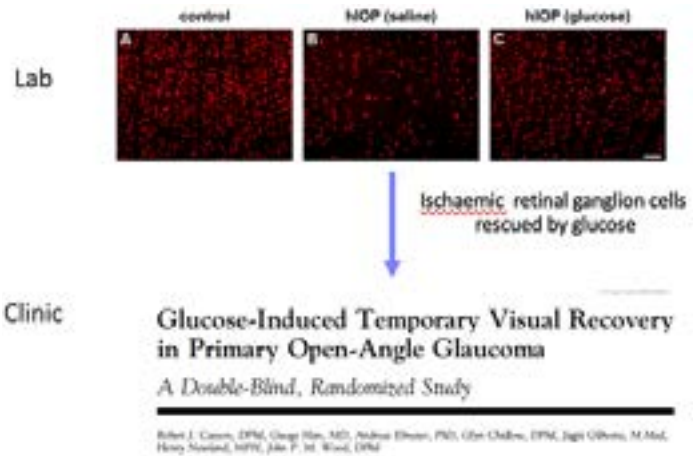
Category

Wet Laboratory; Systematic Reviews; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Innovative Therapeutics



Bioenergetic Clinical Translation

PERCEPTION AND APPLIED COGNITION

Lead Researcher: Dr Deanne Green

Contact: deanne.green@adelaide.edu.au

Research Summary

My research focusses on perception and visual memory, specifically how people misperceive or misremember complex visual stimuli. The role of visual memory is not to capture a complete and accurate 'picture' of the world, it is actually a system that exists to help us navigate the world by giving us meaning to what we see through interpretation, contextualisation, and schemas. Thus, our visual memory is prone to errors.

Currently my research is investigating memory for proximity to negative events (e.g., a crime). Memory for these events is important to understand, particularly in the criminal justice system. Eyewitness memory is flawed but compelling: approximately 69% of wrongful convictions overturned by DNA evidence have been attributed to an eyewitness error (Innocence Project, 2020).

My current research seeks to address how and why different types of emotional responses and individual differences lead to particular memory errors. My future avenues of research include investigating how fear, personal trauma history, phobias and anxiety affect memory for proximity.

For available projects please see Dr Green's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/deanne.green

Projects available for

Honours

Maximum Number of Students

1

Category

Human Research; Dry Laboratory

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Deanne Green

PERIPHERAL PAIN LABORATORY (PEPAL)

Lead Researcher: Professor Rainer Viktor Haberberger

Contact: rainer.haberberger@adelaide.edu.au

Research Summary

Chronic ongoing pain affects millions of people. Similar to cancer there are different types of pain. Patients suffer for years because available drugs often don't work very well because they cannot be targeted to a specific pain type. This, because there is no tool available that allows a quick and easy discrimination between pain types. The Peripheral Pain research group looks at reasons why drugs often don't work that well for people suffering from chronic ongoing pain, what the characteristics of the pain detecting nerve cells in humans are and how we can better predict and define what type of pain people have. This is to support diagnosis and to guide better treatment strategies. The laboratory collaborates with groups across Adelaide to align and complement techniques such as multiple labelling immuno-histochemistry, cell culture, RNASeq, and lipidomics.

For available projects please see Professor Haberberger's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/rainer.haberberger

Projects available for

Honours; HDR; Masters

Maximum Number of Students

2

Category

Wet Laboratory

Research Areas

Neuroscience, Behaviour and Brain Health

Innovative Therapeutics

Professor Rainer Viktor Haberberger

PSYCHO-ONCOLOGY

Lead Researcher: Professor Ian Olver

Contact: ian.olver@adelaide.edu.au

Research Summary

I am a medical oncologist and bioethicist by background with an interest in supportive care in cancer. My recent research focuses on psychosocial support and survivorship.

I employ qualitative methodology to explore the needs of patients and their relatives and carers across the spectrum of their cancer experience to design interventions to improve their quality of life and increasing the support available. I have projects to create and test on-line learning modules to better explain cancer and its treatment to Aboriginal patients and a study exploring end of life issues in that populations. With collaborators I have a database of supportive care requirements for the patients and carers perspective.

I collaborate widely interstate and internationally and am happy to consider ideas that HDR students may wish to pursue.

I will add projects to my Researcher profile as they become available

researchers.adelaide.edu.au/profile/ian.olver

Projects available for

Honours; HDR; Masters

Maximum Number of Students

2

Category

Human Research; Systematic Reviews

Research Areas

Neuroscience, Behaviour and Brain Health

Translational Health Outcomes

Indigenous and Disadvantaged Health

Innovative Therapeutics

Professor Ian Olver

REASONING AND DECISIONS LAB

Lead Researcher: Dr Rachel Stephens

Contact: rachel.stephens@adelaide.edu.au

Research Summary

My primary research interest is human reasoning and its underlying cognitive processes, with the overarching question: how do people draw conclusions or make decisions based on new and existing knowledge?

My current main projects are testing influential dual-process theories, which propose that two qualitatively different kinds of cognitive processes contribute to human reasoning, judgement, and decision-making. One process is often characterised as fast and intuitive, while the other is described as slow and effortful. But is there sufficient evidence for this distinction, or should alternative single-process theories be preferred?

Possible new projects include testing these theories in the domains of inductive versus deductive reasoning, child development, ageing, neuropsychology, and applied problems such as nutrition judgements.

For available projects please view Dr Stephens' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/rachel.stephens

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

4

Category

Human Research; Systematic Review

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Rachel Stephens

Dual-process diagram

ROYAL ADELAIDE HOSPITAL OPHTHALMOLOGY AND OPHTHALMIC RESEARCH

Lead Researchers: Professor Dinesh Selva and Dr Michelle Sun

Contact: michelle.sun@adelaide.edu.au

Research Summary

Bioengineering is the future of regenerative medicine and the potential applications within ophthalmology have vision-restoring implications. The potential impact is tremendous. Our research investigates how we can utilise various bioengineering techniques to tackle various eye diseases. Current structures under investigation include the eyelid, lacrimal gland and retinal tissue utilising bioengineered scaffolds and various cell culture techniques. Both animal and human studies are under investigation. Students will have the unique opportunity to participate in both clinical and laboratory-based research - 'from lab to the patient'.

For available projects please see Dr Sun's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/michelle.sun

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

2

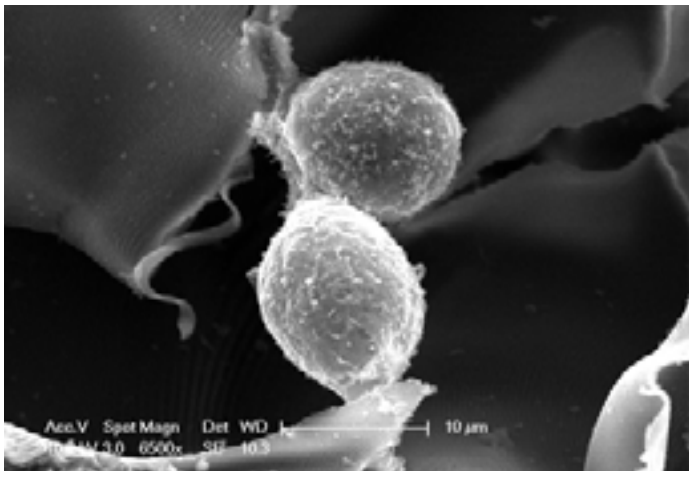
Category

Wet Laboratory; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Surgical and Health Systems Innovation



Human eyelid fibroblasts cultured onto a bioengineered scaffold - a bioengineered eyelid

SOCIAL AND ORGANISATIONAL

Lead Researcher: Dr Aspa Sarris

Contact: aspa.sarris@adelaide.edu.au

Research Summary

My current research projects, including those of my research students, are within the broad area of work and organisational psychology and are designed to contribute to our understanding of the factors in the workplace that impact upon individual and organisational well-being.

This research generally uses quantitative, and on occasion, mixed-method approaches. My specific areas of research interest include organisational culture case studies, individual and organisational health and well being, the assessment of work safety and issues relating to family caregiving work.

I am happy to discuss possible supervision Honours, Masters or Phd supervision for research in an area or topic that interests you relating to work/organisational or social research.

For available projects please view Dr Sarris' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/aspa.sarris

Projects available for

Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Dr Aspa Sarris

SPINAL CORD INJURY RESEARCH GROUP

Lead Researcher: Dr Anna Leonard

Contact: anna.leonard@adelaide.edu.au

Research Summary

The spinal cord injury research group (SCIRG) is led by Dr Anna Leonard, a research active lecturer in the Adelaide Medical School and a division of the Translational Neuropathology Research Group, led by A/Prof Renee Turner. The SCIRG is focused on understanding the secondary injury processes that occur post-SCI and how these can be targeted to improve outcome. We have recently developed a clinically relevant large animal model of SCI, the first in Australia, which allows us to investigate more clinically relevant outcome measures and potentially improve translation into the clinic. We also work with small animal models (rodent) to help understand the secondary injury processes post-SCI, with a particular focus on neuroinflammation, oedema and pressure.

For available projects please view Dr Leonard's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/anna.leonard

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Wet Laboratory

Research Areas

Neuroscience, Behaviour and Brain Health

Translational Health Outcomes

Dr Anna Leonard

STROKE RESEARCH PROGRAM

Lead Researcher: Professor Simon Koblar

Contact: simon.koblar@adelaide.edu.au

Research Summary

Our major areas of current research are in stroke prevention, the molecular and cellular mechanisms underlying ischaemic stroke, and the translation of stroke management pathways in the clinical domain. We are currently involved in discovering a plasma protein/s which may tell the clinician when a patient is at risk of stroke following a transient ischaemic attack (TIA) so immediate treatment can be instigated. Stroke is the leading cause of adult disability and we aim to find out how to repair the brain following an ischaemic stroke. We have found that a stem cell from the tooth, Dental Pulp Stem Cell (DPSC), is able to general neurons and improve function when injected into the rodent brain following a stroke. There is a major need to understand the underlying mechanisms of stem cell therapy as different stem cells are used around the world in clinical trials. It is assumed that a neural stem cell maybe the optimum cell for therapy in the brain and so we are using molecular techniques to redirect DPSC into a neural stem cell. Finally, we research how to better translate stroke discoveries into the clinic for better patient outcomes.

For available projects please see Professor Koblar's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/simon.koblar

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

3

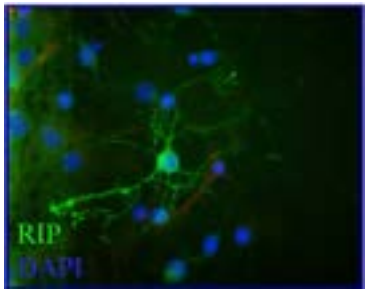
Category

Wet Laboratory; Dry Laboratory

Research Areas

Neuroscience, Behaviour and Brain Health

Professor Simon Koblar



Neuron in culture differentiated from Dental Pulp Stem Cells

TRANSLATIONAL NEUROPATHOLOGY LABORATORY

Lead Researcher: Associate Professor Renée Turner

Contact: renee.turner@adelaide.edu.au

Research Summary

We seek to improve the translation of novel treatments from laboratory studies into the clinic, through the development and use of appropriate pre-clinical models. We are passionate about conducting rigorous pre-clinical research to improve the likelihood of successful clinical translation. Our focus is on brain injury/pathology, and the resultant blood-brain barrier (BBB) breakdown, oedema, neuronal injury and neuroinflammation associated with poor outcomes. Our current research areas are in:

Stroke: We use clinically relevant pre-clinical models of stroke to develop new treatments for life-threatening complications such as cerebral oedema and elevated intracranial pressure). We are also studying the course of recovery following stroke to identify novel treatment targets and optimal therapeutic windows. We are one of the only groups in Australia and one of only a handful worldwide using such models.

Stroke and Neurodegeneration: We're delving into the mechanisms underlying secondary neurodegeneration (SND), the delayed loss of brain tissue, and development of cognitive decline in the brain following stroke. We're currently investigating the role of inflammation and BBB disruption in post-stroke SND.

Traumatic brain injury: We seek to better understand the nature and time course of injury to the brain, in particular axonal injury, inflammation and other secondary injury processes, towards developing targeted treatments.

For available projects please see Professor Turner's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/renee.turner

Projects available for

Third year; Honours; HDR; Masters

Maximum Number of Students

8

Category

Wet laboratory; Dry laboratory

Research Areas

Neuroscience, Behaviour and Brain Health

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Associate Professor Renee Turner

VASCULAR & BRAIN HEALTH

Lead Researcher: Dr Phillip Tully

Contact: phillip.tully@adelaide.edu.au

Research Summary

Our research themes advance understandings of the interplay between vascular factors and brain health. Taking a broad approach, our group researches cardiovascular and cardiometabolic diseases and related risk factors such as high blood pressure, examining the bidirectional links with pertinent brain outcomes. Examples include cerebrovascular diseases, markers of small vessel disease on MRI, depression disorders, cognitive impairment and dementia. Our group also leads and coordinates a large international consortium examining blood pressure, and its variability, in relation to cerebral small vessel disease markers on MRI, cognitive impairment, dementia, as well as depression and brain atrophy. Consequently, there is a large and rich dataset from collaborators in the USA, UK, France, The Netherlands, Japan and Australia, with potential to arrange international laboratory visits or post-doctoral exchanges for interested students. Our group affiliation is the Freemasons Foundation Centre for Men's Health, which offers a dynamic and multidisciplinary research environment with an established support network for students.

For available projects please view Dr Tully's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/phillip.tully

Projects available for

Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Systematic Reviews; Meta-analysis; Human Research

Research Areas

Neuroscience, Behaviour and Brain Health

Cardiac, Respiratory and Vascular Health

Ageing, Frailty and Mobility

Men's Health

Our group focusses on the bidirectional association between vascular health and brain function

VISUAL PHYSIOLOGY & NEUROBOTICS LABORATORY

Lead Researcher: Associate Professor Steven Wiederman

Contact: steven.wiederman@adelaide.edu.au

Research Summary

In the Visual Physiology and Neurobotics Laboratory (VPNL), we study how the brain processes visual information. Consider a human catching a ball, a dog leaping at a Frisbee or a dragonfly hunting prey amidst a swarm. Brains large and small evolved the ability to predictively, focus attention on a moving target, whilst ignoring distracters and background clutter. We use electrophysiological techniques to investigate how flying insects see the world and build autonomous robots that emulate these neuronal principles.

1. Use electrophysiological recording techniques to characterise neuronal physiology.

2. Use neuroanatomical techniques to examine the underlying neuronal architecture.

3. Develop computational models that mimic complex biological behaviors.

4. Design autonomous robots based on bio-inspired sensory and control processes.

For available projects please view Associate Professor Wiederman's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/steven.wiederman

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory

Research Areas

Neuroscience, Behaviour and Brain Health

Dragonflies exhibit complex behaviours, detecting prey in clutter, predicting the target's future location and selecting one, from amidst a swarm. Using electrophysiological techniques, we study how the brain underlies these abilities.

From our physiological experiments, we develop neuro-inspired, autonomous robots. This ground vehicle autonomously chases moving objects, even amidst distracters.

NUTRITION AND METABOLIC HEALTH

NUTRITION AND METABOLIC HEALTH RESEARCH GROUPS

The effects of nutrition quality and availability on metabolic processes not only plays a significant role in the incidence of many serious illnesses, but can drastically influence our general health and wellbeing throughout our lives.

The links between nutrition, metabolism and human health are complex, and our researchers—from basic scientists, human physiologists, clinicians and population health specialists—are working to enhance our understanding of these links.

Our researchers are investigating the associations between diet and sleep, pregnancy, foetal growth and mortality, and serious illnesses such as coronary heart disease, stroke, hypertension, atherosclerosis, obesity, cancer, type 2 diabetes, osteoporosis, dental caries, gall bladder disease, dementia and nutritional anaemias.

Our overarching goal is to develop and validate innovative diets to promote health and wellbeing, and deliver improved health outcomes to the community in a range of areas.

Researchers across the faculty are focused on:

- determining the effects of modifying diet on metabolic health
- developing strategies to prevent and manage obesity and type 2 diabetes
- studying the molecular and cellular basis of appetite regulation
- understanding immune function and pain-sensing in the gut
- exploring how nutrition interacts with sleep patterns and metabolic disorders
- investigating metabolism in liver, muscle, fat tissue and bone tissue
- understanding nutrition in vulnerable populations such as the elderly, and determining the association between nutritional intake and chronic disease
- conducting longitudinal, large cohort studies to assess associations between diet and chronic diseases.

NUTRITION AND METABOLIC HEALTH RESEARCH OPPORTUNITIES

CENTRE OF RESEARCH EXCELLENCE TRANSLATING NUTRITIONAL SCIENCE TO GOOD HEALTH

Lead Researcher: Professor Michael Horowitz

Contact: michael.horowitz@adelaide.edu.au

Professor Michael Horowitz

Research Summary

Professor Michael Horowitz is a leading international authority in the area of GLP-1 in diabetes. He is author of 714 papers and 40 book chapters. His papers have been cited 44,893 times and his 'h' index is 118 (Google Scholar), - he is currently ranked 2061 in the world and 42 in Australia (Consejo Superior de Investigationes Cientificae list of highly cited researchers). Professor Horowitz has been the recipient of numerous awards, including the Kellion Award of the Australian Diabetes Society for outstanding contributions to diabetes research in 2009.

Professor Horowitz was the first to demonstrate:
(i) the high prevalence of delayed gastric emptying in complicated T1D and T2D;
(ii) that hyperglycaemia and hypoglycaemia modulate GE;
(iii) that novel prokinetic drugs, cisapride and domperidone, are effective in the management of gastroparesis;
(iv) that GE is a major determinant of postprandial glycaemic excursions; and
(v) that in pharmacological doses GLP-1 slows GE and this is the major mechanism for postprandial glucose lowering.

For available projects please see Professor Horowitz's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/michael.horowitz

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

1

Category

Human Research

Research Areas

Nutrition and Metabolic Health

Translational health outcomes

CRE IN TRANSLATING NUTRITIONAL PHYSIOLOGY TO GOOD HEALTH – POSTPRANDIAL HYPOTENSION GROUP

Lead Researcher: Professor Karen Jones

Contact: karen.jones@adelaide.edu.au

Research Summary

Postprandial hypotension (PPH) a substantial, meal-induced, fall in blood pressure (BP) occurs in ~15% of healthy older people, ~40% of nursing home residents and ~30-40% of people with type 2 diabetes.

PPH is important as it associated with a markedly increased risk of falls and is a risk factor for death.

There is currently no satisfactory treatment.

Our research group, led by Prof Karen Jones, is recognised internationally. It has led to a fundamental shift in understanding PPH ie PPH is more a 'gastrointestinal', than a 'cardiovascular', disorder. These fundamental insights can now be translated to the development of novel dietary and pharmacological approaches to management of PPH. Specifically, we have shown that the fall in BP following a meal is greater when the stomach empties more rapidly, while distending the stomach with a drink of water reduces the fall. An exciting recent observation is that intravenous administration of the gut hormone, glucagon-like peptide-1 (GLP-1), prevents the fall in BP after a meal.

Our research, conducted in the Clinical Research Facility (CRF) in the AHMS Building, capitalises on sophisticated imaging techniques, particularly scintigraphy and ultrasound. We welcome the involvement of enthusiastic students - previous students have been highly successful.

For available projects please see Professor Jones' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/karen.jones

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

2

Category

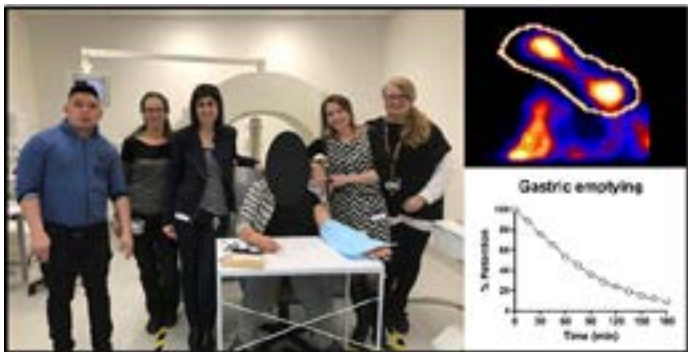
Human Research

Research Areas

Nutrition and Metabolic Health

Cardiac, Respiratory and Vascular Health

Ageing, Frailty and Mobility



A volunteer being studied in the Gamma Camera Suite of the CRF. Scintigraphy is used to evaluate novel approaches to management for PPH. A region is drawn around the stomach and a gastric emptying curve generated.

CRE IN TRANSLATING NUTRITIONAL PHYSIOLOGY TO GOOD HEALTH – TYPE 2 DIABETES RESEARCH GROUP

Lead Researcher: Associate Professor Tongzhi Wu

Contact: tongzhi.wu@adelaide.edu.au

Research Summary

The gut (stomach and intestines) is central to the control of blood glucose and appetite. Understanding better how nutrients and specific drugs interact with the gut, and how we can modify this process to advantage, will be the key to finding effective and affordable new treatments for type 2 diabetes.

Our recent work has shown that intestinal "taste" (particularly bitter) sensing holds great potential for stimulating gastrointestinal hormones and controlling blood glucose and energy intake in health and type 2 diabetes, and that the most widely used antidiabetic drug, metformin, exerts numerous gastrointestinal effects key to its anti-diabetic action.

Supported by the NHMRC and Diabetes Australia, our group is now undertaking a program of studies to:

a) define the roles of intestinal bitter taste sensing in the regulation of gastrointestinal hormone secretion, energy intake and postprandial glycaemia, and the implications for T2DM therapy; and

b) clarify the role of bile acids in the anti-diabetic action of metformin.

This work spans experiments on the benchtop at SAHMRI utilising biopsies taken from patients coming to the RAH for endoscopy, to clinical trials at the AHMS Clinical Research Facilities of the University of Adelaide in volunteers with and without type 2 diabetes.

For available projects please see Associate Professor Wu's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/tongzhi.wu

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

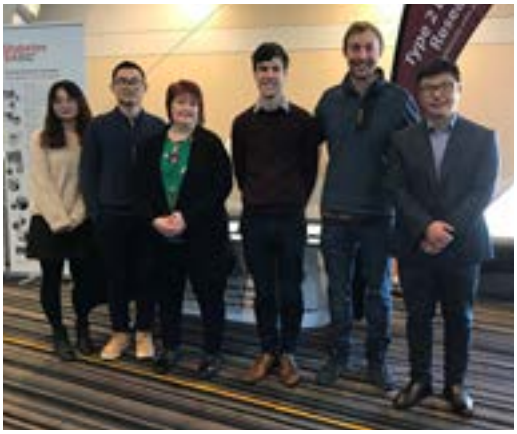
3

Category

Wet Laboratory; Human Research

Research Areas

Nutrition and Metabolic Health



The research team at the Diabetes SA education session.

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

Lead Researcher: Dr Domenico Sergi

Contact: domenico.sergi@csiro.au

Research Summary

Medium-chain fatty acids have been shown to be β-oxidised at a higher rate compared to long-chain saturated fatty acids suggesting they may be able to modulate mitochondrial function and prevent lipotoxicity-induced insulin resistance. Thus, the aim of this project is to investigate the impact of medium-chain fatty acids on mitochondrial function, insulin sensitivity and the activation of pathways known to regulate mitochondrial biogenesis, function and fatty acid catabolism. This project will employ an in vitro cell-based model of human skeletal muscle myotubes which closely mimics in vivo physiology. Cells will be challenged with medium-chain fatty acids and the following endpoints will be evaluated. Insulin signalling will be assessed by investigating AKT/Protein kinase B phosphorylation by Western blot. This technique will be also used to quantify specific protein of the mitochondrial electron transport chain complexes and the phosphorylation and activation of AMPK which is known as a critical node in promoting oxidative metabolism. Furthermore, we will assess changes in mitochondrial dynamics (i.e. fusion and fission) by fluorescence microscopy using fluorescent probes or immunocytochemistry to target skeletal muscle mitochondria. Finally, the expression of genes involved in skeletal muscle oxidative metabolism and mitochondrial function will be investigated by real-time PCR.

For available projects please see Dr Sergi's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/domenico.sergi

Projects available for

Third Year; Honours; Masters

Maximum Number of Students

2

Category

Wet Laboratory

Research Areas

Nutrition and Metabolic Health

Dr Domenico Sergi

DIGESTIVE HEALTH RESEARCH GROUP

Lead Researcher: Dr Suzanne Mashtoub

Contact: suzanne.mashtoub@adelaide.edu.au

Research Summary

The inflammatory bowel diseases, encompassing ulcerative colitis and Crohn's disease, are chronic, incurable and debilitating intestinal disorders, which commonly have their onset during childhood and adolescent years. Despite attaining remission, patients are at risk of clinical recurrence, side-effects from conventional therapies, surgery and development of colorectal cancer; this highlights the need for improved therapeutic approaches.

Emu Oil was first used by Indigenous Australian People for wound healing, pain alleviation and treatment of inflamed joints. We are investigating Emu Oil, alone and in combination with other nutraceuticals, for efficacy in pre-clinical and clinical settings of intestinal disease.

For available projects please see Dr Mashtoub's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/suzanne.mashtoub

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory; Human Research

Research Areas

Nutrition and Metabolic Health

Cancer Biology and Clinical Oncology

Translational Health Outcomes

Innovative Therapeutics

Dr Suzanne Mashtoub

GASTROINTESTINAL FUNCTION IN DIABETES

Lead Researcher: Professor Chris Rayner

Contact: chris.rayner@adelaide.edu.au

Research Summary

Chris Rayner is a gastroenterologist whose major research interest concerns nutrient-gut interactions, including the regulation of gastrointestinal motility, and the role of upper gut function in diabetes. His group seeks to understand the mechanisms of nutrient sensing and hormone release in the gut, and how these can be manipulated for therapeutic gain. He works closely with Prof Michael Horowitz and Prof Karen Jones within a Centre of Research Excellence in Translating Nutritional Science to Good Health, established with NHMRC funding in 2007, which is a focal point for researchers who have an interest in nutrition and gut function, particularly in the areas of diabetes, obesity, critical illness, and aging.

For available projects please see Professor Rayner's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/chris.rayner

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

4

Category

Human Research

Research Areas

Nutrition and Metabolic Health

Professor Chris Rayner

GASTROINTESTINAL FUNCTION AND APPETITE REGULATION GROUP

Lead Researcher: Professor Christine Feinle-Bisset

Contact: christine.feinle@adelaide.edu.au

Research Summary

The overarching goal of our research is to identify novel, nutrient-based strategies for the management and treatment of metabolic disorders, specifically obesity and type 2 diabetes. Our research focuses on the effects of specific dietary nutrients on a number of gastrointestinal functions, including gut hormones and gastrointestinal motility, and how these contribute to the regulation of appetite and energy intake, and blood glucose control, using a range of state-of-the-art techniques. We perform studies in healthy participants, to initially characterise the physiological effects of a given nutrient or non-nutritive compound. We are currently investigating the effects of a range of amino acids, fatty acids and bitter tastants. If successful (that is, if we find potent effects on the outcomes of interest (particularly a reduction in food intake or lowering of blood glucose after a meal), we continue with studies in people with obesity and/or type 2 diabetes, in order to establish the clinical relevance of our findings. The ultimate aim of our research is to identify nutrients that have the ability to potently modulate specific gastrointestinal functions, without inducing adverse effects, associated with potent suppression of appetite and energy intake.

For available projects please see Professor Feinle-Bisset's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/christine.feinle

Projects available for

Honours; HDR

Maximum Number of Students

2

Category

Human Research

Research Areas

Nutrition and Metabolic Health

Professor Christine Feinle-Bisset

Gastrointestinal Function and Appetite Regulation Group

GASTROINTESTINAL & ENTERIC NEUROSCIENCE RESEARCH GROUP, DISCIPLINE OF ANATOMY & PATHOLOGY

Lead Researcher: Dr Marc Gladman

Contact: marc.gladman@adelaide.edu.au

Research Summary

Marc's medical science research spans patient-orientated (outcomes and clinical measurement) themes underpinned by structural and functional lab-based research to better understand the gastrointestinal tract in health and in disease.

Marc is also actively engaged in technology-enhanced education-based research, objectively measuring the impact of novel education modalities on student performance and experience in the setting of randomised, cross-over trials.

For available projects please view Dr Gladman's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/marc.gladman

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

4

Category

Wet Laboratory; Dry Laboratory; Human Research; Systematic Review; Meta-analysis

Research Areas

Nutrition and Metabolic Health

Surgical and Health Systems Innovation

Dr Marc Gladman

HEALTH POLICY CENTRE – SAHMRI

Lead Researcher: Dr Jo Dono

Contact: jo.dono@adelaide.edu.au

Research Summary

Dr Jo Dono is a Senior Behavioural Scientist in the Health Policy Centre at SAHMRI. Jo has recently completed a PhD on a social normative understanding of smoking cessation among young adults. She also has a Master of Psychology (Organisational and Human Factors) and a Bachelor of Arts (Psych, Hons). Jo undertakes research on public health approaches to population-level health behaviour change. She has a strong interest in the social influences on health behaviour. Jo is currently working on projects that underpin and support change in the consumption of sugar-sweetened beverages, products that are high in sugar with limited nutritional value. This work provides insight into the drivers of consumption, and provides evidence to underpin policy-level interventions, such as labelling, tax or health levies, restricting marketing practices and reducing availability, to support consumers in making healthier choices.

For available projects please view Dr Dono's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/jo.dono

Projects available for

Honours; HDR

Maximum Number of Students

2

Category

Human Research

Research Areas

Nutrition and Metabolic Health

Dr Jo Dono

HEALTH POLICY CENTRE – SAHMRI

Lead Researcher: Professor Caroline Miller

Contact: caroline.miller@adelaide.edu.au

Research Summary

Professor Caroline Miller is the Director of the Health Policy Centre, based at SAHMRI. She is also an NHMRC Emerging Leader, Heart Foundation Future Leader Fellow and Beat Cancer Principal Research Fellow at the University of Adelaide. The Health Policy Centre delivers evidence to inform public health policy and health promotion interventions to reduce the preventable burdens of non-communicable disease. It undertakes programs of research specialising in tobacco control, obesity prevention and alcohol. Currently the Centre is also leading a rapid COVID-19 Evidence Synthesis service to support South Australian and Australian responses to COVID-19.

Professor Miller is leading a program of research investigating population level interventions to curb population over consumption of sugary beverages. She has specialist expertise in labelling and is currently investigating added sugar labels and consumer warning labels for beverages. Professor Miller is interested in supervising student projects in tobacco control and in obesity prevention policy, particularly relating to sugar-sweetened beverages. She is available to co-supervise and collaborate in other areas involving behavioural science, health economics, prevention or health policy.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: **researchers.adelaide.edu.au/profile/caroline.miller**

Projects available for

Honours; HDR

Maximum Number of Students

2

Category

Human Research

Research Areas

Nutrition and Metabolic Health

Professor Caroline Miller, SAHMRI Health Policy Centre

INTENSIVE CARE RESEARCH, ROYAL ADELAIDE HOSPITAL

Lead Researcher: Dr Lee-anne Chapple and Dr Imre Kouw

Contact: lee-anne.chapple@adelaide.edu.au

imre.kouw@adelaide.edu.au

Research Summary

ICU Research is a world-leader in nutrition, gastroenterology, and glucose metabolism in the critical care setting. Based in Intensive Care at The Royal Adelaide Hospital and led by Professor Marianne Chapman and Dr Mark Plummer, our team involves an exemplary range of ICU consultants, dietitians, nurses, scientists and PhD candidates. With a key emphasis on translating science into clinical practice, using state-of-the-art technology, we have been able to facilitate a wide range of studies, from physiological studies to large NHMRC-funded clinical trials.

Our research group has shown that stress-induced hyperglycaemia occurs in a high percentage of critically ill patients. With limited evidence to support what constitutes 'optimal nutrition support' in the critical care setting, the proposed research project aims to assess the effect of diabetes-specific enteral formulae (low glycaemic index, slowly digestible carbohydrates) on gastrointestinal function and glucoregulatory response in healthy volunteers. This hands-on clinical study has potential to improve nutrition support during critical illness and therefore patient outcomes.

Our team has successfully supervised nine University of Adelaide students to First Class Honours. All students have been first author on a high-impact publication and presented at major national or international meetings. Our programme is well-suited to students with an interest in acute care medicine, endocrinology, nuclear medicine, or gastroenterology.

For available projects please see Dr Chapple's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/lee-anne.chapple

Projects available for

Honours

Maximum Number of Students

1

Category

Human Research

Research Areas

Nutrition and Metabolic Health

Innovative Therapeutics

Translational Health Outcomes

INTESTINAL NUTRIENT SENSING GROUP

Lead Researcher: Associate Professor Richard L. Young

Contact: richard.young@adelaide.edu.au

Research Summary

The Intestinal Nutrient Sensing Group within the SAHMRI Lifelong Health theme investigates the intestinal taste system. This sensory system detects dietary sugars and low-calorie sweeteners and, in turn, controls how glucose is absorbed and disposed in the body. Our research has shown how this system is regulated in health, and what happens when it becomes dysregulated in type 2 diabetes, critical illness and obesity. This research is providing new knowledge of gut physiology and microbiology, with the potential to prevent, and better manage, type 2 diabetes and obesity.

For available projects please view Associate Professor Young's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/richard.young

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Wet Laboratory; Human Research; Dry Laboratory

Research Areas

Nutrition and Metabolic Health

Translational Health Outcomes

Intestinal Nutrient Sensing Group, SAHMRI Left to right: Nada Cvijanovic (Postdoc), Nicole Isaacs (Research support), Richard Young (Leader), Nektaria Pezos (Research support). Absent: Denise Kreuch (PhD candidate)

Intestinal Nutrient Sensing Group, SAHMRI

NEUROTOXICOLOGY RESEARCH GROUP

Lead Researcher: Dr Ian Musgrave

Contact: ian.musgrave@adelaide.edu.au

Research Summary

Natural products have potential as sources of innovative therapeutics, but also have potential to produce unexpected toxicity, either by themselves or through interactions with conventional medications. The Neurotoxicology Laboratory has explored the potential of natural products as therapeutics in protein aggregation disorders (Alzheimer's, HIV) and as Quorum Sensing Inhibitors. The potential toxicity of natural products has also been explored in regard to herbal medicine toxicity. The laboratories work has had read wold impact with SA Health and the TGA.

The laboratory has tissue culture facilities and we have in vitro projects that characterise the effects of natural products in models of neuronal, liver, kidney and epithelial cells. We also have a potential project surveying herbal medicine end users.

For available projects please see Dr Musgrave's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/ian.musgrave

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

8

Category

Wet Laboratory; Human Research

Research Areas

Nutrition and Metabolic Health

Neuroscience, Behaviour and Brain Health

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

Dr Ian Musgrave

OBESITY AND METABOLISM GROUP

Lead Researcher: Associate Professor Leonie Heilbronn

Contact: leonie.heilbronn@adelaide.edu.au

Research Summary

Associate professor Leonie Heilbronn is the leader of the Obesity and Metabolism lab at the University of Adelaide. The lab is based within the Lifelong Health Theme at SAHMRI and there are 2 postdocs and 5 PhD students currently within our group. Our research is focussed on identifying optimal, sustainable, eating patterns that will limit obesity and prevent the development of type 2 diabetes in at-risk populations. Our work has contributed to current concepts of caloric restriction (CR), intermittent fasting (IF) and time restricted eating (TRE). These dietary approaches increase lifespan, and reduce chronic disease risk in preclinical models, and reset circadian rhythms. But mechanisms underpinning these effects, and the effectiveness, and long term sustainability of these dietary approaches, in humans, are still unknown.

For available projects please view Associate Professor Heilbronn's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/leonie.heilbronn

Projects available for

Honours; HDR

Maximum Number of Students

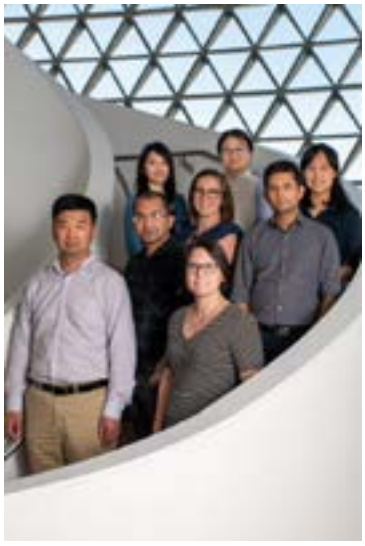
2

Category

Human Research

Research Areas

Nutrition and Metabolic Health



Obesity and Metabolism Group

POSTPRANDIAL GLYCAEMIA, HAEMODYNAMICS AND GUT–INCRETIN AXIS

Lead Researcher: Dr Liza Phillips

Contact: liza.phillips@adelaide.edu.au

Research Summary

Dr Phillips is an endocrinologist with an interest in physiological studies evaluating the interaction between the gut and glycaemia and translational work in the field of diabetes. Previous work has included the evaluation of glycaemic targets and follow up care in the ICU as well as epidemiology data linkage projects in the field of endocrinology. In her current position in the Centre of Research Excellence in Translating Nutritional Science to Good Health she collaborates with a number of senior researchers, including gastroenterologists, basic scientists, nuclear technologists and medical imaging specialists.

For available projects please see Dr Phillips' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/liza.phillips

Projects available for

Honours; HDR; Masters

Maximum Number of Students

2

Category

Human Research

Research Areas

Nutrition and Metabolic Health

Cardiac, Respiratory and Vascular Health

Translational Health Outcomes

The CRE is located on the 4th floor of the AHMS building

VAGAL AFFERENT RESEARCH GROUP

Lead Researcher: Professor Amanda Page

Contact: amanda.page@adelaide.edu.au

Research Summary

The acquisition of nutrients in order to maintain life requires the intake of food. As a consequence, evolution has developed a sophisticated and well integrated multilevel system to finely control energy intake. Although great advances have been made in our basic understanding of this system the finer complexities remain a mystery. We know the gut-brain axis (i.e. vagal afferent sensory nerves innervating the gastrointestinal (GI) tract) plays an important role in the: 1) regulation of GI motility and secretions to optimise absorption of nutrients, and 2) regulation of appetite to control meal size. However, there is inadequate knowledge of the mechanisms involved in initiating these signals, the plasticity of these mechanisms under normal physiological conditions (i.e. pregnancy) and whether changes in these mechanisms are associated with diseases such as obesity or functional dyspepsia. Understanding the mechanisms that drive exaggerated or dampened vagal afferent sensory signalling from the GI tract will lead to new diet regimes and/or pharmacotherapies for treatment of diseases such as obesity and functional dyspepsia.

For available projects please view Professor Page's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/amanda.page

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

2

Category

Wet Laboratory; Dry Laboratory

Research Areas

Nutrition and Metabolic Health

Neuroscience, Behaviour and Brain Health

Pregnancy and Birth

Professor Amanda Page

ORAL HEALTH

ORAL HEALTH RESEARCH GROUPS

Oral health is an essential component to a healthy life. Oral health is not only concerned with teeth, but the health of oral and related tissues that enables an individual to eat, speak and socialise without active disease, discomfort or embarrassment, and that contributes to general wellbeing.

Oral health research seeks to understand population and individual dental health to prevent or manage oral disease and to educate our community to maintain optimal oral health throughout their lives.

Our research spans a broad range of fields including: dental education; endodontics and pulp biology (stem cell research); periodontics; orthodontics; craniofacial biology; oral and maxillofacial surgery; forensic odontology; population oral health; and cancer treatment.

Our research activity also includes epidemiological studies focusing on the efficacy of population oral health interventions, oral health services and oral health policy analysis in relation to oral disease prevention and provision of optimal dental health services.

Researchers across the faculty are focused on:

- assessing intergenerational change in oral health in Australia
- monitoring of Indigenous oral health and the use of dental services
- performing population-based studies focusing on socioeconomic and psychosocial factors related to the use of dental services
- investigating patient-reported outcomes of dental care, such as oral health impact, health utility and quality of life.

ORAL HEALTH RESEARCH OPPORTUNITIES

AUSTRALIAN RESEARCH CENTRE FOR POPULATION ORAL HEALTH

Lead Researcher: Professor Lisa Jamieson

Contact: lisa.jamieson@adelaide.edu.au

Research Summary

The Australian Research Centre for Population Oral Health (ARCPOH) is Australia's pre-eminent population oral health research body undertaking research and research training in population oral health that is internationally recognised to be of the highest quality. ARCPOH conducts a variety of dental research projects and provides a broad range of dental and oral health statistics for Australia.

ARCPOH houses three units:

- Dental Statistics and Research Unit (DSRU), aims to improve the oral health of Australians through the collection, analysis and reporting of dental statistics
- Indigenous Oral Health Unit (IOHU), seeks to improve oral health and better dental care for all Indigenous Australians.
- Dental Practice Education Research Unit (DPERU), aims to identify and meet the information needs of dental professionals and the general public while promoting the provision of preventive services.

ARCPOH undertakes a number of projects that reflect varying oral health and epidemiological perspectives and applied research on the provision of dental services. Project areas include distribution and determinants of oral health, burden and impact of oral disease, testing the efficacy/effectiveness of population oral health interventions, oral health services research and policy analysis.

Opportunities exist for Honours and HDR candidates to work on research topics linked to ARCPOH's projects.

For available projects please see Professor Jamieson's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/lisa.jamieson

Projects available for

Honours; HDR; MPhil

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Oral Health

Child and Adolescent Health

Indigenous Health and Health Equity

Professor Lisa Jamieson

FORENSIC ODONTOLOGY GROUP

Lead Researcher: Dr Denice Higgins

Contact: denice.higgins@adelaide.edu.au

Research Summary

This group undertakes research in the areas of forensic science, human identification, craniofacial biology, forensic odontology and forensic biology. Our research interests are aimed at specific real-world applications within the field of forensic science. With our primary focus being on identification of human remains and retrieval and repatriation of decease people. We have also undertaken considerable research into preservation and analysis of highly degraded or incinerated remains. The recent scrutiny of the scientific basis of current methodologies has made validation of techniques to a standard accepted by the courts of law a priority in our research.

Research projects looking at interpretation of injuries caused by teeth and to oral structures are also available.

For available projects please see Dr Higgins' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/denice.higgins

Projects available for

Honours; Graduate Diploma; HDR; MPhil

Maximum Number of Students

Flexible

Category

Human Research; Dry Laboratory; Meta-analysis

Research Areas

Oral Health

Human skull

NUTRITION & ORAL HEALTH

Lead Researcher: Professor Paula Moynihan

Contact: paula.moynihan@adelaide.edu.au

Research Summary

My research focuses on the interrelationship between nutrition and oral health across the life-course, including the impact of compromised oral health on nutritional wellbeing in both older people and in children. My research explores the impact of tooth loss and wearing dentures on dietary intake and eating related quality of life and how this information can be used to develop dietary interventions to support those who experience tooth loss to eat better. I am also interested in exploring compromised oral function as a risk factor contributing to undernutrition in older people. My research also encompasses the impact of diet and nutrition on the development of dental caries and in developing dietary interventions for use in dental practice with children and young adolescents.

For available projects please view Professor Moynihan's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/paula.moynihan

Projects available for

Third Year; Honours; HDR

Maximum Number of Students

3

Category

Human Research

Research Areas

Oral Health

Nutrition and Metabolic Health

Ageing, Frailty and Mobility

Child and Adolescent Health

Professor Paula Moynihan

ORAL EPIDEMIOLOGY

Lead Researcher: Professor Loc Do

Contact: loc.do@adelaide.edu.au

Research Summary

Early life determinants are important for child dental health. Understanding interrelationship between general and dental health is also important. Influences of maternal health and behaviours on their offsprings' health and behaviours are not well studied.

Our group currently conducts two NHMRC-funded population-based research projects involving children. One is a large population-based birth cohort study of young children and their mothers. The cohort was established in 2013 and will continue to at least 2022. Longitudinal data on socioeconomic status, health behaviours and practices, dietary patterns, dental service use, clinical oral health status , and anthropometric measures of the children and their mothers are available.

The second project is a follow-up phase of over 24 thousand children who participated in the National Child Oral Health Study 2012-14. This project aims to examine interrelationship between child dental health and general health and development.

Opportunities exist for Honours and HDR candidates to work on number of research topics linked to the projects.

For further information please see Professor Do's Researcher Profile

researchers.adelaide.edu.au/profile/loc.do

Projects available for

Honours; HDR; Mphil

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Oral Health

Child and Adolescent Health

The National Child Oral Health Study 2012-14 book

ORAL PATHOLOGY RESEARCH GROUP

Lead Researcher: Associate Professor Muhammed Yakin

Contact: muhammed.yakin@adelaide.edu.au

Research Summary

Oral disease profiles and biomarkers. The project aims at determining profiles of oral disease other than caries and periodontal disease.

For available projects please see Associate Professor Yakin's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/muhammed.yakin

Projects available for

Third Year

Maximum Number of Students

1

Category

Dry Laboratory; Human Research; Systematic Review

Research Areas

Oral Health

Cancer Biology and Clinical Oncology

Associate Professor Muhammed Yakin

POPULATION ORAL HEALTH

Lead Researcher: Dr Meghashyam Bhat, Honorary Visiting Research Fellow

Contact: meghashyam.bhat@adelaide.edu.au

Research Summary

I investigate the risk indicators for oral diseases. My interests are in the area of Periodontal Diseases, Dental Caries, Oral Cancer and Oral Health Related Quality of Life.

For further information please see Dr Bhat's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/meghashyam.bhat

Projects available for

Honours; PhD; Masters

Maximum Number of Students

Flexible

Category

Systematic Reviews; Human Research

Research Areas

Oral Health

Dr Meghashyam Bhat BDS, MDS, Ph.D

RESTORATIVE DENTISTRY RESEARCH GROUP

Lead Researcher: Dr Amal Ibrahim

Contact: amal.ibrahim@adelaide.edu.au

Research Summary

Dental materials especially ceramics and dental cements, Eating quality of life with dentures, tooth wear, restoration of endodontically treated teeth

For available projects please see Dr Ibrahim's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/amal.ibrahim

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

1

Category

Dry Laboratory; Human Research; Systematic Review

Research Areas

Oral Health

Dr Amal Ibrahim

RESTORATIVE DENTISTRY RESEARCH GROUP

Lead Researcher: Associate Professor James Dudley

Contact: james.dudley@adelaide.edu.au

Research Summary

Research Interests are: implant dentistry, implant materials, fixed prosthodontics, complex prosthodontics cases, prosthodontic education, dental scanners.

For available projects please view Associate Professor Dudley's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/james.dudley

Projects available for

Honours; HDR; Doctorate of Clinical Dentistry

Maximum Number of Students

2

Category

Dry Laboratory; Systematic Review; Meta-analysis

Research Areas

Oral Health

Associate Professor James Dudley

TRANSLATIONAL RESEARCH IN ORAL HEALTH SCIENCE

Lead Researcher: Dr Peter Zilm

Contact: peter.zilm@adelaide.edu.au

Research Summary

My core area of research investigates the phenotypic and molecular changes in bacteria are when growing as biofilms and at relevant growth rates found in nature. All projects are supported with the latest technology utilising cellular impedance, (exCELLigence©) continuous culture, proteomics, metabolomics and new generation sequencing. Our research is focussed on bacteria that are linked to oral disease such as tooth decay (caries) and periodontal disease and which grow as biofilms on soft and hard surfaces. Recent published research has linked the potential for the systemic migration of oral bacteria (Porphyromonas gingivalis and Fusobacterium nucleatum) from the mouth which potentially leads to diseases such as cardiovascular disease, pregnancy implications and cancer.

We also have major collaborations with chemical engineers and industry in developing nano-technology as antimicrobial and anti-biofilm agents (intelligent particles) and coatings for surfaces on medical devices.

Other major collaborative projects with the Faculty of Science investigates the stress response to antimicrobials by the major pathogens, Staphylococcus aureus and Enterococcus faecalis.

For available projects please see Dr Zilm's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/peter.zilm

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

2

Category

Wet Laboratory

Research Areas

Oral Health

Translational Health Outcomes

Innovative Therapeutics

Cardiac, Respiratory and Vascular Health

Dr Peter Zilm

PREGNANCY AND BIRTH

PREGNANCY AND BIRTH RESEARCH GROUPS

Most prospective mothers anticipate healthy and problem-free pregnancies. However, in reality complications are common, with a quarter of Australian pregnancies affected by one or more conditions that can have serious, lifelong health implications for the mother and her baby.

The most common conditions affecting Australian pregnancies are preeclampsia, preterm birth, foetal growth restriction and gestational diabetes. Their cost for individuals, families and communities is enormous, and can last a lifetime.

The Robinson Research Institute leads our research in pregnancy and birth and has an outstanding record of success in the area. This success relates to the cross-disciplinary capability and bench-to-bedside approach, which has led to major improvements in the health outcomes of mothers and babies. A more in-depth explanation of this research area is available on the **Robinson Research Institute's website**.

PREGNANCY AND BIRTH RESEARCH OPPORTUNITIES

AUSTRALIA AND NEW ZEALAND DIALYSIS AND TRANSPLANT REGISTRY (ANZDATA)

Lead Researcher: Dr Erandi Hewawasam

Contact: erandi.hewawasam@adelaide.edu.au

Dr Erandi Hewawasam

Research Summary

Dr Erandi Hewawasam is a Postdoctoral Research Fellow at the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA) within the South Australian Health and Medical Research Institute (SAHMRI). She is coordinating a body of research to investigate parenthood outcomes in women and men with kidney disease using a broad range of methodologies (population data linkage, registry, cohort studies, qualitative and systematic reviews). She is conducting patient-centred research studies to develop evidence-based pathways for parenthood planning, decision-making and care for Australians with CKD- informed by robust data, patient and clinician perspectives. She is currently leading a multi-jurisdictional data linkage study (ANZDATA, perinatal and hospital data) to validate the ANZDATA parenthood data collection, and describe pregnancy outcomes, outcomes for babies/men, patterns of care, morbidity for women with kidney failure and stratify risk factors. She is facilitating the ongoing evaluation of outcomes and Australian clinical practice by utilising existing and new databases. Through qualitative methodology and using surveys, she is planning to develop, test and evaluate new information resources to aid informed shared decision-making for doctors and women with kidney disease and their partners/family. With this body of research, she is aiming to develop best-practice guidelines for all women in pregnancy, parents with CKD/kidney failure and their babies.

For available projects please view Dr Hewawasam's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/erandi.hewawasam

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

2

Category

Human Research; Systematic Review; Meta-analysis

Research Areas

Pregnancy and Birth

CRITICAL AND ETHICAL MENTAL HEALTH RESEARCH GROUP

Lead Researcher: Professor Jon Jureidini

Contact: jon.jureidini@adelaide.edu.au

Research Summary

The Maternal Looking Guide (MLG) is a clinical tool for midwives to be used for early assessment and decision-making about the mother-infant relationship.

Midwives are ideally placed to interact with a mother and her newborn and provide immediate and effective support.

There is a need to address the relatively low-risk but high prevalence of maternal anxiety and depression for the maternal-infant relationship in the first 1000 days with a feasible, low-cost intervention.

This project aims to:

- validate the MLG on a larger population
- confirm its negligible risk status
- expand the current MLG training package to encompass a simple intervention by the midwife with suitable mothers
- measure the impact of that intervention on outcomes for the baby.

It is proposed to recruit and train 40 midwives from WCHN to administer the MLG.

300 newly delivered first-time mothers will receive one of:

1) care as usual (neither MLG nor intervention)

2) assessment with the MLG by midwives, who are not yet trained in the intervention

3) assessment with the MLG, by midwives who have been trained in the intervention.

For available projects please see Professor Jureidini's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/jon.jureidini

Projects available for

HDR; Masters; Mphil

Maximum Number of Students

2

Category

Human Research

Research Areas

Pregnancy and Birth

Early Origins of Health

The Maternal Looking Guide

HEALTH, DISABILITY AND LIFESPAN DEVELOPMENT RESEARCH GROUP

Lead Researcher: Dr Clemence Due

Contact: clemence.due@adelaide.edu.au

Research Summary

My current research focuses on the health and wellbeing of vulnerable groups of people with a particularly focus on refugee and migrant mental health, maternity care and stillbirth and developmental disorders.

For available projects please view Dr Due's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/clemence.due

Projects available for

Honours; HDR; Masters

Maximum Number of Students

6

Category

Systematic Reviews; Human Research

Research Areas

Pregnancy and Birth

Indigenous Health and Health Equity

Translational Health Outcomes

Men's Health

Dr Clemence Due

HEALTH, DISABILITY AND LIFESPAN DEVELOPMENT RESEARCH GROUP

Lead Researcher: Professor Deborah Turnbull

Contact: deborah.turnbull@adelaide.edu.au

Research Summary

A series of projects are being offered via the partnership between the School of Psychology and the Freemason's Foundation Centre for Men's Health. Data sources include the Florey Adelaide Male Ageing Cohort, a prospective cohort of randomly selected men, aged between 35-88 years, from the northern and western suburbs of Adelaide, South Australia. Student researchers will also have access to a register of men who have agreed to participate in health research. This opportunity would suit someone with interests in areas such as masculinity, chronic disease and prevention. Students would be encouraged to identify their own topics of interest. There will be possibilities for undertaking qualitative, quantitative and mixed methods research.

For available projects please view Professor Turnbull's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/deborah.turnbull

Projects available for

Honours

Maximum Number of Students

Flexible

Category

Systematic Reviews; Human Research

Research Areas

Pregnancy and Birth

Child and Adolescent Health

Men's Health

Professor Deborah Turnbull

NUTRITION, METABOLIC AND REPRODUCTIVE HEALTH

Lead Researcher: Dr Jessica Grieger

Contact: jessica.grieger@adelaide.edu.au

Research Summary

My current research focuses on nutrition in pregnancy and my research direction is in understanding how diet and metabolic profile impact pregnancy and birth outcomes. My current research projects include how different maternal exposures associate with time to pregnancy, and pregnancy complications; dietary modelling methods; and diet in relation to gestational diabetes.

For available projects please see Dr Grieger's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/jessica.grieger

Projects available for

Honours; HDR

Maximum Number of Students

2

Category

Human Research

Research Areas

Pregnancy and Birth

Nutrition and Metabolic Health

Dr Jessica Grieger

PAEDIATRIC AND PERINATAL EPIDEMIOLOGY

Lead Researcher: Associate Professor Lisa Smithers

Contact: lisa.smithers@adelaide.edu.au

Research Summary

There are three core foci of my current research: the impact of perinatal events on children's health and development, food advertising to children, and Indigenous children's diets, health and development. Much of my work involves analysis of observational data (from cohort and population-based databases) and systematic reviews, and less frequently, randomised controlled trials. I routinely use advanced epidemiological concepts in my research, such as multiple imputation for missing information, propensity scores for balancing confounding or weighting treatment effects, directed acyclic graphs for informing confounder selection and marginal structural models.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here:

researchers.adelaide.edu.au/profile/lisa.smithers

Projects available for

HDR

Maximum Number of Students

1

Category

Systematic Reviews; Meta-analysis; Human Research

Research Areas

Pregnancy and Birth

Nutrition and Metabolic Health

Associate Professor Lisa Smithers

QUALITY OF CARE, MATERNAL HEALTH AND PREGNANCY OUTCOMES IN DEVELOPING COUNTRIES

Lead Researcher: Dr Mohammad Afzal Mahmood

Contact: afzal.mahmood@adelaide.edu.au

Research Summary

The research focuses on factors affecting access to and quality of antenatal, intrapartum and postnatal care in regions with persistently high maternal mortality. The research, with the public sector services, University of Airlangga and Australian research partners, is based in East Kalimantan and East Java, Indonesia. Recent research in an East Kalimantan district pointed to organisational, personnel, and personal factors influencing quality. The research is now expanded to include analysis of provincial level data, and review of health care in tertiary hospitals in East Java, with planning to introduce changes and assess the impact. With eclampsia as one of the main direct causes of maternal deaths, an honours project may focus on health system response to eclampsia. Another potential honours research could be about association between healthcare quality and low birth weight.

Another is a Rotary Club of Morialta project in Papua New Guinea, in collaboration with PNG Midwifery Society, Australian College of Midwifery, and researchers at the University of Adelaide and Monash University. The project is aimed at improving midwifery and midwifery leadership skills. This project may provide an honours research opportunity for an evaluation research assessing impact in terms of knowledge and skills and improved healthcare.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: **researchers.adelaide.edu.au/profile/afzal.mahmood**

Projects available for

Honours

Maximum Number of Students

2

Category

Human Research

Research Areas

Pregnancy and Birth

Maternal Health Health Research & Development Team, Kukar District, East Kalimantan

Some of the members of East Kalimantan and East Java Maternal Health Research & Development Team

SAHMRI BIOINFORMATICS CORE

Lead Researcher: Dr Jimmy Breen

Contact: jimmy.breen@sahmri.com

Research Summary

I am a Bioinformatician/Computational Biologist at the University of Adelaide with experience in plant genomics, ancient DNA, epigenetics and next-generation sequencing (NGS) analysis. I am currently lead the Bioinformatics Core team at the South Australian Health & Medical Research Institute (SAHMRI) and am group leader in Computational Biology at the Robinson Research Institute. I am also co-lecturer of the Master's level Bioinformatics unit (7005 - Bioinformatics and System Modelling) in the MSc Biotechnology course offered at the University of Adelaide.

My research aims to develop computational tools and methods to study the human genome and other model systems. I have a strong emphasis on identifying basic biological insights that can translate to diagnostic applications. My team works on datasets from medical disorders such as placental and pregnancy complications, acute lymphoblastic leukemia, autoimmune disease, glaucoma and cerebral palsy. Additionally we help researchers analyse large genomics datasets in a cost-for-service capacity.

For available projects please view Dr Breen's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/jimmy.breen

Projects available for

Honours

Maximum Number of Students

2

Category

Dry Laboratory; Human Research

Research Areas

Pregnancy and Birth

Cancer Biology and Clinical Oncology

Immunology and Infection

SAHMRI Bioinformatics Core Team: Jacqueline Rehn, Melanie Smith, Jimmy Breen, Ning Liu, Nader Aryamanesh (absent)

VASCULAR IMMUNOLOGY OF PREGNANCY

Lead Researcher: Dr Alison Care

Contact: alison.care@adelaide.edu.au

Research Summary

Our research in Vascular Physiology and Immunology of pregnancy investigates maternal immune regulation of vascular adaptations during pregnancy, with a particular focus on uterine artery function and placental development; and the effects of a complicated pregnancy on the long-term cardiovascular health of offspring (Developmental Origins of Health and Disease), as well as the impact on maternal health postpartum.

We have a particular interest in the pregnancy complication preeclampsia, which affects 4 million women each year and leads to significant morbidity and mortality for the women and their infants. Women and their offspring have an increased risk of developing cardiovascular disease following a preeclamptic pregnancy. Preeclampsia arises when the maternal cardiovascular system does not adapt appropriately to pregnancy. Our research is focused on the role of the maternal immune system in driving maternal vascular adaptations to pregnancy.

For available projects please see Dr Care's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/alison.care

Projects available for

Honours; HDR; Masters

Maximum Number of Students

2

Category

Wet Laboratory

Research Areas

Pregnancy and Birth

Immunology and Infection

Early Origins of Health

Cardiac, Respiratory and Vascular Health

Using ultrasound to assess blood flow in the uterus and placenta during pregnancy

SURGICAL AND HEALTH SYSTEMS INNOVATION

SURGICAL AND HEALTH SYSTEMS INNOVATION RESEARCH GROUPS

Surgical innovation, and indeed all innovation in the health system, significantly enhances the quality and length of life for many in our community, and enables health services to reach more of our community.

Our researchers are working to enhance the quality, effectiveness and sustainability of surgical and health systems innovation at all levels. Our research addresses the many challenges of bringing health innovations into practice, including validating the innovation, justifying the economics, influencing the policies and spreading the knowledge to implement these new approaches.

Using evidence-based assessment, researchers test the efficacy and safety of the innovation, model the costs of implementation, and finally garner the support of the health industry, health service providers, policymakers and the community to implement the innovation. This exciting and challenging field can yield highly rewarding results that benefit society for years to come.

Researchers across the faculty are focused on:

- developing and evaluating the efficacy of new therapeutics
- evaluating new, less invasive diagnostic technologies to lower patient risk, improve the patient experience and reduce health service costs
- performing large-scale, multi-centre clinical trials to rigorously assess treatments and predictive diagnostic tests
- performing longitudinal studies to monitor patient health status and quality of care to identify problems in the health system's delivery of services
- performing long-term analysis of total-joint-replacement patients to analyse prosthetic failure, assessing the device, the biomaterials and methodology
- assessing the impacts of health policies and implementation of preventative health interventions.

SURGICAL AND HEALTH SYSTEMS INNOVATION RESEARCH OPPORTUNITIES

BIOENGINEERING IMAGING GROUP

Lead Researcher: Professor Robert McLaughlin

Contact: robert.mclaughlin@adelaide.edu.au

Research Summary

The Bioengineering Imaging Group is a world-leader in the development of the imaging needle technology for clinical use.

Our team design and build highly miniaturised imaging probes to help diagnose disease and enable safer surgery. Our imaging needles consist of a tiny fibre-optic probe encased in a hypodermic needle. These devices are able to provide guidance deep within the body with fluorescence imaging and optical coherence tomography.

Based in the ARC Centre of Excellence for Nanoscale Biophotonics cnbp.org.au (CNBP), which is part of the Institute for Photonics and Advanced Sensing (IPAS), the Bioengineering Imaging Group has strong research programs in the development of new optical imaging technologies and clinical translation.

Our research team is a multi-disciplinary group of engineers, physicists and computer scientists who work together with clinicians. Our skills complement the expertise already within the CNBP. Together, we are exploring novel applications and deployment of optical fibre sensing and imaging across medicine and physiology.

For available projects please see Professor McLaughlin's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/robert.mclaughlin

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Human Research

Research Areas

Surgical and Health Systems Innovation

Professor Robert McLaughlin

ENDOSCOPIC RESEARCH GROUP

Lead Researcher: Professor Rajvinder Singh

Contact: rajvinder.singh@sa.gov.au

Research Summary

Professor Rajvinder Singh MBBS MPhil FRACP AM FRCP is the Director of Gastroenterology at the Lyell McEwin and Modbury Hospitals, South Australia and a Professor of Medicine at the University of Adelaide.

He has a keen interest in Endoscopic research focusing mainly on Advanced Endoscopic Imaging Techniques and Endoscopic Treatment of premalignant and malignant lesions in the gastrointestinal tract.

Professor Singh has been successful in obtaining various grants nationally to further investigate the utility of novel endoscopic imaging techniques in the detection of dysplasia and early cancer.

His research interests include Detection and (Endoscopic) treatment of early gastrointestinal tract pre-malignant and malignant lesions. This includes detecting dysplasia or early cancer in Barrett's oesophagus, squamous cell cancer/dysplasia of the oesophagus, early gastric cancer, duodenal polyps, colon polyps and early colon cancers. He also has interest in various endoscopic treatment modalities including Endoscopic Mucosal Resection, Endoscopic Submucosal Dissection, Radio Frequency Ablation, Luminal stenting, Full Thickness Resection and Endoscopic closure of defects in the GI wall.

For more information please view Professor Singh's Researcher Profile

researchers.adelaide.edu.au/profile/rajvinder.singh

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

3

Category

Clinical Research; Human Research

Research Areas

Surgical and Health Systems Innovation

Cancer Biology and Clinical Oncology

Professor Rajvinder Singh

ENT SURGERY RESEARCH GROUP

Lead Researcher: Dr Oveis Pourmehran

Contact: Oveis.Pourmehran@adelaide.edu.au

Research Summary

The ENT surgery research group at Basil Hetzel Institute for Translational Health Research (BHI) is a world leader in the development of cutting-edge treatment methods for human upper airways diseases.

As a multi-disciplinary research team, the ENT surgery group has recently established a Biomedical Engineering research node to develop novel drug delivery methods/devices toward the improvement of the treatment efficiency in upper airway diseases.

Research topics:

- Acoustic drug delivery to paranasal sinuses.
- Development of a mesh nebuliser for improvement of sinus drug delivery.
- Virtual endoscopic sinus surgery (ESS) followed by airflow analysis and particle tracking in the nasal cavity and paranasal sinuses.
- Magnetic & electric-charged particle (drug) delivery to human lung and paranasal sinuses.

The following techniques/skills (one or more) are exploited to conduct these research projects: Computational fluid dynamics (CFD), particles tracking using DPM-CFD, finite element analysis (FEA), signal processing (acoustics), computer-aided design (CAD) modelling, CT-scan reconstruction (3D Slicer and other potential software), and cutting-edge 3D printing technology (e.g., FUSETEC).

For available projects please see Dr Pourmehran's Researcher Profile

researchers.adelaide.edu.au/profile/oveis.pourmehran

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory; Systematic Review; Meta-analysis

Research Areas

Surgical Health Systems and Innovation

Translational Health Outcomes

Innovative Therapeutics

Dr Oveis Pourmehran

ENT SURGERY RESEARCH GROUP

Lead Researcher: Associate Professor Sarah Vreugde

Contact: sarah.vreugde@adelaide.edu.au

Research Summary

The Department of Otolaryngology, Head and Neck Surgery at The Queen Elizabeth Hospital is committed to excellence in translational research and education. Research in our department is focused mainly on understanding the pathogenesis of chronic rhinosinusitis (CRS), using a multidisciplinary approach, aimed at identifying new diagnostic/prognostic markers and treatment strategies to the benefit of our patients. Research projects cover all aspects of rhinological research from pathophysiological aspects of CRS to the identification and validation of new treatment strategies in vitro and in vivo, bringing research from bench to bedside.

For available projects please view Associate Professor Vreugde's Researcher Profile

researchers.adelaide.edu.au/profile/sarah.vreugde

Projects available for

Third Year; Honours; Masters; HDR; MPhil

Maximum Number of Students

Flexible

Category

Human Research; Systematic Reviews; Wet Laboratory; Dry Laboratory; Meta-analysis

Research Areas

Surgical and Health Systems Innovation

Immunology and Infection

Translational Health Outcomes

Innovative Therapeutics

Associate Professor Sarah Vreugde

FORENSIC SCIENCE SA

Lead Researcher: Associate Professor Neil Langlois

Contact: neil.langlois@sa.gov.au

Research Summary

Forensic Pathology

1.Data acquisition and analysis - these projects require extraction of information from autopsy reports from Coronial post-mortem examinations.

2.Investigation of determining age of bruises - these projects are more practical, using experimental model systems

For available projects please see Associate Professor Langlois' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/neil.langlois

Projects available for

Third Year

Maximum Number of Students

1

Category

Systematic Reviews; Human Research

Research Areas

Surgical and Health Systems Innovation

Associate Professor Neil Langlois

JOINT REPLACEMENT RESEARCH UNIT

Lead Researcher: Dr Stuart Callary

Contact: stuart.callary@sa.gov.au

Research Summary

The Joint Replacement Research Unit is based at the Royal Adelaide Hospital under the Centre for Orthopaedic and Trauma Research. Our aim is to translate research findings into improved clinical outcomes that benefit both the health care system and individual patients who have undergone joint replacement surgery.

We have a number of exciting new projects that use the latest imaging technology including radiographs, radiostereometric analysis, MRI and CT. New implants are introduced to hip and knee replacement surgery every year in Australia. We offer pre-clinical testing and early surveillance of these newly introduced prosthesis to ensure patients are not put at risk of receiving inferior implant designs. We also investigate long term outcomes so that surgeons can make evidence-based informed decisions.

For available projects please view Dr Callary's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/stuart.callary

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

4

Category

Dry Laboratory; Human Research

Research Areas

Surgical and Health Systems Innovation

Ageing, Frailty and Mobility

Musculoskeletal Health

Translational Health Outcomes

Dr Stuart Callary

MACHINE LEARNING IN MEDICINE

Lead Researcher: Professor Lyle Plamer

Contact: lyle.palmer@adelaide.edu.au

Research Summary

Research conducted by the Machine Learning in Medicine group aims to apply new advances in machine learning (and deep learning in particular) to the analysis of medical images. We have a strong translational focus, and work closely with multiple government agencies and clinical teams in SA and nationally. We are active in developing improved diagnostic/prognostic algorithms in breast cancer screening, glaucoma progression, fractures, and the prediction of 5-year mortality. Our multidisciplinary team have backgrounds in computer science, epidemiology, biostatistics, public health, medicine, radiology, clinical genetics, paediatrics, and genetic epidemiology. We lead the Precision Healthcare Flagship of the Australian Alliance for Artificial Intelligence in Healthcare.

Collectively, our team have expertise in computer vision, randomised trials, data linkage, and translational research activities in South Australia, nationally, and internationally. Members of the group also conduct methodological research in machine learning and computer vision.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here:

researchers.adelaide.edu.au/profile/lyle.palmer

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

5

Category

Dry Laboratory; Human Research

Research Areas

Surgical and Health Systems Innovation

Cardiac, Respiratory and Vascular Health

Cancer Biology and Clinical Oncology

Translational Health Outcomes

Professor Lyle Plamer

OPTHAMOLOGY

Lead Researcher: Dr Valerie Juniat

Contact: vjuniat@doctors.org.uk

Research Summary

I am involved in multiple research areas in:

- Orbital tumours
- Inflammatory orbital conditions
- Thyroid eye disease
- Nasolacrimal system
- Eyelid tumours and reconstruction

For available projects please view Dr Juniat's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/valerie.juniat

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory; Human Research; Systematic Review; Meta-analysis

Research Areas

Surgical and Health Systems Innovation

Innovative Therapeutics

Dr Valerie Juniat

QUEEN ELIZABETH HOSPITAL ANAESTHESIA AND PERIOPERATIVE MEDICINE RESEARCH GROUP

Lead Researcher: Associate Professor Venkatesan Thiruvenkatarajan

Contact: venkatesan.thiruvenkatarajan@adelaide.edu.au

Research Summary

Translational research improving the outcomes of patients during their surgical journey

Perioperative medicine

Assessing the euglycaemic diabetic ketoacidosis risk profile for patients with diabetes mellitus who are on a novel group of oral glucose lowering agents termed. "Gliflozins".

Rational perioperative use of opioids

Evaluating pathways for preoperative opioid weaning in patients who are taking opioids before elective surgery indicated for non-cancer related pain

To implement opioid stewardship throughout the perioperative trajectory including immediate and long-term postoperative period.

Airway Management

Evaluating the efficacy of new techniques such as high flow nasal oxygen and apnoeic oxygenation to improve outcomes during airway management in patients undergoing general anaesthesia and sedation

Anaphylaxis

Analysing data from our anaesthesia allergy testing clinic to understand the diagnostic accuracy of existing and new testing modalities of perioperative anaphylaxis

For available projects please see Associate Professor Thiruvenkatarajan's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/venkatesan.thiruvenkatarajan

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

Flexible

Category

Human Research; Systematic Review; Meta-analysis

Research Areas

Surgical Health Systems and Innovation

Translational Health Outcomes

Cardiac, Respiratory and Vascular Health

Associate Professor Venkatesan Thiruvenkatarajan

ROYAL ADELAIDE HOSPITAL INTENSIVE CARE UNIT RESEARCH

Lead Researcher: Dr Samuel Gluck

Contact: samuel.gluck@adelaide.edu.au

Research Summary

I am interested in the use of technology to record patient experience and outcomes. I am particularly interested in using smartphone data in the automatic measurement of patient outcomes and patient risk. We are working to use electronic record data to predict hospital length of stay, and risk of readmission and then using step and GPS data to determine when that re-admission may occur. We are also interested in assessing preoperative risk using step and GPS data to define and predict patient centred long term outcomes following surgery.

For available projects please see Samuel Gluck's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/samuel.gluck

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

3

Category

Dry Laboratory; Human Research

Research Areas

Surgical and Health Systems Innovation

Translational Health Outcomes

Ageing, Frailty and Mobility

Dr Sam Gluck

SURGICAL SCIENCE RESEARCH GROUP

Lead Researcher: Professor Guy Maddern

Contact: guy.maddern@adelaide.edu.au

Research Summary

The Surgical Science Research Group is primarily interested in clinical research and translational benchtop to bedside medicine in the surgical setting

Laparoscopic Simulation Skills Program (LSSP)

Current access to surgical simulation training in Australia is limited and the best format for delivery is yet to be established. Self-directed learning has the potential to limit the costs associated with simulation training, as well as improve access through increased flexibility of training times. The aim of the LSSP is to develop and assess the efficacy and feasibility of training times. The aim of the LSSP is to develop and assess the efficacy and feasibility of a self-directed simulation-based training program, and to determine if a period of more formal (supervised) training is required.

Coaching to Enhance Surgeons' Non-Technical Skills

The concept of coaching for performance improvement is an accepted and well established approach in fields such as sports, education, business and music. It has only been recently recognised that application of this model of learning, which is grounded in established adult learning and psychological concepts, may be of particular value when applied in health care settings. This project is investigating whether surgical coaching is a potentially valuable tool to enhance surgeons' non-technical skills and whether it would be beneficial to develop a surgical coaching program for General Surgeons for the purpose of improving surgeons' ongoing professional development.

Developing novel diagnostic tools and preventative therapies for metastatic colorectal cancer

The majority of colorectal cancer (CRC) related deaths are attributable to liver metastasis – the most critical prognostic factor observed in CRC patients. However, there is no clinical test to predict metastatic risk and allow informed selection of preventative treatment regimen. The translation challenge is to validate immune checkpoint biomarkers controlling metastasis. We have identified potential proteomic and lipidomic targets from stored tissue and blood of CRC patients and are currently validating these in a larger patient cohort.

Systematic reviews of surgical topics

- The use of antibiotic coated sutures
- What is informed consent
- Do Multi-Disciplinary Teams Meetings work?
- Should asymptomatic contra-lateral inguinal hernias found at laparotomy be repaired?
- Tele-surgery: what is the evidence?

Audit of surgical mortality

- Trocar injury deaths in Australia
- Deaths in patients under 30 years of age
- Surgical deaths in the patients older than 90
- Surgical deaths following delay in transfer

Health System Research

- How to deliver rural general surgery
- Advanced recovery programs
- What is the surgical learning curve for a
  - o liver resection
  - o oesophagectomy
  - o inguinal hernia repair
  - oWhipples resection
  - o open abdominal aortic aneurysm

Health Technology Assessment

Students will participate in the reviews of new surgical Health Technology Assessment reports being continuously undertaken

For available projects please view Professor Maddern's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/guy.maddern

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory; Systematic Reviews; Meta-analysis; Human Research

Research Areas

Surgical and Health Systems Innovation

Cancer Biology and Clinical Oncology

Translational Health Outcomes

Professor Guy Maddern

Surgical Science Research Group

TRANSLATIONAL HEALTH OUTCOMES

TRANSLATIONAL HEALTH OUTCOMES RESEARCH GROUPS

Translational health research applies basic scientific findings from laboratory and preclinical studies to enhance human health and wellbeing at the personal and community level—taking experimental findings 'from bench to bedside' through new treatments and improved health policy.

High quality preclinical, clinical and epidemiological research is the foundation stone of optimised health care provision that serves to improve the quality of life of patients who are managed in the health system. Effective translational research is crucial to the continued improvement and sustainability of the Australian health system, and requires significant engagement with industry and service sectors within government.

Our researchers are developing new and innovative ways to transfer new knowledge to health service professionals, to: change practice; improve skills; and influence policy and procedures system-wide.

Researchers across the faculty are focused on:

- undertaking population surveys to develop and test new interventions to improve the mental health of children and adolescents
- undertaking evidence-based practice development to manage at-risk populations for trauma and mental disorders across the lifespan
- elucidating genetic factors that may serve as new targets for therapy, or are predictive of responses to pharmaceutical treatments
- performing longitudinal studies of patients undergoing invasive procedures to review and improve standard practice in the health care system
- developing evidence-based assessments of novel surgical techniques and postoperative care to enhance skills and promote knowledge transfer to health service professionals.

TRANSLATIONAL HEALTH OUTCOMES RESEARCH OPPORTUNITIES

ADELAIDE EXPOSURE SCIENCE AND HEALTH

Lead Researcher: Dr Sharyn Gaskin

Contact: sharyn.gaskin@adelaide.edu.au

Research Summary

Our research interests primarily focus on Occupational and Environmental Health Science including industry-wide studies in healthcare, agriculture, manufacturing, emergency services and mining industries. We have expertise in public health, exposure science, environmental and medical epidemiology and we work closely with government and industry stakeholders. We work in the assessment and control of health hazards in workplaces and the environment including hazardous chemical management.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: researchers.adelaide.edu.au/profile/sharyn.gaskin

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

6

Category

Wet Laboratory; Dry Laboratory; Systematic Reviews; Human Research

Research Areas

Translational Health Outcomes

Cardiac, Respiratory and Vascular Health

Pregnancy and Birth

Dr Sharyn Gaskin

ADELAIDE EXPOSURE SCIENCE AND HEALTH

Lead Researcher: Professor Dino Pisaniello

Contact: dino.pisaniello@adelaide.edu.au

Research Summary

Dino works at the intersection of occupational health, environmental health and emergency response.

He works with various professional and industry groups to translate evidence into practice in order to advance the health and wellbeing of communities in Australia and internationally.

His research address hazards in mining, manufacturing, defence, healthcare, agriculture, domestic and office environments, work and vision and climate change impacts on health. He has expertise in chemical hazard risk assessment and management, occupational and environmental epidemiology, intervention research, and health and safety education.

Research project opportunities exist in the areas of work and vision, chemical exposure science and environmental epidemiology.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: researchers.adelaide.edu.au/index.php/profile/dino.pisaniello

Projects available for

Honours; HDR; Mphil

Maximum Number of Students

2

Category

Wet Laboratory; Human Research

Research Areas

Translational Health Outcomes

Cardiac, Respiratory and Vascular Health

Professor Dino Pisaniello

ADELAIDE EXPOSURE SCIENCE AND HEALTH

Lead Researcher: Dr Leigh Thredgold

Contact: leigh.thredgold@adelaide.edu.au

Research Summary

Dr Thredgold's current research leverages his background in analytical chemistry to explore the pathways and impacts of environmental and occupational hazards on human health and society, and leads to the development of effective interventions to control and prevent exposure to hazards. In particular, with Dr Gaskin, he investigates the science of dermal exposure to toxic chemicals using in-vitro human skin models which is translated into practical outcomes and decision making software tools for collaborators and other industries. This collaborative research is industry focussed with wide applicability across the defence, emergency services, HAZMAT and public health sectors.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: researchers.adelaide.edu.au/profile/leigh.thredgold

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Wet Laboratory; Systematic Reviews

Research Areas

Translational Health Outcomes

Pregnancy and Birth

Dr Leigh Thredgold

ADELAIDE HEALTH TECHNOLOGY ASSESSMENT

Lead Researcher: Professor Tracy Merlin

Contact: tracy.merlin@adelaide.edu.au

Research Summary

Adelaide Health Technology Assessment (AHTA) is an applied research group with a national and international reputation in Health Technology Assessment (HTA). AHTA has undertaken $45 million in applied/contract research since its inception, primarily for the Australian Government Department of Health, to evaluate health services, medicines and other interventions to inform health policy and public funding decisions. This includes assessing the safety, effectiveness and cost-effectiveness of medical services that are being considered for Medicare funding; and the appraisal of pharmaceuticals to determine whether they warrant funding under the Pharmaceutical Benefits Scheme.

Our research interests include:

- Evaluating the clinical and/or cost-effectiveness of different types of medical services, delivery of health services, devices, medical tests, public health programs or medicines to help policy-makers decide whether they should be made available and/or publicly funded
- Evaluating medical services or health interventions to inform health professionals and clinicians make the best choice when diagnosing or treating a patient
- Developing new methods for translating clinical evidence into policy or decision-making

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: researchers.adelaide.edu.au/index.php/profile/tracy.merlin

Projects available for

Honours; HDR; Mphil; Mclin

Maximum Number of Students

Flexible

Category

Systematic Reviews; Human Research

Research Areas

Translational Health Outcomes

Innovative Therapeutics

Cancer Biology and Clinical Oncology

Surgical and Health Systems Innovation

Professor Tracy Merlin

ADELAIDE RURAL CLINICAL SCHOOL (ARCS) RESEARCH GROUP

Lead Researcher: Associate Professor David Gonzalez-Chica and Associate Professor Pascale Dettwiller

Contact: david.gonzalez@adelaide.edu.au

pascale.dettwiller@adelaide.edu.au

Research Summary

Our research focuses on the integration between local communities in rural SA with health service providers, including Aboriginal health services, and rural workforce development. We seek to identify health care needs and barriers to access, define rural research priorities, and translate findings into evidence-based strategies that will benefit all members of the community and help reduce rural health disparities. The ARCS team comprises multi-disciplinary researchers who use quantitative and qualitative methods across the following diverse themes:

- Examining the impact of rural placements during medical training on the subsequent uptake of rural practice and contribution to the rural health workforce
- Examining access to aged care services by Indigenous people and how to provide more culturally appropriate services in rural SA
- Examining the use of point-of-care ultrasound in rural general practices where access to imaging services can be limited
- Evaluating a community-driven mental wellbeing initiative on the Eyre Peninsula 'Mentally Fit Eyre Peninsula'
- Exploring how women access and experience termination services in rural SA pre- and post-abortion law reform
- Community engaged medical education and research.

For available projects please see Associate Professor Gonzalez's Researcher Profile under "My Research"
researchers.adelaide.edu.au/profile/david.gonzalez

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

4

Category

Human Research, Systematic Reviews

Research Areas

Translational health outcomes research

Indigenous Health and Health Equity

Child and Adolescent Health

Pregnancy and Birth

Members of the Adelaide Rural Clinical School research group (from L-R): Dr Sue Williams, A/Prof Pascale Dettwiller, A/Prof David Gonzalez, Ms Heidi Hodge

CLIMATE CHANGE; ECOSYSTEM HEALTH AND INFECTIOUS DISEASE EPIDEMIOLOGY

Lead Researcher: Professor Peng Bi

Contact: peng.bi@adelaide.edu.au

Research Summary

We are interested in the nexus between the environment, society and human health. With diverse backgrounds in environmental and medical epidemiology, public health, occupational health physiotherapy, infectious disease, social psychology and statistics, we employ an array of quantitative and qualitative methodologies and work closely with government and non-government stakeholders. We provide an empirical evidence base for strategic policy development and planning on public health issues and have close collaborative relationships with public health and infectious disease specialists in China. Climate change; ecosystem health and infectious disease epidemiology offers a number of research opportunities for students at a variety of levels.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: researchers.adelaide.edu.au/profile/peng.bi#my-research

Projects available for

Honours

Maximum Number of Students

Flexible

Category

Systematic Reviews; Human Research

Research Areas

Translational Health Outcomes

Professor Peng Bi

CLINICAL PHARMACOGENOMICS RESEARCH GROUP

Lead Researcher: Professor Andrew Somogyi

Contact: andrew.somogyi@adelaide.edu.au

Research Summary

My research is focussed on the genetics determinants of severe and life threatening adverse reactions to medications and why some medicines do not work in some people. The specific areas are in indigenous populations: Aboriginal Australians and Papua New Guineans. The disease areas are: mental health (antidepressants); postsurgical pain; acute pain, chronic pain; infectious diseases (HIV, TB, Malaria); cancer (childhood leukaemia); kidney transplantation. I work with clinicians in Adelaide, Australia and internationally to unravel why some medicines don't work and why some can cause significant harm. This is mainly done by examining the patients genetics in relation to medicines, often called pharmacogenomics which is an important component of Precision Medicine. We have blood or saliva collected, isolate and quantify the DNA and then use genetic testing to determine the patients variant allele frequency and relate this to their phenotype and response (good and bad) to the medicine. We also recruit large populations, for example we are involved in a trial looking at ketamine as a new therapy for treatment-resistant depression which involves over 300 patients in Australia,

For available projects please view Professor Somogyi's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/andrew.somogyi

Projects available for

Third Year; Honours; HDR; Masters

Maximum Number of Students

5

Category

Wet Laboratory; Meta-analysis; Human Research

Research Areas

Translational Health Outcomes

Innovative Therapeutics

Indigenous Health and Health Equity

Neuroscience, Behaviour and Brain Health

ProfessorAndrew Somogyi- head of the clinical pharmacogenomiocs lab

COMMUNICATION DIVERSITY AND CULTURAL RESPONSIVENESS (CDCR): INCLUSION AND PARTICIPATION OF PEOPLE WITH DIVERSE COMMUNICATION

Lead Researcher: Dr Abi Thirumanickam

Contact: Abi.thirumanickam@adelaide.edu.au

Research Summary

Communication is a basic human right, and yet people who communicate differently, including people with communication impairment or disability, and people from culturally and linguistically diverse backgrounds are often discriminated based on their communication diversity. These individuals encounter numerous barriers to inclusion and participation in education, employment, and every day interaction. We are interested to find ways to ensure that their voices are heard and valued, because despite growing awareness of communication diversity, there are several limitations to current practice. First, there is a strong focus on improving communication at an individual level, rather than community capacity building. Second, service planning and development is primarily determined by people without cultural knowledge or lived experience, resulting in less meaningful or significant outcomes. Finally, there is still a strong focus on custom-made strategies and service, which can be time and cost-intensive. We are interested to find innovative and accessible ways of enhancing communicative participation and inclusion of people who communicate differently, by (1) utilising readily available, mainstream products and technology, (2) increasing community capacity building, and (3) actively engaging with people with lived experience in research design, implementation and evaluation.

For available projects please see Dr Thirumanickam's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/abi.thirumanickam

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Human Research, Systematic Reviews

Research Areas

Translational Health Outcomes Research

Child and Adolescent Health

Aging, Frailty and Mobility

Dr Abi Thirumanickam

COMMUNITIES, PEOPLE AND HEALTH RESEARCH GROUP

Lead Researcher: Dr Shona Crabb

Contact: shona.crabb@adelaide.edu.au

Research Summary

Our research focuses on the social context of health and community perspectives on health and wellbeing. We consider how culture and society intersect with: health behaviours, health providers, and health policy and the provision of, and access to, health services; and explore how these influence health outcomes for people and their communities. Using primarily qualitative research, current topics of interest include the social and policy context of alcohol consumption; health, wellbeing and gender equity in workplace settings; and community understandings of health risks and behaviours.

For available projects please view Dr Crabb's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/shona.crabb

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Human Research, Systematic Reviews

Research Areas

Translational Health Outcomes

Dr Shona Crabb

DASSA WHO COLLABORATING CENTRE

Lead Researcher: Associate Professor Robert Ali

Contact: robert.ali@adelaide.edu.au

Research Summary

Our group is currently involved in research in the following areas:

- Screening and early intervention for substance use disorders in pregnancy
- Developing a spoken word smartphone app for self monitoring substance use in ATSI populations
- Implementation research of depot buprenorphine for the treatment of opioid dependence
- Validation study of ICD-ll for substance use disorders
- Comparison of the ASSIST-Lite diagnostic accuracy for substance use disorder in DSM-V and ICD-II

For available projects please view Associate Professor Ali's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/robert.ali

Projects available for

HDR; Masters

Maximum Number of Students

3

Category

Human Research

Research Areas

Translational Health Outcomes

Indigenous Health and Health Equity

Pregnancy and Birth

Screening for substance use disorders

END OF LIFE CARE

Lead Researcher: Associate Professor Jaklin Eliott

Contact: jaklin.eliott@adelaide.edu.au

Research Summary

Our research examines how communities respond to health issues and participate in healthcare, with emphasis on public health. We prioritise including views and experiences of community members (patients, consumers and stakeholders) in health research, policy, and service delivery.

Our methodological expertise includes qualitative and quantitative methods, used in research and the evaluation of health services and policy. We have extensive experience working with international, national, and state governments, different NGOs, and community-based organisations.

We sit within Social and Behavioural Sciences, focusing on the social context of health and community perspectives on health and wellbeing. We consider how culture intersects with: health behaviours, health providers, and health policy and the provision of, and access to, health services; and explore how these influence health outcomes for people and their communities.

End of Life Care research focuses on several areas including end-of-life care in vulnerable populations, the ethics and values underpinning end-of-life care and advance care planning, community and professional perspectives regarding end-of-life care, and how the health system supports people approaching the end of their life.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: **researchers.adelaide.edu.au/profile/jaklin.eliott**

Projects available for

Honours; HDR; Mphil; Mclin

Maximum Number of Students

Flexible

Category

Systematic Reviews; Human Research

Research Areas

Translational Health Outcomes

Associate Professor Jaklin Eliott

ENVIRONMENT AND HEALTH RESEARCH GROUP

Lead Researcher: Dr Adriana Milazzo

Contact: adriana.milazzo@adelaide.edu.au

Research Summary

Adriana Milazzo completed a PhD investigating the relationship between heatwaves and incidence of foodborne disease. Prior to working at the University, she worked in indigenous health, communicable disease control, and coordinated a national sentinel surveillance system for influenza like-illness.

Adriana's research interest is in climate change and population health, infectious diseases, including One Health.

Adriana's current research projects include: characterising close contacts of meningococcal cases and examining social networking patterns; communicating COVID-19 vaccine risk; maternal health exposure to heatwaves and impact on birth outcomes; trajectory of COVID-19 cases and public health interventions. In addition, she has created contact tracing modules for SA Health in response to the COVID-19 effort.

For available projects please see Dr Milazzo's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/adrian.milazzo

Projects available for

Honours

Maximum Number of Students

1

Category

Wet Laboratory; Human Research

Research Areas

Translational Health Outcomes

Dr Adriana Milazzo

ENVIRONMENTAL AND OCCUPATIONAL HEALTH: CLIMATE CHANGE; ECOSYSTEM HEALTH AND INFECTIOUS DISEASE EPIDEMIOLOGY

Lead Researcher: Professor Philip Weinstein

Contact: philip.weinstein@adelaide.edu.au

Research Summary

Healthy ecosystems provide a variety of ecosystem services to humans, most obviously provisioning services (food, water, fuel, and shelter), but also regulating services (climate control, disease suppression) and cultural services (recreation and wellbeing). Biodiversity is fundamental to maintaining ecosystem functionality and resilience, and when biodiversity is adversely affected by human activities such as urbanisation, agriculture, and CO2 emission, ecosystem services can fail. Directly or indirectly, the maintenance of biodiversity can prevent the emergence and re-emergence of a variety of public health problems that include exposure to toxins, vector borne diseases, and lifestyle diseases.

My recent work has focused on demonstrating a quantifiable link between healthy ecosystems and healthy humans, using examples of recently 'created' public health problems such as Ross River virus infection in salinised landscapes; birth defects in poorly managed water catchments; ciguatera poisoning from bleached reef ecosystems; and leptospirosis in fragmented habitats. Such examples support the idea that biodiversity conservation can benefit both the environment and human health concurrently. To provide a better evidence base for policy generation in this area, more multidisciplinary research is required – including further analyses of the ecological linkages between biodiversity conservation and human health outcomes.

For available projects please view Professor Weinstein's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/philip.weinstein

Projects available for

Honours; HDR

Maximum Number of Students

Flexible

Category

Wet Laboratory; Dry Laboratory; Human Research; Systematic Review; Meta-analysis

Research Areas

Translational Health Outcomes

Professor Philip Weinstein

HEALTH POLICY CENTRE

Lead Researcher: Health and disability workforce development and service provision models

Contact: stacie.attrill@adelaide.edu.au

Research Summary

Current health and disability services have often resulted from a piecemeal or lottery approach to resource allocation and workforce recruitment, rather than a population, systems or needs based approach. Health workforce development and service provision models should be better planned and mapped for our future needs, including meeting the needs of diverse communities who experience disparities in health service access and outcomes. We combine qualitative and quantitative research to explore how health and disability services can be designed, mapped and enacted to meet current and future community needs. In particular, we are interested in exploring health service outcomes for communities reflecting high social disadvantage, ethnic minority communities and rural and remote communities.

For available projects please see Associate Professor Attrill's Researcher Profile under "My Research" (https://researchers.adelaide.edu.au/profile/stacie.attrill: **researchers.adelaide.edu.au/profile/stacie.attrill**

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Wet Laboratory; Human Research

Research Areas

Translational Health Outcomes

Associate Professor Stacie Attrill

HEALTH POLICY CENTRE – SAHMRI

Lead Researcher: Dr Kerry Ettridge

Contact: kerry.ettridge@sahmri.com

Research Summary

Dr Kerry Ettridge is a Senior Behavioural Scientist in the Health Policy Centre at SAHMRI, and has a PhD in Medicine from the University of Adelaide (2010), and a Bachelor of Psychology (Hons) (2001) from Flinders University. Her work incorporates behavioural, public health and quality of life approaches to improve well-being (both physical and psychosocial) and reduce risk of chronic disease, predominantly in the areas of cancer, diabetes and cardiovascular disease.

Dr Ettridge is currently involved in projects to underpin and support change in the consumption of sugar-sweetened beverages, products that are high in sugar with limited nutritional value. Consuming these products increases overall energy intake, and consumption has been associated with increased risk of obesity, type II diabetes, periodontal disease, dental caries and cardiovascular disease. This work provides insight into the drivers of consumption, and provides evidence to underpin policy-level interventions, such as labelling, tax or health levies, restricting marketing practices and reducing availability, to support consumers in making healthier choices.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: **researchers.adelaide.edu.au/profile/kerry.ettridge**

Projects available for

Honours; HDR

Maximum Number of Students

2

Category

Human Research

Research Areas

Nutrition and Metabolic Health

Dr Kerry Ettridge

HEALTH WORKFORCE PLANNING GROUP

Lead Researcher: Professor Caroline Laurence

Contact: caroline.laurence@adelaide.edu.au

Research Summary

Caroline's research interests is in the area of ealth workforce planning, particularly for the primary care sector. Her research has contributed to a greater understanding of the workforce pipeline in Australia including career decision making, workforce maldistribution, retention issues, changing workforce profiles and workforce policy analysis. Her current research projects include: the GP Graduate Tracking Study which is determining the practice location of graduates after training; a study investigating the perceptions of general practice as a career by medical students and junior doctors; and a study on embedding cost and benefits into workforce planning models. Most of her reserach undertaken with and funded by industry partners.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: **researchers.adelaide.edu.au/profile/caroline.laurence**

Projects available for

Third Year; Honours; HDR; Masters; Mphil

Maximum Number of Students

8

Category

Dry Laboratory; Human Research

Research Areas

Translational Health Outcomes

Surgical and Health Systems Innovation

Professor Caroline Laurence

IMPLEMENTING EVIDENCE-BASED CARE

Lead Researcher: Professor Gill Harvey

Contact: gillian.harvey@adelaide.edu.au

Research Summary

Our focus is on applied health services research to improve the quality of care. In particular, we are interested in how to achieve impact through research by studying methods and processes that can enhance the translation of research evidence into practice and policy. Examples of current research projects include: using co-design methods to improve the uptake of stroke rehabilitation guidelines; improving care transitions between hospital and home for older people; implementing appropriate care in hospital for patients at the end-of-life; preventing unnecessary hospital admissions of aged care residents; improving neonatal care in South Kalimantan, Indonesia. The common thread in these studies is building the knowledge base about how to implement evidence into practice and policy, in order to address an important translational gap.

For available projects please see Professor Harvey's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/gillian.harvey

Projects available for

Honours; HDR; Mphil

Maximum Number of Students

3

Category

Human Research

Research Areas

Translational Health Outcomes

Ageing, Frailty and Mobility

Surgical and Health Systems Innovation

Co-design workshop with older people to improve the experience of care transitions between hospital and home

Professor Gill Harvey

IMPLEMENTATION SCIENCE

Lead Researcher: Associate Professor Craig Lockwood

Contact: craig.lockwood@adelaide.edu.au

Research Summary

My program of research encompasses two core domains: Qualitative Systematic Reviews and Implementation Science in healthcare policy and practice. PhD ready applicants only.

Systematic Reviews

Qualitative synthesis is my core program of investigation, and includes philosophy, methodology and methods for synthesis of qualitative data. While open to new projects in this field, I have existing work on all aspects of qualitative synthesis using meta-aggregation, including protocol development, searching, critical appraisal, data extraction and synthesis, evaluation of confidence in qualitative findings, and reporting standards.

Implementation Science

Methodology, method and frameworks for implementation and implementation science, including the study of:

- behaviour change models and mechanisms,
- barriers, facilitators and implementation strategies
- Context analysis, Facilitation of Change and Evaluation of process and outcome in Implementation Science

For available projects please view Associate Professor Lockwood's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/craig.lockwood

Projects available for

HDR

Maximum Number of Students

3

Category

Systematic Reviews; Meta-analysis; Human Research

Research Areas

Translational Health Outcomes

Associate Professor Craig Lockwood

INNOVATIONS IN LEARNING AND TEACHING

Lead Researcher: Associate Professor Frank Donnelly

Contact: frank.donnelly@adelaide.edu.au

Research Summary

Frank has a mainly qualitative research background however has supervised students from a broad range of research methods and methodologies. His own research interests include: clinical outcomes, education and staff development, education theory, how approaches to education inform health care outcomes and how technology influences education.

For available projects please see Associate Professor Donnelly's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/frank.donnelly

Projects available for

Honours; HDR; Masters

Maximum Number of Students

5

Category

Qualitative Research; Systematic Reviews

Research Areas

Translational health outcomes research

Ageing, Frailty and Mobility

Associate Professor Frank Donnelly

INNOVATIVE TEACHING METHODS FOR PSYCHOTHERAPISTS

Lead Researcher: Dr Matthew Doherty

Contact: matthew.doherty@adelaide.edu.au

Research Summary

The available research project will examine the literature exploring the use of surrogate clients in the training of counselors and psychotherapists. Research surrounding the use of surrogate clients in other health related disciplines (e.g. medicine) has been well developed, however, the use of surrogate clients in the education of counselors and psychotherapists is a new and emerging practice, requiring investigation regarding its efficacy and application. This project will importantly examine the use of surrogate clients in the training of counselors and psychotherapists, through a systematic review of the available literature. The results will assist in further development of best practice principles and application to the student's educational experience.

For available projects please view Dr Doherty's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/matthew.doherty

Projects available for

HDR; Masters; Mphil

Maximum Number of Students

2

Category

Systematic Reviews

Research Areas

Translational Health Outcomes

Dr Matthew Doherty

JBI SYNTHESIS SCIENCE

Lead Researcher: Associate Professor Edoardo Aromataris

Contact: ed.aromataris@adelaide.edu.au

Research Summary

Our program of research is focused on evidence synthesis and across methodologies and methods of systematic reviews for health care and health services.

This includes reviews of the effectiveness of an intervention or therapy, reviews assessing exposures and risk factors, the prevalence of conditions, as well as reviews that are appropriate for qualitative synthesis or synthesis of data derived from text and opinion or a mix of methods, including umbrella reviews.

Projects may encompass application of evidence synthesis methodologies and methods to answer a question relevant to health practice or policy.

Projects focused on methodological issues pertinent to the development and application of these multiple methods of synthesis are also available.

For available projects please view Associate Professor Aromataris' Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/ed.aromataris

Projects available for

HDR; Masters

Maximum Number of Students

Flexible

Category

Systematic Reviews; Meta-analysis

Research Areas

Translational Health Outcomes

Associate Professor Edoardo Aromataris

JBI TRANSFER SCIENCE TEAM, ADELAIDE GRADE CENTRE

Lead Researcher: Associate Professor Zachary Munn

Contact: zachary.munn@adelaide.edu.au

Research Summary

Associate Professor Munn conducts projects investigating:

- Effective and efficient health practices
- Evidence-based healthcare
- Systematic review methodology
- Clinical guideline development methods
- Grading and evaluating evidence and developing recommendations
- Evidence implementation
- Evidence transfer and knowledge translation

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: researchers.adelaide.edu.au/profile/zachary.munn

Projects available for

Masters; Mphil

Maximum Number of Students

5

Category

Systematic Reviews; Meta-analysis

Research Areas

Translational Health Outcomes

Associate Professor Zachary Munn

PRIMARY CARE AND HEALTH SERVICES RESEARCH GROUP

Lead Researcher: Dr Oliver Frank

Contact: oliver.frank@adelaide.edu.au

Research Summary

My current research activities are in exploring how GPs' computer systems can help them to do their job better, particularly in increasing the performance of preventive activities and the quality, safety and efficiency of care. In May 2019, I am engaged also in projects aimed at helping patients to learn to sleep better and at helping people who are too fat to increase their health literacy as part of learning how to become slimmer.

For available projects please view Dr Frank's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/oliver.frank

Projects available for

Third Year

Maximum Number of Students

2

Category

Human Research

Research Areas

Translational Health Outcomes

Dr Oliver Frank

SA PHARMACY

Lead Researcher: Ms Alice Wisdom

Contact: alice.wisdom@adelaide.edu.au

Research Summary

Alice is the Research Lead within the Northern Adelaide Local Health Network Pharmacy Department. She has a broad range of research interests and has undertaken numerous multi-disciplinary research projects across a number of sites. As a Senior Pharmacist in Mental Health she has pharmacy expertise and a strong interest in undertaking research within this area.

Ms Wisdom's research interests include:

• Mental health: As a senior pharmacist in this area she has a strong interest in mental health research and translating evidence based medicine into practice. Current projects She is leading within this area include; assessing relapse rates following transition to the 3-monthly paliperidone long acting injection, assessing prescribing patterns for amphetamine induce psychosis and reviewing the incidence and patterns of high dose antipsychotic prescribing and polypharmacy. Further studies are warranted to assess the impact of potential interventions.

• Antimicrobials: Alice has an interest in antimicrobial utilisation and stewardship. Alice has previously analysed local data looking at time to antimicrobials in sepsis, and more recently been involved in a project assessing the impact of a sepsis pathway on improving timely antibiotic administration. De-labelling of antimicrobial allergies and education strategies around antimicrobial stewardship are particular interests. Previous projects carried out indicate an overall lack of evidence for the efficacy of education and guideline implementation strategies for vancomycin. Further studies looking into barriers to antimicrobial education and guideline implementation would be beneficial.

• Quality use of medicines: translation of best evidence into practice is imperative in improving the utilisation of medicines. Alice has been previously involved in various projects assessing compliance with best practice guidelines, pharmacist interventions and improving consumer engagement with their medicines.

For available projects please view Ms Wisdom's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/alice.wisdom

Ms Alice Wisdom

Projects available for

Third Year; HDR; Masters

Maximum Number of Students

4

Category

Human Research; Systematic Reviews

Research Areas

Translational Health Outcomes

Innovative Therapeutics

SA PHARMACY

Lead Researcher: Ms Sally Marotti

Contact: sally.marotti@adelaide.edu.au

Research Summary

As education and research lead for SA Pharmacy I have a broad range of interests in research. I work across multiple sites, and have worked on multiple interdisciplinary projects utilising multiple sites and data sources.

My research interests include:

Clinical Pharmacy Practice Model Evaluation: Patient care within the context of our health system requires innovation to adapt to the ever changing setting from the use of electronic systems, to the varied patient complexity the clinical pharmacy services we provide need to be adaptable and evidence based. I am interested in developing innovative models of delivering clinical pharmacy services to improve patient care and evaluating their impact. I have published papers looking at pharmacist prescribing in the perioperative setting, as well as innovative pharmacy models in the Acute Medical Unit and Emergency Departments.

Anticoagulation: In the early years of my career I have had a keen interest in the complexities of managing patients with anticoagulation, and generating evidence that can contribute to optimal patient outcomes. As anticoagulation options have broadened, the risk profile has changed, with an every growing need for research. One project I led includes the development of a intravenous heparin nomogram protocol which has been adapted and utilised across South Australia.

Opioids: Recently with the increasing profile of opioid prescribing, we have commenced a translational research project looking at ways of decreasing the long term use of opioids in our patients. In its early stages, we are currently looking at prescribers and patient perceptions around opioid use that will lead to the development of interventions designed to reduce the use of opioids.

Perioperative: Having previously been responsible for setting up multiple Perioperative clinical pharmacy services this is an area of great interest to me. This is a growing area for research as there are so many groups of medicines with little or no evidence guiding decision making at the point of surgery. We are currently undertaking some research looking at SGLT2I's and the risk of euglycaemic ketoacidosis, and hyperglycaemia around surgery.

Education evaluation: In my role I lead the SA Pharmacy Residency and student experiential placement program, and contribute to our intern and allied health assistant development programs. We have developed a range of educational tools including Entrustable Professional Activities, which contribute to the development of our practitioners. I am interested in developing and evaluating educational tools that support interdisciplinary communication and collaboration around patient care.

For available projects please view Ms Morotti's Researcher Profile under "My Research"

researchers.adelaide.edu.au/profile/sally.morotti

Projects available for

Third Year; HDR; Masters

Maximum Number of Students

2

Category

Human Research; Systematic review; Qualitive Research

Research Areas

Translational Health Outcomes

Innovative Therapeutics

Ms Sally Marotti

SOCIAL AND BEHAVIOURAL HEALTH SCIENCES: COUNSELLING AND PSYCHOTHERAPY

Lead Researcher: Associate Professor Jaklin Eliott

Contact: jaklin.eliott@adelaide.edu.au

Research Summary

Our research sits within Social and Behavioural Sciences, focusing on the social context of health and community perspectives on health and wellbeing. We consider how culture intersects with: health behaviours, health providers, and health policy and the provision of, and access to, health services; and explore how these influence health outcomes for people and their communities. We prioritise including views and experiences of community members (patients, consumers and stakeholders) in health research, policy, and service delivery.

Our methodological expertise includes qualitative and quantitative methods, used in research and the evaluation of health services and policy. We have extensive experience working with international, national, and state governments, different NGOs, and community-based organisations.

Counselling and Psychotherapy research focuses on issues related to the health and wellbeing of the community, specifically where this provides insight for counselling practice. Current topics of research include: hope in counselling, representations of counselling in the media, multicultural counselling training, spiritual distress, support for children with parents diagnosed with PTSD, and art therapy in residential aged care.

Details of specific projects can be found in the School of Public Health Student Research Projects Handbook which you can access here: **researchers.adelaide.edu.au/profile/jaklin.eliott**

Projects available for

Honours; HDR; Mphil, Mclin

Maximum Number of Students

Flexible

Category

Systematic reviews; Human Research

Research Areas

Translational Health Outcomes

Child and Adolescent Health

Associate Professor Jaklin Eliott

SWALLOWING AND COMMUNICATION DISORDERS ACROSS THE LIFESPAN

Lead Researcher: Dr Hans Bogaardt

Contact: hans.bogaardt@adelaide.edu.au

Research Summary

Swallowing and communication disorders can occur at any stage of the lifespan.

Communication disorders, like voice problems, have an impact on quality of life and might lead to problems in participating in everyday life and workforce. Research is focusing on underlying physiologic processes and improvement of outcomes of therapy. Within our research there is a special focus on communication disorders in neurogenerative diseases and neuropsychological aspects underlying communication problems.

Swallowing disorders are not only associated with choking and malnutrition/dehydration, but also have a detrimental impact on quality of life. Swallowing disorders are frequently found in a range of underlying diagnoses, like stroke, head-and-neck cancer and neurodegenerative diseases. Additionally, swallowing disorders can be found in neonates and a range of pediatric diagnoses. Our research focuses on the underlying physiologic processes that result in swallowing disorders. There is a strong focus on treatment and treatment efficacy. Our research aims to have better therapy outcomes for people with swallowing disorders, in a shorter time. The use of new technologies to support treatment is an essential part of current research. Next to this physiological approach, we are interested in the impact of swallowing disorders on quality of life and particularly in CALD populations.

For available projects please see Dr Bogaardt's Researcher Profile under "My Research"
researchers.adelaide.edu.au/profile/hans.bogaardt

Projects available for

Honours; HDR; Masters; Mphil

Maximum Number of Students

Flexible

Category

Wet Laboratory; Human Research

Research Areas

Translational health outcomes research

Neuroscience, Behaviour and Brain Health

Nutrition and Metabolic Health

Innovative Therapeutics

Dr Hans Bogaardt PhD

FOR FURTHER ENQUIRIES

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