

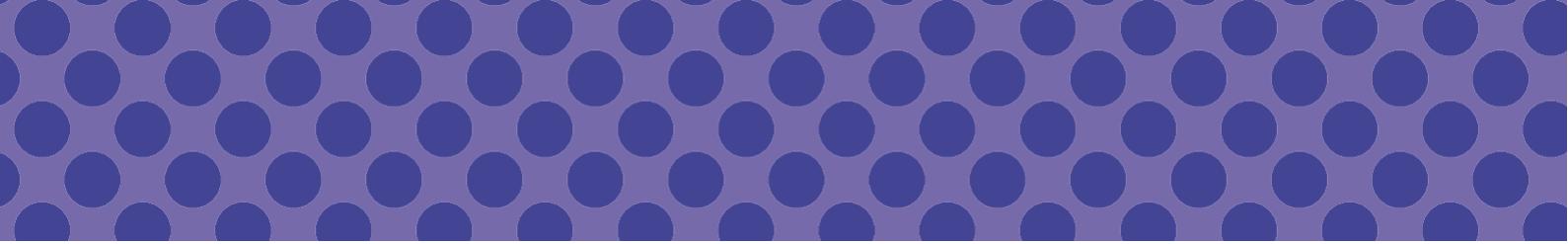
Postgraduate Research Opportunities at the Telethon Kids Institute

Student project booklet 2022



Discover. Prevent. Cure.





WELCOME TO THE TELETHON KIDS INSTITUTE

At Telethon Kids, our vision is simple - HAPPY HEALTHY KIDS.

We bring together community, researchers, practitioners, policy makers and funders, who share our mission to improve the health, development and lives of children and young people through excellence in research. Importantly, we want knowledge applied so it makes a difference.

Telethon Kids Institute is the largest medical research facility in Western Australia. With more than 1000 staff and students, we are also one of Australia's largest research facilities dedicated to child health. Our multidisciplinary approach brings together clinical researchers, laboratory scientists and epidemiologists all under the one roof to tackle the many complex childhood diseases and issues from a range of different angles.

In 2018, Telethon Kids moved to brand new premises within the children's hospital building at the QEII Campus in Nedlands. The new building includes state-of-the-art facilities with increased space and improved access to leading edge technology and research equipment.

Telethon Kids has strong affiliations with The University of Western Australia and Curtin University, as well as wide-reaching collaborations with leading research organisations around the world. You can find out more about our current projects, Research Teams, and being a student with us by:

- Visiting our website: www.telethonkids.org.au
- Contacting our researchers listed within this booklet
- Contacting our Student Team at study@telethonkids.org.au
- **Attending the Prospective Student Event:** 4pm in the Collegiate Lounge on Wednesday 25th August

SCHOLARSHIPS

Stan & Jean Perron Top Up Award

A prestigious top up scholarship of \$20, 000 p/a for three years to recognise and support exceptional postgraduate students undertaking their research at the Institute.

Stan & Jean Perron Excellence Award

A one year, \$20, 000 top up award that recognises exceptional performance by a higher degree by research student over the previous 12 months.

Wesfarmer's Centre of Vaccines & Infectious Diseases Top Up

A top up scholarship of \$10, 000 p/a, plus a one off \$10, 000 training fund to support an exceptional Honours, Masters, PhD or Medical Doctorate student undertaking their research in the area of infectious diseases.

RESEARCH FOCUS AREAS

Our Research Focus Areas are hubs that will facilitate the development, delivery and translation of high quality collaborative projects that make a difference to child health. Each Research Focus Area is designed to attract a diversity of expertise and a range of disciplines, in a coalescence of activity and creativity.

ABORIGINAL HEALTH

The Aboriginal Health Research Focus Area integrates the needs of Aboriginal families and children into all relevant areas of our work. Improving the health and wellbeing of Aboriginal children and families is an overarching priority for every program and team at the Institute.

Aboriginal people experience greater disadvantage than the rest of the population on almost all of the determinants of health, social and emotional wellbeing including employment, education and housing.

As there are specific cultural, social and economic contexts that require more specialised investigation in collaboration and consultation with Aboriginal families, this Research Focus Area is unique in that it provides advice, technical and cultural support across the Institute to all programs of research.

BRAIN AND BEHAVIOUR

Brain and Behaviour is a Research Focus Area which focuses on the core of many issues affecting the ongoing health and wellbeing of children and young people.

Our research investigates the developmental, genetic, family and environmental determinants of child wellbeing, and how clinical, educational and community practices can provide every child with the best opportunity for optimal health and development.

At the Telethon Kids Institute, this research encompasses a child's learning, development and mental health - and the impact of conditions like cerebral palsy, autism and intellectual disability.

Brain and Behaviour consists of three programs: Development and Education, Disability, and Mental Health and Youth Health.

CHRONIC & SEVERE DISEASES

Chronic and Severe Diseases is a Research Focus Area (RFA) which focuses on diseases in children that require a very different investigation and treatment to similar conditions in adults.

Childhood cancers, diabetes, respiratory conditions and rare diseases can be debilitating and often life threatening. Effective intervention and prevention requires an understanding of the complex interactions between genetic and environmental factors, as well as a focus on better ways of diagnosing, treating and controlling disease at the individual and population level.

Chronic and Severe Diseases consists of four programs: Cancer, Diabetes and Obesity, Genetics and Rare Diseases, and Respiratory Health.

EARLY ENVIRONMENT

Early Environment is a Research Focus Area (RFA) which focuses on the ways that environments early in life can affect a child's life-long health and development.

Factors ranging from infection and climatic conditions to pollutants, housing and our complex microbiome all have an impact. Understanding these exposures and their impact on early growth and development is key to preventing and treating a number of common childhood conditions.

At the Telethon Kids Institute, this research encompasses the development of the immune system, infectious diseases, maternal health and the developmental origins of disease and health.

Early Environment consists of three programs: Developmental Origins of Child Health, Infection and Vaccines, and Inflammation and Immunity.

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BRAIN & BEHAVIOUR

Brain & Behaviour is a Research Focus Area which focuses on the core of many issues affecting the ongoing health and wellbeing of children and young people.

Our research investigates the developmental, genetic, family and environmental determinants of child wellbeing, and how clinical, educational and community practices can provide every child with the best opportunity for optimal health and development.

At the Telethon Kids Institute, this research encompasses a child's learning, development and mental health - and the impact of conditions like cerebral palsy, autism and intellectual disability.

1000 Families Initiative

Research Focus Area	Brain & Behaviour
Research Group	Aboriginal Health Grand Challenge
Start Date	2022
Chief Supervisor	Dr Sharynne Hamilton (Telethon Kids Institute)
Other Supervisors	TBA
Project Outline	<p>The 1000 Families Initiative is a BHP funded community action research project that aims to improve the life trajectories of Aboriginal children, families and communities in Port Hedland, Newman and a selected site in Perth through:</p> <p class="list-item-l1">a. Establishing what Aboriginal children and families need to grow and flourish in each of the sites, their strengths and their unmet health and social needs as assessed by families.</p> <p class="list-item-l1">b. Together, designing, implementing and evaluating responses in each site to meet the health and social needs and aspirations of children and their families, and ensuring pathways to culturally secure and relevant service provision.</p> <p class="list-item-l1">c. Building an Aboriginal workforce and supporting local community researchers to gain relevant self-identified qualifications and to build their professional skills, including but not limited to aspects of research such as ethics, data collection, data analysis and research and service evaluation.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Identify as being of Aboriginal descentWork experience and/ or study in a relevant field such as health, child development, youth, mental health, disability, Indigenous studies, community development and/or evaluationEnrolment at a university for the relevant level of study (or intention to enrol)Well developed oral and written communication skills
Ethics Approval	<input type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by the project group

For more information, please contact:

Kristen White, Program Manager
0459 508 639
kristen.white@telethonkids.org.au

Ngulluk Koolunga Ngulluk Koort (Our Children, Our Heart) Project

Research Focus Area	Brain & Behaviour			
Research Group	Aboriginal Health and Wellbeing			
Start Date	Jan/Feb 2022			
Chief Supervisor	Dr Brad Farrant (Telethon Kids Institute, University of Western Australia)			
Other Supervisors				
Project Outline	<p>Healthy development in early childhood, particularly during the years before school, has a strong influence on a range of later life outcomes including physical health, social and emotional wellbeing, and academic achievement. This project advocates that there needs to be a culturally appropriate fit between the values, needs and expectations of Aboriginal parents, children and families and the resources and services that are available to them, to support Aboriginal children to fulfil their potential. Therefore, the overall aim of the Ngulluk Koolunga Ngulluk Koort Project is to bring the Aboriginal community(s) of Perth together with service providers and policy makers to develop culturally appropriate strategies to improve outcomes for young Aboriginal children (0 – 6 years) and their families.</p> <p>The project includes eight local Aboriginal Elders as Co-researchers. These Elders provide cultural advice to the project team on all aspects of the research. The Co-researchers guide the setting of research priorities, the planning of research processes and the implementation and evaluation of the research findings. The research team continues to work with the Co-researchers and the broader Aboriginal community(s) of Perth to develop a better understanding of early childhood development from an Aboriginal perspective. The discussions with community members focus on identifying the family and cultural factors which keep young Aboriginal children strong. We are looking for PhD and/or Masters students that are interested in getting involved with the qualitative and/or quantitative aspects of the project. While not a requirement, students of Aboriginal and/or Torres Strait Islander descent are encouraged to apply.</p>			
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Undergraduate degree in a relevant field • Ability to work effectively with Aboriginal and culturally diverse people • Capacity to work with communities (in particular Aboriginal communities) to understand and respond to their needs • Well-developed interpersonal skills, specifically a proactive attitude to relationship building, including the necessary language skills and motivation to build relationships with all relevant stakeholders • Well-developed verbal and written communication skills, including the ability to explain complex research and early childhood development matters in a clear and appropriate manner • Well-developed organisational skills and attention to detail, including a demonstrated ability to set goals, manage multiple priorities and meet deadlines 			
Ethics Approval	<input checked="" type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained	
Funding	<input type="checkbox"/> Top-up scholarship offered by project <input type="checkbox"/> Full scholarship offered by project			

For more information, please contact:

Dr Brad Farrant

08 6319 1779

brad.farrant@telethonkids.org.au

Development of a predictive algorithm for identifying infants at risk of subsequent intellectual disability

Research Focus Area	Brain & Behaviour
Research Group	Child Disability
Start Date	March 2022
Chief Supervisor	A/Professor Helen Leonard (Telethon Kids Institute)
Other Supervisors	Dr Kingsley Wong (Telethon Kids Institute) Jenny Bourke (Telethon Kids Institute) A/Professor Jenny Downs (Telethon Kids Institute) Dr Emma Glasson (Telethon Kids Institute)
Project Outline	<p>Multiple risk factors have been associated with intellectual disability over time, including social, biological and genetic factors. Demographic factors associated with increased risk of ID include male gender, lower socioeconomic status, and Indigenous heritage. Numerous perinatal factors are also implicated including advanced maternal age, high parity, maternal alcohol use, maternal tobacco use, gestational diabetes, maternal hypertension, preterm birth, and low birth weight. Our team has recently undertaken a systematic review to identify, describe and synthesise the findings from this published research and to assess the evidence for the most important risk factors for intellectual disability at the family, maternal, perinatal, child, and environmental level.</p> <p>It is likely that the range of early risk factors that we have identified in our systematic review are contributing in various combinations disproportionately to the burden of ID. Our team has access to deidentified population data on children born between 1983 and 2010 linked to their birth, antenatal and perinatal history, their mother's physical and mental health hospitalisation data and their intellectual disability status. The aim of this project is to use these population-linked data to develop algorithms which will identify the combinations of risk factors making children most vulnerable to the likelihood of intellectual disability.</p> <p>The precise research question to be addressed in this internship will be determined together with the prospective student. However, under the supervision of our team statistician the intern will be responsible for data preparation and conduct of the analyses. Data analysis activities are likely to involve the use of logistic regression and development of predictive models.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in an area of science/health sciencesExperience and interest in statistical analysis/data managementAbility to work as part of a team
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Assoc Prof Helen Leonard

0419956946

Helen.leonard@telethonkids.org.au

Does daytime sleepiness cause emotional and behavioural disturbances in children with Prader-Willi syndrome?

Research Focus Area	Brain & Behaviour
Research Group	Child Disability
Start Date	March 2022
Chief Supervisor	A/Professor Jenny Downs (Telethon Kids Institute)
Other Supervisors	Professor Catherine Choong (Perth Children's Hospital) Dr Marie Blackmore (Telethon Kids Institute)
Project Outline	Prader-Willi syndrome (PWS) is a rare genetic condition associated with developmental and health complications, including developmental delays, increased appetite and food seeking behaviours resulting in severe obesity, sleep disordered breathing, sleep regulation problems, intellectual disability and behavioural difficulties such as anxiety. We have discovered that children with more daytime sleepiness are more likely to have behaviour difficulties and it is possible that treating children's sleepiness will relieve their behavioural difficulties. However, this is currently unknown because our data are cross-sectional. To find out whether sleepiness causes behavioural difficulties, we need to track these children over time. We already have questionnaire data from children with PWS from across Australia, collected in the Australasian Prader-Willi Syndrome Database (APWSD) at one timepoint (between 2018 and 2021). This project will invite the families to provide additional data and then analyse longitudinal relationships between sleepiness and behavioural difficulties. Evidence that sleepiness causes behavioural difficulties will provide the basis for a clinical trial to test the effectiveness of treating sleepiness to ameliorate behavioural difficulties.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in an area of health sciences• Excellent communication skills• Interest in disability and family wellbeing• Interest in data analysis
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> A/Professor Jenny Downs +61 8 6319 1808 Jenny.Downs@telethonkids.org.au	

Families experience of sleep disturbances affecting their child with CDKL5 Deficiency Disorder

Research Focus Area	Brain & Behaviour
Research Group	Child Disability
Start Date	March 2022
Chief Supervisor	A/Professor Helen Leonard (Telethon Kids Institute)
Other Supervisors	A/Professor Jenny Downs (Telethon Kids Institute)
Project Outline	<p>CDKL5 Deficiency Disorder (CDD) is a rare but increasingly recognized cause of early onset epilepsy. In 2012 we established the International CDKL5 Database to collect data internationally and to characterise the disorder. The disease hallmarks are early onset refractory seizures and severe developmental impairment with deficits in gross motor, fine motor, language and socialization skills. Gastrointestinal, respiratory and musculoskeletal problems also frequently occur. Although sleep disturbances have also been reported, little is known about their frequency and pattern. Given the likely burden of sleep disturbances on the child and their family there is clearly need for further investigation of the nature and magnitude of this comorbidity so that appropriate therapies can be trialled and initiated for those affected.</p> <p>This study will use data collected on over 300 cases in the database to explore the frequency and characteristics of sleep disturbances in these children and adults and how this may vary by gender and age group. There will be an opportunity for a qualitative component involving interviews with parent caregivers to provide a more in-depth characterisation of issues relating to sleep disturbances, how they affect the child and the family and how parents deal with these.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in an area of health sciences• Excellent communication skills• Interest in disability and family wellbeing• Interest in qualitative research skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p><i>For more information, please contact:</i> A/Professor Helen Leonard +61 419956946 Helen.Leonard@telethonkids.org.au</p>	

How can we support the mental health of parent caregivers with a child with refractory epilepsy?

Research Focus Area	Brain & Behaviour
Research Group	Child Disability
Start Date	Jan to March 2022
Chief Supervisor	A/Professor Jenny Downs (Telethon Kids Institute)
Other Supervisors	Dr Jacinta Saldaris (Telethon Kids Institute) Professor Megan Galbally (UWA, Murdoch, Notre Dame)
Project Outline	Developmental Epileptic Encephalopathies (DEE) are a group of rare and severe epilepsy syndromes, characterised by refractory seizures, usually with early onset, and developmental impairments. They are often genetically caused. Parent caregivers need to implement and manage a complex set of medical and therapy tasks to manage their child's refractory epilepsy, developmental needs and other comorbidities. This is associated with stress and can adversely affect parental mental health. This project will conduct a needs analysis of what parent caregivers with a child with a DEE need to support their mental health, together with stakeholders and consumers. This project will in the first instance include conducting interviews and/or focus groups with parents/caregivers, and stakeholder consultation and/or interviews with community service providers to understand needs and potential support strategies. Ongoing work could include the development and testing of a mental health support intervention, depending on the level of the study.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in an area of health sciencesExcellent communication skillsInterest in disability and family wellbeingInterest in qualitative research skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> A/Professor Jenny Downs +61 8 6319 1808 Jenny.Downs@telethonkids.org.au	

How families manage their child's complex neurodevelopmental needs: The MECP2 Duplication Syndrome

Research Focus Area	Brain & Behaviour
Research Group	Child Disability
Start Date	March 2022
Chief Supervisor	Mr Daniel Ta (Telethon Kids Institute)
Other Supervisors	A/Professor Jenny Downs (Telethon Kids Institute) A/Professor Helen Leonard (Telethon Kids Institute)
Project Description	MECP2 duplication syndrome (MDS) is a relatively newly identified disorder associated with duplication of the <i>MECP2</i> gene. We recently established the MECP2 Duplication Database (MDBase) in 2020 to collect data internationally and to characterise the disorder. MDS is associated with intellectual disability, epilepsy, respiratory infections, motor impairments and behavioural difficulties. As such, parent caregivers need to implement and manage a complex set of medical and therapy tasks to manage their child's multimorbidities. This Honours study will be a qualitative study that investigates family self-management of their child's medical and therapy needs. Parent caregivers who are participating in MDBase will be recruited to participate in interviews that will explore their management regimens and the implications for their parenting stress, coping strategies and support needs for their caring tasks.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in an area of health sciencesExcellent communication skillsInterest in disability and family wellbeingInterest in qualitative research skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> A/Professor Jenny Downs +61 8 6319 1808 Jenny.Downs@telethonkids.org.au	

How should we measure epilepsy-related quality of life in children with a developmental epileptic encephalopathy?

Research Focus Area	Brain & Behaviour
Research Group	Child Disability
Start Date	Jan to March 2022
Chief Supervisor	A/Professor Jenny Downs (Telethon Kids Institute)
Other Supervisors	Dr Jacinta Saldaris (Telethon Kids Institute) A/Professor Helen Leonard (Telethon Kids Institute)
Project Outline	Developmental Epileptic Encephalopathies (DEE) are a group of rare and severe epilepsy syndromes, characterised by refractory seizures, usually with early onset, and developmental impairments. They are often genetically caused. Health related quality of life scales have capacity to measure the impacts of epilepsy on the children's lives, but current scales are not scaled appropriately for the effects of disability on this group of children. We have some interview data that explains health related quality of life for children with a DEE, but more are needed to provide data to inform the development of a DEE-specific health related quality of life scale. This project will involve interviews with parents and qualitative analyses. Ongoing work could include the development and testing of a DEE-specific health related quality of life scale, depending on the level of the study.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in an area of health sciencesExcellent communication skillsInterest in disability and family wellbeingInterest in qualitative research skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

A/Professor Jenny Downs

+61 8 6319 1808

Jenny.Downs@telethonkids.org.au

Identifying strategies to increase community participation for adolescents with intellectual disability

Research Focus Area	Brain & Behaviour
Research Group	Child Disability
Start Date	March 2022
Chief Supervisor	A/Professor Jenny Downs (Telethon Kids Institute)
Other Supervisors	Dr Rachel Skoss (Notre Dame University) Dr Marie Blackmore (Telethon Kids Institute)
Project Outline	Our previous research has demonstrated that community participation is an important determinant of quality of life in children and adolescents with intellectual disability. Evidence in this area is currently insufficient to inform service delivery and we are commencing a program of research to address this gap. For this study, we will conduct interviews with community organisations and disability service providers about successful and unsuccessful experiences of community participation. Interview data will be used to generate journey maps of lived experiences that tell rich and meaningful stories (identifying low and high points, transition points and facilitators). Data will be developed into a series of maps to illustrate stages of engagement with community participation and to document the enablers and barriers experienced at each stage. The findings will inform the development of resources which will (a) support and empower adolescents to participate meaningfully in the community and (b) guide community services to support their participation.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in an area of health sciencesExcellent communication skillsInterest in disability and family wellbeingInterest in qualitative research skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p><i>For more information, please contact:</i> A/Professor Jenny Downs +61 8 6319 1808 Jenny.Downs@telethonkids.org.au</p>	

NDIS: a new data source for ascertaining intellectual disability in Western Australia

Research Focus Area	Brain & Behaviour					
Research Group	Child Disability					
Start Date	March 2022					
Chief Supervisor	A/Professor Helen Leonard (Telethon Kids Institute)					
Other Supervisors	Jenny Bourke (Telethon Kids Institute)					
Project Outline	<p>The Intellectual Disability Exploring Answers (IDEA) Database is a population-wide de-identified database on intellectual disability (ID) and autism in WA. Since 2002 ascertainment of individuals with ID or autism born since 1983 has been through notifications from the Disability Services Commission (now Department of Communities) and the Department of Education. In 2021 individuals with intellectual disability or autism registered for services in WA through the National Disability Insurance Scheme (NDIS) were additionally linked to the IDEA database.</p> <p>This project aims to investigate any changes in the number and severity of individuals now eligible for IDEA since the inclusion of those receiving services with the NDIS. Analysis will include estimates of prevalence and distribution of level of intellectual disability.</p>					
Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD		
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in an area of science/health sciencesExperience and interest in statistical analysis/data managementAbility to work as part of a team					
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained				
Funding	<ul style="list-style-type: none"><input type="checkbox"/> Top-up scholarship offered by project group<input type="checkbox"/> Full scholarship offered by project group					
<i>For more information, please contact:</i>						
Assoc Prof Helen Leonard						
0419956946						
Helen.leonard@telethonkids.org.au						

Seasonality at birth and Association with Intellectual Disability

Research Focus Area	Brain & Behaviour									
Research Group	Child Disability									
Start Date	March 2022									
Chief Supervisor	A/Professor Helen Leonard (Telethon Kids Institute)									
Other Supervisors	Jenny Bourke (Telethon Kids Institute) Dr Kingsley Wong (Telethon Kids Institute)									
Project Outline	<p>Some studies have suggested that autism spectrum disorder may vary by season of birth, but fewer studies have investigated whether this is also true of other causes of intellectual disability. This study will use a WA population dataset linking to the Intellectual Disability Exploring Answers (IDEA) Database and the WA Midwives Notification System. The student will investigate whether there are any differences in the prevalence of intellectual disability or autism plotted by month of conception, to investigate any seasonal patterns of variation.</p> <p>Variables such as gestational age at delivery, sex, birthweight and maternal factors will be used to adjust the analysis. Some biologically plausible causes of any variation, such as infection and maternal vitamin D levels, would be potentially amendable to intervention.</p>									
Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD						
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in an area of science/health sciences• Experience and interest in statistical analysis/data management• Ability to work as part of a team									
Ethics Approval	<input checked="" type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained							
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group									
<i>For more information, please contact:</i>										
Assoc Prof Helen Leonard 0419956946 Helen.leonard@telethonkids.org.au										

Supporting health literacy in parents of children with health- and/or disability-related needs

Research Focus Area	Brain & Behaviour						
Research Group	Child Disability						
Start Date	March 2022						
Chief Supervisor	A/Professor Jenny Downs (Telethon Kids Institute)						
Other Supervisors	Dr Rachel Skoss (Notre Dame University)						
Project Outline	<p>Health literacy is a broad term for a range of capacities that are required for people to effectively navigate to, negotiate and engage with health, disability and community services. Importantly, health literacy is not only about the capacity of the family seeking services, but also about the responsiveness and capacity of organisations to effectively respond to the varying needs of their clients. Health literacy is a useful lens to understand how services can be better designed, how families can be better supported throughout the journey, and opportunities to build capacity in both front-line practitioners, and their clients.</p> <p>This project will (1) investigate variation in health literacy profiles of parents of children who experience disability, mental health issues, chronic health conditions, and/or life-limiting illnesses; (2) conduct interviews or focus groups with specific consumer, clinician and service provider groups to understand strategies to address health literacy; and in response, (3) develop capacity building resources and evaluate their effectiveness.</p>						
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD			
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in an area of health sciences• Excellent communication skills• Interest in disability and family wellbeing• Interest in qualitative and quantitative research skills						
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained					
Funding	<ul style="list-style-type: none"><input type="checkbox"/> Top-up scholarship offered by project group<input type="checkbox"/> Full scholarship offered by project group						
<p><i>For more information, please contact:</i></p> <p>A/Professor Jenny Downs</p> <p>+61 8 6319 1808</p> <p>Jenny.Downs@telethonkids.org.au</p>							

Understanding the behavioural profile of individuals with CDKL5 Deficiency Disorder

Research Focus Area	Brain & Behaviour					
Research Group	Child Disability					
Start Date	March 2022					
Chief Supervisor	A/Professor Helen Leonard (Telethon Kids Institute)					
Other Supervisors	A/Professor Jenny Downs (Telethon Kids Institute)					
Project Outline	<p>CDKL5 Deficiency Disorder (CDD) is a rare but increasingly recognized cause of early onset epilepsy. In 2012 we established the International CDKL5 Database to collect data internationally and to characterise the disorder. The disease hallmarks are early onset refractory seizures and severe developmental impairment with deficits in gross motor, fine motor, language and socialization skills. Gastrointestinal, respiratory and musculoskeletal problems also frequently occur. Yet little is known about the behavioural profile of individuals with this disorder.</p> <p>This study will use baseline data collected on over 300 cases in the database as well as follow up data on approximately half of this group to explore the behavioural characteristics of these children and adults and how this may vary by gender, age group and mutation group.</p>					
Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD		
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in an area of health sciencesExcellent communication skillsInterest in disability and family wellbeingInterest in qualitative research skills					
Ethics Approval	<input checked="" type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained			
Funding	<ul style="list-style-type: none"><input type="checkbox"/> Top-up scholarship offered by project group<input type="checkbox"/> Full scholarship offered by project group					
<p><i>For more information, please contact:</i> A/Professor Helen Leonard +61 419956946 Helen.Leonard@telethonkids.org.au</p>						

LIFE COURSE CENTRE

Gender differences in the home language environment during the early years

Research Focus Area	Brain and Behaviour
Research Group	Child Health, Development and Education
Start Date	Negotiable
Chief Supervisor	Prof Sally Brinkman (Telethon Kids Institute)
Other Supervisors	Mary Brushe (Telethon Kids Institute)
Project Outline	Utilising data collected from a 5-year longitudinal study, Language in Little Ones (LiLO), this project will investigate the influence of gender on the quantity and quality of the child's home language environment. The LiLO study utilises advanced speech recognition technology to count the number of words children hear and speak in the home environment once every six months from 6months until 4 years. Information on the primary caregiver's mental health is also collected from 12months until 4 years.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Interest early child language development• Undergraduate degree in psychology, public health or related field• Quantitative skills (proficiency using statistical software)
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Mary Brushe

08 8207 2181

mary.brushe@telethonkids.org.au

Parent's mental health and the home language environment during the early years

Research Focus Area	Brain and Behaviour						
Research Group	Child Health, Development and Education						
Start Date	Negotiable						
Chief Supervisor	Prof Sally Brinkman (Telethon Kids Institute)						
Other Supervisors	Mary Brushe (Telethon Kids Institute)						
Project Outline	Utilising data collected from a 5-year longitudinal study, Language in Little Ones (LiLO), this project will investigate the influence of the primary caregiver's psychological distress and/or parenting stress on the quantity and quality of the child's home language environment. The LiLO study utilises advanced speech recognition technology to count the number of words children hear and speak in the home environment once every six months from 6months until 4 years. Information on the primary caregiver's mental health is also collected from 12months until 4 years.						
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD			
Essential Skills & Qualifications	<ul style="list-style-type: none">Interest in mental health and early child developmentUndergraduate degree in psychology, public health or related fieldQuantitative skills (proficiency using statistical software)						
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained					
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group						
<i>For more information, please contact:</i> Mary Brushe 08 8207 2181 Mary.brushe@telethonkids.org.au							

Playgroups as a mechanism for promoting the home learning environment

Research Focus Area	Brain & Behaviour
Research Group	Child Health, Development and Education
Start Date	Negotiable
Chief Supervisor	Professor Sally Brinkman (Telethon Kids Institute)
Other Supervisors	Alanna Sincovich (Telethon Kids Institute) Mary Brushe (Telethon Kids Institute)
Project Outline	Playgroups are a unique form of early childhood education that aim to foster positive outcomes for both children and their caregivers. As such, playgroup participation is likely to have an impact on children's early development through several pathways. One potential mechanism is the home learning environment, specifically the activities caregivers engage in at home with their children. This project will use data from a 5-year longitudinal study, Language in Little Ones (LiLO), which is collecting information on the home environment from when children are 6 months to 4 years of age. Analysis will aim to investigate the influence of playgroup attendance and dose on caregiver-child engagement in activities that promote learning in the home environment.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">● Interest in child health and development● Undergraduate degree in public health, psychology or related field● Quantitative skills (proficiency using statistical software)● Excellent communication skills (remote work may be required)
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Alanna Sincovich 08 8207 2039 alanna.sincovich@telethonkids.org.au	

The effect of breakfast skipping on child and adolescent wellbeing and academic outcomes: a longitudinal population-based study

Research Focus Area	Brain & Behaviour
Research Group	Child Health, Development and Education
Start Date	Negotiable
Chief Supervisor	Dr Tess Gregory (Telethon Kids Institute)
Other Supervisors	Alanna Sincovich (Telethon Kids Institute)
Project Outline	Breakfast skipping among children and adolescents is associated with a range of adverse outcomes, including poor school attendance and academic performance, reduced wellbeing, and unhealthy dietary and physical activity behaviours. This project will use longitudinal data from the Wellbeing Engagement Collection (WEC), an annual census in all South Australian schools among students in grades 4-12, linked with academic outcomes (National Assessment Program – Literacy and Numeracy; NAPLAN). Analysis will seek to investigate the effects of breakfast skipping among children and adolescents on emotional wellbeing and academic outcomes.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Interest in child health and development• Undergraduate degree in public health, psychology or related field• Quantitative skills (proficiency using statistical software)• Excellent communication skills (remote work may be required)
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Alanna Sincovich 08 8207 2039 alanna.sincovich@telethonkids.org.au	

The grandparent effect – in what ways does grandparent care support children’s development and wellbeing

Research Focus Area	Brain and Behaviour						
Research Group	Child Health, Development and Education						
Start Date	Negotiable						
Chief Supervisor	Dr Yasmin Harman-Smith (Telethon Kids Institute)						
Other Supervisors	Prof Sally Brinkman (Telethon Kids Institute)						
Project Outline	Research has identified a positive effect on children’s development associated with having spent some time in grandparent care before centre-based care or preschool. While grandparent effects have been associated with social, financial and caregiving support, there is limited research that explores what grandparents do when caregiving that creates better outcomes for children. Using a device to measure children’s language environments, this research will explore child-grandparent interactions and compare these to other care environments (e.g., parent and early education and care).						
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD			
Essential Skills & Qualifications	<ul style="list-style-type: none">Interest early child developmentUndergraduate degree in psychology, public health or related fieldQualitative and/or quantitative skills						
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained					
Funding	<ul style="list-style-type: none"><input type="checkbox"/> Top-up scholarship offered by project group<input type="checkbox"/> Full scholarship offered by project group						
<i>For more information, please contact:</i> Yasmin Harman-Smith 08 8207 2089 yasmin.harman-smith@telethonkids.org.au							

The mental health and wellbeing of children who are suspended from school

Research Focus Area	Brain and Behaviour
Research Group	Child Health, Development and Education
Start Date	Negotiable
Chief Supervisor	Dr. Tess Gregory (Telethon Kids Institute)
Other Supervisors	Mary Brushe (Telethon Kids Institute)
Project Outline	South Australia is the only jurisdiction globally that conducts an annual state-wide census of student wellbeing; the Wellbeing and Engagement Collection (WEC). As a component of the WEC, young people, from grades 4 through to 12, provide information on their social and emotional wellbeing. Through data linkage of the South Australian Department for Education administrative behavioural data and the WEC, this project will investigate the mental health and wellbeing of students who are suspended and excluded from school.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Interest mental health and wellbeing• Undergraduate degree in psychology, public health or related field• Quantitative skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Mary Brushe 08 8207 2181 mary.brushe@telethonkids.org.au	

Understanding screen time during the early years

Research Focus Area	Brain and Behaviour
Research Group	Child Health, Development and Education
Start Date	Negotiable
Chief Supervisor	Prof Sally Brinkman (Telethon Kids Institute)
Other Supervisors	Mary Brushe (Telethon Kids Institute)
Project Outline	This project aims to better children's use of screen media during the first five years of life. The data has been collected during a 5-year longitudinal study which captures electronic noise exposure during the early years, through advanced speech recognition technology called LENA. Through LENA, human transcription and parent-reported screen use, information on both the amount and content of screen time from when the child is 6months of age until 4 years will be available.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Interest in children's screen use during the early years• Undergraduate degree in psychology, public health or related field• Quantitative skills (proficiency using statistical software)
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Mary Brushe 08 8207 2181 Mary.brushe@telethonkids.org.au	

What makes a talkative home environment? A mixed methods approach

Research Focus Area	Brain and Behaviour
Research Group	Child Health, Development and Education
Start Date	Negotiable
Chief Supervisor	Prof Sally Brinkman (Telethon Kids Institute)
Other Supervisors	Mary Brushe (Telethon Kids Institute)
Project Outline	Previous research has identified that a socioeconomic word gap emerges by 18months of age, concerning the amount parents talk to their children. This project takes a mixed method approach to gain a deeper insight into the home environment for parents of high and low talking environments across the socioeconomic spectrum. Findings will inform key components of future interventions that help support children's early language development.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Interest early child language development• Undergraduate degree in psychology, public health or related field• Qualitative and/or quantitative skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Mary Brushe 08 8207 2181 mary.brushe@telethonkids.org.au	

Developing a school built environment audit tool to improve bullying and mental health

Research Focus Area Brain & Behaviour

Research Group Development and Education Research Program

Start Date March 2022

Chief Supervisor Dr Jacinta Francis (Telethon Kids Institute)

Other Supervisors Dr Julie Saunders (The University of Western Australia)

Project Outline Peer bullying and aggression are key contributors to mental illness among children, contributing to loneliness, distress, and poor academic performance. Although a number of school-based prevention and intervention approaches to prevent bullying have been developed internationally, many of these cease to be effective after Year 9, with some programs inadvertently *increasing* bullying behaviour. New approaches to prevent bullying are needed. This project aims to develop and validate primary and secondary school audit tools to measure features of the school indoor and outdoor built environment associated with bullying behaviour and mental health. The audit tool will be developed and informed by a review of existing audit tools used in schools, parks and child-care centres and a Delphi survey sent to stakeholders to confirm, add or delete priority audit items. The audit tools will be assessed to determine and enhance their psychometric properties and once validated, used to scan Western Australian schools.

Suitable For Honours MD Masters PhD

Essential Skills & Qualifications

- Undergraduate degree in psychology, health science, health promotion, education, nursing or similar discipline.
- Valid Working with Children Check.
- For Masters and PhD: First-class Honours or equivalent.

Ethics Approval Obtained Not Obtained

Funding Top-up scholarship offered by project group
 Full scholarship offered by project group

For more information, please contact:

Dr Jacinta Francis

+61 8 6319 1471

Jacinta.Francis@telethonkids.org.au

Do neighbourhood cohesion and physical activity mediate the relationship between green space and mental health?

Research Focus Area Brain & Behaviour

Research Group Development and Education Research Program

Start Date March 2022

Chief Supervisor Dr Jacinta Francis (Telethon Kids Institute)

Other Supervisors Dr Julie Saunders (The University of Western Australia)

Project Outline Investigations into green space and mental health have gained momentum in recent decades, with numerous studies linking green space attributes to both mental illness and wellbeing. While more research is needed into the pathways between greenspace and mental health, greenspace has the potential to improve mental health by reducing stress, facilitating physical activity and fostering positive social ties. The How Areas in Brisbane Influence heAlTh And activity (HABITAT) study is a multi-level study of over 8,000 adult participants and 200 neighbourhoods. This project involves the secondary analyses of a longitudinal dataset to explore pathways between neighbourhood greenspace and mental health, specifically the potential mediators of social relations, physical activity, and stressful life events across four timepoints. Objectives include:

- i) exploring the role of social ties, physical activity, and stressful life events on the relationship between the built environment and mental health;
- ii) identifying key park attributes that influence mental health by different sub-populations (i.e., age, gender, parents, grandparents, children living at home, and age of children living at home); and
- iii) identifying thresholds for key park attributes that influence mental health for different sub-populations and socio-economic areas.

Suitable For

Honours

MD

Masters

PhD

Essential Skills & Qualifications

- Undergraduate degree in psychology, health science, health promotion, education, nursing or similar discipline.
- Experience conducting statistical analyses (SPSS/SAS).
- For Masters: First-class Honours or equivalent.

Ethics Approval

Obtained

Not Obtained

Funding

Top-up scholarship offered by project group

Full scholarship offered by project group

For more information, please contact:

Dr Jacinta Francis

+61 8 6319 1471

Jacinta.Francis@telethonkids.org.au

ARC Life Course Centre 2020: Neighbourhood Influences on Child Health and Development

Research Focus Area	Brain & Behaviour
Research Group	Children's Physical Activity, Health and Development
Start Date	Flexible: 2022-2023
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute, UWA)
Other Supervisors	Prof Donna Cross (Telethon Kids Institute, UWA) Dr Andrea Nathan (Telethon Kids Institute) Dr Sharmani Barnard (Telethon Kids institute)

Project Outline

Developmental delays in physical health and wellbeing, social competence, emotional maturity, language, cognitive, and communication skills have significant health, social and economic consequences for later life. Across Australian suburbs there are inequalities in the proportion of children developmentally at risk. A significant amount of this inequality in developmental vulnerability remains unexplained. This project will examine the influence of the neighbourhood and home physical environment on child health and development. It will provide evidence to inform the design of urban areas that are supportive of child health and development. The built environment incorporates land use patterns, transportation systems, building design, access to shops and services and social infrastructure, and creates conditions that are optimal (or detrimental) for child health and development.

The Australian Research Council Centre of Excellence for Children and Families over the Life Course (the Life Course Centre) is an international collaboration of 21 organisations working to identify the drivers of deep and persistent disadvantage and develop innovative solutions to address it. The successful HDR candidate will also be a student member of the Life Course Centre, which qualifies them to apply for travel grants and attend professional development courses.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills &	<ul style="list-style-type: none"> Ability to conduct quantitative and qualitative research 			
Qualifications	<ul style="list-style-type: none"> Excellent writing skills Statistical analysis (SPSS/SAS/STATA/R) Ability to work as part of a team Good interpersonal and communication skills 			
	<p><i>For PhD candidates:</i></p> <ul style="list-style-type: none"> Minimum 2A Honours degree 			
	<p><i>For Masters candidates:</i></p> <ul style="list-style-type: none"> Degree in Public Health, Epidemiology, Data Science or related 			
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained		
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project <input checked="" type="checkbox"/> Full scholarship offered by project			

For more information, please contact:

A/Professor Hayley Christian
(08) 6319 1040

Hayley.Christian@telethonkids.org.au

BEACHES - Longitudinal data study of built environments and child risk factors for non-communicable disease

Research Focus Area	Brain & Behaviour
Research Group	Children's Physical Activity, Health and Development & ORIGINS Project Team
Start Date	Flexible: 2022-2023
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute & UWA)
Other Supervisors	Prof Pete Gething (Telethon Kids Institute & Curtin) Dr Bryan Boruff (UWA School of Agriculture & Environment) Dr Andrea Nathan (Telethon Kids Institute)

Project Outline	<p>This research will use longitudinal data from Australian cohort studies as part of the NHMRC funded Built Environments and Child Health in Wales and Australia (BEACHES) project. Population level data will be used to identify and understand the complex factors in the built environment and how they influence modifiable risk factors (physical inactivity, sedentary time, dietary intake, and overweight/obesity) for non-communicable disease across childhood.</p> <p>Findings from this research will inform evidence-based policy planning to prevent the rise of non-communicable diseases across the lifespan as well as inform sustainable ways to prevent modifiable risk factors for non-communicable disease.</p>
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Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Ability to conduct quantitative researchExcellent writing skillsStatistical analysis (SPSS/SAS)Ability to work as part of a teamGood interpersonal and communication skills			
	<i>For PhD candidates:</i> <ul style="list-style-type: none">Minimum 2A Honours degree			
	<i>For Masters candidates:</i> <ul style="list-style-type: none">Degree in Public Health, Epidemiology, Data Science or related			
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained		
Funding	<input type="checkbox"/> Top-up scholarship offered by project <input type="checkbox"/> Full scholarship offered by project			

For more information, please contact:

A/Professor Hayley Christian
(08) 6319 1040

Hayley.Christian@telethonkids.org.au

Children's Physical Activity, Health and Development

Research Focus Area	Brain & Behaviour						
Research Group	Children's Physical Activity, Health and Development						
Start Date	2022						
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute, UWA)						
Other Supervisors							
Project Outline	<p>This research forms part of the PLAYCE program of research – Places Spaces & Environments for Children's Physical Activity. PLAYCE examines the influence of the physical, social and policy environment on young children's physical activity, sedentary behaviour, eating behaviour, weight status, sun exposure and development: at home, around the neighbourhood and whilst attending early childhood education and care (ECEC). This research will provide information on how best to create healthy home, neighbourhood and ECEC environments.</p> <p>The project involves qualitative research with children, parents, staff and key stakeholders in the ECEC setting, as well as quantitative research measuring young children's movement behaviours (physical activity, sedentary time and sleep), overweight/obesity, development and the influence of the ECEC physical, policy and social environment. There is scope to evaluate the impact of policy and practice-based interventions to improve children's movement behaviours at ECEC.</p> <p>Students have the option to work on the PLAYCE cohort study which details patterns of movement behaviours and the effect movement behaviours have on weight status and socio-emotional, cognitive, and motor development across childhood (2-9 years).</p>						
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD			
Essential Skills &	<ul style="list-style-type: none"> • Ability to conduct quantitative and or qualitative research 						
Qualifications	<ul style="list-style-type: none"> • Excellent writing skills • Statistical analysis (SPSS/SAS) • Ability to work as part of a team • Good interpersonal and communication skills 						
<p><i>For PhD candidates:</i></p> <ul style="list-style-type: none"> • Minimum 2A Honours degree 							
<p><i>For Masters candidates:</i></p> <ul style="list-style-type: none"> • Degree in Public Health, Epidemiology, or related 							
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained					
Funding	<input type="checkbox"/> Top-up scholarship offered by project <input type="checkbox"/> Full scholarship offered by project						
<p><i>For more information, please contact:</i></p> <p>A/Professor Hayley Christian (08) 6319 1040 Hayley.Christian@telethonkids.org.au</p>							

Impact of Nature (green & blue space) on Young Children's Health

Research Focus Area	Brain & Behaviour			
Research Group	Children's Physical Activity, Health and Development			
Start Date	Flexible: 2022-2023			
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute, UWA)			
Other Supervisors	Phoebe George (Telethon Kids Institute)			
Project Outline	<p>Contact with nature (plants and animals) is associated with children developing a sense of identity, autonomy, psychological resilience, self-regulation, gross motor skills and learning healthy behaviours. The impact of nature contact has been examined in older children, but there are very few studies in young children. Research on the health benefits of green and blue space is an emerging field of research with most studies conducted in the last 5 years. Overall, studies have shown that blue and green space is associated with several physical and mental health benefits. This project has the scope to examine the role that water systems play in human health looking at variations by geographical location and population and how Western Australians access and use different types of blue spaces in their community and what the health and wellbeing benefits (and potential negative effects) are. The amount of time children spend in these environments, the types of play they engage in, their risk-taking assessment ability, social interactions and physical health will be examined. There is also scope for this project to examine the impact of <i>green</i> and <i>blue space</i> on early child health and development.</p> <p>This project's findings have the potential to strengthen sector and transdisciplinary collaboration on water systems and health and advance understanding of the relationship between water systems and health in the local context. In the longer term, the research will inform recommendations to ensure people continue to receive health benefits from blue spaces.</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills &	<ul style="list-style-type: none"> • Ability to conduct quantitative and qualitative research 			
Qualifications	<ul style="list-style-type: none"> • Excellent writing skills • Statistical analysis (SPSS/SAS) • Ability to work as part of a team • Good interpersonal and communication skills 			
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained		
Funding	<input type="checkbox"/> Top-up scholarship offered by project <input type="checkbox"/> Full scholarship offered by project			

For more information, please contact:

A/Professor Hayley Christian
 (08) 6319 1040

Hayley.Christian@telethonkids.org.au

Longitudinal study of family physical activity and young children's physical activity, play and development

Research Focus Area	Brain & Behaviour			
Research Group	Children's Physical Activity, Health and Development & ORIGINS Project Team			
Start Date	Flexible: 2022-2023			
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute & UWA)			
Other Supervisors				
Project Outline	<p>Daily physical activity is critical during the early years of life. Physical inactivity and sedentary behaviours have been shown to track from early childhood into adolescence and adulthood, negatively influencing health throughout the life course. Regular physical activity provides children with health and developmental benefits, including healthy weight, improved bone health, cardiovascular fitness, and enhanced cognitive, emotional, and psychosocial development. More than one fifth of Australian children aged 2-4 are overweight or obese. Physical activity is a critical strategy for combating rising levels of obesity. Objective measures of physical activity show less than a third of Australian 2-5-year-olds achieve the recommended three hours of physical activity per day required for their health and development.</p> <p>This research will use longitudinal data collected as part of the ORIGINS project to examine parent's physical activity levels pre-pregnancy, during pregnancy, and at 6 and 12 months after childbirth. Relationships with children's time spent playing will also be examined at 9 and 12 months. Findings from this research will provide evidence of the role of prenatal, antenatal, and postnatal parent physical activity habits on young children's physical activity, play and development. It will provide evidence to inform intervention strategies to facilitate the development of healthy physical activity behaviours in young children.</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Ability to conduct quantitative research• Excellent writing skills• Statistical analysis (SPSS/SAS)• Ability to work as part of a team• Good interpersonal and communication skills			
	<p><i>For PhD candidates:</i></p> <ul style="list-style-type: none">• Minimum 2A Honours degree			
	<p><i>For Masters candidates:</i></p> <ul style="list-style-type: none">• Degree in Public Health, Epidemiology, or related			
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained		
Funding	<input type="checkbox"/>	Top-up scholarship offered by project		
	<input type="checkbox"/>	Full scholarship offered by project		

For more information, please contact:

A/Professor Hayley Christian
(08) 6319 1040

Hayley.Christian@telethonkids.org.au

Parent Engagement in the Play Active Program

Research Focus Area	Brain & Behaviour				
Research Group	Children's Physical Activity, Health and Development				
Start Date	2022				
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute, UWA)				
Other Supervisors	Dr Andrea Nathan (Telethon Kids Institute)				
Project Outline	<p>This research forms part of the PLAYCE program of research – Places Spaces & Environments for Children’s Physical Activity. The Cancer Council, National Heart Foundation, Goodstart Australia, Nature Play Australia, the Australian Childcare Alliance, Minderoo Foundation-Collaboration for Kids, Department of Health and Department of Local Government, Sport and Cultural Industries are working together with the research team to develop, implement and evaluate evidence-based policy for improving physical activity in children attending early childhood education and care (ECEC).</p> <p>This project will use qualitative research to identify barriers and enablers for parents and ECEC staff to implement physical activity policy in centres and formulate recommendations for centres and parents to support children to be physically active as part of the Play Active Program.</p>				
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD	
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Ability to conduct quantitative and qualitative research • Excellent writing skills • Statistical analysis (SPSS/SAS) • Ability to work as part of a team • Good interpersonal and communication skills 				
	<p><i>For PhD candidates:</i></p> <ul style="list-style-type: none"> • Minimum 2A Honours degree <p><i>For Masters candidates:</i></p> <ul style="list-style-type: none"> • Degree in Public Health, Epidemiology, or related 				
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group				
<p><i>For more information, please contact:</i></p> <p>A/Professor Hayley Christian (08) 6319 1040 Hayley.Christian@telethonkids.org.au</p>					

PLAYCE PAWS Intervention Scale Up

Research Focus Area	Brain & Behaviour Children's Physical Activity, Health and Development			
Start Date	Flexible: 2022-2023			
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute, UWA)			
Other Supervisors	Emma Adams (Telethon Kids Institute)			
Project Outline	<p>This research forms part of the PLAYCE program of research – Places Spaces & Environments for Children’s Physical Activity. The PLAYCE PAWS Study aims to trial different methods of encouraging more physical activity in children through playing and walking with the family dog. The overall aim of this study is to see whether active play and walking with the family dog facilitates improved developmental outcomes in young children.</p> <p>The project involves intervention scale up research with children, parents and the family dog. There is scope to use the learnings from the pilot study and further investigate the health and developmental benefits of companion animals for young children.</p>			
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD			
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Ability to conduct quantitative research • Excellent writing skills • Statistical analysis (SPSS/SAS) • Ability to work as part of a team • Good interpersonal and communication skills 			
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			
<p><i>For more information, please contact:</i></p> <p>A/Professor Hayley Christian (08) 6319 1040 Hayley.Christian@telethonkids.org.au</p>				

Investigating socio-digital inequity among young people in WA

Research Focus Area	Brain & Behaviour
Research Group	Health Promotion and Education Research Team
Start Date	February 2022
Chief Supervisor	Professor Donna Cross (Telethon Kids Institute)
Other Supervisors	Dr Kevin Runions (Telethon Kids Institute) Dr Natasha Pearce (Telethon Kids Institute) Dr Helen Monks (Telethon Kids Institute)

Project Outline Young people's lives are immersed in technology, with unprecedented familiarity and reliance on mobile devices. Although access to digital technology has educational and social benefits, its widespread use by children has many potential risks, especially as children are still developing socially and emotionally and have limited neural capacity for sound decision-making. Adverse social and mental health outcomes can stem from: inappropriate content (e.g. illegal, violent and pornographic imagery); potentially harmful online behaviours (e.g. cyberbullying, sexting, online hate); and unsolicited or unwelcome contact (e.g. grooming, sexexploitation).

This proposed student project will investigate how socio-digital inequity (including economic disadvantage) influences young people's experiences in online environments – including their access to technology, breadth and depth of ICT skills, exposure to online risks, and health-related outcomes. The scope for this work would depend upon the post-graduate degree being undertaken. A broad range of topics that might be explored as part of this project include:

- the relationship between socio-economic status and digital wellbeing (positive and negative aspects of technology use)
- Investigating risk and/or protective factors related to cyber-safety in low-SES communities
- Exploring young people's perceptions of their technology use (positive and negative aspects) in low-SES communities
- Examining parents, school staff, practitioner and/or expert views on young people's digital access and equity, and possible intervention strategies

The findings from this project will be used to inform the development and/or adaptation of interventions to be more responsive to the needs of young people experiencing socio-digital inequity.

Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications			<ul style="list-style-type: none">• Undergraduate and/or Masters degree (or equivalent) in health sciences/health promotion or related discipline• Excellent research, writing and communication skills	
Ethics Approval	<input type="checkbox"/> Obtained		<input checked="" type="checkbox"/> Not Obtained	
Funding		<input type="checkbox"/> Top-up scholarship offered by project group		<input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Helen Monks
08 6319 1470
helen.monks@telethonkids.org.au

The Early Years Initiative: A Deeper Dive

Research Focus Area	Brain & Behaviour
Research Group	Health Promotion and Education
Start Date	March 2022
Chief Supervisor	Dr Rosemary Cahill (Telethon Kids Institute)
Other Supervisors	Dr Renee Teal (Telethon Kids Institute) Dr Karen Lombardi (Telethon Kids Institute)
Project Outline	<p>The Early Years Initiative (EYI) is a ten-year partnership involving the Western Australian State Government (Departments of Communities, Education and Health), philanthropy (Minderoo Foundation) and four Western Australian ‘partner’ communities experiencing adversity: one remote, one very remote, one regional and one metropolitan. Clearly, this is a complex and ambitious undertaking. It seeks to fast-track improvements to the development, health and learning of children from conception to four years of age in the four partner communities, and lessons from the EYI will inform reforms that can be scaled in the future to other communities. Telethon Kids Institute has been engaged to evaluate the EYI as it unfolds.</p> <p>Student projects will extend or add value to the Evaluation: to explore in more detail elements of the Initiative, or the communities; or to undertake innovative research methods or engagement with stakeholders. A range of potential projects have been flagged but this list is not exhaustive:</p> <ul style="list-style-type: none"> • Peeling the onion on gentrification and its association with improved child development indicators • Granular lived experience of families living in very different places using geo-narrative techniques • Using the Partner Tool to examine collaboration across services and support systems • Case studies of specific issues across 4 communities (e.g.: a day in the life of a teen mum, oral health, family and domestic violence, disability access and inclusivity, cultural respect, inclusivity and preservation, playgroups, parental mental health, parental substance abuse) • Examining home learning environments and use of community connectors in regional communities.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Relevant undergraduate or postgraduate qualification to enable enrolment in HDR program. • Excellent communication skills, research and writing skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p><i>For more information, please contact:</i> Joerie Mandzufas, Program Manager Health Promotion and Education Ph 6319 1474 Joerie.mandzufas@telethonkids.org.au </p>	

Co-designing mindful compassion programs for wellbeing in the Kimberley

Research Focus Area	Brain & Behaviour
Research Group	Early Neurodevelopment and Mental Health
Start Date	Jan-March 2022
Chief Supervisor	Dr Amy Finlay-Jones (Telethon Kids Institute)
Other Supervisors	
Project Outline	<p>In this project, we aim to understand how mindfulness, compassion, and related constructs are experienced by Aboriginal people in the Kimberley region of Western Australia. We will use two-way learning to develop a conceptual map and experience-based co-design to develop a program framework and corresponding strategies. Together, this will help us to develop resources that can be used by Aboriginal community workers to support their own wellbeing, as well as a series of strategies to use in their work with communities. The benefits of this project include (1) gaining theoretical, practical, and experiential understanding of compassion and mindfulness in Aboriginal communities; (2) developing a community-owned mindfulness/compassion-based resource to support community wellbeing; and (3) building workforce capacity to deliver programs using the resource. Anticipated long-term benefits include greater sustainability of Aboriginal community workers in the workforce, thereby supporting the provision of compassionate and culturally-secure care to communities, which in turn is expected to promote wellbeing among community members.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Interest in contemplative science and Aboriginal health• Experience working with Aboriginal communities
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Dr Amy Finlay-Jones +61 8 6319 1808 Amy.finlay-jones@telethonkids.org.au	

Perinatal mental health: promoting developmental resilience from the earliest possible point

Research Focus Area	Brain & Behaviour
Research Group	Early Neurodevelopment and Mental Health
Start Date	Jan-March 2022
Chief Supervisor	Dr Amy Finlay-Jones (Telethon Kids Institute)
Other Supervisors	
Project Outline	Prenatal stress exposure influences mental health risk and resilience of children and is therefore an important target for the prevention of childhood mental illness. Together with our partners at the Institute for Innovations in Developmental Sciences (Northwestern University, Chicago), we are developing an approach to promoting child mental health from the earliest possible point, through prenatal interventions. Within this project there is scope to contribute to this program of research across one or more of the following areas: (1) building on our existing work examining the feasibility of meditation-based programs to support wellbeing of pregnant women; (ii) examining the relationship between maternal mental health, maternal inflammation in pregnancy, and child mental health outcomes; (iii) developing novel approaches to reduce maternal mental health difficulties during pregnancy and promote developmental resilience in children.
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in health sciences, population health or biological sciencesInterest in infant/early childhood mental health and parent mental healthQuantitative research skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Dr Amy Finlay-Jones +61 8 6319 1808 Amy.finlay-jones@telethonkids.org.au	

Preventing obesity from early childhood: The role of self-regulation

Research Focus Area Brain & Behaviour

Research Group Early Neurodevelopment & Mental Health/Food and Nutrition

Start Date Early 2022

Chief Supervisor Dr Amy Finlay-Jones
Dr Gina Trapp

Other Supervisors Dr Ben Jackson

Project Outline Child self-regulation difficulties are thought to increase obesity risk through their relationship with eating behaviour, sedentary behaviour, physical activity, and physiological stress. Interventions designed to promote self-regulatory capacities in infants and toddlers are potentially an important strategy for promoting healthy eating and exercise behaviours and preventing obesity. Despite this, such interventions are not currently available as part of Australia's public health commitment to obesity prevention. This series of studies will establish the foundation for the delivery of an obesity prevention program through adaptation and piloting of an evidence-based approach to promoting infant/toddler self-regulation. It will also involve development of an implementation framework for the delivery of the program in public health settings.

Suitable For Honours MD Masters PhD

Essential Skills & Qualifications

- Undergraduate degree in health sciences
- Suitable for student with interest in child development, public health, sports science, parenting, self-regulation, nutrition, or implementation science

Ethics Approval Obtained Not Obtained

Funding Top-up scholarship offered by project group
 Full scholarship offered by project group

For more information, please contact:

Dr Amy Finlay-Jones

+61 8 6319 1808

Amy.finlay-jones@telethonkids.org.au

Promoting infant and early childhood mental health: the role of parent-child relationships

Research Focus Area	Brain & Behaviour
Research Group	Early Neurodevelopment and Mental Health
Start Date	Jan-March 2022
Chief Supervisor	Dr Amy Finlay-Jones (Telethon Kids Institute)
Other Supervisors	Dr Vincent Mancini (Curtin University)
Project Outline	Early parent-child relationships are a key influence on child mental health risk and resilience across the lifespan. Using data from our existing dataset, this project will allow students to explore critical influences on early childhood mental health, using any of the following variables: parent stress, child sleep, screen exposure, parent-child attachment, parent self-compassion, parent emotion regulation, and parent use of emotion regulation strategies with children. The specific project will be developed in consultation with the supervisors.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Interest in infant/early childhood mental health and parent mental healthQuantitative research skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Dr Amy Finlay-Jones +61 8 6319 1808 Amy.finlay-jones@telethonkids.org.au	

Supporting toddler's ability to self-regulate: A needs analysis

Research Focus Area	Brain & Behaviour
Research Group	Early Neurodevelopment and Mental Health
Start Date	Jan-March 2022
Chief Supervisor	Dr Amy Finlay-Jones (Telethon Kids Institute)
Other Supervisors	A/Professor Jenny Downs (Telethon Kids Institute)
Project Outline	<p>Child self-regulatory difficulties (sleeping, settling, and managing emotions and behaviour) are one of the most common reasons parents seeks support. When self-regulatory difficulties persist, it can be detrimental to parent mental health and child outcomes.</p> <p>Understanding the needs and experiences of parents/caregivers who have a child with self-regulatory difficulties is an important step in developed targeted supports. Community service providers can also provide important perspectives on the facilitators and barriers to accessing support. The aim of this project is to conduct a needs analysis in this area, in partnership with our community partner/s. The needs analysis may comprise some or all of the following objectives, depending on the level of study:</p> <ul style="list-style-type: none">• Conducting interviews and/or focus groups with parents/caregivers• Conducting stakeholder consultation and/or interviews with community service providers• Conducting discrete choice experiments to determine the ideal characteristics of interventions to promote self-regulation <p>This project is part of a broader program of work conducted by the Early Neurodevelopment and Mental Health and Child Disability teams examining self-regulation difficulties in infants and toddlers. There is the potential to develop PhD ideas with the project teams.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Excellent communication skills• Interest in stakeholder engagement and family wellbeing• Qualitative research skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p><i>For more information, please contact:</i></p> <p>Dr Amy Finlay-Jones +61 8 6319 1808 Amy.finlay-jones@telethonkids.org.au</p>	

Development and validation of a tool to assess the public health nutrition risk of food retail and food service outlets

Research Focus Area	Brain & Behaviour
Research Group	Food & Nutrition
Start Date	Negotiable
Chief Supervisor	Dr Gina Trapp (Telethon Kids Institute)
Other Supervisors	Dr Claire Pulker (East Metropolitan Health Service)
Project Outline	<p>Local Governments routinely assess food businesses as part of their food safety surveillance system, but the relative healthfulness of the foods sold and potential impact on diet and health does not form part of this assessment. Under the new <i>Public Health Act 2016</i>, all Local Governments will be required (from 2022 onwards) to prepare a Local Public Health Plan, which includes creating and maintaining healthy food environments and setting and reporting on healthy-eating objectives. Local Governments will need current data to create their community profile and shape healthy eating objectives around them. The risk assessment approach routinely used by Local Governments for food safety could also be applied to public health nutrition risk to identify the relative healthfulness of food outlets and their potential impact on diet related non-communicable diseases. A tool to assist Local Governments to rate the potentially harmful public health nutrition impact of food outlets is therefore needed.</p> <p>This student project will aim to develop and validate a Food Outlet Dietary Risk (FODR) assessment tool for consumer facing food retail (e.g., supermarkets, greengrocers) and food service outlets (e.g., cafes, restaurants). The FODR assessment tool will be intended to be used by Local Governments to rate the potentially harmful public health nutrition impact of individual food outlets to inform Local Public Health Plans, surveillance and planning.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in nutrition, public health or related field• Excellent interpersonal, written and oral communication skills• Prospective PhD students need to have a First Class Honours Degree or Masters Degree in a suitable discipline related to the project, with a substantial research project component.
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full PhD scholarship offered by project group (TBC)
<p><i>For more information, please contact:</i> Dr Gina Trapp gina.trapp@telethonkids.org.au</p>	

Is there a relationship between neighbourhood food environments and child development outcomes?

Research Focus Area	Brain & Behaviour
Research Group	Food & Nutrition and Child Health, Development and Education
Start Date	Negotiable
Chief Supervisor	Dr Gina Trapp (Telethon Kids Institute)
Other Supervisors	Prof Sally Brinkman (Telethon Kids Institute) Dr Karen Villanueva/Prof Hannah Badland (RMIT) A/Prof Hayley Christian (Telethon Kids Institute)
Project Outline	<p>Healthy development in the early years lays the foundations for children's ongoing physical, emotional, and social health. A new and growing body of research is seeking to understand how the neighbourhoods where children live can affect this development. For example, there is now evidence to support the relationship between features of the neighbourhood-built environment, such as housing density, street design, traffic exposure and access to parks, and some child health behaviours. However, little evidence exists for the relationship between features of the neighbourhood food environment (i.e., the geographical access to food within a community) and child development outcomes. Easy access to healthy food choices where children live could play a pivotal role in how eating behaviours are shaped and subsequently maintained, which in turn, may impact on child development outcomes.</p> <p>This student project will aim to explore relationships between objective neighbourhood food environment measures and child development outcomes. A dataset of spatial (objectively measured) neighbourhood food environment measures (i.e., access to supermarkets, green grocers, fast food and takeaway outlets within 3.2km of home) has been linked to 205,030 child participants of the 2015 Australian Early Development Census (AEDC) for 21 of the largest urban and regional Australian cities. This linked dataset is the first of its kind worldwide, enabling the capacity to identify which features of the neighbourhood food environment are associated with child development outcomes across Australia at scale (national coverage). Comparisons can be made between diverse contexts (e.g., variations in relationships by city, state/territory, remoteness). The child development outcome measures which can be explored include physical health and wellbeing, language and cognitive skills, emotional maturity, social competence, and communication skills and general knowledge. The unique level of evidence this project produces can be used to inform future policy direction to create equitable, health-promoting communities that foster healthy child development.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Interest in nutrition, child health and development • Undergraduate degree in nutrition, psychology, public health or related field • Excellent interpersonal, written and oral communication skills • Quantitative data analysis skills • Prospective PhD students need to have a First Class Honours Degree or Masters Degree in a suitable discipline related to the project, with a substantial research project component.
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full PhD scholarship offered by project group (TBC)

For more information, please contact:

Dr Gina Trapp

gina.trapp@telethonkids.org.au

Killing the buzz: Interventions to reduce energy drink intake in children and adolescents

Research Focus Area	Brain & Behaviour
Research Group	Food and Nutrition
Start Date	Negotiable
Chief Supervisor	Dr Gina Trapp (Telethon Kids Institute)
Other Supervisors	Dr Siobhan Hickling (UWA School of Population and Global Health)
Project Outline	<p>Energy drinks have catapulted to popularity among young people. Whilst they are marketed to improve the body's performance, they pose a significant health risk due to the high levels of caffeine, sugar, sodium and herbal stimulants they contain. Their consumption has been linked to heart palpitations, hypertension, cardiac arrest and even sudden death in individuals with underlying heart conditions. Children and adolescents are at an even greater risk of experiencing adverse health effects from energy drinks due to their smaller body size and lower tolerance to caffeine. Despite growing community concern and evidence of health risks, Australian governments have not enforced age-specific restrictions on the purchasing of energy drinks. Thus, there is a critical need to identify other ways to minimise harm in young people.</p> <p>Interested students are invited to undertake research projects aimed at reducing and preventing energy drink intake in children and adolescents. Potential research topics include:</p> <ul style="list-style-type: none">• Development of a parent-based intervention to reduce energy drink intake in children and adolescents• Development of a child-focused intervention to reduce and prevent energy drink intake• Investigating parent, teacher and school principal's knowledge, attitudes, perceptions and experiences related to children's energy drink intake.
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• <i>Excellent interpersonal, written and oral communication skills</i>• <i>Prospective PhD students need to have a First-Class Honours Degree or Masters Degree in a suitable discipline related to the project, with a substantial research project component.</i>
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full PhD scholarship offered by project group
<p>For more information, please contact: Dr Gina Trapp gina.trapp@telethonkids.org.au</p>	

Making the healthy choice the easy choice: Within-store interventions to increase healthy food purchasing

Research Focus Area	Brain & Behaviour
Research Group	Food & Nutrition
Start Date	Negotiable
Chief Supervisor	Dr Gina Trapp (Telethon Kids Institute)
Other Supervisors	TBD

Project Outline

The daily diets we consume are influenced by the environments in which we live, work and play. While many Australians understand the need to eat a healthy diet, all too often the healthy choice is not the easiest choice. One of the ways we can try to address this issue is by looking at ways we can nudge people towards healthier choices in public settings, such as hospitals and sport and recreation settings. This includes making small changes that improve the availability and promotion of water and healthy food options instead of sugary drinks and junk food.

We are looking for interested students to carry out a series of 'nudge' experiments within food outlets located in public settings. A 'nudge' is a small change that alters people's behaviours without forbidding any options. For example, displaying water for sale at eye level within a canteen and limiting the promotion of sugar sweetened beverages by putting them out of sight, such as under a counter. Evaluation of sales and attendance data and customer exit surveys will be used to assess how the changes have impacted the food outlet and people's behaviour (e.g. retail profits, healthy food and drink purchasing, resources required, acceptability among the community).

Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications		<ul style="list-style-type: none">Undergraduate degree in nutrition, public health or related fieldExcellent interpersonal, written and oral communication skillsProspective PhD students need to have a First Class Honours Degree or Masters Degree in a suitable discipline related to the project, with a substantial research project component.		
Ethics Approval	<input type="checkbox"/> Obtained		<input checked="" type="checkbox"/> Not Obtained	
Funding		<input type="checkbox"/> Top-up scholarship offered by project group	<input checked="" type="checkbox"/> Full PhD scholarship offered by project group (TBC)	

For more information, please contact:

Dr Gina Trapp

gina.trapp@telethonkids.org.au

Nuggets and chips, burger and chips, fish and chips – What do parents, children and industry think about the current state of ‘Kids’ Meals’ in cafes & restaurants?

Research Focus Area	Brain & Behaviour
Research Group	Food and Nutrition
Start Date	Negotiable
Chief Supervisor	Dr Gina Trapp (Telethon Kids Institute)
Other Supervisors	Dr Siobhan Hickling (UWA School of Population and Global Health)
Project Outline	<p>Going out to eat was once viewed as an occasional treat, but it is now a common behaviour in many Australian households and accounts for around a third of all food spending. It has been suggested that restaurant tables are turning into the “new generation” of the dinner table where families connect, highlighting the importance of healthy meals to be served within these establishments. However, children’s menus or ‘kids’ meals’ (usually targeted at those under 12 years), are noted for their absence of healthy offerings like salads, whole-grain products, and fruit-based desserts. Our Food & Nutrition Team recently completed an audit of ‘Kid’s Meals’ in Perth, WA. Typical fare included foods like chicken nuggets and chips, burger and chips and fish and chips, with sugar-sweetened beverages often bundled in as the default drink option.</p> <p>The aim of this student project is to investigate parents’, children and food business owners’ attitudes and experiences related to ‘Kid’s Meals’ and the barriers and facilitators related to improving the nutritional quality of ‘Kid’s Meals’. A mixed-method design could be employed with quantitative (i.e., surveys) and qualitative (i.e., interviews/focus groups) elements.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Excellent interpersonal, written and oral communication skills• Undergraduate degree in nutrition, public health, health promotion or related field• Quantitative and qualitative research skills are desirable
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Dr Gina Trapp Gina.trapp@telethonkids.org.au	

Reducing breakfast skipping: Population trends in 'School Breakfast Club' attendance and implementation

Research Focus Area	Brain & Behaviour
Research Group	Food and Nutrition Child Health, Development and Education
Start Date	Negotiable
Chief Supervisor	Dr Gina Trapp (Telethon Kids Institute)
Other Supervisors	Alanna Sincovich (Telethon Kids Institute) Dr Tess Gregory (Telethon Kids Institute)
Project Outline	<p>Eating breakfast is often referred to as the most important meal of the day. It is a central component of nutritional well-being, contributing to total daily energy and nutrient intakes and has been linked to long-term health. Eating breakfast is particularly important for the health and development of children. A growing body of evidence has shown that children who regularly skip breakfast are less likely to have adequate sources of vitamins and minerals and more likely to consume foods high in fat, compared with children who eat breakfast. Modifying this behaviour through 'School Breakfast Club' programs, which offer free or reduced-cost breakfast to children at school, has become a popular strategy in working to reduce health inequalities among children. Investment into school breakfast programs continues to expand, however there is limited and mixed evidence regarding the proportion of Australian children who are accessing them and how well they are being implemented.</p> <p>This project will include two components. First, data from the Australian Early Development Census (AEDC) will be used to explore population trends in the proportion of children in their first year of school accessing breakfast programs, and how this has changed over time (2009-2021). Second, a desktop review will investigate implementation of school breakfast clubs across jurisdictions over time. Findings will seek to identify if school breakfast programs are reaching children as intended and how implementation may be improved.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Interest in child health and development• Undergraduate degree in public health, nutrition or related field• Quantitative skills (proficiency using statistical software)• Excellent communication skills (remote work may be required)
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Alanna Sincovich 08 8207 2039 alanna.sincovich@telethonkids.org.au	

Dismantling barriers to healthcare in malaria-endemic countries

Research Focus Area	Brain & Behaviour
Research Group	Geospatial Health and Development
Start Date	March 2022
Chief Supervisor	A/Prof Ewan Cameron
Other Supervisors	Prof Peter Gething
Project Outline	<p>In many malaria endemic countries parents face persistent barriers to accessing prompt and effective treatment for their children during febrile episodes, including (but not limited to) high costs of care relative to income, long travel times to the nearest health facility, prior commitments to work or caring for other family members, limited authority in family decision making, and/or concerns over their personal safety. Yet a recent meta-analysis (Mousa et al. 2020) has estimated that if all childhood malaria cases were treated with frontline antimalarial drugs within the first 24 hours of fever onset at least 42% of observed severe malarial cases could be averted. Understanding barriers to healthcare in this context, and identifying the potential gains that can be made by intervening on contributing factors, is thus an important piece of the policy landscape for program managers and NGOs charged with fighting this deadly disease.</p> <p>The aim of this project is to examine access to healthcare in malaria endemic countries through the lens of <i>causation</i>. The socio-economic and geographic factors giving rise to barriers to care are fundamentally inter-connected, and their relationships vary from country to country (and, at times, even between two regions of the same country). Hence, it remains an outstanding challenge in malaria science to unpick these relationship and synthesis knowledge towards recommendations of interventions that can be most impactful in this space. For an epidemiology graduate interested foremost in qualitative studies and policy formulation this could be a masters level project built around literature review and descriptive evidence fusion. For a graduate with a strong foundation in mathematical epidemiology and/or statistical methods this could be either a masters or PhD level project extending the above to causal inference methods for graph discovery and for estimating intervention effect sizes.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in epidemiology (qualitative-focused project); or undergraduate degree in mathematical epidemiology, biostatistics, statistical computing or related discipline (quantitative-focused project)Some experience of scientific computing and programming (quantitative-focused project only)Motivated to learn new skills, read widely in the scientific literature, and contribute towards high impact research
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> A/Prof Ewan Cameron +61 8 6319 1572 ewan.cameron@telethonkids.org.au	

Active Ingredients for Student Wellbeing: Identifying the Core Components of School-Based Wellbeing Interventions

Research Focus Area Brain & Behaviour

Research Group	<i>International Child Development Program</i>			
Start Date	Early 2022			
Chief Supervisor	Dr Amy Finlay-Jones (Telethon Kids Institute – Perth) Dr Tess Gregory (Telethon Kids Institute – Adelaide)			
Other Supervisors	Student will require a university-based supervisor			
Project Outline	<p>School-based interventions are potentially an accessible and effective way to promote wellbeing and prevent social and emotional difficulties in students. However, it is unknown which components of school-based interventions are responsible for improving student outcomes. Identifying what students need to be taught to improve their wellbeing (and how) can optimize intervention strategies and allow us to provide more efficient systems of support in schools.</p> <p>This project will involve a systematic review and meta-analysis of school-based wellbeing interventions to determine the key components responsible for intervention effects. Additional projects will be developed with the supervisory team for students who wish to pursue a PhD. For example, additional studies might involve design and pilot of a targeted wellbeing program in schools.</p>			
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in health sciencesInterest in school-based intervention research			
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Dr Amy Finlay-Jones

+61 8 6319 1808

Amy.finlay-jones@telethonkids.org.au

Parents' work hours and child health, wellbeing and educational outcomes

Research Focus Area	Brain & Behaviour
Research Group	Mental Health and Youth Research
Start Date	January 2022 or earlier
Chief Supervisor	Dr. Brad Farrant (Telethon Kids Institute)
Other Supervisors	Professor Michael Dockery (Curtin University) Associate Professor Jianghong Li (Berlin Social Science Center, Germany; Honorary Research Associate, Telethon Kids Institute; Adjunct Associate Professor, Curtin University)
Project Outline	<p>Familial time is an important resource for optimal child development. Research has shown that parents' work time, as a proxy measure of parental time spent with children, is linked to diet quality and risk for overweight and obesity in children and adolescents (e.g., in Western Australia and Germany). However, there is limited research focusing on the impact of parents' work hours on other domains of child development, e.g., mental health and wellbeing and educational outcomes. In particular, longitudinal analysis especially that using longer time spans during child development is rare. This project aims to fill in this gap by 1) investigating the trajectory of both mothers' and fathers' number of work hours per week from infancy to adolescence and the impact that these have on child social/emotional wellbeing and school achievement, using the Longitudinal Study of Australian Children as the primary data source; 2) potential mediators (e.g., parenting stress, work-family conflict, time use, parental mental health and wellbeing) and moderators (parent socioeconomic and child characteristics, work time flexibility) of this impact. The Raine Study data could also be employed to explore the impact of parents' work hours on specific health issues for which the Raine Study offers better measures. The analytical methods will include both random- and fixed-effects models and mediation analysis. The PhD project will be supervised by leading experts in the research field on work-family and work-health interfaces. The findings of the project will be publishable in high quality international journals and have significant implications for work and family policy and service provision in WA and nationally. The main responsibilities of the PhD candidate are:</p> <ul style="list-style-type: none"> • Apply for access to the datasets and necessary ethics approvals • Conduct literature search and review • Conduct data analysis • Present research findings at conferences • Write up the dissertation <p>We highly recommend that the student develops the dissertation using the paper format and publishes the results as the PhD project is in progress.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • A Master degree or a minimum 2A honours degree in population health/social epidemiology, labour economics, sociology or psychology • Strong analytical skills for quantitative data analysis (e.g., cohort or panel data) • Excellent written and communication skills • Independence in conducting research • Commitment to and strong motivation for a PhD degree
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
For more information, please contact:	
Dr. Brad Farrant 08 6319 1779 brad.farrant@telethonkids.org.au	or Prof Mike Dockery (m.dockery@curtin.edu.au) Prof Jianghong Li (jianghong.li@wzb.eu)

Access to healthcare services and suicide prevention

Research Focus Area	Brain & Behaviour
Research Group	Youth mental health
Start Date	March 2022
Chief Supervisor	Dr Nicole Hill
Other Supervisors	A/Professor Ashleigh Lin, Dr Yael Perry
Project Outline	<p>Most young people who die by suicide have contact with healthcare services prior to their death. Yet suicide remains the leading cause of death in those under the age of 25. This project seeks to identify the barriers to help seeking behaviour experienced by young people with and without lived experience of deliberate self-harm, and the experiences of healthcare professionals who provide support to young people who present to hospital emergency departments in metropolitan and regional WA.</p> <p>Lastly, this PhD will benchmark existing mental health services against the needs and barriers to access, as identified by young people with lived experience of self-harm. This mixed methods approach will have real-world implications for policy and decision makers in youth mental health and suicide prevention. Prospective students with excellent communication and interpersonal skills, attention to detail and a passion for learning new methods of analyses are encouraged to apply. Prospective students will also have an opportunity to develop their own ideas within and around this program of research.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in psychology, social work, public health or related field.Excellent communication skillsStrong interest in data collection and analysisFamiliarity with data analysis using SPSS, R, Stata or Nvivo is desirable but not essential.
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Nicole Hill 08 63191794 Nicole.hill@telethonkids.org.au	

Improving the mental health of trans and gender diverse young people and their parents

Research Focus Area Brain & Behaviour

Research Group	Youth Mental Health
Start Date	January, 2022
Chief Supervisor	Dr Yael Perry (Telethon Kids Institute)
Other Supervisors	A/Prof Ashleigh Lin (Telethon Kids Institute)
Project Outline	<p>There is an opportunity for prospective Honours, Masters and/or PhD students to be involved with a program of research focused on improving the mental health of trans and gender diverse young people, and their parents.</p>

This research aims to:

- Better understand the experiences of trans and gender diverse young people and their parents, especially in relation to parental support
- Better understand the mental health of parents of trans and gender diverse young people, and the impact of their child's gender diversity on their wellbeing
- Develop and evaluate resources to enhance parental understanding and support

This research program uses a range of methodologies including interviews/focus groups, a national survey, co-design workshops and an open trial. Prospective students can work within the existing program of work or develop their own research proposal in line with the research program. There may also be opportunities to become involved in the broader activities of the team who conduct youth mental health research across several marginalised populations.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications			<ul style="list-style-type: none">• Undergraduate degree in Psychology, Public Health or a related field• Excellent written and communication skills• Ability to work with, accept and respect diverse peoples	
Ethics Approval	<input checked="" type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained	
Funding		<ul style="list-style-type: none"><input type="checkbox"/> Top-up scholarship offered by project group<input type="checkbox"/> Full scholarship offered by project group		

For more information, please contact:

Yael Perry

(08) 6319 1298

Yael.perry@telethonkids.org.au

PRE-EMPT- PREdiction of Early Mental Disorder and Preventive Treatment

Research Focus Area	Brain & Behaviour
Research Group	Youth Mental Health
Start Date	January, 2022
Chief Supervisor	Associate Professor Ashleigh Lin (Telethon Kids Institute)
Other Supervisors	
Project Outline	<p>There is an urgent global need for innovation in the early identification and preventive treatment of mental disorders. PRE-EMPT is a NHMRC Centre for Research Excellence. PRE-EMPT will for the first time bring together a world class cross-disciplinary team of the pioneers of early intervention who have established unique national and international databases in which to apply innovative methodologies for assessing clinical trajectories in young people (e.g. machine learning, network analyses, joint modelling, time-series analyses, probabilistic multimodal modelling). Capitalising on recent conceptual and methodological advances, PRE-EMPT will lead to breakthroughs in predicting onset of serious mental disorders in order to guide preventive treatments and aetiological models, which could not be achieved by individual research studies alone. The team has researchers based in Perth, Melbourne, Brisbane, Adelaide, Germany and the Netherlands.</p> <p>This is a unique opportunity for students interested in mental health, epidemiology or advanced statistics to join the PRE-EMPT team to work on existing datasets. The CRE has a focus on developing the careers of students and early career researchers via joint publications, workshops and seminars.</p> <p>In WA we will focus on birth cohort data (e.g. the Raine study, LIFECYCLE Cohort), but opportunities exist for working on a range of clinical data.</p>
Suitable For	<input type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Strong statistical skills, and willingness to learn new analytic techniques• Interest in or knowledge of mental health• Undergraduate degree in Psychology, Public Health, Engineering, Mathematics or related field
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Ashleigh Lin (08) 6319 1291 Ashleigh.Lin@telethonkids.org.au	

Understanding and improving the social and emotional wellbeing of Aboriginal and/or Torres Strait Islander LGBTQA+ young people

Research Focus Area	Brain & Behaviour
Research Group	Youth Mental Health
Start Date	January, 2022
Chief Supervisor	A/Prof Ashleigh Lin (Telethon Kids Institute)
Other Supervisors	Dr Bep Uink and Dr Yael Perry
Project Outline	<p>There is very little information and guidance available for services that work with young people on how best to support someone who is both Aboriginal and/or Torres Strait Islander and is Lesbian, Gay, Bisexual, Transgender, Queer/Questioning, or Asexual (LGBTQA+). This means that young people (14-25 years) who are Aboriginal and/or Torres Strait Islander and LGBTQA+ may not receive the same level of social support and health care as other members of the community.</p> <p>In partnership with many community organisations across Australia, the Walkern Katatdjin (Rainbow Knowledge in Noongar) team are conducting a national online survey that aims to:</p> <ol style="list-style-type: none">1. Collect data that shows the current levels of social emotional wellbeing and mental health difficulties among Aboriginal and Torres Strait Islander LGBTQA+ young people across Australia.2. Collect data that shows risks and protective factors for strong social emotional wellbeing and mental health difficulties among Aboriginal and Torres Strait Islander LGBTQA+ young people across Australia.3. Identify helpful and unhelpful experiences Aboriginal and Torres Strait Islander LGBTQA+ young people across Australia are having when accessing mental health services. <p>The student will have the opportunity to work on an aspect of this data.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• The student must be Aboriginal and/or Torres Strait Islander• Undergraduate degree in Psychology, Public Health, Indigenous Studies or a related field
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Ashleigh Lin (08) 6319 1291 Ashleigh.Lin@telethonkids.org.au	

CHRONIC & SEVERE DISEASES



Chronic and Severe Diseases is a Research Focus Area (RFA) which focuses on diseases in children that require a very different investigation and treatment to similar conditions in adults.

Childhood cancers, diabetes, respiratory conditions and rare diseases can be debilitating and often life threatening. Effective intervention and prevention requires an understanding of the complex interactions between genetic and environmental factors, as well as a focus on better ways of diagnosing, treating and controlling disease at the individual and population level.

TELETHON KIDS CANCER CENTRE

Evaluating the impact of the bone marrow microenvironment on leukaemia development

Research Focus Area Chronic & Severe Diseases

Research Group Leukaemia Translational Research

Start Date February 2022

Chief Supervisors Dr Laurence Cheung (Telethon Kids Institute and Curtin University)

Dr Vincent Kuek (Telethon Kids Institute)

Other Supervisors Associate Professor Rishi Koticha

Project Outline The bone marrow microenvironment (BMM) is composed of many different types of cells including blood forming cells, immune cells, bone cells and cells supporting the blood cell development. The BMM is not only essential for normal blood cell development, but also for leukaemia development. It is known that the BMM changes significantly upon aging and such changes have impact on the blood cell development.

While acute lymphoblastic leukaemia (ALL) is the most common cancer in children it is a very rare cancer in adult. In contrast, myeloid malignancies are more frequent in the elderly. In addition, children with ALL have a better prognosis with 5-year survival rate over 90% compared to approximately 68% in adult. Studies suggested that the changes of the BMM during aging may have impact on the incidence of different types of leukaemia. In addition, our previous studies suggested that leukaemia development affects immune cell populations in the BMM. Therefore, the purpose of this project is to study whether an aged BMM affects ALL development. To perform the project, the student will develop expertise in:

- Animal handling and tissue preparation.
- Tissue culture.
- Flow cytometry and cell sorting.

Suitable For Honours MD Masters PhD

Essential Skills & Qualifications

- BSc (Hons)
- Good oral and written communication skills

Ethics Approval Obtained Not Obtained

Funding Top-up scholarship offered by project group
 Full scholarship offered by project group

For more information, please contact:

Name: Dr Laurence Cheung or Dr Vincent Kuek

6319 1345

Laurence.cheung@telethonkids.org.au or Vincent.kuek@telethonkids.org.au

Improving the immune response to cancer

Research Focus Area	Chronic & Severe Diseases
Research Group	Cancer Immunotherapy Unit
Start Date	March 2022
Chief Supervisor	Dr Jason Waithman, Dr Bree Foley, Dr Alison McDonnell and Dr Jesse Armitage (Telethon Kids Institute)
Other Supervisors	
Project Outline	<p>Our research program focuses on understanding and improving the immune response to cancer. Cancer immunotherapy as a discipline is delivering promising and vital alternatives for both adults and children in our efforts to control and cure cancer. However, immunotherapies overall provide vastly diverse outcomes between different patients and cancer types. Several key questions about why this might occur, or how to maximise the potential of immunotherapy, still remain. Our team deliberately seeks to answer the most complex immunological questions to provide meaningful, functional data so the full promise of immunotherapy can be realised.</p> <p>Our team harnesses the power of basic science, molecular biology, and genomics to forge tangible solutions that can dramatically improve the survival for children with cancer. We are specifically focussing on the following areas:</p> <ol style="list-style-type: none">1. Exploring cancer 'dormancy' and suppression strategies as an alternative to complete eradication2. Investigating a treatment method using donated cells as alternatives for patients who cannot receive immunotherapy from their own cells3. Determining new methods converting dysregulated cancer immunity to a successful response, resulting in improved tumour control4. Generating effective cancer vaccination strategies that force an immune response against cancer5. Understanding and overcoming tumour heterogeneity by examining the tumour microenvironment. <p>The core values underpinning the Unit are research excellence and innovation, which we achieve by embracing an entrepreneurial mindset in all our studies and by applying a multi-disciplinary lens on our work with the help of our collaborators. We are applying the latest disruptive technologies, such as single cell sequencing, to challenge existing dogma and assumptions associated to many of the significant problems and frustrations faced in the clinic. Finding solutions to complex issues requires an exceptionally capable team, which we have assembled. While there is no doubt that future obstacles will impede our ability to treat every child successfully – a key goal of our team is to continue to train the next generation of great researchers with the requisite skills to overcome those challenges on the horizon.</p>
We encourage all interested students to contact us and discuss specific project options.	
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Greater than credit average for Hons; BSc (Hons) or equivalent in biological discipline for Masters or PhD• Good organisational skills, motivation and dedication
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Jason.Waithman@telethonkids.org.au (6319 1744) Alison.McDonnell@telethonkids.org.au (6319 1743)

Local immunotherapies to fight sarcoma

Research Focus Area	Chronic & Severe Diseases
Research Group	Sarcoma Translational Research
Start Date	February/March 2022
Chief Supervisor	Dr. Rachael Zemek / Dr. Ben Wylie (Telethon Kids Institute)
Other Supervisors	A/Professor Joost Lesterhuis (Telethon Kids Institute)
Project Outline	<p>Surgical resection is, and has long been, the front-line approach for treating cancer. However, it is often not possible to remove all cancer cells, with some cells remaining behind in the wound bed. The result is that in time, these cancer cells can grow out again and cause a recurrence of the cancer, either locally or as metastases in other organs. A cancer particularly prone to relapse is soft-tissue sarcoma; a group of cancers derived from muscle, fat or connective tissues, characterised by local aggressive growth. Sarcoma is the third most common cancer in children and young people.</p> <p>The Sarcoma Translational Research team believes that all kids with sarcoma should be able to lead happy, healthy lives. To achieve this, we aim to discover and develop safer and more effective treatments, by doing innovative and rigorous research. We focus on addressing high relapse rates using a combination of unique preclinical models, patient samples and systems immunology.</p>

We aim to develop local therapies that can be applied during surgery to prevent relapse of sarcoma. However, to do that, we need to know:

- How does the wound healing response change the tumour infiltrating immune cells as well as the tumour itself?
- How do immune stimulants act locally to eradicate tumours?
- Can we develop biomaterials to release drugs locally?
- Can we combine new local therapies with current therapies?

We answer these questions using a range of skills including:

- Systems biology (bioinformatic analysis of RNA expression)
- Pre-clinical models (in vivo tumour models of surgical resection)
- Materials science/chemistry
 - Laboratory techniques including Histology, Cell/tissue culture, Molecular techniques such as CRISPR, PCR and cloning, and Flow cytometry

We currently have project opportunities for self-motivated and enthusiastic individuals. We invite you to meet with us to discuss specific projects.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications				
	<ul style="list-style-type: none">• Undergraduate degree in biomedical science or related biological discipline• 2A+ Honours or equivalent for PhD• Good organisational skills, motivation, and dedication• Excellent communication skills			
Ethics Approval	<input checked="" type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained	
Funding		<input type="checkbox"/> Top-up scholarship offered by project group		
		<input type="checkbox"/> Full scholarship offered by project group		
For more information, please contact:				
Rachael Zemek: +61 8 6319 1014 rachael.zemek@telethonkids.org.au	Ben Wylie: +61 8 6319 1597 ben.wylie@telethonkids.org.au	Joost Lesterhuis: +61 8 6319 1020 joost.lesterhuis@telethonkids.org.au		

Towards improving outcomes for children with leukaemia

Research Focus Area Chronic & Severe Diseases

Research Group Translational Genomics in Leukaemia (TGL)

Start Date February 2022

Chief Supervisor Dr Sébastien Malinge & Carlos Aya-Bonilla

Telethon Kids Cancer Centre

University of Western Australia

Other Supervisors None

Project Outline Leukaemia is the most common type of cancer in children. Remarkable therapeutic advances have been made over the past sixty years. Despite this success, leukaemia remains the second cause of death by cancer in Australia. Current therapeutic approaches have now reached their maximum potential and specific subtypes of leukaemia continue to have a poor prognosis due to treatment toxicity and relapses. This highlights the need for new efficacious treatments.

These poor clinical features are exemplified for Down Syndrome children that developed acute lymphoblastic leukaemia (named DS-ALL). Indeed, treatment intensification is limited for these DS children due to a high rate of treatment-related morbidity. As a result, there is a nearly two-fold increased risk of developing relapses in DS-ALL compared to other type of childhood ALL.

Our Translational Genomics in Leukaemia group is focused on finding **new key vulnerabilities in the leukaemia cells** to develop **novel and less toxic targeted therapies**. To achieve these goals, we are using primary patient samples and clinically-relevant animal models named Patient-derived Xenografts (PDX), to better understand response to conventional treatments use in the clinic, and to find novel molecular biomarkers and new cellular weaknesses that can be targeted therapeutically.

During this project, the student will be introduced to and will develop expertise in:

- Flow cytometry and cell sorting,
- Animal handling, tissue preparation and drug testing,
- Tissue culture and molecular biology,
- CRISPR/Cas9 technology and screening strategies.
- Single cell approaches.

Ultimately, this project aims to develop new tools and strategies to improve prevention, diagnosis, long-term survival and quality of care for children with leukaemia.

Suitable For

Honours

MD

Masters

PhD

Essential Skills & Qualifications

- BSc (Hons)
- Good oral and written communication skills

Ethics Approval

Obtained

Not Obtained

For more information, please contact:

Dr Sébastien Malinge

(08) 9489 7854

sebastien.malinge@telethonkids.org.au

Using Ion Channel Drugs to Develop Better Treatments for Brain Cancer

Research Focus Area	Chronic & Severe Diseases
Research Group	Oncogenic Signalling
Start Date	March 2022
Chief Supervisor	Professor Terrance Johns (Telethon Kids Institute)
Other Supervisors	Dr Brittany Dewdney (Telethon Kids Institute)
Project Outline	<p>Why are successful targeted therapies available for many types of cancer but not for the deadliest of brain cancers: high-grade glioma (HGG)? Targeted therapeutics have been developed for HGG but have failed. One possible reason for this failure may involve cellular plasticity: the ability of cells to adapt to changes in their environment by re-wiring their inner functions and finding new pathways to survive. HGG cells are neural cells and may be using their innate plasticity to evade the effects of targeted drugs. This plasticity is likely driven by a special type of trans-membrane protein called ion channels. Ion channels are pore-forming proteins found in the cell's membrane, which allow electrically charged metal ions to pass in and out of the cell. Ion channels have been shown to be critical mediators of cell plasticity. The tyrosine kinase receptor EGFR is inappropriately activated in 70% of HGG and therefore is a therapeutic target. However, clinical trials with drugs and antibodies directed to the EGFR have not yielded encouraging results. We have shown that the anti-EGFR antibody, panitumumab, inhibits the growth of HGG cells <i>in vitro</i> and human HGG tumours grown in mice.</p> <p>Our preliminary data show that our HGG cell lines display signalling plasticity in response to panitumumab treatment, leading to resistance. Therefore, we will determine whether ion channel blocking drugs can prevent signalling plasticity following panitumumab treatment and thereby enhance the anti-tumour activity of this antibody. This information will help us develop new and effective therapies for the treatment of HGG. The student will be part of the Oncogenic Signalling Lab and will develop skills in:</p> <ul style="list-style-type: none">• Molecular biology• Tissue culture• RNA and protein extraction• Quantitative-PCR• Western blotting• Immunohistochemistry <p>The overall goal of the project is to prevent HGG plasticity to increase the anti-tumour activity of therapies targeting the EGFR.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in molecular biology or biochemistry• Excellent communication skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Dr Brittany Dewdney Brittany.dewdney@telethonkids.org.au	

Exploring how sun exposure is beneficial for cardiometabolic health

Research Focus Area	Chronic & Severe Diseases
Research Group	Cardiometabolic Sunhealth
Start Date	From July 2021
Chief Supervisor	Dr Shelley Gorman (Telethon Kids Institute, University of Western Australia)
Other Supervisors	

Project Outline

Skin exposure to the ultraviolet light (UV) – found in sunlight – results in the production of helpful biological mediators such as vitamin D and nitric oxide. Our novel studies have shown that frequent skin exposure to low dose UV suppresses weight gain and metabolic dysfunction in mice fed a high fat diet through nitric oxide and other mediators. Beneficial effects of UV include improvements in glucose tolerance, insulin sensitivity, liver lipid levels, and adiposity (1-3). These findings are supported by emerging clinical studies that suggest there may be benefits of sunlight or UV exposure on cholesterol metabolism, and in preventing low-level systemic inflammation in people (4).

We are now looking for students to join the *Cardiometabolic Sunhealth* team to help us better characterise the effects of UV light – one of our most important, but often neglected environmental exposures – on metabolic health. A current focus of our team is to better understand the potential for UV light to regulate bile acids and the gut microbiome for improved metabolic health in humans. We are also developing and testing innovative new knowledge tools to help young people make better sun health decisions (5). These studies may have important ramifications for the development of health policies and therapies that consider both the beneficial and detrimental effects of sun exposure, phototherapies and induced mediators.

References

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2. Fleury N, Feelisch M, Hart PH, Weller RB, Smoorthy J, Matthews VB, Gorman S: Sub-erythema ultraviolet radiation reduces metabolic dysfunction in already overweight mice. *J Endocrinol* 2017;233:81-92
3. Geldenhuys S, et al, Gorman S: Ultraviolet radiation suppresses obesity and symptoms of metabolic syndrome independently of vitamin D in mice fed a high-fat diet. *Diabetes* 2014;63:3759-3769
4. Gorman S, de Courten B, Lucas RM: Systematic Review of the Effects of Ultraviolet Radiation on Markers of Metabolic Dysfunction. *The Clinical Biochemist Reviews* 2019;40:147-162
5. Nguyen R, et al, Gorman S: Developing an online tool to promote safe sun behaviours with young teenagers as co-researchers. *Frontiers in Digital Health* 2021;3:626606

Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications		<ul style="list-style-type: none">Undergraduate degree in Bachelor of (Medical) Science or related degreeExcellent 2A Honours (if PhD)Statistical skillsExcellent written and oral communication skillsVery good organisationMotivation and dedication		
Ethics Approval	<input checked="" type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained	
Funding		<input type="checkbox"/> Top-up scholarship offered by project		<input type="checkbox"/> Full scholarship offered by project

For more information, please contact:

Shelley Gorman
0409114452 or 6319 1747
shelley.gorman@telethonkids.org.au

Activity monitor-versus questionnaire based assessment of physical activity in adolescents and young adults with type 1 diabetes

Research Focus Area Chronic & Severe Diseases

Research Group	Diabetes and Obesity
Start Date	February 2022
Chief Supervisor	Dr Vinutha Shetty (Telethon Kids Institute, Perth Children's Hospital)
Other Supervisors	Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital) Professor Tim Jones (Telethon Kids Institute, Perth Children's Hospital) Dr Wayne Soon (Telethon Kids Institute)

Project Outline Physical Activity (PA) is an important outcome parameter in adolescents and young adults with Type 1 Diabetes (T1D) regarding glycaemic outcomes, quality of life and long-term cardiovascular outcomes. Despite the benefits of regular exercise, many young people with T1D do not meet PA recommendations. Both objective assessment by activity monitors and self-evaluation by questionnaires are used in studies investigating PA in T1D. Whether self-reported questionnaires can adequately reflect PA and its changes over time in a free-living setting in individuals with T1D has not been thoroughly investigated.

Our research team have developed a mobile health App called acT1ve. This project is part of a larger study trialling the use of acT1ve in free-living conditions with 40 young people with T1D. Participants will wear an activity monitor throughout the study and complete the physical activity questionnaire on three occasions.

The primary aim of this project is to compare the measurement of physical activity levels using a validated questionnaire with a wrist-worn activity monitor in adolescents and young adults with T1D. The analysis of the agreement between objectively measured and self-reported activity will help us to evaluate whether PA measured by activity monitor can also be assessed adequately by self-reported questionnaires.

The student will be expected to:

1. Conduct a literature review
2. Assist with data collection
3. Perform data analysis
4. Report the agreement between objectively measured and self-reported activity throughout the study period.

Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• High level of written communication skills• High level of organisation and time management skills• Excellent ability to work independently and as part of a team• Good interpersonal skills			
Ethics Approval	<input checked="" type="checkbox"/> Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Tanyana Jackiewicz

08 6456 4616

Tanyana.Jackiewicz@telethonkids.org.au

Dealing with foods high in fat and protein – A qualitative evaluation of resources to help educate families living with type 1 diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2022
Chief Supervisor	Dr Amelia Harry (Telethon Kids Institute)
Other Supervisors	Naomi Crosby (Telethon Kids Institute)
Project Outline	<p>Emerging research suggests foods high in fat and protein require additional insulin for optimal glycaemic control. These foods have been shown to delay meal rises for more than five hours after eating. Foods high in fat and protein contribute a significant amount of daily energy intake in Australian children, and glycaemic control at Perth Children's Hospital (PCH) remains above the recommended target of an HbA1c <7%. There is little known about how families understand and apply learnings around fat and protein in real-life scenarios and whether the current clinical advice is being translated to patients in a consistent and evidence-based approach. Currently, resources exist for how to deal with foods high in fat and protein for patients using different treatment methods, including boluses for different insulin pumps, or when using multiple daily injections. However, these have not recently been updated with emerging evidence; the readability and usability of these resources have not been evaluated and; little is known about whether they are being applied in real-life settings.</p> <p>This study aims to review, update and evaluate current patient resources used to educate children with T1D and their families and develop new clinician education plans to aid translation. This study will involve recruiting families who already engage in changes to their diabetes management when dealing with foods high in fat and protein, and families who have not yet received education for dealing with these foods. The clinical team within the diabetes service at PCH will also be engaged to provide qualitative feedback on the patient resources and education plans. Focus groups and a questionnaire will be used to collect data to help explore the complex understanding and behaviours related to this topic, and improve patient centred, evidence-based care provided to children with diabetes in Western Australia. The student project to commence in February 2022 will involve the recruitment of families to education seminars, evaluation of seminar and a 4 week follow up questionnaire regarding use of new knowledge in free-living scenarios. This study provides the opportunity for students to engage with patient education and efficacy of knowledge translation.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• High level of written communication skills• High level of organisation and time management skills• Excellent ability to work independently and as part of a team• Good interpersonal skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Tanyana Jackiewicz

08 6456 4616

Tanyana.Jackiewicz@telethonkids.org.au

Effect of high blood glucose levels on executive function, attention and driving performance on a driving simulator in people with type 1 diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2022
Chief Supervisor	Professor Paul Fournier (School of Human Sciences, University of Western Australia)
Other Supervisors	Professor Tim Jones and Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	<p>It is well established that several years of exposure to high blood glucose levels in people with type 1 diabetes mellitus (T1D) can be detrimental to the central and peripheral nervous systems. In particular, reaction time, cognitive function (e.g. executive function and attention), and driving performance have been reported to be adversely affected by T1D. What is still unclear, however, is the impact that an acute increase in blood glucose levels (e.g. after a meal) may have on driving performance and cognitive function. Although a small number of studies have investigated the effects of acute hyperglycaemia on cognition, some cognitive abilities essential to everyday tasks, such as driving, have not been thoroughly assessed; namely, executive functions, attention, and driving ability. For these reasons, the primary aim of this proposed project is to test the hypothesis, in people with T1D, that an acute exposure to high blood glucose levels will impair their driving performance in a driving simulator. We also hypothesise that both attention and executive function will be impaired upon exposure to acute hyperglycaemia.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Initiative and dedication• High level of written communication skills• High level of organisation and time management skills• Ability to complete projects on time• Willingness to learn new skills• Excellent ability to work independently and as part of a team• Good interpersonal skills• Good communication skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p>For more information, please contact:</p> <p>Tanyana Jackiewicz 08 6456 4616 Tanyana.Jackiewicz@telethonkids.org.au</p>	

Effect of swimming and head-out water immersion in cold water on the risk of hypoglycaemia in type 1 diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2022
Chief Supervisor	Professor Paul Fournier (School of Human Sciences, University of Western Australia)
Other Supervisors	Professor Tim Jones and Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	<p>Physical activity increases the risk of hypoglycaemia in individuals with type 1 diabetes (T1D), with the associated increased fear of hypoglycaemia contributing to their lower participation rates in regular exercise and lower than average fitness levels. For this reason, a number of recommendations have been published to reduce such risks of hypoglycaemia. Unfortunately, one major limitation with these recommendations is that they generally overlook the impact that some environmental conditions may have on blood glucose response to exercise. Since cold water immersion increases glucose oxidation rate and may inhibit the production of glucose by the liver, this raises the issue of whether upright immersion or swimming in cold water increases hypoglycaemia risk in people with T1D. This is a clinically important issue given the increased risk of drowning associated with hypoglycaemia. Since this issue has not been investigated before, the primary aims of this proposed research project are to test the hypotheses that (a) head out of water immersion in cold (20°C) compared to thermoneutral water (32°C) is associated with a faster rate of fall in blood glucose level; and (b) exercising in cold water causes a greater rate of fall in blood glucose level compared to exercising under thermoneutral conditions.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Initiative and dedication• High level of written communication skills• High level of organisation and time management skills• Ability to complete projects on time• Willingness to learn new skills• Excellent ability to work independently and as part of a team• Good interpersonal skills• Good communication skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Tanyana Jackiewicz 08 6456 4616 Tanyana.Jackiewicz@telethonkids.org.au	

How is maternal Vitamin D sufficiency during pregnancy associated with the risk of islet autoimmunity development in children at risk of type 1 diabetes?

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2022
Chief Supervisor	Dr Aveni Haynes, Children's Diabetes Centre (Telethon Kids Institute)
Other Supervisors	Mr Grant Smith, Children's Diabetes Centre (Telethon Kids Institute) Professor Elizabeth Davis, Diabetes & Endocrinology (Perth Children's Hospital)

Project Outline Early environmental determinants of pancreatic islet autoimmunity: a pregnancy to early life cohort study (ENDIA) in children at risk of type 1 diabetes (T1D) is a multi-centre study involving researchers in South Australia, Victoria, New South Wales, Western Australia and Queensland. (www.endia.org.au). Over 1,300 pregnant women who have T1D or where their unborn child has a first degree relative with T1D have been recruited to the study and the children are being followed up from birth to 10 years of age.

There are numerous observational epidemiological studies reporting an association between low Vitamin D levels with increased risk of childhood T1D. ENDIA has the unique opportunity to further examine the influence of vitamin D levels on the development of islet autoimmunity by analysing the association between prenatal vitamin D levels and modifiable environmental factors such as dietary intake during pregnancy and infancy, compliance with supplementation or treatment if vitamin D deficiency is diagnosed, and the risk of islet autoimmunity in children at risk of T1D.

This study aims to:

1. Determine the prevalence of vitamin D deficiency during pregnancy in the ENDIA study cohort
2. Investigate the association between vitamin D deficiency and antecedent factors being evaluated in the ENDIA study cohort
3. Investigate the association between vitamin D deficiency during pregnancy and the development of persistent islet autoimmunity in the ENDIA study cohort

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Outstanding undergraduate in Health Science, Public Health• Use of SPSS/STATA/R or other statistical package• Good communication and organisational skills			
Ethics Approval	<input checked="" type="checkbox"/> Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Tanyana Jackiewicz

08 6456 4616

Tanyana.Jackiewicz@telethonkids.org.au

Impact of Early Morning Exercise on Post-Prandial Glycaemic Control and Risk of Nocturnal Hypoglycaemia in Youth with Type 1 Diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2022
Chief Supervisor	Dr Craig Taplin (Perth Children's Hospital, Telethon Kids Institute)
Other Supervisors	Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital) Dr Vinutha Shetty (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	<p>Exercise provides many benefits for people with type 1 diabetes (T1D), including improved insulin sensitivity and the possibility of improved glucose control. Most studies of the glycaemic effects of exercise in youth with T1D have focused on afternoon exercise, which mimics the typical after-school activities.</p> <p>Importantly, however, exercise late in the day carries well known risks of overnight hypoglycaemia and it remains unclear whether exercise early in the day lessens this risk. Furthermore, achieving target overall glycaemic control requires both fasting and post meal glucose levels to be in the target range.</p> <p>For these reasons, our aim is to test the hypothesis that early morning exercise in youth with T1D will improve overall and post meal glucose time in range (TIR) over the subsequent 24 hours while not increasing the risk of overnight hypoglycaemia. To assess this, participants will be asked to exercise on a stationary bike in-clinic at PCH in the morning before going home after lunch. Participants will continue to wear a continuous glucose monitor at home which will be used in data analysis for overnight glucose levels.</p> <p>The student will be assisting with the literature review, recruitment and data collection, data analysis and reporting findings.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• High level of written communication skills• High level of organisation and time management skills• Excellent ability to work independently and as part of a team• Good interpersonal skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p><i>For more information, please contact:</i> Tanyana Jackiewicz 08 6456 4616 Tanyana.Jackiewicz@telethonkids.org.au</p>	

Impact of environmental stresses on the hypoglycaemia risk associated with exercise in people with type 1 diabetes mellitus

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2022
Chief Supervisor	Professor Paul Fournier (School of Human Sciences, University of Western Australia)
Other Supervisors	Professor Tim Jones and Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	The guidelines for type 1 diabetes (T1D) management encourage people with T1D to exercise when their plasma insulin is near basal level so as to decrease the risk of hypoglycaemia, a condition that can cause premature death in youngsters and adults. Little information is provided about the effect of exercise on hypoglycaemia risk in the face of environmental variability. This is because of a lack of research to inform these guidelines about the response of blood glucose level (BGL) to exercise performed at high and low temperature, high relative humidity, and high altitude in T1D. For this reason, we are offering several Honours projects that aim (a) to determine whether exercise under these environmental conditions increases the risk of hypoglycaemia when exercise is performed in a basal insulinaemic state, and (b) to evaluate the extent to which the benefit of ingesting of carbohydrate (CHO) to decrease such a risk is impaired under these conditions.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Initiative and dedication• High level of written communication skills• High level of organisation and time management skills• Ability to complete projects on time• Willingness to learn new skills• Excellent ability to work independently and as part of a team• Good interpersonal skills• Good communication skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Tanyana Jackiewicz 08 6456 4616 Tanyana.Jackiewicz@telethonkids.org.au	

Investigating the association of maternal smoking during pregnancy and childhood onset type 1 diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2022
Chief Supervisor	Dr Aveni Haynes (Telethon Kids Institute, Perth Children's Hospital)
Other Supervisors	Mr Grant Smith (Telethon Kids Institute, Perth Children's Hospital) Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	<p>Childhood type 1 diabetes (T1D), thought to be the result of environmental and genetic factors, continues to increase in Western Australia (WA) but the cause of this increase unknown. In several populations, including WA and more recently SA, a lower risk of T1D has been observed in children born to mothers who smoked during pregnancy. Notwithstanding the well-established risks of maternal smoking during pregnancy for both mother and the developing baby, further investigation of this association could provide novel insights into immune/other mechanisms that could explain this association, and contribute important new knowledge on causal pathways to childhood onset T1D.</p> <p>In WA, >99% of children diagnosed with T1D <15 years of age are managed by the diabetes team at Perth Children's Hospital (PCH) and their data are stored in the Western Australian Children's Diabetes Database (WACDD). In addition, data are available on all births in WA from the Midwives' Notification System (MNS), a statutory data collection maintained by the Department of Health. Record linkage between these data collection enables identification of perinatal data for children diagnosed with T1D who were born in WA.</p> <p>A record linkage case-control study will be undertaken to analyse the association between maternal smoking during pregnancy and risk of the offspring being diagnosed with T1D aged <15 years in WA. Further analyses will be developed with collaborators to investigate immunogenetic mechanisms, including epigenetic signatures and systems biology approaches.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
Essential Skills & Qualifications	<ul style="list-style-type: none">• Genetics/Molecular Biology• Use of SPSS/STATA/R or other statistical package• High level of organisation and time management skills• High level of written communication skills• Excellent ability to work independently and as part of a team• Good interpersonal skills

For more information, please contact:

Tanyana Jackiewicz

08 6456 4616

Tanyana.Jackiewicz@telethonkids.org.au

Is the recommendation to decrease basal insulin dose pre-exercise conducive to severe hyperglycaemia during and after exercise?

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2022
Chief Supervisor	Professor Paul Fournier (School of Human Sciences) (University of Western Australia)
Other Supervisors	Professor Tim Jones and Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	Current guidelines recommend that people with type 1 diabetes (T1D) should reduce their basal insulin dose by 25-50% prior to exercise to minimise their risks of hypoglycaemia both during and after exercise. However, these recommendations are challenged by our recent findings that when exercise is performed under basal insulin conditions, with no prior insulin dose adjustments, blood glucose levels remain stable or change little. These findings suggest that reducing basal insulin levels prior to a bout of high intensity exercise might be conducive to a marked increase in blood glucose levels, and thus be detrimental to blood glucose management. For this reason, our aim is to test the hypothesis that the recommendation to reduce basal insulin dose by 25 or 50% prior to engaging in a bout of high intensity exercise is conducive to a high increase in blood glucose levels in people with T1D.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Initiative and dedication• High level of written communication skills• High level of organisation and time management skills• Ability to complete projects on time• Willingness to learn new skills• Excellent ability to work independently and as part of a team• Good interpersonal skills• Good communication skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Tanyana Jackiewicz 08 6456 4616 Tanyana.Jackiewicz@telethonkids.org.au	

Quality or Quantity: The Role of Carbohydrate in the Health of Children with Diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2022
Chief Supervisor	Dr Amelia Harray (Telethon Kids Institute)
Other Supervisors	Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital) Naomi Crosby (Telethon Kids Institute)
Project Outline	<p>Low carbohydrate (CHO) diets are heavily promoted online and in the mainstream media for weight loss in adults. There are an increasing number of families attending the Diabetes Clinic at Perth Children's Hospital (PCH) who are reporting the use of low CHO diets in an attempt to control blood glucose levels. However, little is known about what these children are eating and their overall nutritional status. There is also little evidence on the short and long-term impacts on their physical and mental health.</p> <p>This project will answer the research question- are children with T1D on low CHO diets at greater risk of poor nutritional status, cardiovascular disease, osteoporosis and poor psychosocial functioning, compared to those who meet the daily recommended CHO targets for children?</p> <p>WA is unique in that all children with T1D are under the medical management of PCH from diagnosis. This enables all children ≤10 years with T1D for ≥1 year to be invited to participate in the study. A population-based sample of 100 children will attend PCH on one occasion to measure: fasting bloods (to assess biomarkers for malnutrition, cardiovascular disease, kidney and liver function); height; weight; blood pressure; bone density and body composition (using dual energy X-ray absorptiometry) and; questionnaires to assess physical activity and psychosocial functioning. Participating families will complete a 4-day food diary to assess dietary intake, which will be entered into a nutrient analysis program. Statistical analyses will determine associations between proportion of energy from CHO, types of CHO-containing foods, nutritional status and risk factors for co-morbidities.</p> <p>The findings will directly inform clinical practice to benefit children with T1D in WA.</p> <p>Due to the number of measures collected, multiple students can be involved with this project. The student will be expected to perform or contribute to a literature review, data analysis and reporting the findings. Particular areas for student analysis may include association between food intake and cardiovascular risk biomarkers.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• High level of written communication skills• High level of organisation and time management skills• Excellent ability to work independently and as part of a team• Good interpersonal skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Tanyana Jackiewicz

08 6456 4616

Tanyana.Jackiewicz@telethonkids.org.au

Supporting players with T1DM and their coaches in sport: developing resources to educate and empower

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2022
Chief Supervisor	Dr Vinutha Shetty (Telethon Kids Institute, Perth Children's Hospital)
Other Supervisors	Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)

Project Outline	<p>Along with insulin and diet, exercise has been recognised as one of the three essential components of managing type 1 diabetes (T1D). However, the challenges associated with managing T1D while physically active can be a barrier to a physically active lifestyle. A research project conducted through the Children's Diabetes Research Centre found that a significant challenge experienced by adolescents when playing sport was dealing with a lack of knowledge of T1D of coaches in the community. This not only meant that they didn't receive the support they needed to be physically active but 'wrong' knowledge and lack of trust caused frustration and stress. The aim of this project is to develop resources to assist sports coaches to support young people with type 1 diabetes to engage in sport. We have consulted with young people with type 1 diabetes, parent and sports coaches to determine what should be included in the resources.</p> <p>The student could be involved in stage 1 development or 2 piloting. Co-develop resources in the format as determined in consultation with young people with T1D and participants from previous projects e.g. short online learning training modules, handouts, website etc. Resources would be piloted within the community prior to dissemination.</p>
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Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	Undergraduate degree in communication, health science, education, psychology, or related degree			
	High level of written communication skills			
	Excellent ability to work independently and as part of a team			
	Good interpersonal skills			
Ethics Approval	<input checked="" type="checkbox"/> Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group			
	<input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Tanyana Jackiewicz
08 6456 4616
Tanyana.Jackiewicz@telethonkids.org.au

Using CGM to explore glucose control in a paediatric clinic population

Research Focus Area Chronic & Severe Diseases

Research Group	Diabetes and Obesity
Start Date	February 2022
Chief Supervisor	Grant Smith (Telethon Kids Institute, Perth Children's Hospital)
Other Supervisors	Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital) Professor Tim Jones (Telethon Kids Institute, Perth Children's Hospital)

Project Outline	<p>Continuous glucose monitoring devices provide patients with real-time access to blood glucose levels, allowing for improved glycaemic control. The most commonly used devices take 5-minutely measurements of glucose levels, allowing the patient to monitor both short-term and long-term trends in their glycaemic control and adjust their management accordingly. In 2017 the Australian Government began an initiative to fully subsidise continuous glucose monitoring products to children and young people with Type 1 diabetes through the National Diabetes Services Scheme. Consequently, over 80% of the approximately 1100 patients attending the WA Paediatric Diabetes Service currently use a CGM device. As part of the routine data collection undertaken by the service, CGM observations are collected and stored along with comprehensive clinical data.</p> <p>Whilst research indicates that CGM can improve glycaemic control in children, there is little longitudinal research examining how glycaemic control changes based on how long the device has been used. This project proposes the use of this longitudinal CGM data to model trajectories of key metrics of glycaemic control (e.g. time in target glucose range, hypoglycaemia) as a function of CGM-use duration. The project will also aim to identify whether there are various subclasses of trajectories and identify key clinical, patient, and environmental characteristics that predict glycaemic control after commencing CGM use.</p> <p>This project represents a unique opportunity. This will be the first time CGM data to be used on such a scale, the degree of precision in the measurements of glycaemic control will greatly improve upon the existing literature examining trajectory/trends in glycaemic control, and the results will have direct clinical relevance for decision making around CGM.</p>
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Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">High level of written communication skillsHigh level of organisation and time management skillsExcellent ability to work independently and as part of a teamGood interpersonal skills			
Ethics Approval	<input checked="" type="checkbox"/> Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Tanyana Jackiewicz

08 6456 4616

Tanyana.Jackiewicz@telethonkids.org.au

Validation of Routine Physical Activity Measures as the Standard of Care in Type 1 Diabetes

Research Focus Area Chronic & Severe Diseases

Research Group Diabetes and Obesity

Start Date February 2022

Chief Supervisor Dr Craig Taplin (Perth Children's Hospital, Telethon Kids Institute)

Other Supervisors Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)

Dr Vinutha Shetty (Telethon Kids Institute, Perth Children's Hospital)

Project Outline Cardiovascular disease is the major driver of shortened life expectancy in type 1 diabetes (T1D), but little is known about how active youth with T1D are. It is known, however, that children with T1D are less fit than their peers, but evidence for how to change this situation is lacking.

Currently, no validated methods exist for in-clinic assessment of physical activity (PA) in youth with Type 1 Diabetes (T1D). We propose to validate a method to measure physical activity in youth with type 1 diabetes, and incorporate this into routine clinical care for all youth with T1D in Western Australia.

PA data will be collected prospectively alongside traditional measures such as HbA1c and body mass index to assist in the prediction and prevention of diabetes complications and reduced life expectancy. It is anticipated that if we can accurately measure the levels of physical activity, clinical teams can intervene if PA levels are low, or decline.

Three previously developed questionnaires for use in the general paediatric population (children and adolescents) will be tested for validity in youth with type 1 diabetes against the gold standard measure of 3 dimensional wearable accelerometry. 152 youth aged 8-17 will be recruited and will complete three activity surveys after a 7 day period of wearing an accelerometer.

The student will be expected to:

1. Conduct a literature review
2. Assist with recruitment and data collection
3. Perform data analysis

Future studies will include testing for feasibility in regional and metropolitan clinical settings and development of randomised controlled intervention trials in those youth not meeting national guidelines for physical activity, or in those youth whose activity levels fall with age.

Suitable For

Honours

MD

Masters

PhD

Essential Skills & Qualifications

- High level of written communication skills
- High level of organisation and time management skills
- Excellent ability to work independently and as part of a team
- Good interpersonal skills

Ethics Approval

Obtained

Not Obtained

Funding

- Top-up scholarship offered by project group
 Full scholarship offered by project group

For more information, please contact:

Tanyana Jackiewicz

08 6456 4616

Tanyana.Jackiewicz@telethonkids.org.au

CRISPR editing for rapid diagnosis of rare genetic diseases in children

Research Focus Area Chronic & Severe Diseases

Research Group	Genetic and Rare Diseases Program, Translational Genetics			
Start Date	Honours: February 2021 PhD: February 2021 onwards			
Chief Supervisors	Dr Vanessa Fear and Dr Nicole Shaw (Telethon Kids Institute)			
Other Supervisors				
Project Outline	<p>Rare diseases collectively affect more than 190,000 Western Australians, including 63,000 paediatric patients, and accordingly have been identified as a public health priority. Around 80% of all rare diseases have a genetic basis. The advent of Next Generation Sequencing has allowed high speed, affordable sequencing, with Whole Exome Sequencing (WES) now implemented in WA as the diagnostic method of choice for rare diseases. However, diagnosing a child with a rare disease requires that the genetic variant has previously been functionally characterised, validated and reported. This means that many children with rare diseases present with previously unseen single nucleotide variants (SNVs) that are of uncertain significance. Even in cases where the new mutation is localised to a region known to be important to gene function, providing the patient with a diagnosis requires validation of the effects of the new variant. This means that many patients and their families endure months or even years of not knowing the cause and best treatment for their disease, with the psychological burden this entails.</p> <p>CRISPR technology provides a new way to rapidly validate the effects of rare variants found in patients. This project will use CRISPR homology directed repair, with click chemistry, and CRISPR base editing to mutate human inducible pluripotent stem cells (iPSCs) with the SNV of interest. The impact of these SNVs on relevant mesoderm, endoderm, ectoderm differentiation pathways in iPSCs will then be investigated using RNAseq, flow cytometry and protein analysis.</p> <p>This project will contribute to our genetic and rare disease studies that aim to reduce the time to paediatric patient diagnosis. This is highly valuable as an early, accurate diagnosis may alleviate disease progression, reduce complications and co-morbidities, and improve patient quality of life.</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"><i>Undergraduate degree in Biochemistry, Molecular Biology, or similar</i><i>Excellent communication and writing skills</i>			
<p><i>For PhD candidates:</i></p> <ul style="list-style-type: none"><i>Minimum 2A honours degree.</i>				
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained		
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Dr Vanessa Fear

Vanessa.fear@telethonkids.org.au

Dr Nicole Shaw

Nicole.shaw@telethonkids.org.au

WAL-YAN RESPIRATORY RESEARCH CENTRE

Join the Wal-yan Respiratory Research Centre

The Wal-yan Respiratory Research Centre is looking for new Higher Degree Research Candidates to join our teams from 2022. We look for the best and brightest to join our world leading experts in children's respiratory research.

We want to make our student training programs as unique as you! **We will build bespoke research projects with our candidates.** Plus we are always on the lookout for innovative new ideas that we can add to our Centre.

About us:

The Wal-yan Respiratory Research Centre is made up of collaborative teams who are driven to understand the full life course of respiratory health, and how the early developmental events from pregnancy, birth, early infancy and childhood can impact long term respiratory outcomes – ensuring healthy lungs for every child, for life.

We use the expertise across our teams to develop novel tools that change the way we deliver care to our kids. We are driven to progress the knowledge we create from our basic, investigation science into clinical trials. The outcomes from our trials are translated into new standard care practice, ensuring that our kids get the most up-to-date, effective care for their respiratory health needs.

We focus our research on:

- Reducing the significant Indigenous health gap in relation to respiratory disease,
- Understanding key factors during pregnancy and early life that predispose children to long term disease, including the consequences of preterm birth,
- Improving the healthcare associated with the treatment of asthma, cystic fibrosis and other chronic respiratory diseases in children,
- Developing new, personalised therapies to combat lung disease.

Some of our current projects include:

- LungMap: using single cell sequencing and mapping the cells of the respiratory tract
- Glocal: including innate immune responses to SARS-CoV-2 and other respiratory viruses
- Amnion: respiratory progenitors as predictors of childhood diseases
- Developing an asthma “vaccine”
- Dissecting the immune response in preterm children
- Lung-on-a-chip: using new technology for drug discovery
- Understanding the role of the microbiome in development and progression of lung disease, including the gut-lung axis
- Anti-microbial resistance and phage therapy
- Aboriginal lung health
- E-cigarettes, heating tobacco products, and lung disease
- Inflammation and lung diseases: cystic fibrosis, asthma, lung disease of prematurity

These projects would suit Higher Degree Research Candidate interested in cell and molecular biology, microbiology, computational biology, preterm birth research, Aboriginal Health outcomes, pharmacology, bioengineering, AI.

In our day-to-day activities we:

- Use cutting edge platforms, models, cohorts, bioengineering and state of the art technology to solve questions,
- Translate new tools, therapies and artificial intelligence into clinical use for the treatment of respiratory conditions,
- Work side by side with our clinical teams to deliver work where it is needed,
- Strive to develop community partnerships in all the work we do, ensuring that the voices are heard from the people that matter most.

We can give you:

- Access to our cohorts, databases, samples, expertise, training, platforms and equipment,
- Development of your skills both as a scientist and as a professional,
- The opportunity to be a part of a Centre with a 30-year legacy of creating significant, positive outcomes for our kids, our communities and our scientific networks, globally.

For more information on our research focus areas, please visit: walyanrespiratory.telethonkids.org.au

For general enquiries, please contact: Wal-yan.Respiratory@telethonkids.org.au

We will team you up with leaders across our Centre to start talking about your project goals.



A Powerhouse Partnership



Characterizing the airway epithelial response to SARS-CoV-2 infection

Research Focus Area	Wal-yan Respiratory Research Centre, Chronic and Severe Diseases
Research Group	Airway Epithelial Cell Research Group
Start Date	February 2022
Chief Supervisor	A/Professor Anthony Kicic (Telethon Kids Institute, Curtin University)
Other Supervisors	Professor Stephen Stick (Telethon Kids Institute, UWA) Dr Kevin Looi (Telethon Kids Institute/Curtin University) Dr Erika Sutanto (Telethon Kids Institute/Curtin University) Dr Luke Garratt (Telethon Kids Institute/Curtin University) Dr Thomas Iosifidis (Telethon Kids Institute/Curtin University) Dr Patricia Agudelo-Romero (Telethon Kids Institute) Dr. Jose Caparros-Martin (Telethon Kids Institute/ Curtin University) A/Prof Christopher Blyth (Telethon Kids Institute/ UWA) Prof. Allison Imrie (UWA)
<u>NOTE: supervisory roles will be refined depending on the study undertaken</u>	

Project Outline

The coronavirus disease 2019 (COVID-19), is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Its clinical spectrum appears to be broad, encompassing asymptomatic infection, mild upper respiratory tract illness, and severe viral pneumonia. It targets the lungs causing them to stop working properly which cascades to other types of organ failure and death. Although infection appears indiscriminate occurring in both genders and across all ages (6 weeks - 101 years), there is emerging data to suggest that certain groups of individuals may be more susceptible to the effects of infection.

Using a systematic approach, we will assess how airways of children and adults respond to SARS-CoV-2 infection, comparing this to other coronaviruses and other viruses including, flu, rhinovirus and respiratory syncytial virus (RSV). Using our existing expertise and knowledge of three dimensional (3D) organotypic cell culture technologies, 3D models will be established of the airways of children and adults and which would then be infected with SARS-CoV-2 (as well as other viral comparisons). We will assess viral binding, epithelial susceptibility to infection, innate immune responses including cell death and inflammation, global transcriptomic responses as well as barrier integrity effects. There are now opportunities for motivated students to be part of this investigation in characterising and understanding the impact of SARS-CoV-2 infection on airway barrier integrity using a variety of downstream analytical techniques. Techniques involved may include, but are not limited to: ELISAs, protein extraction, immunoblotting, gene expression via qPCR, next-generation sequencing and bioinformatic analysis and confocal microscopy.

Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Bachelor of Science or equivalent.• Above average written and oral communication skills;• Motivation and organisational skills;• Able to work as part of a team.			

Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group	<input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

A/Prof Anthony Kicic

+61 8 6319 1799

Anthony.Kicic@telethonkids.org.au

Exploring the therapeutic potential of phage therapy to treat antimicrobial resistant infections in children with Cystic Fibrosis

Research Focus Area	Wal-Yan Respiratory Research Centre, Chronic & Severe Diseases
Research Group	Airway Epithelial Research
Start Date	February 2022
Chief Supervisor	A/Professor Anthony Kicic (Telethon Kids Institute, Curtin University)

Other Supervisors	Professor Stephen Stick (Telethon Kids Institute, UWA) Dr Anna Tai (UWA, Institute of Respiratory Health) Prof. Barbara Chang (UWA) A/Professor Alex Larcombe (Telethon Kids Institute/Curtin)
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Project Outline	Cystic fibrosis (CF) is a genetically inherited disease affecting mostly the Caucasian population. There are over 300 individuals with CF in WA and 12-15 newborns are diagnosed each year following newborn screening. As part of the Australian Respiratory Early Surveillance Team for CF, we have demonstrated that early lung damage present early in life and that the lungs of children with CF are prone to inflammation from birth. Cystic fibrosis is caused by mutations in the CFTR gene. Loss of its function leads to abnormal amounts of excessively thick and sticky mucus within the lungs which then allows pathogenic bacteria to grow. Recurrent infections of this kind over time leads to irreversible lung damage and death due to lung failure. Intravenous and inhaled antibiotic therapies remain the current treatment strategy for bacterial lung infections. However, antimicrobial resistant (AMR) bacterial strains have emerged as major causes of mortality in hospitals worldwide and particularly those with CF. This study will investigate the use of Bacteriophages (viruses that infect and kill bacteria, 'phages') as a novel therapeutic approach to treat AMR lung infections. Being more specific and with less side effects, phage therapy is an exciting alternative that is much cheaper, less toxic, and more effective than current strategies.
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Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
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Essential Skills & Qualifications	<ul style="list-style-type: none">• Bachelor of Science or equivalent.• Above average written and oral communication skills;• Motivation and organisational skills;• Able to work as part of a team.
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Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained
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Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
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For more information, please contact:

A/Professor Anthony Kicic

6319 1799

Anthony.Kicic@telethonkids.org.au

Gut-lung axis, inflammation and early CF lung disease

Research Focus Area	Wal-yan Respiratory Research Centre, Chronic and Severe Diseases
Research Group	Airway Epithelial Cell Research Group
Start Date	February 2022
Chief Supervisor	A/Professor Anthony Kicic (Telethon Kids Institute, Curtin University)
Other Supervisors	Dr. Jose Caparros-Martin (Telethon Kids Institute/ Curtin University) Dr Kak-Ming Ling (Telethon Kids Institute) Professor Stephen Stick (Telethon Kids Institute/UWA) Prof. Fergal O'Gara (Curtin Univeristy/Cork)
Project Outline	<p>Cystic Fibrosis (CF) respiratory disease starts early in life, with the detection of inflammatory markers and infection evident even before respiratory symptoms arise. Early neutrophilic inflammation and excess mucus production are responsible for the initial damage of the airways, which influences the clinical course of the disease. Understanding the factors and mechanisms involved would enhance our ability to prevent the initial damage of the lung epithelia and therefore help to provide patients with better treatment strategies.</p> <p>The gut-lung axis is an exciting new concept that posits that the community of microorganisms living in the intestine convey signals that modulate the progression of lung disease. So far, the study of the gut-lung axis has been focused on how alteration of immune cells in the gut can be transmitted into the lungs by circulating immune cells. Another yet unexplored mechanism, could involve that bioactive gut metabolites could translocate into the lungs. In pioneer work, we have detected different gut microbial metabolites in biological specimens taken from the airways of patients with CF. Strikingly, when detected; these metabolites are linked to higher levels of inflammatory markers and a more elevated degree of lung epithelial damage. Interestingly, this group of metabolites stimulate the production of mucus by the gut epithelia and have been also shown to modulate immune cells. Using state-of-the-art cell culture and molecular biology techniques, the successful candidate will evaluate i) whether and how these microbial metabolites modulate the production of mucus by the airway epithelia and, ii) whether and how these metabolites interfere with the normal response of neutrophils to infection.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Bachelor of Science or equivalent.• Above average written and oral communication skills;• Motivation and organisational skills;• Able to work as part of a team.
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

A/Prof Anthony Kicic

+61 8 6319 1799

Anthony.Kicic@telethonkids.org.au

How is the neutrophil transcriptome affected by common medications?

Research Focus Area	Respiratory Centre; Chronic & Severe Diseases		
Research Group	Airway Epithelial Research		
Start Date	2022		
Chief Supervisor	Dr Luke Garratt (Telethon Kids Institute, UWA)		
Other Supervisors	A/Professor Anthony Kicic (Telethon Kids Institute, Curtin) Dr Emma De Jong (Telethon Kids Institute)		
Project Outline	<p>Neutrophils are key cells of the innate immune system. The most abundant leukocytes in peripheral blood, it is now understood that this leukocyte population is diverse in both basal composition and functional plasticity. Although it has been long known that neutrophils feature a significantly smaller resting gene expression profile than other cell types, increasing sensitivity of molecular techniques over the past 25 years have highlighted that transcriptomic activity does occur in neutrophils, expands rapidly during activation to regulate neutrophil functions and is now even revealing transcriptomically distinct subsets amongst the baseline mature neutrophil population. However, transcriptional regulation of neutrophils is still very poorly detailed. Neutrophils are implicated in many disease states. For many of these diseases the mechanisms that lead to chronic neutrophil activity are unclear, but a common theme is that canonical functions are circumvented. There is a massive knowledge gap regarding how neutrophils are affected by medications.</p> <p>This project seeks to address this gap and characterise the transcriptome during a broad range of neutrophil functions and environments, before investigating how these transcriptomes are modified by a range of therapeutic compounds. 1) The candidate will use human neutrophils isolated from blood and perform canonical functions of phagocytosis of bacteria and fungi, migration through an in vitro tissue model, generation of neutrophil extracellular traps, as well as stimulate neutrophils with a broad range of cytokines and receptor antagonists. Neutrophils from a broad range of respiratory clinical samples will also be studied. 2) Review the literature to identify priority compounds for inclusion in the study and measure impact on neutrophil transcriptome. 3) Improve <i>in vitro</i> modulation of neutrophil gene expression by refining transfection protocols (this is also available as an Honours project). Our research team has been studying the innate immune biology for over a decade and have established numerous methods for studying neutrophils. The candidate will have access to national and international collaborative expertise in neutrophil biology. Skillsets that will be gained include primary cell culture, immune cell isolation and function protocols, basic microbiology, flow cytometry, bioinformatics approaches to large datasets (ie BioPlex, RNASeq), and drug discovery/compound screening. Consumer engagement experience will be gained through a research buddy.</p>		
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters
Essential Skills & Qualifications	<p>Bachelor of Science with Honours; Basic familiarity with cell culture and flow cytometry techniques; Above average written and oral communication skills; Motivation and organisational skills to manage projects in a shared laboratory; Able to work as part of a large team.</p>		
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained		
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group There are a limited number of full and top-up scholarships through the Respiratory Centre for the highest calibre students.		

For more information, please contact:

Dr Luke Garratt

08 6319 1804

Luke.Garratt@telethonkids.org.au

Improving methods of bacteriophage isolation in order to treat antimicrobial resistant infections.

Research Focus Area	Wal-Yan Respiratory Research Centre, Chronic & Severe Diseases			
Research Group	Airway Epithelial Research			
Start Date	February 2022			
Chief Supervisor	A/Professor Anthony Kicic (Telethon Kids Institute, Curtin University)			
Other Supervisors	Professor Stephen Stick (Telethon Kids Institute, UWA) Prof. Geoffrey Coombs (Murdoch University) Dr Shakeel Mowlabocuss (Murdoch University) Dr Christopher Mullaly (Murdoch University)			
Project Outline	<p>Cystic fibrosis (CF) is a genetically inherited disease affecting mostly the Caucasian population. It is caused by mutations in the CFTR gene. Loss of its function leads to abnormal amounts of excessively thick and sticky mucus within the lungs which then allows pathogenic bacteria to grow. Recurrent infections of this kind over time leads to irreversible lung damage and death due to lung failure. Intravenous and inhaled antibiotic therapies remain the current treatment strategy for bacterial lung infections. However, antimicrobial resistant (AMR) bacterial strains have emerged as major causes of mortality in hospitals worldwide and particularly those with CF. This program will investigate the use of bacteriophages (viruses that infect and kill bacteria, 'phages') as a novel therapeutic approach to treat AMR lung infections. Being more specific and with less side effects, phage therapy is an exciting alternative that is much cheaper, less toxic, and more effective than current strategies.</p> <p>The isolation of and purification phage can be challenging especially those directed against particular bacteria, including <i>Staphylococcus aureus</i>. This specific project will trial how successful isolating bacteriophage from clinical isolates of <i>Staphylococcus</i> themselves can be. We have access to a large biobank of <i>S. aureus</i> isolates which will be propagated, and bacteriophage isolated using a specialised method. Numbers will be recorded and those purified will then be characterised for their activity against antibiotic resistant strains. Their safety will be tested by exposing lung cells to phage and measuring any cell death or inflammatory responses. This project will expose students to a wide variety of techniques ranging from microbiology, cell culture, qPCR, genome sequencing and bioinformatics, ELISA, Multiplexing and flow cytometry.</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Bachelor of Science or equivalent.Above average written and oral communication skills;Motivation and organisational skills;Able to work as part of a team.			
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained		
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

A/Professor Anthony Kicic

6319 1799

Anthony.Kicic@telethonkids.org.au

Preclinical assessment of novel therapeutics for childhood asthma

Research Focus Area	Chronic & Severe Diseases
Research Group	Airway Epithelial Research
Start Date	November 2021 onwards
Chief Supervisor(s)	Dr Thomas Iosifidis (Telethon Kids Institute/Curtin University)
Other Supervisors	A/Professor Anthony Kicic (Telethon Kids Institute/Curtin University) Professor Stephen Stick (Telethon Kids Institute/The University of Western Australia)
Project Outline	<p>Asthma is a substantial global health care burden with more than 300 million sufferers worldwide. It is the most common chronic respiratory disorder in children and remains one of the main causes of their hospitalisation. Thus, there is a pressing need for identification of novel therapeutic strategies that target the principal cause of asthma in early life and not just its clinical sequelae.</p> <p>Work by our team and others has established that the airway epithelium of young children with asthma has intrinsic abnormalities relating to dysregulated responses to injury, infection and inflammation. Furthermore, we have demonstrated global transcriptomic similarities between epithelial cells isolated from the upper and lower airways, as well as conservation of functional phenotypes including dysregulated repair of asthmatic airway epithelial progenitor cells. Significantly, we have compared the transcriptomic signature of dysregulated epithelial repair with other datasets and found it to relate to viral-induced wheeze recurrence and severity. Currently, identification of novel therapeutics that target the intrinsic airway epithelial abnormalities have been hampered due to the lack of pre-clinical animal models that reflect the asthma pathobiologic mechanisms, such as defective airway epithelial repair. Thus, there is a need to develop patient-specific complex airway models to expedite identification of novel therapeutics for childhood asthma. To fast-track discovery of new therapeutics for children with asthma, we are combining the cutting-edge Organ-on-a-Chip technology developed by our collaborators at the Wake Forest Institute for Regenerative Medicine with our existing drug development pipeline.</p> <p>There is now an opportunity for a motivated student/multiple students to contribute towards the assessment of new therapeutics for childhood asthma.</p> <p>The project aims to test the efficacy of repurposed and novel therapeutics to enhance airway epithelial repair. Specifically, patient-derived airway epithelial cell cultures will be established to validate drug safety and efficacy <i>in vitro</i>. Some of the experimental techniques involved include: expression of epithelial/mesenchymal cell markers by qPCR, ELISA and immunohistochemistry; cell proliferation, cell differentiation, wound repair and barrier integrity function using 3D differentiated airway mucosal epithelial cell models. This will be the first study to interrogate the role of airway epithelial repair in organ-on-a-chip models of childhood asthma. This project will also determine the efficacy of new medications for childhood asthma targeting the airway epithelium.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Excellent written and oral communication skills• Highly motivated and organized• Able to work independently and as part of a team
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Dr Thomas Iosifidis 08 6319 1807 Thomas.Iosifidis@telethonkids.org.au	

Screening amniotic epithelium

Research Focus Area	Chronic & Severe Diseases Early environment
Research Group	Airway Epithelial Research
Start Date	November 2021
Chief Supervisor	Dr Thomas Iosifidis (Telethon Kids Institute)
Other Supervisors	Professor Stephen Stick (Telethon Kids Institute) Dr Patricia Agudelo-Romero (Telethon Kids Institute) Professor Jeffrey Keelan (The University of Western Australia) A/Professor Anthony Kicic (Telethon Kids Institute)
Project Outline	<p>Chronic respiratory diseases are a major healthcare burden in Australia with disease development originally thought to start in later life. We now understand that the early life environment, and even conditions during pregnancy such as maternal asthma severity, play an important role in determining risk to develop poor respiratory outcomes, such as wheeze and asthma in the offspring. Studies by our team on the airway epithelium from infants and children have led us to the hypothesis that a “vulnerable epithelium” endotype can contribute to poor clinical respiratory health, such as wheeze and asthma.</p> <p>Importantly, the prenatal environment has been postulated as a key modulator of epithelial vulnerability. Interestingly, altered epithelial endotypes have been identified in fetal origin epithelial tissues such as amniotic epithelium and characterised by markers of inflammation and impaired repair capacity. It remains to be determined if the amniotic epithelium of infants born to asthmatic mothers displays hallmarks of the vulnerable epithelium, such as inflammation and defective repair, compared to non-asthmatic counterparts. This project combines access to well-characterised clinical phenotypes and unique biological samples, as well as in vitro mechanistic models and cutting-edge single cell/bulk multi-omic sequencing applications. To achieve this goal, the student will access placenta from the AERIAL sub-study within the ORIGINS birth cohort.</p> <p>The project will involve processing of placenta and isolation of amniotic epithelial cells. In addition, the student would establish primary amniotic epithelial cell cultures to assess cell morphology, proliferation, barrier integrity, repair rates and production of inflammatory cytokines. Ultimately, this project will assess the amniotic epithelium of infants born to asthmatic mothers and may provide a potential mechanism explaining how exposures during pregnancy affect vulnerability in the offspring. This project has access to additional biological samples and clinical data in early childhood collected through the AERIAL study to understand susceptibility to respiratory infections and wheeze development.</p> <p>Depending on student interest in this project, there are opportunities to incorporate bioinformatics analysis pipelines, such as integration of multi-omics datasets with clinical datasets.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Bachelor of Science or equivalent• Excellent written and oral communication skills• Ability to work with clinical samples
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Dr Thomas Iosifidis

08 6319 1807

Thomas.Iosifidis@telethonkids.org.au

To treat or not to treat: Aspergillus infections in children with cystic fibrosis.

Research Focus Area	Respiratory Centre; Chronic & Severe Diseases
Research Group	Airway Epithelial Research
Start Date	Immediately
Chief Supervisor	Dr Luke Garratt (Telethon Kids Institute, UWA)
Other Supervisors	A/Professor Anthony Kicic (Telethon Kids Institute, Curtin) Dianne Gardam (PathWest Laboratory Medicine WA) Professor Stephen Stick (Telethon Kids Institute, UWA, Perth Children's Hospital)
Project Outline	<p>Our recent data show that <i>Aspergillus</i> species are one of the most prevalent organisms isolated from the lower airways of young children with cystic fibrosis (CF) and is not a benign organism in early disease. Children infected with <i>Aspergillus</i> species experience worse lung disease at the time of infection and a more rapid progression of structural lung disease in the years following the infection. As a fungus, <i>Aspergillus</i> requires specific antifungal therapies not typically applied in young children.</p> <p>This project seeks to assist CF clinical care by identifying how best to track <i>Aspergillus</i> infection and clearance in young children and the major pathways through which <i>Aspergillus</i> promotes lung disease. To do this, the candidate will systematically characterise in the laboratory the responses to <i>Aspergillus</i> by airway epithelial tissue, macrophages and neutrophils, key pillars of the innate immune system in the airway. Harmful host (protease release, oxidative stress) and pathogen (virulence factors, toxins) components produced during these interactions will be characterise and then validated in archived clinical lung samples from young CF patients with and without <i>Aspergillus</i> infection. This will refine our understanding of intermittent versus chronic <i>Aspergillus</i> infection. As <i>Aspergillus</i> is difficult to routinely culture from clinical samples, the candidate will also establish priority biomarkers of <i>Aspergillus</i> infection for post-treatment assessments. Our research team has been studying the innate immune system in CF for over a decade and have both reference and clinical <i>Aspergillus</i> isolates.</p> <p>The candidate will be involved with SynergyCF, a 5 year NHMRC grant to advance understanding of early CF disease through flow cytometry, scRNAseq, metabolomics and other high parameter approaches. They will have access to national and international collaborative expertise in all aspects of airway disease biology. Skillsets that will be gained include primary cell culture, immune cell isolation and differentiation protocols, fungal microbiology, flow cytometry, bioinformatics approaches to large datasets (ie BioPlex, gene expression), metabolomics and clinical diagnostics. Consumer engagement experience will be gained through a research buddy from the CF community who will be involved with the project.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	Bachelor of Science with Honours; Basic familiarity with cell culture and flow cytometry techniques; Above average written and oral communication skills; Motivation and organisational skills to manage projects in a shared laboratory; Able to work as part of a large team.
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group <p>A full scholarship is available through the SynergyCF project. For students with RTP scholarship, SynergyCF PhD funds will become discretionary research income. There are a limited number of top-up scholarships through the Respiratory Centre for the highest calibre students.</p>
<p>For more information, please contact:</p> <p>Dr Luke Garratt 08 6319 1804 Luke.Garratt@telethonkids.org.au</p>	

Assessing the Physiological Response to Exercise in Young Adult Survivors of Preterm Birth

Research Focus Area	Chronic & Severe Diseases
Research Group	Children's Lung Health
Start Date	February 2022
Chief Supervisor	A/Professor Shannon Simpson (Telethon Kids Institute, Curtin University)
Other Supervisors	Dr Elizabeth Smith (Telethon Kid Institute, Curtin University), Prof Andrew Maiorana (Curtin University)
Project Outline	<p>More than 15 million babies are born early or 'preterm' every year worldwide. Their tiny bodies are put under a lot of stress that can result in health problems in later life. They are at particular risk of diseases that can affect their lungs. For example, children born preterm have persistent breathing problems, impaired lung function and visible lung damage on chest CT scans. However, there are conflicting reports on how preterm birth impacts aerobic exercise capacity. In Western Australia, our research team has been following a group of young people born early for over 15 years. This group have had an in-depth respiratory health assessment at 5, 7, 11 and 19 years. At 11 years they had an exercise test where we noticed that 57% of the group had breathing difficulties during exercise. While children born preterm had an altered ventilatory response to exercise, there were no differences in peak $V\dot{O}_2$ or oxygen uptake efficiency slope when corrected for body weight.</p> <p>There are currently no longitudinal studies of exercise capacity in survivors of preterm birth. In 2022 our group will invite this cohort back for a maximal exercise test as young adults so that we can determine if these breathing and exercise difficulties have improved as they transitioned to adulthood, or worsened. We would also like to investigate if these breathing difficulties affected how active they became as young adults, using questionnaire data and an activity monitor that the participants wear. As part of this project you will be based at Telethon Kids Institute in Perth Children's Hospital, and will assist with performing maximal cardiopulmonary exercise tests in a clinical environment with young adults born preterm, and age-matched term-born controls.</p>
	Your role within this team will include:
	<ul style="list-style-type: none">• Recruitment of families in the WALHIP cohort• Assisting with advanced lung function testing including cardiopulmonary exercise testing• Database management• Data analysis• Good Clinical Practice, research methods, contributing to research outputs etc.
	You will be part of a lively, cohesive team motivated to improve the lung health of children worldwide.
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Previous experience in cardiopulmonary exercise testing is desirable• Above average oral and written communication skills• Motivation and organisation skills• Able to work as part of a team• Police Clearances and Working with Children's Check is compulsory
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Dr Elizabeth Smith 08 6319 1178 Elizabeth.smith@telethonkids.org.au	

Dissecting the immune response in preterm children

Research Focus Area	Chronic & Severe Diseases
Research Group	Children's Lung Health Team and Cancer Immunotherapy Unit
Start Date	March 2022
Chief Supervisor	A/Prof Shannon Simpson (Telethon Kids Institute, Curtin University), Dr Bree Foley, (Telethon Kids Institute, UWA)
Other Supervisors	Dr Alison McDonnell (Telethon Kids Institute)
Project Outline	<p>Around 1/10 babies are born preterm (less than 37 weeks). Being born too early can have significant impacts on the health and wellbeing of the child even well into adulthood resulting in increased mortality and risk of developing cancer.</p> <p>When a baby is born preterm, their immune system is severely under-developed leaving them highly susceptible to infections which can result in life-long disabilities or even death. They are also more likely to develop infections throughout their lifetime compared to children born full term. While there has been significant research investigating the development of the immune system during the first year of life, very little is known about the immune response in preterm children later in life. Our goal is to understand how being born early influences both the innate and adaptive immune compartments and the function of these different immune cells.</p> <p>We are seeking a highly motivated student to work on this collaborative project between the Children's Lung Health Team and the Cancer Immunotherapy Unit. The main objective of this project will involve developing multi-parametric flow cytometry panels to measure the number and function of immune cells in a cohort of children and adolescents who were born preterm. Bioinformatics tools such as R will then be used to analyse the data.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Greater than credit average or equivalent in a biological discipline• Good organisational skills, motivation and dedication
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Shannon.Simpson@telethonkids.org.au (6319 1631)

Bree.Foley@telethonkids.org.au (6319 1741)

LungMap: Single cell and spatial genomic atlas of the developing respiratory tract

Research Focus Area	Wal-yan (preferred category) Early Environment
Research Group	Clinical Epigenetics
Start Date	March 2022
Chief Supervisor	e.g. Dr David Martino (Telethon Kids Institute)
Other Supervisors	TBA
Project Outline	This project will create an atlas of the developing respiratory system using cutting edge single cell genomics techniques. The main objectives will be to establish the methodology for single cell genomics analysis and to apply this methodology to amniotic and lung epithelium samples collected from donors in early life. The key objective will be to map out how the respiratory tissues develop during in utero development and early infancy in order to explore how perturbations in these networks lead to disease states.
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in scienceFirst class Honours OR close to first class with exceptional undergraduate scoresBioinformatic experience desirable
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Dr David Martino

08 63191635

David.Martino@telethonkids.org.au

We all take breathing for granted, yet the community and healthcare costs of respiratory illness in children are enormous. In Australia, around 1 million children live with serious respiratory diseases, with asthma alone costing the country \$28 billion each year. One fifth of Aboriginal children have a long-term respiratory disease, with the prevalence of asthma being 50% higher in this population. Moreover, Aboriginal infants affected by a long-term respiratory condition are up to ten times more likely to die from their disease.

The LungMap project aims to apply **the latest technology in genomic science** to study the genomic processes at the level of individual cells underpinning physiological development of the respiratory system in early life.

There is an almost complete absence of deep characterisation of respiratory tissue at single cell resolution. LungMap is a visionary, long term endeavour, using single cell and spatial genomics, to address both normal development and disrupted states thus contributing knowledge for preventing and reducing the impact of respiratory conditions. This will:

- improve respiratory outcomes for children during their school years;
- enable children to fully participate in all activities; and,
- help build a healthy resilient, community and workforce

LungMap will use state-of-the-art single cell and spatial genomic tools to identify the physiological status of individual cells (single cell genomics/epigenomics) in the respiratory system and their interactions with one-another (spatial genomics) during development and in disease. This will include characterisation of immune cells, structural lung cells and migratory inflammatory cells. Understanding of the cell-cell interactions at a functional level will allow identification of biomarkers of environmental exposures and disease processes plus new targets for intervention.

Experience you will gain:

- Single cell and spatial genomics
- Bioinformatics and data science
- Respiratory biology

- Working with a leading network of allied health and research professionals.

Augmented Reality Visualisation of Lung Pathologies from Computed Tomography scans

Research Focus Area	Chronic & Severe Diseases				
Research Group	Respiratory				
Start Date	Sept 2022 – Marc 2022, flexible				
Chief Supervisor	Dr. Yuliya Karpievitch, Wal-yan Respiratory research Centre (Telethon Kids institute)				
Other Supervisors	Dr Brenned Mills, School of Medical and Health Sciences (Edith Cowan University) Contributor: Alphons Gwatinba, (Wal-yan Respiratory Research Centre, Telethon Kids Institute)				
Project Outline	Computer tomography (CT) provides a 3D picture of the lungs with up to 300 slices making up one person's lung scan. We have exact shape annotations for pathologies in multiple CT scans. The project is to (1) build a 3D visualisation of the lung CT annotations with Unity and (2) extend the 3D visualisation to the Augmented Reality (AR) representation using AR glasses. Our cohort includes children's yearly CT scans from 3 months of age to 6 years old, thus an important component of 3D visualisation will be tracking pathologies over time and adjust for lung growth. Further work will focus on clinical user testing which included clinicians and patients.				
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD	
Essential Skills & Qualifications	<ul style="list-style-type: none"> Undergraduate degree in computational Science: Computer Science, Computer Vision, Mathematics Python programming 				
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group				
<i>For more information, please contact:</i> Dr Yuliya Karpievitch yuliya.karpievitch@telethonkids.org.au					

Dissecting microbial functional capabilities shaping disease progression trajectories in CF

Research Focus Area:	Respiratory Centre; Chronic & Severe Diseases
Research Group:	Synergy CF, Wal-Yan Respiratory Research Centre
Chief Supervisor:	Dr Jose Caparros-Martin (Telethon Kids Institute)
Other Supervisors:	Prof. Elaine Holmes (Murdoch University) Prof. Fergal O'Gara (Telethon Kids Institute) Dr Nicola Gray (Murdoch University)
Project Outline:	Cystic fibrosis (CF) starts early in life with lung damage caused by recurrent cycles of infection-inflammation. Based on this evidence, early childhood interventions should therefore be focused on the key processes governing the deregulated inflammatory responses, and the microbial succession events favouring the establishment of pathogens. We have recently observed that the detection of two types of bacteria-derived metabolites could contribute to the exaggerated inflammatory response seen early in CF. The candidate will evaluate the contribution of these two types of molecules in the progression of CF lung disease in parallel to the microbial colonisation of the lungs. They will carry out a systematic analysis of the lung-associated metabolome to discover new molecular pathways that could contribute to the CF pulmonary phenotype and will mine the microbial metagenome to identify keystone microorganisms based on their functional capabilities to produce these metabolites.
Suitable for:	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Ethics approval:	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding:	<input type="checkbox"/> Top-up scholarship offered by project group. <input checked="" type="checkbox"/> Full scholarship offered by project group. There are a limited number of scholarships (or top ups) available that will be issued at the Respiratory Centre's discretion, targeted to the most competitive (highest calibre) students that apply.
Essential Selection Criteria:	Honours degree or international equivalent in Biological Sciences, Medical/Biomedical Sciences, Biostatistics, Analytical Chemistry, Bioinformatics/Computational Biology, Engineering or related discipline. Candidates should demonstrate a genuine interest in host-microbiota interaction, integration of "omics" strategies and modelling in precision medicine, and enthusiastic to work on a multidisciplinary project. Knowledge in programming languages (e.g. R, Python) is desirable.

For more information, please contact:

Dr Jose Caparros-Martin

(08) 6319 1366

Jose.Caparros-Martin@telethonkids.org.au

Exploring the relationship between lung microbial metabolism and the lung-gut microbial axis in Cystic Fibrosis

Research Focus Area:	Respiratory Centre; Chronic & Severe Diseases										
Research Group:	Synergy CF, Wal-Yan Respiratory Research Centre										
Chief Supervisor:	Dr Nicola Gray (Murdoch University)										
Other Supervisors:	Dr Jose Caparros-Martin (Telethon Kids Institute) Prof. Elaine Holmes (Murdoch University)										
Project Outline:	<p>This exciting opportunity is for a graduate from biological sciences/biochemistry/medicine/analytical chemistry or similar degree with a strong academic background to undertake a PhD in cystic fibrosis research.</p> <p>The successful applicant will be based at Murdoch University at the Australian National Phenome Centre (ANPC) and will contribute to an international research program funded through a NHMRC Synergy Grant in collaboration with the Telethon Kids Institute. The research will be focused on understanding the role of the lung microbiome and the gut-lung microbial axis in cystic fibrosis. The project aims to develop novel assays using state-of-the-art mass spectrometry capabilities at the ANPC to characterise microbial metabolites as markers of disease progression.</p>										
Suitable for:	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD							
Ethics approval:	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained									
Funding:	<input type="checkbox"/> Top-up scholarship offered by project group. <input checked="" type="checkbox"/> Full scholarship offered by project group.										
There are a limited number of scholarships (or top ups) available that will be issued at the Respiratory Centre's discretion, targeted to the most competitive (highest calibre) students that apply.											
Essential Selection Criteria:	Applicants must demonstrate strong knowledge and research skills in a relevant discipline, be highly motivated and demonstrate the drive to work both independently and within a team towards timely completion of research. Familiarity with analytical techniques such as mass spectrometry is favourable, but not a pre-requisite. Applicants must meet the requirements of Murdoch University's Graduate Research Office to be eligible (first or upper second-class Honours degree, Masters degree by research, or equivalent).										
<i>For more information, please contact:</i>											
Sara Lim sara.lim@murdoch.edu.au											

Early life immune development determines life's trajectory – Power of Precision Health

Research Focus Area	Chronic & Severe Diseases			
Research Group	System Vaccinology			
Start Date	As soon as possible			
Chief Supervisor	Professor Tobi Kollmann (Telethon Kids Institute)			
Other Supervisors	Dr Nelly Amenyogbe (Telethon Kids Institute) Dr Rym Ben Othman (Telethon Kids Institute)			
Project Outline	<p>Following birth, newborns undergo changes to their physiology and immune system that help them adapt to their new life outside the womb. These changes may be influenced by different factors such as the infant's genetic background, the delivery process and events that occurred during or even before pregnancy. Our team, in collaboration with an international group of experts in systems biology, showed that despite all these known (and unknown) factors, there is a remarkably stable and common developmental trajectory that occurs over the first week of life of infants born in very distinct areas of the world.</p> <p>This finding was validated in two distinct cohorts in The Gambia and Papua New Guinea (PNG). To gain better insights into the pathways of the immune system that are changing in the first week following birth, we collected high-dimensional molecular and cellular measurements, which we analysed with a variety of multi-omics data integration methods and machine learning approaches. The analysis showed that similar immune functions, such as interferon-driven signaling, complement cascades and neutrophil function are the main modulators of this trajectory during the first week of a baby's life.</p> <p>To expand on these findings, we have designed additional cohorts around the world from which multi-omics samples are being collected for combined analysis using the innovative integrative computational methods used above.</p> <p>A highly motivated student is sought to join our team to further investigate the importance of the developmental trajectory in early life. This research will include both wet lab (benchwork and animal models) and dry lab (informatics) work using cutting-edge technology. No previous experience in these fields is required; you will learn from the best when you join our team and network of collaborators. The candidate will also participate in meetings with collaborators, present scientific findings, and contribute to – if not lead – the writing of manuscripts for publication, in addition to a thesis.</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in molecular biology, immunology or related• Basic understanding of immunology• Basic wet lab skills• Willingness to learn essential analytical platforms including flow cytometry• Good problem-solving skills• Ability to effectively plan and implement a research strategy• Willingness to work with mouse models			
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained		
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Professor Tobi Kollmann

Tobias.Kollmann@telethonkids.org.au

The Final Common Pathway of neonatal sepsis.

Research Focus Area	Chronic & Severe Diseases
Research Group	System Vaccinology
Start Date	As soon as possible
Chief Supervisor	Professor Tobi Kollmann (Telethon Kids Institute)
Other Supervisors	Dr Nelly Amenyogbe (Telethon Kids Institute) Dr Rym Ben Othman (Telethon Kids Institute)
Project Outline	<p>The Final Common Pathway of neonatal sepsis.</p> <p>Sepsis arises when the body's response to an infection injures its own tissues and organs. There are many types of infections that can cause sepsis (now including SARS-CoV-2 / COVID-19). We have discovered that we can stop sepsis irrespective of the cause by helping our bodies resist the initial impact and reverse the consequences of an infection. Specifically: Previous research has shown that sepsis causes death by damaging the cells lining our blood vessels (endothelia).</p> <p>We found we can prevent this damage by giving the normal amino acid arginine and the normal fatty acid arachidonic acid by mouth - it works in minutes preventing sepsis irrespective of cause. We also found that administration of the normal growth factor angiopoietin (Angpt1) can treat those already suffering from severe sepsis, reversing any endothelial damage. We discovered these potential mechanisms of action by studying human babies with sepsis and confirmed the intervention does work exceedingly well in mice. To move this to the next stage (clinical trials in humans), we now will advance this work into larger animal models of sepsis such as sheep and non-human primates (NHP) followed by the first-in-human trials. This intervention promises to not only work, but be feasible for even in disadvantaged settings, such as low-middle income countries.</p> <p>Highly motivated students are sought to join our team to drive this work forward, working in close partnership and supervision with senior scientists in our group. This research will include both wet lab (benchwork and animal models) and dry lab (informatics) work using cutting-edge technology driving intelligent immunity. No previous experience in these fields is required, but a strong work ethic and motivation to learn new things is. You will learn from the best when you join our team and network of collaborators. The candidate will also participate in meetings with collaborators from around the world, present scientific findings and contribute to – if not lead – the writing of manuscripts for publication, in addition to a thesis.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in molecular biology, immunology or related• Basic understanding of immunology• Basic wet lab skills• Willingness to learn essential analytical platforms including flow cytometry• Good problem-solving skills• Ability to effectively plan and implement a research strategy• Willingness to work with mouse models
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Professor Tobi Kollmann Tobias.Kollmann@telethonkids.org.au	

The Power of Pathogen-Agnostic Vaccine Effects

Research Focus Area	Chronic & Severe Diseases
Research Group	System Vaccinology
Start Date	As soon as possible
Chief Supervisor	Professor Tobi Kollmann (Telethon Kids Institute)
Other Supervisors	Dr Nelly Amenyogbe (Telethon Kids Institute) Dr Rym Ben Othman (Telethon Kids Institute)
Project Outline	<p>Vaccines are typically designed to mount a specific adaptive response to one pathogen. Most of our understanding of how vaccines work has focused on measuring these specific adaptive immune responses (antibodies; T cell response). We now know that this picture is far from complete, and that vaccines change how our innate and adaptive immune systems respond as one unit – shaped by millennia of evolution this is intelligent immunity. In fact, every vaccine investigated has shown non-specific or “pathogen-agnostic” effects (i.e. effects far beyond specific adaptive responses to one pathogen), but these have been ignored rather than being explored and harnessed to boost our defenses against infectious diseases. Our team, working in close collaboration with experts from around the world, is changing this. For example: we have proven that the BCG vaccine has beneficial pathogen-agnostic effects in newborns providing protection against sepsis. Sepsis is a major cause of neonatal death that can be caused by a wide range of pathogens or other insults.</p> <p>We discovered this by investigating unique human cohorts – from locations in Africa and Papua New Guinea – and mouse models using cutting-edge technology: multi-omics analysis plus machine learning/artificial intelligence. We demonstrated that BCG vaccination of newborns induces a rapid spike in production of neutrophils, a type of white blood cell crucial for the defense against infection. This ‘emergency granulopoiesis’ mediates a 50% drop in newborn mortality within 3 days of newborns receiving BCG versus placebo. This vaccine response is extraordinary not just because of the mechanism, but also because of its speed and impact: 800,000 newborns die every year, many from infections that BCG could prevent. BCG also reduces the risk for viral upper respiratory infections in adults by > 50%. We are currently testing whether BCG can reduce the risk for COVID-19 in a trial that started in Australia but now spans the globe. This is just one example of the power of the pathogen-agnostic vaccine effects that we focus on.</p> <p>Highly motivated students are sought to join our team to further investigate the power of pathogen-agnostic vaccine effects. This research will include both wet lab (benchwork and animal models) and dry lab (informatics) work using cutting-edge technology driving intelligent immunity. No previous experience in these fields is required, but a strong work ethic and motivation to learn new things is. You will learn from the best when you join our team and network of collaborators. The candidate will also participate in meetings with collaborators from around the world, present scientific findings and contribute to – if not lead – the writing of manuscripts for publication, in addition to a thesis.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in molecular biology, immunology or relatedBasic understanding of immunologyBasic wet lab skillsWillingness to learn essential analytical platforms including flow cytometryGood problem-solving skillsAbility to effectively plan and implement a research strategyWillingness to work with mouse models
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Dr Nelly Amenyogbe

Nelly.Amenyogbe@telethonkids.org.au



EARLY ENVIRONMENT

Early Environment is a Research Focus Area (RFA) which focuses on the ways that environments early in life can affect a child's life-long health and development.

Factors ranging from infection and climatic conditions to pollutants, housing and our complex microbiome all have an impact. Understanding these exposures and their impact on early growth and development is key to preventing and treating a number of common childhood conditions.

At the Telethon Kids Institute, this research encompasses the development of the immune system, infectious diseases, maternal health and the developmental origins of disease and health.

Can machine learning algorithms be applied to wideband absorbance to improve understanding and interpretation of the results?

Research Focus Area	Early Environment
Research Group	Ear Health
Start Date	February 2022
Chief Supervisor	Dr Robyn Choi (Telethon Kids Institute & University of Western Australia)
Other Supervisors	A/Prof Chris Brennan-Jones (Telethon Kids Institute & Perth Children's Hospital) Dr Shams Islam (Edith Cowan University) Dr Natalie Strobel (University of Western Australia)
Project Outline	<p>The human middle ear functions are important for effective sound transmission by acting as an impedance matching device between the low impedance of the air and the high impedance of cochlear fluids. Conventional tympanometry is a useful tool in Audiology for the measurement of acoustic admittance changes in the middle ear system as air pressure varies in the external ear canal. Conventional tympanometry with a single low-frequency, usually 226Hz probe tone, is used routinely in audiological and otological assessment. While this tool has been shown to be an essential tool in the detection of certain types of middle ear pathology, technological advancement in the assessment of middle ear function have expanded the frequency range from single probe tones to multiple frequency measurements delivered as a sweep through a series of frequencies.</p> <p>In recent years, wideband absorbance (WBA) has been developed to assess the wideband acoustic transfer function of the middle ear over a wide frequency range. The WBA technology measures the proportion of acoustic energy absorbed by the middle ear at ambient (WBA) and tympanometric peak pressure (WBT). Despite initial success in the use of WBA with children, the translation of this innovative technology into daily clinical practice is still in infancy due to the poor understanding and interpretation of WBA results. Until now, receiver operating characteristics (ROC) analyses have mainly been applied to the data, as well as depending on clinicians to interpret the complex graph that is produced by the WBA machine. This is not practical to do so in a busy audiological practice.</p> <p>Recent studies have applied deep neural networks or other advanced machine learning algorithms to detect eardrum abnormalities with promising results. We believe that using machine learning and/or deep neural network, we can streamline the result interpretation process and aid clinicians in making clinical decisions by developing machine learning tools to automatically diagnose ears as normal or with conductive conditions. If this is successful, this project will be able to provide an automated diagnosis of ears with conductive conditions in school children and thereby facilitate its clinical application.</p> <p>We are seeking students with a background in data science and audiology who are keen to apply their knowledge to ear health and data science. However, applicants with public health or other relevant qualifications will be considered.</p>
Suitable For	<input type="checkbox"/> Honours
Essential Skills & Qualifications	<input type="checkbox"/> MD
	<input type="checkbox"/> Masters
	<input checked="" type="checkbox"/> PhD
(For Post-Grad)	
	<ul style="list-style-type: none">• Have achieved a First Class Honours (or equivalent) or a Masters in a relevant field (e.g. Public Health, Epidemiology, Medicine, Audiology or another relevant degree).• Eligible to enrol in a PhD or a Masters at UWA (or other WA institution).
Ethics Approval	<input type="checkbox"/> Obtained
Funding	<input type="checkbox"/> Not Obtained
	<input type="checkbox"/> Top-up scholarship offered by project group
	<input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i>	
Dr Robyn Choi / Dr Chris Brennan-Jones (08) 6488 3347 / (08) 6319 1520 robyn.choi@telethonkids.org.au / chris.brennan-jones@telethonkids.org.au	

The PREDICT Study

Research Focus	Early Environment
Area	
Research Group	Neonatal Infection and Immunity
Start Date	November 2021
Chief Supervisor	Clinical Professor Tobias Strunk (Telethon Kids Institute)
Other Supervisors	Dr Simone Schueller (Telethon Kids Institute)
Project Outline	<p>Research Overview</p> <p>Neonatal immunology is a field concerned with understanding the immune system of the newborn - a unique and complex network of cells and signalling molecules that is tailored to a neonate's transition from the womb - a quasi-sterile environment - to the external environment. It navigates an exquisite balance between tolerance for commensal bacteria that are beneficial to the neonate's immune development and mounting an effector response against pathogenic organisms.</p> <p>The project aims to better understand and characterise the developing immune system detailing how the distinct immune cell subsets adapt over the first month of life. In this project we will create a high resolution 'map' of the neonatal immune system (in both term and preterm infants). By doing so, we will explore novel computational tools and data visualisation strategies. These provide the opportunity to explore cytometry data in greater depth.</p> <p>The project has wide-reaching significance. The immune system plays a critical role in combatting infection; infection and prematurity are the leading causes of neonatal death. By substantiating our understanding of the development of the neonatal immune system in both term and preterm infants, we can gain insight into their distinguishing features, key developmental timepoints which may be correlated with a critical shift in immune development, and which timepoints / shifts render neonates more vulnerable to infection.</p> <p>Research Activities</p> <ol style="list-style-type: none"> Exploration of new computational tools and visualisation strategies in presenting cytometry data at Telethon Kids Institute and -if preferred- remotely from home. Extraction and analysis of clinical data from term and preterm babies at King Edward Memorial Hospital or Perth Children's Hospital Active participation in research group meetings and seminars at Telethon Kids Institute and King Edward Memorial Hospital Opportunity to present results at local congresses, and symposia
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> Undergraduate degree in life sciences such as Biomedical Science Basic skills in MS Excel and statistical analyses Excellent communication skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Clinical Professor Tobias Strunk or Dr Simone Schueller
 (08) 6458 2222

tobias.strunk@telethonkids.org.au or simone.schueller@telethonkids.org.au

Kindy readiness in the ORIGINS cohort

Research Focus Area	Early Environment
Research Group	The ORIGINS Project
Start Date	Available now
Chief Supervisor	Dr Lisa Gibson (Telethon Kids Institute, University of Western Australia, Edith Cowan University)
Other Supervisors	Professor Susan Prescott (Telethon Kids Institute, CAHS – PCH, University of Western Australia, Edith Cowan University), Professor Desiree Silva (Joondalup Health Campus, University of Western Australia, Edith Cowan University, Telethon Kids Institute), Dr Erika Hagemann (Telethon Kids Institute, Edith Cowan University), Jackie Davis (Telethon Kids Institute, Curtin University), Sarah Whalan (Telethon Kids Institute, Curtin University)
Project Outline	The aim of this study is to provide an opportunity to review the development and wellbeing of children prior to them commencing kindergarten and/or an early learning environment. The study will be in partnership with The ORIGINS Project and recruitment will occur when children are close to three years of age. Participants will complete a number of online surveys on child health, development and behaviour. Feedback will be provided on development, wellbeing, and preschool readiness.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in a relevant discipline• Knowledge of quantitative and qualitative research methods• Interest in child health and development• Proficient writing skills• Basic statistical analysis skills (SPSS/SAS)• Good interpersonal and communication skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Lisa Gibson

+ 61 8 6319 1405

Lisa.Gibson@telethonkids.org.au

Nature Play & Grow: An intervention to promote health and well-being in young children

Research Focus Area	Early Environment
Research Group	The ORIGINS Project
Start Date	Available now
Chief Supervisor	Dr Lisa Gibson (Telethon Kids Institute, University of Western Australia, Edith Cowan University)
Other Supervisors	Professor Susan Prescott (Telethon Kids Institute, CAHS – Princess Margaret Hospital), Professor Desiree Silva (Joondalup Health Campus, Telethon Kids Institute), Dr Alan Logan (New York), Dr Tanja Sobko (University of Hong Kong), Dr Erika Hagemann (Telethon Kids Institute, Edith Cowan University), Jackie Davis (Telethon Kids Institute, Curtin University), Dr Nina D'Vaz (Telethon Kids Institute)
Project Outline	Research has shown that nature related activities enhance general wellbeing as well as physical activity, diet and sleep. This proposed project aims to develop and test the effectiveness of an intervention (“Nature Play & Grow”) to promote connectedness to nature, health and well-being. The project will evaluate a number of short and long-term outcome measures related to health, lifestyle behaviours and emotional wellbeing. It will be a sub project within The ORIGINS Project and will recruit a subset of families participating in this longitudinal birth cohort.
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Minimum of 2A Honours degree in psychology, public health, nutrition, or related• Ability to conduct quantitative and qualitative research• Excellent writing skills• Strong statistical analysis (SPSS/SAS) skills• Ability to work as part of a team and with families and young children• Good interpersonal and communication skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Lisa Gibson

+ 61 8 6319 1405

Lisa.Gibson@telethonkids.org.au

Research Opportunities with The ORIGINS Project

Research Focus Area	Early Environment
Research Group	The ORIGINS Project
Start Date	Available now
Chief Supervisor	Dr Erika Hagemann (Telethon Kids Institute, Edith Cowan University)
Other Supervisors	Professor Susan Prescott (Telethon Kids Institute, CAHS – Princess Margaret Hospital) Professor Desiree Silva (Joondalup Health Campus, Telethon Kids Institute) Jackie Davis (Telethon Kids Institute, Curtin University) Dr Nina D'Vaz (Telethon Kids Institute) Dr Lisa Gibson (Telethon Kids Institute, University of Western Australia, Edith Cowan University) Emma Fuller (Telethon Kids Institute)
Project Outline	The ORIGINS Project is a longitudinal, birth cohort study investigating how early environments, maternal health and genetics influence child health outcomes. Detailed information at various time points is being collected via biological samples, questionnaires and routine data, creating a comprehensive databank and biobank. There are currently a number of potential projects available within the areas of nutrition and metabolism; mental health; health economics; allergy, inflammation and immunity; environment and lifestyle; infectious disease; oral health; paternal health; reproduction; growth and development; and omics studies. Projects may be observational or interventional, including both quantitative or qualitative data collection and analysis.
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in a relevant discipline/or minimum of 2A Honours• Interest in child health and development• Proficient writing skills• Basic statistical analysis skills• Ability to work as part of a team• Good interpersonal and communication skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Erika Hagemann + 61 8 6319 1330 erika.hagemann@telethonkids.org.au	

Targeting Priority Populations in the ORIGINS Project

Research Focus Area	Early Environment
Research Group	The ORIGINS Project
Start Date	Available now
Chief Supervisor	Dr Lisa Gibson (Telethon Kids Institute, University of Western Australia, Edith Cowan University)
Other Supervisors	Professor Susan Prescott (Telethon Kids Institute, CAHS – PCH, University of Western Australia, Edith Cowan University), Professor Desiree Silva (Joondalup Health Campus, University of Western Australia, Edith Cowan University, Telethon Kids Institute), Dr Erika Hagemann (Telethon Kids Institute, Edith Cowan University), Jackie Davis (Telethon Kids Institute, University of Western Australia, Curtin University)
Project Outline	<p>The aim of this project is to engage more families from priority populations into the ORIGINS Project by understanding barriers to engagement and facilitating targeted communications strategies in areas of high need. Priority populations include those from low socio-economic backgrounds, culturally and diverse groups and Aboriginal and Torres Islander families.</p> <p>Objectives include:</p> <ul style="list-style-type: none">• Identify areas (suburbs) of highest unmet need in the ORIGINS catchment area and map services and current use through a comprehensive needs assessment• Establish Project Governance structure• Undertake project planning and ethics applications• Devise a targeted communications and partnership strategy• Implement engagement strategy• Undertake a project evaluation
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in a relevant discipline• Knowledge of quantitative and qualitative research methods• Proficient writing skills• Basic statistical analysis skills (SPSS/SAS)• Good interpersonal and communication skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Jackie Davis + 61 478 173 989 jackie.davis@telethonkids.org.au	

WESFARMERS CENTRE OF VACCINES AND INFECTIOUS DISEASES

Ear Portal: Integrating an ear and hearing telehealth program into hospital and community ear health services

Research Focus Area	Early Environment
Research Group	Ear Health
Start Date	February 2020
Chief Supervisor	A/Professor Chris Brennan-Jones (Telethon Kids Institute & Perth Children's Hospital)
Other Supervisors	Dr Robyn Choi (University of Western Australia) A/Professor Peter Richmond (UWA, Telethon Kids Institute & Perth Children's Hospital)
Project Outline	Otitis media (ear infections) have the potential to significantly impact child development and the condition is highly prevalent in Aboriginal children. Despite this, access to specialist ear and hearing healthcare within public hospitals is poor, with many children waiting over 2 years to be seen by specialists at Perth Children's Hospital. This study involves the development and evaluation of a culturally appropriate ear health telehealth program for urban Aboriginal and non-Aboriginal children/families that has been designed to provide access to specialist consultation within 4 weeks of referral. We are seeking students interested in assisting with the recruitment and clinical assessment of participants, data analysis and development of health, development of IT platforms, language/communication and education resources to support families in the study. This is a unique opportunity for exceptional individuals wishing to undertake study with the Ear Health team in Perth.
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	(For Post-Grad) <ul style="list-style-type: none">• Have achieved a First Class Honours (or equivalent) or a Masters in a relevant field (e.g. Medicine, Nursing, Audiology, Speech Pathology, Public Health, ICT, Health Economics, Psychology, Education, Health Promotion or another relevant degree).• Eligible to enrol in a PhD or a Masters at UWA (or other WA institution). (For Honours) <ul style="list-style-type: none">• A 65% course weighted average in a relevant field is desirable• Aboriginal / Torres Strait Islander students are particularly encouraged to apply
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Dr Chris Brennan-Jones

6319 1520

Chris.brennan-jones@telethonkids.org.au

Assessing the community awareness and prevention of respiratory syncytial virus

Research Focus Area	Early Environment				
Research Group	Infectious Disease Epidemiology, Wesfarmers Centre for Vaccines and Infectious Diseases				
Start Date	February/March 2022				
Chief Supervisor	Dr Hannah Moore (Telethon Kids Institute)				
Other Supervisors	Dr Samantha Carlson (Telethon Kids Institute)				
Project Outline	<p>Respiratory Syncytial Virus (RSV) is the leading cause of acute lower respiratory infection in children worldwide but is not yet vaccine preventable. Every year in Western Australia (WA), RSV is associated with 650-800 hospitalisations in young children and represents a burden up to 4-times higher than childhood influenza. RSV presents as a wheezing illness (known as bronchiolitis) and is now the leading cause of childhood pneumonia in WA. In June 2021, RSV was endorsed as a notifiable disease within Australia and is a World Health Organization (WHO)-recognised priority for prevention through vaccination. The WHO has indicated two priority groups for RSV prevention strategies: 1) pregnant women, and 2) infants and young children. There are now several candidate RSV vaccines and prevention products in late-stage clinical trials. With this rapid progress, there is a need to develop the evidence-base on RSV epidemiology to inform local health policy and vaccine introduction including assessing community knowledge and attitudes towards RSV prevention.</p> <p>We are seeking an enthusiastic student with an interest in epidemiology and infectious diseases to join our multidisciplinary team within the Wesfarmers Centre for Vaccines and Infectious Diseases. In this project, the student will assess community knowledge of RSV and awareness of future prevention strategies. This will involve conducting a review of current published literature to design and implement a community survey to measure the awareness of knowledge of RSV in key groups including parents of young children and/or expectant mothers. The project will involve social science research methodology and quantitative data analysis skills that could be expanded to further in-depth qualitative studies.</p>				
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD	
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in a relevant field (e.g. Population Health, Epidemiology, Social Science, Psychology, or another relevant degree).High level of interpersonal, verbal and written communication skillsGood organisational skills and high personal motivation.				
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group				
<i>For more information, please contact:</i> Hannah Moore / Samantha Carlson +61 409 100 007 / +61 407 696 264 hannah.moore@telethonkids.org.au / Samantha.Carlson@telethonkids.org.au					

Epidemiological investigations of off-target effects of respiratory vaccines

Research Focus Area	Early Environment
Research Group	Infectious Disease Epidemiology, Wesfarmers Centre for Vaccines and Infectious Diseases
Start Date	February/March 2022
Chief Supervisor	Dr Hannah Moore (Telethon Kids Institute)
Other Supervisors	Dr Huong Le (Telethon Kids Institute) A/Professor Chris Blyth (Telethon Kids Institute/Perth Children's Hospital)
Project Outline	<p>Respiratory Syncytial Virus (RSV) is the leading cause of acute lower respiratory infection in children worldwide and represents a burden up to 4-times higher than childhood influenza but is not yet vaccine-preventable. RSV is prioritised for national notification by the Communicable Diseases Network Australia and has been designated as a vaccine-priority target by the World Health Organization. Some vaccines can have non-specific or “off-target” effects on other pathogens not directly targeted by the vaccine. Using childhood influenza vaccination linked with routine laboratory data for respiratory infections, perinatal and hospital data, our team has found an association of cross protection from childhood influenza vaccination and risk of RSV-confirmed hospitalisation in children. This finding needs to be validated on recent data with higher rates of influenza vaccination and, importantly, assess the impact of maternal influenza vaccine on RSV-confirmed infection in young children.</p> <p>We are seeking an enthusiastic student with an interest in epidemiology and infectious diseases to join our multidisciplinary team within the Wesfarmers Centre for Vaccines and Infectious Diseases. In this project the student will conduct data analysis using a population-based longitudinal set of linked data including maternal vaccination, laboratory detections, hospitalisations and perinatal data. PhD applicants will also conduct a systematic review and meta-analysis to explore current knowledge and evidence of non-specific effects from influenza and other respiratory vaccines on respiratory infections in young children and progress plans to link further with childhood immunisation data. Other opportunities and research questions around RSV epidemiology within our population-based data platform can be explored.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • (PhD): Have achieved a First-Class Honours (or equivalent) or a Masters in a relevant field (e.g. Public Health, Epidemiology, Medicine, Data Science or another relevant degree). • (Masters): Have obtained an undergraduate degree in a relevant field (e.g., Public Health, Medical science, Data science) • Eligible to enrol in a PhD or a Masters at UWA or Curtin University • Pre-existing data analysis skills and/or knowledge of population-based linked data is not essential but would be highly valued
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p>For more information, please contact:</p> <p>Hannah Moore +61 8 6319 1427 / +61 409 100 007 hannah.moore@telethonkids.org.au</p>	

The PATRIC (Pragmatic Trial for Respiratory Infection in Children) Clinical Registry and Trial

Research Focus Area	Early Environment
Research Group	Infectious Disease Epidemiology
Start Date	January 2022
Chief Supervisor	Dr Mejbah Bhuiyan (Telethon Kids Institute)
Other Supervisors	Dr Rebecca Pavlos (Telethon Kids Institute) A/Professor Christopher Blyth (Telethon Kids Institute)
Project Outline	<p>Acute respiratory infection (ARI) is the most common reason for paediatric ED presentation and hospitalisation in Australia. One in four Aboriginal children and one in fifteen non-Aboriginal children <5 years are hospitalised for a chest infection before their fifth birthday in Western Australia. Although death from ARI is rare in Australia, the morbidity and economic cost remains enormous.</p> <p>Most treatment recommendations for paediatric ARI have not been tested in clinical trials. Therapeutic trials from comparable highly vaccinated settings are lacking and supportive care trials have been infrequently performed. Antibiotics are commonly prescribed for ARI despite more than half of ARI-episodes being associated with viruses. Unnecessary antibiotics use is the primary driver for the global concern of antimicrobial resistance.</p> <p>PATRIC is the first pragmatic adaptive ARI clinical trial in children and a critical step towards evidence-based ARI care using antibiotics. The PATRIC Registry was established at Perth Children's Hospital (PCH) in early 2020. The objectives of the registry are to provide baseline data on ARI symptoms, treatment and duration of illness. In 2021 we are launching the PATRIC trial that will assess the optimal duration of amoxicillin for the treatment of pneumonia.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"><i>Undergraduate degree in biological science</i><i>Interest in infectious disease research</i><i>Data entry and analysis</i>
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Mejbah Bhuiyan

+61 8 6319 1836

Mejbah.Bhuiyan@telethonkids.org.au

Understanding reasons for vaccine uptake among Aboriginal children aged <5 years in Perth, Western Australia: a mixed methods study

Research Focus Area	Early Environment
Research Group	<i>Infectious Diseases Epidemiology</i>
Start Date	February 2022
Chief Supervisor	A/Professor Christopher Blyth (Telethon Kids Institute)
Other Supervisors	Dr Samantha Carlson (Telethon Kids Institute)
Project Outline	<p>In Perth, Western Australia, Aboriginal children have lower vaccine uptake than non-Aboriginal children. To the best of our knowledge, no studies have sought to systematically understand the barriers to vaccination of Aboriginal children in Perth. Following the World Health Organization's Tailoring Immunization Programmes (TIP) approach, the aim of this project will be to understand the barriers to vaccine uptake among Aboriginal children in Perth. Doing so will enable the co-design of an evidenced-based intervention to address the barriers.</p> <p>Working with the Infectious Diseases Epidemiology team, the student will be responsible for 1) stakeholder engagement and protocol co-design with Aboriginal partners, 2) qualitative interviews with 20 – 30 parents and carers of Aboriginal children aged <5 years living in Perth who were not vaccinated on time in 2021, and 3) designing and distributing a survey to a representative sample of parents of Aboriginal children aged <5 years to determine the most significant barriers to vaccination.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<p>For Masters:</p> <ul style="list-style-type: none"> • Minimum 2A Honours with a substantial research project component in a related field (e.g., Public Health, Biostatistics, Epidemiology, Psychology) • Eligible to enrol in a Masters program at UWA (or other WA institution) <p>For PhD:</p> <ul style="list-style-type: none"> • Minimum 2A Honours or Masters degree with a substantial research project component in a related field (e.g., Public Health, Biostatistics, Epidemiology, Psychology) • Eligible to enrol in a PhD at UWA (or other WA institution) <p>For either Masters or PhD:</p> <ul style="list-style-type: none"> • Knowledge of qualitative and quantitative research methods • Demonstrated ability to work both independently and as a member of a team • Excellent interpersonal skills, including an ability to interact effectively and respectfully with internal and external stakeholders, and research participants • Excellent written and verbal communication skills <p><u>Aboriginal students are particularly encouraged to apply.</u></p>
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i>	
Dr Samantha Carlson	
08 6319 1369	
samantha.carlson@telethonkids.org.au	

Electronic primary health care information to improve detection rates of skin sores

Research Focus Area	Early Environment
Research Group	Skin Health Team, Wesfarmers Centre of Vaccines and Infectious Diseases
Start Date	Semester 1, 2022
Chief Supervisor	A/Professor Asha Bowen (Telethon Kids Institute)
Other Supervisors	Dr. Hannah Thomas (Telethon Kids Institute)
Project Outline	<p>In remote Australian Aboriginal communities, skin infections (scabies and impetigo) are common. At any one time, 45% of children have impetigo. Untreated skin infections can lead to secondary lifelong conditions, including chronic kidney disease and possibly rheumatic heart disease, all of which occur at among the highest rates in the world in Aboriginal people.</p> <p>Primary health care in remote WA records all episodes of care in electronic format. MMEx is the electronic patient health record used by several primary health care service providers in the Kimberley. To date, these data have been under-utilised to inform delivery of health care and to address the overwhelming burden of infectious diseases including skin sores.</p> <p>This project aims to develop the infrastructure and capacity to routinely extract data from electronic primary health care records to inform research projects and service delivery and validate the automated data extractions against manual review of primary health electronic records. If successful, there is enormous potential to better understand the burden of infections in childhood at the primary health care level and to develop dashboard reporting to keep attention on these key health problems that otherwise remain hidden.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in a health care field e.g. nursing, medicine or allied health.• Excellent communication skills.• Interest in healthy skin in Aboriginal families.• Become part of a highly innovative team with extensive support and mentorship.• Be willing to work in partnership with communities.• Have strong data analysis skills and writing skills.• Aboriginal people are strongly encouraged to apply.
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> A/Professor Asha Bowen Asha.Bowen@telethonkids.org.au	

See, Treat and Prevent Skin Sores and Scabies: The SToP Trial

Research Focus Area	Early Environment
Research Group	Skin Health Team, Wesfarmers Centre of Vaccines and Infectious Diseases
Start Date	Semester 1, 2022
Chief Supervisor	A/Professor Asha Bowen (Telethon Kids Institute)
Other Supervisors	Dr. Hannah Thomas (Telethon Kids Institute)
Project Outline	<p>In remote Australian Aboriginal communities, skin infections (scabies and impetigo) are common. At any one time, 45% of children have impetigo. Untreated skin infections can lead to secondary lifelong conditions, including chronic kidney disease and possibly rheumatic heart disease, all of which occur at among the highest rates in the world in Aboriginal people.</p> <p>The See, Treat and Prevent skin sores and scabies (SToP) Trial is a stepped wedge cluster randomised controlled trial assessing whether streamlined, evidence-based treatment of impetigo with cotrimoxazole and scabies with ivermectin will have an impact on reducing the burden of skin infections in Aboriginal school children in the Kimberley, WA. Clinician training, community health promotion and culturally appropriate environmental health activities are also embedded within the SToP Trial.</p> <p>The SToP Trial is funded by the National Health and Medical Research Council Australia and Department of Health, Western Australia. The project is being led by researchers from the Telethon Kids Institute, in partnership with Kimberley Aboriginal Medical Services Council (KAMS) and Western Australia Country Health Service (WACHS).</p> <p>Projects for Honours, Masters or MD are achievable within the SToP Trial. These include analysis of data collected to date to better understand the burden of specific skin infections (such as tinea), and projects to determine the potential for antibacterial resistance through assessment of microbiological specimen reports. Please contact me to discuss further.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Undergraduate degree in a health care field e.g. nursing, medicine or allied health. • Excellent communication skills. • Interest in healthy skin in Aboriginal families. • Become part of a highly innovative team with extensive support and mentorship. • Be willing to work in partnership with communities. • Be willing to travel to remote communities in the Kimberley and participate in skin health surveillance. • Have strong data analysis skills, writing skills and clinical experience. • Aboriginal people are strongly encouraged to apply. • Applicants based in Broome are encouraged to apply.
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i>	
A/Professor Asha Bowen	
Asha.Bowen@telethonkids.org.au	

SNAP-PY: *Staphylococcus aureus* Network Adaptive Platform trial: Paediatrics and Youth

Research Focus Area	Early Environment
Research Group	Skin Health Team, Wesfarmers Centre of Vaccines and Infectious Diseases
Start Date	Semester 1, 2022
Chief Supervisor	A/Professor Asha Bowen (Telethon Kids Institute)
Other Supervisors	Dr. Anita Campbell (Telethon Kids Institute)
Project Outline	<p><i>Staphylococcus aureus</i> bacteraemia (SAB) is common, is not vaccine-preventable and optimal treatment has not been determined for children or adults. Each year, approximately 400 Australian children are hospitalised with SAB, remaining for an average of 2 weeks for treatment. This means time away from family, school and sometimes travelling a long way from home to hospital.</p> <p>Treatment of <i>Staphylococcus aureus</i> bloodstream infection requires hospitalisation, prolonged antibiotics through an intravenous line, and frequently surgical management. Many different antibiotics are used to treat <i>S. aureus</i> infections, and currently doctors rely on guidelines or personal preference to decide which antibiotic to treat with, rather than evidence from clinical trials.</p> <p>The <i>S. aureus</i> Network Adaptive Platform (SNAP) is the most ambitious clinical trial for bloodstream infection globally to date, involving 11 countries, 58 sites and 6000 patients. SNAP aims to identify which antibiotic treatment options result in the least patients dying and improved outcomes. In contrast to a traditional clinical trial, the SNAP trial will examine multiple different antibiotic treatment options at the same time. By using an innovative, adaptive platform trial design, we hope to find treatments that save lives, reduce morbidity, are cost-effective and for the first time include newborns to the elderly in the same study.</p> <p>There are a range of student opportunities within our team that are available depending on the level of study and interests of the student.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in a health care field e.g. nursing, medicine or allied health.Excellent communication skills.Become part of a highly innovative team with extensive support and mentorship.Have strong data analysis skills, writing skills and clinical experience.
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p>For more information, please contact: A/Professor Asha Bowen Asha.Bowen@telethonkids.org.au</p>	

The microbiology of Strep A in children at risk of rheumatic fever

Research Focus Area	Early Environment
Research Group	Skin Health
Start Date	February 2022
Chief Supervisor	Dr Janessa Pickering (Telethon Kids Institute)
Other Supervisors	A/Professor Asha Bowen (Telethon Kids Institute)
Project Outline	<p>Strep A bacteria cause a wide range of infections and post-infectious complications including sore throats, skin sores and the auto-immune conditions acute rheumatic fever and rheumatic heart disease. Together, these infections and conditions kill more than half a million people every year. Effective prevention strategies including vaccines and public health interventions are urgently needed to alleviate the global burden of Strep A diseases, which primarily affect children.</p> <p>This laboratory-based project will provide important new knowledge on Strep A from Western Australian children. This project will utilise clinical specimens from two large cohorts based in the Kimberley that aim to drive down the burden of skin and throat infections and the development of rheumatic heart disease.</p> <p>The project will employ a combination of standard and cutting-edge research techniques to investigate the density and diversity of Strep A bacteria in skin and throat specimens. In addition to these molecular microbiology techniques, this project will allow the development of bioinformatic expertise for handling whole-genome sequencing data and longitudinal cohort analysis.</p>
<p><i>Student's main responsibilities</i></p> <ul style="list-style-type: none">• Microbiological culture of clinical specimens• Application of molecular techniques to biological samples (quantitative PCR, whole-genome sequencing and analysis)• Metagenomic methods for analysing the throat microbiome	
<p>This project will greatly contribute to our understanding of Strep A skin and throat infections in Western Australia children. The data generated will help to inform public health strategies and future vaccine design and implementation.</p>	
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in medical and/or biological science• Microbiology handling experience• Excellent communication skills including oral presentation and writing
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p><i>For more information, please contact:</i></p> <p>Dr Janessa Pickering 08 6319 1029 Janessa.pickering@telethonkids.org.au</p>	

The Missing Piece Study: A prospective surveillance study for Strep A pharyngitis and impetigo in the Kimberley WA

Research Focus Area	<i>Early Environment</i>				
Research Group	<i>Skin Health</i>				
Start Date	<i>February 2022</i>				
Chief Supervisor	<i>A/Professor Asha Bowen</i> (Telethon Kids Institute)				
Other Supervisors	<i>Dr Dylan Barth</i> (Telethon Kids Institute)				
Project Outline	<p>This project falls within the scope of the END RHD Centre of Research Excellence whose goal was to develop a comprehensive strategy for the elimination of RHD in Australia. The Missing Piece Study focuses on enhancing the primary prevention of Acute Rheumatic Fever (ARF) and Rheumatic Heart Disease (RHD) through recognition and early treatment of sore throat and skin sore infections caused by the Strep A bacteria. There are a few unanswered questions (missing pieces of evidence) that we aim to address in this study.</p> <p>This study is a prospective epidemiological surveillance study which utilises validated surveillance tools to collect clinical, microbiological and epidemiological data on Strep A infections in two school cohorts. The objectives of this work are to: (1) determine the burden of Strep A pharyngitis and impetigo infections, (2) better understand how these infections interact with each other, and (3) determine the molecular epidemiology of the Strep A strains causing these infections. In addition, we will also implement and evaluate point of care diagnostic tests to enhance recognition and treatment of Strep A and thus prevent downstream complications. Another component to this study is to determine if Strep A can be found in the environment. This will provide light around which mechanisms of transmission may be involved in the spread of infection. This objective involves obtaining environmental swabs from various surfaces in schools.</p> <p>This project would be suitable for an honours student who is keen to be involved in an epidemiological research study and includes opportunities to travel to remote schools in the Kimberley, participate in data collection activities, data management and data-analysis. There is a wide scope and the student may choose to focus on one of the objectives for their research project. There may also be an opportunity to do lab work.</p>				
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD	
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in health science• Have strong data analysis skills, writing skills and clinical experience• Excellent communication skills• Be willing to travel to remote communities in the Kimberley and participate in skin health surveillance• Interested in Aboriginal health				
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group				
<i>For more information, please contact:</i> A/Professor Asha Bowen Asha.bowen@telethonkids.org.au					

The progression of skin infections to *Staphylococcus aureus* Bacteraemia – what is the true burden?

Research Focus Area	Early Environment
Research Group	Skin Health Team, Wesfarmers Centre of Vaccines and Infectious Diseases
Start Date	Semester 1, 2022
Chief Supervisor	A/Professor Asha Bowen (Telethon Kids Institute)
Other Supervisors	Dr. Anita Campbell (Telethon Kids Institute)
Project Outline	<p><i>Staphylococcus aureus</i> (<i>S. aures</i>) is a common bacterium often colonising the skin and nose of individuals. However, progression to pathogenicity can occur under specific conditions causing infections of the skin, bones and joints. <i>S. aures</i> bacteraemia (SAB) results when an infection in this region enters the normally sterile bloodstream and can lead to significant morbidity and mortality in the absence of successful treatment. When available, treatment of SAB infection requires hospitalisation, prolonged antibiotics and frequently surgical management. It is not vaccine preventable.</p> <p>Infections of the skin by <i>S. aures</i> can be relatively mild and treated easily if identified early. However, SAB is one complication if this does not occur with the potential for serious consequences. At present, there is little understanding of the true burden of skin infections progressing to SAB, a data gap that would allow for improved recognition, health promotion and clinical education if filled.</p> <p>This project is a retrospective assessment of SAB cases in a paediatric cohort to ascertain the true burden of skin infections associated with SAB as a complication. Projects for Honours, Masters or MD are achievable. Please contact me to discuss further.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in a health care field e.g. nursing, medicine or allied health.Competency in Excel and statistical software.Understanding of epidemiological concepts.Excellent communication skills.Interest in healthy skin.Willingness to become part of a highly innovative team with extensive support and mentorship.Have strong data analysis skills and writing skills.
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p>For more information, please contact:</p> <p>A/Professor Asha Bowen</p> <p>Asha.Bowen@telethonkids.org.au</p>	

Characterisation of a cell invasion pathway exploited by serotype M1 Group A Streptococcus

Research Focus Area	Early Environment Strep A
Research Group	Wesfarmers Centre of Vaccines & Infectious Diseases (Strep A Research Team)
Start Date	Negotiable (can start immediately pending approval)
Chief Supervisor	Dr Tim Barnett (Telethon Kids Institute)
Other Supervisors	
Project Outline	<p><i>Streptococcus pyogenes</i> (Group A <i>Streptococcus</i>, Strep A) is a human-adapted pathogen responsible for a wide spectrum of disease. GAS can cause relatively mild illnesses, such as “strep throat” or impetigo, and less frequent but severe life-threatening diseases such as “flesh-eating disease” and streptococcal toxic shock syndrome. A single GAS clone (M1T1) has disseminated globally as a prevalent cause of pharyngitis and invasive disease. M1T1 strains have evolved multiple mechanisms to evade the immune system and replicate within host cells (see Barnett <i>et al.</i> 2013 Cell Host Microbe 14: 675-682).</p>
	We have uncovered evidence that M1T1 strains exploit a novel pathway to invade epithelial cells. This project will characterise this pathway, using a combination of bacterial genetics and cell biology:
	<ul style="list-style-type: none">• Examine the requirement of individual GAS surface proteins to invade epithelial cells using a panel of M1T1 mutant strains.• Examine the role of a candidate cell endocytosis pathway using a combination of siRNA and pharmacological inhibitors.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Cell culture• Culturing bacteria• Good understanding of molecular biology and cell biology
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained (Not Required)
Funding	<input type="checkbox"/> Top-up scholarship offered by project <input type="checkbox"/> Full scholarship offered by project
<i>For more information, please contact:</i> Dr Tim Barnett (08) 6319 1319 timothy.barnett@telethonkids.org.au	

Exploring international data on Invasive Group A Strep

Research Focus Area	Early Environment
Research Group	Strep A/RHD Team, Wesfarmers Centre for Vaccines and Infectious Diseases
Start Date	February/March 2022
Chief Supervisor	Dr Hannah Moore (Telethon Kids Institute)
Other Supervisors	Dr Kate Miller (Telethon Kids Institute)
Project Outline	<p>Group A <i>Streptococcus</i> diseases (Group A Strep) affects approximately 800 million people each year and results in 639,000 annual deaths. Invasive Group A Strep infection of the skin and soft tissue kills 150,000 annually. The World Health Organization prioritized Group A Strep vaccine development in 2014; in 2018 the World Health Assembly articulated the need for a Strep A vaccine. The Strep A Vaccine Global Consortium (SAVAC) was established in 2019 and provides leadership, advocacy, and organization around Group A Strep vaccine development. Underpinning this project, is the need to better understand the global burden of Group A Strep diseases. The epidemiology workstream of SAVAC guided by a global Burden of Disease Working Group have identified priority projects to progress these effects. This includes synthesising data on invasive Group A Strep that have already been collected through surveillance registries and networks.</p> <p>We are seeking an enthusiastic student with an interest in epidemiology and infectious diseases to join the multidisciplinary Strep A team within the Wesfarmers Centre for Vaccines and Infectious Diseases. In this project, the student will conduct a scoping exercise to document existing bacterial surveillance networks and ongoing surveillance systems across low-middle income countries and high-income countries that document cases of invasive Group A Strep. This will involve identifying and cataloguing such networks and systems, comparing methodologies, case definition, years of available data and data items that are captured. This project will give the student an opportunity to connect with global epidemiology and surveillance experts in the Group A Strep field.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in a relevant field (e.g. Public Health, Epidemiology, Medical Science or other relevant degree).Excellent communication skillsInterest in global health
Ethics Approval	<input type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Hannah Moore

+ 61 8 6319 1427 / + 61 409 100 007

hannah.moore@telethonkids.org.au

How does Group A Streptococcus attach to the tonsils?

Research Focus	Early Environment			
Area	Strep A			
Research Group	Wesfarmers Centre of Vaccines & Infectious Diseases (Strep A Research Team)			
Start Date	Negotiable (can start immediately pending approval)			
Chief Supervisor	Dr Tim Barnett (Telethon Kids Institute)			
Other Supervisors	A/Professor Anthony Kicic (Telethon Kids Institute, The University of Western Australia, Curtin University)			
Project Outline	<p><i>Streptococcus pyogenes</i> (Group A <i>Streptococcus</i>, Strep A) is a human-adapted pathogen responsible for a wide spectrum of disease. GAS can cause relatively mild illnesses, such as "strep throat" or impetigo, and less frequent but severe life-threatening diseases such as "flesh-eating disease" and streptococcal toxic shock syndrome. As the first step in the progression of strep throat, a precise understanding of Strep A attachment to the tonsils is needed for design of vaccines to prevent this stage of disease.</p> <p>This project will examine attachment of Strep A to the tonsils using a combination of bacterial genetics and cell biology:</p> <ul style="list-style-type: none">• Examine attachment of the major strep throat-associated Strep A serotypes to tonsil epithelial cells.• Examine the role of a major Strep A surface protein in tonsil attachment.			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Cell culture• Culturing bacteria• Good understanding of molecular biology and cell biology			
Ethics Approval	<input type="checkbox"/> Obtained		<input checked="" type="checkbox"/> Not Obtained (Not Required)	
Funding	<input type="checkbox"/> Top-up scholarship offered by project <input type="checkbox"/> Full scholarship offered by project			

For more information, please contact:

Dr Tim Barnett
(08) 6319 1319
timothy.barnett@telethonkids.org.au



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Telephone 08 6319 1000
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