Mater Research
Discovery - Development - Translation - Implementation

Associate Professor Allison Pettit
Director of Biomedical Research
Bones and Immunology Group Leader
Research Programs

- Cancer Biology and Care
- Chronic Disease Biology and Care
- Mothers', babies and women's health
- Neurosciences and cognitive health
- Implementing Medicine to Improve Health
- Optimising acute care
Translational Research Institute

Collaboration

Industry Partnerships

Technologies & Facilities

Commercialisation
Cancer immunotherapy – improving response rates in melanoma

Associate Professor Kristen Radford

(Tullett KM et.al. JCI Insights, 2016)

• Cancer immunotherapies - quintessential example of the quantum shifts in medicine underpinned by biomedical discovery

• Conundrum - relatively poor response rates for these expensive therapies.

• A/Prof Radford team are developing ‘vaccines’ to deliver cancer antigens to rare dendritic cells that can prime both CD4+ and CD8+ T cells responses to achieve effective cancer cell killing.

• Using humanized mice – engrafted with a human immune system – to develop vaccines for both melanoma and prostate cancer
Mater Group – Historical and ongoing commitment to clinical trials and research in Type 1 diabetes

Mater Children’s Hospital

Type 1 Diabetes TrialNet

init II

AdDiT

OZ DAFNE

Dose Adjustment For Normal Eating in Australia

Children’s Health Centre

Lady Cilento Children’s Hospital

Mater Young Adult Health Centre Brisbane.
Complication Prevention in Type 1 diabetes
Can we identify risk for kidney and cardiovascular disease early in diabetes and then prevent it from progressing?
Professor Josephine Forbes
Queensland Family Cohort Study

Lead Investigator: Professor Vicki Clifton (Mater)

Associate Investigators: Professor Sailesh Kumar (Mater), Professor Karen Moritz (UQ), Professor Tony Perkins (Griffith), Professor Grieg de Zubicary (QUT)

Follow the health journeys of 10,000 Queensland families for 30 years as part of the Mater Family Cohort project

AIMS

The genetic and biological mechanisms that drive chronic disease risk

Current status of parental physical and mental health and its impact on health of offspring

The influence of the environment and climate change on the health of future generations

OUTCOMES

Discovery
Biomarkers
Interventions
Drug development

Clinical Practice
Service delivery
Clinical Policy
Future health planning

Future planning in environmental policy and its influence on clinical practice
# Research Themes and Institutions Involved

<table>
<thead>
<tr>
<th>Theme</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular function</td>
<td>Mater</td>
</tr>
<tr>
<td>Education</td>
<td>University of Queensland</td>
</tr>
<tr>
<td>Environmental and Occupational Interactions</td>
<td>Griffith University</td>
</tr>
<tr>
<td>Epidemiology and Health Economy</td>
<td>ACU</td>
</tr>
<tr>
<td>Fetal growth</td>
<td>JAMES COOK UNIVERSITY</td>
</tr>
<tr>
<td>Genomics and Bioinformatics</td>
<td>qut</td>
</tr>
<tr>
<td>Immunology (Infection, Type 1 diabetes, Asthma and allergy)</td>
<td>Children's Hospital+</td>
</tr>
<tr>
<td>Kidney Function</td>
<td>Logan Together</td>
</tr>
<tr>
<td>Lactation</td>
<td>Best start for every child</td>
</tr>
<tr>
<td>Medications Usage</td>
<td>RBWH</td>
</tr>
<tr>
<td>Mental Health, Brain Development and Cognition</td>
<td>Gold Coast Health</td>
</tr>
<tr>
<td>Microbiome</td>
<td>Queensland Government</td>
</tr>
<tr>
<td>Musculoskeletal function</td>
<td>Townsville Hospital</td>
</tr>
<tr>
<td>Neonatal/Child Body Composition and Growth</td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
</tr>
<tr>
<td>Oncology</td>
<td></td>
</tr>
<tr>
<td>Physical Exercise</td>
<td></td>
</tr>
<tr>
<td>Pregnancy and Pregnancy Complications</td>
<td></td>
</tr>
<tr>
<td>Respiratory</td>
<td></td>
</tr>
<tr>
<td>Sleep and Circadian Rhythms</td>
<td></td>
</tr>
<tr>
<td>Social Determinants of Health Outcomes</td>
<td></td>
</tr>
</tbody>
</table>
Treatment precision - improved prognosis in breast cancer

Dr Cameron Snell – Mater Foundation Betty McGrath Fellow


- Endocrine therapy is part of the standard care for Oestrogen receptor+ breast cancer - can have undesirable side effects and variable benefit

- Assessed progesterone receptor (PR) expression in primary tumour and lymph node (LN)
  - Absence of PR expression in the LN was significantly associated with relapse
  - Patients with PRneg LN metastases on tamoxifen had particularly poor prognosis compared to those on aromatase inhibitors.

- Developing a diagnostic test to predict women who are unlikely to benefit from tamoxifen treatment
Thank you