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Queensland Genomics

Epilepsy care in the genomic era

Epilepsy is one of the most common neurological disorders, with about 50 million adults and children currently affected around the world.

Those living with epilepsy know it can greatly affect day-to-day living, having an impact on employment, driving, lifestyle, and psychological wellbeing.

Finding a cause for epilepsy and successful treatment is paramount for epilepsy patients. Despite more than 20 anti-epileptic medications available on the market over 30% of patients are not able to control their seizures with medicines.

Is epilepsy inherited?

Genetics plays a role for many patients who have an unknown cause for their epilepsy. In fact, over 1000 genes have been linked to epilepsy.

Until recently, doctors and scientists were only able to test one gene at a time. New technology allows us to test many genes or the entire genome at once (genomic testing). This project will use this technology to investigate the causes of epilepsy in this group.

Genomic testing may reveal a potential cause for the patient's epilepsy. This can then provide patients and their families with greater understanding of their epilepsy and could help with better treatment choices, more suited to them. If a genetic diagnosis can be found, it may also help a family understand the chance for relatives to develop epilepsy.

Following genomic testing, if a genomic change is found the next step is to work out what effect it has on the patient and how it is causing epilepsy.

Genomics in healthcare

Queensland Genomics have funded a clinical project Integrating Epilepsy Genomics into Clinical Care aimed at patients with refractory epilepsy; where the seizures are not able to be controlled by medications.

The project will seek to find answers to two crucial questions for patients: 'What is the cause of my epilepsy?' and 'How can my epilepsy be treated?'

Led by neurologist Associate Professor Lata Vadlamudi, the project team will work to incorporate genomic testing into the healthcare for eligible patients with refractory epilepsy at Royal Brisbane and Women's Hospital, Queensland Children's Hospital and Cairns Base Hospital.

With this new technology, and the discovery of new genes associated with epilepsy, studies like this will enable a deeper understanding of the causes of epilepsy, which will ultimately drive the search for more effective drug treatments for patients.

The goal of including genomics in epilepsy healthcare is to improve the quality of care for patients and their families, and improve efficiencies in healthcare.

Collaborating organisations

The following clinicians and associated health services are participating in this project.

PROJECT LEAD

Associate Professor Lata Vadlamudi (Royal Brisbane and Women's Hospital; UQ Centre for Clinical Research)

- David Reutens (Royal Brisbane and Women's Hospital)
- Cecilie Lander (Royal Brisbane and Women's Hospital)
- Alice-Ann Sullivan (Royal Brisbane and Women's Hospital)
- James Pelekanos (Royal Brisbane and Women's Hospital)
- Xiaochua Chen (Royal Brisbane and Women's Hospital)
- Kate Sinclair (Queensland Children's Hospital)
- Stephen Malone (Queensland Children's Hospital)
- Kate Riney (Queensland Children's Hospital)
- Sophie Calvert (Queensland Children's Hospital)
- Geoff Wallace (Queensland Children's Hospital)
- Adriane Sinclair (Queensland Children's Hospital)
- Ubaid Shah (Queensland Children's Hospital)
- Deepa Srinivasan (Queensland Children's Hospital)
- Ian Wilson (Cairns Base Hospital)

If you are interested in participating in this project, please have a conversation with your neurologist or paediatric neurologist to see if you are eligible.

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