



Better outcomes for kids everywhere

Creating cutting edge new treatments for cancer, without debilitating side effects

Leukemia is the most common cancer in children and teens, accounting for almost 1 out of 3 cancers. The most common type, acute lymphocytic leukemia (ALL), is treatable by intense chemotherapy in many cases.

However, chemotherapy is associated with debilitating side effects. For example, vincristine, an essential chemotherapy agent used for the treatment of ALL, causes severe dose limiting nerve damage that manifests as uncontrollable pain, difficulties walking, and persistent numbness and tingling in the hands and feet.

These side effects can be so severe that doses need to be reduced, or treatment stopped altogether, which in turn may mean a worse prognosis.

These research efforts could realise transformative outcomes for children with Chemotherapy induced pain.

Dedicated to defeating debilitating pain today

UQ's Centre for Pain Research scientist Professor Irina Vetter has had a longstanding interest in developing better treatments for chemotherapy-induced pain.

In exciting preliminary work, her group and collaborators have shown that chemotherapy-induced nerve damage and the associated pain is completely prevented when a specific component of the inflammatory pathway is blocked.

Even more importantly, this same component mediates treatment resistance in children who have relapsed, and who have a very poor chance of long-term survival.

Irina and her team believe that targeting this pathway will not only prevent side effects from chemotherapy but also improve treatment outcomes for children who have the worst prognosis for survival.

While it usually takes many years to develop new drugs, in this case medicines targeting this inflammatory pathway are already used clinically for other medical purposes.

Therefore, there is an exciting opportunity to immediately translate our research findings into better treatments for chemotherapy-induced pain and childhood leukemia.

Impact and outcomes

Our research will significantly improve the understanding of how chemotherapy-induced nerve damage can be prevented, and how inflammation links to both pain and treatment-resistant leukemia.

Our findings will inform the rapid translation of our research to clinical practice to improve the treatment of children with leukemia.

We aim to not only improve the quality of life of children treated with vincristine, but also increase the survival of children with a poor prognosis.

Researcher profile

Professor Irina Vetter

Professor Irina Vetter, a trained pharmacist, has been conducting research in the fields of peripheral pain mechanisms, target identification and analgesic drug discovery. Irina has been promoted to Director of the Centre for Pain Research and Group Leader of the Chemistry and Structural Biology Division within The Institute for Molecular Bioscience.

She uses toxins isolated from venomous animals to investigate the contribution of ion channels to sensory neuronal physiology.

In collaboration with Professor Kate Schroder (UQ), an expert in inflammation research; and Professor Richard Lock (Children's Cancer Institute), an expert in childhood leukemia, her research group hopes to achieve transformative outcomes for children with chemotherapy-induced pain.

The team combine considerable expertise in basic, pre-clinical and translational research. They are uniquely positioned to use clinical patient samples to investigate their advanced molecular pharmacology methods to identify how chemotherapy-induced pain and treatment resistance arise.

Opportunity to support game changing research at IMB

Together, our greatest days lie ahead.

The following details a sample of how giving to UQ's Institute for Molecular Bioscience research can support our drive to develop cancer treatments without debilitating side effects.

\$2,500	Launch preliminary experiments to understand the causes of chemotherapy-induced pain.
\$10,000	Supply of the scientific consumables for one team member's research investigations for up to one year.
\$50,000	Could ignite further pre-clinical studies that are critical to permit advancement to clinic.
\$100,000	Realise a supplementary research project in the study of poorly managed pain types such as cancer pain.

We welcome your suggestions for other ways to support IMB's research that reveals the best ways to translate research to prevent side effects from chemotherapy but also improve treatment outcomes for children globally.

For more information contact:

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“When I was 10 my parents gave me a book about how penicillin was discovered. Since then I found the process of drug discovery absolutely fascinating and I knew I wanted to be a scientist.”

I studied Pharmacy because I wanted to understand how medications interact with the body and during an honours project I became hooked on research.”

Professor Irina Vetter

Institute for Molecular Bioscience

NOT IF, WHEN.
THE CAMPAIGN TO CREATE CHANGE