Image: The Kids Research Institute Australia

FROM MOLECULE TO MEDICINE: ADVANCING CANCER IMMUNOTHERAPY

Published on 28th August 2025

SMALL MOLECULE THERAPEUTICS

Prof Joost Lesterhuis, Head of the Cancer Program and Sarcoma Translational Research team at The Kids Research Institute, is leading an ambitious effort to develop a tablet-based cancer immunotherapy. In collaboration with **A/Prof Matthew Piggott** at the University of Western Australia, his team identified a promising molecular target and began designing small molecules to interact with it. Early work identified compounds with promising activity in biochemical and cell-based assays, but to progress towards the clinic, suitable pharmacokinetic properties must also be defined.

To address this requirement, the research team accessed the Centre for Drug Candidate Optimisation (CDCO) at Monash University through TIA's Pipeline Accelerator scheme. The CDCO supported the project through study design, data analyses and interpretation, and guidance on follow-up research. This collaboration enabled the team to investigate how their compounds are absorbed, distributed and metabolised. The pharmacological insights helped refine and prioritise multiple chemical series. By integrating CDCO feedback into the chemistry workflow, the team have discovered drug-like lead compounds. This work is now being progressed by Setonix Pharmaceuticals, a CUREator-backed company established in 2022.

The Pipeline Accelerator voucher contributed to building critical momentum for the project. The team secured close to $2 million in funding, including grants from the MRFF Medical Research Commercialisation Initiative, the WA Future Health Research and Innovation Fund, and Cancer Council WA.

Beyond these data, the collaboration with CDCO gave the team access to specialised expertise and techniques that are unique in Australia. It also laid the groundwork for a long-term partnership that continues to support the project's development.

In 2024, Setonix Pharmaceuticals was named a finalist in the WA Innovator of the Year awards. With a growing portfolio of optimised compounds and a clear clinical goal, the team is now preparing to raise venture capital to move toward a phase one clinical trial.

> "TIA vouchers have allowed us to access world-class expertise and service from the CDCO. Without this support, we would be forced to use overseas contract research organizations that do not provide the same level of collaborative support afforded by CDCO." **Prof Joost Lesterhuis**

Impact:

TRL 1 | TRL 2 | **TRL 3** | **TRL 4** | TRL 5 | TRL 6 | TRL 7 | TRL 8 | TRL 9