Facilitating Personalised Medicine screening at Children's Cancer Institute

To provide assay-ready plates in a timely manner to enable drug screening of patient cancer cells, for the provision of drug sensitivity data to inform treatment options for the patient

https://ccia.org.au/home/our-services/drug-discovery-centre/

How did the facility help?

In vitro laboratory testing of patient samples for sensitivity or resistance to specific drugs provides a potentially rapid method for finding personalised treatment regimens. Drug sensitivity testing of patient cancer cells is a key component of the Zero Childhood Cancer Program at Children's Cancer Institute, yet requires a swift turnaround of testing upon sample acquisition from the clinic to permit generation of data in a clinically actionable timeframe.

Compounds Australia solubilised the Approved Paediatric Oncology and Targeted Drug Library to a consistent 5mM 100% DMSO solution, transferred to 1.0 mL microtubes and stored within the ComPOUND storage units under industry standard conditions (low O2, inert environment). The library was subsequently formatted into Labcyte Low Dead Volume (LDV) microplates for processing through the ECHO Dose Response (EDR) software via the integrated automated robotic platform, to provide assay-ready formatted plates to Children's Cancer Institute (CCI). Compounds Australia routinely provides 2 copies of the 5pt EDR destination plates with control additions to CCI with limited notice, with total process time less than 1hour.

Outcome

The management of the Approved Paediatric Oncology and Targeted Drug Library and workflows for the generation of assay-ready screening plates at Compounds Australia has provided a service allowing patient drug sensitivity testing to be performed in a matter of days rather than weeks.

> "Compounds Australia provide us with reliable services in managing our drug libraries and preparing screening plates for drug sensitivity testing of cancer patient samples, which is a vital element in us being able to deliver accurate data in a timely fashion for our personalised medicine program."
>
> ***Tim Failes***
> *Senior Drug Discovery Officer*
> *Children's Cancer Institute*

Background

Compounds Australia seamlessly connects Australia's chemistry research community with the global bioscience research community to accelerate new discoveries of bioactive molecules. Compounds Australia was established in 2008 and remains Australia's only integrated compound management facility, providing compound management research logistics (compound lodgement and storage, specialized formatting and reformatting into assay-ready microplates, quality control, data handling) to enhance drug discovery and translational research.

Compounds Australia is supported by membership and fee-for-service contributions. The equipment and facility purchases have been made possible with support and contributions from Griffith University, The Queensland State Government, Therapeutic Innovation Australia and NCRIS; National Research Infrastructure for Australia.