Understanding drug sensitivity in ovarian cancer

To provide assay-ready plates over an extended period to enable drug screening of ovarian cancer cells in combination with known therapeutic treatments to identify synthetically interacting compounds to enhance patient treatment strategies.

How did the facility help?

Compounds Australia provided exceptional service and guidance through each step of developing our compound screening pipeline and enabling efficient delivery of the source plates for our end user. They expertly deconstructed the process we undertake in our laboratory and created a plate map that exactly suits our instrumentation and experimental read out, providing us with a 4 point drug dilution series for each compound. This process required selecting the compounds from known libraries, diluting and spotting using the ECHO 550 shipping without delay to arrive in Melbourne for next day use.

Outcome

A PhD student was able to complete a very complicated compound screen, measuring the effect of ~4500 compounds over a dilution curve in combination with 2 different therapeutic drugs. Importantly, the follow up screen enabled the student to more precisely hone in on the key targets the laboratory will follow in the future. The project has given us significant insight into the signalling and cellular response of ovarian carcinoma cells. Detailed studies are now underway on several candidate drugs that ultimately we hope to see translated to patient benefit in the future.

> "Communication from Compounds Australia was extremely efficient and unambiguous. Importantly, after the primary screen concluded and the end user was looking to validate the key targets, Compounds Australia went above and beyond to identify solutions to a major problem we faced in sourcing sufficient reagents. They were able to reach the exact conclusion we needed to finish the experiment off precisely as we'd planned from the outset. Without their diligence and commitment this project would not have been completed as originally anticipated. "
>
> ***Assoc Prof Kaylene J. Simpson***
> ***Head, Victorian Centre for Functional Genomics***

Background

The Victorian Centre for Functional Genomics (VCFG) is located within the Peter MacCallum Cancer Centre in Melbourne. Traditionally known for its national RNAi screening service, the laboratory houses an extensive collection of automated liquid handling instrumentation and high content imaging systems. Many researchers have performed complementary compound

screens following RNAi screens using all the same infrastructure and readout. In recent years, researchers have run compound screens irrespective of other screening modalities with a large focus on multi-parametric phenotypic readouts. The VCFG was established in 2008 with funds from the Australian Cancer Research Foundation. Since 2009, the VCFG has been a member of the NCRIS-funded Australian Phenomics Network, providing the gene discovery arm of that service. The VCFG is open to researchers throughout Australia and supports grant applications to all major funding bodies.

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.