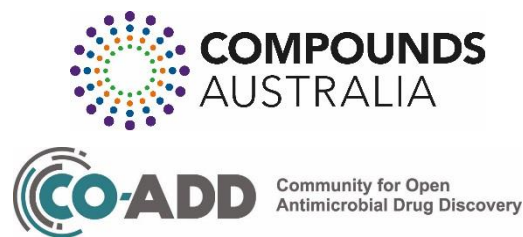


CO-ADD partners with Compounds Australia in Superbug Initiative



One critical bottleneck to discovering new antibiotics is the limited chemical diversity (compounds that have different structures) screened for antimicrobial activity. Antibiotics occupy a different 'chemical space' from compounds commonly found in commercial libraries.

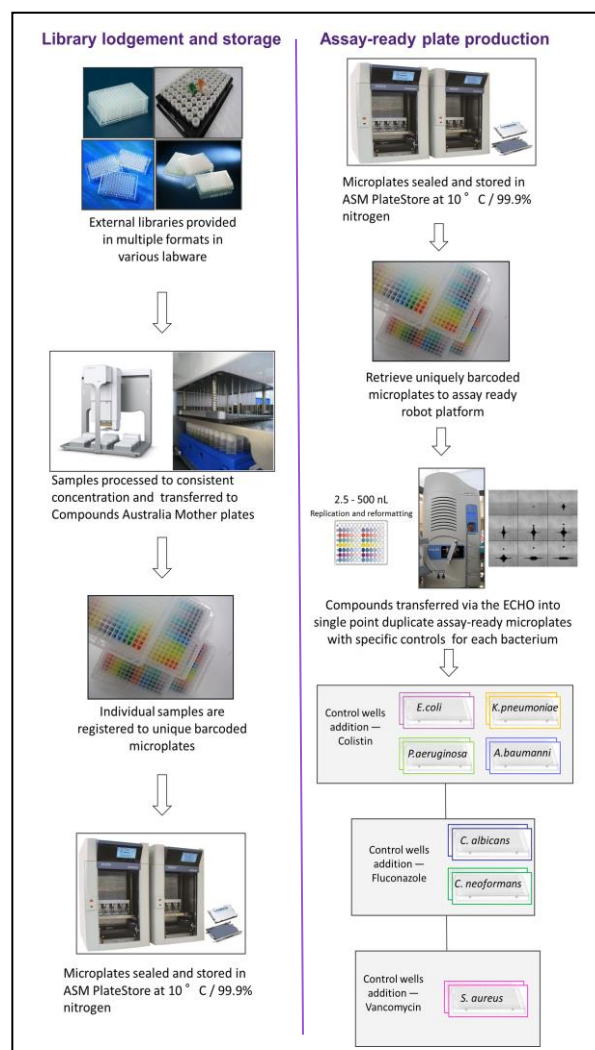
How did the facility help?

CO-ADD is collecting novel molecules from chemists around the world and screens them for antimicrobial activity against 7 pathogenic microbes, 5 bacteria (*E. coli*, *K. pneumoniae*, *P. aeruginosa*, *A. baumannii*, and *S. aureus*) and 2 fungi (*C. albicans* and *C. neoformans*), as well as for cytotoxicity of any active compounds. Antimicrobial activity is tested by a cell based assay, measuring the inhibition of growth of the microbes. In this process, Compounds Australia prepares the assay-ready screening plates for the antimicrobial assays and thereby optimising the workflow to fewer steps (see figure).

Outcome

In 2015, Compounds Australia lodged and stored 55,176 unique library samples through the displayed workflow. These library samples along with the current CSIRO collection (18,500 samples) stored at Compounds Australia were provided in assay-ready formats for CO-ADD to perform assays in duplicate against the 9 pathogenic microbes. In total, Compounds Australia supplied 2000 assay plates or >500,000 assay wells for screening.

CO-ADD also screens samples lodged from Compounds Australia's academic members as part of the Open Academic collection, thus providing an immediate access pipeline for any new stored compounds into the facility.



"Compounds Australia provided CO-ADD with invaluable service to facilitate the antimicrobial screening of large compound collections from around the world. Compounds Australia produced over 2,000 assay ready plates, which were directly used in CO-ADD's screening workflow, as well as high quality compound storage of the compounds. Compounds Australia has been an integral part of CO-ADD's compound handling and screening workflow."

**Dr. Mark Blaskovich | Program Coordinator
Community for Open Antimicrobial Drug
Discovery**

Background

Compounds Australia is a sophisticated compound management facility that securely stores and maintains compound libraries submitted by Australian-based chemists and makes these compounds readily available for screening by biologists. As a national collaboration engine, Compounds Australia currently enables drug discovery research projects across 21 organisations (14 universities, 4 research institutes and 3 companies) in Australia; this includes 5 organisations supported by NCRIS.

Compounds Australia's place as the nation's only integrated compound management and logistics facility means that many of these projects would not have been possible without the expertise, capability and support of Compounds Australia infrastructure and skilled staff. 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.

CO-ADD is a global initiative of The University of Queensland's Institute for Molecular Bioscience and is funded by the Wellcome Trust and The University of Queensland.