



## Our Sample Processing Platforms

Compounds Australia members can request samples dispensed in a wide range of formats. These can be exact replicate 'daughter stamp' plates of small and large library sets, unique individual single and multi volume plate layouts, right through to complex serial dilution and combination formats. We fulfill member requests with the use of automated robotic platforms equipped with devices designed to take the labour intensive and often error-prone processes of manual dispensing out of sample handling.

### Introducing our (robotic) team!

We pride ourselves on being leaders in innovative sample management. Our facility will be the first academic group worldwide to bring the advantages of FluidX™ AcoustiX™ microtube technology to the market.

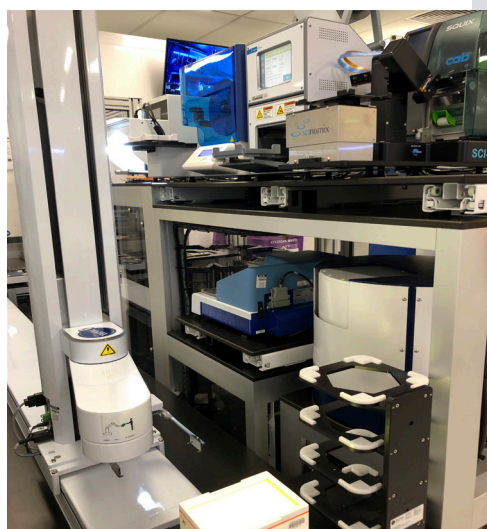
All four Compounds Australia sample processing platforms use high-quality devices placed around high-speed 3-axis robots. This enables rapid and secure processing from sample tube racks and storage labware into supplied destination 96-, 384- and 1536-well microplates.

Each of our four platforms contains dedicated liquid handling capabilities and integrated devices that are required for producing sample and assay ready plates. These include centrifuges, plate sealers/peelers, barcode labelling and tracking, plate stacking and labware storage devices. The robot platforms, while individual, are versatile with specific primary uses, depending on the selected labware, requested formats and volumes. Each can be reconfigured to offer redundancy across the majority of requested processes.

### Labcyte Access System

In 2017, we introduced the Labcyte Access platform incorporating a second Labcyte ECHO 550 acoustic dispenser. This platform can deliver samples in nanolitre volumes to generate unique plate formats based on custom requirements.

Along with cherry-picking and replication processes, this system will generate the more complex dose response curves from source and intermediate concentrations, as well as sample combination plates, producing custom-designed plate layouts specific to member needs. This system is fitted with a Multidrop™ Combi nL for efficient reagent backfilling to deliver consistent % DMSO in destination microplates. Funding was awarded from ARC-Linkage Infrastructure Equipment Fund, Griffith University, Members and Compounds Australia.



### HighRes Biosolutions System

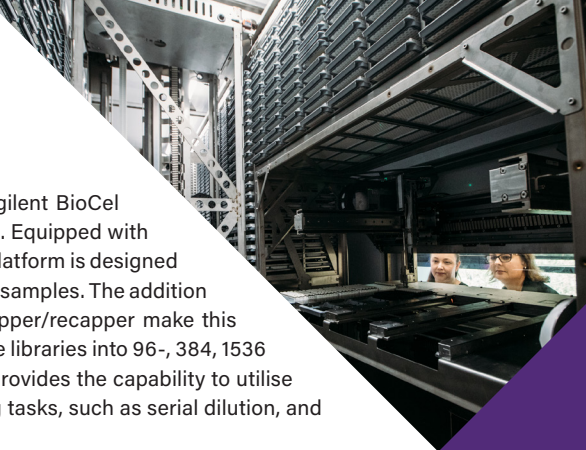
Our latest robotic platform from HighRes Biosolutions (HRB) is equipped with an Agilent Bravo and a Beckman ECHO-650T, enabling transfers in microlitre and nanolitre quantities respectively, and includes the cart-based modular system for ease of system movements between this system and future robot platforms. This system is fully-integrated to the Brooks SampleStore™ - the dedicated automated storage platform for the FluidX™ AcoustiX™ microtube and Labcyte Low-Dead Volume microplates - offering streamlined processing between the storage and processing platform for the samples held within the store. The FluidX™ AcoustiX™ microtubes and LDV microplates are transferred from the Brooks SampleStore™ hand-off arm to an environmentally controlled AmbiStore™. This provides the starting point for the liquid handling and sample management processes performed on the main HRB A-Cell platform. Specific to this platform are essential devices required for the handling of the FluidX™ AcoustiX™ microtube - a 2D4 barcode reader, an acoustic tube capper/decapper and the Beckman ECHO 650T acoustic dispenser.

The HRB platform and FluidX™ AcoustiX™ microtube technology form part of the Compounds Australia - ACRF Centre for Compound Management and Logistics project - thanks to funding provided by Griffith University, Australian Cancer Research Foundation, Therapeutic Innovation Australia, Queensland Government and the Ian Potter Foundation.



## Agilent BioCel Rack System

The oldest member of our robotic family, the Velocity 11/Agilent BioCel has a proven track record in the field of compound handling. Equipped with the Agilent Vertical Pipettor and Bravo liquid handlers, this platform is designed to efficiently and accurately dispense microlitre quantities of samples. The addition of devices such as the rack hub and automated TPE decapper/recapper make this system perfectly equipped to process samples stored in tube libraries into 96-, 384, 1536 microplate formats. The Bravo liquid handler on deck also provides the capability to utilise this platform for assorted bespoke microlitre liquid handling tasks, such as serial dilution, and plate-to-plate transfer processes.



## Agilent BioCel Plate System

This platform has been the facility's "workhorse" since it was installed in 2012. This platform is capable of processing large plate to plate requests utilising the three available liquid handling capabilities; our original Labcyte Echo™ 550, an Agilent Vertical Pipettor and an Agilent Bravo. Utilising the additional sample management devices, the system can be programmed for direct replication, microplate quadrantting and dequadrantting, plate-to-plate cherrypicking and serial dilutions, in multiple plate formats in either microlitre or nanolitre volumes.



## Robotic Platform Devices - Liquid Handling



Beckman Echo® 650T	<ul style="list-style-type: none"> <li>Accurate, precise, contact-free acoustic transfer in volumes as low as 2.5 nL to 1000 nL maximum.</li> <li>Samples transfer from FluidX™ AcoustiX™ microtubes or Echo qualified 384 &amp; 1536 microplates</li> <li>Capable of dispensing into 96, 384 and 1536 well microplates</li> </ul>
Labcyte Echo® 550	<ul style="list-style-type: none"> <li>Accurate, precise, contact-free acoustic transfer in volumes as low as 2.5 nL to 1000 nL maximum.</li> <li>Samples transfer from Echo qualified 384 &amp; 1536 microplates</li> <li>Capable of dispensing into 96, 384 and 1536 well microplates</li> </ul>
Agilent Vertical Pipettor	<ul style="list-style-type: none"> <li>Interchangeable dispense head capability using disposable tip or fixed needle configurations</li> <li>Microlitre single volume dispense in whole head or quadrated mode</li> <li>Reagent reservoirs and auto-filling tip washing station</li> <li>Capable of dispensing into 96 and 384 microplates and various 96 microtube racks</li> </ul>
Agilent Bravo	<ul style="list-style-type: none"> <li>Interchangeable dispense head capability using varying disposable tip configurations</li> <li>Precise pipette heads dispense from 1 uL to 250 µL in 96 format, and 1 µL to 70 µL in 384 format</li> <li>Standard replication, serial dilutions, sample solubilisation and transfers and plate-to-plate cherrypicking available</li> <li>Reagent reservoirs and auto-filling tip washing station, plate shaking</li> <li>Capable of dispensing into 96, 384 and 1536 well microplates and various 96 microtube racks</li> </ul>
Multidrop™ Combi nL	<ul style="list-style-type: none"> <li>Used for dispensing DMSO in volumes of 50 nL-50 µL</li> <li>Fills plates in seconds with excellent precision and reproducibility</li> <li>Fully configurable plate maps for same/differing volume dispensing across wells within 96, 384 and 1536 well microplates</li> </ul>

## Accessory Devices

Plate sealer: PlateLoc thermal plate sealer.

Plate de-sealer: Brooks XPeel enables plate seals to automatically.

Centrifuge: Agilent VSpin and HRB MicroSpin allows the automated centrifugation of plates and racks.

Barcode tracking: Agilent VCode print, apply & read station, Ziath flatbed 2D barcode scanner, Scinomix MP2 Sciprint.

Plate stacks/racks/hotels: Each system is equipped with plate storage to hold multiple source and destination labware.

before and after processing, as well as allow the introduction of tip boxes (integrated tipbox de-lidders available on platforms).

Rack hub: Agilent carousel hub holds multiple racks, tipboxes, or deepwell plates; the rotating design enables the robot to access labware (up to 72) during processing.

Storage: Ambistore provides environmentally maintained interim storage before delivering samples to the robot platforms for processing.

