



Applications: Genomics

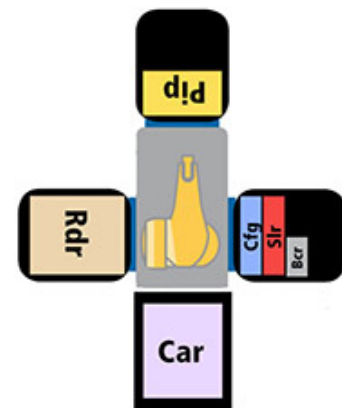
Advances in the sequencing of genomic material have been well-documented over the past decade. One of the challenges now facing research groups is to map this blueprint into functional end-points that can be potentially targeted to develop new agents to cure human diseases. New developments in technologies (e.g. RNA interference), extraction techniques, and instrumentation (such as real-time thermal cyclers) are all enabling this process. As these approaches mature and become more amenable to higher throughput, genomic research groups must implement effective automation solutions to keep pace.

NanoCell

Real Time PCR

- 1 x **Rbt** Denso Robot
- 3 x **Mcd** MicroDock
- 1 x **Rdr** Thermal Cycler
- 1 x **Pip** Liquid Handler
- 1 x **Car** HighRes NanoServe

- 1 x **Slr** Automated Heat Sealer
- 1 x **Cfg** Automated Plate Centrifuge
- 1 x **Bcr** Barcode Reader



Description

This system is a HighRes NanoCell configured for Real Time PCR processing. The NanoCell first assembles reaction plates; the liquid handler transfers genomic DNA from source plates, and then adds Master Mix and Primer solutions. The assembled plate is then sealed and centrifuged prior to loading into the Thermal Cycler. Upon completion, the cycled plate is outputted into the HighRes NanoServe. All plate relationships (source and reaction) are tracked using the barcode reader and logged in an Oracle database.

With an industrial arm at its center, this NanoCell guarantees that highly valuable genomic material will be processed to completion.

NanoCell Key Concepts

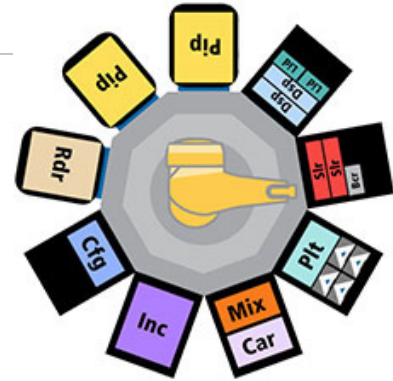
- Share the system with another discipline within your company (e.g. secondary screening), to lessen the capital purchase impact. The NanoCell's three docking stations can be treated as a blank canvas - and populated with the relevant device carts depending on which group needs to use it.
- Get better access to your devices. The Thermal Cycler is on a device turntable that can be rotated 180 degrees (even during a run) to allow you to perform manual experiments to optimise your PCR conditions.
- Adapt to future developments in real time PCR technologies by purchasing extra MicroCarts for novel instrumentation. These can then be docked into the existing platform.



9-Sided MicroStar

Sample Preparation and Analysis

1 x Rbt Staubli Robot	1 x Mix Plate Sonicator
3 x Mcd MicroDock	1 x Cfg Automated Plate Centrifuge
1 x Pip Acoustic Dispensing Device	1 x Slr Automated Heat Sealer
1 x Pip Liquid Handler	1 x Slr Automated Heat Sealer Remover
1 x Rdr High Content Imager	4 x A Plate Shaker
1 x Inc HighRes SteriStore	1 x Bcr Barcode Reader
1 x Car HighRes MicroServe	2 x Lid HighRes Lid Valet
2 x Dsp Single Reagent Dispenser	
1 x Plt Automated Plate Washer	



Description

This system is a 9-Sided HighRes MicroStar configured for genomic sample preparation and functional high content microscopy. This system first creates new samples for analysis by using acoustic dispensing to add siRNA or small molecule compounds into cell plates. These samples can then either be processed through extraction protocols to generate purified RNA/DNA, or run through the high content imager to determine functional readouts.

The capabilities include an acoustic dispenser (for low volume addition of siRNA and chemicals to cell plates), a liquid handler (for sample transfer and separation kit processing) and a plate sonicator to generate small fragments of DNA. The system is equipped with the accessory equipment to enable all common extraction protocols, as well as to prepare samples for high content imaging.

This workcell could be tooled for use with specific separation technologies (column, magnetic or vacuum based) depending on the customer's preference.

MicroStar Key Concepts

- Use this system for other types of experiment formats. For example, undock the high content imager, and exchange it for a standard multimode reader to enable simple luminescence-based gene reporter assays to be processed.
- Get better access to your devices. The liquid handler is placed on a device turntable that can be rotated 180 degrees (even during a run) to allow you to exchange or top-up volatile extraction kit reagents.
- Adapt to future developments in extraction technologies. As chemistries improve and throughputs increase it may be necessary to purchase new instrumentation for your system. These new devices can be placed on carts and docked into this existing system.