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## Label-free and more – advances in HTS

The development of high throughput screening (HTS) has transformed the drug discovery process during the last decade. Recent advances have included the improvement of label-free detection techniques, which offer researchers more flexibility and speed for high throughput screens compared to traditional methods of detection using radioactive or fluorescent tags. Also contributing to the advance of HTS is an increase in the number of screening libraries available to researchers, and innovation in laboratory automation. Some of the latest products are detailed below.

### Label-free screening

A powerful solution for large-scale, label-free molecular interaction analysis is available with **GE Healthcare's Biacore™ 4000**. Biacore 4000 delivers high quality binding, kinetic, affinity, concentration, and specificity data in both screening assays and detailed characterisation studies. The system has the capability to analyse up to 4800 interactions in 24 hrs. Biacore 4000 is supported by dedicated software packages for the key drug discovery application areas of small molecule discovery and antibody screening and characterisation, which fully exploit the capabilities of the system. The Antibody Extension Package enables Biacore 4000 users to get the best out of their system for antibody analysis applications, saving time and reagents in biotherapeutic development.

The **RapidFire 300** system for high-throughput screening of *in vitro* ADME assays from **BIOCIUS Life Sciences** enables researchers to perform a wide range of *in vitro* ADME assays with 24-hour, unattended operation. Producing label-free data at six to eight seconds per sample, drug discovery researchers can now use

the high throughput, mass spectrometry based method to analyse *in vitro* ADME assays in a fraction of the time required for conventional HPLC mass spectrometry techniques. RapidFire 300 can fully integrate with any manufacturer's triple quadrupole mass spectrometer and provide data compatible with customers' existing laboratory information management systems. "ADME data is critical in all phases of a fully integrated drug development program but data in the lead discovery stage was previously limited by time and labour-intensive screening platforms," said Can "Jon" Özbal, PhD., Vice Chief Operating Officer, BIOCIUS. "RapidFire 300 was developed to meet investigators' demand for high quality *in vitro* ADME data with a short turnaround time."

A high-performance set of screening tools has been launched by **PharmaDiagnostics** to accelerate the drug discovery process for pharmaceutical and biotechnology companies. The **SoPRano™** screening tools use the proven principle of surface plasmon resonance and make it available in high throughput on a standard plate-reader, without the need for costly specialist



The Capit-All™ IS Automated Capper/Decapper from Thermo Fisher Scientific

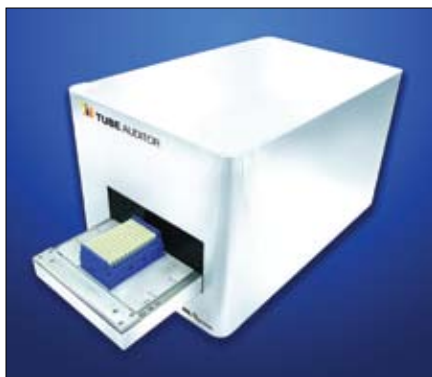
equipment. PharmaDiagnostics' localised surface plasmon resonance technology is broadly enabling, with easy to use protocols, and is applicable to a range of assays for both small molecule and antibody screening and characterisation. "With SoPRano, PharmaDiagnostics is providing label-free screening for a much broader range of researchers," said Dr David Ricketts, CEO at PharmaDiagnostics.

### Kits and reagents

Focused collections of receptor ligands, enzyme inhibitors, natural products and FDA approved drugs are available from **Enzo Life Sciences**. **Screen-Well™ libraries** are focused collections of compounds ideal for assay development, receptor de-orphaning, drug repurposing, and lead screening. The libraries are ready-to-screen, with each compound dissolved in DMSO and aliquotted to a 96-well plate, making the Screen-Well libraries ideal for either high content or traditional high-throughput screens. The latest addition to the Screen-Well collection of compounds is an FDA approved library of 640 drugs that have been carefully selected to maximise chemical and pharmacological diversity. It contains clinically-relevant pharmacophores for structure-activity relationship (SAR) or toxicity studies and is ideal for drug repurposing and repositioning programs.

**Intelligent Substrates** provides a new level of experimental control over cell structure and function with the introduction of **BioWrite™**, a protein micropatterned substrate for cell and tissue culture. BioWrite consists of line and grid micropatterns of the extracellular matrix protein fibronectin on glass coverslips. The patterns have feature sizes of 15 microns to 100 microns, which, by restricting the sites of cellular adhesion and spreading, can define the location, size, and morphology of cultured cells, control cellular functions and minimise variability in high throughput screening applications. This product offers improved sensitivity, lower variability, and simpler automated image analysis.

The **Proteome Profiler 96 Antibody**



RTS Life Science's Tube Auditor

**Array**, a new 96-well microplate-based platform for multi-analyte profiling is available from **R&D Systems**. Three Proteome Profiler 96 Phospho-RTK Antibody Arrays are now available, each consisting of microplate wells pre-spotted with a carefully selected panel of capture antibodies. The assay utilises the classic two-site sandwich immunoassay technique and a suitable camera system to detect the relative levels of up to 16 phosphorylated receptor tyrosine kinases in a single sample. Proteome Profiler 96 Antibody Arrays are specially designed to ensure antibody compatibility, high specificity and high sensitivity.

### Accessories

Featuring unique vision technology allowing for fast and accurate volume measurement of samples, the **Tube Auditor** from **RTS Life Science** enables measurement of sample volumes and, uniquely, the detection of precipitate in sample tubes. The RTS Tube Auditor is a bench-top instrument suitable for manual operation or integration into automated systems. Its high speed vision technology allows a full 96-way SBS tube rack to be audited in less than 2 minutes. The instrument ensures complete sample safety and avoids the potential for sample degradation as there is no need to de-cap tubes during the auditing process.

In collaboration with **The Automation Partnership**, **Thermo Fisher Scientific** has introduced the new **Capit-All™ IS Automated Capper/Decapper**. This robust, high-throughput instrument can de-cap or re-cap an entire rack of samples in less than ten seconds, while ensuring secure capping by individually sealing each tube, by its own separate clutch mechanism, to the optimal torque. The incorporation of an automated drip tray and a vacuum extraction port reduces any risk of contamination, and the life span of the tubes and caps is significantly increased due to specially molded parts preventing distortion and damage to the caps after repeated use.

**TTP LabTech** has launched its **Lab2Lab** automated sample transport system, using the proven pneumatic

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Dr Can “Jon” Özbal,  
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technology at the heart of the comPOUND sample store. Lab2Lab uses a network of uPVC tubing to connect a minimum of two stations – which can be in different rooms, or even on different floors – and allows samples to be transferred using a blast of air. This system can provide on-demand delivery of a single sample tube to a sampling device, then to the analytical hardware, and then to a waste container or collection point. Lab2Lab offers to reduce the time taken for samples to be sent, analysed and returned to the scientist, and optimises the use of expensive analysis instrumentation, as this can be located in a separate core lab to the user.

### Companies mentioned in this Product Focus:

**BIOCIUS Life Sciences** – [www.biocius.com](http://www.biocius.com)  
**Enzo Life Sciences** – [www.enzolifesciences.com](http://www.enzolifesciences.com)  
**GE Healthcare** – [www.gelifesciences.com](http://www.gelifesciences.com)  
**Intelligent Substrates** – [www.intelligentsubstrates.com](http://www.intelligentsubstrates.com)  
**PharmaDiagnostics** – [www.pharmadiagnostics.com](http://www.pharmadiagnostics.com)  
**R&D Systems** – [www.rndsystems.com](http://www.rndsystems.com)  
**RTS Life Science** – [www.rtlslifescience.com](http://www.rtlslifescience.com)  
**The Automation Partnership** – [www.automationpartnership.com](http://www.automationpartnership.com)  
**Thermo Fisher Scientific** – [www.thermofisher.com](http://www.thermofisher.com)  
**TTP LabTech** – [www.ttplabtech.com](http://www.ttplabtech.com)

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