

## Product Focus: Cell Signaling

# On the Right Pathway?

The latest products and services

As an integral part of the complex system of communication that directs basic cellular activities and coordinates cell actions, cell signaling plays a vital role in development, tissue repair, and immunity as well as normal tissue homeostasis. When this cellular information processing goes awry, diseases such as cancer, autoimmunity, and diabetes can arise. This feature takes a look at the latest tools, systems and accessories for studying cell signaling, and related services.

**New magnetic bead–based multiplex immunoassays** for TGF- $\beta$ , rat cytokines, rat diabetes, and mouse TH17 cytokines have been launched by **Bio-Rad Laboratories, Inc.** These new assays are built on Luminex's MagPlex platform to take advantage of the magnetic beads workflow that simplifies assay preparation and reduces variability in results. Magnetic bead–based assays are compatible with both vacuum and magnetic wash stations as well as other Luminex xMAP platforms such as Bio Rad's Bio-Plex 200 and Bio-Plex 3D systems. For example, the Bio-Plex Pro rat cytokine assays and Bio-Plex Pro rat diabetes assays detect 25 rat cytokines and five rat diabetes biomarkers respectively.

A new assay kit for the detection of protein interactions by co-immunoprecipitation is now available from **Dualsystems Biotech AG**. Formulated to enable highly efficient antigen immunoprecipitation, the **FleX-IP immunoprecipitation kit** enables immunoprecipitation using less than 10  $\mu$ g of antibody and is compatible for use with mouse, rabbit, goat, and human antibodies. Typical applications include the validation of protein interactions by co-immunoprecipitation and the immunoprecipitation of proteins from cells and cell-free reactions. Designed as a complete solution for immunoprecipitation experiments, the FleX-IP kit includes protein A/G agarose, control mouse IgG, lysis/wash buffer, stock NaCl solution, and SDS-PAGE buffer as well as spin columns and collection tubes

A sensitive technology that directly measures kinase, phosphatase, phosphodiesterase, and protease activity is now available from **Axxora**. Adaptable to standard instrumentation, **Gyrasol Technologies' cell signaling assays** are easily scaled and automated for high throughput screening. Particularly useful for biochemical analysis, cell based analysis, endpoint monitoring, kinetic monitoring, and other analyses, the assays produce stable detection products in approximately 24 hours. The assays require no radioactivity or antibodies and are available for PKA, P13K, Sphingosine kinase, Fyn kinase, PTP1B, PDE1C, PDE4A1A, and PDE5A. Also offered is a PanUmbra assay that allows researchers to develop custom assays for particular enzymes of interest.

**Promega** has launched highly sensitive bioluminescent assays for the measurement of the relative activities of histone deacetylases (HDAC) for basic research, screening and drug discovery. The new **HDAC-Glo™** and **SIRT-Glo™ Assays and Screening Systems** use a single-reagent-addition, add-mix-measure protocol for easy implementation in bench top to high throughput screening applications, reducing labour and time to results. The systems speed up data acquisition times, and provide 10 to 100-fold higher sensitivity than comparable fluorescence assays. HDACs are key epigenetic regulators of gene transcription and an important new target class of enzymes in drug discovery epigenetics programs aimed at therapeutic areas such as oncology, metabolic diseases, aging and neurological disorders.

A new **Quantitative ELISA kit** for detection of Bovine Interferon gamma (IFN-gamma) in plasma, serum and cell culture supernatant is available from **AbD Serotec**. IFN-gamma is a secreted, pro-inflammatory cytokine recognised as a hallmark of Th1 type immune response. Involved in many different phases of the immune function, IFN-gamma has gained interest as a marker for autoimmune and infectious diseases, as well as for its therapeutic potential.



Dualsystems Biotech FleX-IP immunoprecipitation kit

**Kinexus** offers multiple unique profiling services for the detection of hundreds of different cell signaling proteins in most model systems. The **Kinetworks™ profiling service** analyses cellular changes at the protein level by monitoring the presence, regulation and phosphorylation of protein kinases and other cell signaling proteins. These screens simultaneously track the location, expression level and activity state of validated target proteins within thematic families of protein kinases, phosphoproteins, and cell cycle proteins and are unmatched for their breadth, reliability, speed, convenience and affordability.

**Enzo Life Sciences** has expanded its offering of products for Wnt pathway research with the addition of the **Screen-Well™ Wnt Pathway Compound Library**. This library is a focused collection of Wnt pathway-modulating compounds for cell-based and biochemical applications. It provides a useful tool for studying activation or inhibition of the Wnt pathway in cells and for

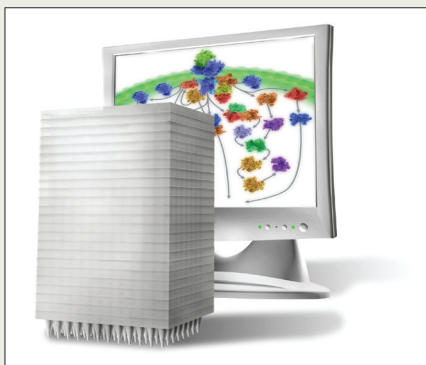
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QIAGEN's qBiomarker™ Somatic Mutation PCR Array System

applications *in vitro*. A variety of structurally and mechanistically different compound classes are included. The Wnt signaling pathway was first discovered as a critical part of normal embryonic development. The pathway spans the entire cell, from cell surface receptors, to cytoplasmic messengers and modulators, to nuclear transcription factors, and is now known to be involved in cancer, angiogenesis, stem cell regulation, neurodegenerative disease, cardiac hypertrophy, diabetes, osteogenesis and ageing.

**Sigma Life Science**, the innovative biological products and services research business of **Sigma-Aldrich Corporation** has launched **CompoZr Targeted Integration Kit - mRosa26**, which can precisely and rapidly integrate transgenes into the mouse genome at the Rosa26 safe harbour locus. This kit follows the introduction of the CompoZr Targeted Integration Kit - AAVS1, for transgene integration in the human genome. Traditional transgenic approaches rely on random integration of a transgene. This low efficiency approach results in multiple random



Gas Control Module for Tecan's Infinite 200 PRO multimode microplate reader

integration events at off-target insertion sites, and often requires the use of antibiotic selection strategies. In addition, the integration event can involve multiple copies of the transgene. Using the CompoZr ZFN technology, a single copy of a transgene can be targeted and inserted in the Rosa26 locus, which is a well-defined safe harbour site in the mouse genome.

The **qBiomarker™ Somatic Mutation PCR Array System**, designed for rapid and accurate mutation profiling in basic research and drug discovery has been launched by **QIAGEN**. The assays consist of collections of pathway or cancer-specific assays in 96- or 384-well plate formats with a number of pathways (EGFR, ErbB2, etc.) and cancer types. Laboratory experiments have shown that the PCR arrays provide a sensitivity of as low as 1-2 % mutant DNA in a background of wild-type DNA. The pathway-focused approach also enables an in-depth understanding of the mutations that are present in a specific tumour sample in a short time frame.

**Tecan** has launched a **Gas Control Module (GCM™)** for its **Infinite 200 PRO multimode** microplate reader, creating one of the most comprehensive solutions on the market for cell-based assays. Variations in environmental conditions can lead to inconsistent and unreliable data for cell-based optical studies, due changes in the pH and color of the media during incubation. By offering precise regulation of oxygen or carbon dioxide levels within the reader chamber, the GCM provides a more stable culture environment over time. This makes it ideally suited to *in vitro* investigation of eukaryotic cell lines, achieving better cell viability and allowing the duration of cell-based experiments to be extended without adversely affecting results.

**Thermo Fisher Scientific Inc** has introduced a new **Thermo Scientific Nunc 14 ml round bottom tube** for critical cellular applications. Produced under ISO 13485 conditions with full lot traceability, each tube is certified sterile (SAL 10<sup>-6</sup>), non-pyrogenic and USP Class VI tested to ensure cellular integrity and viability is effectively maintained for even the most sensitive applications. Composed of optically clear polystyrene, the tube has moulded graduations in 0.5 ml increments, allowing clear visualisation for accurately determining reagent volumes.

Three new options for **Compact Select™** automated cell culture systems have been introduced by **TAP Biosystems**. These options will enable scientists to automate processing of T75 flasks, pipette chilled reagents at low volumes and alter oxygen levels to optimise conditions for reproducibly culturing complex cell lines. The new T75 Flask Processing Adaptor, with unique barcodes on each adaptor, allows Corning T75 or BD Falcon T75 flasks to be uncapped and processed alongside T175 format flasks. This means researchers can easily automate the generation of traceable, reproducible quality individual cell lines for low-throughput applications such as electrophysiology

## Companies mentioned in this Product Focus

**AbD Serotec**

[www.abdserotec.com](http://www.abdserotec.com)

**Axxora**

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**Biorad Laboratories**

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**Dualsystems Biotech**

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**Enzo Life Sciences**

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**Kinexus**

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**Promega**

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