Epigenetic Analysis Tools

The TrueMethyl Whole Genome (TMWG) integrated workflow system for processing DNA samples includes all-in-one reagents for sample conversion, library creation, and indexing, combined with bioinformatics tools to enable accurate DNA modification analysis through next-generation sequencing methods. The TMWG kit incorporates Cambridge Epigenetix's TrueMethyl oxidative bisulfite (oxBS) technology, which allows researchers to accurately quantify different DNA modifications at single-base resolution, as well as proprietary library preparation methods designed to overcome the limitations of traditional bisulfite library construction, and to improve the yield and quality of epigenetic data. The bioinformatics tools comprise a series of scripts for quality control analysis and biological analysis of the resultant sequencing data. TMWG allows customers to access the power of whole-genome epigenetic information in an integrated, cost-effective solution combining state-of-the-art sample preparation and DNA sequence analysis.

Cambridge Epigenetix
For info: +44-(0)-1223-804260
www.cambridge-epigenetix.com

Fatty Acid Oxidation Kit

AMS Biotechnology has introduced the MitoXpress Xtra Fatty Acid Oxidation (FAO) kit to facilitate convenient measurement of FAO-driven respiration. FAO is the primary metabolic pathway in a variety of tissues, and is particularly important during periods of glucose deprivation. In tissues such as liver and skeletal muscle, FAO can provide over 75% of cellular adenosine triphosphate, while in cardiac tissue it can be responsible for up to 90%. It is also acknowledged as a key factor in cancer metabolism and drug-induced microsteatosis. The MitoXpress Xtra FAO kit is designed for use with the MitoXpress Xtra HS–Oxygen Consumption Assay, and contains the 18-carbon unsaturated fatty acid oleate as substrate, supplied as a 2:1 bovine serum albumin conjugate. The kit also contains a buffer tablet and L-carnitine for convenient preparation of measurement media, and two FAO modulators, etomoxir and FCCP.

AMS Biotechnology
For info: +44-(0)-1235-828200
www.amsbio.com

Viscometer

The Fluidicam RHEO viscometer represents a new standard of fully automated rheology measurement. It uses the well-defined microfluidic coflow principle for measuring viscosity. Unlike conventional rotational rheometers, the Fluidicam can run defined shear sweeps at shear rates as high as 10^4 s^-1 with low-viscosity fluids of 0.1 centipoise (cP) up to 200,000 cP. This low-viscosity window is especially challenging for conventional rheometers, whose readings can be affected by factors such as low torque, turbulent flow, and surface tension. Sample volumes are as small as <500 µL, which is ideal when measuring blood, proteins, and other biofluids. The microfluidic chip dimensions ensure extreme accuracy and a repeatability of 1%. Access to shear rates and temperature sweeps is available in a single click, without the need for calibration, geometries, or chip sensors.

Typical applications include pharmaceuticals (proteins, vaccines, eyedrops, etc.) petrochemicals, inkjet inks, food analysis, personal care, and fine chemistry.

Fullbrook Systems
For info: +44-(0)-1442-8767
www.fullbrooksystems.co.uk

Next-Generation Transcriptome Profiling Assays

Researchers looking to quickly identify expression biomarkers using highly challenging clinical research samples can now use Thermo Fisher Scientific’s Clariom S Pico assays—the next-generation family of transcriptome profiling tools. The Clariom brand of assays (Clariom D Pico and Clariom S Pico) include the most current content curated from the largest number of public-sequence databases, including RefSeq, NONCODE, Ensembl, Vega, IncRNAWiki, and RNAcentral, among several others. Clariom D Pico assays allow discovery of coding and noncoding genes, exons, and splicing events, including rare transcripts, expanding the potential for finding novel biomarkers missed by alternative techniques. Clariom S Pico assays enable scientists to identify important expression changes in genes and pathways. Clariom Pico assays can extract data from as little as 100 pg of total RNA, from common and challenging sample types (including formalin-fixed, paraffin-embedded tissues and whole blood) without the need for globin messenger RNA reduction or ribosomal RNA removal.

Thermo Fisher Scientific
For info: 800-955-6288
http://go.affymetrix.com/clariom

Exosome Isolation Kit

The MagCapture Exosome Isolation Kit PS recovers high-yield, high-purity exosomes. Exosomes and other extracellular vesicles (EVs) are small membrane vesicles containing protein, messenger RNA, microRNA, DNA, and lipids, which are secreted by various cells and are stable in body fluids including blood, saliva, urine, cerebrospinal fluid, and breast milk. These EVs have been recognized as messengers of cell-to-cell communication and as biomarkers for various diseases. Conventional isolation methods—ultracentrifugation, affinity purification using antibodies to surface antigens, and precipitation with polymer reagents—are not fully satisfactory for recovery efficiency, purity, and operability. The kit adopts a novel purification method, using magnetic beads and phosphatidylycerine-binding protein to isolate exosomes and other EVs from cell culture medium and body fluids by a normal microcentrifuge. The isolated intact exosomes and other EVs can be used in electron microscope analysis; nanoparticle tracking analysis; administration of EVs; and analysis of proteins, lipids, or nucleic acids.

Wako Chemicals USA
For info: 877-714-1920
www.wako-chem.co.jp/english

Biomolecular Imager

Do you need to do simple gel imaging or red-green-blue (RGB) fluorescent Western blot detection, but also want near infrared (NIR) fluorescence or phosphor imaging? GE's Amershams Typhoon is a next-generation biomolecular imager that meets all of your needs in one instrument. It offers an upgradeable laser-scanner format that is completely customizable for your specific research needs. Typhoon's laser scanner enables you to generate high-quality data through linearity of signal response, quantitative accuracy, and extremely low detection limits (as low as 3 pg). Typhoon supports phosphor imaging, 2D difference gel electrophoresis imaging, and RGB and NIR fluorescence, as well as sensitive and accurate quantitation of proteins, nucleic acids, and other biomolecules.

GE Healthcare Life Sciences
For info: 800-526-3593
www.gehealthcare.com

Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and governmental organizations are featured in this section. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsement by Science or AAAS of any products or materials mentioned is not implied. Additional information may be obtained from the manufacturer or supplier.
New Products

Science 356 (6338), 649.
DOI: 10.1126/science.356.6338.649-a