



PRODUCT PORTFOLIO

Centrifugation
Flow Cytometry
Cell Analysis
Research Automation
Molecular Biology
Capillary Electrophoresis
Particle Analysis

2012/
2013

*LIFE
SCIENCE
RESEARCH*

Optima™ ultracentrifuges

Providing acceleration to over one million x g modern ultracentrifuges process sample volumes from just a few µl to 1.5 Liters in batch rotors. This allows the separation and cleanup of macromolecules like DNA, RNA, proteins, lipoproteins and nanoparticles too. With forward thinking technology for utmost reliability, best sample quality and improved systems for both mechanical and biological safety, these instruments offer all that is possible today. New graphical user interfaces and the option of network connection for remote monitoring and control makes this new generation of Beckman Coulter Ultracentrifuges the proud successor to all the ultracentrifuge series launched by Beckman Coulter since 1947 when the analytical ultracentrifuge „Model E“ launched as the first commercially available ultracentrifuge.

Optima™ X - Beckman Coulter's new series of preparative ultracentrifuges

The Optima™ X series represents the latest generation of preparative ultracentrifuges. Spinning rotors including the exclusive SW 32Ti and Beckman Coulter's NVT rotors as well as other speciality rotors at up to 100,000 rpm (> 800,000 x g), the instrument also sets new standards for the future: The new patented low vibration drive, the improved two step rotor safety identification system and optimized sample temperature control are just some examples of its outstanding hardware. And the X-series also heralds a new way of instrument and application interaction: The new 15" colour touch screen and an

intuitive software interface allows easy access to user management with password protected user login ensuring comprehensive run traceability. The new eXpert software offers new ways to develop separation protocols, find secure run parameters and much more. The option to link the instrument to a local network and even to mobile devices allows control from almost everywhere.

Optima™ MAX series - the latest tabletop ultracentrifuges

These compact ultracentrifuges for small and medium sample sizes run rotors at speeds up to 150,000 rpm. At up to over 1 Million x g with rotors optimized on efficiency, separations are ultra - fast. And with a broad variety of labware and rotors including Beckman Coulter exclusive designs the MAX-series allows you to achieve this in the most convenient way. Also with its connectivity, user management, BioSafe option and so on, much of the technology from the X-series is shared in this type of instrument too.

Labware

A broad variety of tubes and tube assemblies is available for all Beckman Coulter centrifuges. This includes tube materials compatible with almost every sample with different tube designs supporting best separation.

Tube Materials and Their Properties

Property	Thinwall Polyallomer	Thickwall Polyallomer	Ultra-Clear™	Polycarbonate	Polypropylene	Polyethylene	Cellulose-propionate	High-grade Steel	Teflon®
Optical	transparent	translucent	transparent	transparent	transparent	transparent / translucent	transparent	not transparent	not transparent
Autoclavable	yes	yes	no	no	yes	no	yes	yes	yes
Puncturable	yes	no	yes	no	no	yes	no	no	no
Sliceable	yes	no	yes	no	no	no	no	no	no
Reusable	no	yes	no	yes	yes	yes	no	yes	yes
Acids (dilute or weak)	S	S	S	S	S	S	S	S	S
Acids (strong)	U	S	U	U	S	S	U	S	S
Alcohols (aliphatic)	U	S	U	U	S	S	U	S	S
Aldehydes	M	M	S	M	M	S	U	S	S
Bases	S	S	U	U	S	S	U	S	S
Esters	U	M	U	U	M	S	M	S	S
Hydrocarbons (aliphatic)	U	M	U	U	S	U	S	S	S
Hydrocarbons (aromatic and halogenated)	U	U	U	U	M	M	S	S	S
Ketones	U	M	U	U	M	M	U	S	S
Oxidizing Agents (strong)	U	U	U	M	M	M	M	S	S
Salts	S	S	M	M	S	S	S	S	S

S - satisfactory resistance

M - marginal resistance

U - unsatisfactory resistance



Optima™ X-series

SW 32 Ti

NVT 100

45 Ti



Optima™ MAX-XP

MLA-150

MLA-55



DNA purification

Lipoproteins

Nano particles

Plasma

Elutriation

Isolation of subcellular particles



CENTRIFUGATION

Purification of viruses

Purification of organelles

DNA purification

Cell culture



**Allegra®
X-15**

Nucleic acids

**Allegra®
X-30**



Protein
preparation

Microfuge® 16



Optima™ XL-A/XL-I



Avanti® J-series



JLA 8.1000



All-Spin JS-5.3

JA 30.50

**Avanti®-Series -
Higher Performance
floorstanding centrifuges**

The Avanti® Series delivers with the innovative SR-Drive technology, higher run speeds and innovative rotor technology which results in short run times and high sample quality. Two independent overspeed systems allow rotor identification and thus maximum mechanical safety. The instrument's Friction Reduction System (FRS) minimizes wear on all components and reduces energy consumption and heat output. Avanti J-Centrifuges are available in BioSafe version (optional) as are rotors and labware for this centrifuge series.



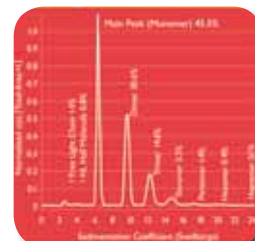
Allegra® tabletop centrifuges

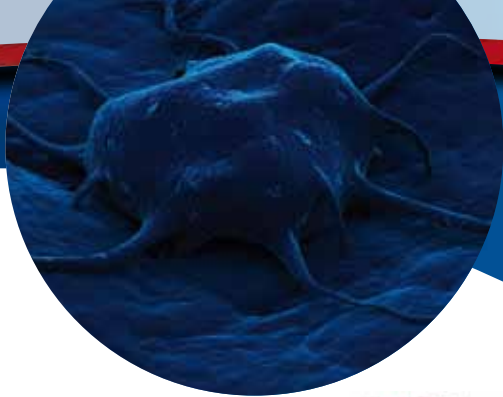
Our universal tabletop centrifuges of the Allegra® series are frequently used in cell culture and molecular biology or diagnostic laboratories. With flexibility in sample volume, forces to 64,000 x g and a broad variety of rotors, every application is served. Characteristic for the Allegra X-30R is the extremely narrow width of only 46 cm and a maximal capacity of 4 x 400 ml. The Allegra X-15R offers 5,250 x g in swinging bucket rotors with volumes up to 3 Liters. The compact Microfuges offer fast separation for tubes of 2,2ml and smaller.

Analytical ultracentrifugation

The Optima XL-A and XL-I Analytical Ultracentrifuges are instruments for characterization of macromolecules such as proteins or DNA and their interactions in solution. The technology can also be applied to measure size distributions of particles. Parameters measured can be complex size, aggregation dynamics, association constants, sedimentation and diffusion coefficients, free energy, enthalpy and more.

Molecules and/or particles are characterized under conditions of choice, e.g., under native conditions. Directly based on Thermodynamics, Analytical Ultracentrifugation is a primary method that does not require standards or calibration.





signal transduction

surface antigens

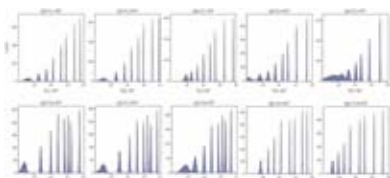
cell number /
cell size

NAVIOS™ and GALLIOS™ Flow Cytometers



The Navios™ and Gallios™ Flow Cytometers are configured with up to 4 lasers, 10 colours and choice of 62 parameters, which provides efficient acquisition of high quality data at speeds of 25,000 events per second. Using a new optical bench, enhanced “boulevard” optical design, side scatter and innovative forward scatter from two angles provides superior detection of low fluorescence signals and resolution of submicron particles down to 0.4µm in diameter. These flexible and sensitive flow cytometers also use a 32 tube carousel, high resolution 20 bit data in FCS 3.0 format, post acquisition listmode compensation and high quality optical filters. The software has built in modules for Quality Control and Quality Assurance providing confidence for sample assays.

The Navios is also CE/IVD certified and has tetraNavios algorithms for automated CD4/HIV sample processing in clinical and clinical research laboratories while the Gallios is ideally suited for research laboratories.



apoptosis

immunotoxicity

vitality

FC 500 and FC 500 MPL Flow Cytometers

The FC 500 is a highly flexible 5-colour flow cytometer for research, clinical trials, and routine Diagnostics with CE/IVD Certification. Samples are acquired via a 32 tube sample carousel with integrated vortex mixer or via single tube. The FC 500 MPL offers a multi-platform loader for various plate and tube formats and a Software module, which opens access to 21 CFR part 11 working compliance. By connecting the FC 500 MPL with a Biomek™ FX or NX, sample preparation and processing can be automated easily. Both flow cytometers utilise high resolution 20 bit data in FCS 3.0 format, post acquisition listmode compensation and high quality optical filters.



**FC 500 /
FC 500 MPL**

High speed cell sorter

The MoFlo XDP with new digital electronics is a high speed cell sorter with up to 70,000 sorting events per second and analysis rates up to 100,000 events per second, which elevates the MoFlo XDP to one of the fastest and most flexible cell sorters in the market. Up to 18 fluorescence signals are measured in parallel via 3 laser excitation wavelengths. Adding a Co-Lase tower brings up to 2 more lasers for further fluorochrome choice. Further characteristics are High sort purities (including 4-way-sort-mode), flexible and intuitive software, a user friendly touch screen and a modular set up.

The MoFlo Astrios is the latest advance in cell sorters maintaining up to 70,000 sorting events per second and analysis rates up to 100,000 events per second with automated IntelliSort 2 sort set up, 7 pinholes with 7 lasers and up to 49 PMT's with cell deposition in different plate formats and tubes (incl. 6-way-sort-mode). Data acquisition from up to 32 parameters and 1 billion events in FCS format and new bio-safety features make the Astrios the cell sorter of choice for high end sorting laboratories.

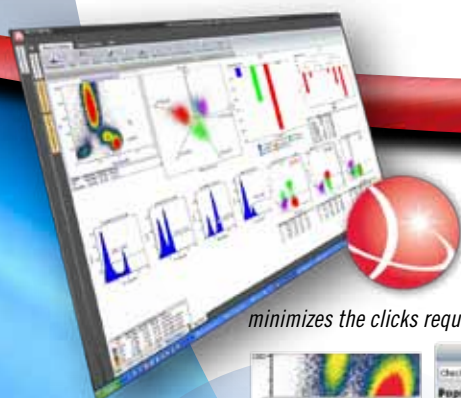


Astrios

high speed
cell sorter

bead
arrays

FLOW CYTOMETRY



Kaluza Flow cytometry analysis software

This software revolutionises multiparametric data analyses with Dynamic, Intelligent Workflow saving hours of analysis time. Kaluza Software features new tools that simplify the management of multiple complex data sets, allows visualization of high-content data in different spatial dimensions on a single plot, and provides real-time analysis of high-content flow cytometry files. Auto-Layout intelligently reconfigures the workspace and minimizes the clicks required to create and maintain an analysis. A radial menu provides fast access to all plot and region editing features.

Tree plots and radar plots easily represent data that typically requires dozens of plots, gates and regions. These plots reveal relevant and rare populations that are typically not seen using traditional bi-variate plots and gating strategies. Kaluza Flow Cytometry Analysis

Software enables remarkably fast refresh rates for even large, complex data sets.

The package works with the majority of FCS-compliant files and with most cytometers. It can be used with both network and stand-alone computers and is offered for research use only. Functional examples of Kaluza data analysis can be viewed at www.kaluzasoftware.com, where a free, fully functional trial version of the software is available.



Kaluza

intracellular
antigens

compound
screening

CD1 to CD363

immuno
phenotyping

CDS

Our Custom Design Service (CDS) offers the possibility to conjugate custom antibodies and custom antibody/fluorochrome combinations in the usual Beckman Coulter quality you are used to.

CyAn ADP / HyperCyt

The **CyAn ADP** High-Performance Flow Cytometer is a state-of-the-art flow cytometer with an extremely small footprint that utilizes multiple laser excitation sources to analyse biological cells, beads, or other microscopic particles. The CyAn ADP has state-of-the-art optics, utilizes high performance digitization with pulse processing speeds of up to 70,000 events per second complementing a high acquisition and analysis capability of up to 100,000,000 events.

Up to 9 x 9 parameter compensation can be performed manually, using bi-exponential transformation (VisiComp) or automatically. Summit Software is easy to learn and operate.

The software package is included and unlimited copies are provided for online analysis. As an option HyperCyt autosampler, a sample handling system using a unique, patented technology for transferring cells or beads in suspension from microplates into a flow cytometer, can be added to the CyAn ADP. Automation interfaces can be provided,

so that you can add a robotic plate loader to maximize the power of high throughput cytometry.



**CyAn™ ADP /
HyperCyt**

krome orange

fluorescence
intensity



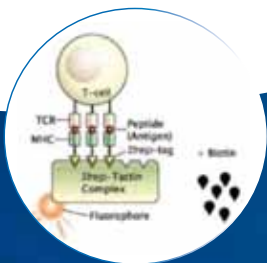
Tetramer

Class I and Class II iTag™ MHC Tetramer

Accurately detect antigen specific T cells at the single cell level. Beckman Coulter iTag™ MHC Class I Tetramers bind to a distinct set of T cell receptors (TCRs) on a subset of CD8+ T cells, and Class II Tetramers bind to a distinct population of CD4+ T cells. Beckman Coulter patented MHC iTag tetramers reduce non-specific bindings to allow unique detection and enumeration of Ag specific T cells.

Streptamer™

The Streptamer technology is a novel method to isolate and characterize functional antigen-specific T-cells. Streptamer enable for the first time a reversible, antigen-specific staining of T-cells, leaving the isolated T-cells phenotypically and functionally indistinguishable from untreated cells.



Tetramers

Leuko64

Signal Transduction

The Cell Lab Signaling Cytometry (Cell Lab SC) line of reagents from Beckman Coulter, Inc., offers a comprehensive set of antibodies for the detection of the phosphorylation state of signaling proteins in cells via flow cytometry. Performing cell signaling experiments via flow enables the user to generate precise, specific and quantitative measurements of the signaling response in individual cellular subpopulations.

g-Tox

Beckman Coulter offers the gTox Flow Kit—a new flow-cytometric approach to genotoxicity testing. This mouse micronuclei assay is designed to evaluate the ability of a compound to cause chromosomal damage. The gTox Flow assay enumerates micronucleated red cells in peripheral blood of treated mice. It is ideal for preclinical drug candidate testing, environmental testing and other academic and commercial toxicology applications. It is also one of a battery of tests that chemical companies can use to comply with stringent new REACH (registration, evaluation, authorization and restriction of chemical substances) regulations in Europe.

Reagents and tandem conjugates

Beckman Coulter patented tandem dye technology provides increased sensitivity & photo-stability, decreased monocyte staining, with simplified & reduced compensation with more than 20 years of experience.

New violet dyes such as Pacific Blue and Krome Orange add to and complement this excellent range of fluorochromes.

For routine diagnostics, a broad variety of ready-for-use antibody cocktails are readily available that allow maximal standardisation with minimal effort.

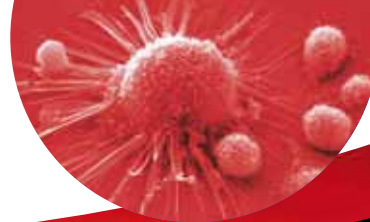
Our Custom Design Service (CDC) offers the possibility to conjugate custom antibodies and custom antibody/fluorochrome combinations in the described premium quality.



iTox3

CD34

CELL ANALYSIS



MHC Molecules

NKp46

Sca-1

NF- κ B

Apoptosis

Streptamers

TCR V β



Multisizer™ 4

c-kit



Vi-Cell™

CD25

CXCR4

HLA-DR



Z-Series

ZAP-70

Stem-Kit

Single cell determination

Multisizer™ 4 determines simultaneously the cell number, or particle number, respectively, and the size distribution by direct single particle determination. The measurement records the particle volume and is independent of optical properties. The new DPP (Digital Pulse Processing) technique allows the storage of every single parameter (height, width). Due to the low measurement limitation even bacteria can be determined. The system enables compliance with 21 CFR Part 11.

Determination of cell viability

Vi-CELL™ combines the manual standard Trypan Blue method to determine cell viability and cell number with modern image technology. From aspiration of a few μ l of sample to the staining of the cells to the actual measurement all processes are standardized and reproducible. An autosampler - that can be fed continuously - automates the whole sample preparation. Users that are involved in bio-process monitoring are able to record parameters as growth rate or doubling time continuously. Vi-CELL™ software enables compliance with 21 CFR Part 11.

Cell counter

The Z series cell counters determine cell number, concentration and size distribution according to ISO-Norm 13319 and ASTM-Norm F2149-01. The systems are used for the fast cell culture control and are a standardized and reproducible alternative to the Neubauer cell counting chamber.

PerFix Permeabilization Reagents

PerFix-nc

The PerFix-nc kit (no centrifuge assay Kit) is designed for Intra- & Extra- Cellular Staining Preparations. PerFix-nc was developed to dramatically simplify intracellular staining techniques used by flow cytometry, to make it as simple as surface staining techniques by removing all centrifugation steps. Difficult staining procedures such as FoxP-3 and ZAP-70 can be easily integrated with surface staining panels.

PerFix-p

PerFix-p enables flow cytometric analysis of multiple intracellular phospho-epitopes, or both multiple intracellular phosphoepitopes and cell surface markers markers, by fixation, erythrocyte lysis, and permeabilization of peripheral human leucocytes from whole blood.

Biomek® 4000 – Works the way you think

The new Biomek® 4000 Laboratory Automation Workstation combines flexibility and sophistication in one compact platform. With its intelligent Biomek® System Software, application driven user interface, and interchangeable pipetting tools, this laboratory automation workstation is designed to automate a variety of applications including PCR*/sequencing reaction setup, reaction cleanup, genomic DNA purification, automated detection assays, protein purification, MALDI-TOF spotting, and much more.



Biomek® 4000

Biomek® – Bringing power and flexibility down to size

The Biomek® NX® Workstation puts every aspect of liquid handling - including pipetting, dilution, dispensing and integration - into a single, automated system that is as powerful and flexible as it is efficient and economical. The platform comes configured as either an NX® Multichannel 96/384 Pod with integrated gripper or NX® Span-8 Pod with independent gripper. The Biomek NX® is designed for integration with peripheral devices including plate readers, washers and storage devices and can be used for a wide range of applications and throughputs.



Biomek® NX^P

Biomek® FX^P – Far reaching flexibility

The two independent pipetting arms of the Biomek® FX^P set the standard for flexibility and throughput. With Span-8 and 96/384 pipetting the Biomek FX^P offers automation of a wide range of applications. Total workflow automation is provided by direct integration with peripheral devices or with integration of industrial or laboratory robots.



Biomek® FX^P

Biomek® Software – Confidence in data

- Optimization of pipetting with Biomek software
- Simple and straight forward assay modelling with SAMI™ EX
- SAMI™ EX Process Management enables automation of long term processes
- SAMI™ Process Management Calendar module helps to manage parallel processes

Optimization of pipetting results

Biomek software provides for optimization of any pipetting parameter such as speed and motion path. Optimized techniques are automatically selected and methods validated for logical errors whilst programming.



Assay modelling

The SAMI™ EX interface enables modelling and scheduling of complex assays. On the fly method validation and simulation tools allow fast and efficient development of new assays.



SAMI™ Process Management

SAMI™ Process Management offers an easy and intuitive interface for the control of complex applications such as cell culture or long term siRNA studies which may take weeks or even months to complete.



SAMI™ Process Management Calendar Module

The Calendar Module allows optimization of system usage and enables potential conflicts in long term processes to be identified and resolved quickly and easily.



Agencourt®

Affymetrix® -
sample preparation

DNA/RNA

Sequencing
setup/cleaning

LABORATORY AUTOMATION



**Biomek® ACP-
Workstation**



ADMETox
studies

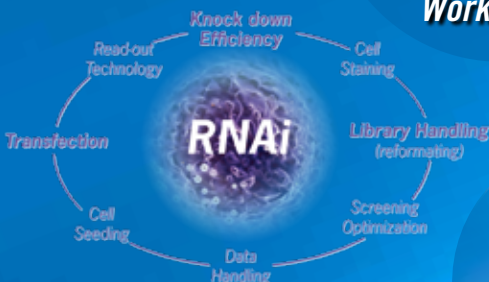
Sample Distribution

quantitative PCR®



**Biomek® Cell-
Workstation**

Purification



**Biomek® RNAi-
Workstation**

PCR®-setup/cleanup

Cellular Assays



BioRAPTR™

Biomek® Assay Workstation

Biomek NX® and FX® can be integrated with storage devices, plate readers, washers, sealers etc. for automation of a variety of complex assays. Peripheral devices are integrated using different plate loading and transportation devices working in parallel. Assays are easily set up and run with using SAMI™ EX software. Complex processes such as cell line optimization can be automated using SAMI™ Process Management software.

Biomek® ACP Workstation

The Automated Cocktail Preparation Biomek® system provides a dedicated user interface for automatic setup of antibody cocktails and panels. ACP software includes tracking of antibody usage and reporting of pipetting results.

Biomek® Cell Workstation

Automated cell culture system based on Biomek®. Integrated incubation and cell growth analysis combined with flexible process definition allows for automation of any cell culture task. The system can be build to any size and for any cell analysis requirements.

Biomek® RNAi Workstation

The RNAi Workstation provides for reliable reformatting and aliquoting of siRNA libraries as well as fast and efficient cell transfection. Its flexibility supports a wide range of cell based assays by integrating virtually any detection technology.

Assays and Compound management

Biomek® Workstations are available for a wide range of compound and cell based assays tasks, such as ELISA, apoptosis, cAMP, GPCR, GTP-binding, cell proliferation, kinase, receptor, protein interaction, reporter assays; IC50, ADMETox, Hit-Picking, serial dilution, sample distribution, and plate replication.

BioRAPTR™ High Speed nl-Dispenser

The BioRAPTR™ uses independent liquid paths to dispense up to 8 different liquids into any well with any liquid and with any volume from 100 nl to 60 µl in a single run. The BioRAPTR™ supports 96 to 3456 well plate formats. Optional Automated Assay Optimization (AAO) software enables rapid setup of thousands of experimental conditions within a few minutes.

Centrifugation

Flow cytometry

Cell analysis

Lab automation

Molecular biology

Capillary electrophoresis

Particle Analysis

Centrifugation
Flow cytometry
Cell analysis
Lab automation
Molecular biology
Capillary electrophoresis
Particle Analysis

pooling

normalization

library
construction

NGS sample preparation

From sample to sequence requires a distinct set of treatments in next generation sequencing.

Depending on the sequencing platform used, on the sample type analyzed and the scientific question to address the set of treatments appropriate for a given setting is variable.

The ever increasing speed of new method developments, new chemistries and new applications adds to the complexity and variance in the desired applications. Thus a state of the art automation solution must provide not just the ability to run established protocols, but also the flexibility to adapt to future developments.

In contrast to that the high cost for chemistries and the entrance of NGS methods into the diagnostic area demand for a robust and reliable method of sample preparation.

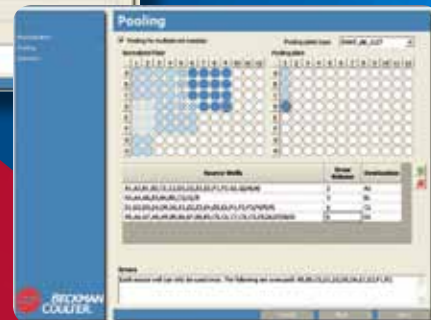
Beckman Coulter SPRIworks product line covers both demands. With standardized chemistries, methods and instrumentation we provide confidence in the process of NGS library construction. With the SPRIworks HT platform we offer ultimate flexibility to automate all aspects of current and future NGS sample prep, such as but not limited to library construction, nucleic acid extraction, target enrichment (SureSelect, Nimblegen and others), PCR, emPCR and qPCR setup, normalization, pooling and so on.*

- SPRI inside
- Original SPRI technology
- Complete workflow automation
- Double SPRI size selection
- Integrated data management

NGS

Next Generation SEQUENCING

- Library Preparation
- Size Selection
- Sequence Capture
- Bead Enrichment
- Normalization & Pooling



enrichment

PCR

AMPure XP

size selection

MOLECULAR DIAGNOSTICS

RNA

SPRIworks

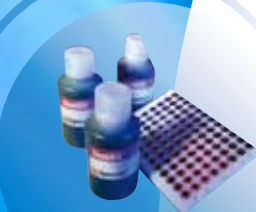
Agencourt

PCR / qPCR-Setup

next generation
sequencing



SPRIworks HT



Agencourt



SPRIworks



Biomek® PCR* and qPCR setup workstations

Amplification reactions are the most common applications in today's life science laboratories. Even though the method itself is standard, the individual reaction setup is not. Different volumes, primer combinations, specific chemical additives – all these details make up a perfect PCR. With Biomek® PCR*-setup workstations you will be able to adapt the laboratory robot to your need. Intuitive graphical interfaces ease the setup of complex reaction formats.

Set up reactions with highest accuracy and reproducibility even with small volumes (<2µL). Biomek® software will provide integrated data-management and sample-ID track & trace.

SPRIworks HT

Patented SPRI chemistry is combined with the flexibility of the Beckman Coulter Biomek FX® liquid handler to revolutionize how next generation sequencing samples are prepared. All chemistry needed to prepare libraries is included in a kit format along with the reagents to perform size selection and chemistry cleanup. The only thing left to do is add the DNA sample and adapter of choice. Because SPRIworks HT is automated on the Biomek automated liquid handler, users have access to a suite of methods to further streamline the next generation sequencing workflow.

Such methods include: PCR setup, PCR (on deck with T-robot integration), PCR cleanup, quantitation, normalization, and sample pooling.

Agencourt®

At the heart of Beckman Coulter's know how in molecular biology lies the SPRI based Agencourt product line of nucleic acid separation products.

Originally developed for the human genome project SPRI is the most abundant NA purification technology applied in high throughput labs. These beads are also the core of our SPRIworks kits designed for NGS applications.

We have taken SPRI technology into more fields of research such as sanger sequencing cleanup (CleanSEQ), DNA and RNA cleanup (AMPureXP, RNACleanXP), isolation of RNA/DNA from various sample types (GenFind for blood, DNAdvance and RNAdvance for cells and tissue, FormaPure for FFPE samples)

SPRIworks

A fully automated library-construction process for common sequencing-platforms is offered by the SPRIworks Fragment Library System. Through this automated process, up to 20 libraries for Illumina, 454 or SOLiD sequencing platforms can be achieved within one day. The SPRIworks-System consists of 3 components: the SPRI-TE Nucleic Acid Extractor, a Method-Card which controls the Liquid-Handling and a cartridge which contains all the necessary reagents for the library-construction, including size selection.

All cleanup steps and size selection is performed using SPRI beads. (Solid Phase Reversible Immobilization - SPRI Technology).

Centrifugation

Flow cytometry

Cell analysis

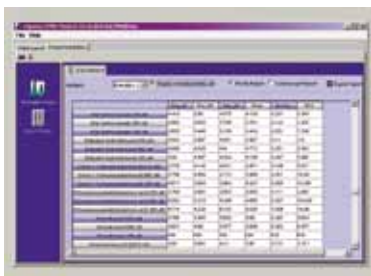
Lab automation

Molecular biology

Capillary electrophoresis

Particle Analysis

MOLECULAR DIAGNOSTICS



Sequencing and Fragment Analysis

The GeXP is a 8 capillary system for flexible DNA-Analysis. Sequencing, expression-, STR-, SNP-, AFLP-, Tilling, t-RFLP, MLPA- and LOH-Analysis can be performed on this platform without a change of gel or capillaries. The robust GeXP-System offers ease of use and allows automatic analysis up to 192 samples per run. A barcode scanner offers sample traceability and connectivity with Biomek sample preparation systems.

Kits for DNA Analysis

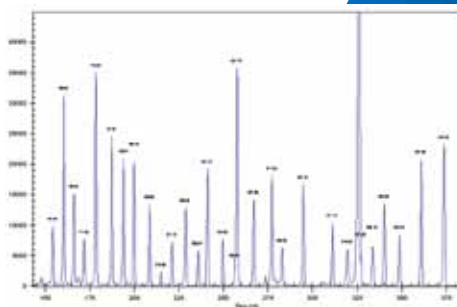
Quick Start Kit: robust chemistry for sequencing (Sanger-Method) plasmid and PCR samples.

STR-Kit: monitor and quantify contaminants in human samples and cell lines. The Kit contains 11 general markers plus one STR-Marker for gender determination.

Gen-Expression Analysis

The GeXP-Technology (Gene eXpression Profiling) is a unique Multiplex-PCR solution for semi-quantitative and cost-effective HT-Genexpression-Analysis. Multiplexing with up to 30 genes in a single reaction provides the ultimate flexibility for low cost analysis of hundreds of genes in thousands of samples. The high sensitivity allows a economic handling of valuable material. Working on single cell level is also possible.

New areas of application with this technology are stem cell- or food analysis as well as the studies of circulating tumor cells.



Kits for Expression Analysis

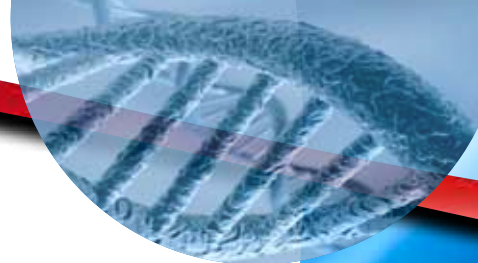
GeXP Start-Kit: Defined gene sets for humans, mice, plant and other organisms

Human Ref-Plex Kit: 25 primer sets are available as reference genes for the analysis of human samples



GeXP

Genexpression



CAPILLARY ELECTROPHORESIS



PA 800 plus

Protein Characterisation

The PA 800 plus is a fully automated system for the characterisation of complex protein samples. The system offers validated solutions with reagent-kits and standard operating procedures (SOP's) for analysis. The PA 800 plus is widely used in the pharmaceutical industry for quality control of therapeutic proteins such as monoclonal antibodies.

SDS Page



Glycan Analysis

Kits for Protein Analysis

SDS MW or IgG: separation and quantification of proteins according to mass (mass to charge ratio) within an range of 10k Dalton to 250k Dalton with an extreme high sensitivity. Compared to the SDS Page Electrophoresis, staining is not necessary anymore. The IgG-Kit contains „System Suitability Standards“ for QC in Pharma.

cIEF: determination of isoelectric points and for identification of charge heterogeneities. The high resolution achieved shows differences in glycosylation patterns or deamidation. This chemistry is widely used in the pharmaceutical industry for Lot to Lot comparison

Glycan Analysis: High resolution separation of complex glycans mixtures important for the bioactivity of therapeutic proteins such as MABs.

cIEF



Isoelectric Focusing

UV / Vis-Spectrophotometer

The DU® 700 is a compact spectrophotometer which is simple in use but still offers the advantage of the micro-focused beam. For this system, a wide range of different sample holders are available (eg. 7-Cuvette carousel, for micro cuvettes or cuvettes for cloudy samples). The very extensive software with the most common Life-Science-Applications is handled via the intuitive touch screen interface.



DU® 700

Nano Particles

Nano particles are particles smaller than 100nm in size. Such systems have attracted great interest in recent years with applications in medical research and the characterisation of new materials such as fullerenes.

The size and surface charge characteristics of nanoparticles have a strong impact on their functionality and are therefore important in producing specifications for new products using such materials. The small size of nanoparticles has produced the need for innovative separation- and production processes, replacing or enhancing conventional methods which are no longer fit for purpose.

Our solutions for Nano Particles:

Production and Isolation:

- PREPARATION

Optima X-Series (preparative Ultracentrifugation) or Avanti Series (High Performance Centrifuge)

Characterisation:

- PARTICLE SIZE

DelsaNano (Dynamic Light Scattering) and LS13320 (Static Light Scattering)

- ZETA POTENTIAL

DelsaNano (Electrophoretic Light Scattering)

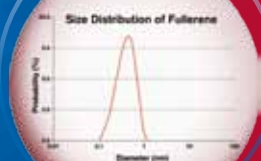
- SEDIMENTATION

Optima XLA/XLI (Analytical Ultracentrifugation)

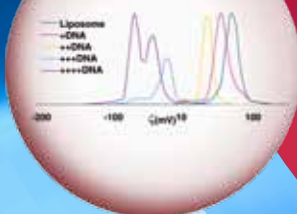
- AGGREGATION

Multisizer4 (Coulter Principle)

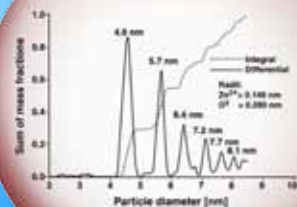
Particle Size



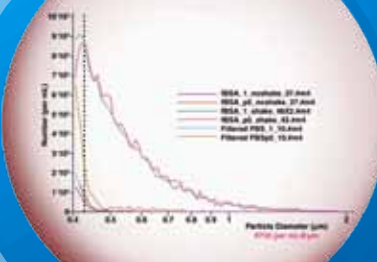
Zeta Potential



Sedimentation



Aggregation



Specific

Nanoparticles

Particle Size

Centrifugation

Flow cytometry

Cell analysis

Lab automation

Molecular biology

Capillary electrophoresis

Particle Analysis

PARTICLE ANALYSIS

Surface

Light Scattering



Delsa™ Nano Series
(0,6 nm - 7 µm)



Multisizer™ 4
(0,4 µm - 1200 µm)



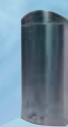
SA3100



ALM Modul



Tornado Modul



ULM2 Modul



LS 13320

(0,017 - 2000 µm)

Static

Light Scattering (Laser diffraction)

The LS 13320 with its wide sizing range of 17nm to 2mm diameter and flexible sample module options enables the user to analyse suspensions, emulsions or dry powders with ease.

Patented PIDS-Technology (Polarisation Intensity Differential Scattering) gives greatly enhanced resolution in the submicron region, vital for full characterisation of a product with a significant sub-micron content. The LS 13320 has multiple sample module options. Dry powders or particles in aqueous or organic media are handled with ease. Use of an auto-sampler facilitates 'walk-away' use of the analyser. The system's software options enable 21 CFR part 11 compliance.

Dynamic Light Scattering

The Delsa™ Nano Series uses a combination of dynamic light scattering (DLS) for particle size determination and electrophoretic light scattering (ELS) to measure zeta potential.

Particle Size

Detection of backscattered light (165°) enables sizing measurements in both diluted and concentrated systems.

With the Delsa™ Nano HC, sizing can be achieved at concentrations as low as a few mg/ml.

Zeta Potential

With the patented FST-Technology, the Delsa™ Nano can measure zeta potential in highly concentrated systems.

By using the autotitrator, pH-Profiles in the range of 1-13 can be generated.

Coulter Principle analysis

The Multisizer™ 4 measures particle, or cell, concentration and size in a single analysis. The Coulter Principle is independent of the optical properties of the particles under test. New DPP-Technology (Digital Pulse Processing) allows full characterisation of every particle's test data.

The instrument's lower size limit means that even bacteria can be counted and sized without difficulty.

The system's software options enable 21 CFR part 11 compliance.

Gas Adsorption Analysis

The SA3100 is a compact system for determination of the specific surface area (> 0.01 m²/g) and pore size (e.g. BJH, t-plot, Langmuir) of powders according to ISO 9277. The system analyses up to 3 samples at once and can handle different adsorption gases (N₂, Ar, Kr).

Centrifugation

Flow cytometry

Cell analysis

Lab automation

Molecular biology

Capillary electrophoresis

Particle Analysis



Beckman Coulter International S.A.

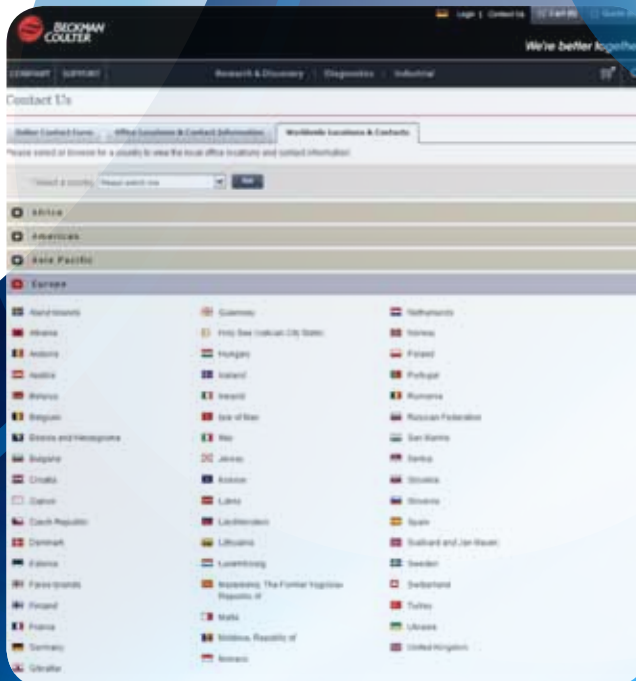
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