Biotherapeutics Development Workflow Solutions

PerkinElmer®
For the Better

DISCOVER THE **DIFFERENCE**

The main issue faced by biopharma drug developers is how to optimize development efforts to improve efficiency and productivity across all stages of the drug development process to get product to market more quickly and to decrease costs. The problem is excerbated with biologics due to the inherent complexities associated with evaluation and production in comparison to small chemical compounds.

Partner with PerkinElmer to enhance and streamline your biotherapeutics workflow from target discovery to manufacturing and quality control. Maximize efficiency by relying on one vendor for solution and support so you can focus on driving results of your biotherapeutics portfolio.

By accelerating the identification and characterization of effective and safe drug candidates, the PerkinElmer portfolio optimizes efficiency in the lab and delivers more actionable, real-world results. Partner with us and discover smarter, more effective, data-driven breakthroughs in the critical screening stages of drug development.

BIOTHERAPEUTICS WORKFLOW

TARGET DISCOVERY

Vallidation of targets is required to determine which candidates move forward to Hit identification and further testing. There is a growing trend towards earlier decision-making so that non-responding therapeutic candidates are filtered out earlier in the development process, thereby reducing development costs and time. While there are many different *in vivo* and *in vitro* techniques available for phase, PerkinElmer provides solutions to help manage problems faced with target validation by facilitating the selection of candidates earlier in development, providing new screening techniques, or improving on current screening techniquesIdentify relevant disease targets during the early stages of discovery for new biotherapeutics. Avoid latent failures downstream by thorough validation of each target. We provide the capability for the accurate prediction of target relevance in human disease through a combination of in *in vitro* and *in vivo* approaches.

CLONING & EXPRESSION

Integration of the properties of the production cell line, the process format and the physical and chemical environment of the cell culture into a robust manufacturing process. Create an optimum environment for culturing cell to high viable density for an extended period of time in the production bioreactor and facilitate efficient harvesting and downstream processing. We offer a range of microfluidic, ELISA-alternative, imaging, informatics, detection and automation solutions that simplify workflow and improve the quality of data generated at every stage in the cloning and expression process.

CELL CULTURE & PROCESS DEVELOPMENT

Integration of the properties of the production cell line, the process format and the physical and chemical environment of the cell culture into a robust manufacturing process. Create an optimum environment for culturing cell to high viable density for an extended period of time in the production bioreactor and facilitate efficient harvesting and downstream processing. As advances in laboratory automation have enabled increased throughput, researchers can now take advantage of design of experiments (DoE) and Quality by Design (QbD) studies to gain faster insights into drug discovery. These studies allow researchers to gleam a greater and often accelerated understanding of expression parameters, purification conditions, stability and functional aspects of their protein(s) of interest. The large number of samples produced from these experiments (e.g. monitoring the post-translational modifications from cell culture optimization or the downstream purification process) often greatly exceed the capacity of modern analytical laboratories.

SAFETY & PRE-CLINICAL

The main goals of pre-clinical studies are to determine a product's ultimate safety profile. Pharmacokinetics may be simply defined as what the body does to the drug, as opposed to pharmacodynamics which may be defined as what the drug does to the body.

Our solutions enable accurate quantification of anti-drug antibodies (ADA) and pharmacokinetics (PK) / pharmacodynamics (PD) through high quality, reproducible test data. Whether your research involves monoclonal antibodies (mAb) or proteins and peptides, our wide portfolio of immunogenicity, neutralizing antibody (NAb) and PD/PK testing solutions can streamline your workflow.

MANUFACTURING & QUALITY CONTROL

Bulk manufacturing, liters of material generated using strict SOPs under GMP conditions. Implement the methods used at the development stage (if GMP).

Let us help identify process and product related impurities to ensure they do not compromise the quality or safety of your biotherapeutics or vaccine research.

BIOTHERAPEUTICS SOLUTIONS

Sample Collection

DBS Puncher

The DBS Puncher™ instrument is a versatile, automated instrument for punching dried blood spot samples into 96-well microtitration plates. The instrument supports a wide range of assays employing blood spots as well as other samples dried on filter paper. The DBS Puncher instrument is well-suited for preparing plates for feeding into an automatic immunoassay system. Filter paper/cards for collection of dried blood spots are also available.

High Content Screening

Opera Phenix™ & Operetta® CLS™ Systems

High-content screening (HCS) merges the benefits of high-throughput and unbiased analysis with automated microscopic imaging, allowing researchers to collect and quantify reproducible multiparametric cellular data. Our HCS systems, the Opera Phenix™ and Operetta CLS™ systems, help you answer complex biological questions, such as potency and mode of action, whether in target discovery, functional assays, or preclinical biotherapeutic characterization. Our powerful confocal systems produce high-quality images for high-sensitivity assays, at high-throughput especially when combined with PerkinElmer's robotic systems and advanced data analytics.

Cell Imaging Detection

EnSight® Multimode Plate Reader

EnSight® multimode plate reader performs per-cell imaging to generate univariate data for simpler workflows and easier data comparisons. This versatile platform provides cell imaging and labeled detection technologies for comparing and combining target-based and phenotypic approaches - all on a single system.

Multimode Plate Readers & Reagents for Biochemical & Cell-Based

EnVision® Multimode Plate Reader

Already the platform of choice for HTS, the tried and tested EnVision® plate reader is now even better, with an array of exciting enhancements that can take your applications to the next level. The system provides even higher sensitivity for time-resolved fluorescence (TRF) applications. It continues to deliver optimal results from our proprietary Alpha™, LANCE®, and DELFIA® assay technologies. And our updated software provides tools to facilitate 21 CFR Part 11 compliance for integration into regulated environments (GxP).

This is a globally established, robust, proven technology, with more than 14,000 (and counting) peer-reviewed, published papers to its credit. And with a robust network of service engineers and application scientists across the globe, you can count on us to support you and your applications.

- Proven performance when the highest levels of speed and sensitivity are required
- Our fastest benchtop plate reader – uses two detectors to enable simultaneous, dual-wavelength reading
- Well established for laser-based Alpha and TRF technologies, as well as ultrasensitive luminescence

Applications	Assay Formats	Targets
Cell viability/proliferation/toxicity	Cell- based	GPCRs
Drug screening	Biochemical	Kinases
Pathway analysis	Binding	Protease
Receptor panning	Kinetics	Ion channels
Biomarkers	Immunoassay/ELISA	Cytokines
Protein interaction	Quantification (DNA, RNA, protein)	
Gene expression	Reporter gene/ GFP	
Epigenetics	Primary Cells	

Alpha™ Technology

A faster, easier, homogenenous alternative to ELISA, this unique, bead-based platform offers:

- Ease of use
- Speed
- High sensitivity
- Flexibility

LANCE® *Ultra* TR-FRET Technology

This no-wash assay technology is highly sensitive and fast, providing reproducible results with minimal effort.

Liquid Chromatography (HPLC & UHPLC)

Flexar™ HPLC & UHPLC Systems

Whether you need high-performance liquid chromatography (HPLC) or ultra-high performance chromatography (UHPLC), we offer the right technology for testing your samples, efficiently and accurately. Across a wide range of pharmaceutical applications our robust Flexar™ HPLC and UHPLC systems perform reliably, are easy to operate, and ideal for routine analysis or even your most demanding applications. With Flexar™ LC instruments you have the flexibility to choose the chromatography data system (CDS) that best suits your lab operation with either Chromera® or TotalChrom® software.

Liquid Handling Solutions

JANUS® G3 BioTx™ Pro and Pro Plus Workstations

The JANUS® G3 BioTx™ Workstation accommodates column, tip and batch chromatography modes on one platform. With just one instrument, you can achieve rapid analysis of a range of sample columns and concentrations to support Quality by Design experimentation in both upstream or downstream processes. Choose from two workstation designs to accommodate your throughput needs.

The JANUS® G3 BioTx™ automated workstations enable consistent small-scale protein purification and sample prep for analytical protein characterization required to support quality by design experimentation in both upstream and downstream processes. Automating sample prep provides researchers more time to focus on new analytical tests obtaining critical information earlier in the protein development pipeline. Time and labor savings accelerate project workflows and thus, commercialization of protein therapies. Two versions are available to accommodate your throughput needs.

Consistent, time-savings results for your biotherapeutics development:

- Expression optimization
- Cell line selection
- Purification process development
- Bioanalytical sample prep

The JANUS® G3 BioTx™ workstations accommodate column, tip, and batch chromatography modes on one platform. With just one instrument, you can achieve rapid analysis of a range of sample volumes and concentrations to support Quality by Design experimentation in both upstream or downstream processes.

Automate four modes of small-scale protein purification on a single platform:

- PhyNexus® PhyTips® columns
- GE® PreDictor™ plates/ Pall® AcroPrep™ filter plates
- Atoll® RoboColumns® Chromatography Columns
- GE® His GraviTrap™ columns

In Vivo Imaging

In vivo imaging is a valuable tool for preclinical pharmaceutical development. As advances in protein engineering technology have led to novel biopharmaceutics, molecular imaging can be used to help evaluate biodistribution of a labeled biotherapeutic and determine if it's reached its intended target, non-invasively over time in a live animal.

Whatever disease area you're researching, our wide range of optical fluorescent probes, dyes and kits for labeling peptides, proteins and antibodies coupled with IVIS® optical imaging systems can provide important information to help guide the development and use of targeted therapeutics. Our microCT and fluorescence tomography platforms can also provide important spatial and temporal information needed for rapid translation to the clinic.

Integrated Laboratory Automation

explorer™ G3 Workstation | Integrated, Automated Workstations

PerkinElmer's explorer™ workstation can be configured to enable your lab to isolate and purify biotherapeutic proteins in an efficient and standardized way. The explorer™ workstation is a smart and innovate automation solution which integrates equipment from different manufacturers improving productivity, intra laboratory traceability of specimens, and laboratory safety, while minimizing errors and decreasing turnaround times.

plate::works™ scheduling software controls the explorer™ G3 workstation robotic handling, analyzers, and storage components, enabling the integration of select third-party instruments. The system's flexibility enables a freely programmable automation solution that supports 24x7 operation while decreasing errors due to human intervention. Based on the modular and scalable iX automation platform, PerkinElmer designs and builds automated workstations that are tailored to support individual lab's needs. Integrate your biotherapeutic workflows with an explorer™ workstation when precision and conformance to scientific requirements are critical parameters for your high throughput environment.

Protein Characterization System & Assays

LabChip® GXII Touch™ Protein Characterization System

Microfluidic CE (micro-CE) technology on the Labchip® GXII Touch™ protein characterization system enables electrophoretic separations for DNA/RNA or protein, and glycan analysis on one platform with unparalleled speed and minimal sample input. The system performs rapid analysis of N-glycan profiles as well as charge heterogeneity analyses. Choose from a variety of protein characterization assays which can all be run on one instrument.

Informatics

As advances in biologics discovery generate increased proteome data, researchers are challenged to aggregate all this data. PerkinElmer Informatics solutions helps speed identification of therapeutic candidates, aids in analysis of biological sequences, and correlates differences to activity data. Our solutions also help manage the vast varieties of experimental, instrument and outsourced pharmacology data. Spend less time wrangling data and writing reports, and more time driving results.

Laboratory Services

Most labs don't maintain the in-house expertise needed to plan and implement sweeping projects to transform the everyday chaos of most lab operations into the sleek, efficient, effective lab of the future. After all, you should be concentrating on your core competency – your science – and leaving the infrastructure, operations, and even lab management to the professionals. That's why so many smart labs are looking to outsourcing to help them plan, design, deploy, and manage their lab environments. Few companies possess the grounding in both scientific instrumentation, lab-specific business processes, and information technology – skills that are necessary when undertaking major lab projects. Let OneSource® Laboratory Services manage and help transform your lab to the lab of the future.

Custom Assay Development Services

Leading pharmaceutical and biotech firms choose PerkinElmer's OnPoint™ Reagent Services as their assay development partner because we deliver on four important fronts.

Technology

From our proprietary bead-based AlphaLISA® technology, to the innovative ULight red-shifted dye, Lance® Ultra™ assay, we bring the latest, reliable advances to your assays.

Cost & Time Efficiency

Offloading assay development to us allows you to focus on the research at hand, making your lab more productive and cost-efficient.

Process-Proven

From accurately predicting timelines to minimizing any disruption to workflow, we have a process that delivers.

Clear Proof

We developed the reagents and cell lines that work, and we develop the best possible assay platforms for our partners' needs. That's why we're the choice of leading biotech and pharmaceutical companies.

Partner with PerkinElmer Every Step of the Way for Biotherapeutic Development Solutions

	Target Discovery	Cloning & Expression	Cell Culture & Process Development	Safety & Prelinical	Manufacturing & QC
DBS Puncher	X			X	
High Content Screening	X			X	
Cell Imaging Detection	X	X	X	X	X
Liquid Handling Solutions	X	X	X		
Liquid Chromatography			X	X	X
In Vivo Imaging	X			X	
Integrated Laboratory Automation	X	X	X		
Protein Characterization		X	X		X
Multimode Plate Readers + Reagents	X	X	X	X	X
Informatics	X	X	X	X	X
Lab Services	X	X	X	X	X
Custom Assay Development	X	X	X	X	X

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