eurofins | DiscoverX

The Eurofins Discovery **PRODUCTS COMPANY**

DELIVERING SOLUTIONS FROM DISCOVERY TO MARKET

Products & Custom Development Capabilities

Our expertise in your hands.
Discover confidently.

ACCELERATE YOUR DRUG DISCOVERY AND DEVELOPMENT PROGRAMS WITH CONFIDENCE

Assays, Cells, and Reagents: From Discovery to QC Lot Release, Small and Large Molecules, Ready and Optimized Products

Developing therapeutics, small molecule or biologics, presents unique challenges at each development phase. They require the knowledge, experience, and a broad range of assays and reagents to understand the structure, activity, and mechanism of action of the therapeutic. A broad portfolio of optimized assays, cell lines, and reagents developed and manufactured with these qualities to support your journey every step of the way are required to enable you in your drug discovery journey.

At Eurofins DiscoverX, we are committed to enabling and accelerating your multi-modality drug discovery and development programs from discovery to QC lot release. DiscoverX provides product solutions from the broadest and most comprehensive collections of established biochemical and cell-based assays, cell lines, and reagents and custom assay development services. Discover for yourself how Eurofins DiscoverX enables you to accelerate your drugs development. *Progress forward, confidently!*

SUPPORTING YOUR JOURNEY WITH:

- Enabling Technologies and Robust Assays — Improve productivity and effectiveness of your target validation, screening, lead optimization, and structure-activity relationships campaigns to accelerate the advancement of new therapeutics
- Comprehensive Portfolio — Largest available portfolio of cell-based functional and binding assays, cell lines, and enzymes covering the top therapeutic target classes including Checkpoints, Cytokine Receptors, GPCRs, Kinases, and Ion Channels
- Support Every Step of the Way — End-to-end support for your programs from Discovery to QC lot release

The Eurofins DiscoverX portfolio of high-quality products and custom assays enables you to expedite your research, and move your candidate through the drug discovery pipeline faster.

20+ years of enabling drug discovery and development programs

1500+ Stable cell lines and membrane preps

2000 Ready-to-assay kits

23 MOA-Based Bioassays

9+ Druggable target classes

Validated >30 billion data points screened in assay services with same assays

20 Core patents

2000+ Publications across multiple applications

10+ Assay read-out types

9000+ Functional and binding assays and reagents

Our Expertise in Your Hands – Discover Confidently

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SUPPORTING DRUG DISCOVERY AND DEVELOPMENT PROGRAMS

From Discovery to QC Lot Release

PROGRAMS

Target ID and Validation | **Screening and Hit ID** | **Lead Optimization** | **Safety and**

APPLICATIONS

- Target Characterization
- Mechanism of Action (MOA) Determination
- Assay Development

- Large Panel High-Throughput Screening
- Secondary and Orthogonal Screening
- Hit-to-Lead Development
- Rank Order Hits
- Compound-Target Engagement Studies

- Lead Characterization
- Structure Activity Relation Studies
- Optimize Lead Potency, Efficacy, and Specificity
- Small Panel Selectivity
- Ligand Bias
- Compound-Target Engagement Studies

- Feasibility of Lo Assay for Poten
- Characterization (Innovator Biolo

PRODUCT TYPES

- Cell Lines
- Membrane Preps
- Ready-to-Use Assay Kits
- Enzymes and Intracellular Proteins
- Toolbox Products
- Bioassay Kits
- Custom Assay Development Services


Preclinical
Process Development
Clinical Trials
Post-Approval
ot Release
cy
n of Biologics
gics & Biosimilars)
• Establish Lot Release Assay for Potency
• Drug-Stability Assessment
• Establish Cell-based Assay for Neutralizing Antibody (NAb) Detection
• Routine QC Lot Release Testing for Biologics
• NAb Detection in trials' Patient Samples
• Transfer Assays to Global Manufacturing Sites
• Routine QC Lot Release Testing at Manufacturing Sites for Biologics

ENZYME FRAGMENT COMPLEMENTATION TECHNOLOGY

Enabling Technologies with a Flexible Platform

Eurofins DiscoverX's patented EFC technology offers drug discovery the means to interrogate biomolecular reactions for advancing therapeutic drug screening and development programs. EFC is a homogeneous detection assay system that enables you to measure and rank ligand potencies, discover the mechanism of action (MOA), perform binding and functional screens, identify novel compounds, and much more. As a robust and reliable assay technology EFC can be used for both cell-based (PathHunter®, KILR®, and InCELL platforms) and biochemical (HitHunter® platform) assay formats.

DIRECTLY MEASURE RELEVANT TARGET BIOLOGY WITH EASE

- Homogenous Format – Mix-and-read assay format that does not require washing, centrifugation, or filtration
- Robust – Enzymatically-amplified assays with a large signal-to-background ratio and high precision with Z' factors >0.7 and lot-to-lot reproducibility
- Qualified and Validated – Extensively optimized for hundreds of targets used for screening in billions of data points, and thousands of peer-reviewed publications
- Scalable – Easily scalable and HTS-friendly from 96- to 3456-well microplate format

EFC TECHNOLOGY PRINCIPLE

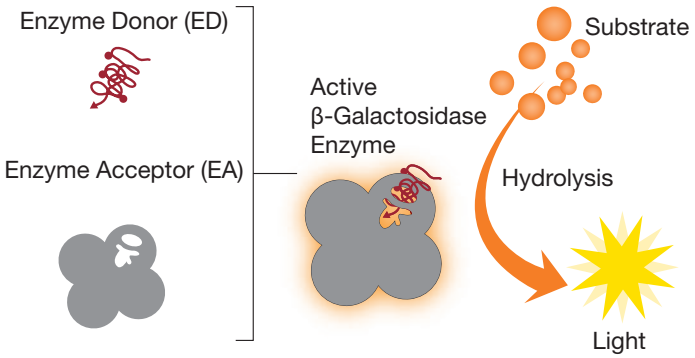


Figure 1. EFC is based on two recombinant β-galactosidase (β-gal) enzyme fragments that act as an enzyme acceptor (EA) and an enzyme donor (ED). Separately, the fragments are inactive, but combined, they form an active enzyme that hydrolyzes its substrate to produce chemiluminescence

OVER 1000 FUNCTIONAL ASSAYS AVAILABLE FOR POPULAR TARGET CLASSES

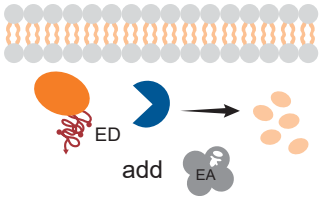
GPCRs | Kinases | Cytokines | Checkpoints | Ion Channels | NHRs | Epigenetics | Signaling

ENZYME FRAGMENT COMPLEMENTATION TECHNOLOGY continued…

ASSAY PLATFORMS FOR YOUR MODALITY AND STAGE OF DEVELOPMENT

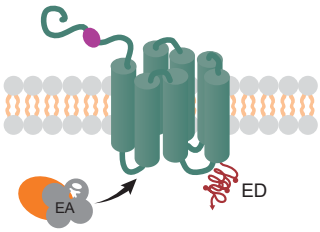
PathHunter® Cell-Based Assays

Quantification & Degradation



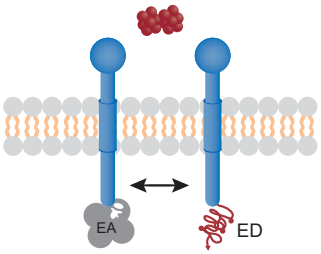
Measure levels of intracellular proteins including degraded proteins

Protein/Protein Interactions



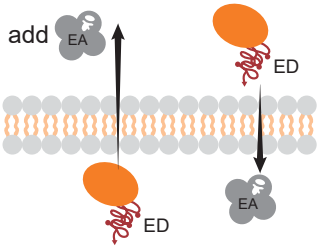
Detect interacting proteins (e.g. GPCRs/ arrestin, NHRs/co-factors, RTKs/SH2)

Receptor Dimerization



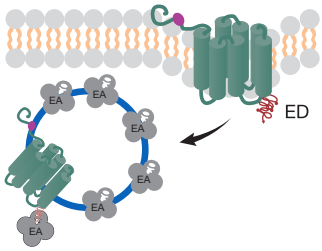
Quantify ligand-induced receptor dimerization (e.g. RTKs, ILs)

Secretion & Translocation



Study secretion out of the cell or translocation across a membrane to another cellular compartment (e.g. cytoplasm to nucleus)

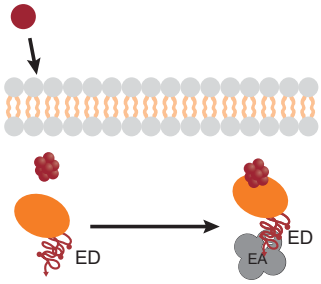
Internalization & Trafficking



Measure receptor internalization or track proteins to different cellular locations (nucleus, membrane, endosome)

InCELL Cell-Based Assays

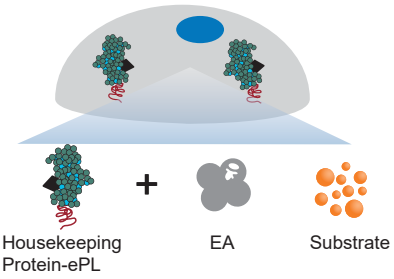
Compound Target Engagement



Detect compound binding to intracellular protein targets via cell-based assays

KILR® Cell-Based Assays

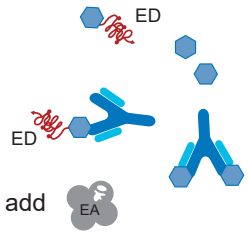
Quantify Cytotoxicity



Directly measure antibody- or complement -mediated cell death (ADCC, ADCP, CDC)

HitHunter® Biochemical Assays

Analyte Detection



Quantify specific cellular analytes (e.g. cAMP, cGMP)

Learn more at discoverx.com/efc

READY-TO-USE CELL-BASED BIOASSAYS

Mechanistically relevant cell-based assays supporting the multiple stages of biopharmaceutical development

Potency bioassays can be challenging assays to develop and implement as they need to be reflective of the drug's mechanism of action (MOA), quantitative, meet for QC specs (precision, accuracy, and linearity), and stability-indicating.

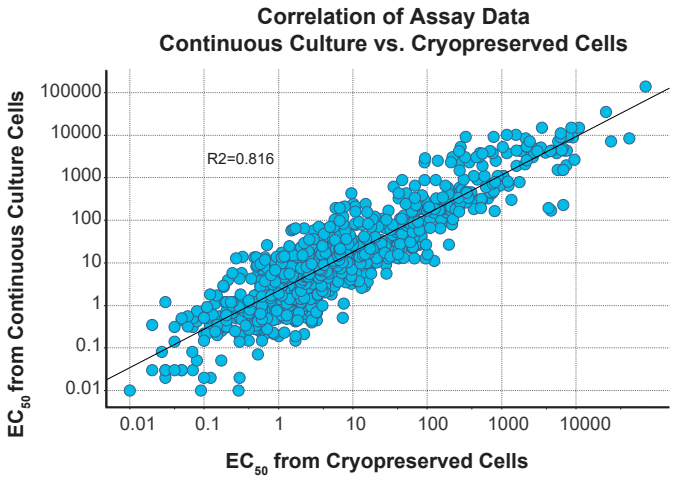
This is why it is important to choose assays that deliver robust functional response from specific therapeutics throughout development and QC lot release. Don't limit yourself with existing phenotypic readouts that only reflect downstream cellular events such as reporter gene expression or cell proliferation assays. These assay types require extensive optimization, long protocols, primary cells, and experience low specificity and high variability issues.

REDUCE ASSAY DEVELOPMENT TIMELINES AND IMPLEMENTATION RISKS

Eurofins DiscoverX offers the largest menu of available quantitative assays based on the drug's target biology to enable fast implementation in any lab from development to QC Lot Release testing of their biologics.

- MOA-Reflective – Quantitative assays based on the drug's target biology
- Simplicity – Homogeneous, no-wash protocol to deliver results in less than 1.5 days
- Qualified – Optimized with either marketed biologic drugs (originator) or reference standards and ligands
- Comprehensive – Contain all necessary reagents needed to correctly perform the assays including the cryopreserved ready-to-assay cells

HIGH CORRELATION OF ASSAY DATA BETWEEN CONTINUOUS CULTURES VS. CRYOPRESERVED CELLS



APPLICATIONS OF Eurofins DiscoverX BIOASSAYS INCLUDE:

- Characterization studies
- *In Vitro* comparability testing
- Potency assay development
- Quality control testing for lot release
- Drug stability testing
- Neutralizing antibody assays (NAb)

READY-TO-USE CELL-BASED BIOASSAYS continued…

GLOBALLY ADOPTED BY THE PHARMA, BIOTECH & CONTRACT SERVICE INDUSTRY

- Largest Menu of Ready-to-Use Qualified Bioassays — Save >6 months of assay development time
- Precision and Linearity — Suitable for comparability studies, lot release testing, and stability studies
- 2-Tiered Bioassay Cell Banks — Ensuring long-term critical reagent reproducibility and supply
- Streamlined Method Transfer Process — Fast assay transfer and implementation at multiple sites

SIMPLE, HOMOGENOUS PROTOCOL WITH RESULTS IN LESS THAN 24 HOURS

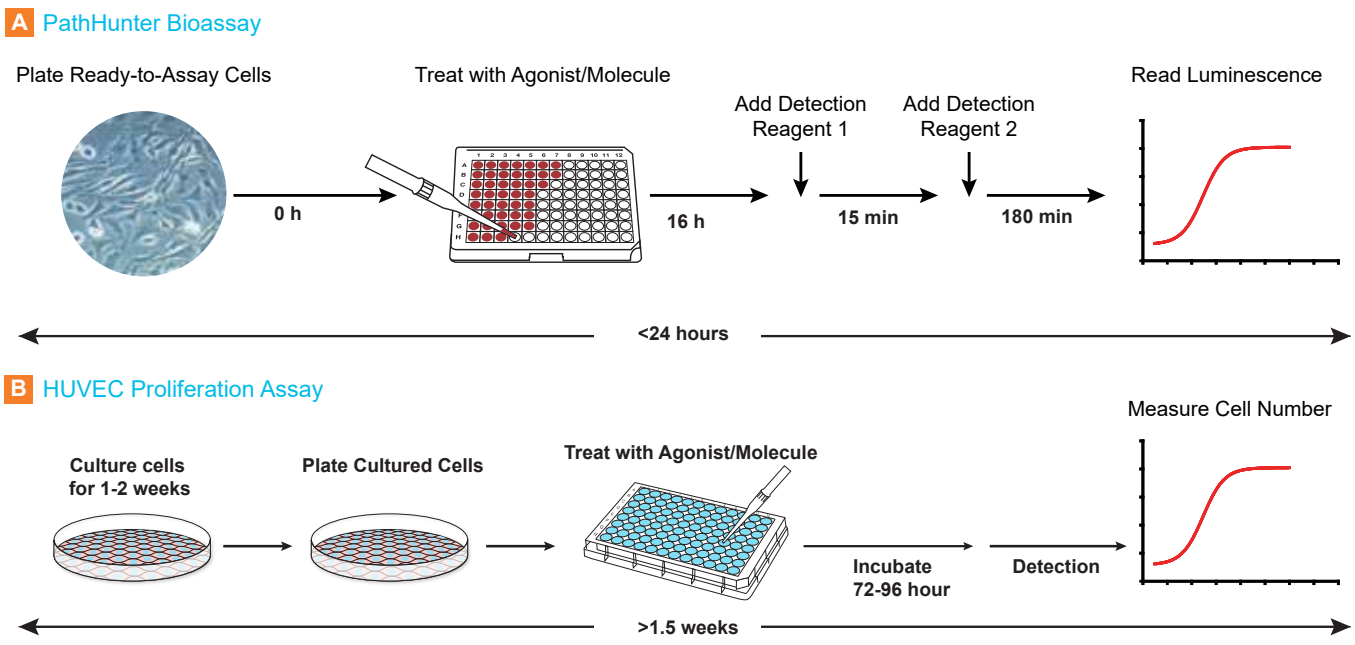


Figure 1. Time to results: A. PathHunter® Bioassay vs. B. traditional HUVEC proliferation assay.

QUALIFIED BIOASSAYS ARE VERY LINEAR AND QC-SUITABLE

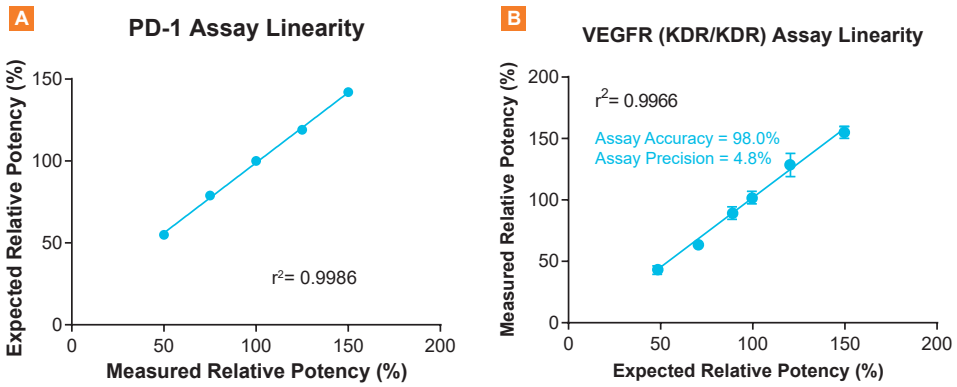


Figure 2. A. the PD-1 signaling assay was qualified with Keytruda® (pembrolizumab), B. VEGFR (KDR/KDR) dimerization assay was qualified with Avastin® (bevacizumab). Both bioassays were tested with six test samples, from 50% to 150%, compared to a reference standard (100%) by one operator over four days. The measured relative potencies were plotted against the expected relative potencies. (Keytruda and Avastin are registered trademarks of Merck & Co., Inc. and Genentech, Inc., respectively.)

Learn more at discoverx.com/bioassays

PathHunter CHECKPOINT SIGNALING ASSAYS

Accelerate Immuno-Oncology Drug Development with Cell-Based MOA-Reflective Assays

PathHunter® Checkpoint assays are powerful MOA-reflective cell-based assays that have a simple protocol, and deliver highly sensitive response to biologics and small molecules in less than 5 hours without the need for primary cells.

The assays for checkpoint modulators include signaling cell line and their respective ligand-presenting cell lines for testing therapeutics targeting specific signaling axis. For testing agonist antibodies that require receptor clustering for more potent signaling, PathHunter Fcγ-presenting cells can be used for cross-linking these antibodies in the assay.

IMPLEMENT WITH CONFIDENCE FROM DISCOVERY TO QC LOT RELEASE

- Biologically-Relevant — MOA-based assays for testing small molecule or biologic drugs
- Comprehensive — Accelerate assay development and implementation time with the largest menu of off-the-shelf assays
- Fast — Simple, homogenous protocol that delivers results in less than 5 hours
- Flexible — Multiple applications for small molecules and biologics development

INTERROGATING THE PHYSIOLOGICALLY-RELEVANT MOA

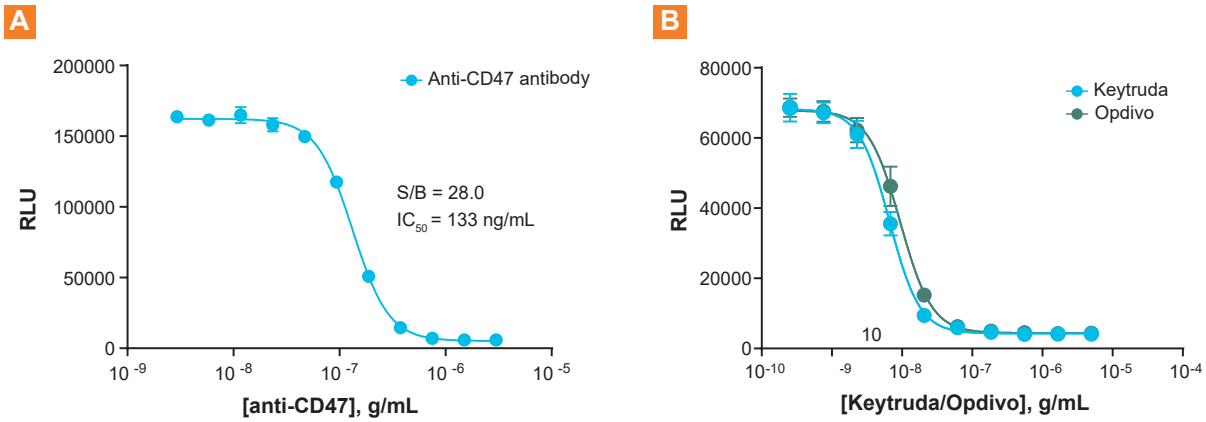


Figure 1. A. SIRPα bioassay: Inhibition of SIRPα signaling with a commercial anti-CD47 antibody. A fixed concentration of CD47-presenting cells (30K) were pre-incubated with a dose response of anti-CD47 antibody for 1 hour at 37°C. SIRPα signaling cells (20K) were added to the CD47-presenting cells and incubated at 37°C for 5 hours prior to addition of detection reagent . B. Response of anti-PD-1 biologics Keytruda® (blue) and Opdivo® (green) in the PD-1 signaling assay, demonstrating low ng/ml sensitivity for the two marketed drugs. Keytruda and Opdivo are registered trademarks of Merck & Co., Inc. and Bristol-Myers Squibb Company, respectively.

Learn more at discoverx.com/checkpoint

PathHunter CYTOKINE RECEPTOR ASSAYS

Quantify Ligand-Induced Receptor Dimerization

Ligand-induced receptor dimerization is an early functional step in receptor activation presenting the most proximal, functional readout for activity of drugs targeting cytokine receptors. The PathHunter® Cytokine Receptor Assays are ready-to-use homogeneous cell-based assays for monitoring and measuring receptor activation through cell-surface receptor-receptor interactions. These assays use a simple add-and-read protocol to generate rapid, reproducible, results in less than 24 hours.

HIGH SPECIFICITY OF INTERLEUKIN DIMERIZATION ASSAYS

- Largest Menu of Ready-to-Use Assays — Save at least six months in assay development
- Unparalleled Specificity — Screen crude biologic samples with confidence
- High Reproducibility — Precise, accurate, reproducible and robust assay for use in QC lot release
- Rapid Results — Increase lab efficiency with a simple protocol and results in less than 24 hours

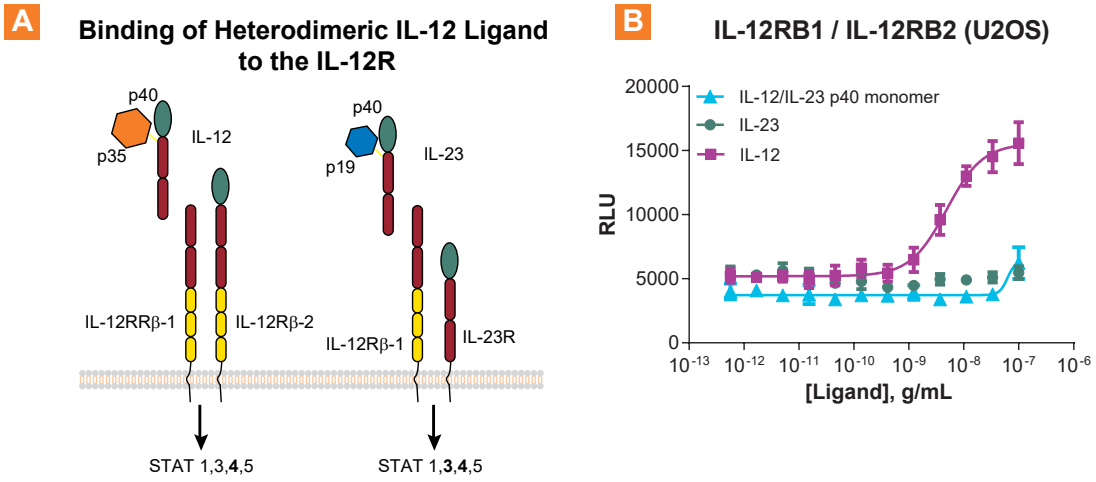


Figure 1. Dimerization of IL-12R is highly specific. A. IL-12R and IL-23R share a common subunit (IL-12RB1). Each receptor binds a heterodimeric ligand that share the p40 subunit. B. Dimerization of IL-12R (IL-12RB1/IL- 12RB2) is stimulated by IL-12, but not by IL-23 or p40 monomer.

Learn more at discoverx.com/interleukins

KILR CYTOTOXICITY ASSAYS

Specifically Measure Target Cell Death in Co-Culture Assay Format

Developers of therapeutic antibodies must assess all possible MOA of their molecules, including Antibody-Dependent Cell-Mediated Cytotoxicity (ADCC), Antibody-Dependent Cell Phagocytosis (ADCP) and Complement-mediated Cytotoxicity (CDC). Most direct killing assays using radioactive or fluorescent dyes suffer from low signal to background ratios and lack of specificity, making it difficult to detect target cell death in a co-culture system with immune effector cells. Surrogate ADCC assays, such as reporter gene assays are not reflective of drug's MOA and require secondary or bridging assays to confirm killing capability of the biologic drug.

Eurofins DiscoverX's KILR® (Killing-mediated Immune Lysis Reaction) Cytotoxicity platform eliminates these issues with a simple, homogenous, chemiluminescent method to specifically measure target cell death in a co-culture model with immune effector cells, and therefore, the true MOA of the drug. The platform is compatible with most target cells and multiple effector cell types.

The success of ADCC assays is highly dependent on the quality of immune effector cells used, affecting assay reproducibility. Primary human cells (such as isolated PBMCs or NK cells) suffer from high inherent donor variability, whereas NK cell lines often show high background lysis. For implementing the ADCC assay for characterization and lot release testing, assay variability can be eliminated by KILR CD16 Effector Cells, which are single donor-derived primary cytotoxic T lymphocytes that stably express CD16.

DRIVING ROBUST AND REPRODUCIBLE CYTOTOXICITY APPLICATIONS

- Unparalleled Specificity – Measure only dead target cells
- High Sensitivity – Detect as few as 75 dead cells with high reproducibility
- Eliminate Variability – Ready-to-use primary effector cells from a single donor
- Ultimate Flexibility – Ability to run cytotoxicity assay from 30 minutes to 72 hours
- Broad Offering – Over 40 target tumor cell models representing native receptor expression

KILR CD16 EFFECTOR CELLS HAVE BROAD APPLICATIONS IN:

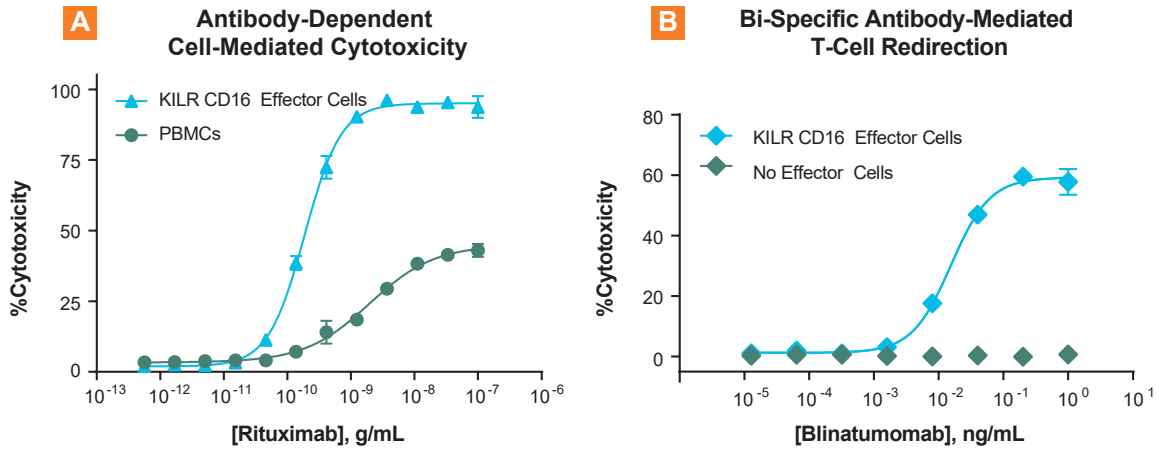


Figure 1. The KILR Cytotoxicity Assays Have Broad Applications in cancer immunotherapy drug development including A. Antibody Dependent Cell-mediated Cytotoxicity (ADCC), B. Bi-specific Antibody Mediated T-Cell Redirection (TCR).

Learn more at discoverx.com/KILR

KINASE ASSAYS AND ENZYMES

Empowering Your Kinase Discovery by Measuring The Right Signaling Solution for the Right Question

Eurofins DiscoverX enables kinase-focused drug discovery with product solutions to address the questions you need answered. With MOA-reflective RTK and intracellular assays as well as a comprehensive recombinant kinase portfolio, Eurofins DiscoverX has the phase appropriate products to use at all stages of drug discovery to progress your therapeutic projects.

PathHunter® RECEPTOR TYROSINE KINASE ASSAYS

Cell-based tyrosine kinase assay kits providing MOA-based analysis of kinase functional activity, dimerization, characterization, and screening. The assays provide cellular context to the kinase activation to help identify and profile novel therapeutic compounds and antibodies.

- Broadly Applicable — Identify various ligands including anti-receptor, anti-ligand, or activating antibodies; non-ATP pocket binders (allosteric modulators); ligand binding inhibitors (ATP-competitors); or dimerization inhibitors
- Accurate Reproducibility — Superior quality, reproducible data with large assay windows and robust performance
- High Specificity — Tagged, full-length tyrosine kinase eliminates background from endogenous tyrosine kinases

InCELL TARGET ENGAGEMENT ASSAYS

Confirm compound cell entry, measure target binding, evaluate protein degradation, and much more using InCELL target engagement assays. (Learn more in the following InCELL section).

RECOMBINANT KINASE ENZYMES FOR BIOCHEMICAL ACTIVITY ASSAYS

Eurofins DiscoverX has over 20 years of experience as the first commercial supplier of recombinant kinases geared towards screening and profiling potential drugs. Utilize the same enzymes in your discovery that are used in the renowned KinaseProfiler® screening service used to screen millions of compounds. All of the enzymes are available in multiple pack sizes and bulk sizing to provide you with flexible options from a one-time experiment to a full-blown HTS campaign.

- Large Selection of Enzymes — 370+ Active, inactive, unactivated, and disease-relevant mutants kinases covering the human kinome including AKT, Erk, Met, EGFR, Raf, PI3 Kinases, mTOR, ATM, and ATR recombinant enzymes
- High Quality — Rigorous quality control for the highest purity, specific activity, and lot-to-lot consistency
- Performance Assurance — Same enzymes used for the legendary Eurofins Discovery KinaseProfiler screening and profiling services

Learn more at discoverx.com/kinases

InCELL TARGET ENGAGEMENT ASSAYS

Easily Monitor Cellular Drug Entry, Drug-Target Interaction, or Degradation

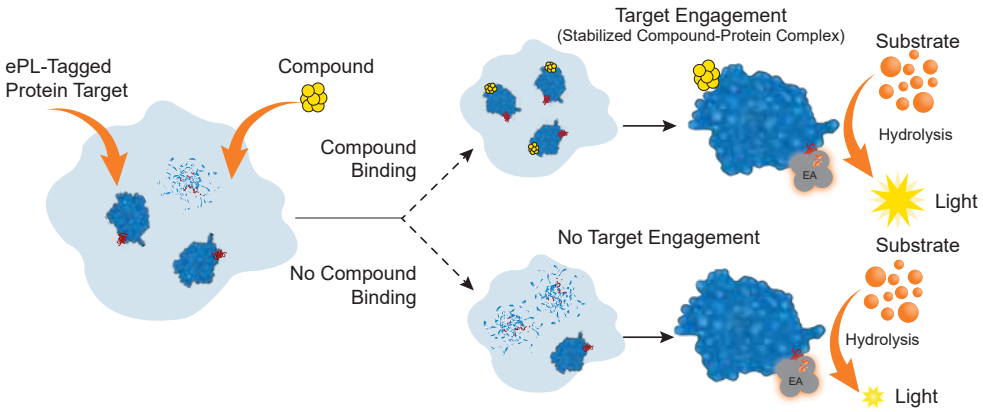
Investigating intercellular protein binding or degradation? InCELL Hunter™ and InCELL Pulse™ cellular compound-target engagement assays provide the ability to confirm compound cell entry and drug-target binding to intracellular targets, or monitor drug-mediated protein degradation to assess compound efficacy and confirmation of MOA. The InCELL assay platform is ideal for screening inhibitors, validating hits identified in biochemical assays, measuring cellular EC_{50} values, and ranking compounds in a native cellular environment.

InCELL Hunter assays are based on compound binding of the target protein that alters the steady-state of the protein in the cell — protein synthesis is stabilized and increases, while protein degradation decreases. It is this change that is monitored by measuring target protein abundance. InCELL Pulse assays are based on a similar principle, but adds a thermal stability factor to denature the protein if not in the presence of the protecting compound.

NOVEL CELL-BASED ASSAYS FOR COMPOUND-TARGET BINDING

- Flexible — Cellular, target engagement assays available as cell lines, ready-to-assay kits, or customizable kit
- Diverse — Easily measure compound entry and drug-target binding or accurately screen compounds in a high throughput format
- Simple — Binding assays that require no custom chemical tracer, antibody reagents, or mass spectrometry

InCELL HUNTER STABILIZED COMPOUND-PROTEIN COMPLEX ASSAY FORMAT



MEASURE AND RANK INHIBITORY POTENCY AGAINST YOUR INTRACELLULAR PROTEIN TARGET

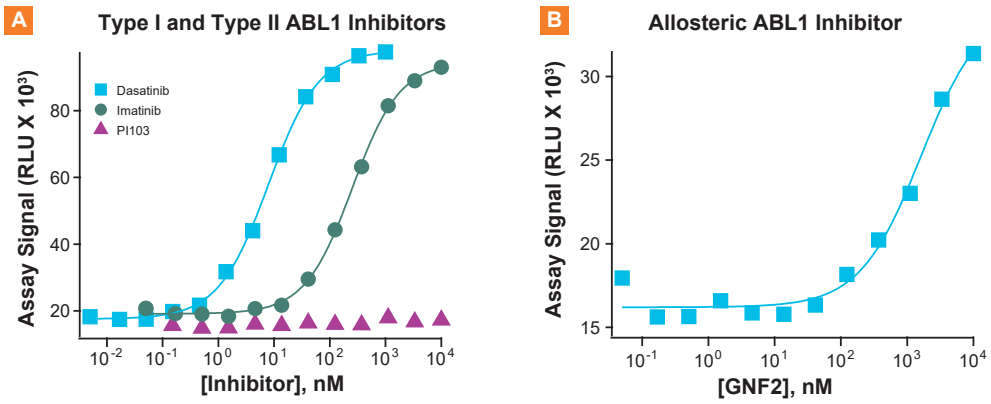


Figure 1. ABL1 tyrosine kinase cellular target-engagement dose-response curves for type I, type II, and allosteric inhibitors using the InCELL Pulse assay. A. The type I and II inhibitors dasatinib and imatinib, respectively, show the correct rank-order potencies. B. The allosteric inhibitor GNF2, which targets the myristate binding site in the C-terminal kinase lobe, is detected using the ABL1 InCELL Pulse assay.

Learn more at discoverx.com/InCELL

PrecisION ION CHANNEL CELL LINES AND hERG MEMBRANE PREP

Functionally Validated Ion Channel Cell Lines for Drug Discovery, Safety Pharmacology & Toxicology

PrecisION® Ion Channel cell lines are fully-validated for use across multiple functional assay platforms including manual and automated patch clamp for fluorescent and luminescent read-outs. The PrecisION channel cell line portfolio is comprised of voltage-gated potassium, sodium, calcium, and hyperpolarized families, as well as ligand-gated nicotinic acetylcholine, GABA, chloride, TRP, and more. Ion channels are not only significant drug targets, but they are also critical for evaluating drug safety.

- Coverage — Choose from >60 different targets from voltage-gated channels to slow and fast ligand-gated channels
- Validated — Pharmacologically and functionally validated continually using our drug discovery and safety pharmacology screening services
- Characterized — Biophysical and pharmacological properties characterized using conventional and automated patch clamp platforms by experienced electrophysiologists
- Performance — Proprietary vector technologies for optimum stability, expression, and uniform current detection

MONITOR POTENTIAL hERG LIABILITY WITH A PrecisION MEMBRANE PREPARATION

Monitor potential hERG liability at the earliest phase of drug discovery using common radioligands with the aim to raise flags that could trigger follow-up studies, such as electrophysiological screening. hERG membrane preparations are derived from a hERG stable cell line for lot-to-lot consistency, high signal-to-background ratio, and specific total binding.

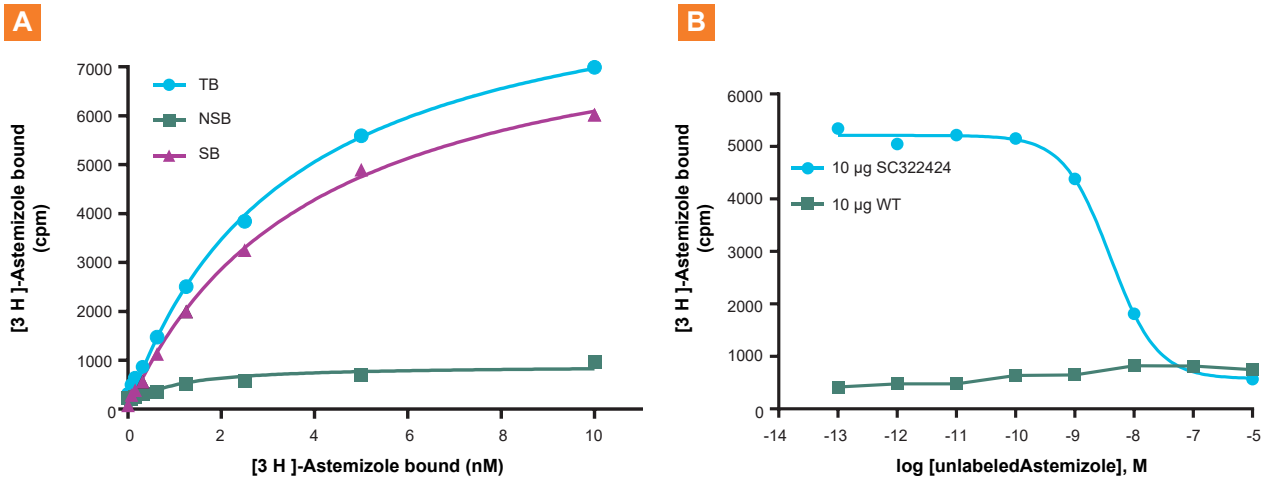


Figure 1. A. Saturation binding analysis shows high specificity using the hERG membrane prep and radiolabeled hERG channel antihistamine inhibitor astermizole. B. Competition binding analysis with this same inhibitor indicates a larger than 4-fold signal:background for hERG.

Learn more at discoverx.com/ion-channels

GPCR CELL LINES AND ASSAYS

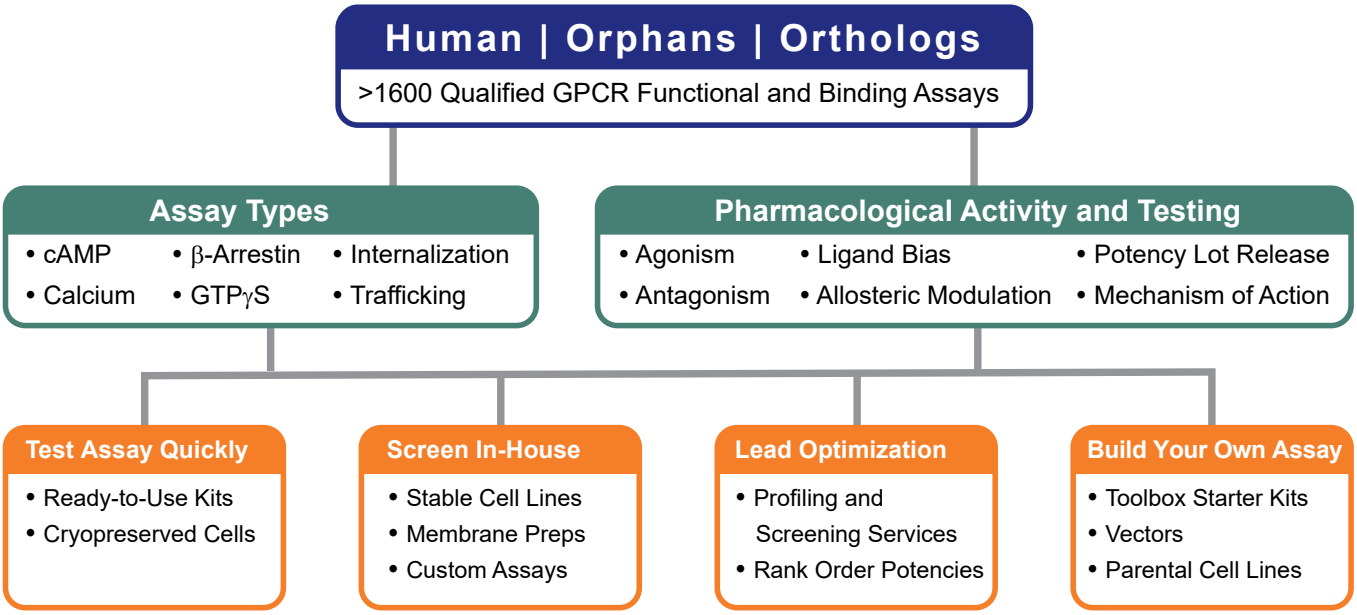
Always Find a GPCR Assay for Your Target of Interest

G-protein coupled receptors (GPCRs) play a crucial role in many physiological functions and in the pathology of multiple diseases including cancer, neuro, endocrine, and metabolic disorders. GPCRs represent the largest class of therapeutic targets with approximately 30% of approved drugs targeting these receptors.

Whether you are developing small molecule or biologic therapeutic drugs, Eurofins DiscoverX provides you with a variety of drug discovery products with multiple assay types to meet your specific GPCR research needs.

- Broad Coverage – >90% targets covered across the human GPCRome to always find an assay for your target of interest
- Highly Applicable – Ideal for the development of both small molecule and biologic therapeutics, from target ID through pre-clinical drug discovery programs and post-market, providing the most versatile and relevant assays for your specific use
- Maximum Assay Options – 6 assay types including β-arrestin recruitment, cAMP accumulation, calcium flux, GTPγS binding, internalization, and trafficking with luminescent or fluorescent read-outs
- Comprehensive Offering – >1600 qualified functional and binding assays seen in >800 peer-reviewed publications giving you the most GPCR assays available

CHOOSE THE SOLUTION THAT BEST MEETS YOUR GPCR PROGRAM NEEDS



"… examples of β-arrestin and G protein biased ligands demonstrate how our new understanding of these two types of signaling pathways, gained initially at a biochemical level, can potentially be harnessed for therapeutic benefit."

— Robert Lefkowitz, Ph.D. 2012 Nobel Prize in Chemistry.

ONE GPCR TARGET, MULTIPLE FUNCTIONAL READOUTS

Identify Functionally-Selective Ligands

Biased GPCR ligands represent exciting opportunities for developing better and safer drugs by selectively promoting the desired biological effect relevant for the disease, while simultaneously deselecting the deleterious ones. Eurofins DiscoverX GPCR assays allow characterization of ligand bias by providing large assay windows to allow different functional readouts in single or multiplexed mode for the same GPCR target in a single cell line to generate a unique efficacy profile of the ligand and capture the full repertoire of possible signaling responses.

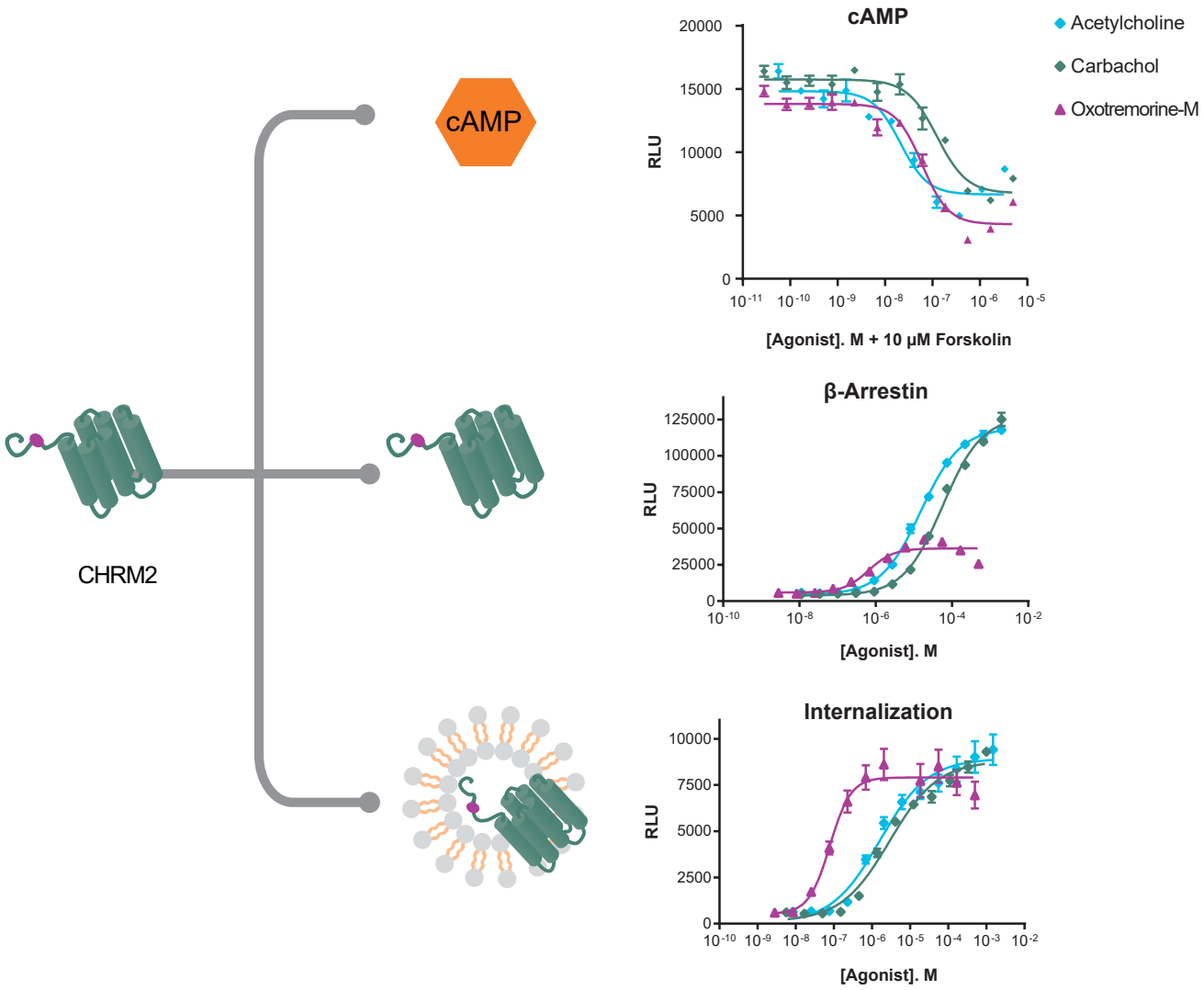


Figure 1. Dose-response curves were generated for cholinergic receptor, muscarinic 2 (CHRM2) and multiple ligands to determine their functional selectivity for cAMP, β-arrestin, and internalization. Acteylcholine and Carbachol showed similar agonist responses and potencies in all three readouts. Oxotremorine-M showed similar cAMP response, but as a partial agonist in recruiting β-arrestin and a strong agonist for receptor internalization. Interrogating the three pathways for the same target revealed differences in the mechanism of action of each ligand. These assays provide the ability to quantify "bias" for each potential drug candidate to help determine the overall quality of efficacy possessed by each drug.

Learn more at discoverx.com/gpcr

PathHunter NUCLEAR HORMONE RECEPTOR ASSAYS

Easily Measure Transcriptional Activation, Translocation, and Coactivator/Corepressor Interaction

Nuclear Hormone Receptors (NHRs) are ligand-activated transcription factors that, in concert with additional factors, regulate gene expression or repression and play a critical role in endocrine signaling. For discovery of novel compounds targeting NHRs, Eurofins DiscoverX offers cell-based assays with full-length NHR that are ideal for measuring NHR transcriptional activation, translocation, and NHR-coactivator/corepressor interaction.

- High Specificity — Minimize cell toxicity and false positive rates, yielding results with high specificity
- Rapid & Simple Assays — No need for downstream transcriptional activation or lengthy 16-24 hour compound incubations characteristic of standard reporter gene assays
- Flexible — Measure agonist or antagonist NHR binding, activation and translocation into the nucleus without the need for imaging

Learn more at discoverx.com/NHR

PathHunter TRANSLOCATION ASSAYS

Track Cellular Movement of Proteins to Multiple Membrane Compartments

The movement of proteins from the endoplasmic reticulum to plasma membrane, cytoplasm to nucleus, or from plasma membrane to endosomes is essential for their specific biological role and the function of the cell. If these processes are altered due to protein mutations or abnormal signaling, undesirable effects related to their cellular movement may occur, often resulting in diseases including cystic fibrosis, Alzheimer's disease, and Huntington's disease.

- Quantitative Assays — Explore protein movement using a non-imaging, high throughput cell-based assay platform
- Explore Pharmacology — Analyze the pharmacological effects of compounds on translocations to the plasma membrane, endosome, or nucleus
- Unique Applications — Discover pharmacochaperones that rescue disease-associated mutant receptors or easily investigate multi-subunit membrane protein assembly
- Customizable — Utilize our custom assay development services or create your own quantitative cell-based assays to study translocation of any cellular protein

Learn more at discoverx.com/translocation

READY-TO-USE eXpress KITS

Complete Cell-Based Kits for Fast Assessment

Screen your therapeutics and obtain either functional or binding data in-house quickly and easily without the need for cell culture. Eurofins DiscoverX eXpress kits are ultra-convenient, ready-to-use assays with one-time use frozen cells, and all the necessary pre-validated reagents including cells, detection reagents, cell plating reagents and plates to perform your cell-based assays. Minimize assay development time and eliminate the need for cell culture with >1,700 kits available for GPCRs, Kinases, NHRs, and more. *Simply thaw, plate, and run the assay!*

eXpress KITS FOR:

- Target Characterization — Identify targets and validate distinguishing target-specific variations such as species, orthologs, isotypes, and more during early drug discovery programs
- Functional & Binding Analysis — Perform quick, high-throughput cell-based assay binding and MOA assessment of your small molecule compounds or biologics
- Screening & Hit Identification — Identify hits; run primary, secondary and orthogonal screens; and rank-order hits
- Lead Optimization — Define best leads; optimize lead potencies, efficacy, and specificity; and perform SAR and ligand bias studies

Learn more at discoverx.com/eXpress

ASSAY DETECTION KITS

Optimized Kits for High Reproducibility and Sensitivity

Eurofins DiscoverX offers assay detection kits for either chemiluminescent or fluorescent readouts to suit the diverse needs of your drug discovery programs. The chemiluminescent kits are based on the proprietary EFC technology, while the fluorescent kit is based on an activated fluorescent dyes. These kits are optimized for most Eurofins DiscoverX cell lines and used for a variety of applications such as detecting cell-based protein-protein interactions, compound-protein binding, translocation, and second messenger assays.

- Robust Performance — Optimized for high reproducibility, sensitivity, and serum tolerance, making them ideal for assay development, hit identification, screening, or lead optimization
- User-Friendly — Easy, one-step addition protocols perfect for multiple basic research and drug discovery applications
- Scalable — Compatible for 96- to 3456-well formats, allowing for miniaturization or high throughput screening

Learn more at discoverx.com/detection

AssayComplete CELL CULTURE KITS AND REAGENTS

Increase Performance and Minimize Cell-Based Assay Development Time

Get the most out of your cell-based assays using AssayComplete™ Reagents to get the most out of your Eurofins DiscoverX cell lines. Optimized for consistent, reliable and high quality results, the AssayComplete cell culture reagents are carefully formulated to provide ideal cell morphology, cell viability, and maximal assay performance. These certified reagents ensure you a convenient solution that yields successful research outcomes while minimizing assay development time.

- Optimized — Functionality tested with cell lines to ensure optimal and reproducible results
- Convenience — Packaged as multiple reagents in AssayComplete starter packs for each cell line or sold separately
- Fast Implementation — No need to test multiple reagent sources, which saves time and money

Learn more at discoverx.com/reagents

TOOLBOX DO-IT-YOURSELF PRODUCTS

Vector-Based Tools to Build Your Own Stable Cell lines and Cell-Based Assays

Take advantage of Eurofins DiscoverX's robust proprietary EFC technology to develop your own stable cell lines and cell-based assays to study protein-protein interactions, compound-target engagement, cytotoxicity, protein translocation, and much more. Design your own workflows and utilize engineered parental cell lines, retroparticles, and plasmid vectors to introduce your own target of interest and create cell-based assays for multiple applications.

- Any Cell Background — Make your own stable β-arrestin recruitment or cytotoxicity cell-based assays in any dividing cell type with PathHunter® or KILR® retroparticles
- Simple Protocols — Detailed, step-by-step instructions with flow-charts and graphics to simplify assay development
- Complete Kit — Ready-to-use target engagement kit include all the reagents and vectors you need to get you started
- Flexible Solutions — Utilize the cell-line expression vectors to introduce mutants, make modifications, or study unique orthologs or isotypes

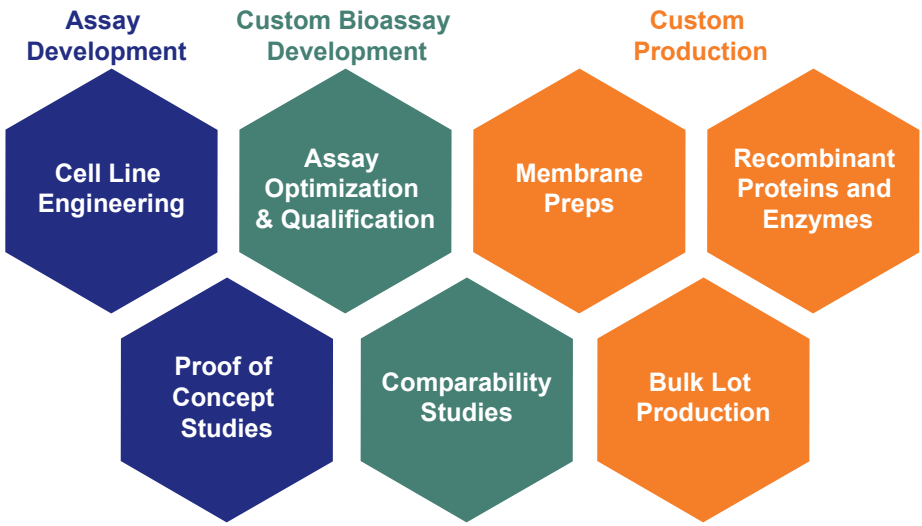
Learn more at discoverx.com/toolbox

CUSTOM ASSAY AND PROTEIN DEVELOPMENT SERVICES

Your Target Biology, Our Expertise — Building a Better Assay Together

Cell-based assays are valuable tools throughout the drug discovery process. However, internal assay development can be challenging, expensive, time consumptive requiring months to develop.

The Custom Assay Development (CAD) program at DiscoverX delivers tailor-made cell lines, recombinant proteins, and assays optimized for your requirements; enabling you to jump-start your drug discovery programs. With a history of developing hundreds of customized assays for drug discovery and development programs at multiple companies globally through screening, lead optimization, and bioanalytical assay development, you can work confidently knowing you are working with a group understanding what you need to move your therapeutic forward.



- Development Expertise — Decades of cell-based assay development, cell line engineering, and recombinant enzyme development expertise
- Cell Line Engineering Capability — Exogenous expression approaches (constitutive vs inducible) or gene editing (e.g. KO/KI with CRISPR/Cas9)
- Collaborative — Consultative assay development with regular updates through a dedicated project manager
- Complete Solution — Customized assay development with screening and profiling services within the same team

When an off-the-shelf option is not available, trust Eurofins DiscoverX custom assay development program to create assay and protein solutions that will deliver the quality results you expect to support drug development programs from discovery to lot release.

"We have had 4 successful custom projects with Eurofins DiscoverX in the last 2 years. The pragmatic approach, design, efficiency and professionalism of this team will continue to keep us as a returning customer in the years to come."

– Bioassay Group Leader, Biotech Client

CUSTOM ASSAY AND PROTEIN DEVELOPMENT SERVICES continued...

CUSTOM ASSAY DEVELOPMENT PROCESS

Phase 1

Project Definition

- In-Depth Consultation— Discussion with CAD team about project goals and scope
- Extensive Research — CAD team investigates and evaluates project feasibility
- Deliverables — Detailed work plan with timelines, project deliverables, and pricing

Phase 2

Project Execution

- Additional Materials — Project manager obtains any necessary materials
- Assay Development — Stable cell line development, functional testing with molecules, stability testing of clones, assay development and optimization.
- Deliverables — Bi-weekly status updates, detailed milestone reports, and access to our scientific staff for continuous progress reports

Phase 3

Material Delivery

- Deliverable — Qualified, stable cell line or assay based on the work plan, including a detailed assay protocol
- Additional Options — Screening and profiling of client's molecules

""The DiscoverX CAD team is extremely collaborative. From the outset, they took the time to understand our needs, proposed a work plan with realistic milestones and delivered on those milestones. Throughout the project, the CAD team was proactively engaged in keeping us abreast on progress and soliciting feedback in a timely professional manner to keep the project on schedule. Our project resulted in an immensely valuable cell-based assay that enabled a molecule to continue moving along in a timely manner."

— Assay Development Scientist, Big Pharma Client

Learn more at discoverx.com/CAD

A STRONG FOUNDATION FOR SUCCESSFUL DRUG DISCOVERY

Eurofins Discovery offers you a complete, single source solution for drug discovery products and services, rooted in the deep experience and best-in-class offerings of 6 premier providers:
Cerep, DiscoverX, EMD Millipore Drug Discovery, Panlabs, Selcia Drug Discovery, and Villapharma.
Eurofins Discovery can optimize your process with end-to-end services and products for discovery work.

Eurofins Discovery.
Deep Resources for Success.