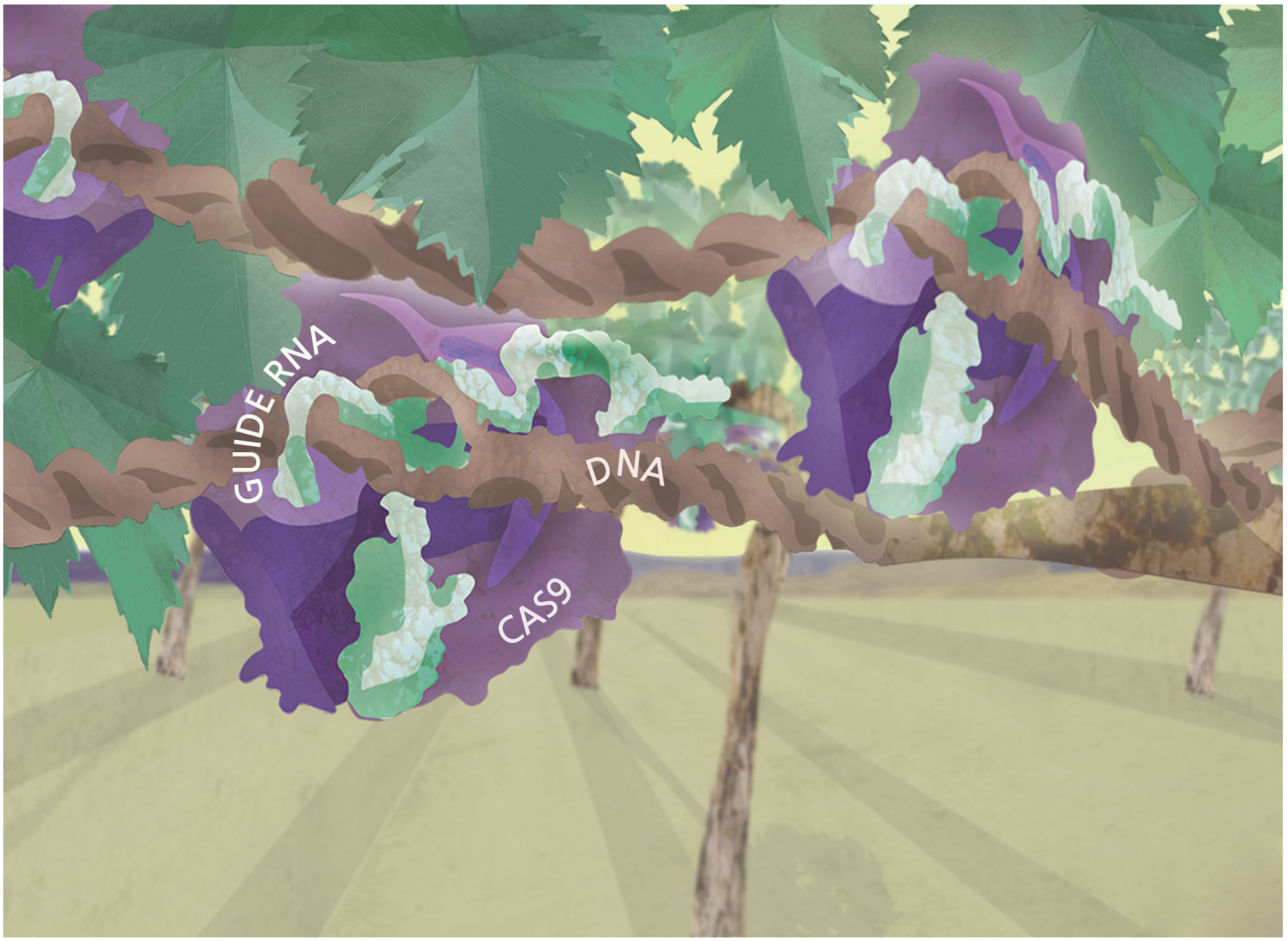
BPS Bioscience

BPS SERVICES

Screening & Profiling | Expression | Cell Line Development

EXTENSIVE SERVICES TO ACCELERATE YOUR DRUG DISCOVERY PROGRAMS



Primary Manufacturer
Custom Capabilities

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BPS Bioscience Advantages

Scientist Founded, Scientist Driven

Conducted In-house

- All services are conducted in the USA at our San Diego, California laboratory
- Get customized, personal support directly from the source

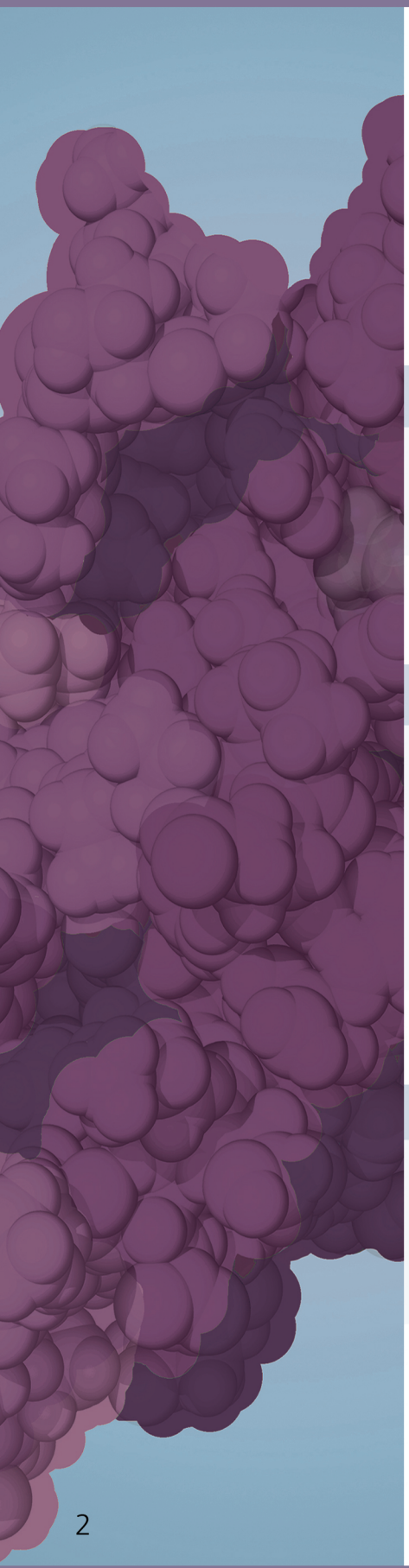
Break the Bottlenecks

- Services aligned with:
  Pre-clinical drug development - Discovery biology - Medicinal Chemistry
- Small and large project capabilities
- Process development & execution
- Enzymatic, structural, stability, & binding studies
- Cellular toxicity measurements
- Scale-up & validation
- Data reporting & management

Customized For Your Research Needs

- Screening & Profiling: >400 biochemical or cell-based assays manufactured by BPS Bioscience to screen your compounds of interest
- Cell Line Development: Choose from >70 cell types and >20 reporter genes
- Protein Expression: Multiple tags, hosts, species and customizable QC

Expression and Purification
High Purity, High Yield



- Expertise in expressing highly active enzymes
- Scale-up and bulk production available
- Flexible deliverables: supernatants, cell pellets, plasmids
- FPLC methods include: SEC, IEX, HIC
- Glutamine synthetase expression capabilities
- Lyophilization option
- Protein Immobilization

Expression Systems

Baculovirus /Sf9 Insect Cells	E. coli	Mammalian (HEK293 or CHO-K1)

Purification Options

- Additional rounds of column purification
- Endotoxin testing
- Inclusion body purification
- Biotinylation (Avi-Tag or Side Chain) and pull down QC testing
- Protein refolding
- Phosphorylation and dephosphorylation

Protein Labeling

- Biotinylation
- Fluorescence labeling
- Antibody labeling
- Enzyme conjugation

Expression and Purification
Tailored to Your Research Goals

Customize Your Project Milestones

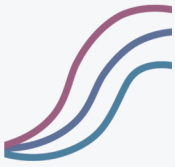
1

Cloning
BPS can supply the image clone or synthetic DNA. Mutations will be introduced if needed. Confirmation of successful cloning will be completed through gene sequencing.

2

Expression & Purification
The plasmids will be transfected through using lipofectamine, electroporation, or lentiviral transduction with the desired expression system.

3



Activity Testing
Choose to test your custom protein using BPS Bioscience's collection of >400 biochemical and cell-based assays, or we can develop a new custom activity assay.

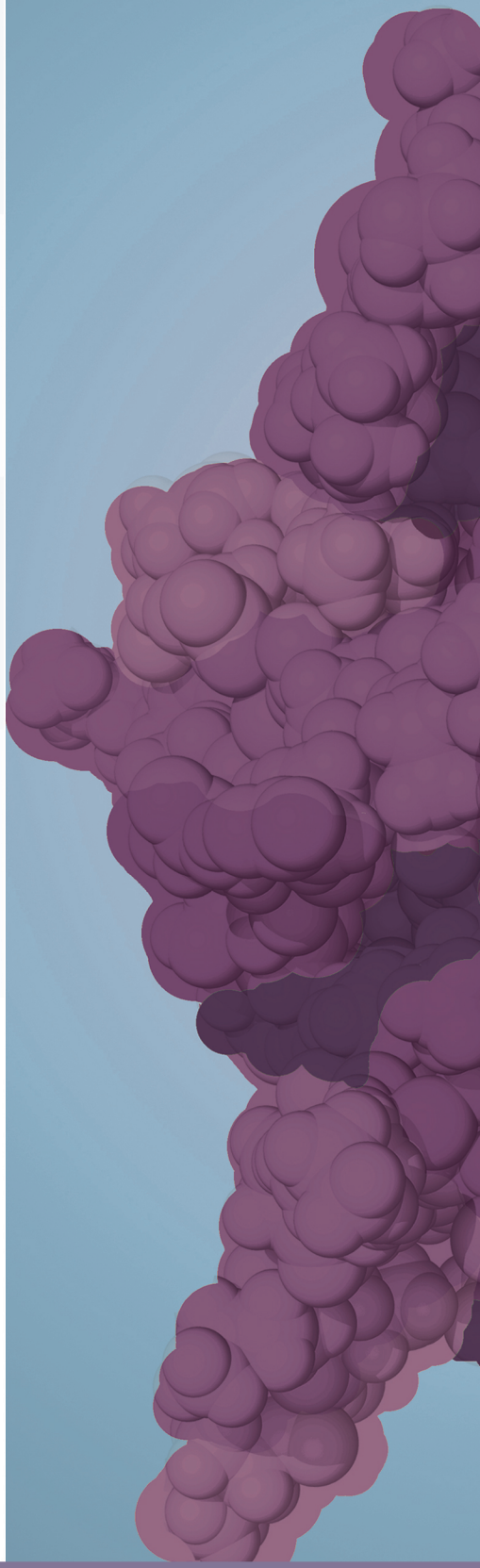
4

Bulk Protein Production
BPS has the capabilities to scale up protein production and produce the product in bulk. Our team of scientists will re-express and re-purify the protein.

5

Additional Options

Mutagenesis studies
Protein conjugation with probes and dyes
Protein binding kinetics via BLI



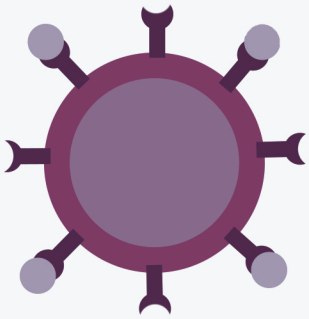
Cell Line Development

Customized for your Research Needs

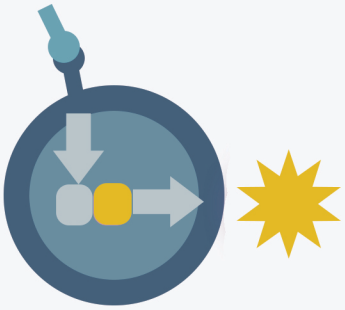
- Delivery of multiple stable clones for internal validation
- >70 available cell types and >20 possible reporters
- Use for antibody and compound screening

Cell Line Formats

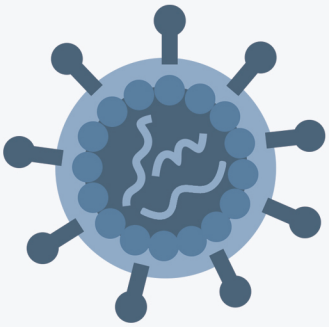
Expression Cell Lines



Reporter Cell Lines



Lentivirus Generated



Project Milestones

1

Molecular Biology
BPS will generate expression vectors using available image clones, or through the use of synthetic DNA to stably transfect the gene of interest.

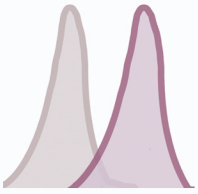
2

Selection and Pool Generation
Parental cells will be transfected with the expression vector the desired targets. The cell pool will be selected for using antibiotics.

3

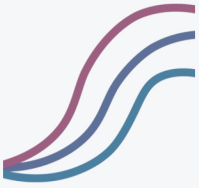
Limiting Dilution and Clonal Selection
Based on the results of the initial pool testing, the cell pool will be diluted and a single cell-derived clone will be selected.

4



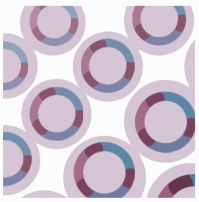
Confirmation of Expression
The expression level of the target protein will be analyzed via Western Blot or FACS.

5



Functional Validation
Cells will be treated with a reference control compound to obtain dose-response titration data.

6

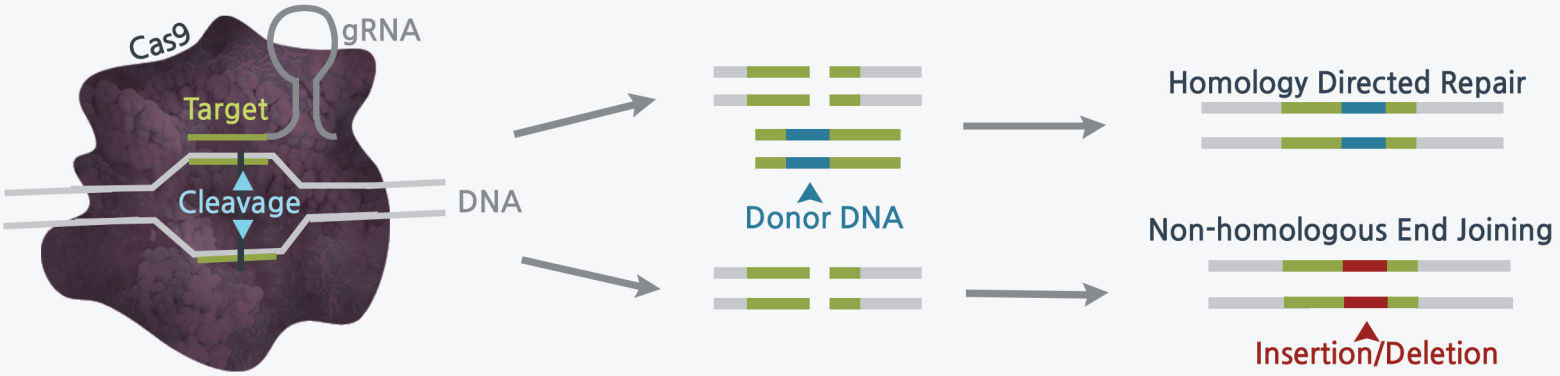


Stability Testing
The desired number of clones will be selected for passage stability testing. Mycoplasma testing and cell banking services are also available.

CRISPR
Knock-out or Knock-in

- Introduce specific point mutation or add a tag to your endogenous gene of interest
- Knock-out your gene(s) of interest for mechanistic or screening studies
- Customized lentivirus generated cell lines can be used for knock-down or knock-out cell pools

Knock-out or Knock-in



Project Milestones

1

Molecular Biology
BPS will synthesize three short guide RNA sequences for knock out cell lines. BPS can also design the HDR template for knock-in cell lines.

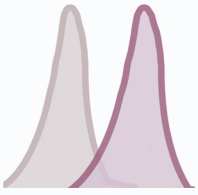
2

CRISPR Transfection
Depending on the cell-type, cells can be transfected via electroporation, liposome-based transfection, or viral infection.

3

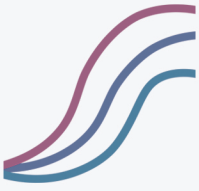
Limiting Dilution
Based upon the results of the initial pool testing, the cell pool will be clonally diluted and the single cell-derived clones will be expanded.

4



Confirmation of Expression
The expression level of the gene of interest will be analyzed via Western Blot or FACS.

5

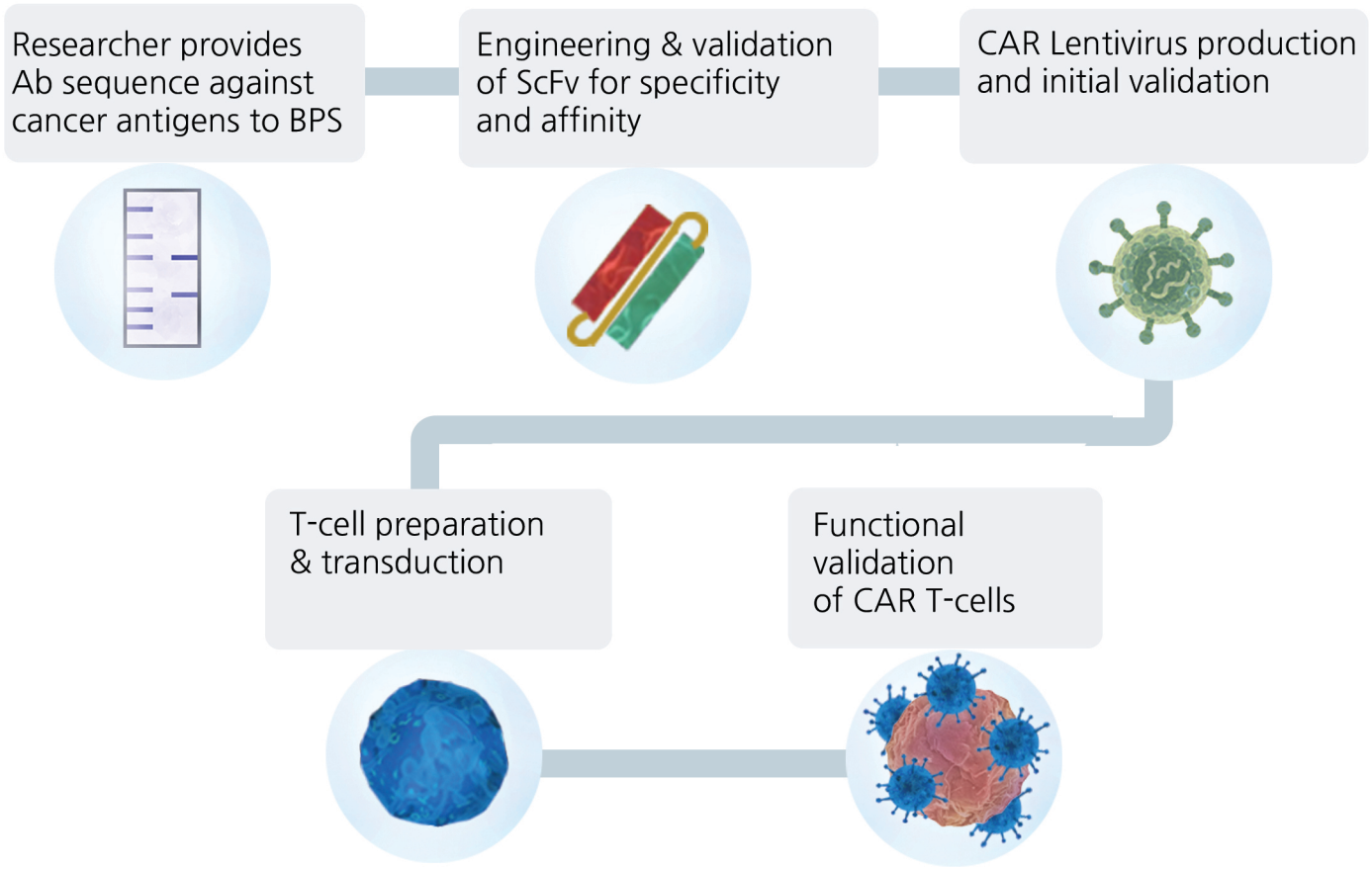


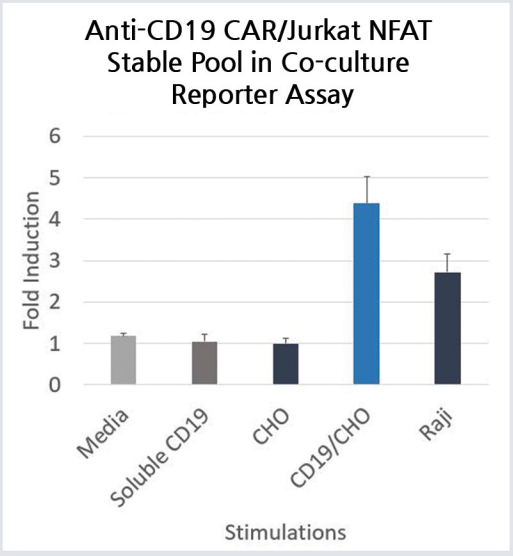
Confirmation
Genes showing loss of expression of the gene will be analyzed through genomic sequencing. For knock-in mutations, functional validation is available.

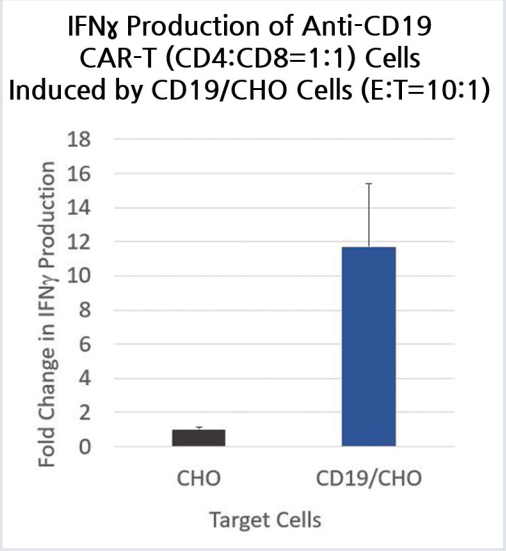
CAR T-Cell Development

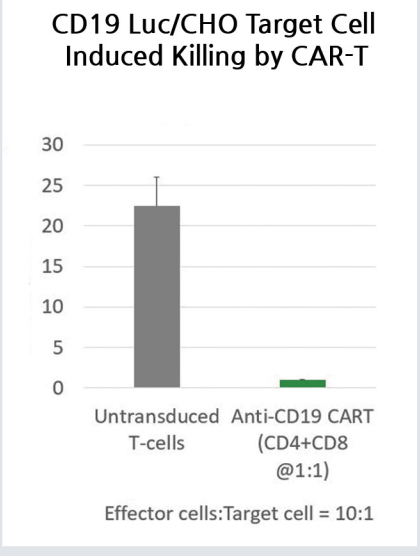
Comprehensive CAR-T Services

- Primary screening and validation of CAR activity using reporter cell lines
- Cytokine detection from CAR T-cells
- CAR T-cell killing assays







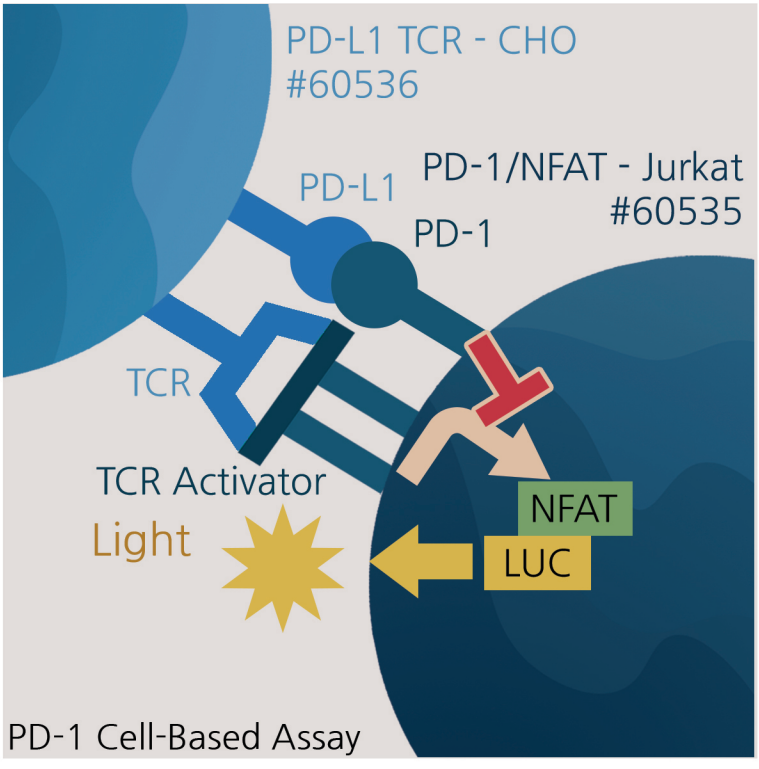


Evaluate Lead Compounds
Use our extensive panel of assays for biochemical and cell-based screening and profiling services.

Save Time
Avoid troubleshooting assays in-house by using our portfolio of >200 validated assays to determine potency and selectivity.

Get Detailed Results
- Extensive report with raw and analyzed data, graphs, and detailed protocols.
- Proteins and enzymes synthesized in-house to ensure the highest level of inter and intra-assay consistency.

BPS Advantages
- Receive results within 2-3 weeks
- Fully customizable
- Numerous unique screening & profiling services
- Orthogonal screening platforms
- Standardized screening protocols



Screening & Profiling
Biochemical

Our team of experts along with our broad services portfolio make it easy to:

- Screen for inhibitors/targets
- Select from IC50 determination or single concentration assays
- Receive data within days of compound submission
- Perform follow-up studies using the same protein lots manufactured in-house
- Get questions answered and project guidance in a time-efficient manner

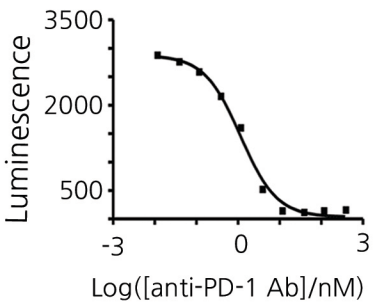
BPS Advantages

- Extensive immunotherapy panel, including many unique immunotherapy targets
- 1st commercially available and largest HDM panel
- Over 20 unique histone methyltransferases
- Complete PARP isozyme panel
- Largest PDE isozyme panel
- 1st complete suite of HDAC and SIRT enzymes
- Extensive bromodomain & HSP90 panels

Biochemical Assay Target Classes

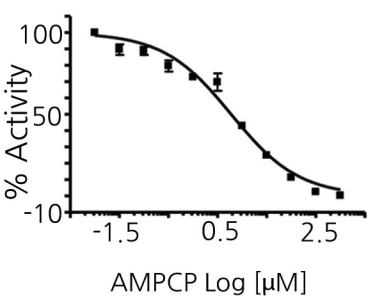
- Acetyltransferase
- Apoptosis
- Bromodomain
- Cell Surface Receptor
- DNA Methyltransferase
- HDAC/Sirtuin
- Histone Demethylase
- Histone Methyltransferases
- HSP90
- Immune checkpoints
- Kinase
- Metabolic Enzymes
- Methyl-lysine Reader
- PARP
- PCSK9
- PDE
- Phosphatase
- Protease

Inhibition of PD-1[B]: PD-L1 Interaction by PD-1 Antibody



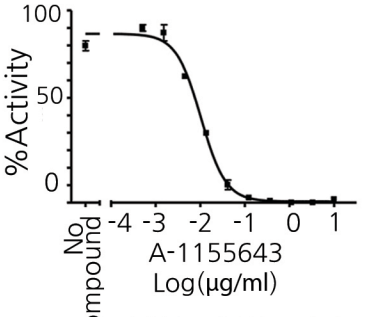
IC50 =1.2 nM

CD73 Activity



IC50 = 6 µM

BCL-XL Activity



IC50 = 0.01 µg/ml

Screening & Profiling
Cell-Based

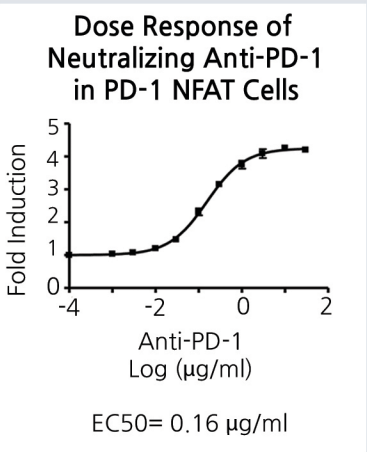
BPS has developed a number of recombinant reporter cell lines to screen inhibitors or activators of various cell signaling pathways. If you are developing inhibitors specific to one of our pathway reporters, these cell-based systems offer a more complex and physiologically relevant setting than cell-free systems. This screening service is also a great tool that can be used to tease out the specific pathway that a particular compound is targeting. Screen against our entire portfolio or select a few pathways.

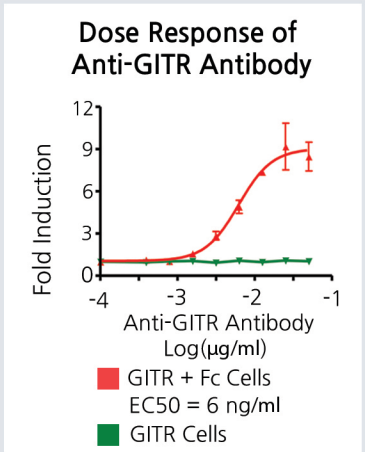
Cell-Based Assays

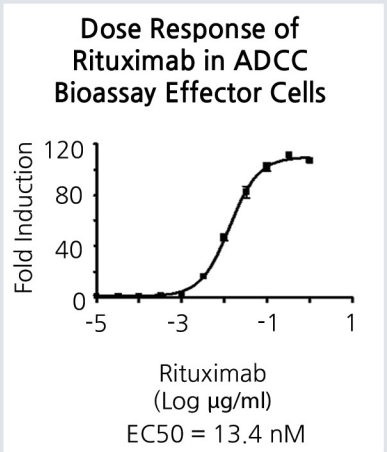
- CAR T-Cell Screening
- Cytokine Assays
- Ion Channel Assays
- Tumor Proliferation Assays
- Reporter Gene Assays

Cell-Based Assay Target Classes

- Cell Signaling Pathways
- Hedgehog Pathway
- Histone Deacetylases
- Immune Checkpoints
- Nrf2 Antioxidant Pathway
- NF-κB Pathway
- Phosphodiesterases
- T-Cell Activation
- Wnt/β-catenin Pathway







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