Aurora Biolabs

7270 Trade St. Ste. 103
San Diego, CA 92121

Custom Services

- Assay Development & Screening
- Antibody Development
- Ab-Drug Conjugate Development
- Protein Expression/Purification
- Crystallography

Assay Services

Custom Assay Development and Screening Services

Our experienced team of 10 PhD-level scientists have been providing biochemical assay development services for almost 20 years. Our expert assay development scientists are well-versed in enzyme activity assays, binding assays, protein-protein, and interaction assays in TR-FRET, fluorescence polarization, and other fluorescence formats.

Assay Screening Services

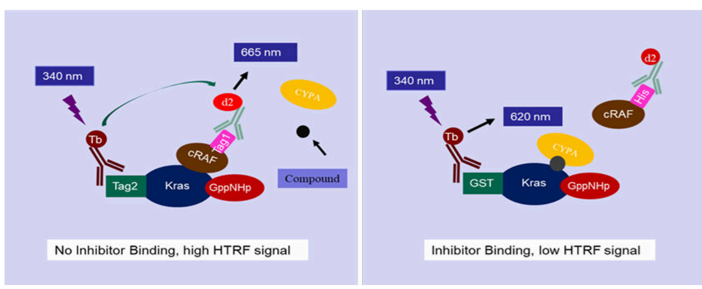
Aurora Biolabs drug discovery assay screening services are time-tested and have provided our clients with a high hit rate that results in novel compounds of therapeutic significance. We have 150,000 compounds from in-house libraries and can also screen compound libraries provided by customers. We have the expertise in designing high-throughput and sensitive assays and the equipment to carry out high-throughput screening at our facility in San Diego, CA.

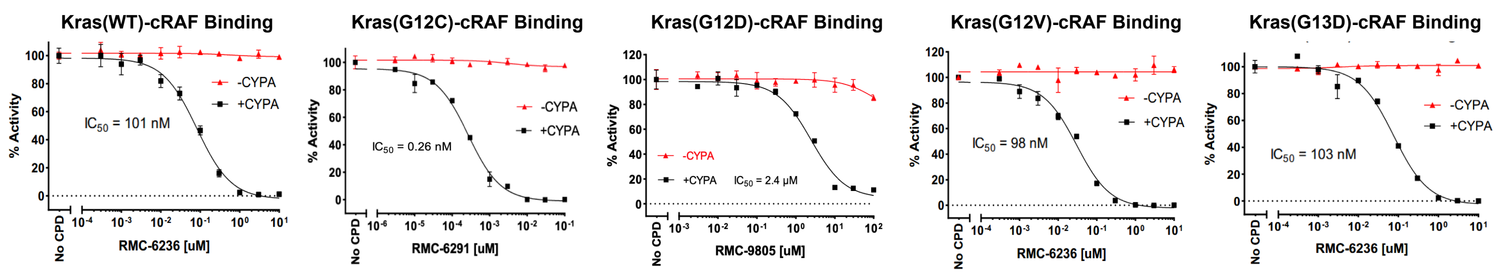
Library	Compounds
Chembridge	40,000
Maybridge	14,080
LifeChemicals	28,160
Enamine 1	10,240
Enamine 2	20,160
NANOSYN	31,365
Selleckchem	1,585

Off-the-Shelf Assays and Screening Services

Aurora Biolabs has commercialized more than 40 TR-FRET assay kits. Some of them are exclusively sold only by Aurora Biolabs. Screening using off-the-shelf products can be achieved in as little as 2 days, depending on the number of compounds to be screened.

Pan-Kras Inhibitor Screening Assays:
-Kras (WT)/cRAF/CYPA/Inhibitor Assay Kit
-Kras (G12C)/cRAF/CYPA/Inhibitor Assay Kit
-Kras (G12C)/cRAF/CYPA/Inhibitor Assay Kit
-Kras (G12V)/cRAF/CYPA/Inhibitor Assay Kit
-Kras (G13D)/cRAF/CYPA/Inhibitor Assay Kit



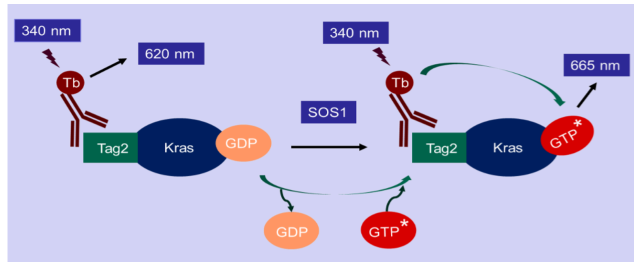


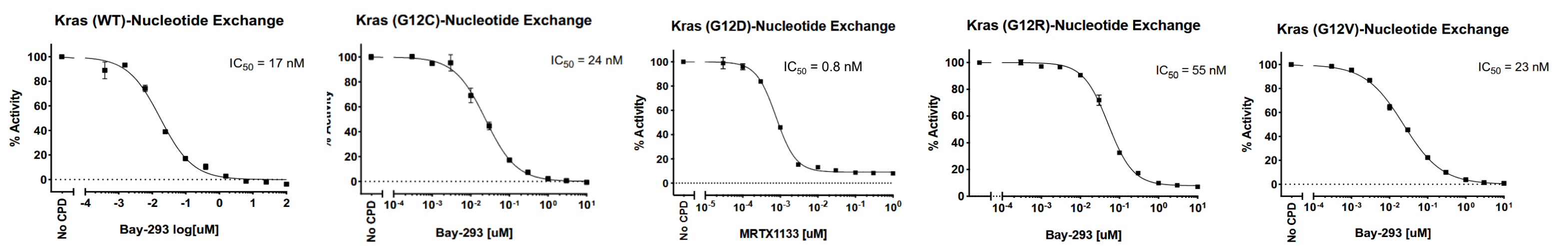
Assay Services

Off-the-Shelf Assays and Screening Services

Nucleotide Exchange Inhibitor Screening Assays:

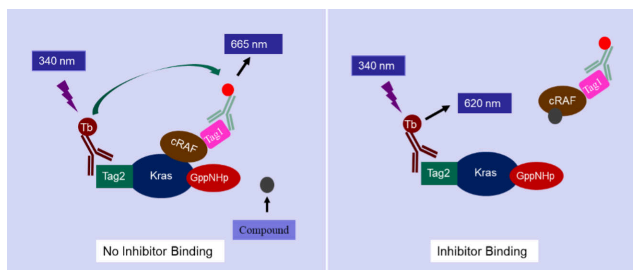
-Kras(WT)-Nucleotide Exchange Assay Kit
-Kras(G12C)-Nucleotide Exchange Assay Kit
-Kras(G12D)-Nucleotide Exchange Assay Kit
-Kras(G12R)-Nucleotide Exchange Assay Kit
-Kras(G12V)-Nucleotide Exchange Assay Kit
-Kras(G13D)-Nucleotide Exchange Assay Kit

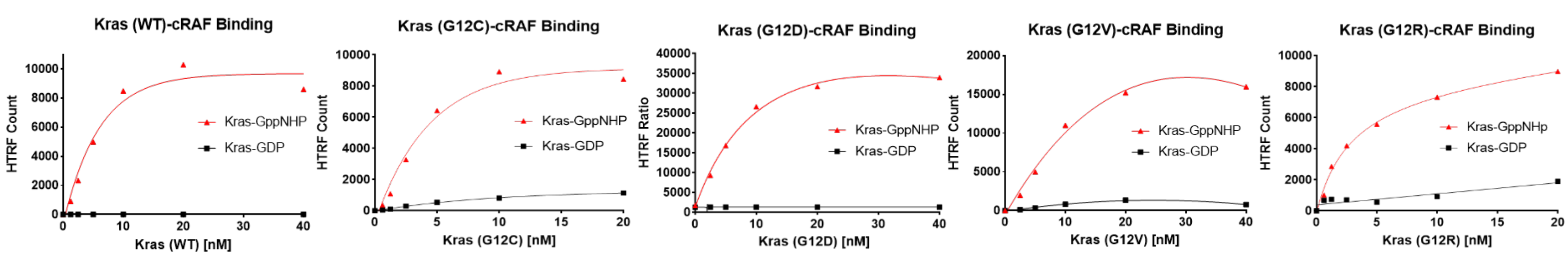




Kras-cRAF Binding Inhibitor Screening Assays:

-Kras(WT)-Nucleotide Exchange Assay Kit
-Kras(G12C)-Nucleotide Exchange Assay Kit
-Kras(G12D)-Nucleotide Exchange Assay Kit
-Kras(G12R)-Nucleotide Exchange Assay Kit
-Kras(G12V)-Nucleotide Exchange Assay Kit
-Kras(G13D)-Nucleotide Exchange Assay Kit



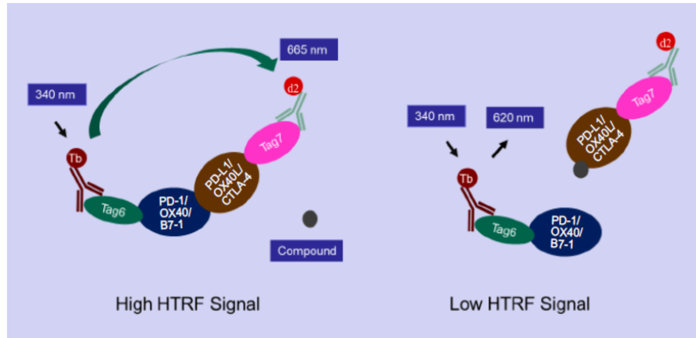


IC_{50}/EC_{50} Determination = $200

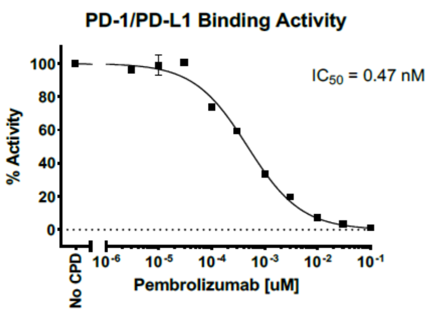
IC_{50} (half-maximal inhibitory concentration) and EC_{50} (half-maximal effective concentration) values for your compounds using our in-house developed KRAS and other TR-FRET assay kits.

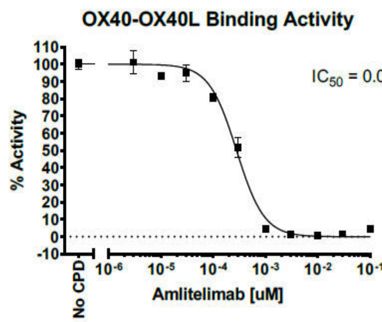
Assay Services

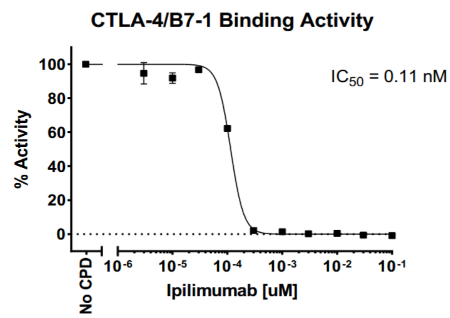
Off-the-Shelf Assays and Screening Services



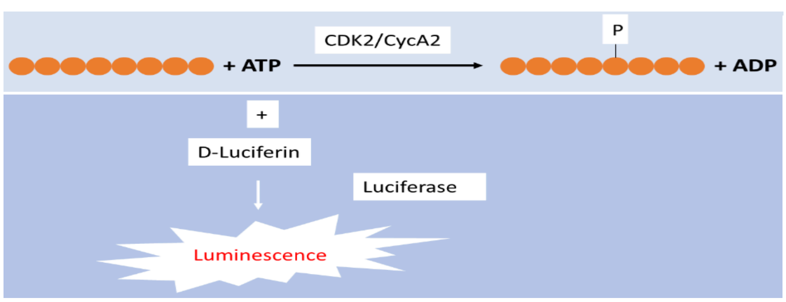
-CTLA-4/B-7 Inhibitor Screening Assay
-OX40/OX40L Inhibitor Screening Assay
-PD-1/PD-L1 Inhibitor Screening Assay

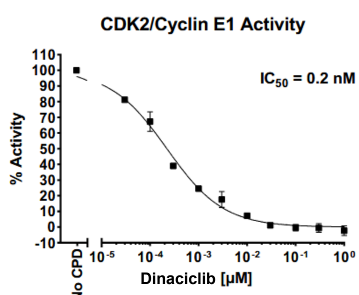


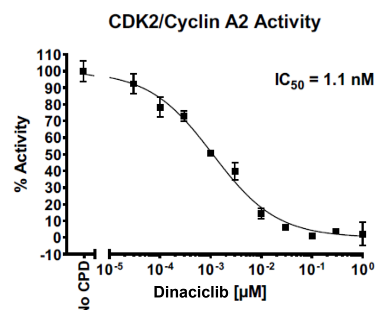




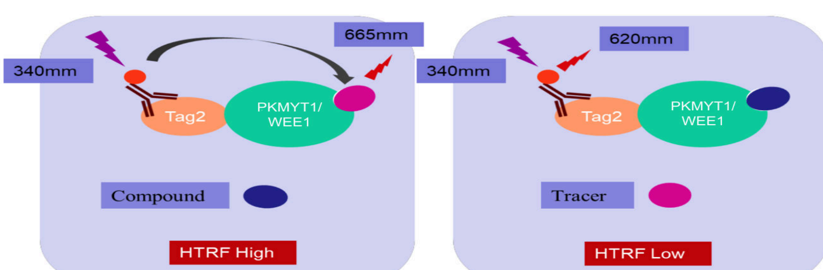
-CDK2/CyclinA2 Kinase Inhibitor Screening Assay
-CDK2/CyclinE1 Kinase Inhibitor Screening Assay

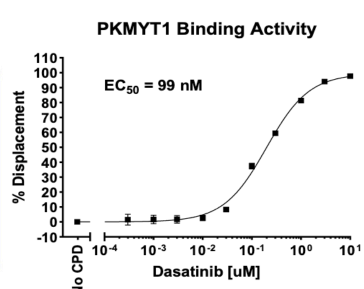


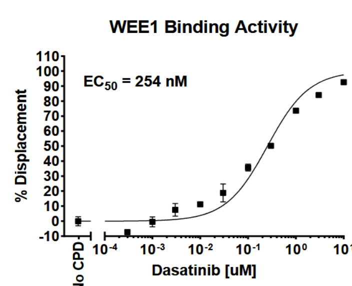




-PKMYT1 Inhibitor Screening Assay
-WEE1 Inhibitor Screening Assay



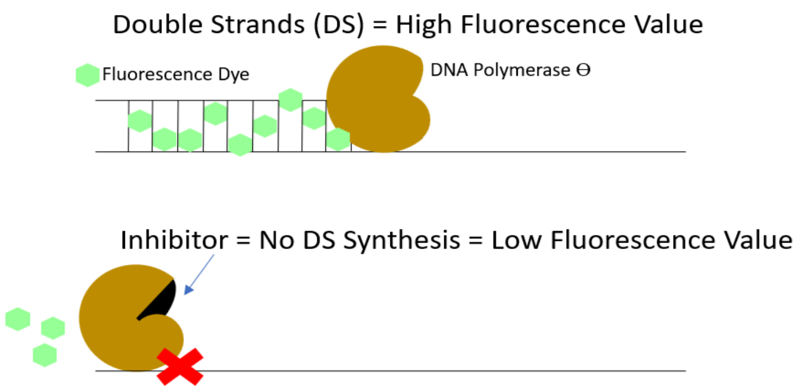


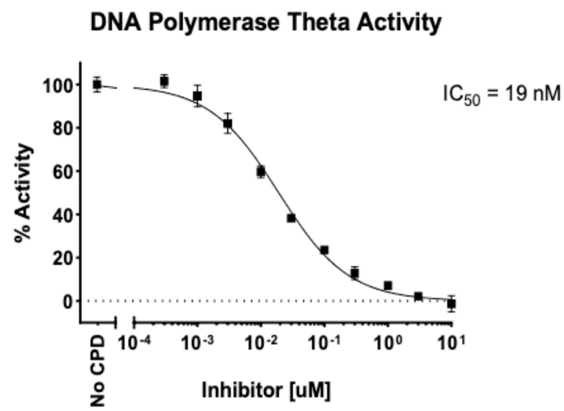


Assay Services

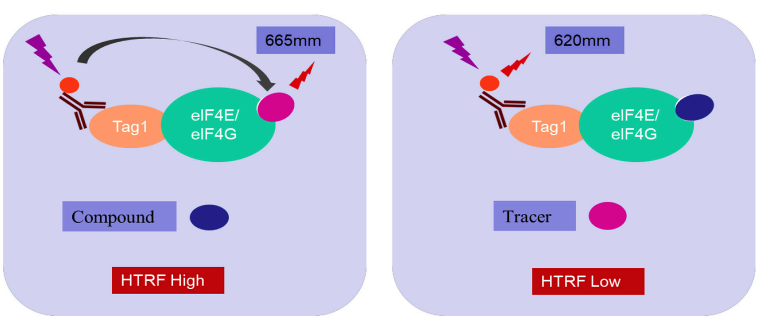
Off-the-Shelf Assays and Screening Services

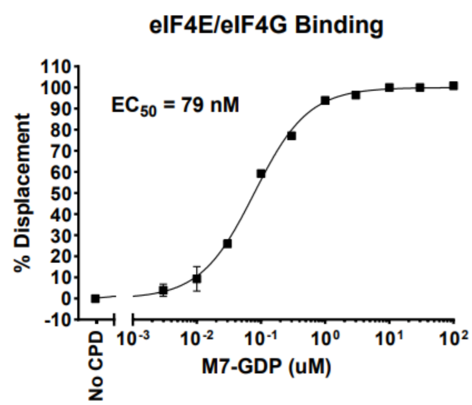
-DNA Polymerase Theta Inhibitor Screening



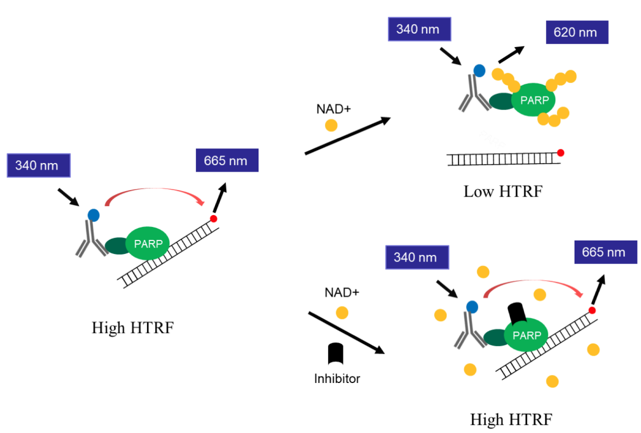


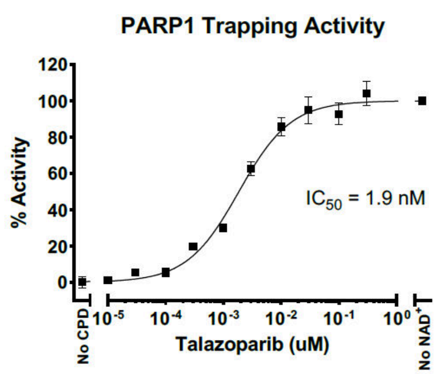
-eIF4E/eIF4G Inhibitor Screening Assay

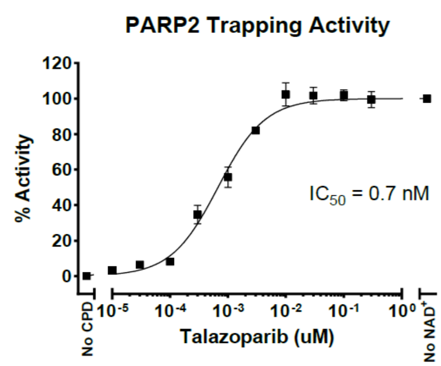




-PARP1 Inhibitor Screening Assay
-PARP2 Inhibitor Screening Assay



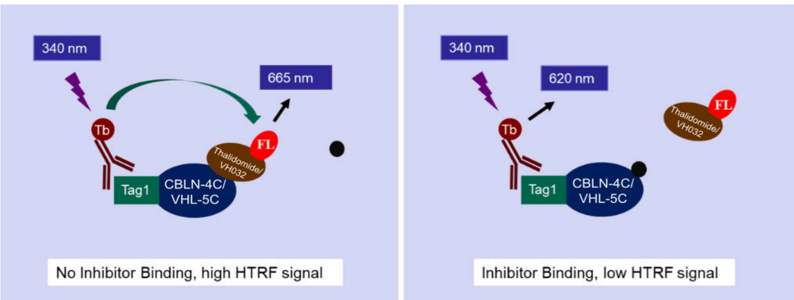


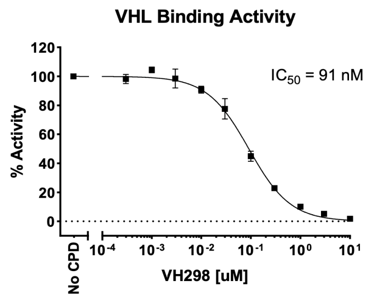


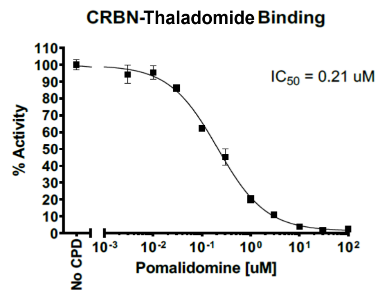
Assay Services

Off-the-Shelf Assays and Screening Services

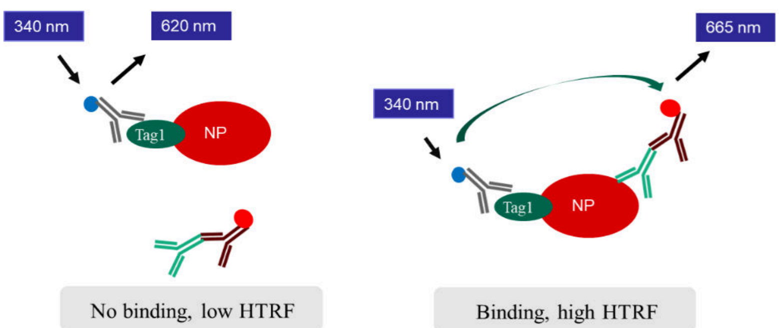
-VHL and Cereblon Ligand Screening Assay

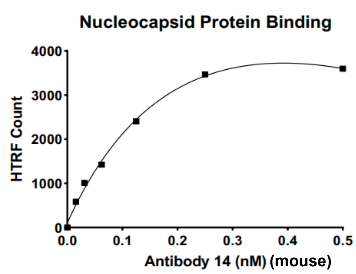


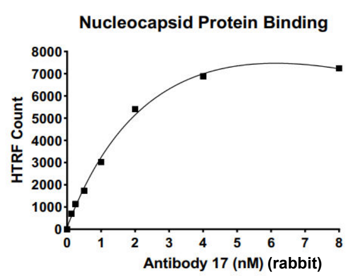




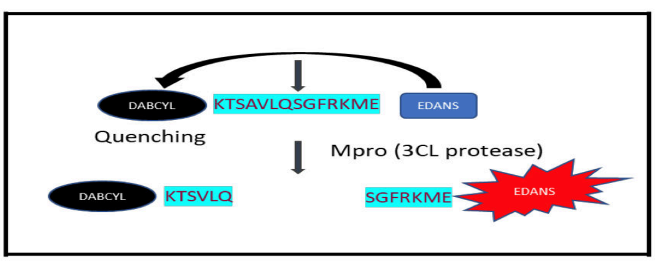
-SARS-CoV-2 Nucleocapsid Antibody Screening Assays

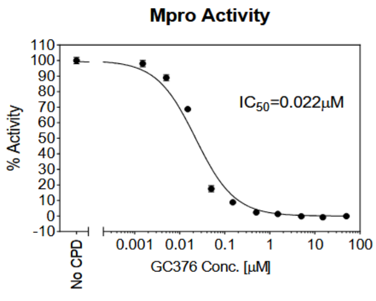




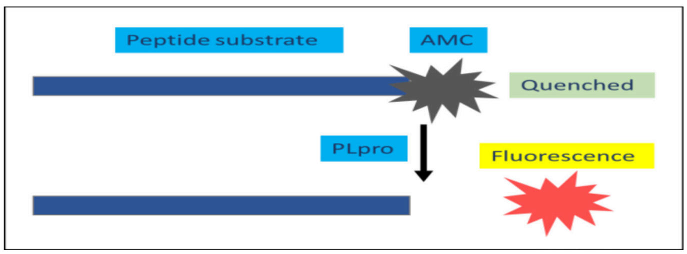


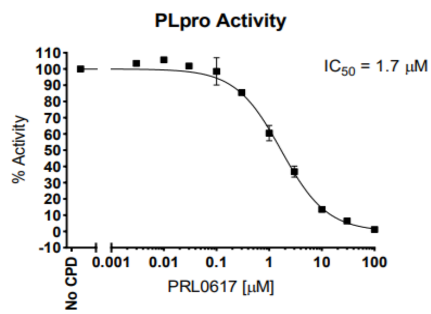
-SARS Mpro Inhibitor Screening Assay



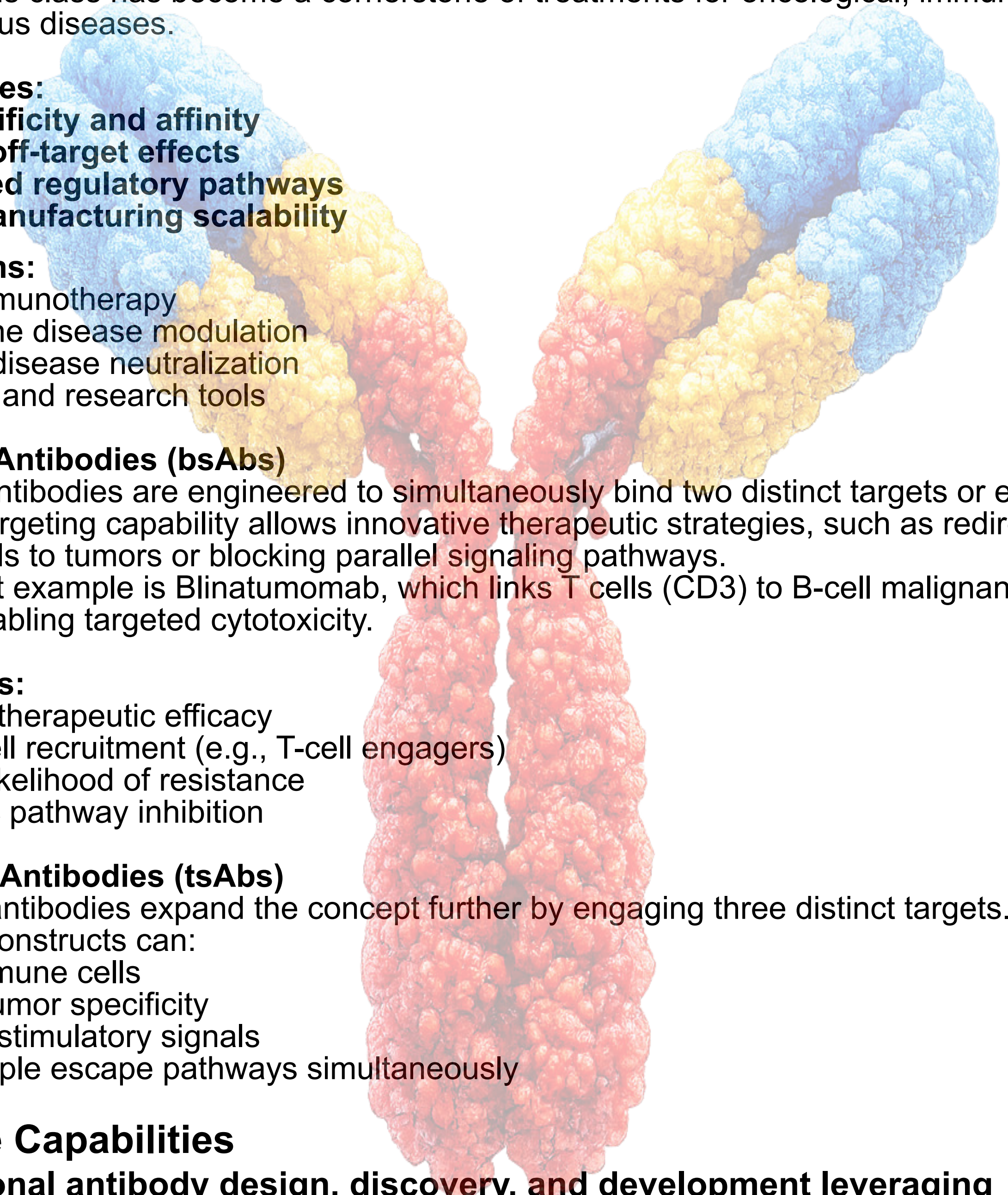


-SARS PLpro Inhibitor Screening Assay





Antibody Development



Monoclonal Antibodies (mAbs)
Monoclonal antibodies are highly specific immunoglobulins designed to bind a single antigen epitope. Since the approval of Muromonab-CD3, the first therapeutic monoclonal antibody, this class has become a cornerstone of treatments for oncological, immunological, and infectious diseases.

Key Features:
-High specificity and affinity
-Reduced off-target effects
-Established regulatory pathways
-Proven manufacturing scalability

Applications:
-Cancer immunotherapy
-Autoimmune disease modulation
-Infectious disease neutralization
-Diagnostic and research tools

Bispecific Antibodies (bsAbs)
Bispecific antibodies are engineered to simultaneously bind two distinct targets or epitopes. This dual targeting capability allows innovative therapeutic strategies, such as redirecting immune cells to tumors or blocking parallel signaling pathways.
A prominent example is Blinatumomab, which links T cells (CD3) to B-cell malignancies (CD19), enabling targeted cytotoxicity.

Advantages:
-Enhanced therapeutic efficacy
-Immune cell recruitment (e.g., T-cell engagers)
-Reduced likelihood of resistance
-Synergistic pathway inhibition

Trispecific Antibodies (tsAbs)
Trispecific antibodies expand the concept further by engaging three distinct targets. These advanced constructs can:
-Recruit immune cells
-Enhance tumor specificity
-Deliver co-stimulatory signals
-Block multiple escape pathways simultaneously

Our Core Capabilities

- **Monoclonal antibody design, discovery, and development leveraging hybridoma and yeast display technologies**
- **Target validation and antigen design**
- **Multi-specific antibody engineering**
- **Cell line development and scalable production**
- **Functional and biophysical characterization**

Ab-Drug Conjugate Development

Antibody–Drug Conjugates (ADCs)
Precision Targeting. Potent Payload. Transformative Impact.
Antibody–drug conjugates (ADCs) are an advanced class of targeted therapeutics designed to deliver powerful cytotoxic agents directly to diseased cells—while minimizing exposure to healthy tissue. By combining the specificity of monoclonal antibodies with the cell-killing strength of small-molecule drugs, ADCs represent one of the most exciting innovations in modern oncology and beyond.

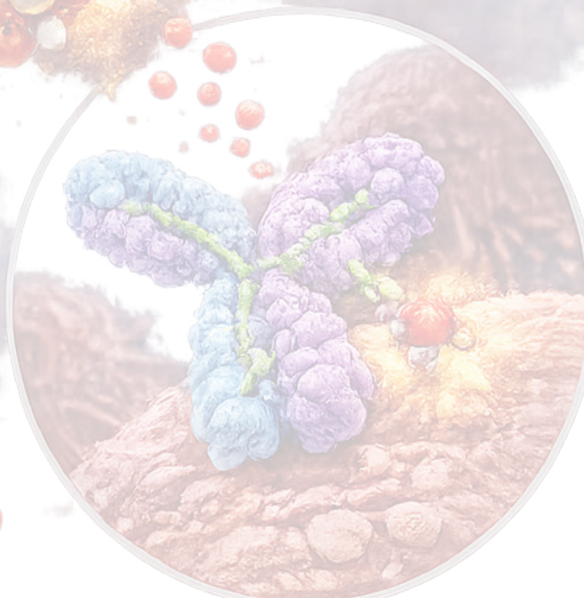
How ADCs Work
An ADC has three key components:

1. Monoclonal Antibody
   A highly specific antibody recognizes and binds to a target antigen expressed on diseased cells (e.g., tumor-associated antigens).
2. Linker Technology
   A carefully engineered chemical linker connects the antibody to the payload. The linker is:
   - Stable in circulation
   - Cleavable inside target cells
   - Designed to optimize safety and efficacy
3. Cytotoxic Payload
   A highly potent drug (often 100–1,000× more potent than traditional chemotherapy) that induces cell death once internalized.

Mechanism of Action

1. ADC binds to target antigen
2. Complex is internalized into the cell
3. Linker is cleaved intracellularly
4. Payload is released → targeted cell death

Advantages of ADC Technology
✔ Targeted delivery reduces systemic toxicity
✔ Higher therapeutic index
✔ Improved patient tolerability
✔ Enables use of ultra-potent cytotoxins
✔ Potential for biomarker-driven precision medicine



Our Core Capabilities

- **Target validation**
- **Antibody generation & optimization**
- **Site-specific conjugation strategies**
- **Linker design & payload selection**
- **Analytical characterization**
- **Preclinical development support**

ADC Development Case Study & Protein Expression/Purification

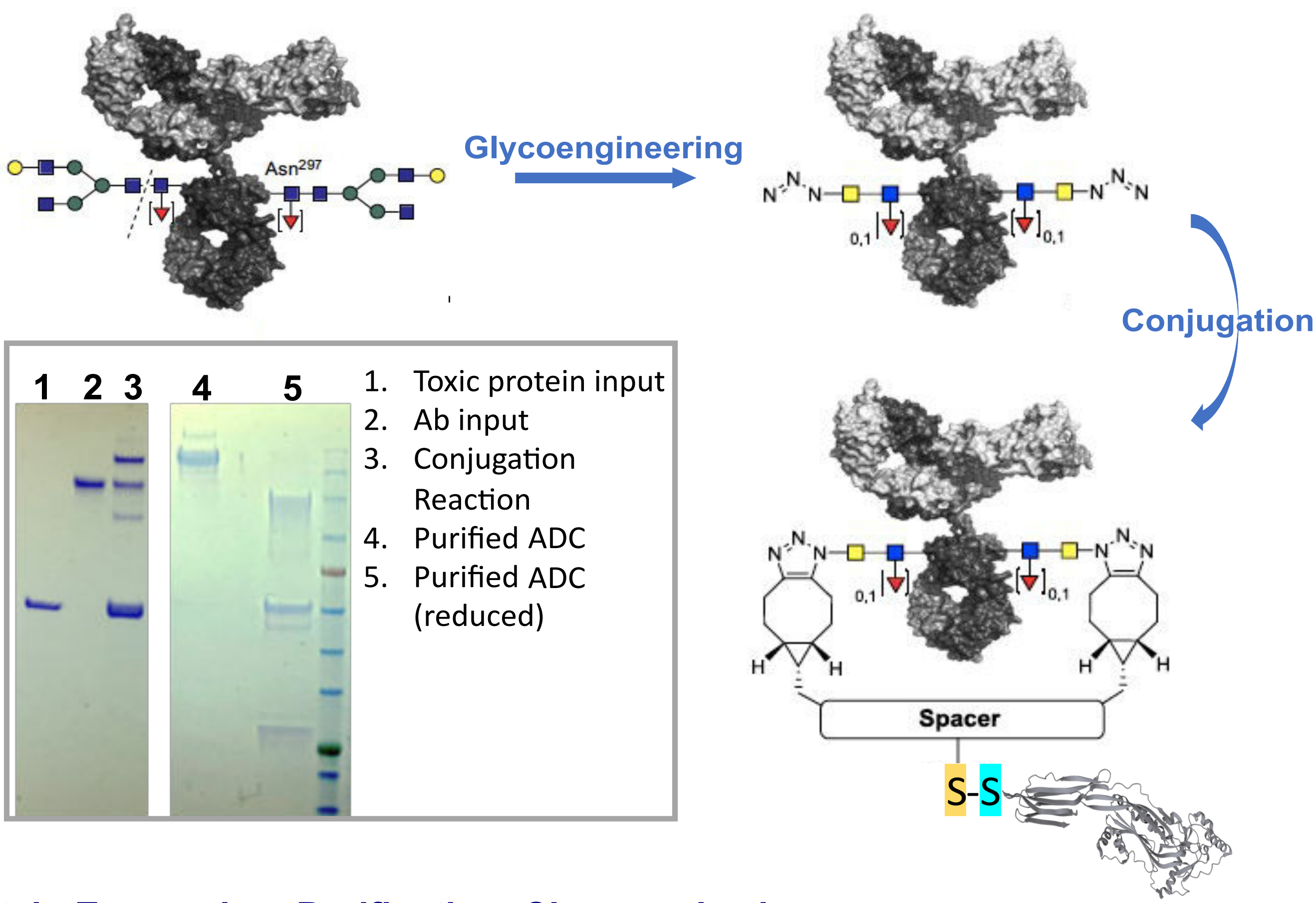
Listeriolysin O ADC Development Case Study

nature cancer

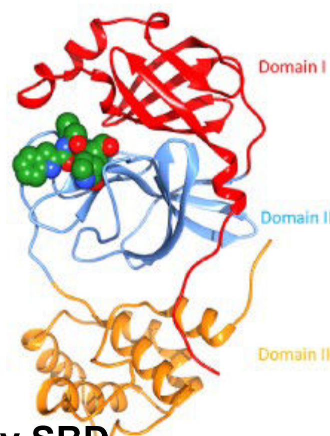
Article

https://doi.org/10.1038/s43018-025-00919-0

An antibody–toxin conjugate targeting CD47 linked to the bacterial toxin listeriolysin O for cancer immunotherapy



Protein Expression, Purification, Characterization



Our Advantages

- Fast turnaround
- Cost-effective
- Highly pure proteins with triple purification procedure
- Bacterial/yeast/mammalian cell expression systems
- Protein characterization by crystallization services available by SBD

Proven Assay Development & Compound Screening Services

Library Name	Plate#	Master Plate Storage Concentration (mM)	Number of Compounds
Chembridge	500	10	40000
Maybridge	44	10	14080
LifeChemicals	88	10	28160
Enamine 1	32	10	10240
Enamine 2	63	10	20160
NANOSYN	90	5	31365
Selleckchem	6	10	1585

Select pre-clinical candidates based on DMPK data.

Identify drug-like, patentable leads with low nM potency using cell-based assay and cancer cell lines.

Design and optimize hits via SBDD approach.

Determine high resolution co-structured via X-ray and Cryo-EM to define SAR.

Express target protein via various expression systems.

Produce crystallography-grade protein in large quantity.

Develop high-throughput active and binding assays.

Run HTP screening using 145K in-house compound libraries to find novel hits.
Run virtual screening against 20 million commercial compounds.

Select Publications Contributed by SBD Services

- Hegde SG, Huang PQ, Bunker KD, Hopkins CD, Slee DH, Kahraman M, Pinchman J, Sit RK, Lee CC, Rutgard M, Samatar AA, Li J, Ma J, Izadi H, **Han FQ, Chao A.** Discovery of **ZN-c5**, an Orally Bioavailable Selective **Estrogen Receptor** Degrader (SERD) with Improved Pharmacokinetics. J Med Chem. 2025 Jul 24;68(14):14740-14755.
- Wang et al. Identification of **MRTX1133,** a Noncovalent, Potent, and Selective **KRASG12D** Inhibitor. J Med Chem. 2022 Feb 24;65(4):3123-3133. (Mirati Therapeutics, first-in-class, clinical phase II)
- Mao et al. **Olgotrelvir**, A Dual Inhibitor of **SARS-CoV-2 Mpro** and **Cathepsin L**, as a Stand-alone Antiviral Oral Intervention Candidate for COVID-19. Med. 2024 Jan 12;5(1):42-61. (clinical phase III)
- Reich et al. Structure-based Design of **Pyridone-Aminal eFT508** Targeting Dysregulated Translation by Selective Mitogen-activated Protein **Kinase Interacting Kinases 1 and 2 (MNK1/2)** Inhibition. J Med Chem. 2018 Apr 26;61(8):3516-3540. (first-in-class, clinical phase II)
- Lack et al. Targeting the **Binding Function 3 (BF3)** Site of the Human Androgen Receptor Through Virtual Screening. J Med Chem. 2011 Dec 22;54(24):8563-73. (first-in-class, academic research)