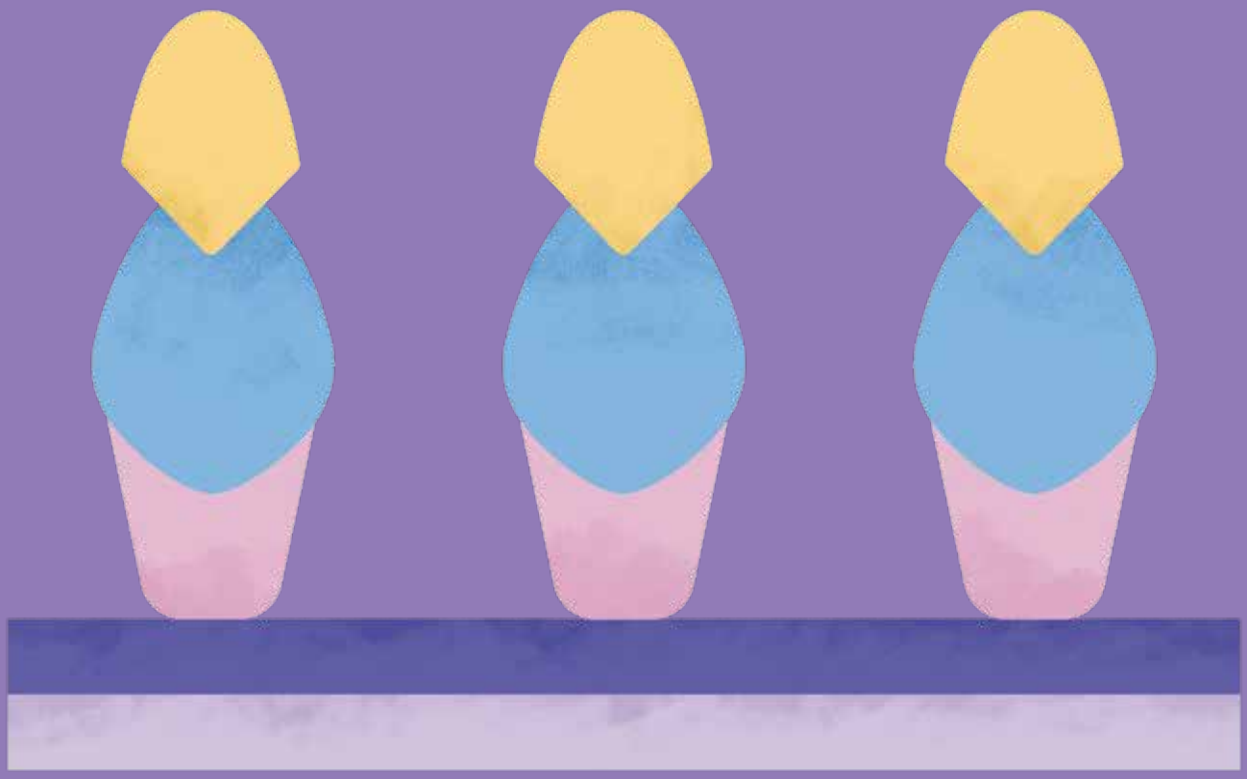
KACTUS

Custom SPR Services

Comprehensive Analysis Solutions



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Enhanced SPR Technology Platform: Precision Testing Solutions

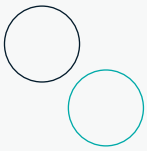
Surface Plasmon Resonance (SPR) is an optical technology that can detect molecular interactions in real time. It is used for analyzing the binding specificity between biomolecules and can perform concentration quantification, binding kinetics, affinity, and thermodynamic analyses without the need for additional detection reagents, truly reflecting interaction conditions. With its high-throughput, high flexibility, and high sensitivity, SPR has become an important diagnostic method in immunodetection, early drug development, and preclinical drug screening. KACTUS offers experienced SPR technology services, expertly customized for various experimental protocols that meet the unique needs of your drug discovery and development.

Advantages

Various Sample Combinations

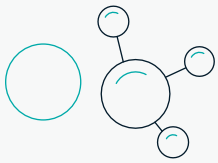
SPR is a versatile tool in that it is suitable for analyzing the interaction and detection of various types of molecules, such as antigens and antibodies, proteins and proteins, peptides and proteins, small molecules and proteins, etc. KACTUS offers SPR analysis of various sample combinations:

Antibody/Protein



Protein/Protein

Peptide/Protein

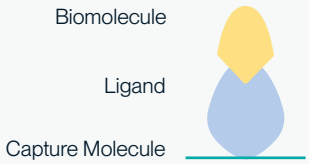


Small Molecule/Protein

Flexible detection methods

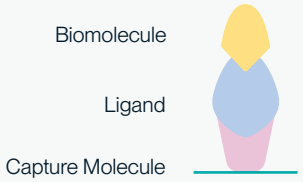
Direct fixation method:

In direct fixation, the ligand is directly fixed on the chip surface through amino coupling. This coupling method involves a reaction with the amino groups of the ligand protein. Generally, amino coupling is used when there are label conflicts with the substances being analyzed.



Capture Method:

The capture method is an indirect coupling method that first fixes capture molecules on a chip, and then leverages the affinity between the capture molecules and ligands to couple the ligands on the chip surface. Common capture molecules include Streptavidin (SA), Protein A/L, antibodies, etc. Among them, when using SA as the capture molecule, the ligand protein needs to be in a biotinylated form, utilizing the affinity between SA and biotin to achieve coupling.



Advanced Technical Expertise

KACTUS' SPR Detection Platform boasts a professional and experienced research team dedicated to the development and optimization of SPR technology methods. Utilizing KACTUS' comprehensive product line, the team has accumulated a wealth of technical experience, providing an important guarantee for the quality of SPR detection services.

Service Workflow & Timeline

Understand Testing Requirements → Sign Contract → Develop Method → Test Sample → Deliver Data

Standard Protein / Antibody Sample

2-3 Days

For up to 5 Sample Pairs

Complex samples

VLP, small molecules or peptides

3-5 Days

For up to 5 Sample Pairs

Procedure Standardization Compliant with Regulatory Applications

Reagents & Consumables
Strict Supply & Management Standards

Equipment
Usage Records, Calibration Reports, & Regular Maintenance

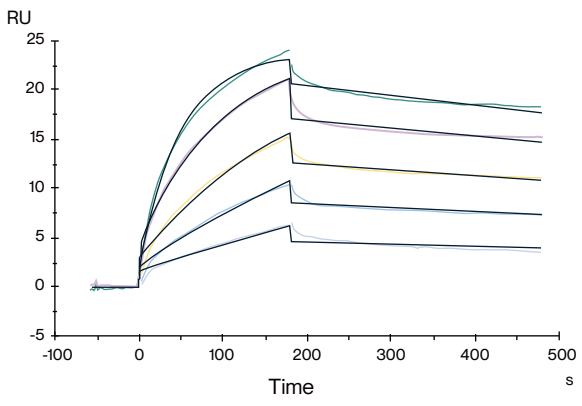
Raw Data
Dual Backup Systems for Enhancedd Reliability

Experimental Records
Maintained in Both Electronic and Paper Formats

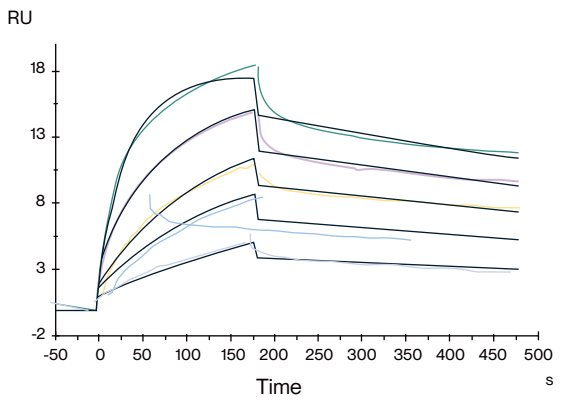
Case Studies

SPR Detection with VLP-Displayed Antigens

To address the challenge of conducting multiple affinity tests on difficult-to-express transmembrane proteins, KACTUS has specially developed biotinylated virus-like particle (VLP)-displayed antigens to meet the experimental requirements of SPR.



Biotinylated Human Claudin 18.2 VLP captured on CM5 Chip via Streptavidin can bind Anti-Claudin 18.2 Antibody with an affinity constant of 1.28 nM as determined in SPR assay.

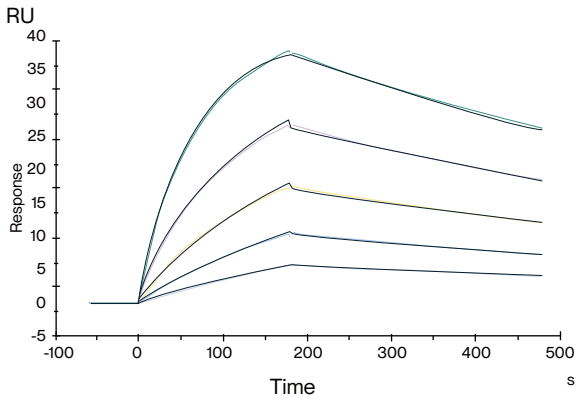


Biotinylated Human GPRC5D VLP captured on SA Chip can bind Anti-GPRC5D antibody, hFc with an affinity constant of 0.30 nM as determined in SPR assay.

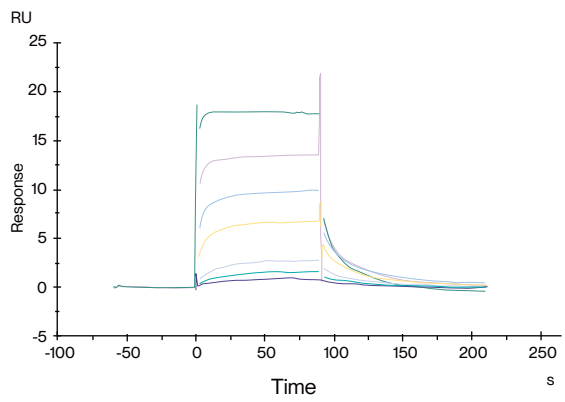
Case Studies

Affinity Detection of Fc Receptor Proteins and Antibodies

Fc receptors are receptor proteins that can bind to the Fc region of antibodies, playing an important role in the screening and efficacy evaluation of antibody drugs. However, this binding interaction is often weak and difficult to effectively assess with conventional detection methods such as ELISA. Therefore, it necessitates the use of methods with higher sensitivity, such as SPR, for detection.



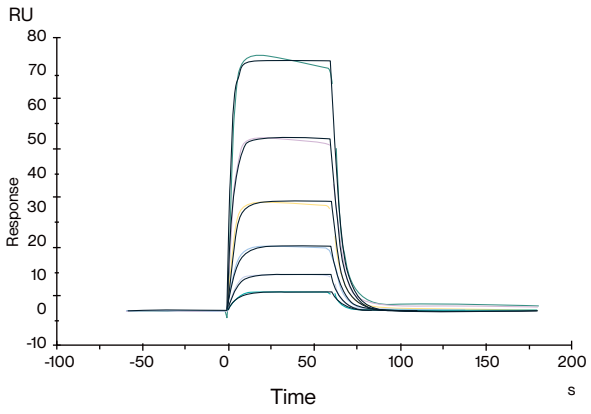
Human Fc gamma RI, His Tag captured on CM5 Chip via anti-his antibody can bind Trastuzumab with an affinity constant of 1.94 nM as determined in SPR assay.



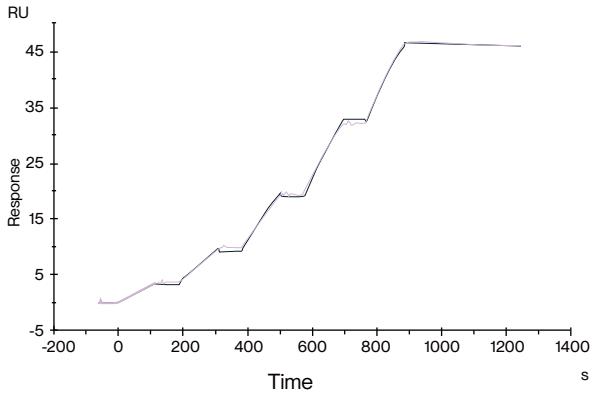
Human FcRn, His Tag captured on CM5 Chip via anti-his antibody can bind Human IgG1 Fc, No Tag with an affinity constant of 0.28 μM as determined in SPR assay.

Affinity Detection of TCR and MHC Peptide Complexes

The detection of the affinity between TCR and MHC peptide complexes is a crucial part of the development of TCR-related drugs, with SPR being a highly effective method for this detection. KACTUS offers SPR detection services to support the development of TCR-related drugs, in addition to our custom expression services for soluble TCRs.



*Human HLA-A*02:01&B2M&AFP (FMNKFIYEI) Monomer, His Tag captured on CM5 Chip via Anti-His Antibody can bind HLA-A*02:01&B2M&AFP (FMNKFIYEI) TCR with an affinity constant of 0.923 μM as determined in SPR assay.*



*Human HLA-A*02:01&B2M&GP100 (YLEPGPVTA) Tetramer, His Tag immobilized on CM5 Chip can bind gp100 TCR&Anti-CD3 bispecific fusion protein with an affinity constant of 0.196 nM as determined in SPR assay.*