Biacore™ SPR systems

Visualize your research.
For more information and faster decisions.

cytiva

View molecular interactions in real-time

Biological processes are “real-time” events, driven and regulated by dynamic interactions between key molecules.

End-point techniques such as ELISA offer a snapshot view of interactions. They only provide basic information such as overall binding strength (affinity). The affinity depends on the ratio of molecules on- and off-rates, which are time bound constants. Equal affinity interactions can have very different kinetic properties, resulting in different biological responses. These differences can’t be resolved by viewing a point in time.

Biacore™ systems use surface plasmon resonance (SPR), a label-free and biophysical technology. SPR monitors molecular interactions in real-time so you can differentiate between variances in kinetic properties, even for interactions with challenging targets.

Biacore™ systems are designed to help you to generate high quality, information-rich data, that helps answer key questions concerning the nature of binding — driving your project to conclusion:

1. How strong?

Affinity is a measure of the strength of binding/attraction between molecules. Affinity is a time independent measurement and is determined by measuring the binding response at steady state (constant signal).

2. How fast?

Binding kinetics determine how fast/slow a complex forms or dissociates within a given time period and allow the calculation of association and dissociation rate constants.

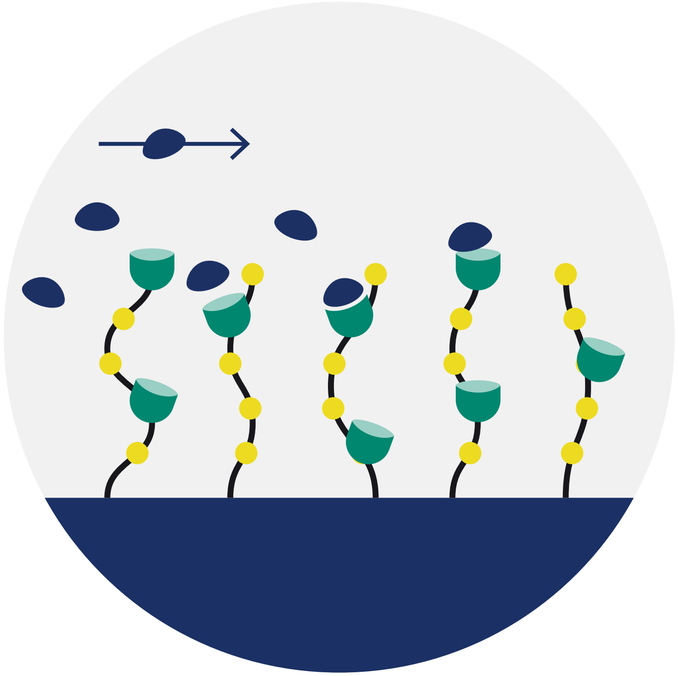
3. How much?

Qualitative and quantitative determination of active analyte binding to a target protein vs total protein concentration obtained via classic absorbance measurement at 280 nm wavelength.

4. How specific?

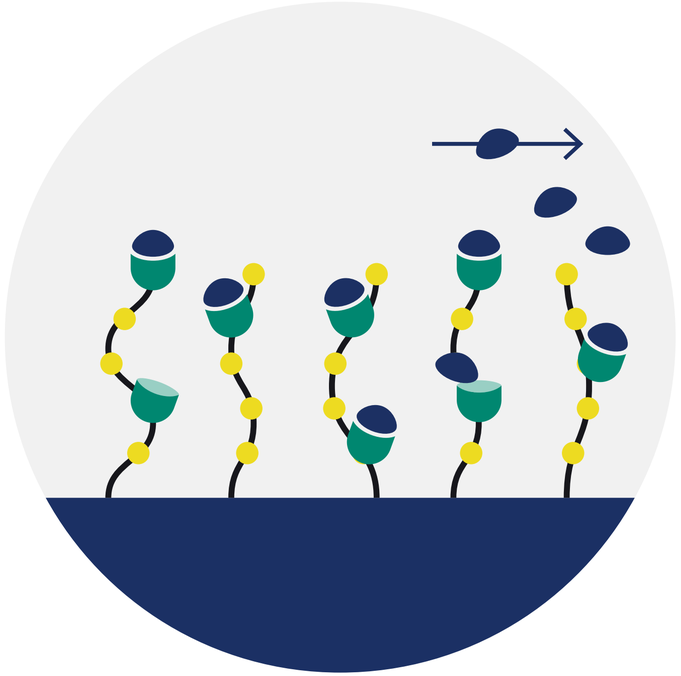
Is the molecule specific for its target? Does the antibody recognize multiple derivatives? The flexibility in Biacore™ assay design allows rapid assessment of cross-reactivity and specificity.

Ligand — analyte binding. In real-time.



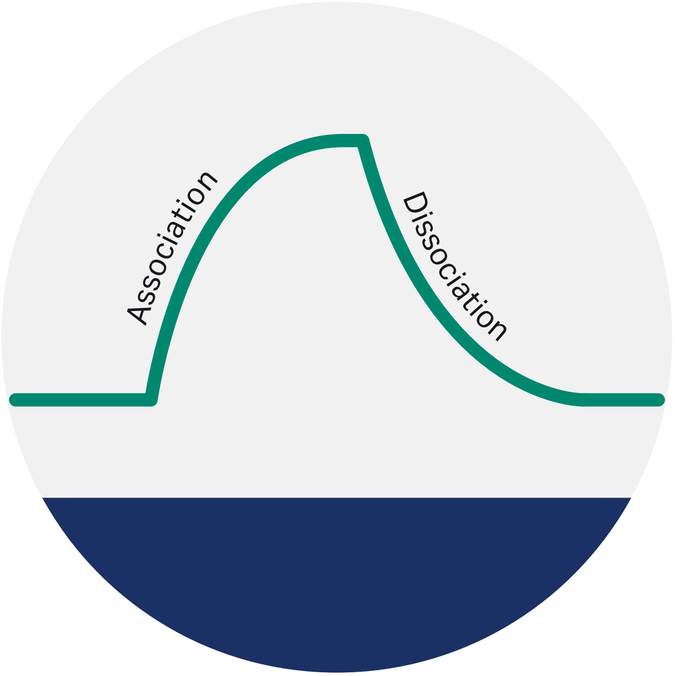
Association

Interactants in solution bind to molecules on sensor chip surface.



Dissociation

Binders allowed to dissociate from molecule on sensor chip surface.



The binding (association) and dissociation

of molecules to the sensor chip surface are monitored in real-time and displayed in a sensorgram.

Greater insights into your interactions, irrespective of molecule size or purity

Biacore™ systems provide valuable information from high-quality molecular interaction data for a range of applications including: biological research, biotherapeutics, small-molecule drug discovery and development, immunogenicity studies, vaccine development and quality control. The sensitivity, performance, and robustness of Biacore™ SPR systems enable detailed characterization of a broad range of molecular interactions — even for challenging targets such as membrane proteins.

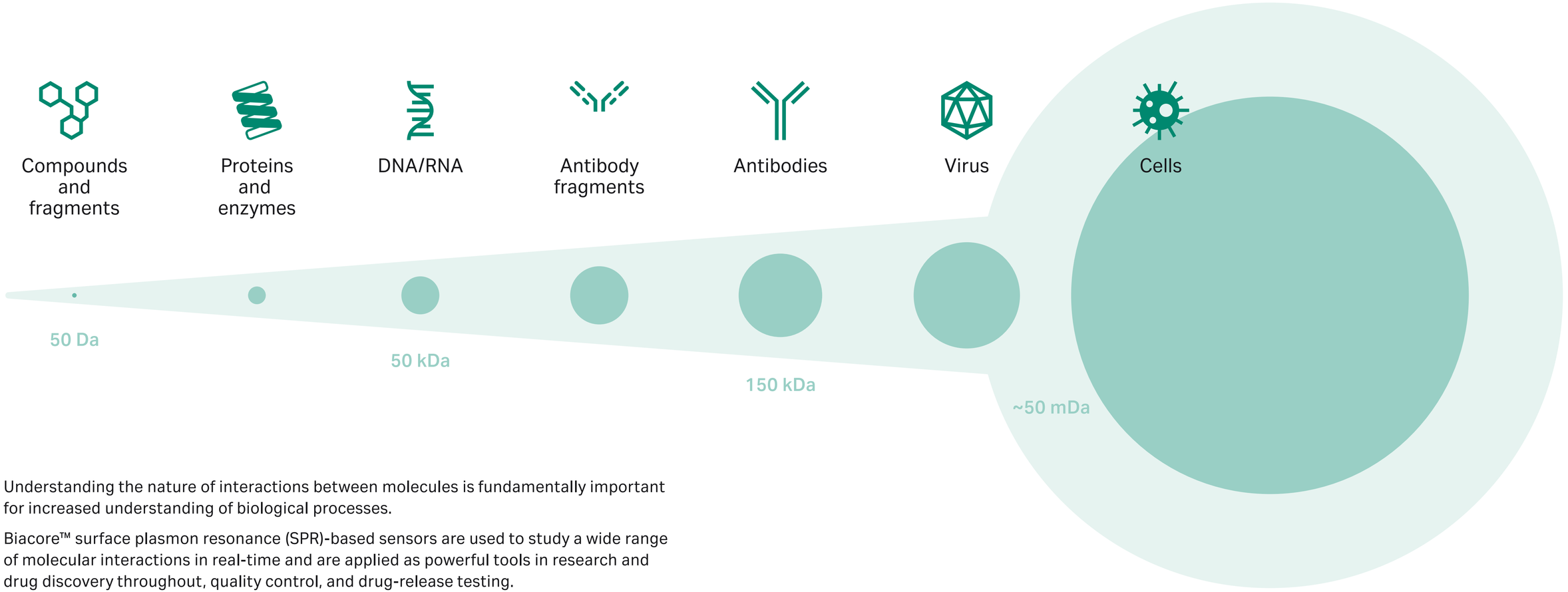
Biacore™ systems allow you to:

- Understand the relationship between molecule structure and function.
- Identify hits from screening campaigns and characterize leads
- Screen and characterize antibodies and proteins based on yes/no binding, affinity, and kinetics. From the fastest on-rates to the slowest off-rates.
- Quantify protein by measuring the concentration of active protein with retained biological function.
- Validate results from other techniques/approaches such as ELISA, HTS, or other orthogonal biophysical methods.

Biacore™ systems

Molecules	Methods	Fields
Antibodies and antibody variants	Affinity	Basic research
Proteins including multidomain proteins	Kinetics	Biotherapeutics discovery and development
Peptides	Screening	Small-molecule discovery
Compounds and fragments	Specificity	Biotherapeutics manufacturing and quality control
Nucleic acids	Concentration	Vaccine design and development
Viruses	Epitope binning	Diagnostic kit development
Aptamers	Immunogenicity	
G protein-coupled receptors (GPCRs)	Thermodynamics	
Membrane proteins	Competition assays	
	Potency	

Streamlined and high quality SPR data in key applications



Understanding the nature of interactions between molecules is fundamentally important for increased understanding of biological processes.

Biacore™ surface plasmon resonance (SPR)-based sensors are used to study a wide range of molecular interactions in real-time and are applied as powerful tools in research and drug discovery throughout, quality control, and drug-release testing.

From research to discovery, development and QC

Research

Characterization of molecular interactions — **Structural/functional studies**

Visualize and streamline your research

- Real-time label-free monitoring of binding events for better understanding of molecular interactions.
- Kinetics, affinity, transition state thermodynamics, and yes/no binding data help you validate your hypotheses, understand the mechanism of action, and make meaningful conclusions.

Drug discovery

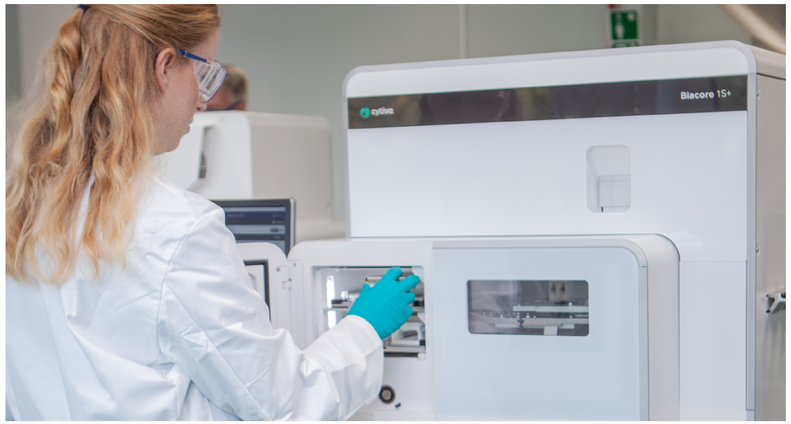
Screening — **Characterization** — **Lead optimization**

Compress and maximize your screening workflow

- Screen, select and optimize hits based on selectivity, yes/no binding, affinity, and kinetics.
- Design your drug candidates with desired target binding profile.

Drug development and manufacturing

Critical quality attributes (CQA) — **Potency** — **Concentration**



Challenge analytical complexity

- Fully characterize ligand-target binding for in-depth understanding of critical quality attributes (CQAs)
- Measure product concentrations using regulatory recommended SPR technology
- Analyze dual-target specificities of bispecific antibodies in a single assay setup.

SPR made simpler and faster

Cytiva has developed a range of tools designed specifically to make Biacore™ assays as easy and reliable as possible, suitable for users of all levels of experience. The complete toolbox is backed by stringent development, production methods and quality control. Several Biacore™ systems facilitates compliance with worldwide regulatory expectations by offering validation services, 21 CFR Part 11 functionality and electronic signatures.

Get started quickly at any experience level

Predefined methods with application relevant parameters, combined with an intuitive easy to use interface, empowers you to design your experiments quickly.

Biacore™ Insight Software is the complete instrument control and data evaluation software for Biacore™ 1 series and Biacore™ 8 series systems. Optimized solutions for common applications are offered via add-on software extensions and provide additional functionality and tools to further streamline your analysis and reduce time to results.

The modular design of the software allows you to maximize the application versatility of your Biacore™ systems, providing a scalable, easy to use, platform that grows with your evolving needs. Quality control tools help you to assess high-quality kinetic and affinity data for improved interpretation of results.

Our SPR machine learning software, Biacore Intelligent Analysis™, supports you to reduce the bottleneck even further and rapidly analyze large data sets.

Ready-to-go interaction analysis

Our capture kits significantly reduce assay development time, giving consistent capture of antibodies and molecules via the most common tags. Ready-made buffers and solutions are available for your convenience, ease of use, and to ensure reliable results.

Biacore™ sensor chips offer support for analysis of a wide range of interactions, backed up with a selection guide to help you select and use the right tools for the application.

Together in research

Biacore™ service and support

Cytiva is committed to supporting customers with innovative tools, analytics, and everyday lab reagents to uncover new insights in research or to discover, develop and manufacture drugs.

More than 60 000 scientific publications and still counting...

Thousands of Biacore™ systems are installed globally and more than 60 000 scientific articles have been published in peer-reviewed journals where Biacore™ systems have been featured for a wide range of applications.

Experienced application specialists and service experts

Our instrument service and application support are performed by specially trained service experts available close to you. They can help you to get the most out of your Biacore™ system for all applications and improve efficiency by minimizing your equipment system downtime. This allows you to focus on your work delivering reliable binding analysis results.

To learn more about assay setup and data interpretation, Cytiva offers a wide range of self-training tools, classroom trainings, handbooks, and lab protocols.

Join our family — Biacore™ community

All Biacore™ users are invited to share their experiences and learn more at regional user days. Developments in Protein Interaction Analysis (DiPIA) conferences and on LinkedIn, Biacore™ SPR community.

Join our family, share your experiences, and learn from peers in the field of label-free interaction analysis.

More choices for label-free interaction analysis

From research through drug discovery and development to QC. Choose the right system for your needs.

Biacore™ 8K+

Your discovery — accelerated. With maximized capacity.

16 flow-cell SPR system that efficiently delivers binding data with outstanding quality and maximized capacity, meeting your toughest challenges in screening, characterization, process optimization, and quality control.

Biacore™ 8K

Your discovery — accelerated.

16 flow-cell SPR system that efficiently delivers binding data with outstanding quality and high capacity, meeting your toughest challenges in screening, characterization, process optimization, and quality control.

Biacore™ 1S+

Your discoveries — elevated.

Six flow-cell SPR system with exceptional sensitivity, full flexibility, and high capacity for reproducible interaction analysis of most challenging targets or unstable binders with low response level.

Biacore™ 1K+

Your development — advanced.

Six flow-cell SPR system with full flexibility for assay design and high capacity for reproducible interaction analysis, with straightforward transfer of methods between systems.

Biacore™ 1K

Your research — streamlined.

Six flow-cell SPR system for robust, reproducible interaction analysis from day one with minimal effort. Affordable cost and reduced running expenses.

Biacore™ X100

Your research — boosted.

Two flow-cell SPR system for reliable insights into biological processes in multiuser environments.

cytiva.com/biacore

For local office contact information, visit cytiva.com/contact

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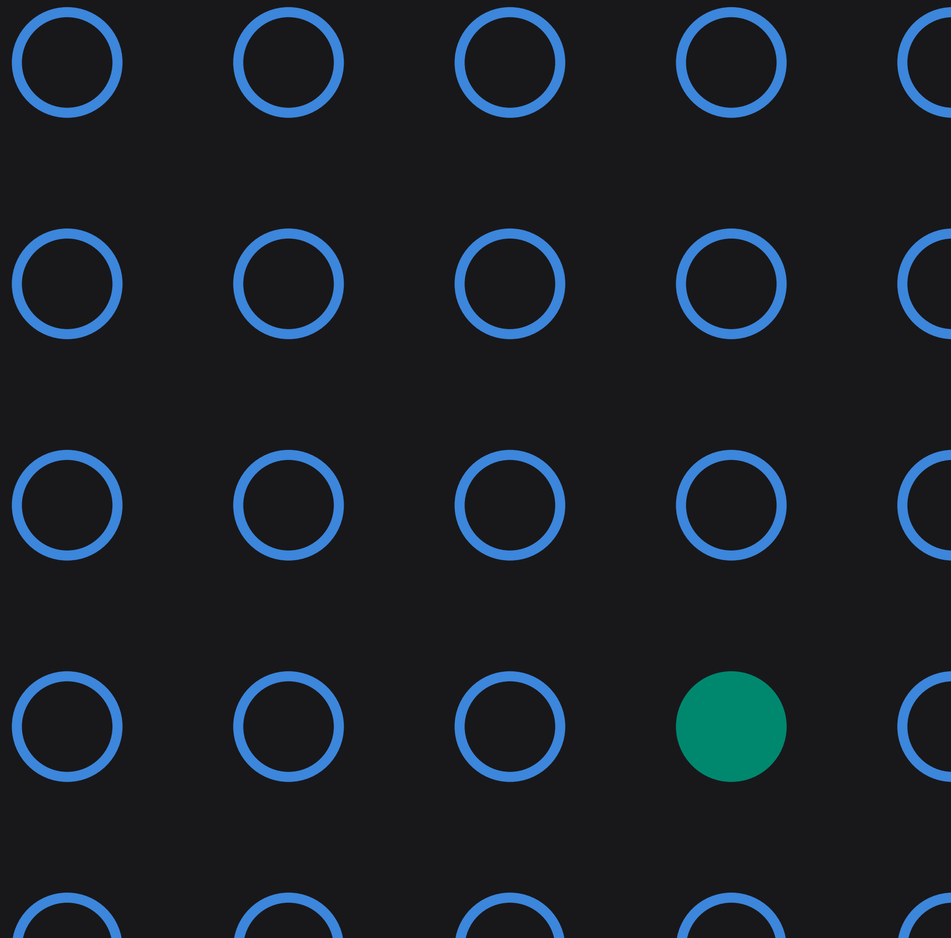

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