

Selection guide

Biacore™ systems



Biacore™ systems

Biacore™ systems are designed to provide valuable information and high-quality interaction data for a broad range of molecular entities and scaffold types, including (but not limited to) of small molecules and fragments, antibodies, multidomain proteins and viruses. The systems are used in a wide range of applications across a range of scientific fields including: basic biological research, drug discovery and development, immunogenicity studies, vaccine development, and quality control. Biacore™ systems allow you to:

- Understand the relationship between molecular interactions and function or to confirm and validate your results from other techniques
- Screen and characterize for hits and optimize leads based on selectivity, affinity, and kinetics
- Screen, identify and characterize antibodies and proteins based on yes/no binding, affinity, and kinetics from the fastest on-rates to the slowest off-rates
- Quantitate protein by measuring the concentration of active protein with retained biological function

Which system is right for you?



Applications	Biacore™ X100	Biacore™ 1 series	Biacore™ 8 series
Kinetics/affinity characterization	●	●	●
Kinetics/affinity screening	●	●	●
Biacore Single Cycle Kinetics (SCK)™	●	●	●
Parallel Kinetics™			●
2D Kinetics™			●
LMW interaction analysis	●	●	●
Fragment screening		●	●
Epitope binning	○	●	●
Immunogenicity	○	○	○
Concentration analysis	●	●	●
Calibration-free concentration analysis	●		
Parallel line analysis (PLA)		●	●
Buffer scouting using ABA command		●	●
Multi-complex analysis using Poly command		●	
GxP support		●	●
Built-in knowledge library	●		

● Application may be performed using the indicated product.
○ Application may be performed, but with limitations in software and/or hardware functionality.

Specifications*

	Biacore™ X100	Biacore™ 1K	Biacore™ 1K+	Biacore™ 1S+	Biacore™ 8K	Biacore™ 8K+
Association rate (k _a)	Proteins: up to 10 ⁸ M ⁻¹ s ⁻¹ LMW molecules: up to 10 ⁶ M ⁻¹ s ⁻¹	Proteins: up to 3 × 10 ⁹ M ⁻¹ s ⁻¹ LMW molecules: up to 5 × 10 ⁷ M ⁻¹ s ⁻¹			Proteins: up to 10 ⁹ M ⁻¹ s ⁻¹ LMW molecules: up to 10 ⁷ M ⁻¹ s ⁻¹	
Dissociation rate (k _d)	10 ⁻⁵ to 0.1 s ⁻¹	10 ⁻⁶ to 1 s ⁻¹		10 ⁻⁵ to 6 s ⁻¹	10 ⁻⁶ to 0.5 s ⁻¹	
Affinity range	pM to mM	fM to mM			fM to mM	
Concentration limit of detection (LOD)	10 pM	≥ 1 pM			≥ 1 pM	
Precision (concentration analysis)	< 5% CV	< 5% CV			< 5% CV	
Molecular weight limit	Mr > 100 Da	No lower limit for organic molecules			No lower limit for organic molecules	
Short term noise	< 0.1 RU (RMS)	Typically < 0.03 RU (RMS)		Typically < 0.01 RU (RMS)	Typically < 0.02 RU (RMS)	
Baseline drift	< 0.3 RU/min	Typically < 0.3 RU/min			Typically < 0.3 RU/min	
Blank subtracted drift	N/A†	<± 0.003 RU/min			<± 0.03 RU/min	
Sample consumption	Injection volume 2 to 100 µL plus 25 to 30 µL (application dependent)	Injection volume 1 to 400 µL plus 20 to 40 µL (application dependent)			Injection volume 1 to 200 µL plus 20 to 50 µL (application dependent)	
Immobilized molecule consumption	Typically 1 µg	0.03 to 3 µg/flow cell			Typically 0.03 to 3 µg/flow cell	
Analysis temperature	Ambient 4°C to 40°C‡	25°C to 37°C		4°C to 40°C (at least 20°C below ambient temperature)	4°C to 40°C (maximum 20°C below ambient temperature)	
Sample storage temperature	Ambient	4°C to 37°C (at least 18°C below ambient temperature)		4°C to 40°C (at least 18°C below ambient temperature)	4°C to 40°C (maximum 18°C below ambient temperature)	
Data collection rate	1 Hz	1 or 10 Hz		1, 10, or 40Hz	1 or 10 Hz	
Sample capacity	15 vials	1 × 96- or 384-well microplate, normal and deep-well 1 reagent rack with 21–43 positions compatible with 0.7–4.4 mL vials	2 × 96- or 384-well microplates, normal and deep-well 2 reagent racks with 21–43 positions compatible with 0.7–4.4 mL vials		4 × 96 or 384-well microplates normal and deep-well	12 × 96- or 384-well microplates normal and deep-well
Number of flow cells	2 in 1 channel	6 in 1 channel			16 in 8 channels	
Flow cell addressing	Single, pairwise	Single, pairwise	Single, pairwise, serial up to six		Single, pairwise	
Unattended run time	24 h	60 h	72 h		60 h	72 h
Buffer selector	No	No	Yes		Yes	
Method queue	No	Yes	Yes		Yes	
Software	Biacore™ X100 Control and Evaluation Software	Biacore™ Insight Software				
Software extensions	Biacore™ X100 Plus Package	Extended Screening Concentration and Potency Epitope Binning Data Integration GxP Biacore Intelligent Analysis™				
Dimensions (W × H × D)	596 × 563 × 593 mm	755 × 725 × 666 mm			902 × 875 × 616 mm	

* Specifications are representative values, which can vary dependent on experimental conditions and individual properties of ligand and analyte.
† Not determined on Biacore™ systems released before 2016.
‡ Biacore™ X100 Plus Package

Label-free interaction analysis — apply to your research, drug discovery and development, and QC

					
Biacore™ X100	Biacore™ 1K	Biacore™ 1K+	Biacore™ 1S+	Biacore™ 8K	Biacore™ 8K+
Your research — boosted.	Your research — streamlined.	Your development — advanced.	Your discoveries — elevated.	Your discovery — accelerated.	Your discovery — accelerated. With maximized capacity.
Robust two flow-cell SPR system for reliable insights into biological processes in multiuser environments. • One needle SPR system for small-scale interaction analysis. • Characterize molecular mechanisms and interaction pathways based on kinetics and affinity. • Gain increased understanding of structure-function relationships. • Determine the active concentration without the need for standard curves. • Guided workflows for novice users with easy access to a knowledge library.	Six flow-cell SPR system for robust, reproducible interaction analysis from day one with minimal effort. Affordable cost and reduced running expenses. • No programming skills needed to design, set up or start your assay. • Fast and flexible exploratory studies using Interactive run. Take full control of the instrument and make decisions based on your results. • The one needle SPR system with novel injection tool enables multicomplex analysis in one run. • Upgradable to Biacore™ 1K+ for higher capacity and increased analytical flexibility.	Six flow-cell SPR system with full flexibility for assay design and increased capacity for interaction analysis, with straightforward transfer of methods between systems. • Serial injection over all six flow cells reduces analyte consumption by up to 40% for a small antibody screen, compared to a 4 flow-cell SPR system. • The one needle SPR system tackles complex questions and samples. Queue up multiple methods, use buffer selector and the innovative sample injection tools to get quality data and results. • Simpler data interpretation: compile, visualize and export data with results in minutes. • Optimized for use in GxP regulated environment.	Six flow-cell SPR system with exceptional sensitivity, full flexibility, and high capacity for interaction analysis of most challenging targets or unstable binders with low response level. • The one needle SPR system with the highest sensitivity and data collection frequency allows you to better distinguish tight binders. • Broad analysis temperature range for expanded characterization and stability studies. • Increase operational efficiency, line up methods, utilize the sample capacity for unattended runtime of 72 h. • Optimized injection design reduces sample consumption by 13% compared to a typical kinetic experiment.	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. • High sample capacity of up to 4 × 384-well microplates. • 60 h unattended run time with queueing abilities and rapid multi-run evaluations; option for analysis in a GxP-regulated environment. • Eight needle SPR system for interaction analysis allowing ranking, kinetics, affinity, epitope binning, concentration, and relative potency. • Superb data quality while increasing your throughput 8 times vs one-needle SPR systems. • Parallel analysis enables rapid optimization of assay conditions and troubleshooting.	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. • Exceptional sample capacity of up to 12 × 384-well microplates. • 72 h unattended run time with queueing abilities and rapid multi-run evaluation; option for analysis in a GxP-regulated environment. • Eight needle SPR system for interaction analysis allowing ranking, kinetics, affinity, epitope binning, concentration, and relative potency. • Superb data quality while increasing your throughput 8 times vs one-needle SPR systems. • Parallel analysis enables rapid optimization of assay conditions and troubleshooting.

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CY15684-27Mar23-SG

