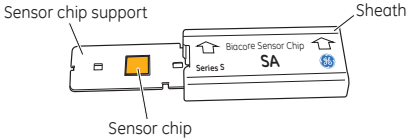
Series S Sensor Chip SA

Product description

Order code:	BR-1005-31 (package of three sensor chips) 29104992 (package of one sensor chip)
Storage:	The use-before date applies to chips stored at 2°C to 8°C in unopened pouches.



The sensor chip is fixed to a polystyrene support sheath. Each cassette, consisting of a sensor chip and sheath assembly, is individually packed under a nitrogen atmosphere in a sealed pouch.

Note: *For in vitro use only.*

Application areas

Series S Sensor Chip SA is designed to bind biotinylated molecules for interaction analysis in Biacore systems. The surface consists of a carboxymethylated dextran matrix pre-immobilized with streptavidin and ready for fast, high-affinity capture of biotinylated ligands, such as peptides, proteins and nucleic acids. Series S Sensor Chip SA provides a convenient alternative to covalent coupling for ligands that are difficult to immobilize directly or do not withstand covalent immobilization. Controlled biotinylation enables orientated capture.

Refer to www.gelifesciences.com/biacore for updates on applications and scientific publications.

Preparation of biotinylated ligand

Ligands may be biotinylated using a range of methods and reagents. In general, aim for a measured biotinylation level of 1 biotin residues per ligand molecule.

Refer to www.gelifesciences.com/biacore for recommendations for biotinylation procedures.

Preparations for use

Step	Action
1	If you are working in a humid environment, allow the sealed sensor chip pouch to equilibrate at room temperature for 15 to 30 minutes in order to prevent condensation on the chip surface.
2	Prepare the Biacore instrument with running buffer. The buffer should be filtered (0.22 µm), and degassed for systems that do not have an integrated buffer degasser.
3	Open the sensor chip pouch. Make sure that the sensor chip support remains fully inserted into the sheath at all times to protect the chip from dust particles.

Step	Action
4	Dock the sensor chip in the instrument as described in the instrument handbook. ***Note:*** *Sensor chips that are not docked in the instrument should be stored in closed containers.*

Immobilizing the ligand

General recommendations

Biotinylated ligand is immobilized on Series S Sensor Chip SA by non-covalent capture (binding to streptavidin). In systems with serial flow cells, it is important to avoid carry-over of biotinylated ligand from one immobilization to the other flow cells. Follow the guidelines below to minimize the risk for carry-over in such system.

Note: *This is not applicable for Biacore 4000, Biacore A100 and Biacore S51.*

- Clean the instrument with ***Desorb*** before docking the sensor chip, particularly after experiments using other biotinylated molecules.
- If possible, include detergent in the running buffer used for immobilization. HBS-EP+ (available from GE) is recommended as running buffer.
- Condition the sensor surface with three consecutive 1-minute injections of 1 M NaCl in 50 mM NaOH before ligand is immobilized.
- Include a wash using 50% isopropanol in 1 M NaCl and 50 mM NaOH after each ligand injection. This solution does not pass over the sensor surface. Prepare the wash solution by mixing equal volumes of isopropanol and 2 M NaCl in 100 mM NaOH, and use within a week.

Immobilization

Inject the biotinylated ligand. Ligand concentrations may be as low as in the pM range. Ligands usually bind rapidly to the streptavidin and equilibrium binding is achieved with short contact times, typically 1 minute. To control the immobilization level for ligands requiring short contact times, adjust the ligand concentration. Use a low flow rate to reduce consumption of ligand.

For PCR products, include NaCl at a concentration of 0.5 M or higher in the ligand buffer and use longer contact times, typically up to 30 minutes.

Blocking remaining streptavidin sites

Injection of reagent to block remaining streptavidin sites after ligand immobilization is recommended in Biacore A100 and Biacore 4000. Amino-PEO-biotin at 50 µM in running buffer is recommended as a blocking reagent. Unmodified biotin is not sufficiently soluble in aqueous buffers to provide satisfactory blocking conditions.

Injection of blocking reagent in systems with serial flow cells, is not recommended, since the blocking reagent may carry over to adjacent flow cells and reduce the ligand immobilization capacity.

Refer to *Biacore Sensor Surface Handbook* for more detailed information on immobilization strategies and procedures.

Interaction analysis

Interaction analysis is performed by injection of samples over the sensor chip surface. Analyte molecules in the injected sample bind directly to the captured ligand.

Refer to Biacore handbooks and www.gelifesciences.com/biacore for details on experimental protocols and methodology.

Regeneration

Regenerate the surface by removing the analyte from the captured ligand. Conditions should be chosen to achieve complete dissociation of the analyte without affecting the binding characteristics of the ligand. The surface of Series S Sensor Chip SA is resistant to a wide range of agents for this purpose (for more information see *Chemical resistance, on page 6*). The choice of regeneration procedure may be limited by the stability of the ligand.

Avoid using basic regeneration solution if possible. In some cases, exposure to basic conditions has been seen to cause leaching of the biotinylated ligand from the sensor surface with contamination of downstream flow cells as a result.

Refer to *Biacore Sensor Surface Handbook* for more detailed information on regeneration strategies.

Chemical resistance

The surface of Series S Sensor Chip SA is resistant to 1-minute pulses of many commonly used agents.

Agent	Concentration
Acetonitrile	30%
DMSO	10%
DTE	0.1 M
EDTA	0.35 M
Ethanol	70%
Ethanolamine	1 M
Ethylene glycol	100%
Formamide	40%
Formic acid	20%
Glycine pH 1.5 to 3.0	100 mM
HCl	100 mM
Imidazole	300 mM
$MgCl_2$	4 M
NaOH	100 mM
NaCl	5 M
SDS	0.5%
Surfactant P20	5%
Urea	8 M

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