

TECH GUIDE

STREPTAVIDIN SENSORS

Immobilization method:	Capture
Ligand Requirements:	Biotin Tag
Ligand orientation:	Oriented via tag
Recommended Coupling Kit:	None

Sensor Storage Buffer	PBS
Recommended storage	4°C
Shelf life	6 months

Overview

The Streptavidin Sensors have a uniform coating of streptavidin on their surface that provide a foundation for capture of biotin-tagged ligands. The biotin-tagged ligand can be directly bound to the surface without any surface activation (Figure 1). This sensor chemistry creates a strong, specific, stable bond that can be utilized with minimum preparation by the OpenSPR user.

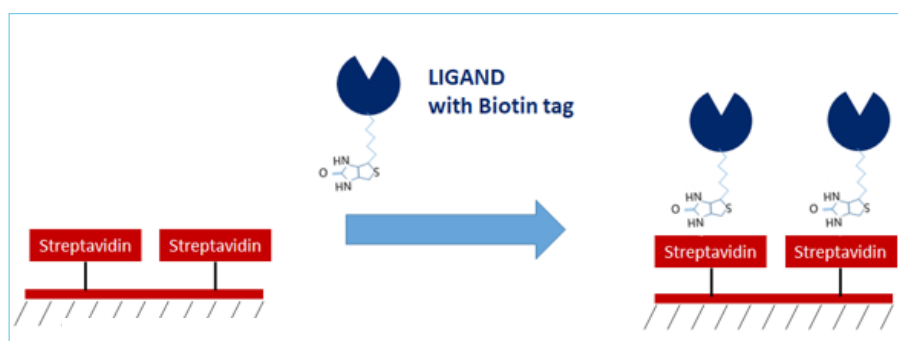


Figure 1. Capture coupling of biotinylated ligand onto a Streptavidin Sensor.

Materials and Reagents Required for Coupling:

- Streptavidin Sensor
- 10 mM HCl, pH 2-3

Injection Volumes

Minimum recommended injection volumes recommended for a 100 μ L sample loop:

OpenSPR Rev 4	150 μ L
OpenSPR-XT Rev 4	200 μ L
OpenSPR Rev 3	200 μ L
OpenSPR-XT Rev3	300 μ L

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Buffer Conditions

Conditions to avoid:

- Samples containing free biotin – e.g. insufficiently purified samples

Ligand Removal

Removal of a ligand coupled to a Streptavidin Sensor surface is not possible.

Referencing

For the 2-Channel OpenSPR, it is recommended to immobilize the ligand in channel 2 only and use channel 1 as the reference channel without any ligand. As an alternative, a negative control biotin-tagged protein or biocytin can be bound to the reference sensor surface in channel 1. For a non-specific binding experiment using the 1-Channel OpenSPR, the sensor surface should have no ligand immobilized, or blocked with a negative control protein or biocytin. Next, inject an analyte at the highest concentration to be used for the experiment for evaluation of non-specific binding.

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COUPLING PROCEDURE

1. Surface Conditioning

Perform an injection of 10 mM HCl (pH 2–3) to clean the sensor surface.

CH	Flow Rate
1+2	150 μ L/min

2. Ligand Immobilization

Dilute the biotin-tagged ligand into the running buffer to a concentration of 1–50 μ g/mL. Inject the ligand into the instrument immediately following dilution (5-minute interaction time).

CH	Flow Rate
2	20 μ L/min

Evaluation

The amount of ligand binding is calculated by comparing the signal of the streptavidin sensor chip before and after the ligand immobilization step. In the example shown in *Figure 2*, it is approximately 800 RU. Ensure this meets your minimum ligand immobilization target.

If your immobilization target is not reached, repeat another ligand immobilization injection, or consider optimization of this step.

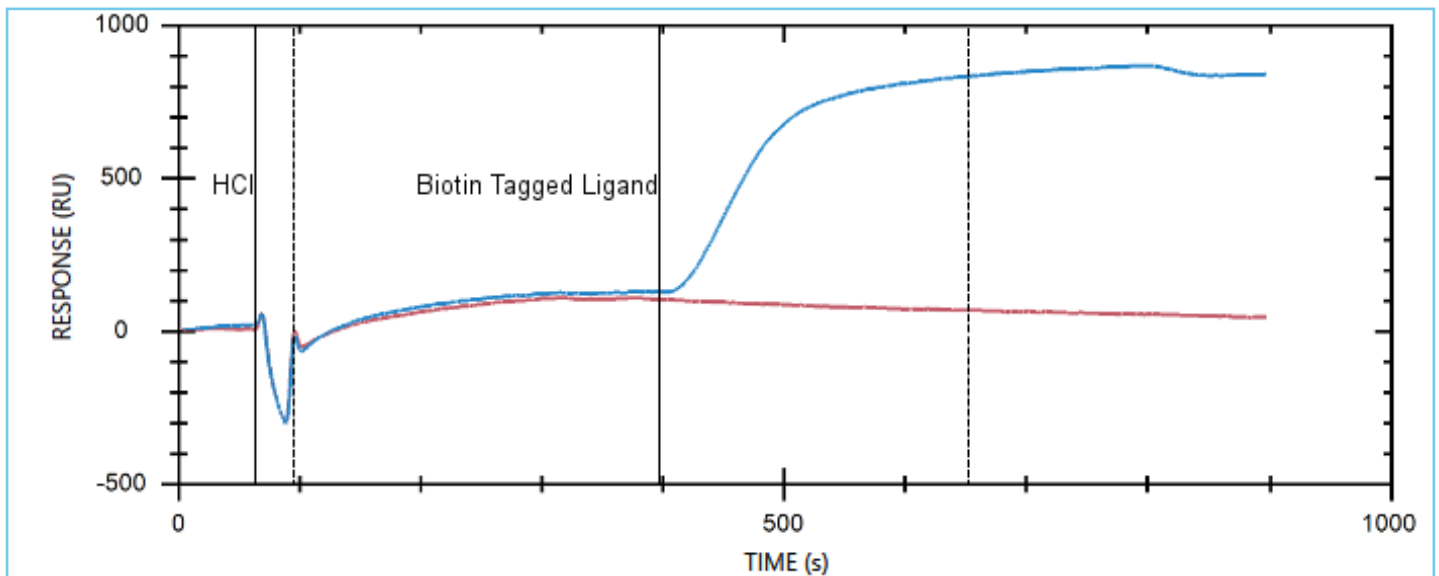


Figure 2. Example of a Streptavidin Sensor biotin-tagged protein immobilization on the OpenSPR 2-channel system (red: Channel 1, blue: Channel 2)

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