

# Biotin Sensors

## Tech Guide

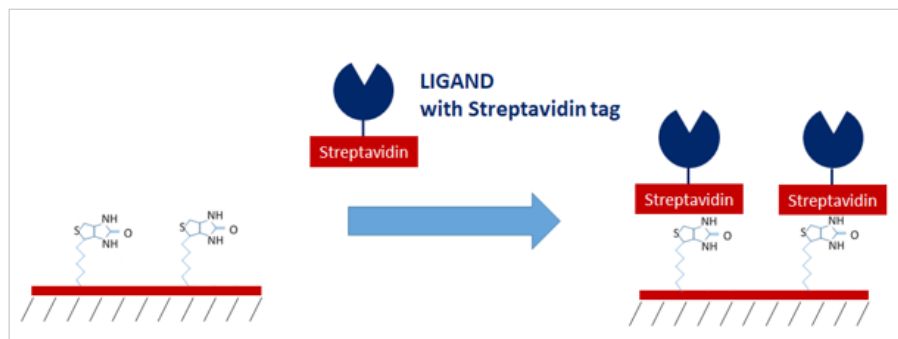


<b>Immobilization method:</b>	Capture
<b>Ligand Requirements:</b>	Streptavidin tag
<b>Ligand orientation:</b>	Oriented via tag

<b>Sensor storage buffer</b>	PBS
<b>Recommended storage</b>	4°C
<b>Shelf life</b>	6 months

## Overview

The Biotin Sensors have a uniform layer of biotin groups on their surface, providing a foundation to capture streptavidin-tagged ligands. These chips create a strong, specific, stable bond that can be utilized with minimum preparation by the OpenSPR user. The streptavidin-tagged ligand can be directly bound to the biotin sensor surface (Figure 1).



**Figure 1.** Capture coupling of streptavidin-tagged ligand onto a Biotin Sensor.

## Materials and Reagents Required for Coupling:

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

## Injection Volumes

Minimum recommended injection volumes for a 100  $\mu$ L sample loop:

<b>OpenSPR Rev 4</b>	150 $\mu$ L
<b>OpenSPR-XT Rev 4</b>	200 $\mu$ L
<b>OpenSPR Rev 3</b>	200 $\mu$ L
<b>OpenSPR-XT Rev3</b>	300 $\mu$ L

## Buffer Conditions

### Conditions to avoid:

- Samples containing free streptavidin - e.g. insufficiently purified samples

## Ligand Removal

Removal of a ligand captured to a Biotin 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 alternatives, a negative control streptavidin-tagged protein or streptavidin itself 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 a negative control protein or streptavidin immobilized to the sensor surface, then inject an analyte at the highest concentration to be used for the experiment for evaluation of non-specific binding.

# 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 $\mu$ L/min

## 2. Ligand Immobilization

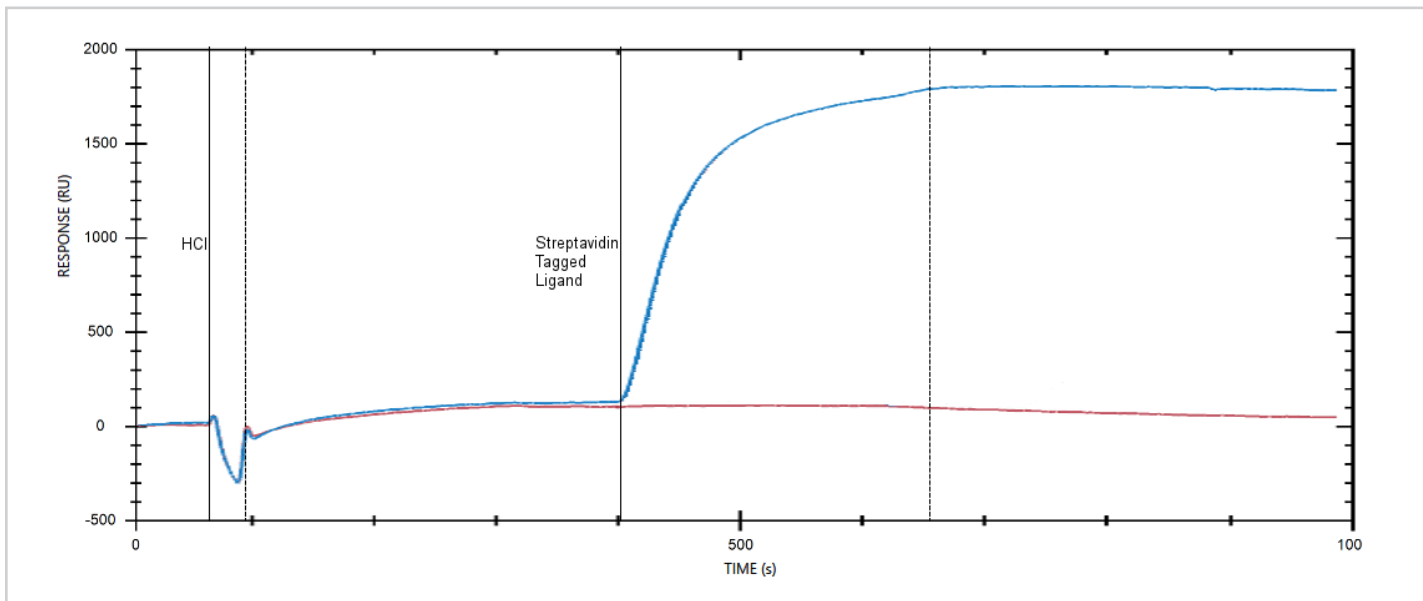
Dilute the streptavidin-tagged ligand into the running buffer to a concentration of 1-50  $\mu$ g/mL. Inject the ligand into the instrument (5-minute interaction time).

CH	Flow Rate
2	20 $\mu$ L/min

## Evaluation

The amount of ligand binding is calculated by comparing the signal after the streptavidin binding signal to the signal after the ligand immobilization step. In the example shown in *Figure 2*, it is approximately 1650 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 response graph coupling a streptavidin-tagged ligand onto a Biotin Sensor on the OpenSPR 2 channel system (red: Channel 1, blue: Channel 2).

Have Questions? Contact a Customer Success Scientist:

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