

# Small Molecule, Antibody, and Protein (SMAP)

Catalog No. 160011

## OVERVIEW

Gator™ Small Molecule, Antibody, and Protein (SMAP) Biosensors are useful for the study and determination of small molecule binding kinetics. The proprietary surface chemistry allows for high capacity immobilization of biotinylated proteins (recommended molar coupling ratio of less than three) or proteins expressed with an AviTag™ for a wide range of molecular weights. Following immobilization, the ability of the biotinylated protein of interest to bind to small molecules can be measured to determine the  $k_{on}$ ,  $k_{off}$ , and  $K_D$  of interaction.

## MATERIALS REQUIRED

SMAP Biosensor	Catalog No. 160011
Max Plate	Catalog No. 130062
Black Plate	Greiner 655209
Quantitation (Q) Buffer	Catalog No. 120019

## STORAGE

Store at room temperature in the foil pouch, ensuring zipper is fully sealed to avoid humidity/ moisture contamination. In high-humidity environments, storage inside a dry cabinet is recommended.

## GENERAL APPLICATIONS

Kinetic studies of protein-small molecule binding interaction and protein-peptide binding interaction

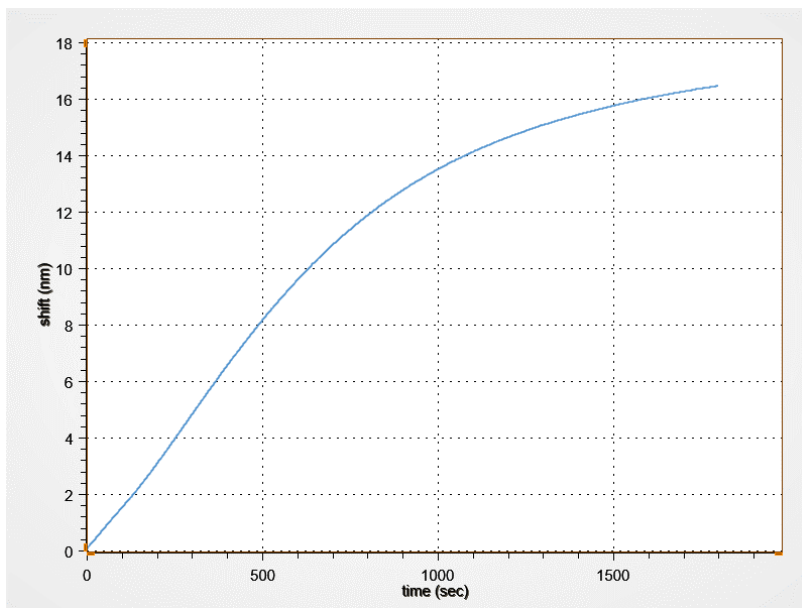
## GENERAL METHODS

### Sample Volume

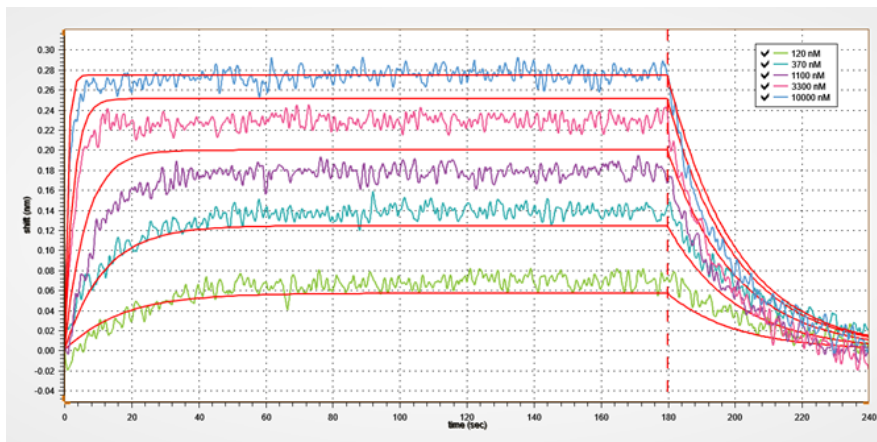
Black Plate: 200  $\mu$ L (180  $\mu$ L minimum)  
Max Plate: 280  $\mu$ L (250  $\mu$ L maximum)

### Pre-wet Conditions

250  $\mu$ L assay buffer in Max Plate, 10 min at 1000 rpm



**Figure 1:** High capacity loading of biotinylated bovine carbonic anhydrase II (10  $\mu$ g/mL in Q Buffer) on to SMAP biosensor for 30 min at 400 rpm.



**Figure 2:** Following a 10 min 1000 rpm pre-wet in PBS with 0.05% DMSO, biotinylated bovine carbonic anhydrase II loaded SMAP biosensors were exposed to furosemide (MW 330 Da) over a range of concentrations (0.12 to 10  $\mu$ M in PBS with 0.05% DMSO) for 5 rounds of association and dissociation. Global-fit analysis using Gator™ software for furosemide binding interaction with bovine carbonic anhydrase II.  $K_D = 485$  nM ( $R^2 = 0.98$ )