Tech Note / September 12, 2015

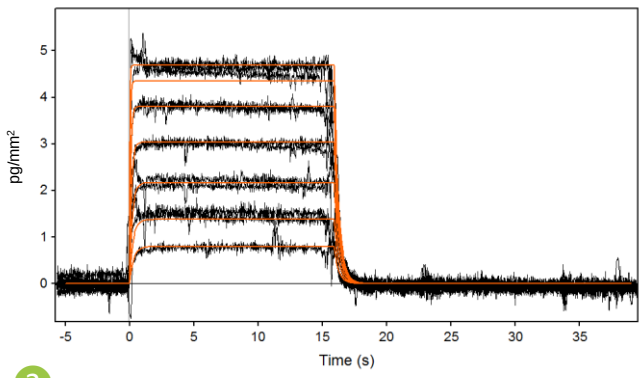
Fast Off-Rates

Creoptix™ WAVE

Summary

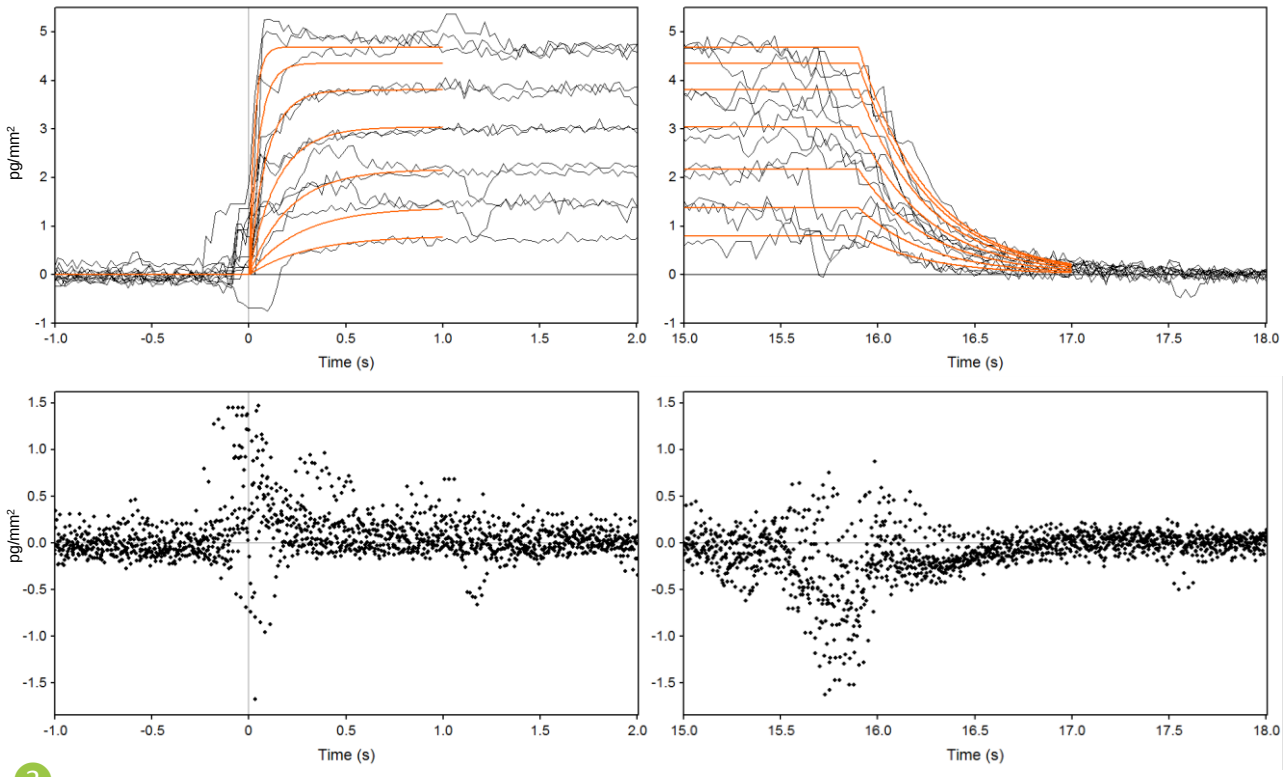
Weak binders such as those found in fragment-based screening are typically ranked by affinity rather than kinetics due to their very fast off-rates which can not be resolved by standard instrumentation. Here we show that the **Creoptix™ WAVE** system provides such an outstanding resolution that very fast kinetics can be reliably resolved even at off-rates of 3 s^{-1}. This enables early stage selection of true positive hits in the fragment-based screening workflow, thereby higher efficiency and saving costs and time efforts.

1



Legend: (1) Sensorgram of methylsulfonamide (95.1 Da) binding to Carbonic Anhydrase II (29 kDa) immobilized by amine-coupling on a WAVEchip PCH at 8'500 pg/mm² on flow cell 1. Flow rate 200µl/min at 40Hz acquisition rate, double referenced without bulk RI fitting. (2) Zoom into flow cell 1-2 difference signal of association (left) and dissociation (right) with the respective residual distribution plot below showing the high and clear resolution of the kinetics. (3) Kinetic data compared to published data in Myszka, David G. "Analysis of small-molecule interactions using Biacore S51 technology." Analytical biochemistry 329.2 (2004): 316-323.

2



3

Creoptix™ WAVE			Biacore™ S51		
k_{on} ($M^{-1}s^{-1}$)	k_{off} (s^{-1})	K_D (µM)	k_{on} ($M^{-1}s^{-1}$)	k_{off} (s^{-1})	K_D (µM)
6.64(1) x 10^3	2.79(1)	419.6(9)	8.05(6) x 10^3	2,21(2)	274(3)