FOx BIOSYSTEMS
Breaking limits in bioanalysis

APP NOTE

How to select your best performing single domain antibodies

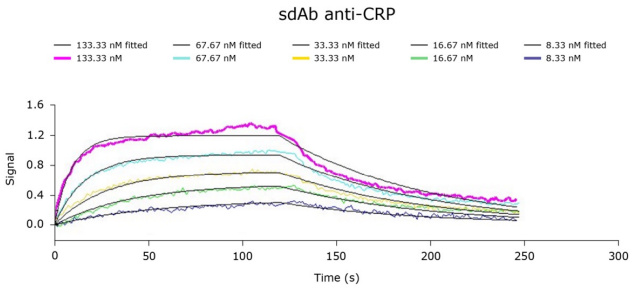
A fast, dip-in assay can provide comprehensive kinetic analysis to determine the most appropriate binding proteins

Single domain antibodies (sdAbs) have an improved capacity to penetrate tissues, making them powerful alternatives to conventional antibodies in therapeutics and diagnostics. Although these may prove to be better binders overall, in order to correctly choose the binder suited to your needs, accurate kinetic information must be obtained through screening.

WHITE FOx can provide the crucial kinetic information that is missing from other assays such as ELISA. WHITE FOx's dip-in sensors can be used to determine the best binder of a biomarker through kinetic analysis of binding to a marker (for example, C-reactive protein).

Highlights

- Label-free kinetic characterization.
- **Provides mechanistic insights of kinetics:** individual determination of k_{on}, k_{off} and k_D.
- **Easy-to-use protocols and minimal processing.**
- Provides insights **missed by traditional assays.**
- **Excellent reproducibility.** similar results in independent experiments.
- Can help identify the **best binders for a target or marker.**

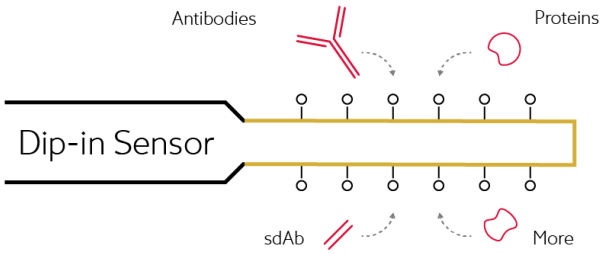


Kinetic profiles of sdAb binding to immobilized CRP protein, showing K_{on} of $7.2x10^{5}$ $(Ms)^{-1}$ and K_{off} of $1.3x10^{-2}$ $(s)^{-1}$ for a KD of $1.76x10^{-8}$ M. Test conditions not optimized.

Conclusion

An important factor in the development of sdAbs is screening the libraries to select the best binders. WHITE FOx can create precise kinetic profiles in a fast and easy setup to help choose and validate the best binders for specific biomarkers or targets.

FOx BIOSYSTEMS has developed a convenient dip-in probe configuration to study interactions between biomolecules. WHITE FOx can accurately quantify biomolecules and measure their kinetic interactions directly in complex media, something that traditional fluidics-based systems struggle to do without extensive sample processing.



The advantages of WHITE FOx:

- **Fast:** sample to result in as little as 10 minutes*
- **Accurate:** highly comparable results with ELISA, the current routine method
- **Relevant concentration range:** quantification at typical bioreactor concentrations
- **No fluidics**
    - Minimal sample processing
    - Greatly reduced cross-contamination
- **Flexible:** sensor probes available with common surface chemistries to bind a variety of biologicals.

*when using pre-functionalized probes

Contact us

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www.foxbiosystems.com

For more details, read our white paper
"Affinity determination of single domain antibodies
for detection of biomarkers."