

Can you get immediate kinetic characterization from phage display clones?

More efficient biotherapeutic discovery and screening using a fast, dip-in assay

WHITE FOx can measure the kinetics of phage clones to provide insights into their affinity and avidity, providing a more informed selection of strong versus weak or fast versus slow binders in a variety of viral expression systems.

As an example, WHITE FOx's dip-in sensors were used to characterize the real-time binding kinetics of M13 phage with selective affinity for lactoferrin.

Highlights

- Phage were selected following 3 cycles of biopanning.
- Label-free kinetic characterization direct on monoclonal phage.
- Wide range of affinity from nanomolar to picomolar.
- Individual determination of $k_{\text{on}},\,k_{\text{off}}\,\text{and}\,k_{\text{D}}.$
- Fast analysis cycles in approx. 30 minutes from sampling.
- Distinguish between strong and weak binders.
- Distinguishes binding affinity that end-point-based ELISA could miss.



Kinetic affinity analysis of clones selected from biopanning. Low-affinity clones showed nanomolar K_D values, (not shown) whereas high-affinity clones showed picomolar K_D values.

Conclusion

WHITE FOx can distinguish binding affinities of expressed binding proteins with minimal processing. It can be used to provide real-time kinetic profiles of various phage clones, helping to determine the most appropriate phage during selection.



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

