Fidabio

IN-SOLUTION KINETICS

No immobilisation

No restrictions

The kinetics of which drugs interact with their target molecules significantly influence the stability and functional efficacy of the drug-target complex. Conventionally, these parameters were assessed by immobilising one binding partner on a surface and monitoring the association of the other, typically inferred through a change in mass. Non-specific binding, need for surface regeneration, environmental constraints and method complexity are some of the multiple drawbacks of this approach. Luckily, a novel FIDA approach brings a breakthrough for measuring binding kinetics in solution.

FIDA is a first-principle, in-solution method, that can efficiently measure kinetic parameters without the need for surface immobilisation.

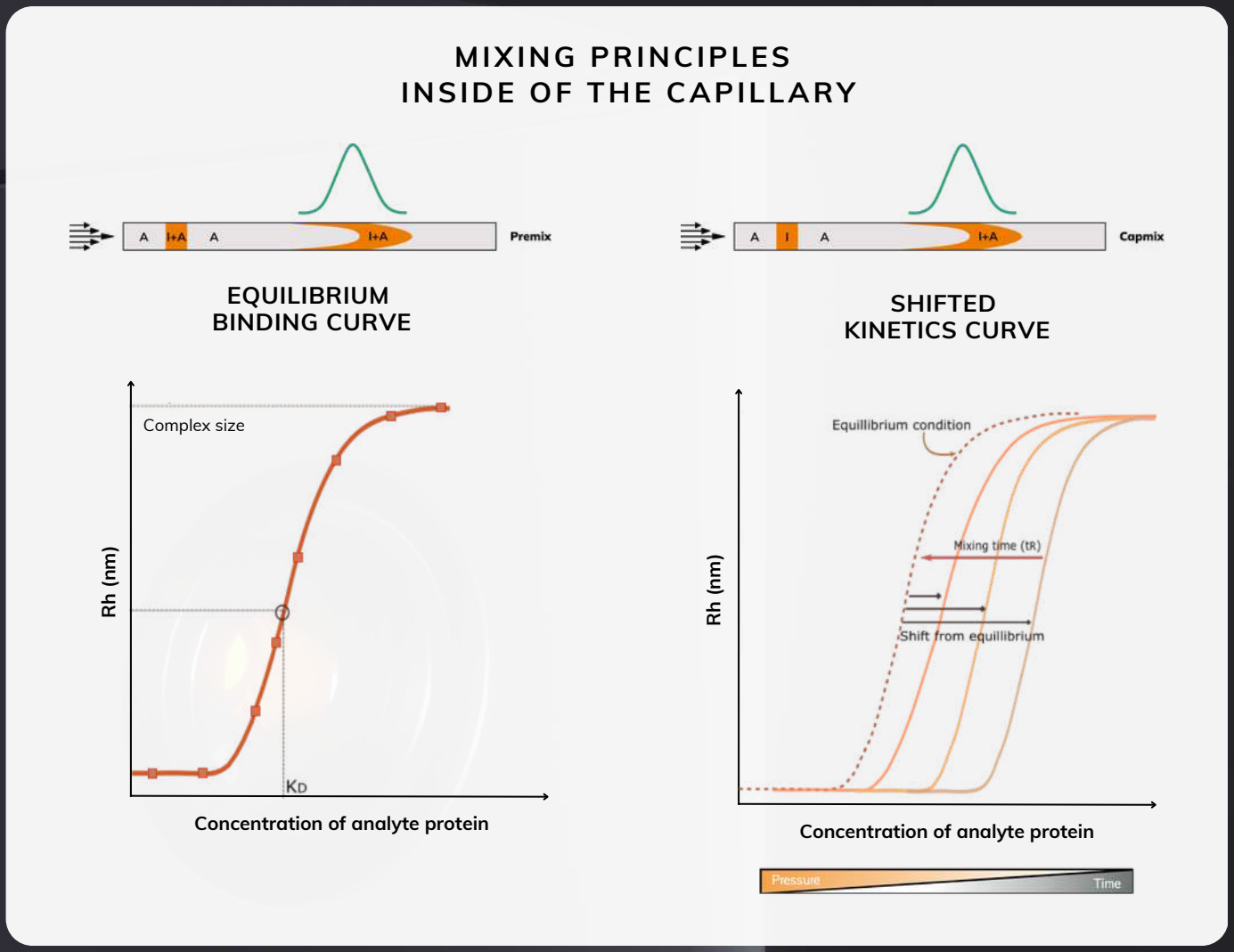
The method utilises Taylor Dispersion Analysis (TDA) in a micron scale wide capillary—affording precise control over reaction times through the manipulation of in-capillary sample mobilisation (see Figure 1 on page 2). The development of assays is streamlined, rapid, and requires no calibration or surface regeneration. Moreover, it offers the flexibility to operate within complex matrices such as crude media, cell lysates, or modified buffers using only nano- to microliter sample volumes.

Technological Novelty

HOW DOES FIDA WORK

IN-SOLUTION KINETICS

The figure below presents equilibrium binding curves and kinetic binding curves.
The top figure describes the mixing principles inside the capillary while the bottom figure describes the equilibrium binding curves and the shifted kinetics curve. The samples already prepared for the equilibrium affinity determination can be reused to measure the kinetics binding curve, minimising sample consumption.



Note that You can use Fida Neo for more than just kinetics.
We made it possible to answer all biophysics questions with one technology:

Affinity (K_D)
Kinetics (k_{on} & k_{off})
Quantity & Quality
Size (R_h & PDI)

Benefits of in-solution kinetics

Quality Control Included

How can FIDA impact your work?

No environmental restrictions

Seamlessly operate in **complex matrices including fermentation media, plasma or serum.** Avoid unnecessary purification.

Avoid non-specific binding

No steric hindrance to high density immobilised ligands
No non-specific binding issues
No risk of re-binding

No restrictions on detergents, ionic strengths, temperature, pH etc.

Minimise assay development time
Expand the scope of biological systems you can characterise
Increase environmental relevance

No need for regeneration

With FIDA there is no surface chemistry involved.
Eliminate the risk of denaturing immobilised protein
Rapidly determine slow off rates for high affinity interactions

Detect Strong & Weak Binders

FIDA is capable of measuring kinetics of both strong and weak interactions in-solution.

Retrospectively, it is evident how many great discoveries in science were heavily dependent on the development of new technologies - do not let technological constraints keep you away from your next discovery.

Fida Neo - No restrictions.

FIDA NEO

Free Yourself

No immobilisation

In-solution nature of FIDA allows for access to all binding sites - no more non-specific binding issues.

No constraints

Crude or purified samples. Any pH, ionic strength, temperature, detergents or buffers.

No regeneration

Eliminates risk of denaturing immobilised protein. Allows for fast determination of slow off rates for high affinity interactions.

Stay in control

Flexible Assay Design

Adjust interaction times for k_{on} / k_{off} measurements; modulate mixing time through in-capillary sample mobilisation.

Embedded Quality Control Reporting

Full transparency of sample material quality thanks to embedded Quality Control Module & Reporting Tool.

Detect Strong & Weak Binders:

Capable of measuring kinetics of both strong and weak interactions in-solution.

Boost efficiency

Small sample volumes

With as little as 4 µL analyte with fixed 40 nL indicator. Save material & effort.

No time wasted

Run 4 minute long assays & take informed decisions thanks to high data transparency.

Label-free or labelled

Have an option of switching detectors while using a single base instrument.

No expert user requirements

With just a few hours of training all scientists can run FIDA experiments.

Learn more

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