Monolith X

The only way to get binding affinities in solution using very minimal sample

Many great ways to use Monolith X

Use as your trusted orthogonal tool to validate binding results.

Get a K_d in challenging situations that SPR can't handle.

Since Monolith X has ultra-low sample consumption, and works great for countless molecules and buffers, you'll able to tackle the wide variety of projects that come your way.

Validate your SPR results with an immobilization-free method

It’s common practice to validate your results with more than one technique because you want to be confident that the result is real.

Monolith X, with its immobilization-free measurement, is the perfect orthogonal tool for SPR users. It removes the immobilization bias and helps to confirm your results, identify false positives, or find binding partners your primary assay missed.

Work with challenging interactions that are difficult for SPR

For one reason or another, SPR has a difficult time analyzing challenging binding events no matter how many times you've tried to develop an assay. When you find yourself in these situations, turn to Monolith X to help.

Challenge
Immobilization prevents you from getting a K_d

Solution
With measurements in solution, you'll get a K_d for IDPs, membrane proteins, and other challenging molecules.

Challenge
You experience non-specific binding between the analyte and matrix

Solution
You'll never have to worry about or test for non-specific binding since measurements are done in solution.

Challenge
It's impossible to regenerate biosensors when working with covalent analytes

Solution
Each measurement is done in solution so it's easy to measure covalent interactions. There's no need to figure out how to regenerate the surface like with SPR.

Use a versatile tool to tackle a wide variety of projects

Rely on Monolith X's versatile capabilities to execute immobilization-free experiments quickly and efficiently. Tackle projects that involve almost any molecule or buffer composition, all while consuming only a small amount of sample.

- **Get binding affinity data for almost any type of molecule**
  Work with almost any molecule including IDPs, membrane proteins, large protein complexes, PROTACS, small molecules or ions.

- **Capture mass and size-independent measurements**
  Evaluate results independently of size and mass differences in binding partners.

- **Get more than just a K_d**
  Study binding stoichiometry* and thermodynamic parameters*, assess relative affinities with competition assays, and characterize binding cooperativity*.

  *Requires offline data handling, not supported by Monolith software

Monolith X gives you results from less than perfect samples, is maintenance-free, and doesn't require experience to operate

Finally work with little to no assay development

Enjoy high-quality results without spending your time on assay development and finally stop worrying about sample aggregation or impurities.

Forget about complicated maintenance protocols

Life is so much easier when fluidics aren't involved. Monolith X doesn't require cleaning or flushing in between runs so it's ready whenever you're ready.

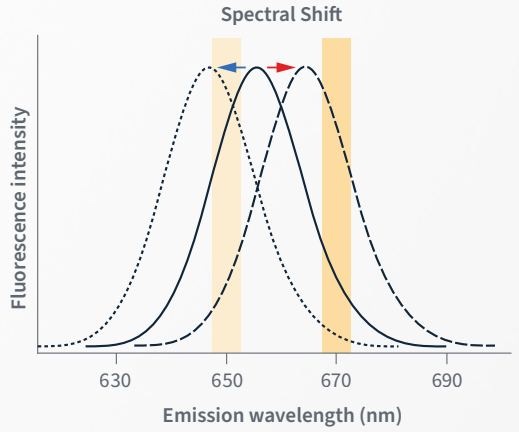
Anyone in your lab can operate it

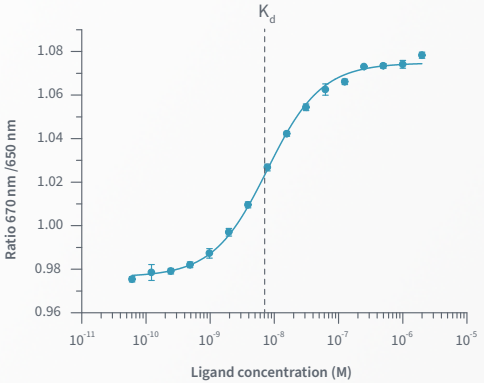
Get up and running in no time with Monolith X. The software takes you through step-by-step instructions on how to prepare and run your assay — you don't need extensive experience to run it.

Use Spectral Shift Technology to evaluate interactions

Monolith X uses Spectral Shift Technology to quantify molecular interactions between a target and ligand. When the target is labeled with a fluorophore, it gives a particular emission spectrum. If a ligand binds, the fluorophore's chemical environment is changed, causing a blue-shift or red-shift or broadening of the emission peak (top).

Fluorescence is recorded and a 670nm/650nm ratio is calculated and plotted against the ligand concentration (bottom). This ratiometric measurement is used to derive the affinity constant (K_d) which is automatically determined at the end of each run without additional and lengthy data analysis.





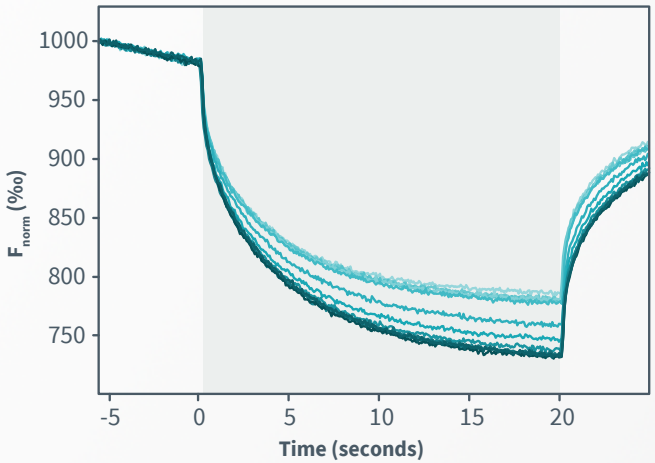
Use MST Technology to understand aggregation

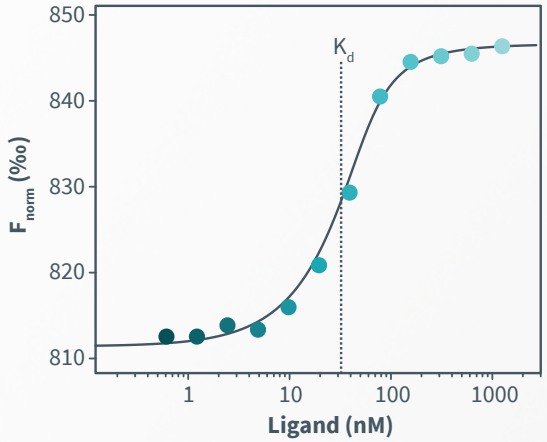
MST is sensitive to the presence of aggregates in your sample and it provides a way to gain insights beyond a K_d.

With MST and Spectral Shift in the same instrument, you have two modalities that complement each other so that you can get further insights about your interactions.

To quantify molecular interactions with MST, you start by labeling your target molecule with a fluorescent dye and mixing it with your ligand. Then, a very precise and brief laser-induced temperature change is applied, which amplifies the variation in fluorescence intensity caused by the ligand binding to your target (top figure).

The K_d is calculated by plotting the change in fluorescence against the ligand concentration (bottom figure)

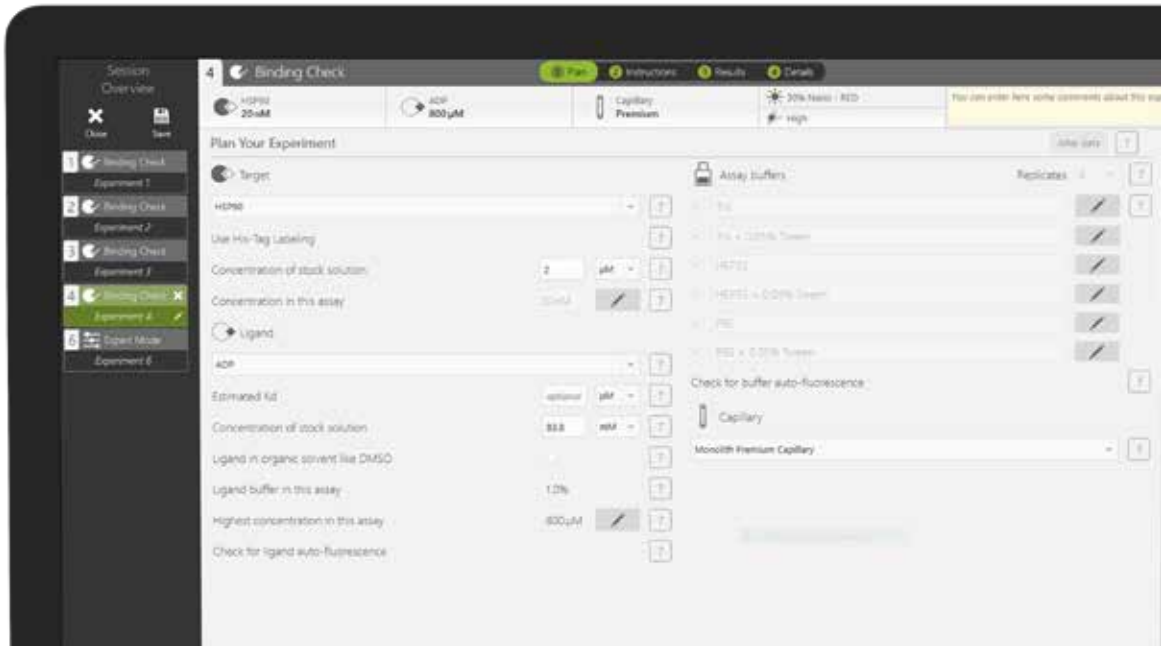




Feel confident your experiments will run smoothly with software that's smart

MO.Control 2

Most software begins with loading a sample and starting the measurement. Monolith's MO.Control 2 is built differently — not only does it provide step-by-step experimental planning and assay setup guidelines, but it also provides immediate feedback on assay optimization based on the results. In addition, data sets can be merged and grouped for comparison purposes, and the results are reported with presentation-worthy data and publication-ready figures.



Get great results with tailor-made consumables

Monolith capillaries and capillary chips are made with care — they're manufactured in a state-of-the-art facility and are rigorously tested.

Pair the capillaries with one of the Monolith Protein Labeling Kits to get the highest quality data and ultimately, the best outcome.

Specifications because well, everyone asks for them

Time it takes to get a K_d	10 minutes (Spectral Shift + MST) 90 seconds (Spectral Shift)
Dynamic range	nM to mM
Detected molecule range	10^1-10^7 Daltons
Minimum sample volume measured	10 µL
Samples per run	Up to 24
Temperature control	20-40 °C +/- 0.5 °C (actively controlled)
Fluorescent channels	1 (RED)
Dimensions	36 cm W x 40 cm H x 58 cm D (71 cm D with drawer open)
Weight	27 kg











nanotempertech.com

BR-MOX-092022