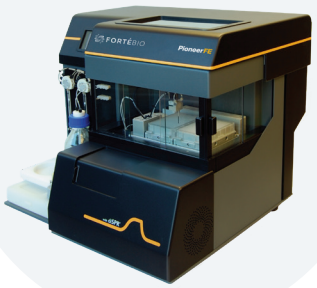
FORTÉBIO



# OneStep Injection technology – revolutionizing SPR-based screening and characterization

*Identify hits faster, obtain more information-rich data, and eliminate sample dilutions*

Exclusively available on ForteBio Pioneer SPR systems, our ground-breaking OneStep technology is changing the paradigm for fragment screeners by leap-frogging the first three steps in a traditional SPR fragment screen.

OneStep provides the information content equivalent to the first three steps in a traditional SPR fragment screen using a single injection per fragment.

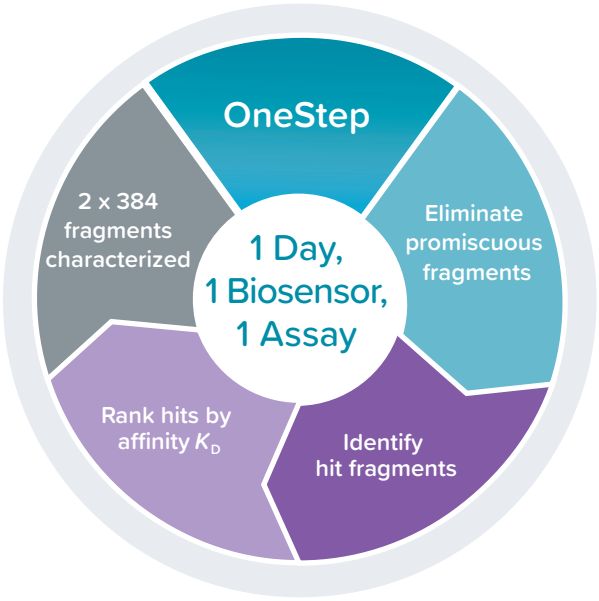
Dramatically simplify and accelerate your discovery workflow:

- No sample dilutions for multi-concentration analysis
- No clean screen
- Single assay for hit identification *and* characterization ($K_D$)
- Use only a single copy of your fragment library
- Use as little as 20 µg target protein

## How it works

OneStep technology is based on the well-established concept of Taylor dispersion. Pioneer instruments precisely deliver the fragment sample to the SPR flow cell in a continuous concentration gradient using an innovative sample dispersion and delivery system. The OneStep gradient covers a wide range of analyte concentrations, eliminating the need to run multiple dilutions of sample.

Our carefully developed data analysis algorithms incorporate analyte diffusion coefficient along with standard kinetic modeling parameters to provide full kinetic and affinity characterization from a single data-rich curve obtained via the gradient injection.




Want to learn more about next-gen SPR screens on Pioneer systems? Visit www.fortebio.com or email fortebio_sales@moldev.com.

| | OneStep | Traditional SPR |
|---|---|---|
| Identify promiscuous fragments<br>Identify hit fragments<br>Rank hits by affinity $K_D$ | 12 hrs | 6 hrs - Clean screen<br>15 hrs - Primary screen<br>11 hrs - Affinity screen |
| Screens needed | 1 | 3 |
| Biosensors used | 1 | 2 |
| Sample plates used | 1 | 3 |
| Total run time | 12 hrs | 32 hrs |
| Total days | 1 | 3 |

Table 1: Time and process comparison for screening one plate of samples using OneStep versus the traditional SPR workflow. Pioneer systems can accomodate two 384-well plates of samples in a single automated run.

For example, Figure 2 shows binding response of five different fragments using OneStep injections. Over the course of the injection, sample dispersion delivers a complete concentration gradient of analyte to the SPR flow cell (Figure 1), so that both time-resolved and concentration-resolved binding are captured.

Analyte diffusion coefficient can then be applied to get accurate concentration as a function of time – enabling easy differentiation of hit, promiscuous and nonbinding fragments (Figure 3) and determination of affinity and kinetic constants.

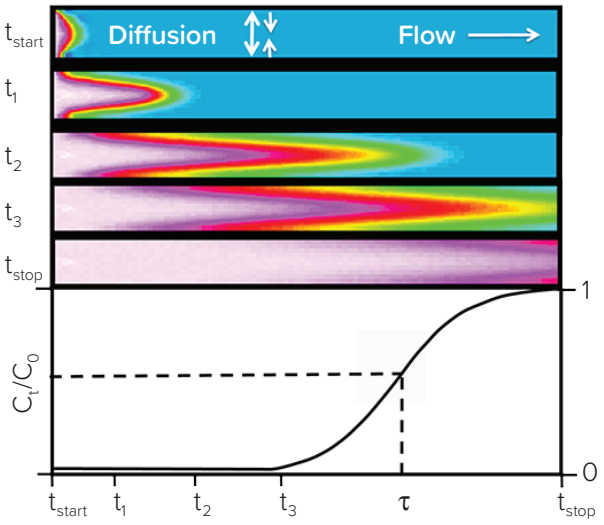



Figure 1: OneStep gradient formation in the Pioneer capillary line (top) and analyte concentration measured at the SPR flow cell (bottom). Blue indicates buffer and pink indicates sample. The gradient formation and its relationship to analyte concentration at the flow cell is illustrated using five simulated snapshots ($t_{start}$ – $t_{stop}$) in injection time.

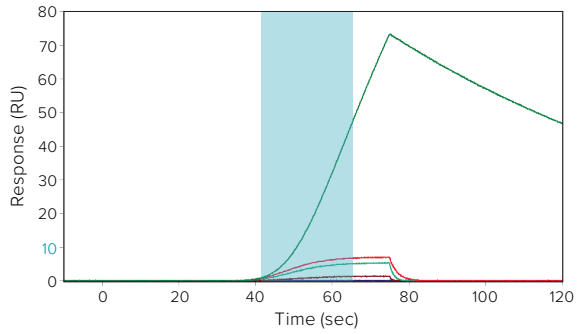



Figure 2: OneStep binding responses of five different fragments. The highlighted time segment was enhanced in Fig. 3 to show the binding signal versus concentration.

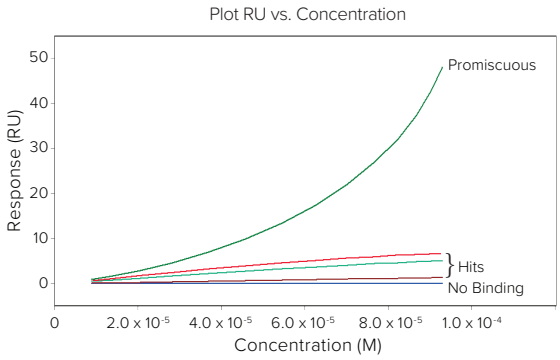



Figure 3: Concentration-dependent binding is derived from the OneStep response curves, enabling full kinetic characterization of hits and elimination of promiscuous or non-binding fragments.

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