

Technology for the High Throughput Analysis of Protein Unfolding



Protein
Stable

Applied Innovations
in Protein Characterisation

SUPR-DSF

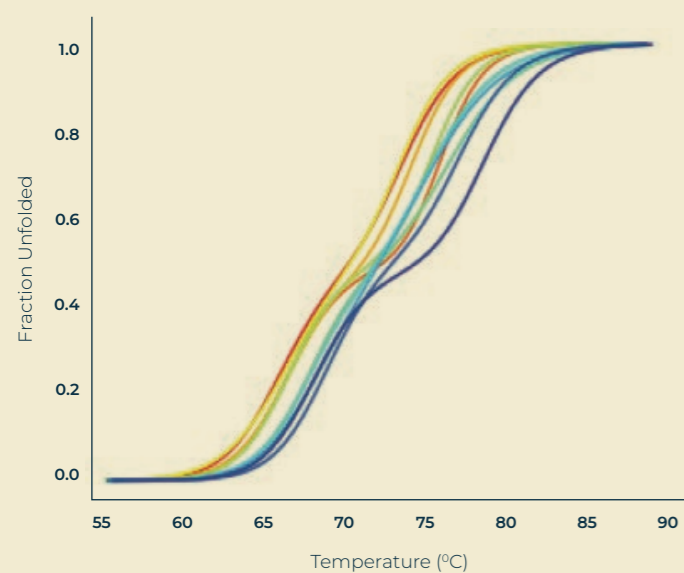
Technology

- + High throughput thermal ramping stability screening
- + Intrinsic fluorescence which offers broad compatibility with biological buffers
- + UV LED excitation with spectrometer detection for data rich results
- + Fast, 384-well plates scanned at 1°C per minute
- + Obtain key parameters, Tonset, Tm, number of transitions, ΔH
- + Requires no dyes or labels and offers exceptional data quality and repeatability
- + Wide dynamic range of sample concentrations
- + Very low protein requirement and volumes needed
- + Read directly from the plate samples are prepared in
- + Orthogonal chemical melt profiling generating ΔG, and Cm analysis

Applications

- + Variant screening and selection
- + Formulation and buffer optimisation
- + Protein characterisation
- + Stability profiling
- + Similarity assessment
- + Accelerated stress and forced degradation studies
- + Binding induced conformational change analysis
- + Post translational modification assessment

Fraction Unfolded Optimum Conditions



- 1 Water
- 5 Glycine
- 6 L-Proline
- 7 L-Histidine
- 8 Beta-Alanine
- 16 Betaine monohydrate
- 17 D- (+)-Trehalose dihydrate
- 18 Xylitol
- 19 D-Sorbitol
- 74 Sodium phosphate monobasic monohydrate



Fraction unfolded plots of the antibody Trastuzumab with a range of excipients and osmolytes



| Keyword | Information |
|-------------------------------|---|
| Sample presentation | 384-well microplate (PCR plate) |
| Sample volume | Typically 10 µL – 30 µL |
| Sample concentration | Minimum 0.1 mg/mL |
| Temperature range | 10°C - 105°C |
| Thermal ramp rates | Variable; maximum 1°C/min for all 384 wells |
| Typical run time | 80 minutes/plate |
| Light source | UV LED |
| Excitation wavelength | 280 nm |
| Emission wavelengths measured | 310 nm – 420 nm |
| Dimensions (W, D, H) | 420 mm x 520 mm x 350 mm |
| Weight | 35 kg |

Protein Stable is a joint venture between Applied Photophysics of Leatherhead, UK and Fluorescence Innovations of Minneapolis, MN. Set up in 2019 to introduce customer focused disruptor technology to the protein screening and characterisation market, we apply innovation in protein characterisation to help scientists and researchers across academia and the biotechnology industry. Our focus is on high throughput, low volume methods for protein characterisation for increased productivity, without compromise to data quality. Using novel approaches to optical technology, we have created the ability to read intrinsic protein fluorescence signals during unfolding directly from SBS standard microplates, using limited amounts of protein. Working in microplates reduces volume, sample usage, unnecessary consumables and processing steps, whilst seamlessly linking to liquid handling technologies for ease-of-use.



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