uncle

UNCHAINED LABS

One-stop stability

Cracking stability using a pile of one-trick, protein-hungry tools is a ton of work. UNcle combines 3 different measurement modes – fluorescence, SLS and DLS. So you can crank out all your data in just a few hours, and use way less protein. All the info you'll get makes picking the best formulation or protein construct a piece of cake.

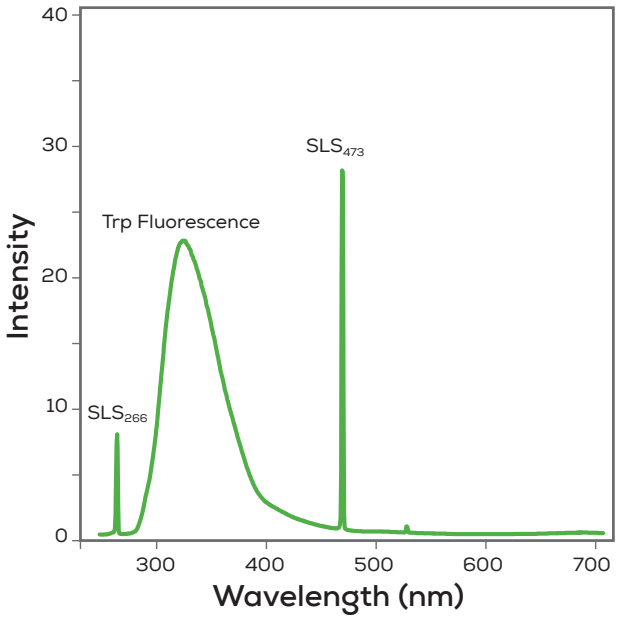
- T_m & T_{agg}
- Isothermal stability
- Thermal recovery
- Sizing
- Polydispersity
- Sizing with thermal ramp
- k_D
- B_{22}
- Viscosity

Unleash the UNi

Get more data with way less protein. The UNi only needs 9 µL of sample, and you pick how you use it. Run 1 sample in the morning, 48 in the afternoon. Do a DLS read if that's all you need. Or, check DLS, then start a 3-day experiment to monitor real-time stability. Your samples are sealed airtight, so runs can be short or long – your call.

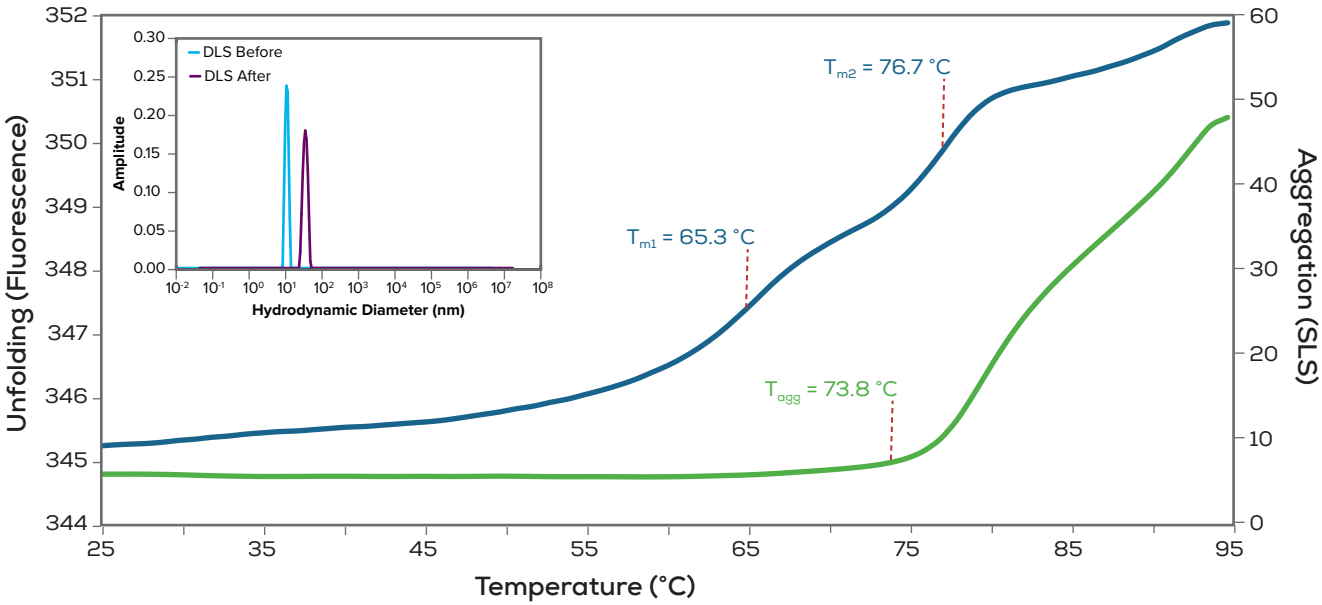
Full-spectrum

Biologics behave differently. With UNcle, you get the whole fluorescence spectrum, so you don't need to know ahead of time how your protein behaves. No need to add dyes either. UNcle picks up aggregation on two wavelengths – you'll see both small and large aggregates no matter what.



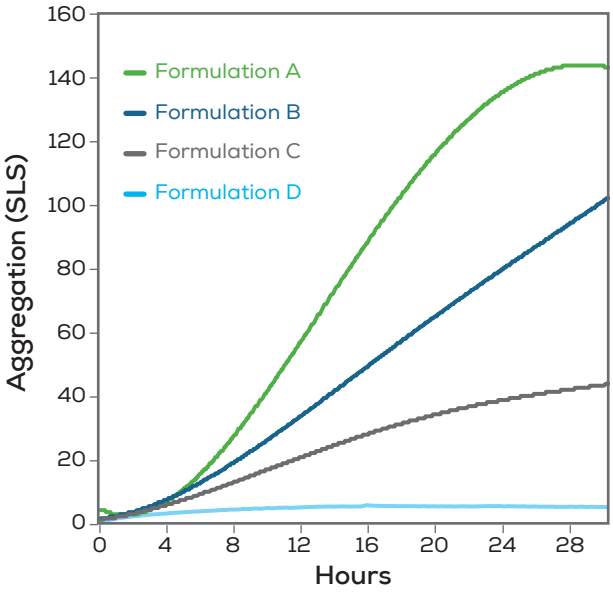
Uncover way more in one shot

Trying new formulations or constructs? Get answers for up to 48 samples in under 2 hours. Measure T_m and T_{agg} at the same time and know when unfolding leads to aggregation. Add a DLS read before the temp ramp to know if you've got aggregate trouble right out of the gate.



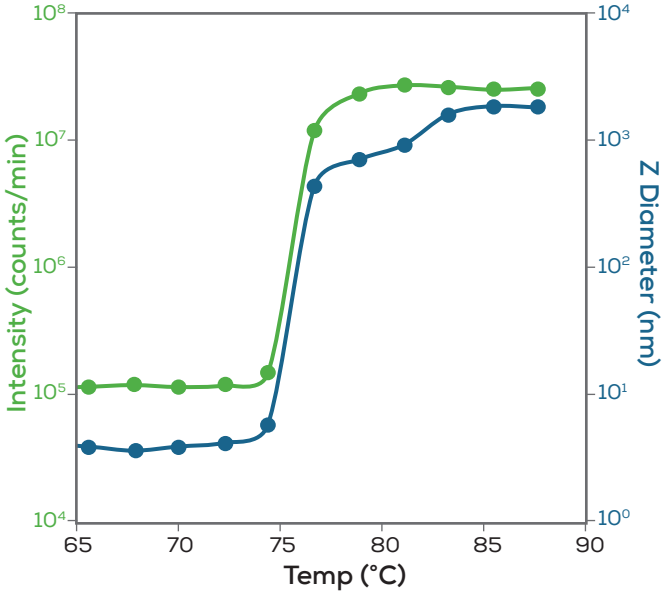
Isothermal stability

UNcle handles DLS or SLS readings for days with no sample evaporation. So set your temp and walk away. Get a heads-up on long-term stability.



Dynamic light scattering

Grab polydispersity, radius, and size distribution with amped sensitivity. Then take the same samples and do a thermal ramp just for grins.

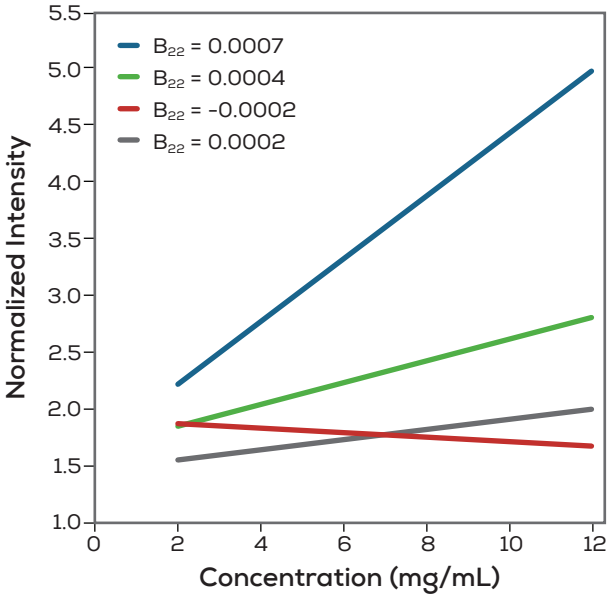


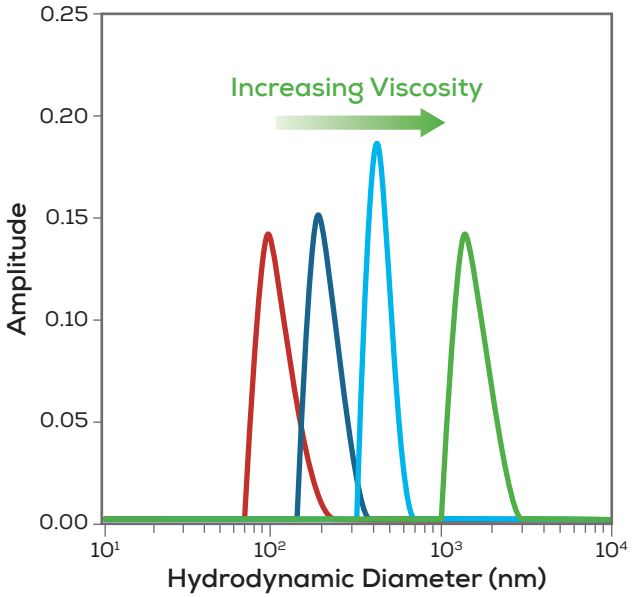
B_{22} & k_D

Get B_{22} and k_D at the same time in the same UNi. Learn on the spot if your protein-formulation combo is good to go or risky for aggregation.

Viscosity

Use beads to get a snapshot of viscosity. Figure out how a formulation or concentration tweak changes things.





Specifications

Application	Full-spectrum Fluorescence	Static Light Scattering (SLS)	Dynamic Light Scattering (DLS)
T_m	●		
T_{agg}		●	
Isothermal stability	●	●	●
Thermal recovery	●	●	
Sizing			●
Polydispersity			●
Sizing with thermal ramp			●
k_D			●
B_{22}			●
Viscosity			●

Instrument	
Minimum sample volume	9 µL, sealed capillaries
Simultaneous samples per experiment	48
Sample temperature range	15–95 °C
Minimum sample concentration	0.05 mg/mL – 150 mg/mL IgG (protein-dependent)
Heating rate	0.01–10 °C/minute
Temperature control accuracy	±1 °C (<70 °C), ±1.5 °C (>70 °C)
Environmental conditions	Temperature range: 18–28 °C Humidity: 40–60% relative humidity (non-condensing)
Physical	54 cm W x 50 cm D x 58 cm H, 50 kg
Electrical	Auto switching power supply, voltage 110–240 V AC, 50–60 Hz, fuse rating 6 A anti-surge, max power 600 W
Fluorescence and static light scattering	
Sample precision	<2% CV (T_m)
Excitation	266 nm and 473 nm laser
Detection	Fluorescence: CCD spectrometer at full 250–720 nm spectral range SLS: intensity at 266 nm and 473 nm
SLS resolution	~15 kDa change in mean molecular mass
Dynamic light scattering	
Hydrodynamic diameter range	0.3–1000 nm
Polydispersity	<0.1 (certified standard)
Minimum sample concentration	0.1 mg/mL – lysozyme
Molecular weight range	192 Da – 25 MDa
Light source	660 nm laser diode
Detection	Photodiode module

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