UNCHAINED LABS

MIBIO

October 21, 2015

Better Understand Your Biologic

Screening

Prediction

Sizing

The UNit

(formerly called the Optim)

World's Only Multiplex Stability Platform

Fast, Flexible Screening

9 µL sample size

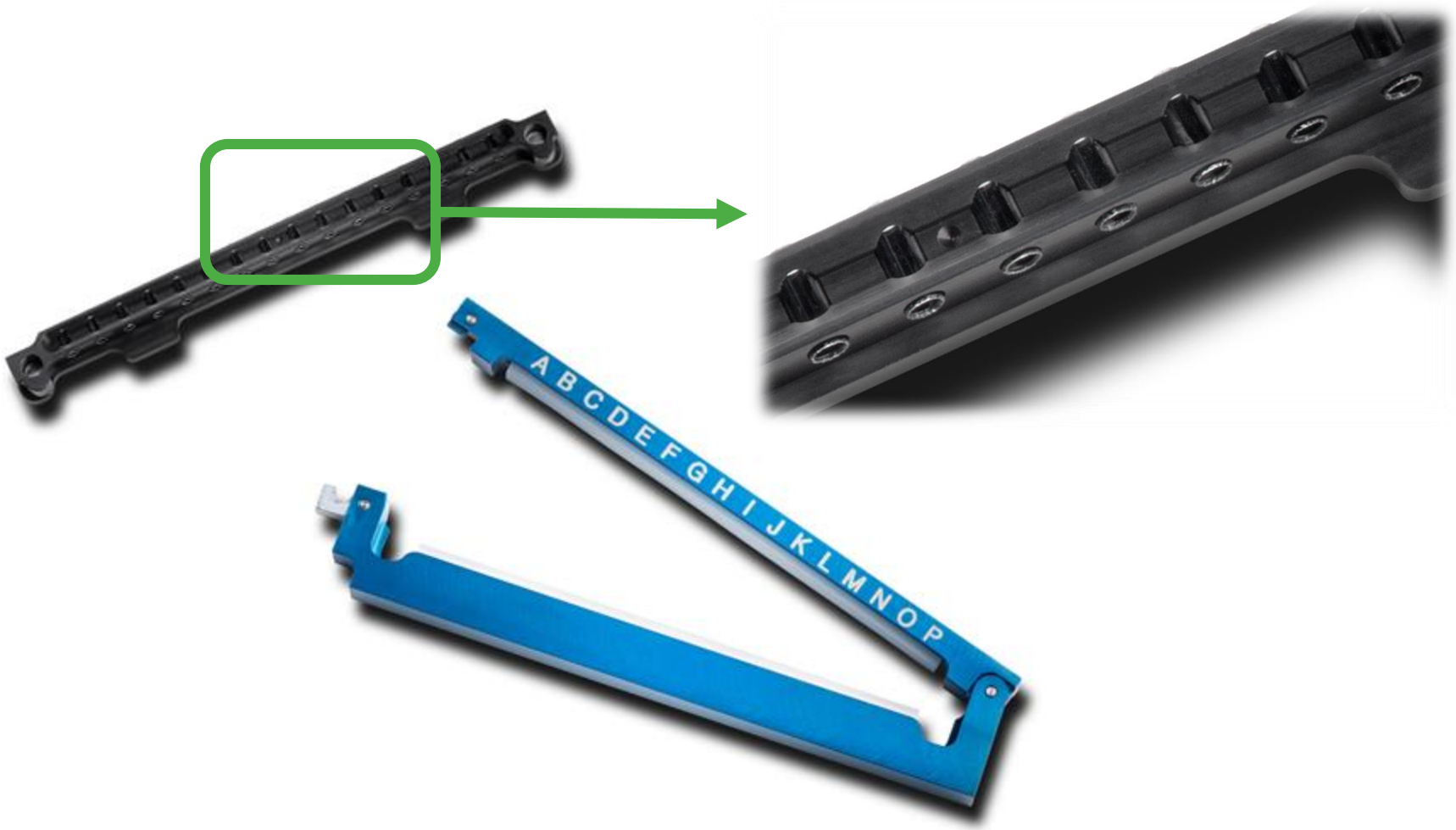
144 samples/day

7 applications

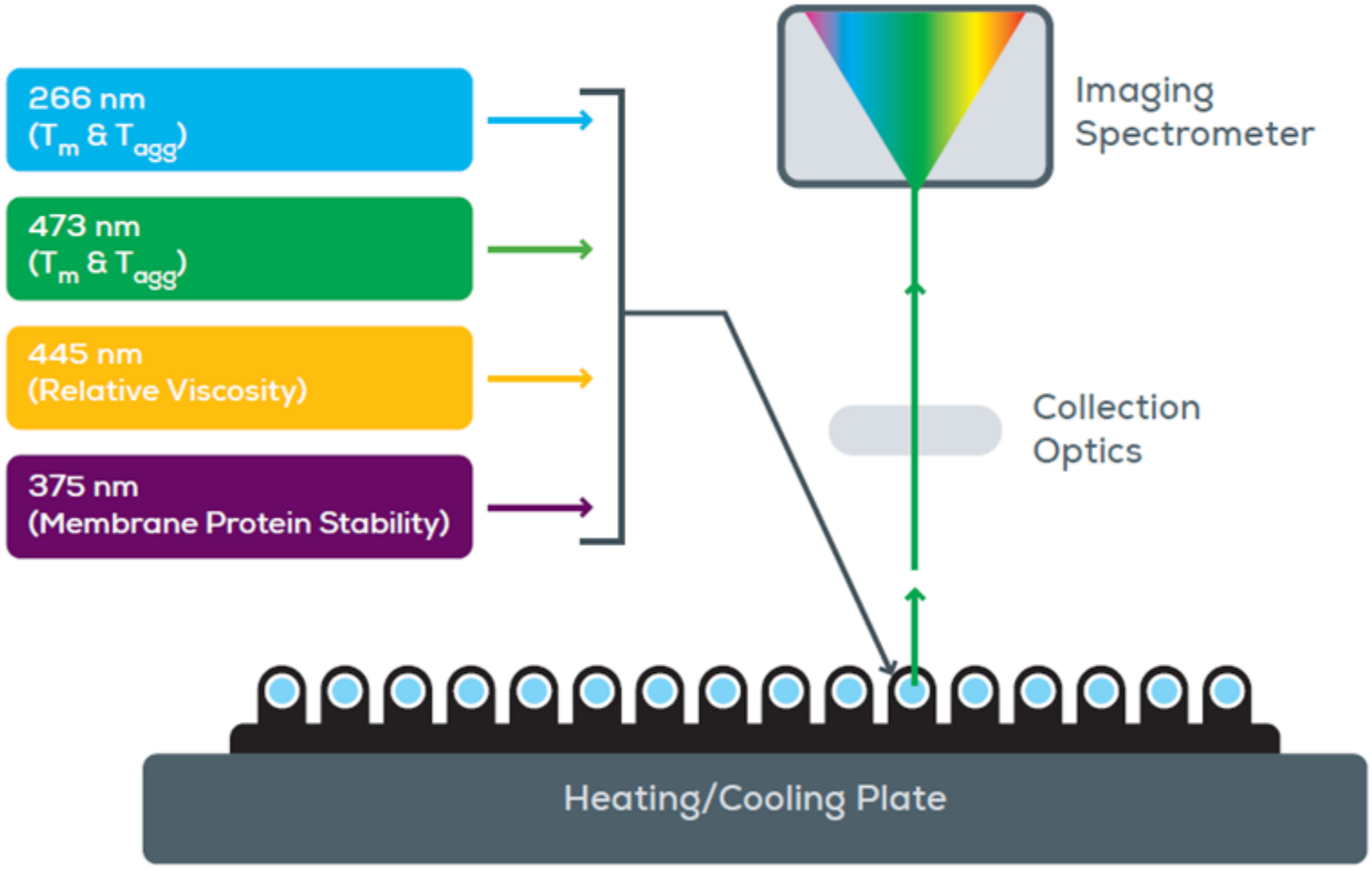
UNlock Stability

1. Tm
2. Tagg
3. Viscosity
4. Thermal recovery
5. Isothermal stability
6. Soluble membrane protein stability
7. Chemical denaturation

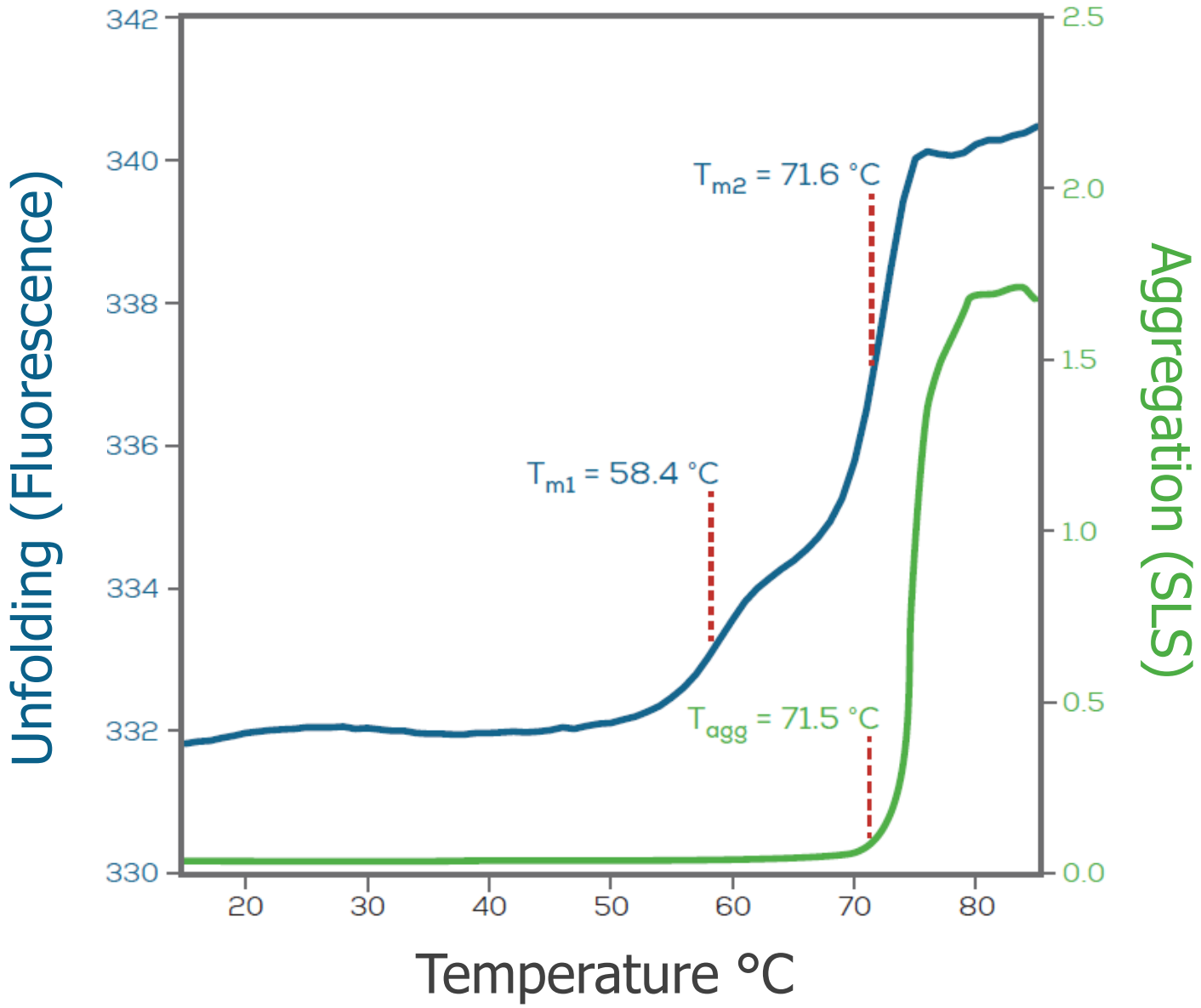
9µL sample size



UNit configuration



Really Understand Stability




Your protein will aggregate

The HUNK

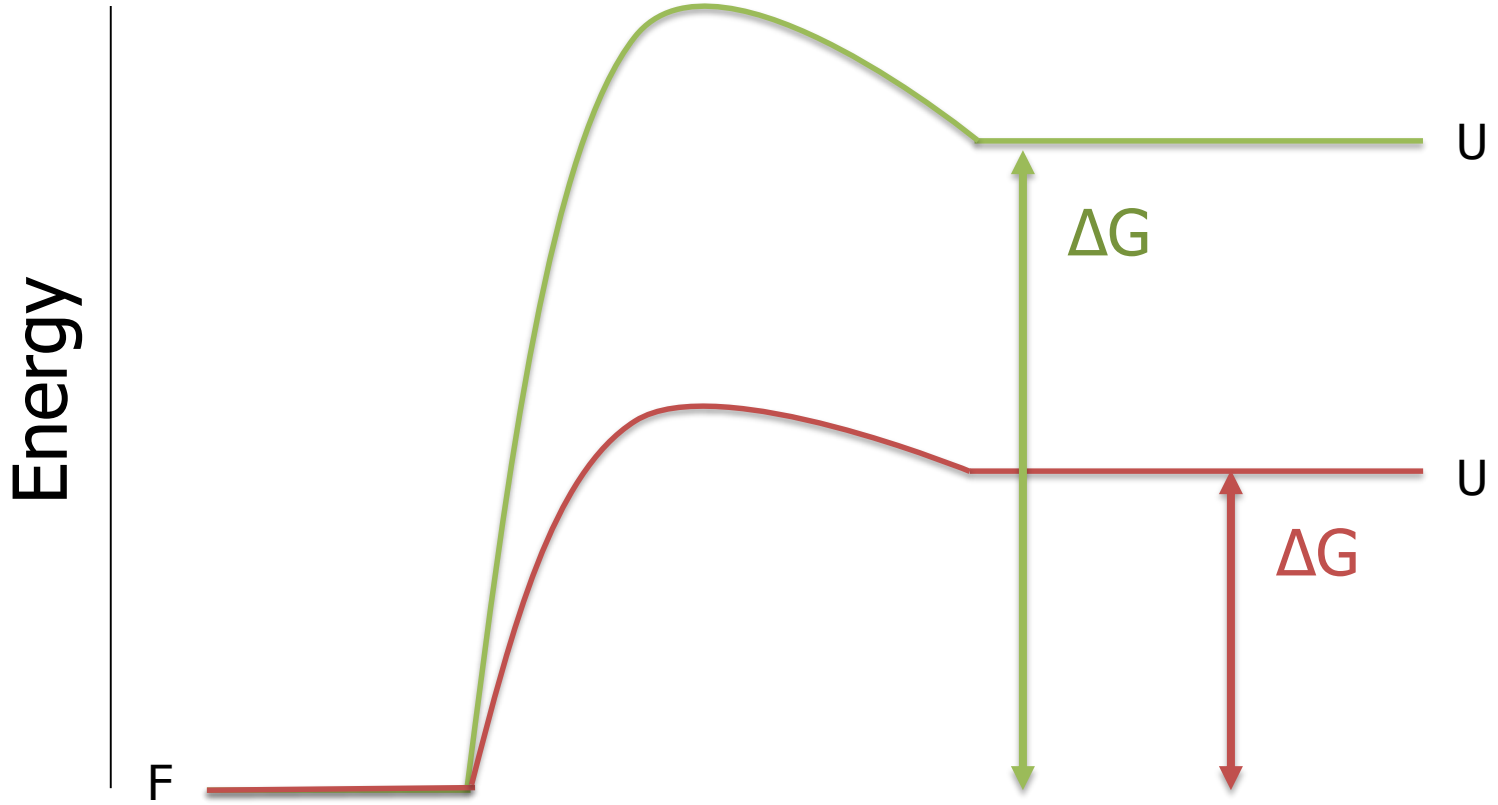
World's First Stability Predictor

The HUNK

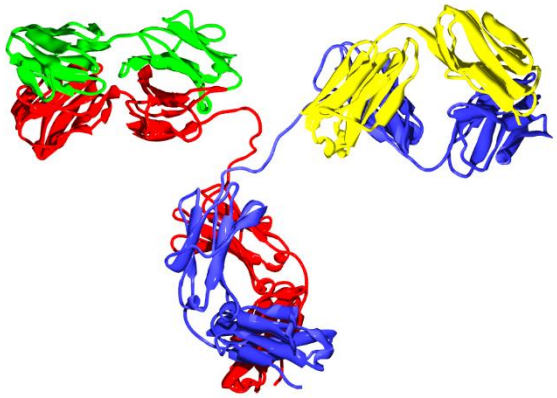
ΔG measure stability

ΔG_{trend} predict aggregation

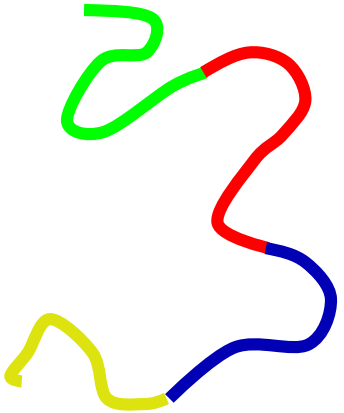
Energy to Unfold



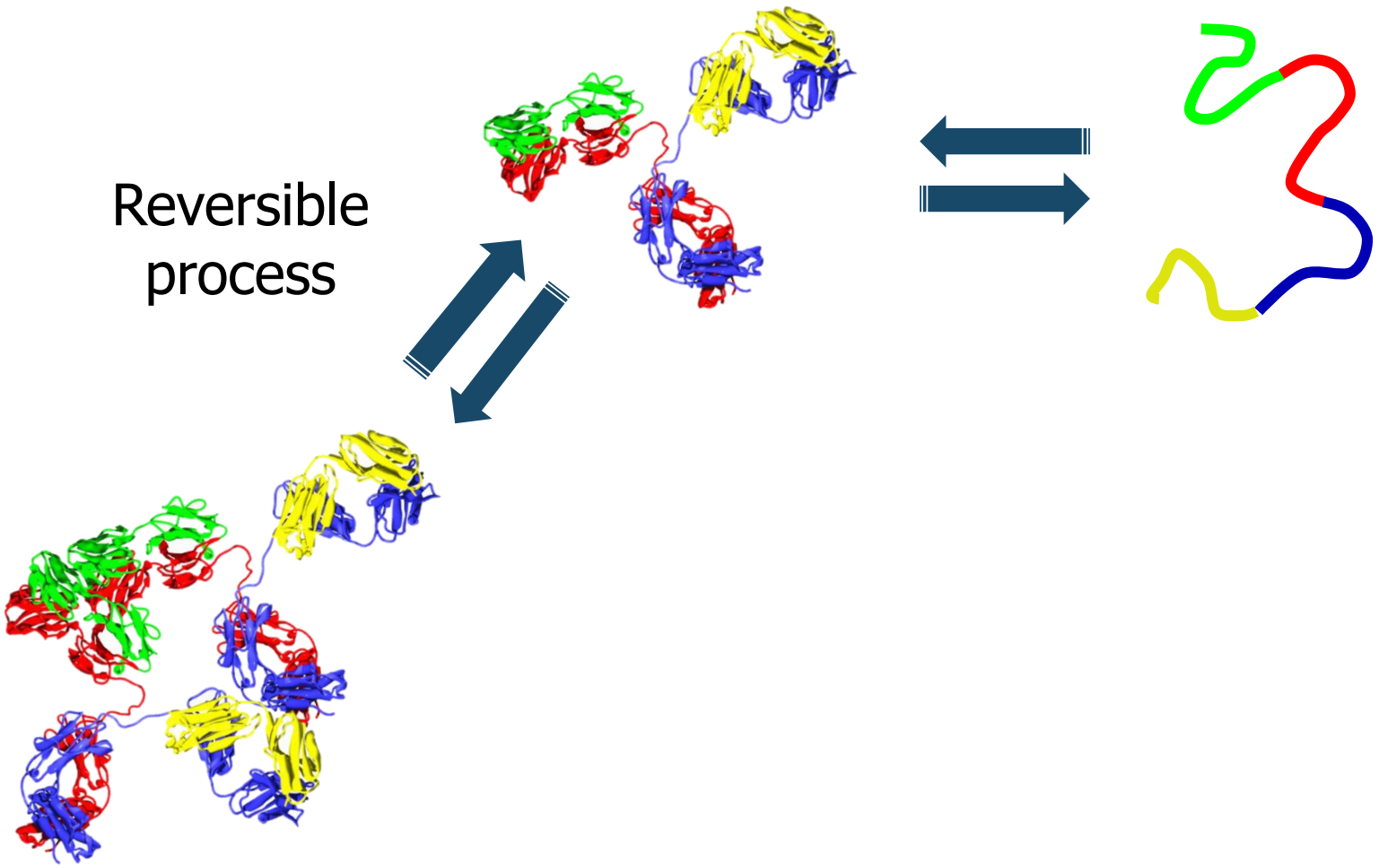
Thermodynamic Equilibrium



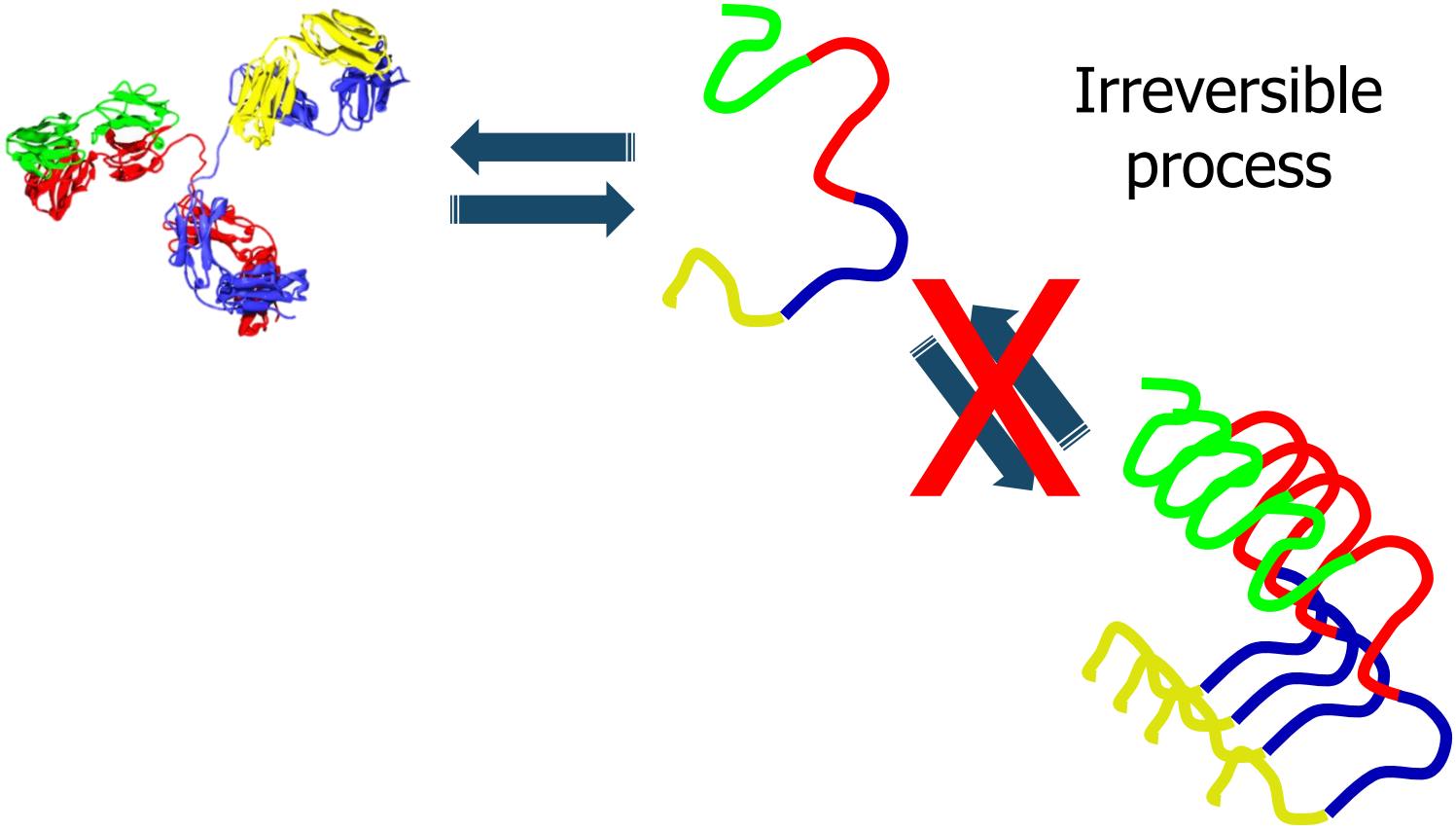
$$\Delta G^{o} = -RT \ln K$$



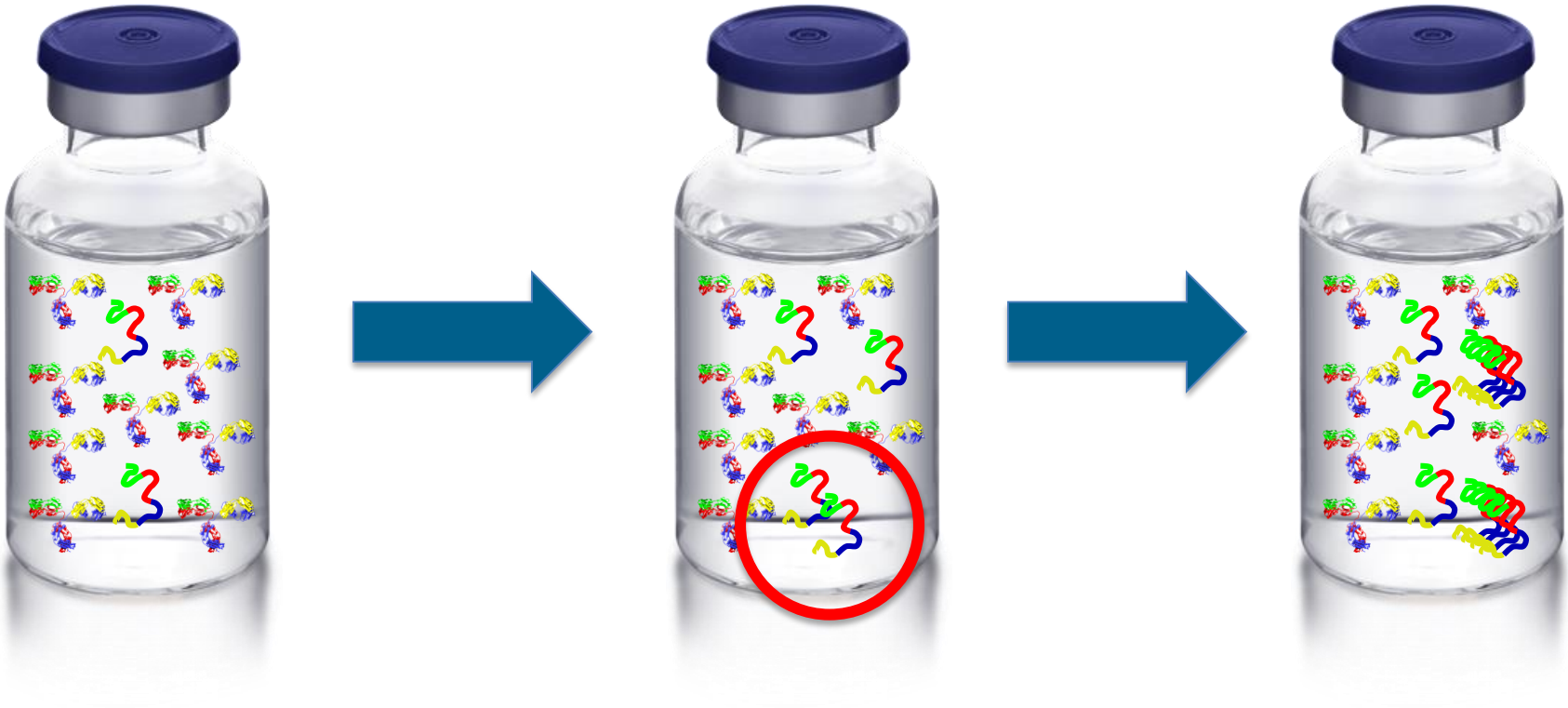
Native Aggregation Can Be Reversible



Denatured Aggregation is Not Reversible



Denatured State Aggregation Induces More Denaturation



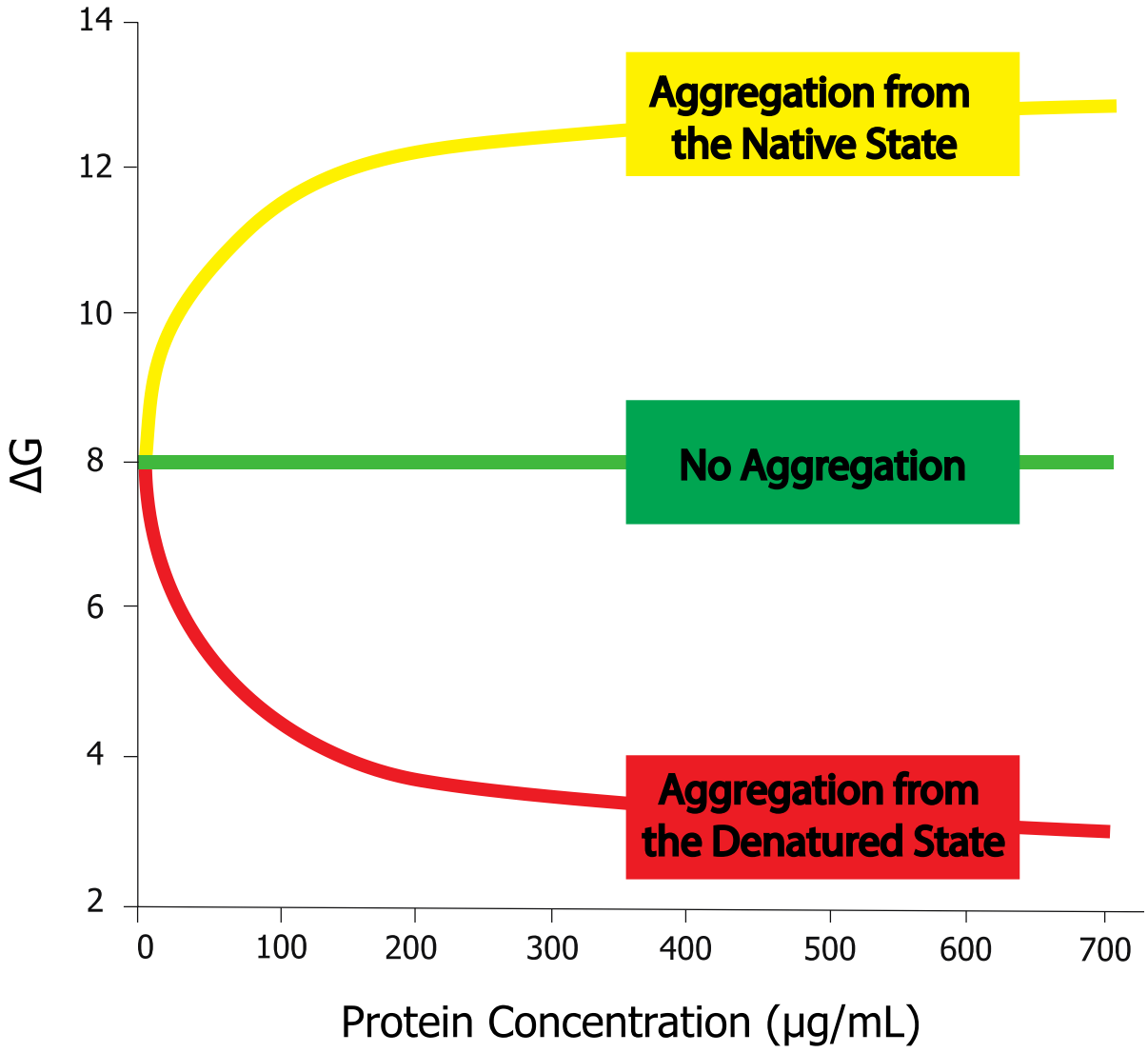
ΔG = Fraction Denatured

For a 100 mg/mL formulation:

- ΔG = 8 kcal/mol, 0.1 µg denatured
- ΔG = 4 kcal/mol, 100 µg denatured

ΔG kcal/mol	Stability	Fraction Denatured Protein
9.6	Less denatured protein	0.00001
8.2		0.0001
6.8		0.001
5.5	Moderate denatured protein	0.01
4.1		0.1
2.7	High denatured protein	1
1.3		10
0		50

The HUNK Measures ΔG_{trend}



Not Great

Good to Go

Never Good

What the HUNK Tells You

Native or denatured aggregation (ΔGtrend)

How much denaturation

How much aggregation

How much denatured protein is aggregated

Where You Can Spend Stability

Viscosity

Solubility

Aggregation

Formulation

Engineering

The pUNk

Smallest, fastest, easiest protein sizing

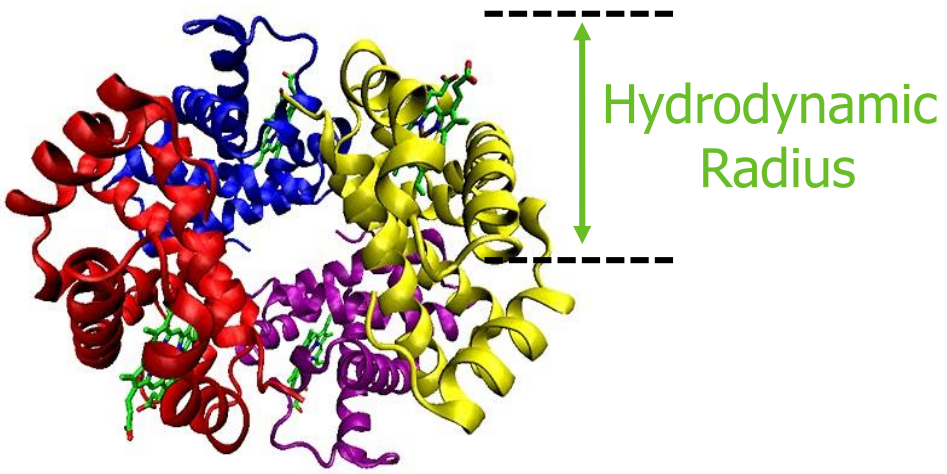
Size It Up Quick

5µL of sample

8x faster

p**UN**k Measures…

- Molecular Size
- Aggregation
- Polydispersity
- Molecular weight estimate



The rUNt

- Only 5µL of sample
- No reference needed
- No cross-contamination
- No cleaning
- Full sample recovery

Disposable Cuvette

Traditional Cuvettes Are Compatible

- Traditional quartz cuvettes may be used
  - 12µl fluorescence (2µl min. vol.)
  - 45µl fluorescence
  - 8µl flow cell
  - Other 4 windowed cuvettes

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Break free.