# spinSIGHTS
## from the lab

**In this issue**: Getting comfortable with Analytical Ultracentrifugation

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$K_{eq}$

$nA \rightarrow A_n$
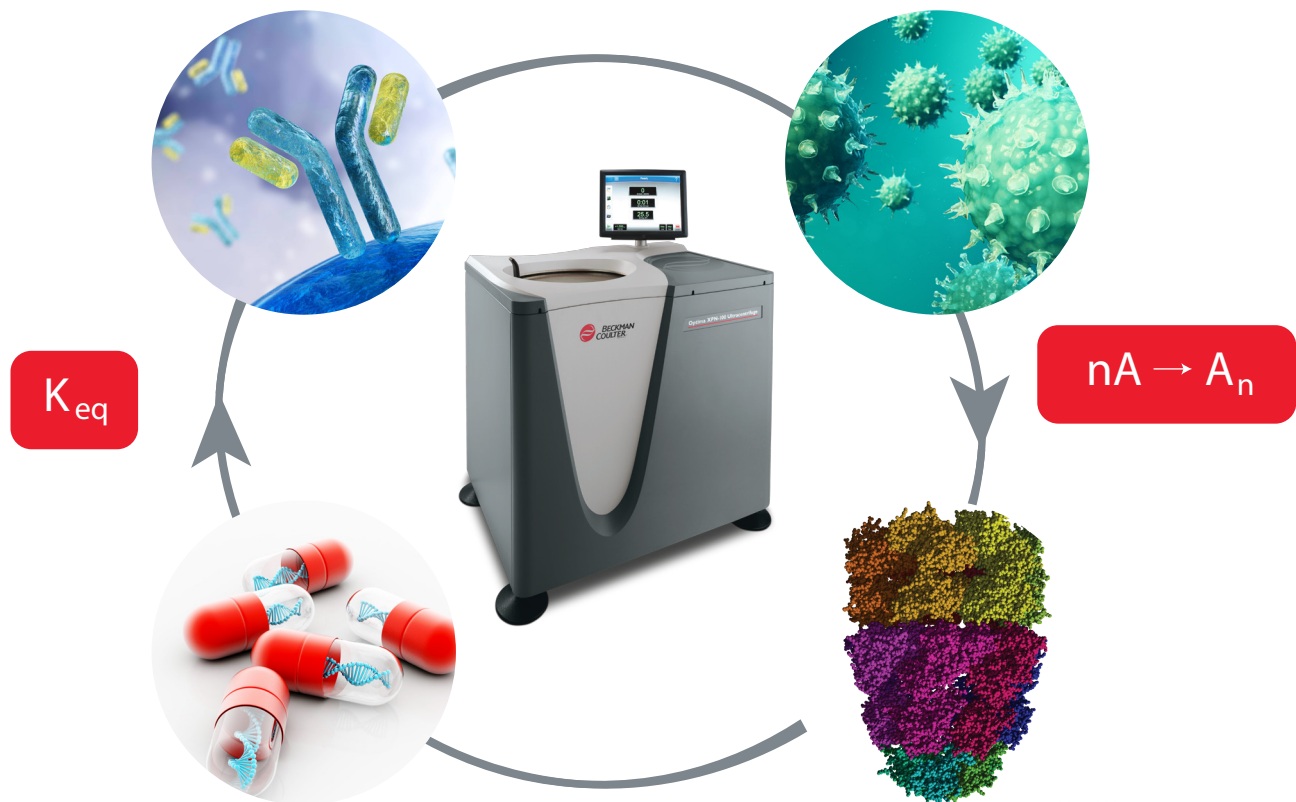
# An introduction to the Optima Analytical Ultracentrifuge

AUC is a versatile method to characterize the hydrodynamic behavior of biological (and other) samples in solution. It is based on the principles of sedimentation – the passage of samples down a tube in a centrifugal field. The Optima AUC instrument can detect samples based on UV-vis absorbance as well as refractive index.

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# Why use AUC?

## AUC addresses the following problems

In Pharma Discovery & Academic Research:

- Complex assembly stoichiometry
- Binding affinity & equilibrium constants
- Shape changes & allosteric events

In Pharma Quality Control:

- Gene therapy drug purity (viral packing efficiency)
- Biologics sample purity (aggregation/degradation)



Detecting and quantitating aggregates in biologics using data from AUC
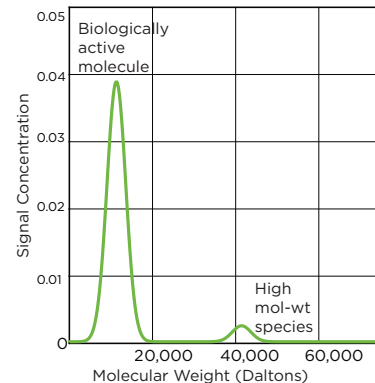
## Unique advantages of AUC analysis

- Fully native state analysis:
  No substrate / matrix interactions
- No calibration standards required:
  Results obtained from first principles
- Extremely large dynamic range:
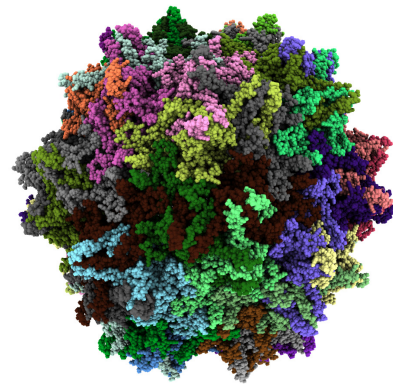  Characterize anything from a peptide to an intact virus

## Typical application areas for AUC

In Discovery:

- Protein/nucleic-acid/small-molecule interactions
- Nanoparticles, vesicles, polymers, viruses & more.

In Pharma Quality Control:

- Gene therapy products (AAV viral capsids)
- Biologics, biosimilars, antibodies & therapeutic peptides.

## Summary

AUC characterizes biological samples in-solution, answers both QC and discovery questions without needing external calibration standards and eliminates problematic non-native interactions. Click here to learn more about getting started with AUC.

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