

Seminar Speaker Series

in the framework of Interreg V-A project CAPSID

presents

Dr. Peter W. Schuck

NIH, Bethesda, US

Potential and Limitations of Multi-Method Approaches:

Studying dynamic of multi-protein interactions with
applications SARS-CoV-2 nucleocapsid interactions

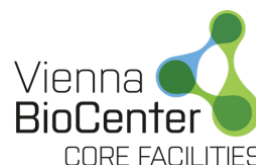
22. 04. 2021 at 14:00

Online virtual talk via Zoom

Join this talk [here](#)



Organized by:





Dr. Peter W. Schuck

NIH/NIBIB, Bethesda, US

Biomedical Imaging and Bioengineering

SHORT BIOGRAPHY

Dr. Schuck obtained his Ph.D. from the Goethe-University Frankfurt am Main, Germany, where he worked on interactions of integral proteins of the erythrocyte membrane using analytical ultracentrifugation. He received his post-doctoral research training in physical biochemistry with Dr. Allen Minton at NIDDK, and joined the Bioengineering and Physical Science Program of NCCR as a Research Fellow in 1997, developing biophysical methods for the study of protein interactions. In 2014 he was appointed an Earl Stadtman Investigator in NIBIB and Chief of the Dynamics of Macromolecular Assembly Section in the Laboratory of Cellular Imaging and Macromolecular Biophysics.

ANNOTATION

Many proteins function as part of multi-protein complexes that are dynamically assembled, and structurally polymorphic due to weak and highly multi-valent interactions, which frequently involve promiscuous domains and intrinsically disordered regions. Peter Schuck's interest is in the development of biophysical methods that can elucidate coarse grained architectural and energetic principles of such complexes. This has led us to new hydrodynamic, calorimetric, and global analysis techniques. Peter Schuck will review their potential and limitations, illustrated in their application to study the SARS-CoV-2 nucleocapsid assembly process.

REFERENCES

- [1] Clardy SM, Lee DH, **Schuck P**: Determining the Stoichiometry of a Protein-Polymer Conjugate Using Multisignal Sedimentation Velocity Analytical Ultracentrifugation. *Bioconjug Chem.* (2021)
- [2] Parupudi A, Chaturvedi SK, Adão R, Harkness RW, Dragulin-Otto S, Kay LE, Esfandiary R, Zhao H, **Schuck P**: Global multi-method analysis of interaction parameters for reversibly self-associating macromolecules at high concentrations. *Sci Rep* (2021)
- [3] Zhao H, Wu D, Nguyen A, Li Y, Adão RC, Valkov E, Patterson GH, Piszczek G, **Schuck P**: Energetic and structural features of SARS-CoV-2 N-protein co-assemblies with nucleic acids. *bioRxiv* (2021)

Organized by:

