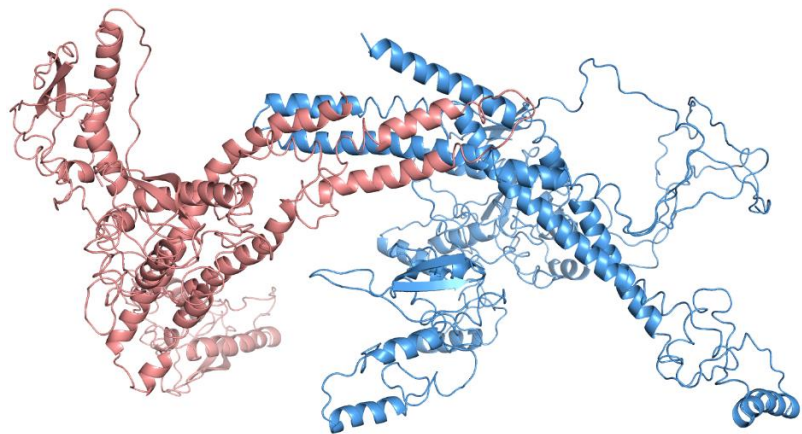


Structure & Function of a Cellular Autophagy Complex



Structural model of the Snx4 (red) and Atg20 (blue) complex. This complex has been very challenging to investigate using other structural methods. Scientists studied this complex using SAXS at the LiX beamline at NSLS-II to provide the first insight into the architecture of this important complex

H. Popelka, A. Damasio, J. E. Hinshaw, D. J. Klionsky, and M. J. Ragusa, *PNAS*, 2017, E10112–E10121

Work was partly performed at Brookhaven National Laboratory

Scientific Achievement

Small-angle x-ray Scattering with in-line size exclusion chromatography helped scientists develop a new structure-function model for the Snx4-Atg20 complex in cellular autophagy.

Significance and Impact

Autophagy is a cellular process that ensures damaged or long-lived cellular components are recycled to prevent damage to the cell. Defects in autophagy have been correlated with cancer and neurodegenerative diseases.

Research Details

- This study shows that the Snx4-Atg20 complex has a hybrid structure of ordered and disordered domains.
- Disordered domains bind to other proteins that are required for autophagy initiation.
- This study used small angle x-ray scattering (SAXS) at the LiX beamline to study the size and shape of the dynamic Snx4-Atg20 complex.