

BioCAT beamline enables high quality equilibrium and time resolved biological solution SAXS

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The BioCAT beamline (Sector 18) at the Advanced Photon source is a state of the art facility for biological solution scattering. The beamline features advanced size exclusion chromatography small angle x-ray scattering (SEC-SAXS) coupled to multiangle light scattering (MALS), dynamic light scattering (DLS), and refractive index (RI) detectors. These additional techniques allow accurate determination of molecular weight, even for poorly separated species, and measurement of the radius of hydration (Rh), which can provide complementary information to the standard SAXS determined radius of gyration. The beamline also has unique time resolved capabilities, with chaotic continuous flow mixers enabling time resolved SAXS measurements from ~100 us to 100 ms, as well as more conventional stopped flow mixers (time points >= 1 ms) and laminar continuous flow mixers (time points ~10 ms to 1 s), available for users. These capabilities, alongside expert support and an on-site fully equipped wet lab make BioCAT a premier facility of biological SAXS. In addition to SAXS, BioCAT is the only beamline in the Americas that routinely supports fiber and muscle diffraction experiments.