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Fluorescence Correlation Spectroscopy of Tryptophan-containing Proteins in Sugar Solutions using Two Photon Excitation¹ DAVID SIDEBOTTOM, NATHAN HOLMAN, YULI WANG, MICHAEL NICHOLS, Creighton University — Simple sugars are often incorporated in cryopreserving media to aid in the preservation of biomaterials and functional proteins. However, the mechanism by which sugars provide protection is still openly debated. As part of a project to investigate the behavior of proteins in sugar solutions, we are developing Fluorescence Correlation Spectroscopy (FCS), using a novel two photon excitation at 532 nm, as a selective probe of protein dynamics for tryptophan-containing proteins. Our goal is to monitor possible alterations in the protein's hydrodynamic radius caused by preferential binding of sugars to its surface.

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