UV-VISIBLE SPECTROSCOPY OF GLYCOPROTEINS INTERACTING WITH LIPID VESICLES

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Glycoproteins are a class of proteins that are decorated with sugar (glycan) chains. Most known glycoproteins have been shown to play a role in intercellular interactions but the exact role of the glycan chains is still under investigation. Here we use light spectroscopy to study the interaction of three glycoforms of the protein Ovalbumin (A1, A2, and A3) with model membranes. These proteins are obtained from hen egg white. Phenylalanine, tryptophan, and tyrosine amino acids absorb ultraviolet light and each residue has a characteristic spectrum. When a protein interacts with a lipid membrane its absorbance spectrum is altered due to changes in the environment. This alteration is evidenced by shifts in the location of characteristic peaks in the second derivative spectrum. Measuring the shifts caused by the addition of lipid allows us to describe the interaction of glycosylated proteins with lipid membranes. By comparing peak shifts for different glycoforms against each other and against standard peptides provides insight into the role of glycans in cell membranes interactions.