

Examining Protein-Lipid Interactions in Model Systems with a New Squarylium Fluorescent Dye

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Abstract The applicability of newly synthesized squarylium dye Sq to probing the changes in physical characteristics of lipid bilayer on the formation of protein-lipid complexes has been evaluated. Lipid vesicles composed of zwitterionic phospholipid phosphatidylcholine (**PC**) and its mixtures with positively charged detergent cetyltrimethylammonium bromide (**CTAB**), anionic phospholipid cardiolipin (**CL**), and cholesterol (**Chol**) were employed as lipid component of model membrane systems while protein constituent was represented by lysozyme (**Lz**). Fluorescence intensity of Sq was found to decrease on **Lz** association with lipid bilayer. This effect was observed in all kinds of model systems suggesting that Sq is sensitive to modification of lipid bilayer physical properties on hydrophobic protein-lipid interactions. It was found that Sq spectral response to variations in Chol content depends on relative contributions of electrostatic and hydrophobic components of **Lz**-membrane binding.