

Abstract Submitted
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Probing Lipid Membrane Rafts (Microdomains) with Fluorescent Phospholipids YONGWEN GU, DRAKE MITCHEL, Portland State — Membrane rafts are enriched in sphingolipids and cholesterol, they exist in a more ordered state (the liquid-ordered phase; lo) than the bulk membrane (the liquid-disordered phase; ld). Ternary mixtures of palmitoyl-oleoyl-phosphocholine (POPC; 16:0,18:1 PC), sphingomyelin (SPM), and cholesterol (Chol) form membrane rafts over a wide range of molar ratios. We are examining the ability of two fluorescent probes, NBD linked to di-16:0 PE which partitions into the lo phase, and NBD linked to di-18:1 PE which partitions into the ld phase, to detect these two phases. We are also examining the effect of the highly polyunsaturated phospholipid stearyl-docosahexanoyl-phosphocholine (SDPC; 18:0, 22:6 PC) on the size and stability of POPC/SPM/Chol membrane rafts. We report on the fluorescence lifetime and anisotropy decay dynamics of two fluorescent probes. Data were acquired via frequency-domain measurements from 5 to 250 MHz.

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