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Effects of Membrane Protein nAChR on Phase-Separated Model Membranes JIGESH PATEL, Texas Tech University — In this study, the effects of adding 2 mol% of membrane protein nAChRs to DOPC/DSPC/cholesterol lipid bilayers containing coexisting phases are investigated. Previously, no 4-component phase diagram, with nAChRs protein as one of the components, has been studied. This work is the first study of this kind that investigates the effect of ion-transmitter nACHRs on L_o+L_d phase boundaries. The modification of phase boundary by nAChRs is determined using fluorescence microscopy on giant unilamellar vesicles (GUVs). After phase boundaries are determined, thermodynamic tie-lines and protein's partition coefficients will be measured. Those data will allow us to precisely determine the exact concentrations of nAChRs in various cell membrane domains. Accurate measurement of the perturbations of the phase boundaries by the protein could serve as a means to quantitatively understand the universal behavior of a range of membrane proteins.

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