

Suspended lipid bilayers assembled on a silicon microarray deciphers neurotransmitter release

Sathish Kumar Ramakrishnan
Yale University, USA

Abstract

Free standing artificial lipid bilayer is essential for studying for membrane transport, fusion, and ion channels. Preparation of such system is technically challenging to mimic native environment. On the other hand, suspended lipid bilayers can provide *in vivo* like environment for the membrane proteins and lipids by having fluids on both sides. We present a simple methodology for making suspended lipid bilayers on a silicon microarray that can be used for single-molecule with excellent lateral protein mobility and long term stability. We demonstrate the feasibility of such an approach on SNARE mediate membrane fusion process and content mixing assays.

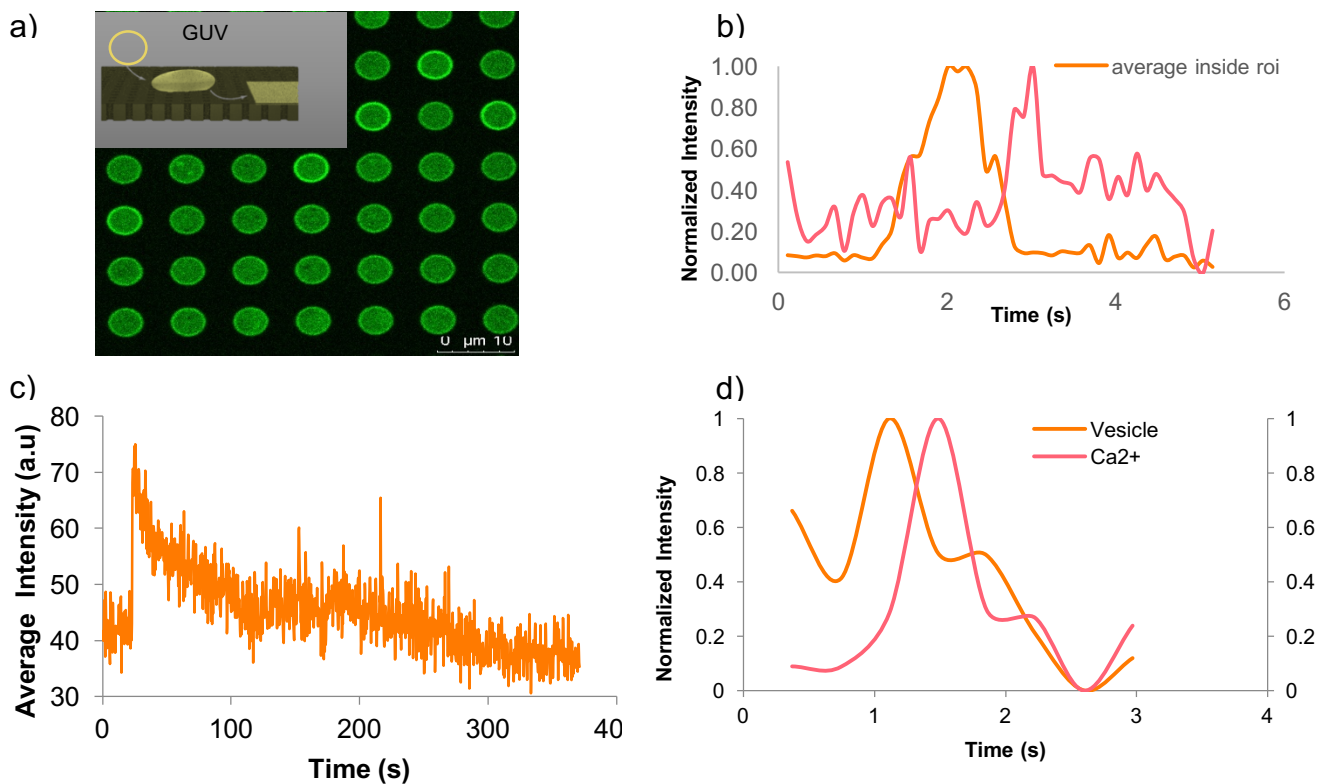


Figure 1. Suspended bilayers. a) T-SNARE GUVs from SUVs were ruptured on the silicon chip b-d) Fluorescence Intensities of v-SNARE vesicles fusion on lipid-mixing, Vamp 4X mutant, and content release.