Supporting Information

Influenza M2 Transmembrane Domain Senses Membrane Heterogeneity and Enhances Membrane Curvature

Chian Sing Ho[1], Nawal K. Khadka[1], Fengyu She[2], Jianfeng Cai[2], and Jianjun Pan[1]*

[1]Department of Physics, University of South Florida, Tampa, FL 33620, United States
[2]Department of Chemistry, University of South Florida, Tampa, FL 33620, United States

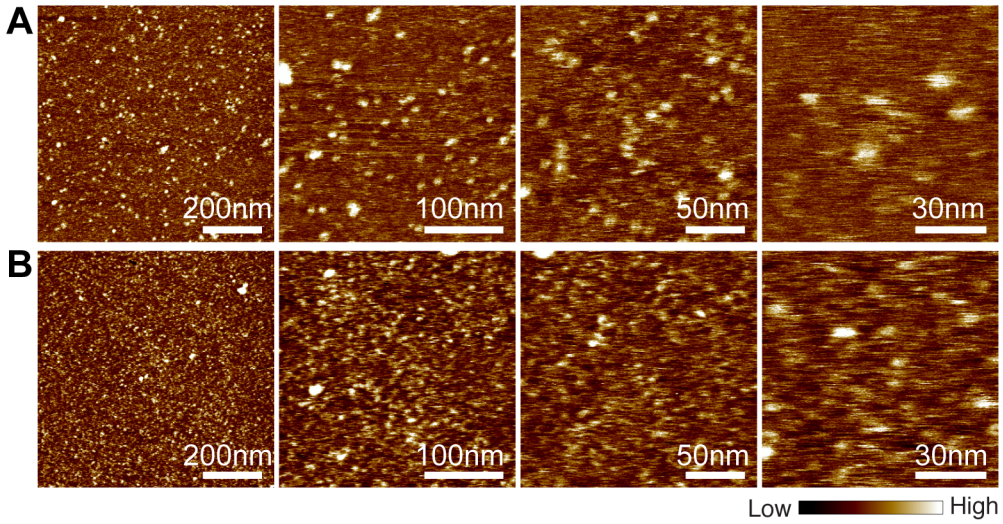

Figure S1 Solution AFM height images of 4mol% M2TM in planar bilayers composed of (A) DOPC and (B) DOPC + 20mol%Chol. Height-scale indicated by the color bar is 1.6 nm. The images are obtained by successively scanning with different magnifications. M2TM oligomers are clearly visible in all images.

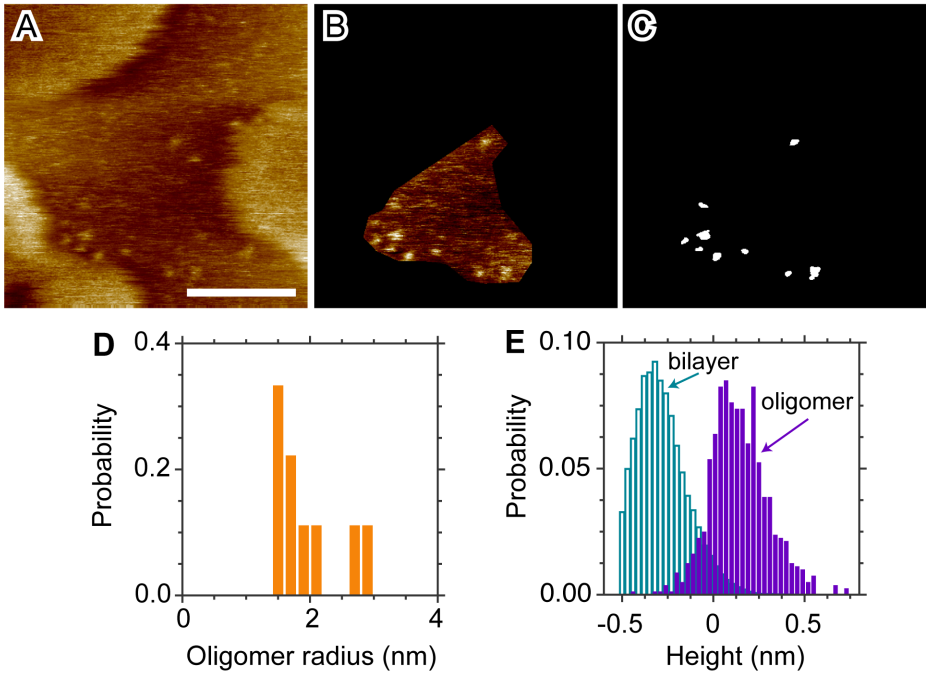

Figure S2 (A) Solution AFM height images of DOPC/eSM 3:2 + 20mol%Chol with 2mol% M2TM. Scale bar = 50 nm. (B) Selected region containing M2TM oligomers. (C) Extracted oligomers (bright spots) in the selected region. (D) Oligomer radius distribution for the oligomers shown in (C). The average oligomer radius is 1.9 nm. (E) Height probabilities for oligomers and the rest of the bilayer in the selected region in (B). The most probable height difference between oligomers and the rest of the bilayer is ~0.5 nm.

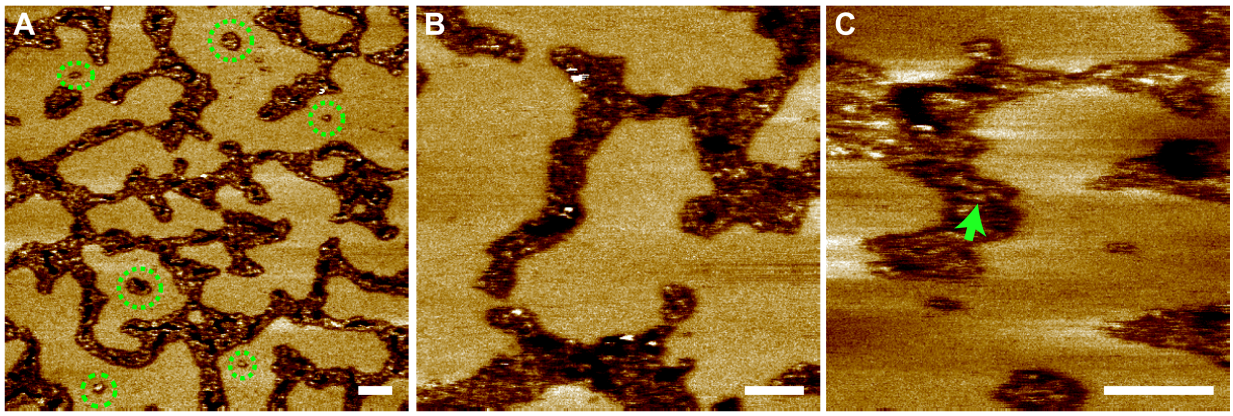

Figure S3 AFM height images of DOPC/eSM 1:1 + 38mol% Chol with 2mol% M2TM. Images are obtained by scanning with different magnifications. Dashed circles in (A) highlight regions containing M2TM oligomers within the Lo phase. One oligomer is indicated by the green arrow in (C). Scale bars = 50 nm.

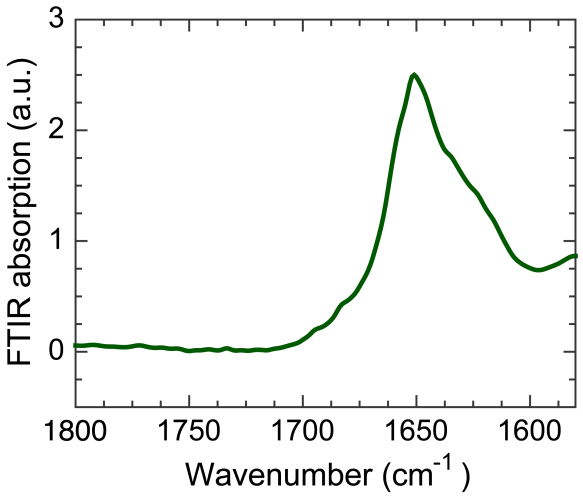

Figure S4 Attenuated total reflection FTIR amide I band for M2TM dissolved in 1% (v/v) DMSO. The prominent band located near 1651 cm^{-1} highlights that the secondary structure of M2TM is mainly α-helix.

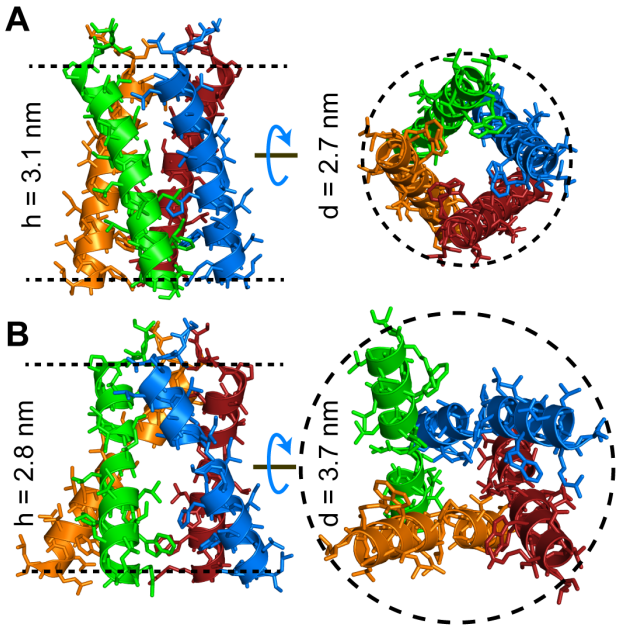

Figure S5 Tetrameric structure of M2TM determined from (A) solid state NMR (PDB: 2KQT) and (B) X-ray crystallography (PDB: 3BKD). The tetramer exhibits variable thickness h and diameter d depending on helix tilt and intra-helix kink. Height h is defined by the distance between the two planes formed by the Cα atoms of D24 and L46; diameter d is defined by the circle outlined by the CG atoms of L46. Left column: Side view. Right column: Top view from the cytoplasmic side.