

Streamlined Fabrication of Hybrid Lipid Bilayer Membranes on Titanium Oxide Surfaces: A Comparison of One- and Two-Tail SAM Molecules

Tun Naw Sut ^{1,†}, Sue Woon Tan ^{1,†}, Won-Yong Jeon ¹, Bo Kyeong Yoon ^{2,*}, Nam-Joon Cho ^{3,*} and Joshua A. Jackman ^{1,*}

¹ School of Chemical Engineering and Translational Nanobioscience Research Center, Sungkyunkwan University, Suwon 16419, Korea; suttunnaw@skku.edu (T.N.S.); suewoon4695@gmail.com (S.W.T.); powerwy@skku.edu (W.-Y.J.)

² School of Healthcare and Biomedical Engineering, Chonnam National University, Yeosu 59626, Korea

³ School of Materials Science and Engineering, Nanyang Technological University, 50 Nanyang Drive, Singapore 637553, Singapore

* Correspondence: bkyoon@jnu.ac.kr (B.K.Y.); njcho@ntu.edu.sg (N.-J.C.); jjackman@skku.edu (J.A.J.)

† These authors contributed equally to this work.

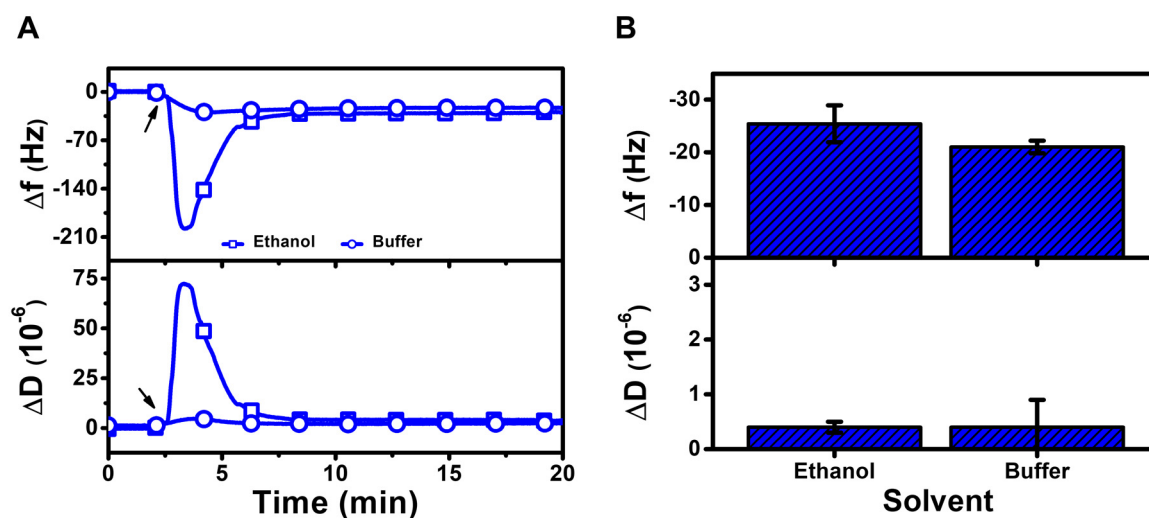


Figure S1. Magnified view for initial molecular deposition processes of DOCP lipid on TiO₂ surface in ethanol and buffer. (A) Time-resolved QCM-D Δf and ΔD signals are reported for DOCP deposition in ethanol and buffer solution. The arrows indicate the start of DOCP addition. (B) Summary of final Δf and ΔD shifts for molecular deposition in ethanol and buffer conditions corresponding to data in panel (A). The data are presented as the mean \pm standard deviation from $n = 3$ runs.

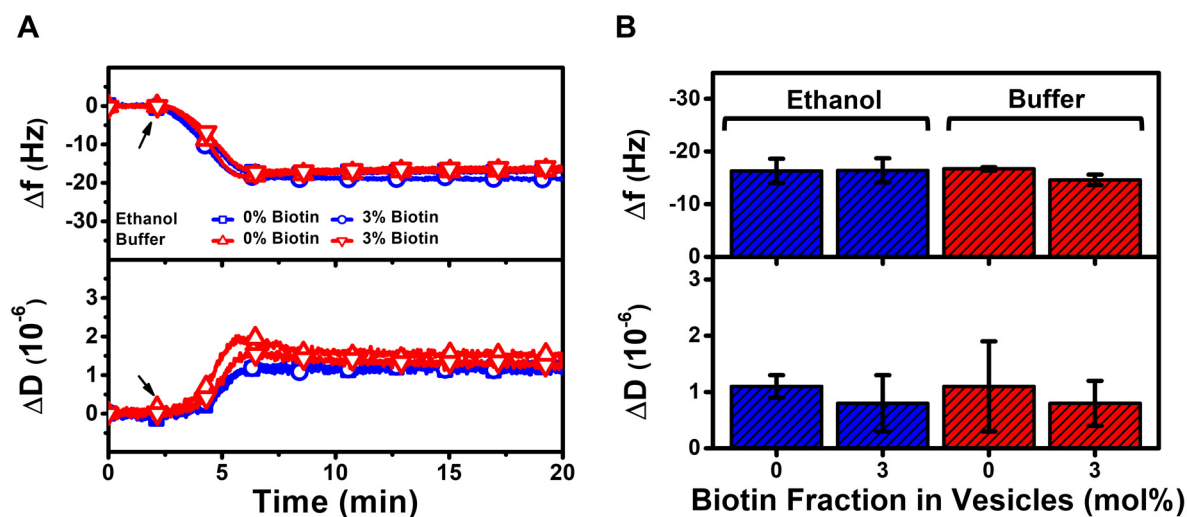


Figure S2. QCM-D tracking of vesicle adsorption and HLB formation on DOCP-functionalized TiO_2 surfaces in different solvent systems. (A) Time-resolved Δf and ΔD signals are reported for adsorption of vesicles containing 0 or 3 mol% biotinylated lipid onto TiO_2 surfaces functionalized with DOCP molecules in ethanol and buffer solution. The arrow indicates the start of vesicle addition. (B) Summary of final Δf and ΔD shifts for vesicle adsorption corresponding to data in panel (A). The data are presented as the mean \pm standard deviation from $n = 3$ runs.