

Abstract Submitted
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The effects of lung surfactant peptide mimic KL4 on lipid monolayer collapse NIELS HOLTEN-ANDERSEN, University of Chicago, Department of Chemistry, Chicago, IL 60637, USA, LUKA POCIVAVSEK, University of Chicago, Department of Chemistry and James Franck Institute, Chicago, IL 60637, USA, ALAN J. WARING, University of California, Los Angeles, School of Medicine, Department of Medicine, Los Angeles, CA 90095, USA, KA YEE C. LEE, University of Chicago, Department of Chemistry and James Franck Institute, Chicago, IL 60637, USA — We have investigated the origin of the positive effect of the peptide KL4 on lung surfactant lipid monolayers containing DPPC and POPG. Using surface balance techniques and fluorescence microscopy we have observed that KL4 rigidifies POPG containing lipid monolayers evidenced by a shift in their collapse mode. Rather than collapsing as a fluid by flowing into the sub-phase, a KL4 supported POPG monolayer instead collapses by folding. Furthermore, when KL4 is added to POPG containing monolayers they demonstrate an increased tolerance to repeated compression and expansion cycles while the opposite appears to be true for pure DPPC monolayers. We will discuss the potential role of electrostatic interactions in the rigidifying effect of KL4 on POPG containing monolayers in the context of the overall importance of collapse mode in establishing robust and reversible lipid monolayers.

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