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Brewster Angle Microscopy Study of Model Stratum Corneum Lipid Monolayers at the Air-Water Interface ELLEN ADAMS, ALEX CHAMPAGNE, JOSEPH WILLIAM, HEATHER ALLEN, The Ohio State University — As the first and last barrier in the body, the stratum corneum (SC) is essential to life. Understanding the interactions and organization of lipids within the SC provides insight into essential physiological processes, including water loss prevention and the adsorption of substances from the environment. Langmuir monolayers have long been used to study complex systems, such as biological membranes and marine aerosols, due to their ability to shed light on intermolecular interactions. In this study, lipid mixtures with varying cholesterol and cerebroside ratios were investigated at the air/water interface. Surface tension measurements along with Brewster angle microscopy (BAM) images were used to examine the lipid phase transitions. Results indicate that cholesterol and cerebrosides form miscible monolayers, exhibiting ideal behavior. BAM images of a singular, uniform collapse phase also suggest formation of a miscible monolayer.

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