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Receptor/Ligand Interactions at an Oil/Water Interface DANIEL CARVAJAL, Northwestern University, CHI-YANG CHAO, Northwestern University, KENNETH SHULL, Northwestern University — The strength of the interaction between biotin and avidin has sparked major research interests as the system serves as a vehicle for both targeted drug delivery and the simulation of surface recognition processes. Interfacial tension measurements (IFT) using R-PEO-biotin¹ were used to obtain dynamic information on the avidin-biotin interaction. Real time IFT data was gathered from the liquid-liquid interface by monitoring the shape of the drop via a drop shape analysis (DSA) instrument. A drop, containing dissolved R-PEO-biotin block copolymers in an “oil like” phase, was formed in an immiscible embedding “water like” phase. The block copolymers were specially designed to segregate to the liquid-liquid interface and cover the drop surface. By adding avidin to the surrounding water phase, changes in the drop shape provided dynamic data on the avidin-biotin interaction, as avidin binds to biotin only at the drop surface. This is the first study to show that DSA can be applied to the dynamic study of the interaction between avidin and biotin. ¹Biotin-functionalized block copolymers with a hydrophobic aliphatic block and a hydrophilic PEO block

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