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Label-Free Determination of Protein Binding in Aqueous Solution using Overlayer Enhanced Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy (OE-ATR-FTIR) TRAVIS RUTHENBURG, TOLULOPE AWEDA, SIMON PARK, CLAUDE MEARES, DONALD LAND, Department of Chemistry, University of California, Davis — Protein binding/affinity studies are often performed using Surface Plasmon Resonance techniques that don't produce much spectral information. Measurement of protein binding affinity using FTIR is traditionally performed using high protein concentration or deuterated solvent. By immobilizing a protein near the surface of a gold-coated germanium internal reflection element interactions can be measured between an immobilized protein and free proteins or small molecules in aqueous solution. By monitoring the on and off rates of these interactions, the dissociation constant for the system can be determined. The dissociation constant for the molecule Yttrium-DOTA binding to the antibody 2D12.5 system was determined to be 100nM. Results will also be presented from our measurements of Bovine Serum Albumin (BSA) binding to anti-BSA.

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