Supporting Information:

Influence of Attachment Strategy on the Thermal Stability of Hybridized DNA on Gold Surfaces

Tyler J. Petty, Caleb E. Wagner, Aric Opdahl*

Department of Chemistry and Biochemistry, University of Wisconsin—La Crosse, La Crosse, WI 54601, USA

* Corresponding author, email: aopdahl@uwlax.edu

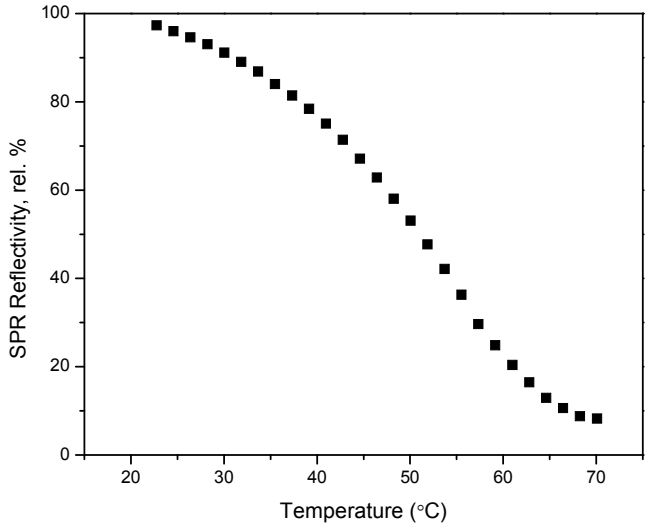

Figure SI-1. Plot showing how SPR reflectivity varies as a function of the solution temperature for the SPR instrument used in these experiments. In the plot, the imaging angle on the SPR instrument was optimized for quantitative use at 50 °C. The change in reflectivity with temperature is approximately linear over only a small temperature range between 40° C and 60° C. This limits the range of temperatures over which the hybridization state of DNA can be quantified in a single measurement.

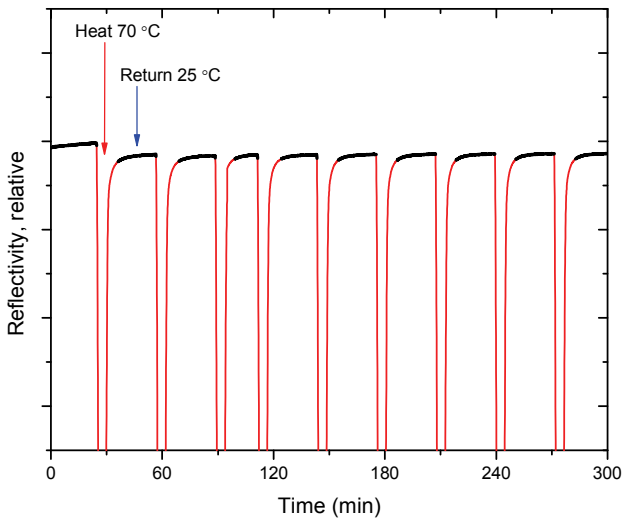

Figure SI-2. Representative SPR reflectivity data from the experiments designed to measure probe stability. In this experiment, a sensor coated with A15-T5-P15 initially at 25° C was repeated heated to 70° C for several minute increments (red) and returned to 25° C after each heating period (black). The number of probes lost from the sensor was determined by recording the decrease in reflectivity after each heating period.

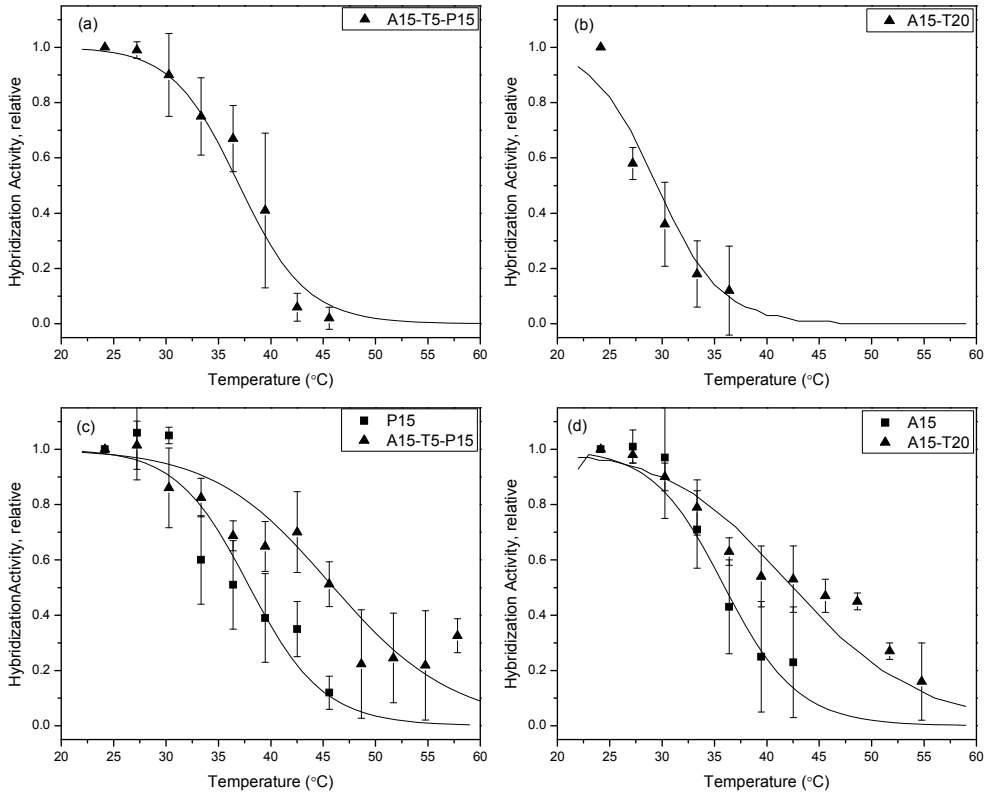

Figure SI-3. Relative hybridization activities as a function of temperature for end-tethered [A15-T5-P15:P15′ and A15-T20:A15] hybrids in 0.10 M NaCl-TE [(a) and (b)]. Relative hybridization activities as a function of temperature for end-tethered [A15-T5-P15:P15′ and A15-T20:A15] hybrids and directly-adsorbed [P15:P15′ and A15:T15] hybrids in 1.0 M NaCl-TE [(c) and (d)]. Relative hybridization activities are relative to the number of hybrids observed for each type of hybrid at the lowest measured temperature. Solid lines are fits to equation 2. Error bars represent the standard deviation of at least 3 separate measurements from different sensors. Note: Directly-adsorbed hybrids are were not observed in 0.10 M NaCl-TE.