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Repeated Biorecognition Assays Based on Reversibly Biofunctionalized Surfaces

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Shown below is an example of repeated (5 cycles) DNA assays implemented based on surfaces biofunctionalized with a switchable mutant of avidin (SwAvd). Each assay cycle starts with a stable biotinylated surface that is sequentially functionalized with SwAvd and a biotinylated DNA probe, followed by the hybridization with a DNA target. Upon chemical disassembly of the SwAvd layer, the initial biotinylated surface is then recovered for the next assay cycle. Excellent reproducibility is achieved among the 5 repeated cycles of this model assay, directly monitored over 10 hours by QCM-D.

