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Supporting Information

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Dynamics of Ordered Domain Formation of DNA fragments on Au(111) with Molecular Resolution

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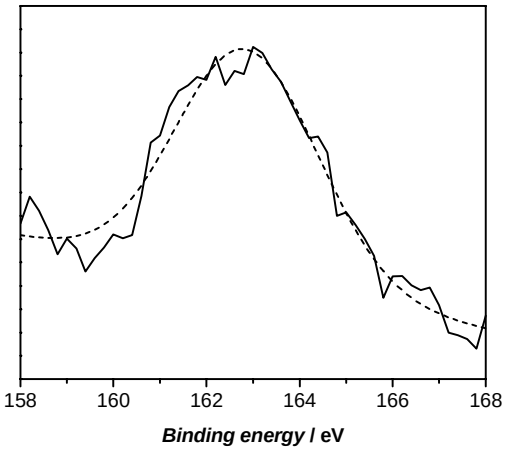

Figure S1. XPS spectra of HS-10A on single-crystal gold (right) in the S2p region. The fully drawn line represents the data and the dashed line shows the fitted curve.

Figure S1 shows the binding energy of the 2p obritals of the gold-sulfur bond. The fit of the S2p orbitals with a $P_{3/2}$ binding energy of 162.5 eV (full width at half maximum 1.4 eV) and a spitting of 1.2 eV supports the gold-sulfur bond.

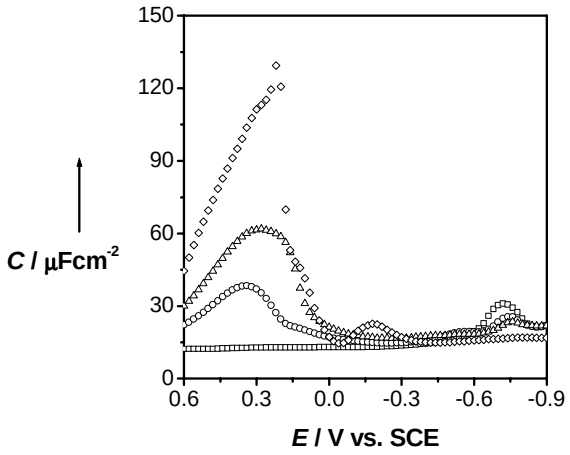

Figure S2. Interfacial capacitances of HS-10A adsorbed on a Au(111)-electrode surface from 100 mM phosphate buffer, pH 6.9. Three successive scans. First scan (squares), second scan (circles), third scan (triangles), and a clean Au(111) surface (diamonds).

Fig. S2 shows three consecutive interfacial capacitance scans of HS-10A and of a bare Au(111)-surface. The interfacial capacitance of the first scan is constant with a peak at -0.7 V. The second scan shows a strong and broad peak around 0.3 V and a decrease of the -0.7 V peak. This trend is continued in the third scan. The height of the interfacial capacitance peak in the third scan approaches clearly that of Au(111) in pure phosphate buffer. The interfacial capacitance of the bare gold surface shows the hump at 0.3 V, with a tip around 0.16 V. The hump at 0.3 V can best be explained by changes in buffer anion adsorption patterns, whilst the potential crosses the pzc. The tip on the hump at 0.16 V reflects the lift of reconstruction of the Au(111)-surface. The surface thus becomes accessible for anions due to HS-10A desorption, and the hump appears.

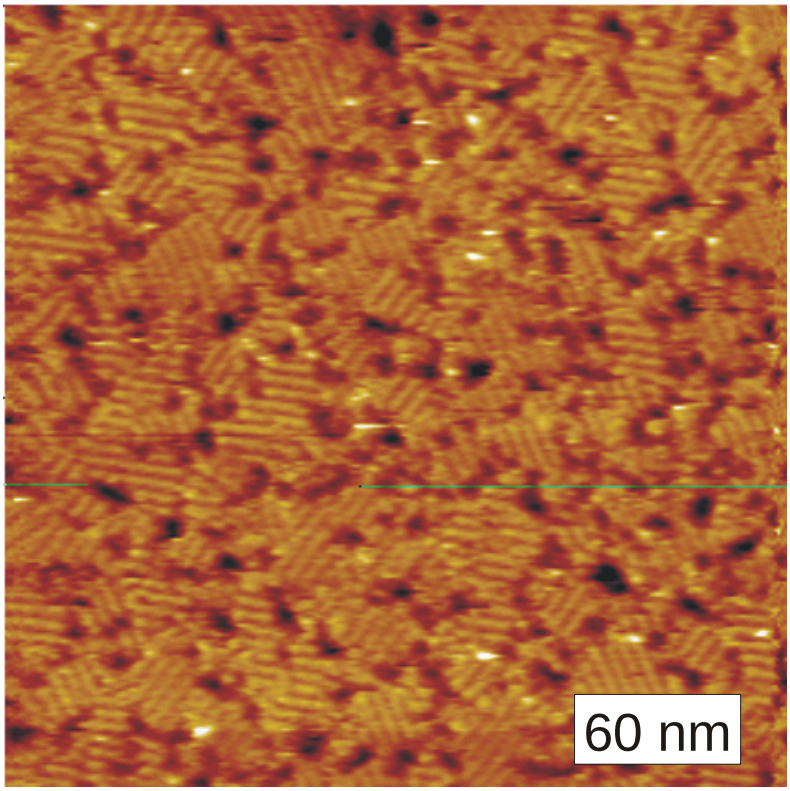

Figure S3. In situ STM images of HS-A. 10 mM phosphate buffer, pH 7.1. Adsorption under potential control at -0.61 V for 2 h. Constant current mode. Scan rate 13 lines/s. Sample potential –0.21 V vs. SCE. Bias voltage –0.15V.

The analysis of in situ STM image of HS-A reveals the same (√3 x 4)R30º surface lattice as HS-10A.