

Supporting Information for

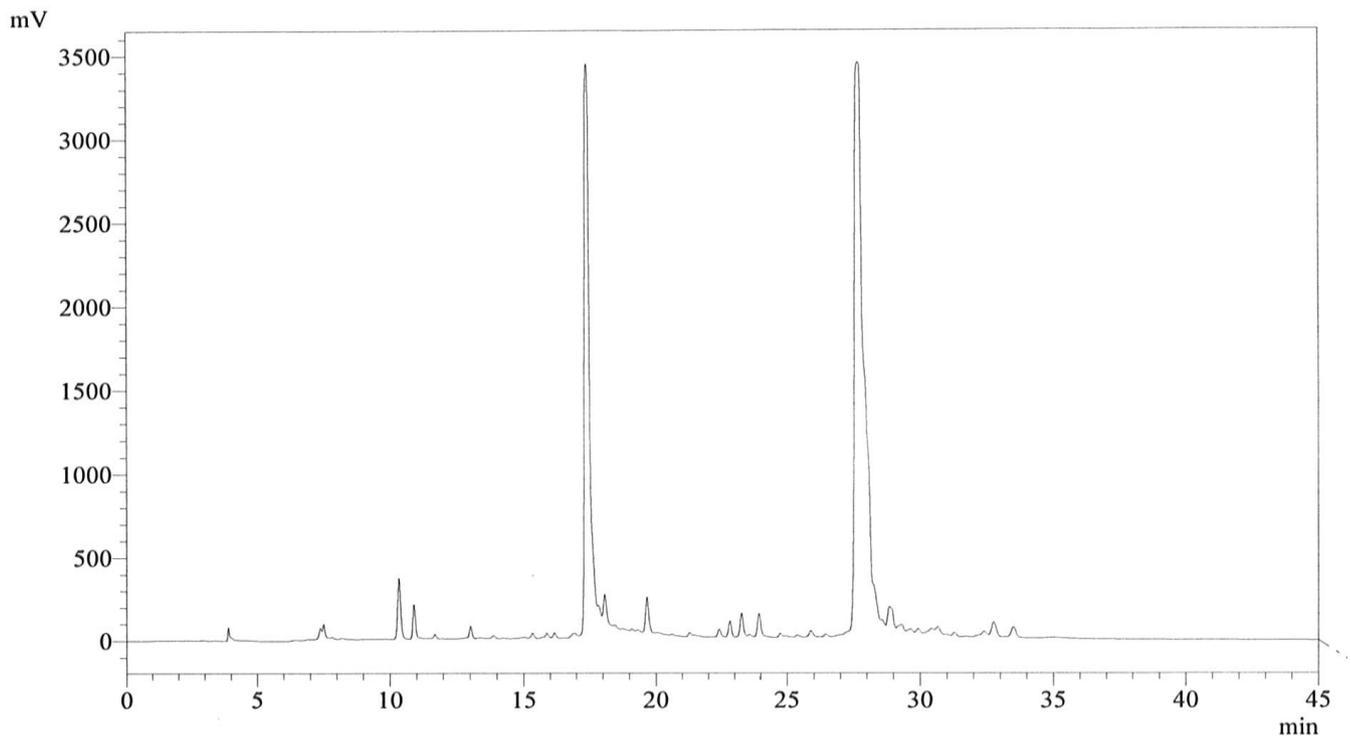
# Fluorescence Probing of Metal-Ion-Mediated Hybridization of Oligonucleotides

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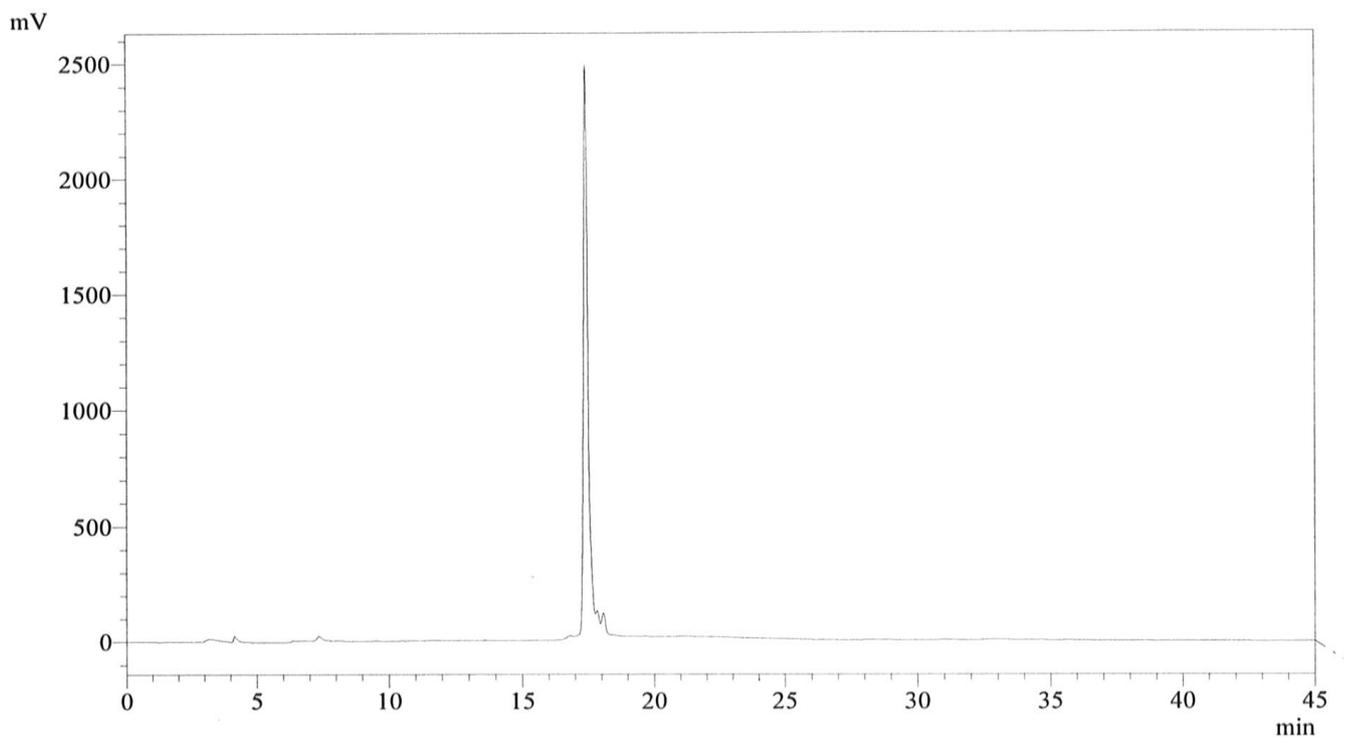
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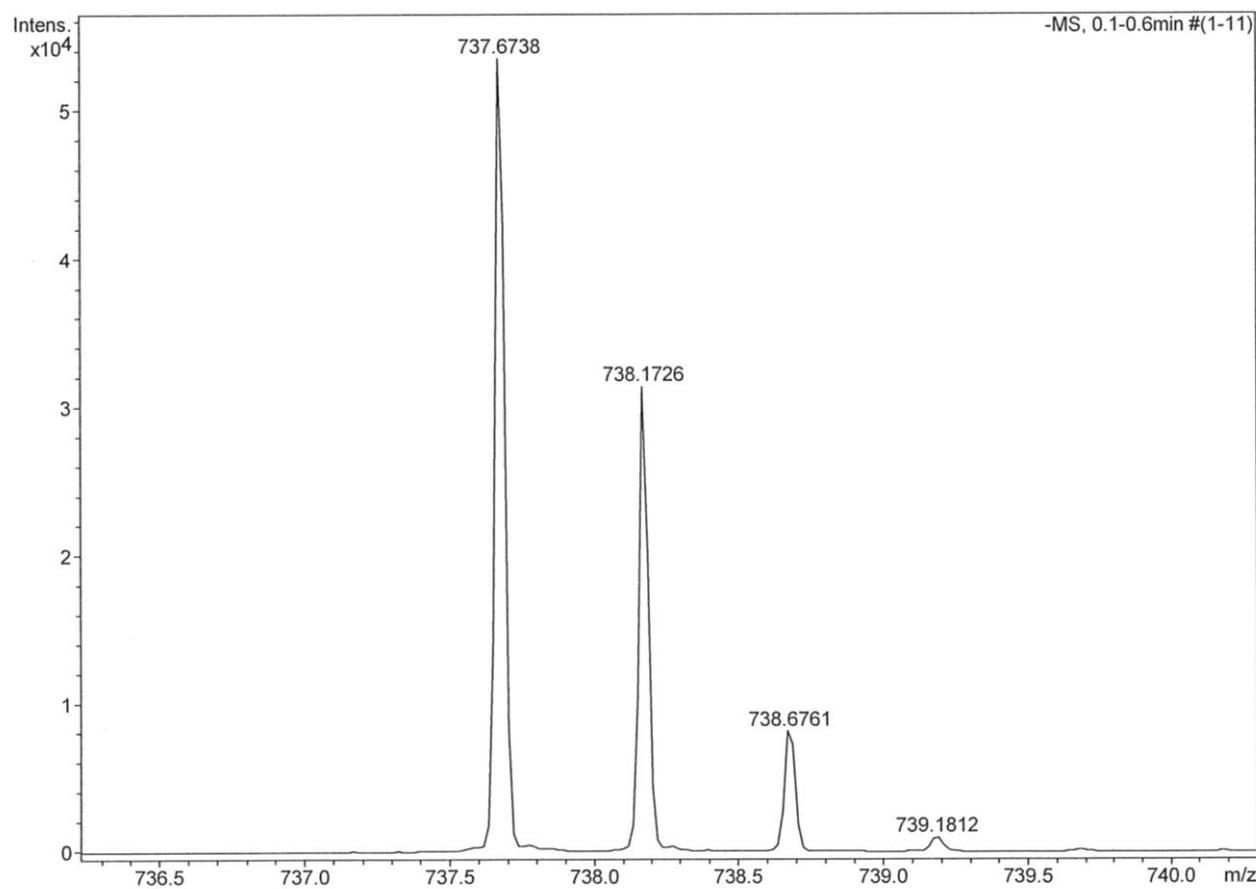
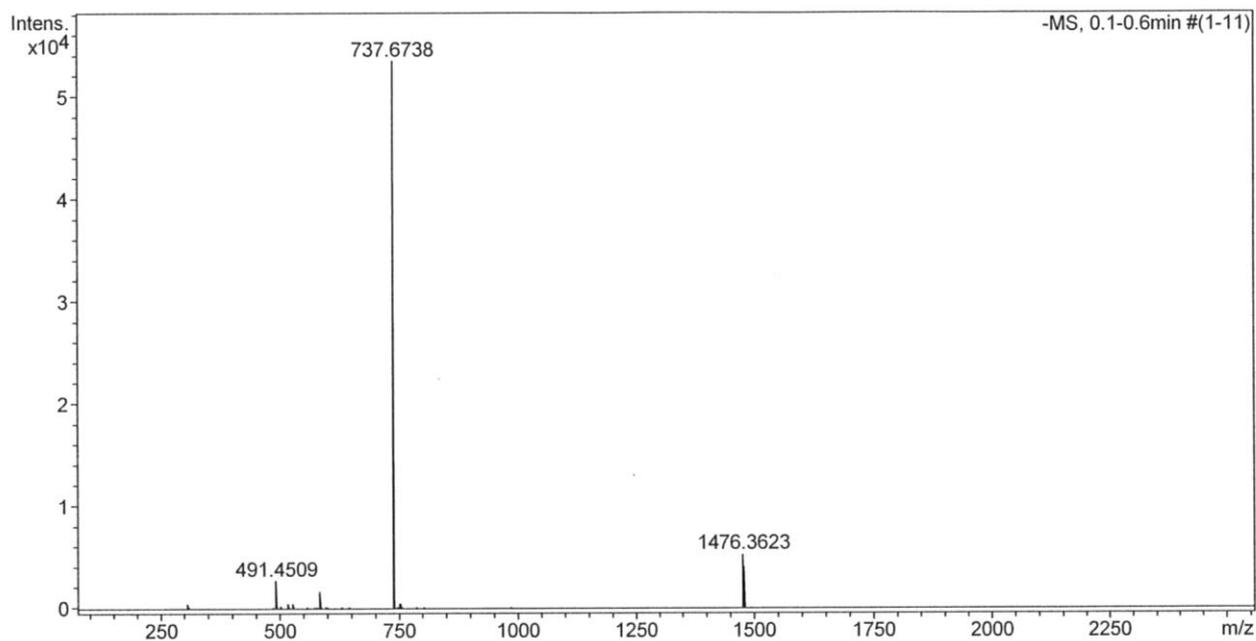
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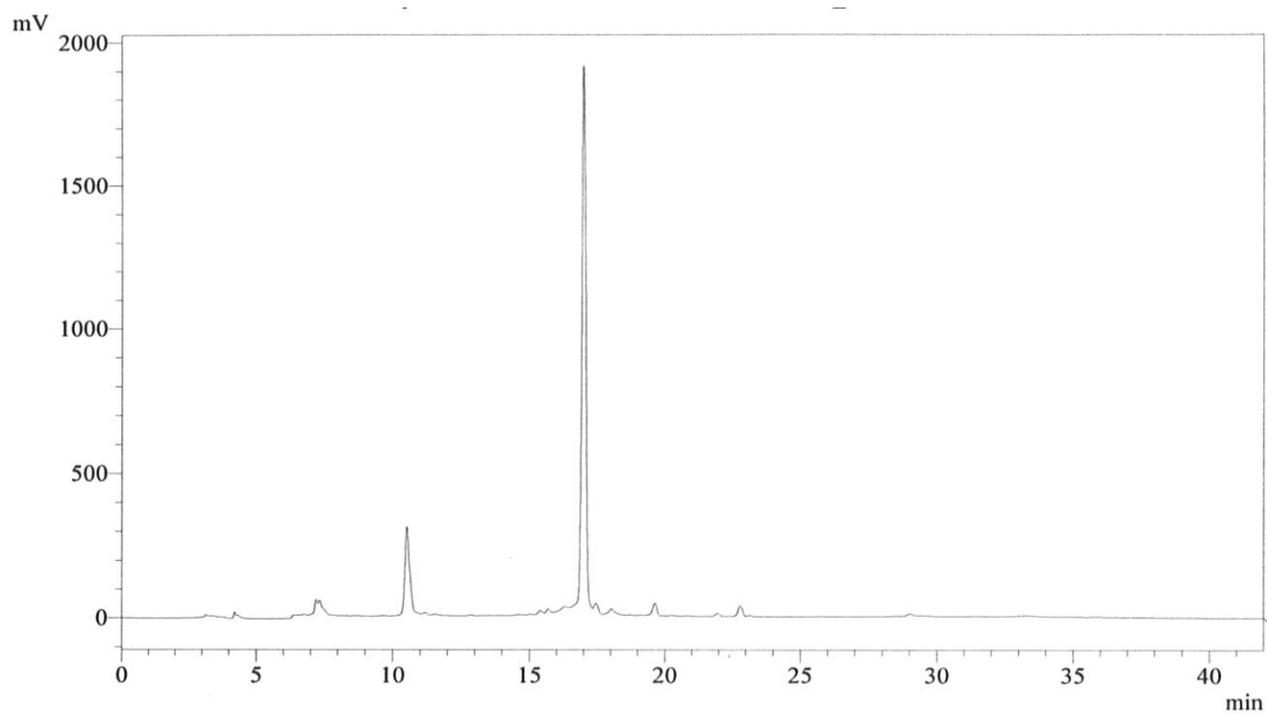
**Figure S1.** HPLC trace of crude oligonucleotide **ON4a**



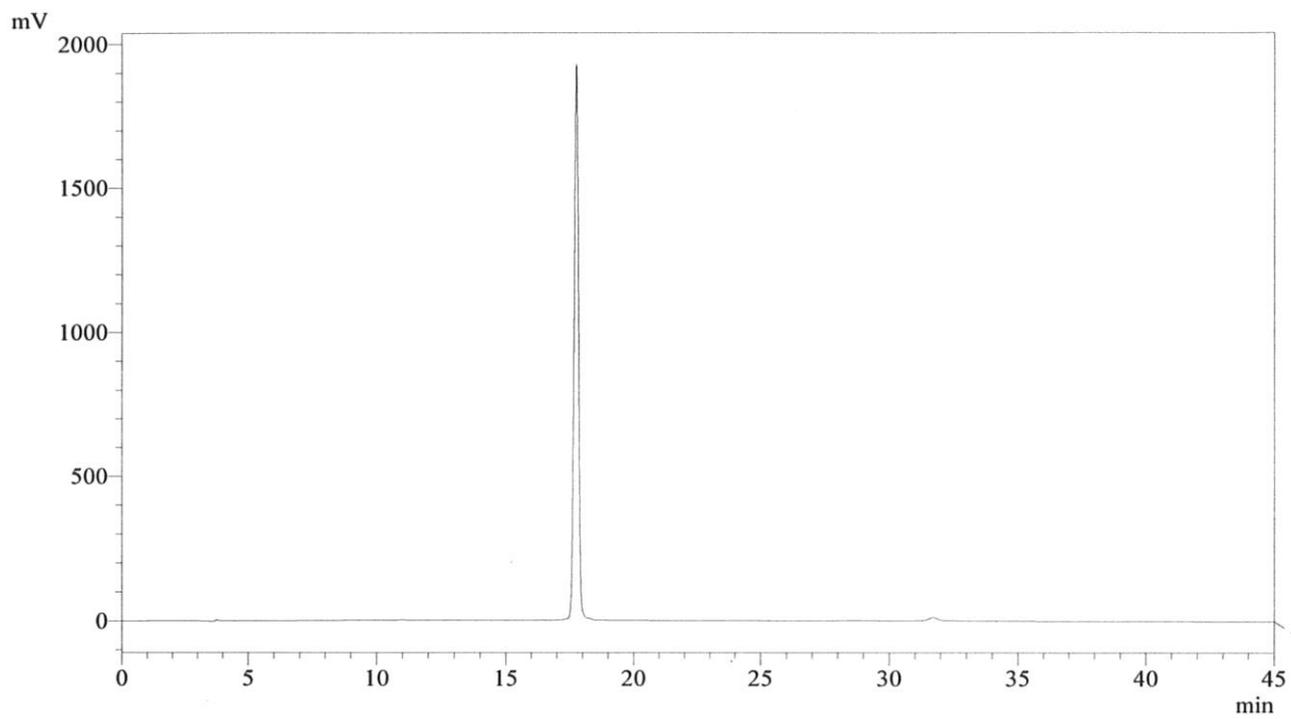
**Figure S2.** HPLC trace of purified oligonucleotide **ON4a**



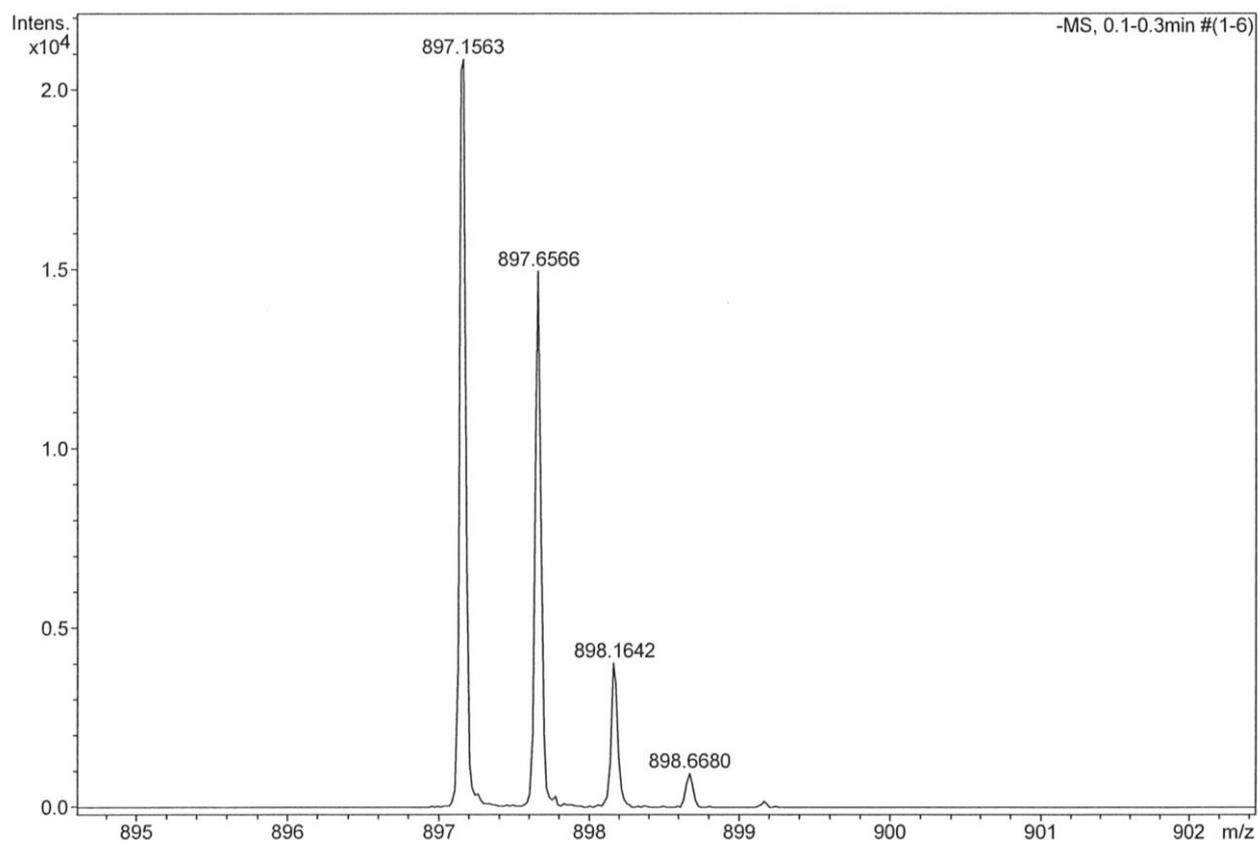
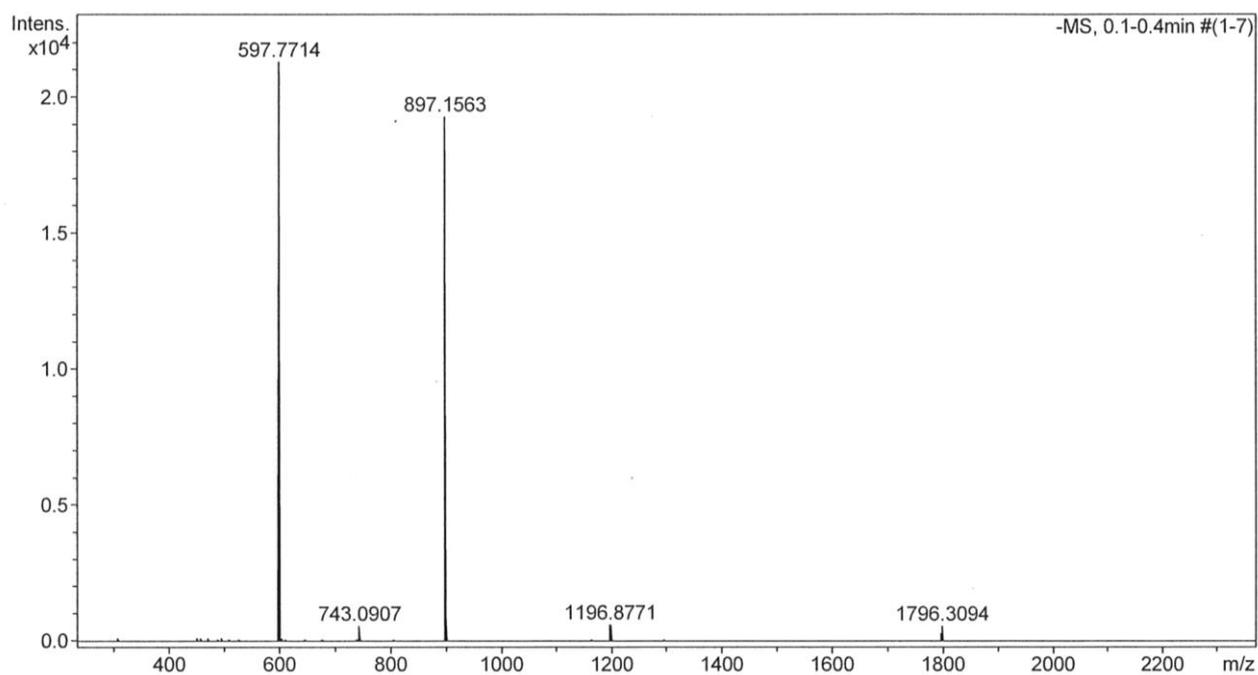
**Figure S3.** ESI mass spectrum of purified oligonucleotide **ON4a**



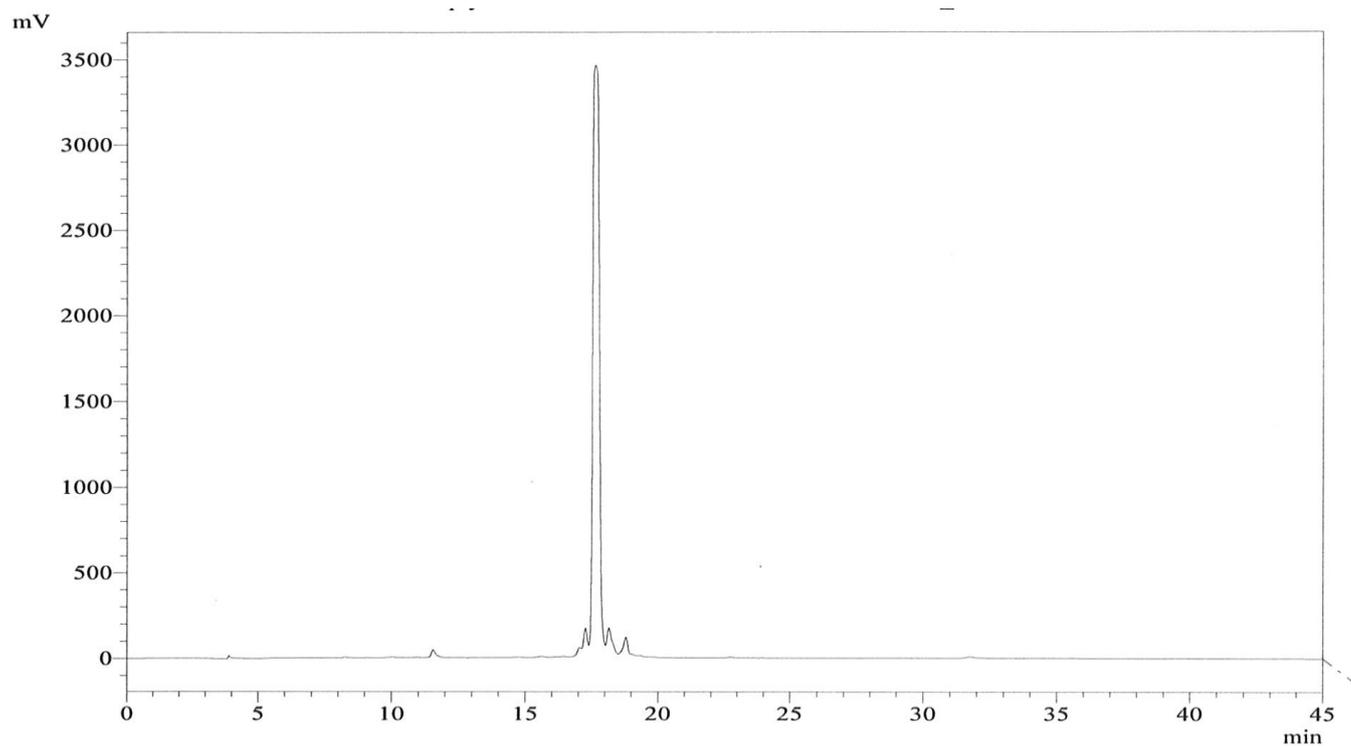
**Figure S4.** HPLC trace of crude oligonucleotide **ON4b**



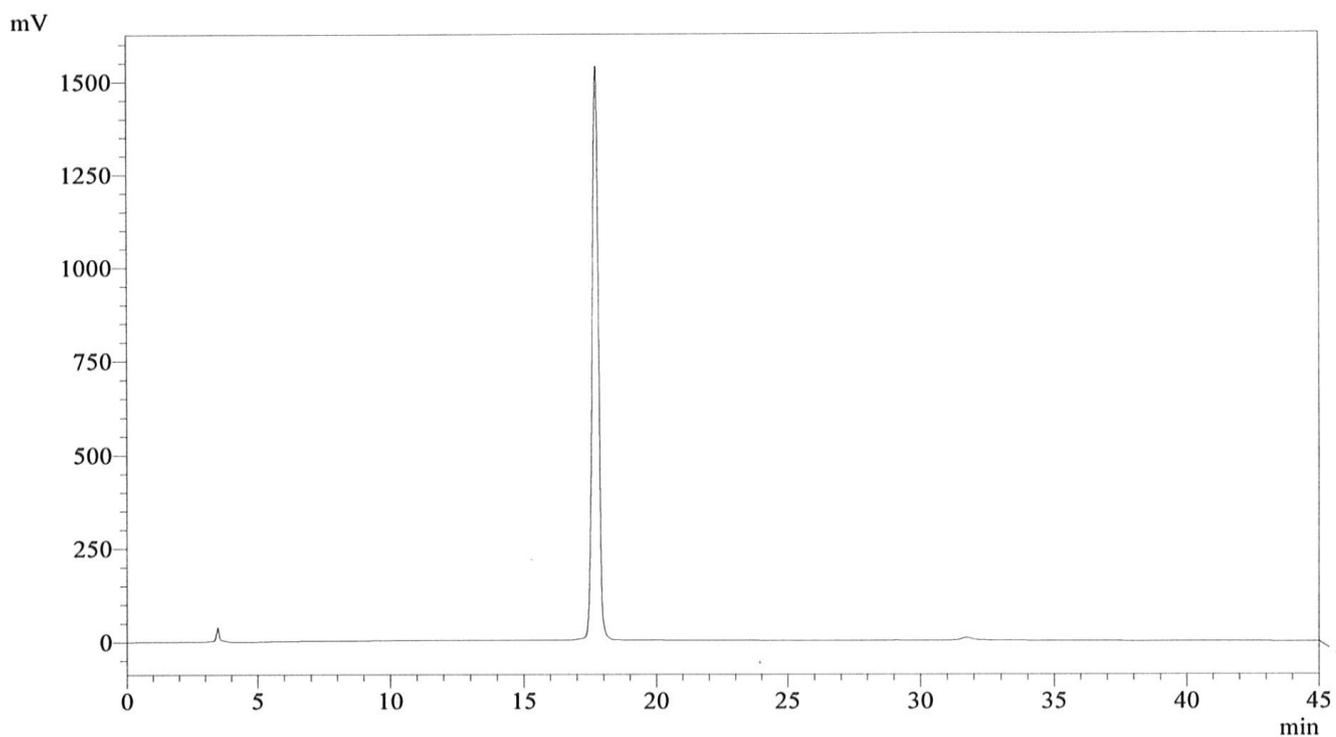
**Figure S5.** HPLC trace of purified oligonucleotide **ON4b**



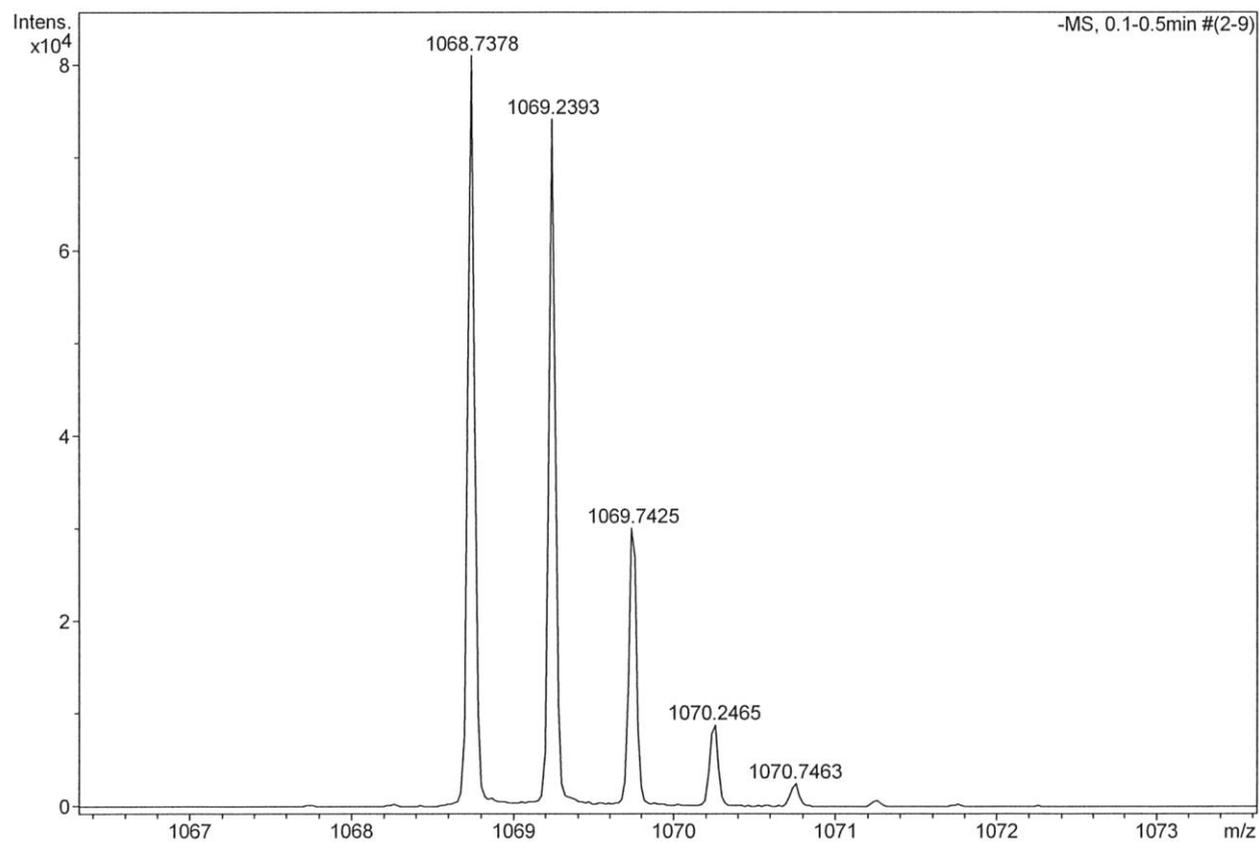
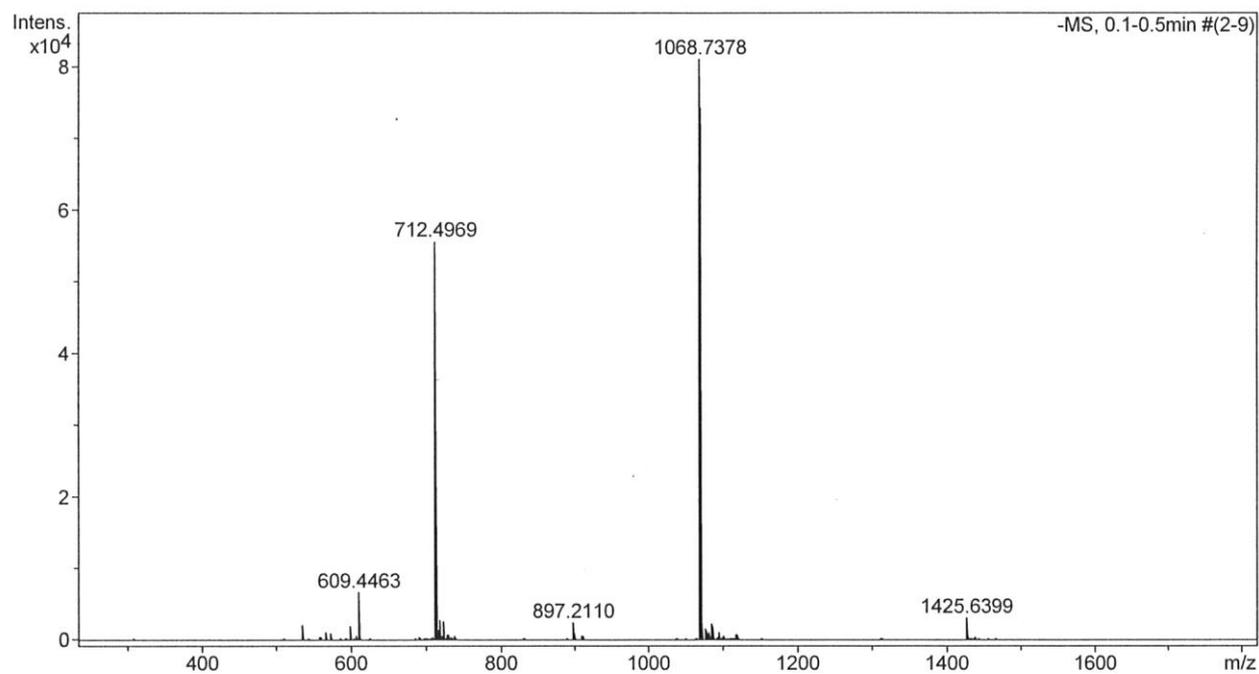
**Figure S6.** ESI mass spectrum of purified oligonucleotide **ON4b**



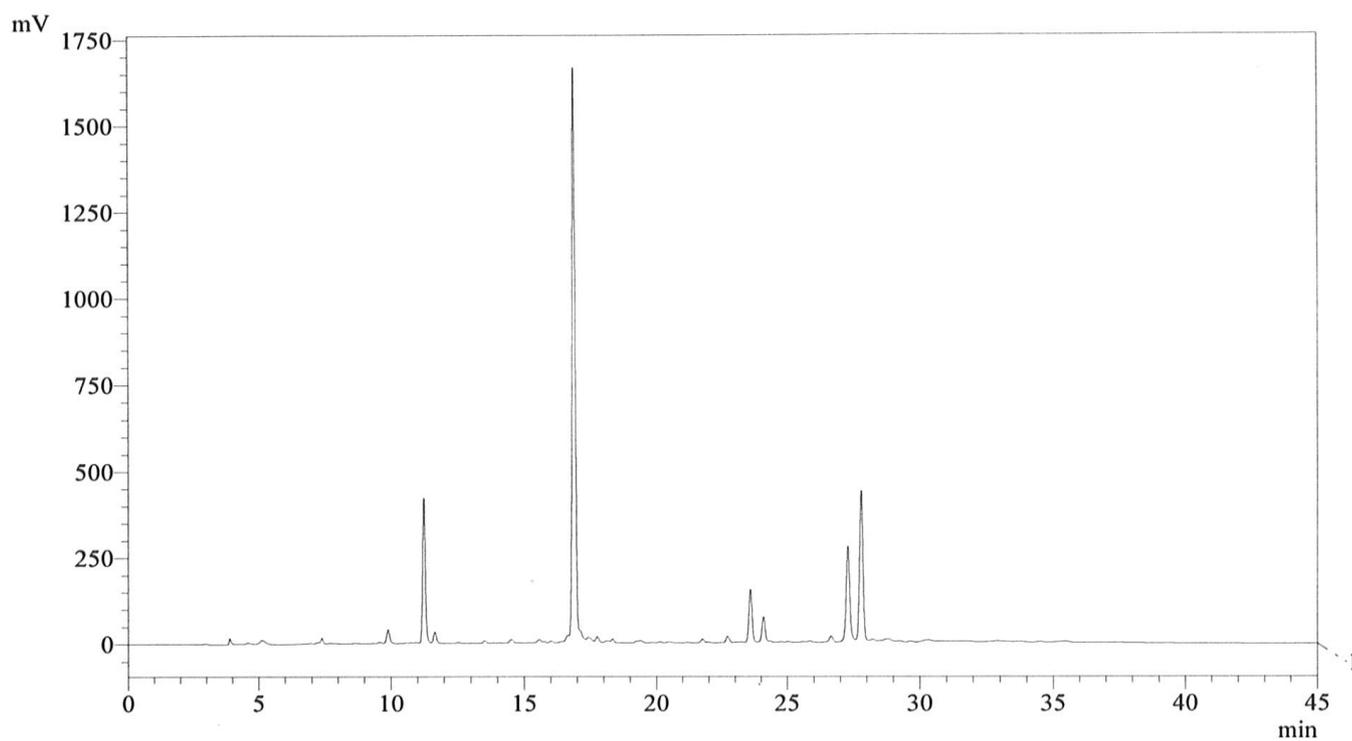
**Figure S7.** HPLC trace of crude oligonucleotide **ON4c**



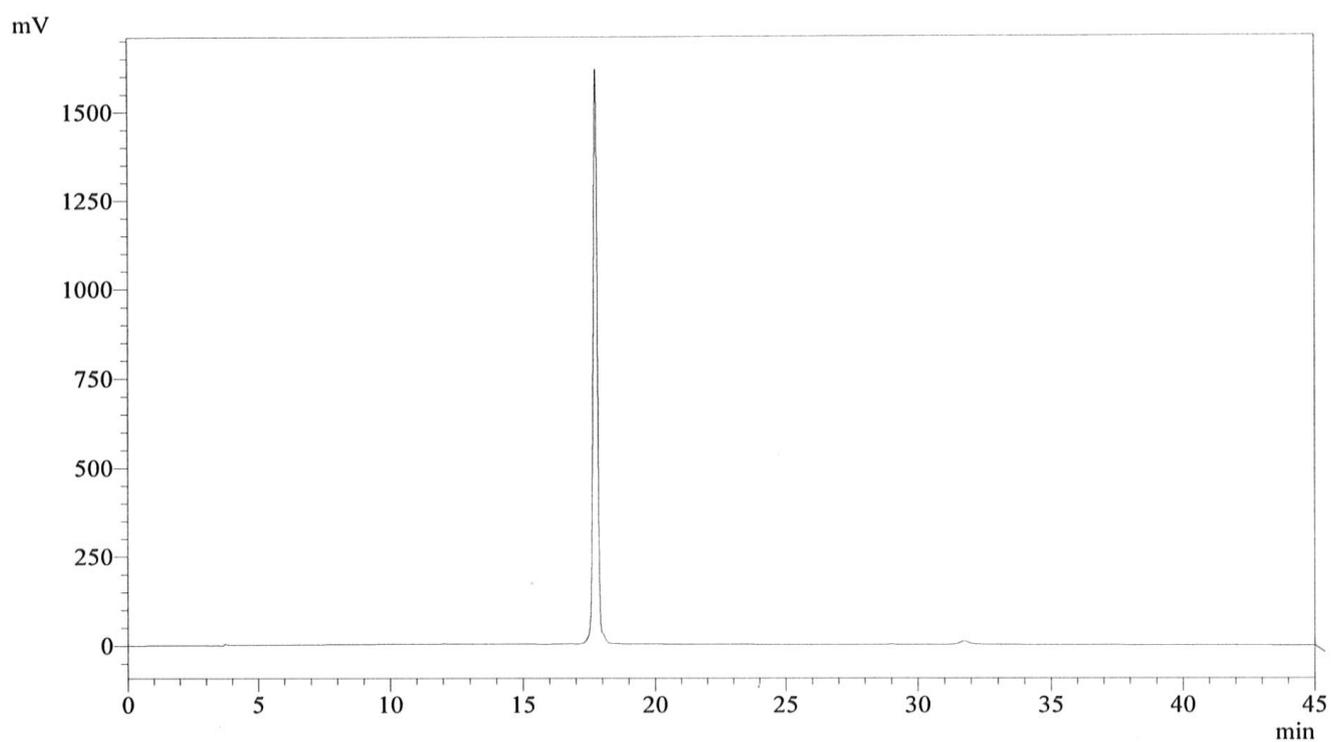
**Figure S8.** HPLC trace of purified oligonucleotide **ON4c**



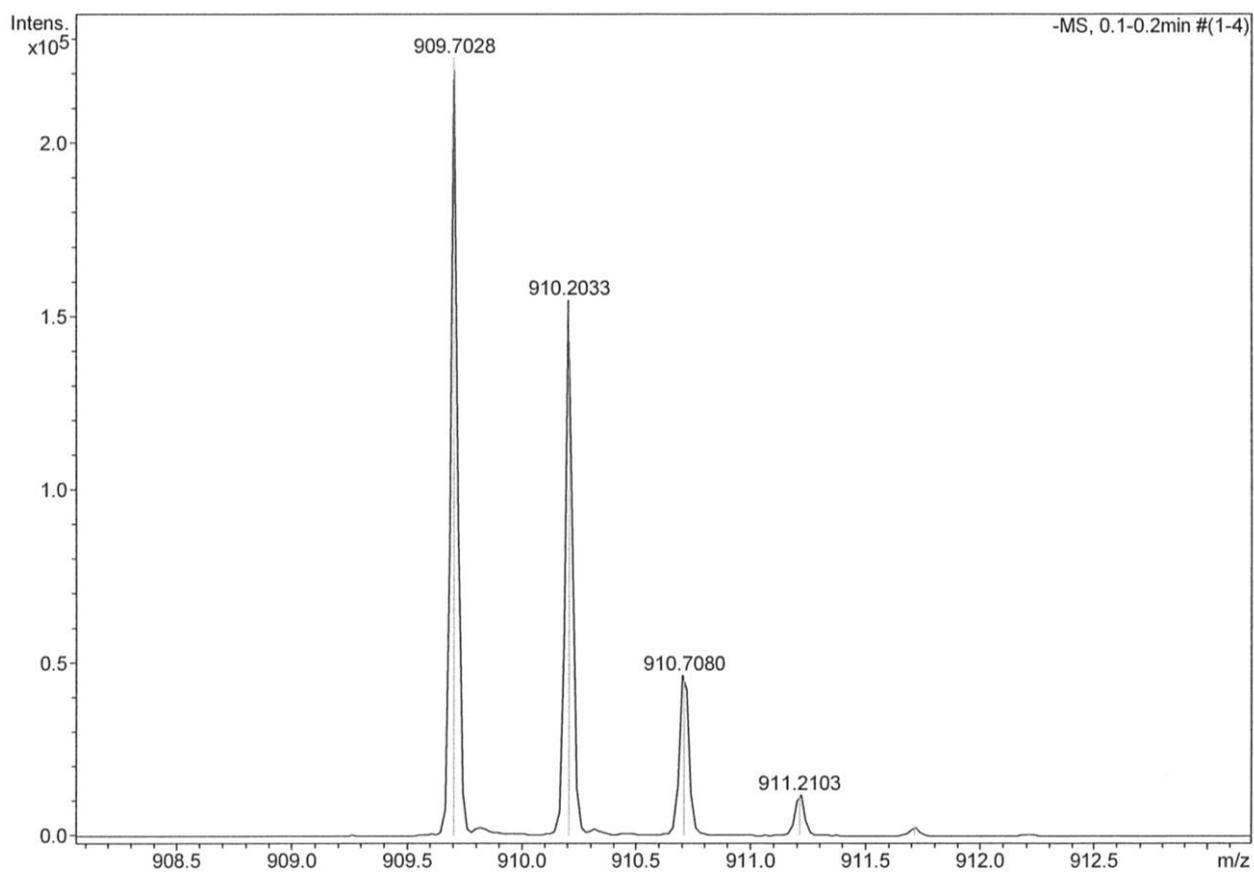
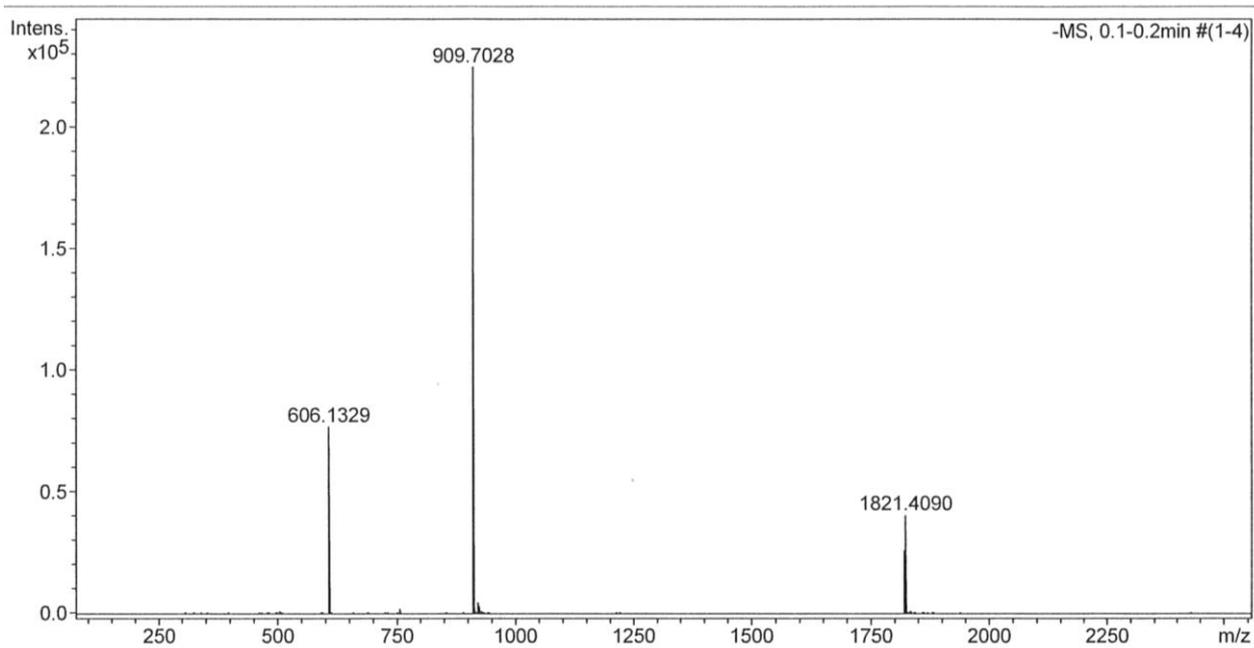
**Figure S9.** ESI mass spectrum of purified oligonucleotide **ON4c**



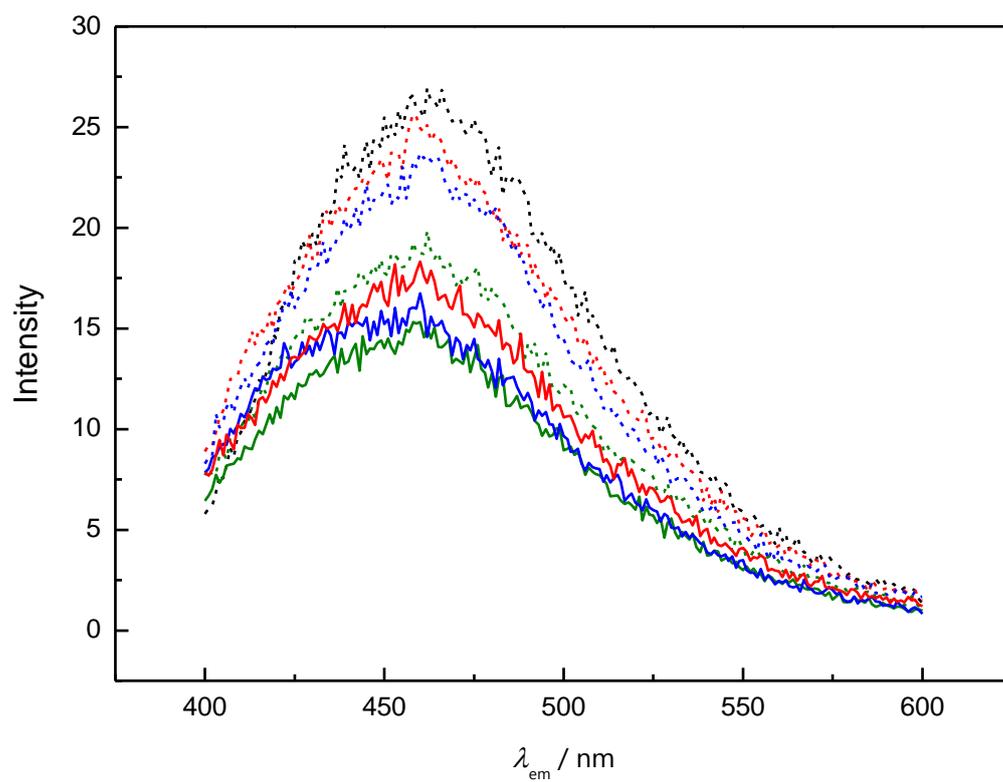
**Figure S10.** HPLC trace of crude oligonucleotide **ON5b**



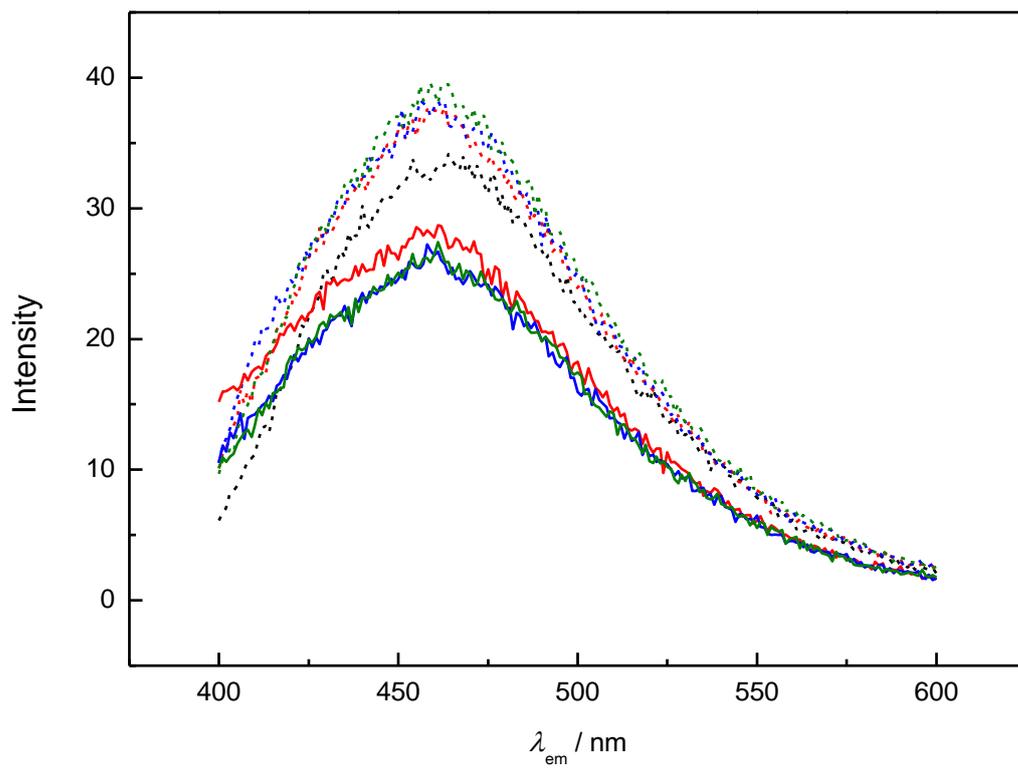
**Figure S11.** HPLC trace of purified oligonucleotide **ON5b**



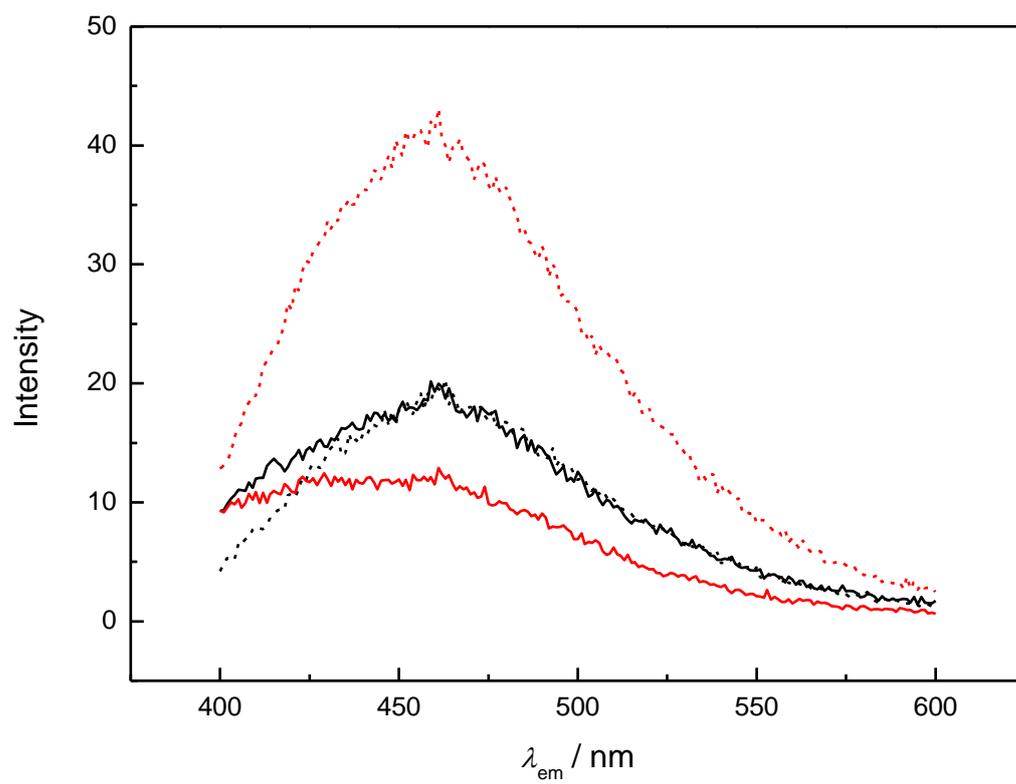
**Figure S12.** ESI mass spectrum of purified oligonucleotide **ON5b**



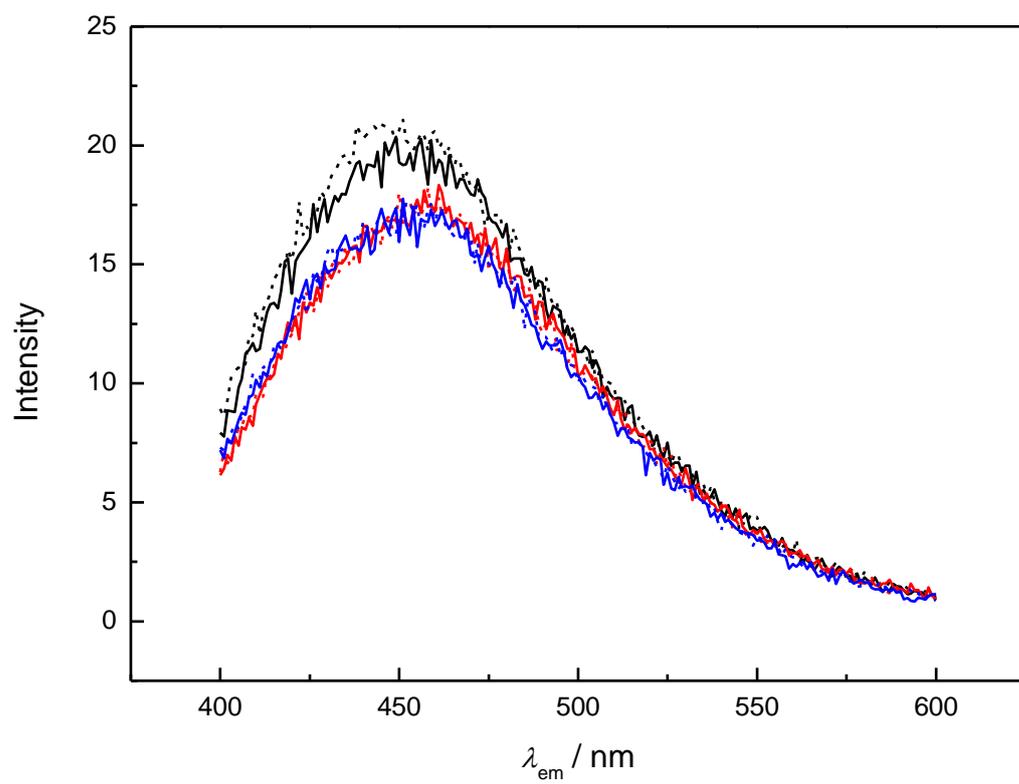
**Figure S13.** Fluorescence spectra of **ON1a** (black line) and duplexes **ON1a:ON4a** (red line), **ON1a:ON4b** (blue line) and **ON1a:ON4c** (green line) in the absence (dashed line) and presence (solid line) of  $\text{Cu}^{2+}$



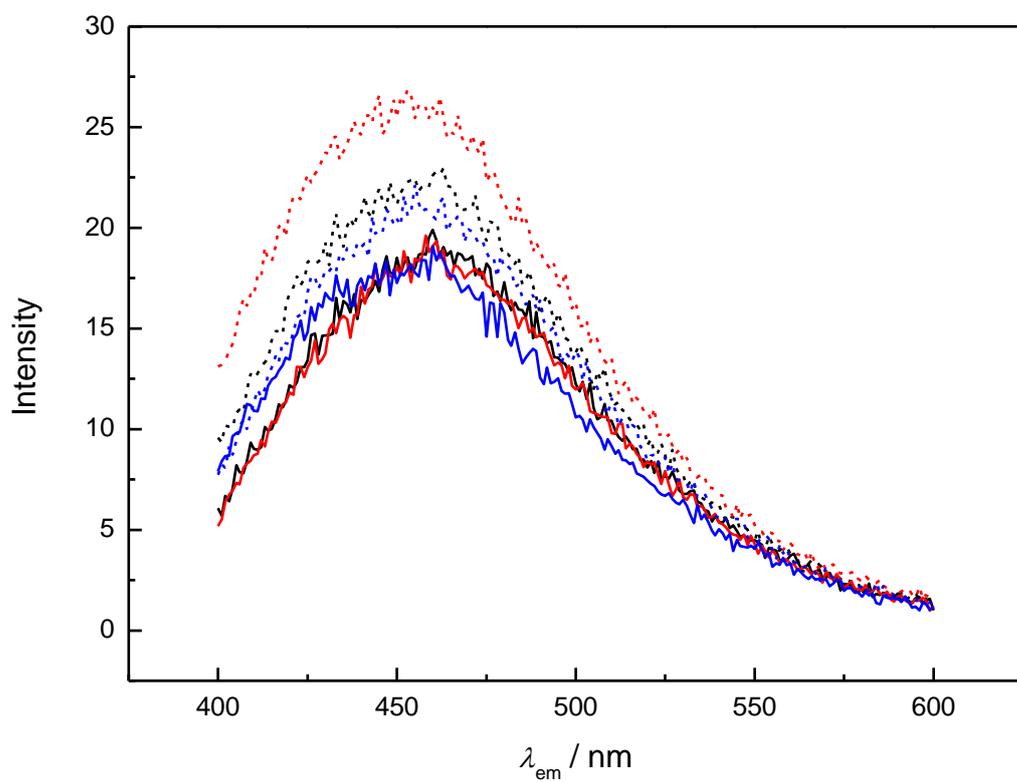
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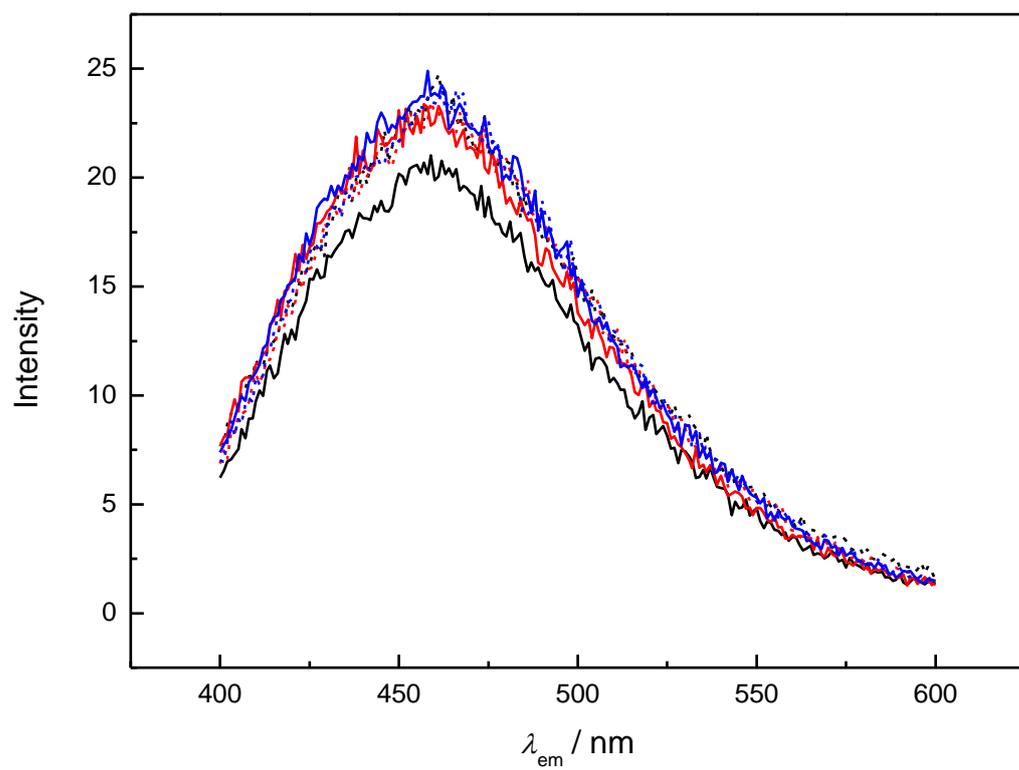
**Figure S15.** Fluorescence spectra of **ON2** (black line) and duplex **ON2:ON7** (red line) in the absence (dashed line) and presence (solid line) of  $\text{Cu}^{2+}$



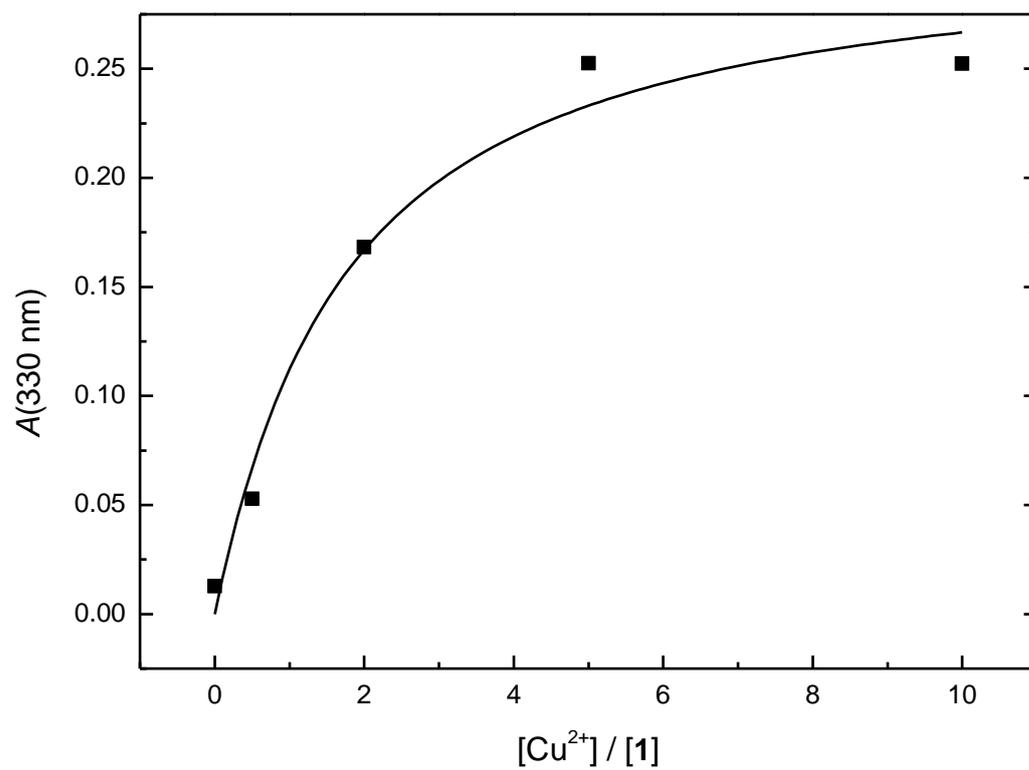
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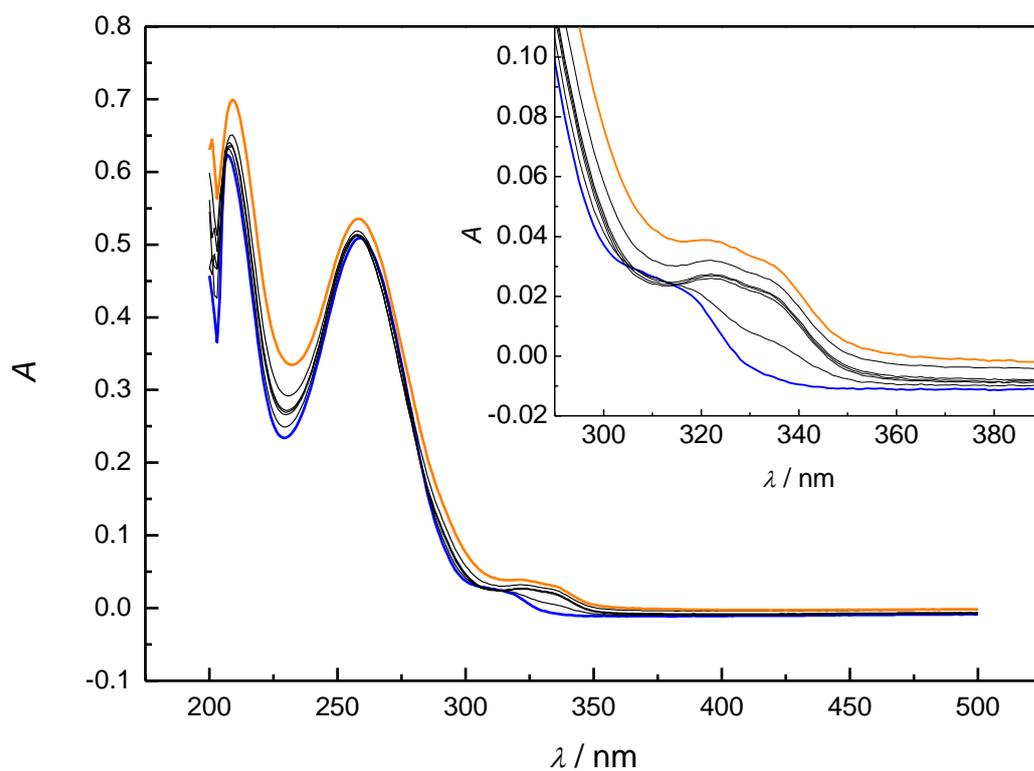
**Figure S17.** Fluorescence spectra of **ON3b** (black line) and duplexes **ON3b:ON5a** (red line) and **ON3b:ON5b** (blue line) in the absence (dashed line) and presence (solid line) of  $\text{Cu}^{2+}$



**Figure S18.** Fluorescence spectra of **ON3c** (black line) and duplexes **ON3c:ON5a** (red line) and **ON3c:ON5b** (blue line) in the absence (dashed line) and presence (solid line) of  $\text{Cu}^{2+}$



**Figure S19.** Absorbance of **1** at 330 nm as a function of  $[Cu^{2+}]$ ;  $T = 25 \text{ }^\circ\text{C}$ ;  $\text{pH} = 7.4$  ( $20 \text{ mmol L}^{-1}$  cacodylate buffer);  $I(\text{NaClO}_4) = 0.10 \text{ mol L}^{-1}$ .



**Figure S20.** UV spectrum of duplex **ON1c:ON4c** in the presence of 0 (blue line), 0.5, 1.0, 1.5, 2.0, 5.0 and 10.0 eq. (orange line) of  $\text{CuSO}_4$ ;  $T = 25\text{ }^\circ\text{C}$ ;  $\text{pH} = 7.4$  ( $20\text{ mmol L}^{-1}$  cacodylate buffer);  $I(\text{NaClO}_4) = 0.10\text{ mol L}^{-1}$ .