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Supporting Information

Synthesis and Properties of Oligoribonucleotide Analogs Having Formacetal Internucleoside Linkages

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Dimer 8. ¹H NMR (CDCl₃:CD₃OD, 9:1, 270 MHz) δ : 7.93 and 7.75 (2d, J = 8.0 and 8.4 Hz, 2H, H6, H6*), 7.90 (d, J = 6.2 Hz, 1H, *o*-ClBz), 7.49-7.34 (m, 3H, *o*-ClBz), 6.06 (d, J = 2.9 Hz, 1H, H1'), 5.80 (d, J = 2.9 Hz, 1H, H1'*), 5.75 (m, 2H, H5, H5*), 5.66 (m, 1H, H2'), 4.91 and 4.71 (AB system, J = 7.0 Hz, 2H, OCH₂O), 4.68 (m, 1H, H3'), 4.28-4.13 (m, 4H, H4', H2'*, H3'*, H4'*), 4.05-3.76 (m, 4H, H5', H5'*). ¹³C NMR (CDCl₃:CD₃OD, 9:1, 67.9 MHz) δ : 164.51, 164.30 (C4, C4*, C=O in *o*-ClBz), 151.00, 150.52 (C2, C2*), 141.08, 140.38 (C6, C6*), 134.06, 133.38, 131.84, 131.30, 128.65, 126.84 (*o*-ClBz), 102.38, 102.20 (C5, C5*), 94.74 (OCH₂O), 90.44 (C1'*), 89.14 (C1'), 82.90, 82.47, 74.58, 68.93 (C4', C2'*, C3'*, C4', C4'*), 75.22 (C2'), 71.74 (C3'), 66.31, 59.72 (C5', C5'*).

Dimer 9. ¹H NMR (CDCl₃:CD₃OD, 9:1, 270 MHz) δ : 7.91 (d, J = 7.7 Hz, 1H, *o*-ClBz), 7.81 (d, J = 8.1 Hz, 1H, H6), 7.50-7.26 (m, 16H, Ar, H6), 6.88 (m, 2H, MMT), 6.18 (d, J = 3.7 Hz, 1H, H1'), 5.76 (d, J = 3.7 Hz, 1H, H1'*), 5.67-5.64 (m, 2H, H2', H5), 5.41 (m, 1H, H5), 4.78-4.65 (m, 3H, OCH₂O, H3'), 4.30 (m, 1H, H4'), 4.06-3.98 (m, 3H, H2'*, H3'*, H4'*), 3.81 (s, 3H, OCH₃), 3.72-3.37 (m, 4H, H5', H5'*). ¹³C NMR (CDCl₃:CD₃OD, 9:1, 67.9 MHz) δ : 164.43, 164.00 (C4, C4*, C=O in *o*-ClBz), 150.98, 150.46 (C2, C2*), 158.76, 143.52, 143.44, 134.54, 130.46, 128.44, 128.00, 127.33 (MMT), 140.46, 140.08 (C6, C6*), 134.03, 133.44, 131.87, 131.27, 128.44, 126.84 (*o*-ClBz), 113.28 (MMT), 102.65, 102.36 (C5, C5*), 94.74 (OCH₂O), 90.12, (C1'*), 88.14 (C1'), 87.39 (MMT), 82.66, 74.30, 69.66 (C2'*, C3'*, C4'*), 82.12 (C4'), 75.20 (C2'), 73.87 (C3'), 67.47, 62.23 (C5', C5'*), 55.20 (OCH₃).

* indicates resonances from protons and carbons in 5'-yl unit of the dimer.

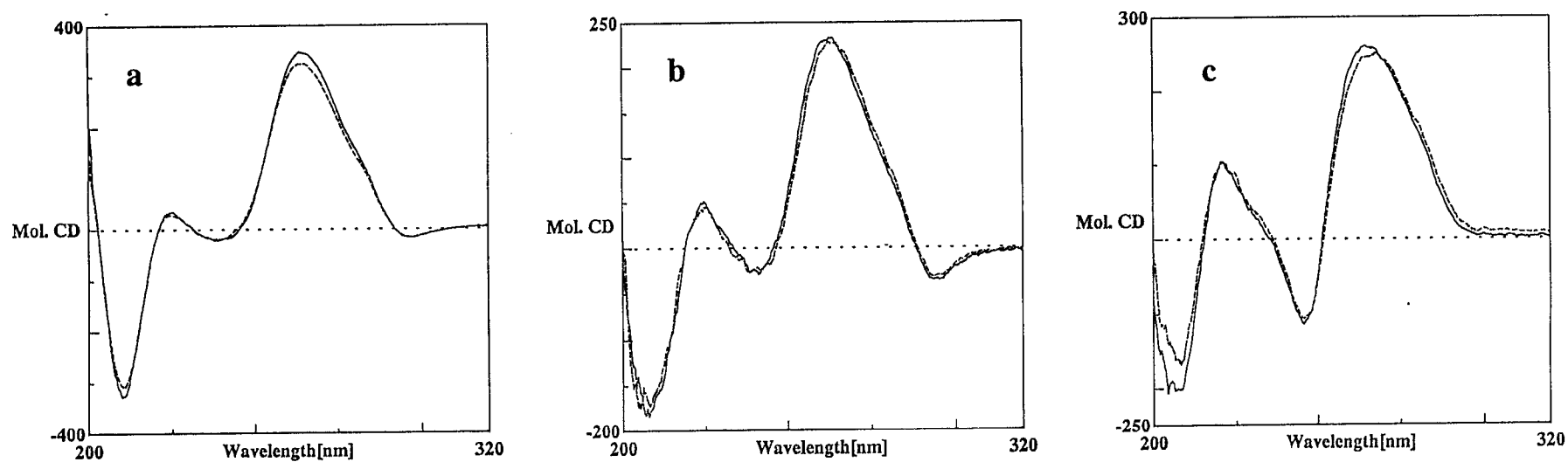


Figure 2. CD spectra of oligonucleotide duplexes formed by **11** (a), **12** (b) and **13** (c) with their complementary RNA sequences; (---) unmodified RNA duplexes and (—) bearing formacetal substitutions.