Supporting Information

NMR and MS data of the compounds.

2-Amino-6-(2-thiazolyl)-9-[2-deoxy-3,5-di-O-(tert-butyldimethylsilyl)-β-D-ribofuranosyl]purine (2).

\(^1\)H NMR (270 MHz, CDCl\(_3\)) \(\delta\) 0.06 (s, 6H), 0.10 (s, 6H), 0.89 (s, 9H), 0.91 (s, 9H), 2.35 (ddd, 1H, J = 3.3, 5.8, 12.9 Hz), 2.61 (m, 1H), 3.77 (m, 1H), 4.00 (m, 1H), 4.58 (m, 1H), 5.08 (s, 2H), 6.38 (t, 1H, J = 6.6 Hz), 7.88 (d, 1H, J = 3.2 Hz), 8.14 (s, 1H), 8.15 (d, 1H, J = 3.2 Hz); \(^{13}\)C NMR (68 MHz, CDCl\(_3\)) \(\delta\) -5.34, -5.19, -4.64, -4.54, 18.12, 18.52, 25.85, 26.06, 40.87, 62.97, 72.24, 83.67, 87.87, 120.86, 122.61, 141.66, 143.76, 145.34, 154.74, 159.13, 164.59; HRMS (FAB, 3-NBA matrix) calcd for C\(_{25}\)H\(_{43}\)N\(_6\)O\(_3\)SSi\(_2\) (M+1) 563.2656, found 563.2565.

TLC Rf = 0.44 (10% methanol in CH\(_2\)Cl\(_2\)).

2-Amino-6-(2-thiazolyl)-9-(2-deoxy-β-D-ribofuranosyl)purine (3).

\(^1\)H NMR (270 MHz, DMSO-\(d_6\)) \(\delta\) 2.26 (m, 1H), 2.65 (m, 1H), 3.55 (m, 2H), 3.84 (m, 1H), 4.38 (m, 1H), 4.96 (t, 1H, J = 5.4 Hz), 5.30 (d, 1H, J = 4.0 Hz), 6.29 (t, 1H, J = 6.5 Hz), 6.74 (s, 2H), 8.00 (d, 1H, J = 3.2 Hz), 8.12 (d, 1H, J = 3.2 Hz), 8.41 (s, 1H); \(^{13}\)C NMR (68 MHz, DMSO-\(d_6\)) \(\delta\) 39.32, 61.55, 70.58, 82.52, 87.57, 122.66, 123.93, 141.68, 144.66, 147.36, 154.78, 159.68, 164.03; HRMS (FAB, 3-NBA matrix) calcd for C\(_{13}\)H\(_{15}\)N\(_6\)O\(_3\)S (M+1) 335.0926, found 335.0922; UV-vis (in EtOH) \(\lambda_{\text{max}} = 360\, \text{nm} (\varepsilon = 8030), 298\, \text{nm} (\varepsilon = 8620), 231\, \text{nm} (\varepsilon = 18080), \lambda_{\text{min}} = 326\, \text{nm} (\varepsilon = 4240), 265\, \text{nm} (\varepsilon = 3450), 215\, \text{nm} (\varepsilon = 9660);\) TLC Rf = 0.12 (10% methanol in CH\(_2\)Cl\(_2\)).

2-N-Phenoxyacetyl-6-(2-thiazolyl)-9-(2-deoxy-β-D-ribofuranosyl)purine (4).

\(^1\)H NMR (270 MHz, DMSO-\(d_6\)) \(\delta\) 2.34 (m, 1H), 2.78 (m, 1H), 3.57 (m, 2H), 3.88 (m, 1H), 4.45 (m, 1H), 4.93 (t, 1H, J = 5.3 Hz), 5.12 (s, 2H), 5.34 (d, 1H, J = 4.0 Hz), 6.42 (t, 1H, J = 6.6 Hz), 6.95 (m, 3H), 7.30 (t, 2H, J = 7.5 Hz), 8.12 (d, 1H, J = 3.1 Hz), 8.21 (d, 1H, J = 3.1 Hz), 8.79 (s, 1H), 10.96 (s, 1H); \(^{13}\)C NMR (68 MHz, DMSO-\(d_6\)) \(\delta\) 45.67, 61.46, 67.33, 70.49,
83.28, 87.91, 114.34, 120.71, 125.14, 126.01, 129.30, 145.13, 145.28, 146.85, 151.89, 153.77, 157.75, 162.75, 167.55; HRMS (FAB, 3-NBA matrix) calcd for C_{21}H_{21}N_{6}O_{5}S (M+1) 469.1294, found 469.1300; TLC Rf = 0.19 (10% methanol in CH_{2}Cl_{2}).

2-N-Phenoxyacetyl-6-(2-thiazolyl)-9-[2-deoxy-5-O-(4,4'-dimethoxytrityl)-β-D-ribofuranosyl]purine (5).

^1^H NMR (270 MHz, CDCl_{3}) δ 2.39 (d, 1H, J = 3.8 Hz), 2.64 (m, 1H), 2.89 (m, 1H), 3.33 – 3.48 (m, 2H), 3.72 (s, 6H), 4.17 (d, 1H), 4.43 (bs, 2H), 4.88 (m, 1H), 6.55 (t, 1H, J = 6.4 Hz), 6.74 (dd, J = 2.4, 9.0 Hz), 7.03 (d, 2H, J = 8.7 Hz), 7.08 – 7.37 (m, 12H), 7.64 (d, 1H, J = 3.1 Hz), 8.21 (d, 1H, J = 3.1 Hz), 8.29 (s, 1H); ^13^C NMR (68 MHz, CDCl_{3}) δ 41.08, 55.16, 64.06, 67.76, 72.58, 84.27, 86.38, 86.91, 113.01, 114.83, 122.33, 123.60, 126.75, 127.17, 127.73, 127.98, 129.71, 129.85, 129.89, 133.53, 135.61, 144.39, 144.66, 145.71, 148.03, 151.19, 153.71, 156.74, 158.26, 163.42, 166.30; HRMS (FAB, 3-NBA matrix) calcd for C_{42}H_{39}N_{6}O_{7}S (M+1) 771.2601, found 771.2633; TLC Rf = 0.47 (10% methanol in CH_{2}Cl_{2}).

2-N-Phenoxyacetyl-6-(2-thiazolyl)-9-[2-deoxy-5-O-(4,4'-dimethoxytrityl)-β-D-ribofuranosyl]purine 2-cyanoethyl-N,N-diisopropylphosphoramidite (6).

^1^H NMR (270 MHz, CDCl_{3}) δ 1.09 – 1.18 (m, 12H), 2.44 (t, 1H, J = 6.6 Hz), 2.62 (t, 1H, J = 6.6 Hz), 2.75 (m, 1H), 2.89 (m, 1H), 3.35 – 3.85 (m, 12H), 4.30 (m, 1H), 4.82 (m, 3H), 6.52 (t, 1H, J = 6.4 Hz), 6.74 (m, 4H), 7.03 – 7.37 (m, 14H), 7.64 (d, d, 1H, J = 3.1 Hz), 8.21 (d, 1H, J = 3.1 Hz), 8.33, 8.34 (s, s, 1H); ^31^P NMR (109 MHz, CDCl_{3}) δ 149.57; HRMS (FAB, 3-NBA matrix) calcd for C_{51}H_{56}N_{8}O_{8}SP (M+1) 971.3679, found 971.3696; TLC Rf = 0.20 and 0.26 (hexane:CH_{2}Cl_{2} = 2:3, v/v containing 2% triethylamine).
Tvt3 (0.080) Cm (1:53)

C_{33}H_{40}N_{15}O_{17}P_{2}S

Tvt