Supporting Information

General Synthetic Procedures. Et_3N and *N,N*-dimethylaniline were freshly distilled over CaH_2 under argon, and ACN was freshly distilled over P_2O_5 under argon. $POCl_3$ was freshly distilled and Et_4NCl was dried over P_2O_5 at 85°C in vacuo for 24 hrs prior to use. 1,3-Dichloro-1,1,3,3-tetraisopropyldisiloxane, anhydrous DMF, and anhydrous pyridine were purchased from Aldrich Chemical Co. Ltd. Adenine-9-β-D-arabinofuranoside was purchased from Sigma Chemical Co. and dried in vacuo for 24 hours prior to use.

Synthesis of 2'-amino-2'-deoxyadenosine (1). With minor modifications the method of Robins et al.[1] was employed for the synthesis of 2'-azido-2'-deoxy-3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)adenosine starting from adenine-9-β-D-arabinofuranoside.

9-[3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)-1-β-D-arabinofuranosyl]adenine. To a suspension of dry adenine-9-β-D-arabinofuranoside (10 g, 37.5 mmol) in anhydrous pyridine (375 mL) and under argon was added fresh 1,3-dichloro-1,1,3,3-tetraisopropyldisiloxane (12.0 mL, 37.5 mmol) in drop-wise fashion over 30 min at ambient temperature. The reaction was stirred for 4 hrs at ambient temperature, and pyridine was removed via rotary evaporation at 35°C. The resulting yellow residue was further dried under high vacuum for 24 hrs and then partitioned between EtOAc (750 mL) and H_2O (750 mL). The organic phase was washed with 1% HOAc (*aq*, 3 x 500 mL), H_2O (3 x 500 mL), saturated $NaHCO_3$ (*aq*, 3 x 500 mL), and saturated NaCl (*aq*, 1 x 500 mL), dried over Na_2SO_4, filtered, and evaporated. The residue was purified via flash chromatography to yield 17.3 g of 9-[3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)-1-β-D-arabinofuranosyl]adenine (91.0%). ^{1}H NMR δ 0.96-1.17 (band, 28H, *i*-Pr-H), 3.78 (m, 1H, C4'-H), 3.90 and 4.09 (2 x dd, 2H, C5'-$H_{a,b}$), 4.48 (m, 1H, C2'-O*H*), 4.55 (t, 1H, C3'-H), 5.78 (t, 1H, C2'-H), 6.18 (d, 1H, C1'-H), 7.23 (br s, 2H, N^6-H), 8.02 and 8.09 (2 x s, 2H, C2-H and C8-H); ESI-MS *m/z* 510.3 $(M + H^+)^+$.

9-[2'-O-(trifluoromethanesufonyl)-3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)-1-β-D-arabinofuranosyl]adenine. To a solution of 9-[3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)-1-β-D-arabinofuranosyl]adenine (10 g, 20.0 mmol) and DMAP (7.2 g, 58.9 mmol) in anhydrous CH_2Cl_2 (100 mL) was added fresh trifluoromethanesulfonyl chloride (3.1 mL, 20.0 mmol) at 0°C under argon. The reaction was stirred for ten minutes at this temperature and then checked by TLC to show ~75% conversion to product (this varies depending on scale of reation). A second portion of trifluoromethanesulfonyl chloride (418 μL, 3.9 mmol) was added at 0°C. The reaction was stirred for 15 min at the reduced temperature and then checked by TLC to show complete conversion to product. The reaction was partitioned between ice cold 1% HOAc (*aq*, 500 mL) and CH_2Cl_2 (500 mL). The organic phase was washed with ice cold saturated $NaHCO_3$ (*aq*, 1 x 500 mL) and ice cold saturated NaCl (*aq*, 1 x 500 mL), dried over Na_2SO_4, filtered, and evaporated. The resulting solid was purified via flash chromatography to yield 12.2 g of 9-[2'-O-(trifluoromethanesufonyl)-3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)-1-β-D-arabinofuranosyl]adenine (96.5%). ^{1}H NMR δ 0.96-1.25 (band, 28H, *i*-Pr-H), 3.96 (m, 2H, C4'-H and C5'-H_a), 4.20 (dd, 1H, C5'-H_b),

5.64 (m, 1H, C3'-H), 6.05 (t, 1H, C2'-H), 6.45 (d, 1H, C1'-H), 7.41 (br s, 2H, N^6-H), 8.06 and 8.28 (2 x s, 2H, C2-H and C8-H); ESI-MS *m/z* 642.2 $(M + H^+)^+$.

2'-azido-2'-deoxy-3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)adenosine. NaN_3 (6.1 g, 93.6 mmol) was added to a solution of 9-[2'-O-(trifluoromethanesufonyl)-3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)-1-β-D-arabinofuranosyl]adenine (12.0 g, 18.7 mmol) in anhydrous DMF (200 mL) and the reaction was stirred at ambient temperature for 3 hrs under argon. The reaction was diluted with H_2O (1.0 L) and then extracted with EtOAc (2 x 1.0 L). The combined organic phase was washed with saturated NaCl (1 x 2.0 L), dried over Na_2SO_4, filtered, and evaporated to yield 9.9 g of 2'-azido-2'-deoxy-3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)adenosine (99.0%). ^{1}H NMR δ 0.89-1.15 (band, 28H, *i*-Pr-H), 3.94 (m, 2H, C4'-H and C5'-H_a), 4.00 (m, 1H, C5'-H_b), 5.01 (m, 1H, C3'-H), 5.44 (m, 1H, C2'-H), 5.81 (s, 1H, C1'-H), 7.37 (br s, 2H, N^6-H), 8.04 and 8.21 (2 x s, 2H, C2-H and C8-H); ESI-MS *m/z* 535.3 $(M + H^+)^+$.

2'-amino-2'-deoxy-3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)adenosine. Starting with 2'-azido-2'-deoxy-3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)adenosine (9.0 g, 16.9 mmol), the procedure of Van Calenbergh *et al.*[2] was used to give 8.5 g of 2'-amino-2'-deoxy-3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)adenosine (98.0%) after purification by flash chromatography. ^{1}H NMR δ 0.89-1.15 (band, 28H, *i*-Pr-H), 1.92 (br s, 2H, C2'-N*H*), 3.90 (band, 4H, C3'-H, C4'-H and C5'-$H_{a,b}$), 4.81 (t, 1H, C2'-H), 5.70 (d, 1H, C1'-H), 7.30 (br s, 2H, N^6-H), 8.07 and 8.24 (2 x s, 2H, C2-H and C8-H); ESI-MS *m/z* 509.3 $(M + H^+)^+$.

2'-amino-2'-deoxyadenosine (1). Starting with 2'-amino-2'-deoxy-3',5'-O-(1,1,3,3-tetraisopropyldisiloxane-1,3-diyl)adenosine (8.0 g, 15.7 mmol), the procedure of Van Calenbergh *et al.*[2] was used to give 4.1 g of **1** (98.0%). ^{1}H NMR δ 3.53 and 3.64 (2 x dd, 2H, C5'-$H_{a,b}$), 3.95 (m, 2H, C3'-H and C4'-H), 4.05 (m, 1H, C2'-H), 5.60 (br s, 2H, O*H*), 5.66 (d, 1H, C1'-H), 7.34 (br s, 2H, N^6-H), 8.10 and 8.29 (2 x s, 2H, C2-H and C8-H); ESI-MS *m/z* 267.3 $(M + H^+)^+$.

^{1}H NMR and ESI-MS for N^6-substituted-2'-deoxy-2'-aminoadenosine analogues (7-34).

N^6-(3-hydroxy-1-naphthalenemethyl)-2'-deoxy-2'-aminoadenosine (7). ^{1}H NMR δ 3.53 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.98 (m, 3H, C2'-H, C3'-H, and C4'-H), 5.11 (br s, 2H, N^6-CH_2), 5.54 (br s, 2H, O*H*), 5.68 (d, 1H, C1'-H), 6.98 (s, 1H, naphthyl-H), 7.00 (s, 1H, naphthyl-H), 7.30 (t, 2H, naphthyl-H), 7.40 (t, 2H, naphthyl-H), 7.68 (d, 2H, naphthyl-H), 8.03 (d, 2H, naphthyl-H), 8.18 and 8.37 (2 x s, 2H, C2-H and C8-H), 8.52 (br s, 1H, N^6-H), 9.60 (br s, 1H, naphthyl-O<u>H</u>); ESI-MS (MeOH) *m/z* 423.4 (M + H+)+.

N^6-(2-methoxy-1-naphthalenemethyl)-2'-deoxy-2'-aminoadenosine (8). ^{1}H NMR δ 3.53 and 3.65 (2 x m, 2H, C5'-$H_{a,b}$), 3.96 (m, 6H, C2'-H, C3'-H, C4'-H and naphthyl-OCH_3), 5.16 (br s, 2H, N^6-CH_2), 5.53 (br s, 2H, O*H*), 5.72 (d, 1H, C1'-H), 7.31-7.94 (band, 7H, naphthyl-H and N^6-H), 8.25 and 8.34 (2 x s, 2H, C2-H and C8-H); ESI-MS (MeOH) *m/z* 437.4 (M + H+)+.

N^6-(3-methoxy-1-naphthalenemethyl)-2'-deoxy-2'-aminoadenosine (9). ^{1}H NMR δ 3.53 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.80 (s, 3H, naphthyl-OCH_3), 3.98 (m, 3H, C2'-H, C3'-H, and C4'-H), 5.12 (br s, 2H, N^6-CH_2), 5.60 (br s, 2H, O*H*), 5.68 (d, 1H, C1'-H), 7.02-7.94 (band, 6H, naphthyl-H), 8.18 and 8.36 (2 x s, 2H, C2-H and C8-H), 8.54 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 437.4 (M + H+)+.

N^6-(4-methoxy-1-naphthalenemethyl)-2'-deoxy-2'-aminoadenosine (10). ^{1}H NMR δ 3.53 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.92 (m, 6H, C2'-H, C3'-H, C4'-H, and naphthyl-OCH_3), 5.08 (br s, 2H, N^6-CH_2), 5.59 (br s, 2H, O*H*), 5.68 (d, 1H, C1'-H), 6.91-7.63 (band, 6H, naphthyl-H), 8.20 and 8.36 (2 x s, 2H, C2-H and C8-H), 8.44 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 437.4 (M + H+)+.

N^6-(2-naphthalenemethyl)-2'-deoxy-2'-aminoadenosine (11). ^{1}H NMR δ 3.54 and 3.65 (2 x dd, 2H, C5'-$H_{a,b}$), 3.96 (m, 2H, C3'-H and C4'-H), 4.01 (m, 1H, C2'-H), 4.87 (br s, 2H, N^6-CH_2), 5.38 (br s, 1H, O*H*), 5.52 (br s, 1H, O*H*), 5.67 (d, 1H, C1'-H), 7.40-7.88 (band, 7H, naphthyl-H), 8.19 and 8.35 (2 x s, 2H, C2-H and C8-H), 8.60 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 407.4 (M + H+)+.

N^6-benzyl-2'-deoxy-2'-aminoadenosine (12). ^{1}H NMR δ 3.54 and 3.65 (2 x m, 2H, C5'-$H_{a,b}$), 3.97 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H), 4.65 (br s, 2H, N^6-CH_2), 5.50 (br s, 2H, O*H*), 5.65 (d, 1H, C1'-H), 7.17-7.37 (band, 5H, Bz-H), 8.18 and 8.32 (2 x s, 2H, C2-H and C8-H), 8.50 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 357.2 (M + H+)+.

N^6-(2-methylbenzyl)-2'-deoxy-2'-aminoadenosine (13). ^{1}H NMR δ 2.32 (s, 3H, Ph-CH_3), 3.54 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.97 (m, 2H, C3'-H and C4'-H), 4.03 (m, 1H, C2'-H), 4.67 (br s, 2H, N^6-CH_2), 5.66 (d, 1H, C1'-H), 7.06-7.18 (band, 4H, Ph-H), 8.16 and 8.34 (2 x s, 2H, C2-H and C8-H), 8.41 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 371.2 (M + H+)+.

N^6-(3-methylbenzyl)-2'-deoxy-2'-aminoadenosine (14). ^{1}H NMR δ 2.24 (s, 3H, Ph-CH_3), 3.54 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.97 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H), 4.64 (br s, 2H, N^6-CH_2), 5.54 (br s, 2H, O*H*), 5.65 (d, 1H, C1'-H), 7.00-7.17 (band, 4H, Ph-H), 8.18 and 8.33 (2 x s, 2H, C2-H and C8-H), 8.47 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 371.2 (M + H+)+.

N^6-(diphenylmethyl)-2'-deoxy-2'-aminoadenosine (15). ^{1}H NMR δ 3.53 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.98 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H), 5.55 (br s, 2H, O*H*), 5.67 (d, 1H, C1'-H), 6.81 (d, 1H, N^6-C*H*), 7.23 (t, 2H, *p*-Ph-H), 7.31 (t, 4H, *m*-Ph-H), 7.43 (d, 4H, *o*-Ph-H), 8.22 and 8.38 (2 x s, 2H, C2-H and C8-H), 8.77 (d, 1H, N^6-H); ESI-MS (MeOH) *m/z* 433.2 (M + H+)+.

N^6-(1,2,3,4-tetrahydro-1-naphthyl)-2'-deoxy-2'-aminoadenosine (16). ^{1}H NMR δ 1.78 (m, 2H, tetrahydro-H), 2.04 (m, 2H, tetrahydro-H), 2.75 (m, 2H, tetrahydro-H), 3.53 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.97 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H), 5.12 (br s, 2H, N^6-CH_2), 5.59 (br s, 2H, O*H*), 5.62 (br s, 1H, tetrahydro-H), 5.66 (d, 1H, C1'-H), 7.16 (m, 4H, naphthyl-H), 8.17 (d, 1H, N^6-H), 8.23 and 8.31 (2 x s, 2H, C2-H and C8-H); ESI-MS (MeOH) *m/z* 397.2 (M + H+)+.

N^6-[2-(2-(hydroxymethyl)phenylthio)benzyl]-2'-deoxy-2'-aminoadenosine (17). ^{1}H NMR δ 3.54 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.97 (m, 2H, C3'-H and C4'-H), 4.01 (m, 1H, C2'-H), 4.60 (s, 2H, PhCH_2OH), 4.75 (br s, 2H, N^6-CH_2), 5.55 (br s, 2H, O*H*), 5.67 (d, 1H, C1'-H), 7.04-7.57 (band, 8H, Ph-H), 8.17 and 8.37 (2 x s, 2H, C2-H and C8-H), 8.48 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 495.2 (M + H+)+.

N^6-(2-naphthyl)-2'-deoxy-2'-aminoadenosine (18). ^{1}H NMR δ 3.54 and 3.65 (2 x dd, 2H, C5'-$H_{a,b}$), 3.99 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H), 5.57 (br s, 2H, O*H*), 5.67 (d, 1H, C1'-H), 7.55-7.90 (band, 7H, naphthyl-H), 8.29 and 8.39 (2 x s, 2H, C2-H and C8-H), 8.80 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 393.2 (M + H+)+.

(R)-N^6-(α-methyl-4-nitrobenzyl)-2'-deoxy-2'-aminoadenosine (19). ^{1}H NMR δ 1.56 (d, 3H, α-CH_3), 3.53 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.98 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H), 5.53 (br s, 1H, N^6-C*H*), 5.58 (br s, 2H, O*H*), 5.65 (d, 1H, C1'-H), 7.70 (d, 2H, Bz-H), 8.12-8.36 (band, 5H, Bz-H, N^6-H, C2-H, and C8-H); ESI-MS (MeOH) *m/z* 416.2 $(M + H^+)^+$.

N^6-(1-benzimidazole-2-methyl)-2'-deoxy-2'-aminoadenosine (20). ^{1}H NMR δ 3.53 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.96 (m, 2H, C3'-H and C4'-H), 4.01 (m, 1H, C2'-H,), 4.90 (br s, 2H, N^6-CH_2), 5.69 (d, 1H, C1'-H), 7.15-7.47 (band, 4H, benzimadazole-H), 8.21 and 8.38 (2 x s, 2H, C2-H and C8-H), 8.40 (br s, 1H, N^6-H), 8.79 (br s, 1H, benzimidazole-H); ESI-MS (MeOH) *m/z* 397.2 $(M + H^+)^+$.

(R)-N^6-(α-methylbenzyl)-2'-deoxy-2'-aminoadenosine (21). ^{1}H NMR δ 1.52 (d, 3H, α-CH_3), 3.53 and 3.63 (2 x m, 2H, C5'-$H_{a,b}$), 3.97 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H), 5.50 (br s, 1H, N^6-C*H*), 5.64 (d, 1H, C1'-H), 7.20-7.40 (band, 5H, Bz-H), 8.17 and 8.34 (2 x s, 2H, C2-H and C8-H), 8.36 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 371.2 $(M + H^+)^+$.

(R)-N^6-(α-methyl-1-naphthylmethyl)-2'-deoxy-2'-aminoadenosine (22). ^{1}H NMR δ 1.65 (d, 3H, α-CH_3), 3.53 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.99 (m, 2H, C3'-H and C4'-H), 4.03 (m, 1H, C2'-H), 5.56 (br s, 2H, O*H*), 5.65 (d, 1H, C1'-H), 6.28 (br s, 1H, N^6-C*H*), 7.41-7.93 (band, 6H, naphthyl-H), 8.13 and 8.35 (2 x s, 2H, C2-H and C8-H), 8.24 (d, 1H, naphthyl-H), 8.51 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 421.2 $(M + H^+)^+$.

N^6-(2-indanyl)-2'-deoxy-2'-aminoadenosine (23). ^{1}H NMR δ 3.01 and 3.28 (2 x m, 4H, indanyl-CH_2), 3.53 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.96 (m, 2H, C3'-H and C4'-H), 4.01 (m, 1H, C2'-H,), 5.57 (br s, 2H, O*H*), 5.65 (d, 1H, C1'-H), 7.17 (m, 2H, indanyl-H), 7.21 (m, 2H, indanyl-H), 8.16 (br s, 1H, N^6-H), 8.22-8.35 (2 x s, 2H, C2-H and C8-H); ESI-MS (MeOH) *m/z* 383.2 $(M + H^+)^+$.

N^6-[4-(methylsulfonyl)benzyl]-2'-deoxy-2'-aminoadenosine (24). ^{1}H NMR δ 3.16 (s, 3H, S-CH_3), 3.53 and 3.63 (2 x m, 2H, C5'-$H_{a,b}$), 3.95 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H,), 4.80 (br s, 1H, N^6-CH_2), 5.55 (br s, 2H, O*H*), 5.67 (d, 1H, C1'-H), 7.58 (d, 2H, Ph-H), 7.85 (d, 2H, Ph-H), 8.19 and 8.36 (2 x s, 2H, C2-H and C8-H), 8.61 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 435.2 $(M + H^+)^+$.

N^6-(3,4-dimethoxybenzyl)-2'-deoxy-2'-aminoadenosine (25). ^{1}H NMR δ 3.53 and 3.63 (2 x m, 2H, C5'-$H_{a,b}$), 3.71 and 3.73 (2 x s, 6H, OCH_3), 3.95 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H,), 4.62 (br s, 1H, N^6-CH_2), 5.50 (br s, 2H, O*H*), 5.66 (d, 1H, C1'-H), 6.82 (m, 3H, Ph-H), 8.19 and 8.32 (2 x s, 2H, C2-H and C8-H), 8.38 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 417.2 $(M + H^+)^+$.

N^6-(7-benzyloxytryptyl)-2'-deoxy-2'-aminoadenosine (26). ^{1}H NMR δ 3.00 (t, 2H, C2"-H), 3.54 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.76 (br s, 2H, C1"-H), 3.96 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H,), 5.22 (s, 2H, PhCH_2O), 5.59 (br s, 2H, O*H*), 5.66 (d, 1H, C1'-H), 6.72-7.54 (band, 9H, Ph-H and tryptyl-H), 7.98 (br s, 1H, N^6-H), 8.20 and 8.34 (2 x s, 2H, C2-H and C8-H), 10.92 (s, 1H, tryptyl-N*H*); ESI-MS (MeOH) *m/z* 516.2 (M + H+)+.

N^6-[2"-(3,4-dimethoxyphen)ethyl]-2'-deoxy-2'-aminoadenosine (27). ^{1}H NMR δ 2.82 (t, 2H, C2"-H), 3.53-3.68 (band, 10H, C5'-$H_{a,b}$, C1"-H, OCH_3), 3.97 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H,), 5.59 (br s, 2H, O*H*), 5.65 (d, 1H, C1'-H), 6.72-6.81 (band, 3H, Ph-H), 7.90 (br s, 1H, N^6-H), 8.20 and 8.32 (2 x s, 2H, C2-H and C8-H); ESI-MS (MeOH) *m/z* 431.2 $(M + H^+)^+$.

N^6-[2"-(3,4-methylenedioxyphenyl)ethyl]-2'-deoxy-2'-aminoadenosine (28). ^{1}H NMR δ 2.81 (t, 2H, C2"-H), 3.53 and 3.65 (2 x m, 4H, C5'-$H_{a,b}$ and C1"-H), 3.95 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H,), 5.59 (br s, 2H, O*H*), 5.65 (d, 1H, C1'-H), 5.95 (s, 2H, OCH_2O), 6.70 (d, 1H, Ph-H), 6.82 (m, 2H, Ph-H), 7.90 (br s, 1H, N^6-H), 8.20 and 8.32 (2 x s, 2H, C2-H and C8-H); ESI-MS (MeOH) *m/z* 415.2 $(M + H^+)^+$.

N^6-[3,4-(methylenedioxy)benzyl]-2'-deoxy-2'-aminoadenosine (29). ^{1}H NMR δ 3.54 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.96 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H,), 4.60 (br s, 2H, N^6-CH_2), 5.56 (br s, 2H, O*H*), 5.65 (d, 1H, C1'-H), 5.94 (s, 2H, OCH_2O), 6.80 (d, 2H, Ph-H), 6.90 (s, 1H, Ph-H), 8.19 and 8.36 (2 x s, 2H, C2-H and C8-H) 8.40 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 401.2 $(M + H^+)^+$.

N^6-[2"-(3-indolyl)ethyl]-2'-deoxy-2'-aminoadenosine (30). ^{1}H NMR δ 3.01 (t, 2H, C2"-H), 3.54 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.78 (br s, 2H, C1"-H), 3.96 (m, 2H, C3'-H and C4'-H), 4.01 (m, 1H, C2'-H,), 5.60 (br s, 2H, O*H*), 5.66 (d, 1H, C1'-H), 6.98 (t, 2H, indolyl-H), 7.03 (t, 1H, indolyl-H), 7.20 (s, 1H, indolyl-C*H*), 7.31 (d, 1H, indolyl-H), 7.62 (d, 1H, indolyl-H), 7.95 (br s, 1H, N^6-H), 8.19 and 8.36 (2 x s, 2H, C2-H and C8-H), 10.80 (s, 1H, indolyl-N*H*); ESI-MS (MeOH) *m/z* 410.2 $(M + H^+)^+$.

N^6-(cyclohexyl)-2'-deoxy-2'-aminoadenosine (31). ^{1}H NMR δ 1.15-1.84 (band, 10H, cyclohexyl-H), 3.54 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.96 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H,), 4.10 (br s, 1H, cyclohexyl-H), 5.59 (br s, 2H, O*H*), 5.66 (d, 1H, C1'-H), 7.69 (br s, 1H, N^6-H), 8.17 and 8.34 (2 x s, 2H, C2-H and C8-H); ESI-MS (MeOH) *m/z* 349.2 $(M + H^+)^+$.

N^6-[2"-(1-Cyclohexenyl)ethyl]-2'-deoxy-2'-aminoadenosine (32). ^{1}H NMR δ 1.42 and 1.50 (2 x m, 4H, cyclohexyl-H), 1.90 and 1.97 (2 x m, 4H, cyclohexyl-H), 2.22 (t, 2H, C2"-H), 3.54 and 3.64 (2 x m, 4H, C5'-$H_{a,b}$ and C1"-H), 3.96 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H,), 5.39 (br s, 1H, cyclohexene-H), 5.60 (br s, 2H, O*H*), 5.66 (d, 1H, C1'-H), 7.79 (br s, 1H, N^6-H), 8.17 and 8.30 (2 x s, 2H, C2-H and C8-H); ESI-MS (MeOH) *m/z* 372.2 $(M + H^+)^+$.

N^6-(5-benzyloxytryptyl)-2'-deoxy-2'-aminoadenosine (33). ^{1}H NMR δ 2.98 (t, 2H, C2"-H), 3.54 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$), 3.76 (br s, 2H, C1"-H), 3.95 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H,), 5.10 (s, 2H, PhCH_2O), 5.62 (br s, 2H, O*H*), 5.66 (d, 1H, C1'-H), 6.80-7.50 (band, 9H, Ph-H and tryptyl-H), 7.98 (br s, 1H, N^6-H), 8.22 and 8.32 (2 x s, 2H, C2-H and C8-H), 10.65 (s, 1H, tryptyl-N*H*); ESI-MS (MeOH) *m/z* 516.2 $(M + H^+)^+$.

N^6-[3-(2-oxo-1-pyrrolidinyl)propyl]-2'-deoxy-2'-aminoadenosine (34). ^{1}H NMR δ 1.80-2.20 (band, 6H, C1"-H, C2"-H, and C3"-H), 3.09-3.39 (band, 6H, pyrrolidinyl-H), 3.54 and 3.65 (2 x m, 2H, C5'-$H_{a,b}$), 3.97 (m, 2H, C3'-H and C4'-H), 4.02 (m, 1H, C2'-H), 5.59 (br s, 2H, O*H*), 5.65 (d, 1H, C1'-H), 7.83 (br s, 1H, N^6-H), 8.20 and 8.36 (2 x s, 2H, C2-H and C8-H); ESI-MS (MeOH) *m/z* 392.2 $(M + H^+)^+$.

^{1}H NMR and ESI-MS for N^6-substituted-2'-deoxy-2'-aminoadenosine analogues (7-34).

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(2-methoxybenzamido)adenosine (6a). ^{1}H NMR δ 3.61 and 3.74 (2 x m, 2H, C5'-$H_{a,b}$), 3.92 (s, 3H, OCH_3), 4.10 (m, 1H, C4'-H), 4.37 (m, 1H, C3'-H), 5.18 (br s, 2H, N^6-CH_2), 5.28 (m, 1H, C2'-H), 5.54 (br s, 2H, O*H*), 6.05 (br s, 1H, C1'-H), 7.00 (t, 1H, Ph-H), 7.15 (d, 1H, Ph-H), 7.41-7.94 (band, 8H, Ph-H and naphthyl-H), 8.19 and 8.39 (2 x s, 2H, C2-H and C8-H), 8.24 (d, 1H, naphthyl-H), 8.46 (br s, 1H, N^6-H), 8.69 (d, 1H, C2'-N*H*); ESI-MS (MeOH) *m/z* 541.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(2-chlorobenzamido)adenosine (6b). ^{1}H NMR δ 3.63 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 4.08 (m, 1H, C4'-H), 4.36 (m, 1H, C3'-H), 5.18 (br s, 2H, N^6-CH_2), 5.24 (m, 1H, C2'-H), 5.56 (br s, 1H, C5'-O*H*), 5.70 (br s, 1H, C3'-O*H*), 6.11 (d, 1H, C1'-H), 7.33-7.95 (band, 10H, Ph-H and naphthyl-H), 8.22 and 8.32 (2 x s, 2H, C2-H and C8-H), 8.22 (d, 1H, naphthyl-H), 8.46 (m, 2H, N^6-H and C2'-N*H*); ESI-MS (MeOH) *m/z* 545.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(2-acetoxybenzamido)adenosine (6c). ^{1}H NMR δ 1.80 (s, 3H, Ph-O*Ac*), 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$ and C4'-H), 4.35 (m, 1H, C3'-H), 5.20 (br s, 2H, N^6-CH_2), 5.40 (m, 1H, C2'-H), 5.58 (br s, 1H, C5'-O*H*), 5.74 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 7.27-7.94 (band, 10H, Ph-H and naphthyl-H), 8.21 and 8.30 (2 x s, 2H, C2-H and C8-H), 8.22 (d, 1H, naphthyl-H), 8.50 (m, 2H, N^6-H and C2'-N*H*); ESI-MS (MeOH) *m/z* 569.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(2-hydroxybenzamido)adenosine (6d). ^{1}H NMR δ 3.54 and 3.67 (2 x m, 2H, C5'-$H_{a,b}$), 4.10 (m, 1H, C4'-H), 4.37 (m, 1H, C3'-H), 5.09 (m, 1H, C2'-H), 5.16 (br s, 2H, N^6-CH_2), 5.50 (br s, 1H, C5'-O*H*), 5.70 (br s, 1H, C3'-O*H*), 5.95 (d, 1H, C1'-H), 6.98 (m, 2H, Ph-H), 7.41-7.95 (band, 8H, Ph-H and naphthyl-H), 8.20-8.30 (band, 4H, C2-H, C8-H, C2'-N*H* and naphthyl-H), 8.52 (br s, 1H, N^6-H), 10.50 (br s, 1H, Ph-O*H*); ESI-MS (MeOH) *m/z* 527.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(3-methoxybenzamido)adenosine (6e). ^{1}H NMR δ 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 3.77 (s, 3H, OCH_3), 4.10 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.34 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.72 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 7.07 (d, 1H, Ph-H), 7.34-7.93 (band, 9H, Ph-H and naphthyl-H), 8.21 and 8.30 (2 x s, 2H, C2-H and C8-H), 8.22 (d, 1H, naphthyl-H), 8.34 (d, 1H, C2'-N*H*), 8.45 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 541.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(3-chlorobenzamido)adenosine (6f). ^{1}H NMR δ 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 4.10 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.72 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 7.39-7.96 (band, 10H, Ph-H and naphthyl-H), 8.21 and 8.30 (2 x s, 2H, C2-H and C8-H), 8.22 (d, 1H, naphthyl-H), 8.45 (br s, 1H, N^6-H), 8.60 (d, 1H, C2'-N*H*); ESI-MS (MeOH) *m/z* 545.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(3-acetoxybenzamido)adenosine (6g). ^{1}H NMR δ 2.27 (s, 3H, Ph-OAc), 3.61 and 3.72 (2 x dd, 2H, C5'-$H_{a,b}$), 4.09 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.58 (br s, 1H, C5'-O*H*), 5.74 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 7.27-7.94 (band, 10H, Ph-H and naphthyl-H), 8.21 and 8.30 (2 x s, 2H, C2-H and C8-H), 8.22 (d, 1H, naphthyl-H), 8.50 (br d, 2H, N^6-H and C2'-N*H*); ESI-MS (MeOH) *m/z* 569.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(3-hydroxybenzamido)adenosine (6h). ^{1}H NMR δ 3.61 and 3.71 (2 x m, 2H, C5'-$H_{a,b}$), 4.09 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.29 (m, 1H, C2'-H), 5.60 (br s, 1H, C5'-O*H*), 5.73 (br s,

1H, C3'-O*H*), 6.22 (d, 1H, C1'-H), 6.88 (d, 1H, Ph-H), 7.19-7.95 (band, 9H, Ph-H and naphthyl-H), 8.20-8.30 (band, 4H, C2-H, C8-H, C2'-N*H* and naphthyl-H), 8.53 (br s, 1H, N^6-H), 9.64 (br s, 1H, Ph-O*H*); ESI-MS (MeOH) *m/z* 527.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(4-methoxybenzamido)adenosine (6i). ^{1}H NMR δ 3.61 and 3.67 (2 x m, 2H, C5'-$H_{a,b}$), 3.78 (s, 3H, OCH_3), 4.09 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 5.17 (br s, 2H, N^6-CH_2), 5.32 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.73 (br s, 1H, C3'-O*H*), 6.22 (d, 1H, C1'-H), 6.95 (d, 2H, Ph-H), 7.39-7.92 (band, 8H, Ph-H and naphthyl-H), 8.18-8.39 (band, 4H, C2-H, C8-H, C2'-N*H* and naphthyl-H), 8.47 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 541.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(4-chlorobenzamido)adenosine (6j). ^{1}H NMR δ 3.62 and 3.71 (2 x m, 2H, C5'-$H_{a,b}$), 4.10 (m, 1H, C4'-H), 4.34 (m, 1H, C3'-H), 5.17 (br s, 2H, N^6-CH_2), 5.32 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.73 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 7.39-7.96 (band, 10H, Ph-H and naphthyl-H), 8.21 and 8.30 (2 x s, 2H, C2-H and C8-H), 8.22 (d, 1H, naphthyl-H), 8.47 (br d, 2H, N^6-H and C2'-N*H*); ESI-MS (MeOH) *m/z* 545.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(4-acetoxybenzamido)adenosine (6k). ^{1}H NMR δ 2.27 (s, 3H, Ph-OAc), 3.62 and 3.72 (2 x dd, 2H, C5'-$H_{a,b}$), 4.09 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.74 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 7.39-7.94 (band, 10H, Ph-H and naphthyl-H), 8.21 and 8.31 (2 x s, 2H, C2-H and C8-H), 8.22 (d, 1H, naphthyl-H), 8.45 (d, 1H, C2'-N*H*), 8.54 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 569.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(4-hydroxybenzamido)adenosine (6l). ^{1}H NMR δ 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 4.07 (m, 1H, C4'-H), 4.31 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.32 (m, 1H, C2'-H), 5.59 (br s, 1H, C5'-O*H*), 5.72 (br s, 1H, C3'-O*H*), 6.21 (d, 1H, C1'-H), 6.75 (d, 2H, Ph-H), 7.39-7.94 (band, 8H, Ph-H and naphthyl-H), 8.10 (d, 1H, C2'-N*H*), 8.20 and 8.30 (2 x br s, 3H, C2-H, C8-H, and naphthyl-H), 8.50 (br s, 1H, N^6-H), 10.05 (br s, 1H, Ph-O*H*); ESI-MS (MeOH) *m/z* 527.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(3,5-dichlorobenzamido)adenosine (6n). ^{1}H NMR δ 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 4.10 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.57 (br s, 1H, C5'-O*H*), 5.73 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 7.39-7.94 (band, 9H, Ph-H and naphthyl-H), 8.21 and 8.31 (2 x s, 2H, C2-H, and C8-H), 8.22 (d, 1H, naphthyl-H), 8.56 (br s, 1H, N^6-H), 8.82 (d, 1H, C2'-N*H*); ESI-MS (MeOH) *m/z* 579.51 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(3,5-diacetoxybenzamido)adenosine (6o). ^{1}H NMR δ 2.24 and 2.27 (2 x s, 6H, Ph-O*Ac*), 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 4.09 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.58 (br s, 1H, C5'-O*H*), 5.74 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 7.27-7.94 (band, 9H, Ph-H and naphthyl-H), 8.21 and 8.30 (2 x s, 2H, C2-H, and C8-H), 8.22 (d, 1H, naphthyl-H), 8.45 (d, 1H, C2'-N*H*), 8.54 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 627.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(3,5-dihydroxybenzamido)adenosine (6p). ^{1}H NMR δ 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 4.08 (m, 1H, C4'-H), 4.32 (m, 1H, C3'-H), 5.17 (br s, 2H, N^6-CH_2), 5.27 (m, 1H, C2'-H), 5.56 (br s, 1H, C5'-O*H*), 5.71 (br s, 1H, C3'-O*H*), 6.20 (d, 1H, C1'-H), 6.33 (s, 1H, Ph-H), 6.65 (s, 2H, Ph-H), 7.40-7.94 (band, 6H, naphthyl-H), 8.03 (d, 1H, C2'-N*H*), 8.20 and 8.30 (2 x br s, 3H, C2-H, C8-H,

and napthyl-H), 8.55 (br s, 1H, N^6-H), 9.43 (br s, 2H, Ph-O*H*); ESI-MS (MeOH) *m/z* 543.3 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(3,4-dimethoxybenzamido)adenosine (6q). ^{1}H NMR δ 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 3.76 and 3.78 (2 x s, 6H, OCH_3), 4.10 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 5.17 (br s, 2H, N^6-CH_2), 5.35 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.70 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 7.00 (d, 1H, Ph-H), 7.39-7.93 (band, 8H, naphthyl-H), 8.21-8.39 (band, 4H, C2-H, C8-H, C2'-N*H*, and naphthyl-H), 8.47 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 571.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(3-acetoxy-4-methoxybenzamido)adenosine (6r). ^{1}H NMR δ 2.06 (s, 3H, Ph-O*Ac*), 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 3.78 (s, 3H, OCH_3), 4.08 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 5.15 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.58 (br s, 1H, C5'-O*H*), 5.74 (br s, 1H, C3'-O*H*), 6.22 (d, 1H, C1'-H), 7.17 (d, 1H, Ph-H), 7.39-7.94 (band, 9H, Ph-H and naphthyl-H), 8.21 and 8.30 (2 x s, 2H, C2-H and C8-H), 8.22 (d, 1H, naphthyl-H), 8.35 (d, 1H, C2'-N*H*), 8.54 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 599.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(3-hydroxy-4-methoxybenzamido)adenosine (6s). ^{1}H NMR δ 3.62 and 3.74 (2 x m, 2H, C5'-$H_{a,b}$), 3.79 (s, 3H, OCH_3), 4.08 (m, 1H, C4'-H), 4.32 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.28 (m, 1H, C2'-H), 5.56 (br s, 1H, C5'-O*H*), 5.74 (br s, 1H, C3'-O*H*), 6.21 (d, 1H, C1'-H), 6.92 (d, 2H, Ph-H), 7.26-7.94 (band, 9H, Ph-H and naphthyl-H), 8.05 (d, 1H, C2'-N*H*), 8.21 and 8.29 (2 x s, 2H, C2-H, and C8-H), 8.22 (d, 1H, naphthyl-H), 8.47 (br s, 1H, N^6-H), 9.22 (br s, 2H, Ph-O*H*); ESI-MS (MeOH) *m/z* 557.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(4-acetoxy-3-methoxybenzamido)adenosine (6t). ^{1}H NMR δ 2.09 (s, 3H, Ph-O*Ac*), 3.61 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 3.79 (s, 3H, OCH_3), 4.10 (m, 1H, C4'-H), 4.34 (m, 1H, C3'-H), 5.17 (br s, 2H, N^6-CH_2), 5.37 (m, 1H, C2'-H), 5.59 (br s, 1H, C5'-O*H*), 5.77 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 7.15 (d, 1H, Ph-H), 7.39-7.94 (band, 8H, Ph-H and naphthyl-H), 8.21 and 8.31 (2 x s, 2H, C2-H, and C8-H), 8.22 (d, 1H, naphthyl-H), 8.49 (d, 1H, C2'-N*H*), 8.55 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 599.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(4-hydroxy-3-methoxybenzamido)adenosine (6u). ^{1}H NMR δ 3.62 and 3.74 (2 x m, 2H, C5'-$H_{a,b}$), 3.78 (s, 3H, OCH_3), 4.09 (m, 1H, C4'-H), 4.32 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.34 (m, 1H, C2'-H), 5.59 (br s, 1H, C5'-O*H*), 5.77 (br s, 1H, C3'-O*H*), 6.22 (d, 1H, C1'-H), 6.77 (d, 2H, Ph-H), 7.34-7.94 (band, 9H, Ph-H and naphthyl-H), 8.15 (d, 1H, C2'-N*H*), 8.21 and 8.30 (2 x s, 2H, C2-H, and C8-H), 8.22 (d, 1H, naphthyl-H), 8.55 (br s, 1H, N^6-H), 9.63 (br s, 2H, Ph-O*H*); ESI-MS (MeOH) *m/z* 557.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(3-dimethylaminobenzamido)adenosine (6v). ^{1}H NMR δ 2.94 (s, 6H, N-CH_3), 3.61 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 4.09 (m, 1H, C4'-H), 4.34 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.31 (m, 1H, C2'-H), 5.60 (br s, 1H, C5'-O*H*), 5.78 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 7.00 (t, 1H, Ph-H), 7.15 (d, 1H, Ph-H), 7.41-7.94 (band, 8H, Ph-H and naphthyl-H), 8.19 and 8.39 (2 x s, 2H, C2-H and C8-H), 8.24 (d, 1H, naphthyl-H), 8.46 (br s, 1H, N^6-H), 8.69 (d, 1H, C2'-N*H*); ESI-MS (MeOH) *m/z* 554.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(4-phenylbenzamido)adenosine (6x). ^{1}H NMR δ 3.62 and 3.74 (2 x m, 2H, C5'-$H_{a,b}$), 4.11 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.35 (m, 1H, C2'-H), 5.63 (br s, 1H, C5'-O*H*), 5.80 (br s,

1H, C3'-O*H*), 6.27 (d, 1H, C1'-H), 7.38-7.94 (band, 15H, Ph-H and naphthyl-H), 8.19 (d, 1H, naphthyl-H), 8.20 and 8.33 (2 x s, 2H, C2-H and C8-H), 8.49 (d, 1H, C2'-N*H*), 8.55 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 587.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(4-benzoylbenzamido)adenosine (6y). ^{1}H NMR δ 3.62 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 4.11 (m, 1H, C4'-H), 4.37 (m, 1H, C3'-H), 5.17 (br s, 2H, N^6-CH_2), 5.36 (m, 1H, C2'-H), 5.62 (br s, 1H, C5'-O*H*), 5.81 (br s, 1H, C3'-O*H*), 6.27 (d, 1H, C1'-H), 7.39-7.94 (band, 15H, Ph-H and naphthyl-H), 8.19 (d, 1H, naphthyl-H), 8.21 and 8.33 (2 x br s, 3H, C2-H and C8-H), 8.55 (br s, 1H, N^6-H), 8.69 (d, 1H, C2'-N*H*); ESI-MS (MeOH) *m/z* 615.2 $(M + H^+)^+$.

N^6-(3-hydroxy-1-naphthalenemethyl)-2'-deoxy-2'-(3-methoxybenzamido)adenosine (7e). ^{1}H NMR δ 3.62 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 3.77 (s, 3H, Ph-OCH_3), 4.10 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 5.10 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.74 (br s, 1H, C3'-O*H*), 6.24 (d, 1H, C1'-H), 6.97-7.45 (band, 8H, Ph-H and naphthyl-H), 7.68 and 8.02 (2 x d, 2H, naphthyl-H), 8.21 and 8.32 (2 x s, 2H, C2-H and C8-H), 8.36 (d, 1H, C2'-N*H*), 8.48 (br s, 1H, N^6-H), 9.52 (br s, 1H, naphthyl-O*H*); ESI-MS (MeOH) *m/z* 557.2 $(M + H^+)^+$.

N^6-(3-hydroxy-1-naphthalenemethyl)-2'-deoxy-2'-(3-chlorobenzamido)adenosine (7f). ^{1}H NMR δ 3.62 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 4.10 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 5.10 (br s, 2H, N^6-CH_2), 5.34 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.73 (br s, 1H, C3'-O*H*), 6.24 (d, 1H, C1'-H), 6.97-7.80 (band, 9H, Ph-H and naphthyl-H), 8.02 (d, 1H, naphthyl-H), 8.21 and 8.32 (2 x s, 2H, C2-H and C8-H), 8.48 (br s, 1H, N^6-H), 8.59 (d, 1H, C2'-N*H*), 9.54 (br s, 1H, naphthyl-O*H*); ESI-MS (MeOH) *m/z* 561.2 $(M + H^+)^+$.

N^6-(3-hydroxy-1-naphthalenemethyl)-2'-deoxy-2'-(3,5-dimethoxybenzamido)adenosine (7m). ^{1}H NMR δ 3.62 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 3.75 (s, 6H, Ph-OCH_3), 4.10 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 5.09 (br s, 2H, N^6-CH_2), 5.35 (m, 1H, C2'-H), 5.58 (br s, 1H, C5'-O*H*), 5.79 (br s, 1H, C3'-O*H*), 6.24 (d, 1H, C1'-H), 6.62 (s, 1H, Ph-H), 6.97 (m, 4H, Ph-H and naphthyl-H), 7.37 and 7.41 (2 x t, 2H, naphthyl-H), 7.68 and 8.01 (2 x d, 2H, naphthyl-H), 8.20 and 8.32 (2 x s, 2H, C2-H and C8-H), 8.44 (d, 1H, C2'-N*H*), 8.56 (br s, 1H, N^6-H), 9.54 (br s, 1H, naphthyl-O*H*); ESI-MS (MeOH) *m/z* 587.2 $(M + H^+)^+$.

N^6-(3-hydroxy-1-naphthalenemethyl)-2'-deoxy-2'-(3,5-dichlorobenzamido)adenosine (7n). ^{1}H NMR δ 3.62 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 4.10 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 5.10 (br s, 2H, N^6-CH_2), 5.34 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.73 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 6.97 and 6.99 (2 x s, 2H, naphthyl-H), 7.37 and 7.41 (2 x t, 2H, naphthyl-H), 7.68 and 8.01 (2 x d, 2H, naphthyl-H), 7.80 and 7.85 (2 x s, 3H, Ph-H), 8.20 and 8.33 (2 x s, 2H, C2-H and C8-H), 8.55 (br s, 1H, N^6-H), 8.81 (d, 1H, C2'-N*H*), 9.57 (br s, 1H, naphthyl-O*H*); ESI-MS (MeOH) *m/z* 595.1 $(M + H^+)^+$.

N^6-(2-methoxy-1-naphthalenemethyl)-2'-deoxy-2'-(3-methoxybenzamido)adenosine (8e). ^{1}H NMR δ 3.62 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 3.77 (s, 3H, Ph-OCH_3), 3.95 (s, 3H, naphthyl-OCH_3), 4.11 (m, 1H, C4'-H), 4.36 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.59 (br s, 1H, C5'-O*H*), 5.73 (br s, 1H, C3'-O*H*), 6.22 (d, 1H, C1'-H), 7.07 (d, 1H, Ph-H), 7.31-7.93 (band, 10H, Ph-H, naphthyl-H and N^6-H), 8.21 and 8.35 (2 x s, 2H, C2-H and C8-H), 8.33 (d, 1H, C2'-N*H*); ESI-MS (MeOH) *m/z* 571.2 $(M + H^+)^+$.

N^6-(3-methoxy-1-naphthalenemethyl)-2'-deoxy-2'-(3-methoxybenzamido)adenosine (9e). ^{1}H NMR δ 3.62 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 3.77 (s, 3H, Ph-OCH_3), 3.79 (s, 3H, naphthyl-OCH_3), 4.10 (m, 1H, C4'-H), 4.36 (m, 1H, C3'-H), 5.11 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.74 (br s, 1H, C3'-O*H*), 6.24 (d, 1H, C1'-H), 7.07-7.48 (band, 8H, Ph-H and naphthyl-H), 7.82 and 8.10 (2 x d, 2H, naphthyl-H), 8.21 and 8.33 (2 x s, 2H, C2-H and C8-H), 8.35 (d, 1H, C2'-N*H*), 8.49 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 571.2 $(M + H^+)^+$.

N^6-(3-methoxy-1-naphthalenemethyl)-2'-deoxy-2'-(3,5-dimethoxybenzamido)-adenosine (9m). ^{1}H NMR δ 3.62 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 3.75 (s, 6H, Ph-OCH_3), 3.79 (s, 3H, naphthyl-OCH_3), 4.10 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 5.11 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.58 (br s, 1H, C5'-O*H*), 5.79 (br s, 1H, C3'-O*H*), 6.22 (d, 1H, C1'-H), 6.62 (s, 1H, Ph-H), 6.97 (s, 2H, Ph-H), 7.02 and 7.19 (2 x s, 2H, naphthyl-H), 7.37 and 7.46 (2 x t, 2H, naphthyl-H), 7.82 and 8.09 (2 x d, 2H, naphthyl-H), 8.21 and 8.32 (2 x s, 2H, C2-H and C8-H), 8.41 (d, 1H, C2'-N*H*), 8.56 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 601.2 $(M + H^+)^+$.

N^6-(3-methoxy-1-naphthalenemethyl)-2'-deoxy-2'-(3,5-dichlorobenzamido)adenosine (9n). ^{1}H NMR δ 3.62 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 3.79 (s, 3H, naphthyl-OCH_3), 4.09 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 5.11 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.57 (br s, 1H, C5'-O*H*), 5.74 (br s, 1H, C3'-O*H*), 6.22 (d, 1H, C1'-H), 6.62 (s, 1H, Ph-H), 6.97 (s, 2H, Ph-H), 7.02 and 7.19 (2 x s, 2H, naphthyl-H), 7.37 and 7.45 (2 x t, 2H, naphthyl-H), 7.79-7.85 (band, 4H, Ph-H and naphthyl-H), 8.09 (d, 1H, naphthyl-H), 8.21 and 8.32 (2 x s, 2H, C2-H and C8-H), 8.56 (br s, 1H, N^6-H), 8.79 (d, 1H, C2'-N*H*); ESI-MS (MeOH) *m/z* 609.1 $(M + H^+)^+$.

N^6-(4-methoxy-1-naphthalenemethyl)-2'-deoxy-2'-(3-methoxybenzamido)adenosine (10e). ^{1}H NMR δ 3.62 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 3.79 (s, 3H, Ph-OCH_3), 3.85 (s, 3H, naphthyl-OCH_3), 4.10 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 5.07 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.74 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 6.87 (d, 1H, naphthyl-H), 7.07 (d, 1H, Ph-H), 7.32-7.59 (band, 7H, Ph-H and naphthyl-H), 8.17-8.28 (band, 4H, C2-H, C8-H, N^6-H and naphthyl-H), 8.37 (d, 1H, C2'-N*H*); ESI-MS (MeOH) *m/z* 571.2 $(M + H^+)^+$.

N^6-(2-naphthalenemethyl)-2'-deoxy-2'-(3-methoxybenzamido)adenosine (11e). ^{1}H NMR δ 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 3.77 (s, 3H, Ph-OCH_3), 4.10 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 4.87 (br s, 2H, N^6-CH_2), 5.34 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.72 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 7.07 (d, 1H, Ph-H), 7.07-7.88 (band, 11H, Ph-H and naphthyl-H), 8.21 and 8.31 (2 x s, 2H, C2-H and C8-H), 8.34 (d, 1H, C2'-N*H*), 8.45 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 541.2 $(M + H^+)^+$.

N^6-(2-naphthalenemethyl)-2'-deoxy-2'-(3,5-dimethoxybenzamido)adenosine (11m). ^{1}H NMR δ 3.62 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 3.74 (s, 6H, Ph-OCH_3), 4.09 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 4.86 (br s, 2H, N^6-CH_2), 5.32 (m, 1H, C2'-H), 5.59 (br s, 1H, C5'-O*H*), 5.77 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 6.62 (s, 1H, Ph-H), 6.96 (s, 2H, Ph-H), 7.42-7.85 (band, 7H, naphthyl-H), 8.21 and 8.30 (2 x s, 2H, C2-H and C8-H), 8.39 (d, 1H, C2'-N*H*), 8.61 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 571.2 $(M + H^+)^+$.

N^6-(2-naphthalenemethyl)-2'-deoxy-2'-(3,5-dichlorobenzamido)adenosine (11n). ^{1}H NMR δ 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 4.09 (m, 1H, C4'-H), 4.34 (m, 1H, C3'-H), 4.86 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.58 (br s, 1H, C5'-O*H*), 5.74 (br s, 1H, C3'-O*H*), 6.22 (d, 1H, C1'-H), 7.43-7.51 and 7.78-7.84 (2 x band, 10H, Ph-H

and naphthyl-H), 8.21 and 8.31 (2 x s, 2H, C2-H and C8-H), 8.39 (d, 1H, C2'-N*H*), 8.61 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 579.1 $(M + H^+)^+$.

N^6-benzyl-2'-deoxy-2'-(3,5-dimethoxybenzamido)adenosine (12m). ^{1}H NMR δ 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 3.75 (s, 6H, OCH_3), 4.09 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 4.69 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.60 (br s, 1H, C5'-O*H*), 5.77 (br s, 1H, C3'-O*H*), 6.22 (d, 1H, C1'-H), 6.62 (s, 1H, Ph-H), 6.96 (s, 2H, Ph-H), 7.17-7.23 (band, 5H, Ph-H), 8.20 and 8.28 (2 x s, 2H, C2-H and C8-H), 8.39 (d, 1H, C2'-N*H*), 8.49 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 521.2 $(M + H^+)^+$.

N^6-(2-methylbenzyl)-2'-deoxy-2'-(3,5-dimethoxybenzamido)adenosine (13m). ^{1}H NMR δ 2.32 (s, 3H, Ph-CH_3), 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 3.75 (s, 6H, OCH_3), 4.09 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 4.65 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.60 (br s, 1H, C5'-O*H*), 5.77 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 6.62 (s, 1H, Ph-H), 6.97 (s, 2H, Ph-H), 7.06-7.18 (band, 4H, Ph-H), 8.18 and 8.29 (2 x s, 2H, C2-H and C8-H), 8.40 (m, 2H, N^6-H and C2'-N*H*); ESI-MS (MeOH) *m/z* 535.2 $(M + H^+)^+$.

N^6-(3-methylbenzyl)-2'-deoxy-2'- (3,5-dimethoxybenzamido)adenosine (14m). ^{1}H NMR δ 2.24 (s, 3H, Ph-CH_3), 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 3.79 (s, 6H, OCH_3), 4.09 (m, 1H, C4'-H), 4.32 (m, 1H, C3'-H), 4.65 (br s, 2H, N^6-CH_2), 5.33 (m, 1H, C2'-H), 5.60 (br s, 1H, C5'-O*H*), 5.77 (br s, 1H, C3'-O*H*), 6.22 (d, 1H, C1'-H), 6.62 (s, 1H, Ph-H), 6.96 (s, 2H, Ph-H), 6.99 (d, 1H, Ph-H), 7.14 (m, 3H, Ph-H), 8.19 and 8.27 (2 x s, 2H, C2-H and C8-H), 8.38 (d, 1H, C2'-N*H*), 8.45 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 535.2 $(M + H^+)^+$.

N^6-(diphenylmethyl)-2'-deoxy-2'- (3,5-dimethoxybenzamido)adenosine (15m). ^{1}H NMR δ 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 3.74 (s, 3H, OCH_3), 3.77 (s, 3H, OCH_3), 4.08 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 5.34 (m, 1H, C2'-H), 5.54 (br s, 1H, C5'-O*H*), 5.79 (br s, 1H, C3'-O*H*), 6.22 (d, 1H, C1'-H), 6.39 (d, 1H, N^6-C*H*), 6.62 (2 x s, 1H, Ph-H), 6.96 (s, 2H, Ph-H), 7.20-7.45 (band, 10H, Ph-H), 8.23 and 8.32 (2 x s, 2H, C2-H and C8-H), 8.39 (d, 1H, C2'-N*H*), 8.77 (d, 1H, N^6-H); ESI-MS (MeOH) *m/z* 597.2 $(M + H^+)^+$.

N^6-(1,2,3,4-tetrahydro-1-naphthyl)-2'-deoxy-2'- (3,5-dimethoxybenzamido)adenosine (16m). ^{1}H NMR δ 1.71-1.99 (band, 4H, naphthyl-H), 2.75 (m, 2H, naphthyl-H), 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 3.76 (s, 6H, OCH_3), 4.10 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 5.34 (m, 1H, C2'-H), 5.63 (br s, 1H, C5'-O*H*), 5.78 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 6.63 (s, 1H, Ph-H), 6.98 (s, 2H, Ph-H), 7.02-7.13 (band, 4H, naphthyl-H), 8.15 (d, 1H, N^6-H), 8.26 (br s, 2H, C2-H and C8-H), 8.41 (d, 1H, C2'-N*H*); ESI-MS (MeOH) *m/z* 561.2 $(M + H^+)^+$.

N^6-[2-(2-(hydroxymethyl)phenylthio)benzyl]-2'-deoxy-2'- (3,5-dimethoxybenzamido)adenosine (17m). ^{1}H NMR δ 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 3.75 (s, 6H, OCH_3), 4.09 (m, 1H, C4'-H), 4.33 (m, 1H, C3'-H), 4.59 (br s, 2H, Ph-CH_2-OH), 4.73 (br s, 2H, N^6-CH_2), 5.33 (m, 2H, C2'-H and Ph-CH_2-O*H*), 5.57 (br s, 1H, C5'-O*H*), 5.77 (br s, 1H, C3'-O*H*), 6.23 (d, 1H, C1'-H), 6.63 (s, 1H, Ph-H), 6.98 (s, 2H, Ph-H), 7.01-7.57 (band, 8H, Ph-H), 8.18 and 8.32 (2 x s, 2H, C2-H and C8-H), 8.40 (d, 1H, C2'-N*H*), 8.46 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 659.2 $(M + H^+)^+$.

N^6-(2-naphthyl)-2'-deoxy-2'- (3,5-dimethoxybenzamido)adenosine (18m). ^{1}H NMR δ 3.61 and 3.72 (2 x m, 2H, C5'-$H_{a,b}$), 4.09 (m, 1H, C4'-H), 4.34 (m, 1H, C3'-H), 5.33 (m, 1H, C2'-H), 5.58 (br s, 1H, C5'-O*H*), 5.74 (br s, 1H, C3'-O*H*), 6.22 (d, 1H, C1'-H), 7.43-7.51 and 7.90-7.99(2 x band, 10H, Ph-H and naphthyl-H), 8.30 and 8.39 (2 x s,

2H, C2-H and C8-H), 8.39 (d, 1H, C2'-N*H*), 8.85 (br s, 1H, N^6-H); ESI-MS (MeOH) *m/z* 566.5 $(M + H^+)^+$.

N^6-[2"-(3,4-methylenedioxyphenyl)ethyl]-2'-deoxy-2'-(3,5-dimethoxybenzamino)adenosine (L11). ^{1}H NMR δ 2.81 (t, 2H, C2"-H), 3.53 and 3.65 (2 x m, 10H, C5'-$H_{a,b}$, C1"-H, and OCH_3), 4.08 (m, 1H, C4'-H), 4.32 (m, 1H, C3'-H), 5.32 (m, 1H, C2'-H), 5.62 and 5.78 (2 x br s, 2H, O*H*), 5.94 (s, 2H, OCH_2O), 6.21 (d, 1H, C1'-H), 6.63-6.98 (band, 6H, Ph-H and Bz-H), 7.93 (br s, 1H, N^6-H), 8.22 (br s, 2H, C2-H and C8-H), 8.40 (d, 1H, C2'-N*H*); ESI-MS (MeOH) *m/z* 579.2 $(M + H^+)^+$.

N^6-[3,4-(methylenedioxy)benzyl]-2'-deoxy-2'-(3,5-dimethoxybenzamino)adenosine (M11). ^{1}H NMR δ 3.54 and 3.64 (2 x m, 8H, C5'-$H_{a,b}$ and OCH_3), 4.08 (m, 1H, C4'-H), 4.32 (m, 1H, C3'-H), 5.32 (m, 1H, C2'-H), 5.60 and 5.78 (2 x br s, 2H, O*H*), 5.93 (s, 2H, OCH_2O), 6.21 (d, 1H, C1'-H), 6.63-6.95 (band, 6H, Ph-H and Bz-H), 8.21 and 8.28 (2 x s, 2H, C2-H and C8-H), 8.40 (m, 2H, N^6-H and C2'-N*H*); ESI-MS (MeOH) *m/z* 565.2 $(M + H^+)^+$.

N^6-[2"-(3-indolyl)ethyl]-2'-deoxy-2'-(3,5-dimethoxybenzamino)adenosine (N11). ^{1}H NMR δ 2.98 (t, 2H, C2"-H), 3.54 and 3.64 (2 x m, 2H, C5'-$H_{a,b}$, C1"-H, and OCH_3), 4.08 (m, 1H, C4'-H), 4.32 (m, 1H, C3'-H), 5.32 (m, 1H, C2'-H), 5.63 and 5.79 (2 x br s, 2H, O*H*), 6.22 (d, 1H, C1'-H), 6.62-7.33 (band, 7H, Ph-H), 7.62 (d, 1H, indolyl-C*H*), 8.02 (br s, 1H, N^6-H), 8.20 and 8.23 (2 x s, 2H, C2-H and C8-H), 8.40 (d, 1H, C2'-N*H*), 10.80 (s, 1H, indolyl-N*H*); ESI-MS (MeOH) *m/z* 574.2 $(M + H^+)^+$.

N^6-(1-naphthalenemethyl)-2'-deoxy-2'-(indole-5-amido)adenosine (Q4). ^{1}H NMR δ 3.61 and 3.73 (2 x m, 2H, C5'-$H_{a,b}$), 4.10 (m, 1H, C4'-H), 4.35 (m, 1H, C3'-H), 5.16 (br s, 2H, N^6-CH_2), 5.37 (m, 1H, C2'-H), 5.62 and 5.90 (2 x br s, 2H, C5'-O*H*), 6.23 (d, 1H, C1'-H), 6.50 (s, 1H, inole-H), 7.40-8.38 (band, 13H, naphthyl-H, indole-H, N^6-H, C2-H and C8-H), 8.43 (d, 1H, C2'-N*H*), 11.38 (s, 1H, indole-N*H*); ESI-MS (MeOH) *m/z* 550.2 $(M + H^+)^+$.

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