

Electronic supplementary information

New Thermolytic Carbamoyl Groups for Protection of Nucleobases

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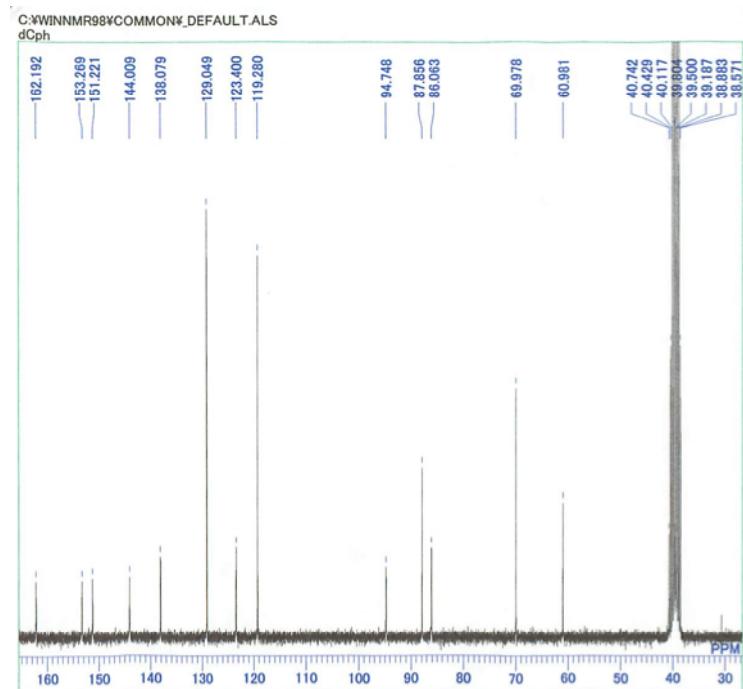
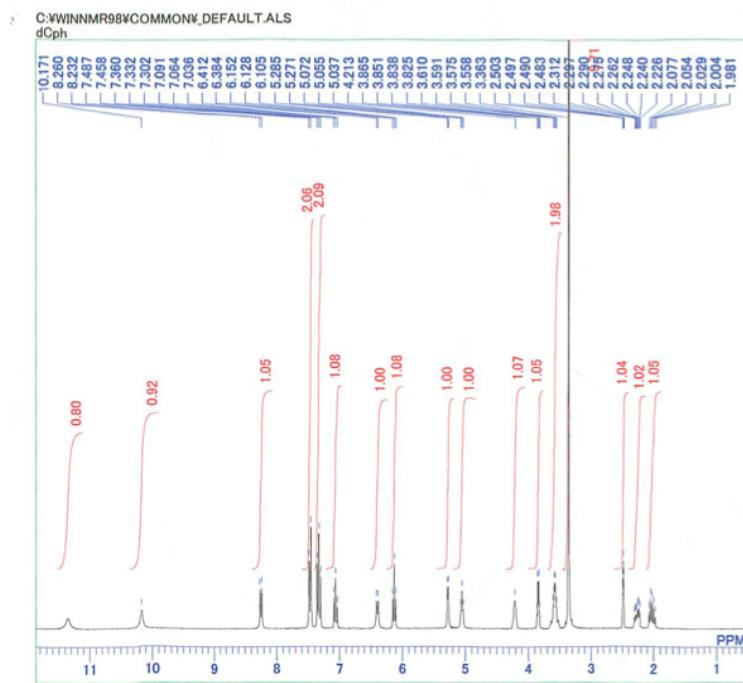
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General Remarks ^1H , and ^{13}C NMR spectra were recorded at 270 and 68 MHz, respectively. The chemical shifts were measured from tetramethylsilane for ^1H NMR spectra and CDCl_3 (77 ppm) for ^{13}C NMR spectra. Column chromatography was performed with silica gel C-200 purchased from Wako Co. Ltd., and a mini pump for a goldfish bowl was conveniently used to attain sufficient pressure for rapid chromatographic separation. The fluorescent analysis was performed by using array WoRx system (applied Precision) or Olympus fluorescence microscopy system BX-FLA with ORCA IEEE1394 (Hamamatsu photonics). The fluorescence images were analysed by using Hamamatsu photonics AQUA-Lite. HPLC was performed using the following systems. ESI mass was performed by use of MarinerTM (PerSeptive Biosystems Inc.). CPG particles were prepared according to our previous method. (Tsukahara, T.; Nagasawa, H. *Sci. Technol. Adv. Mater.* **2004**, *5*, 359-362.) The CPG particle containing the DNA probe 1-5 was spotted on the slide glasses using Shotmaster (Musashi Engineering Incorporated).

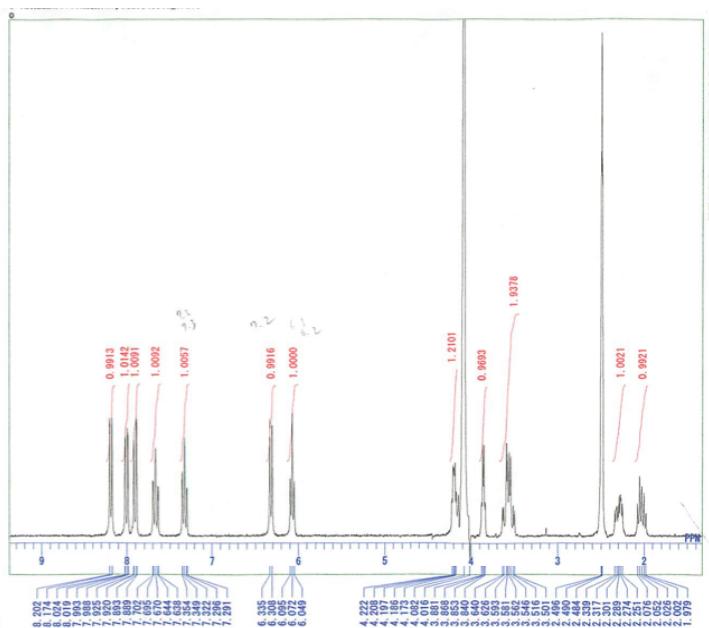
4-N-(N-phenylcarbamoyl)deoxycytidine 2a

¹H NMR

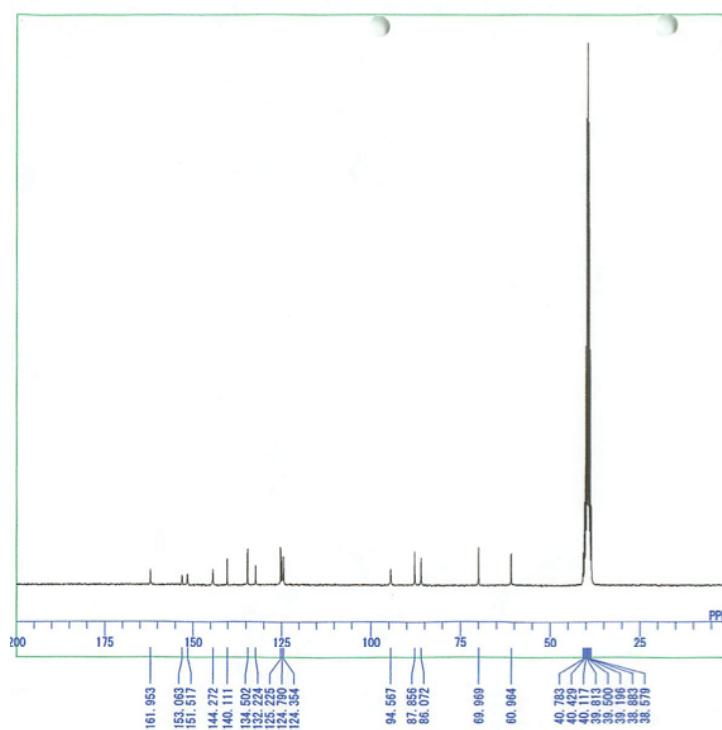


4-N-[N-(2-nitrophenyl)carbamoyl]deoxycytidine 2b

1H NMR



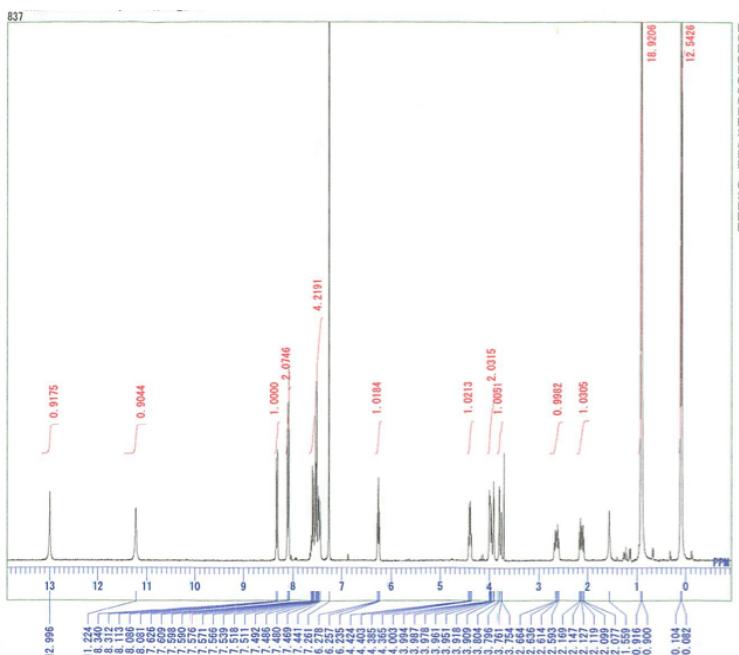
13C NMR



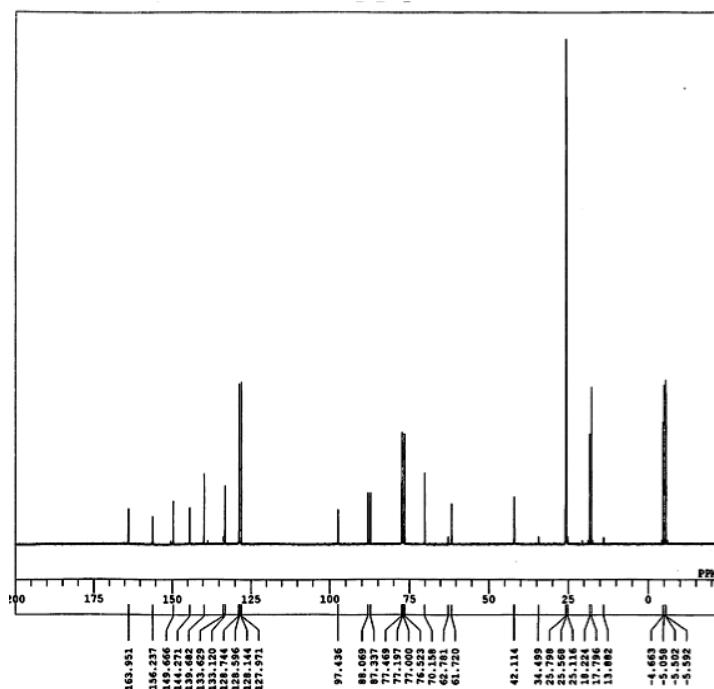
3',5'-O-bis-(*tert*-butyldimethylsilyl)-4-N-(*N*-phenylsulfonylcarbamoyl)deoxycytidin

e 2c

¹H NMR

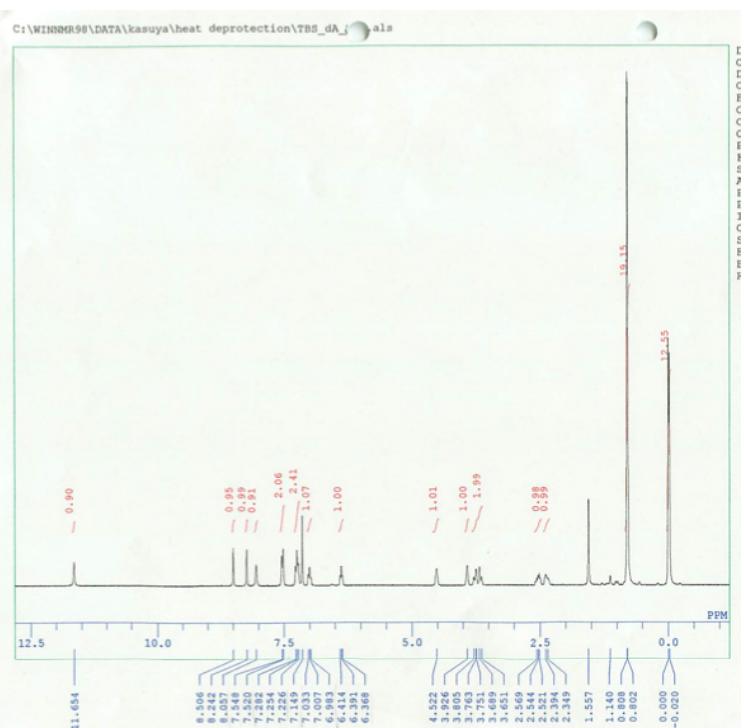


^{13}C NMR

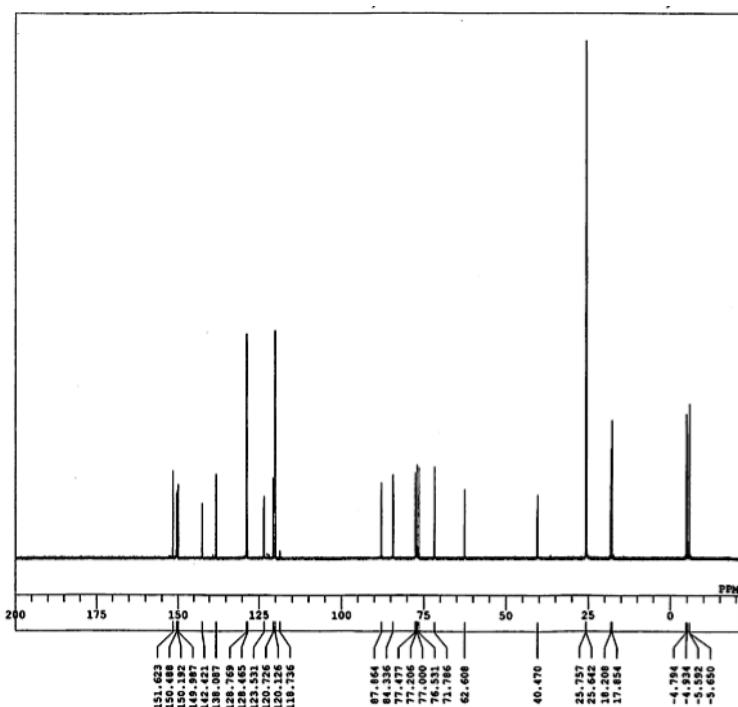


3',5'-O-Bis-(*tert*-butyldimethylsilyl)-6-N-(N-phenylcarbamoyl)deoxyadenosine 2d

1H NMR

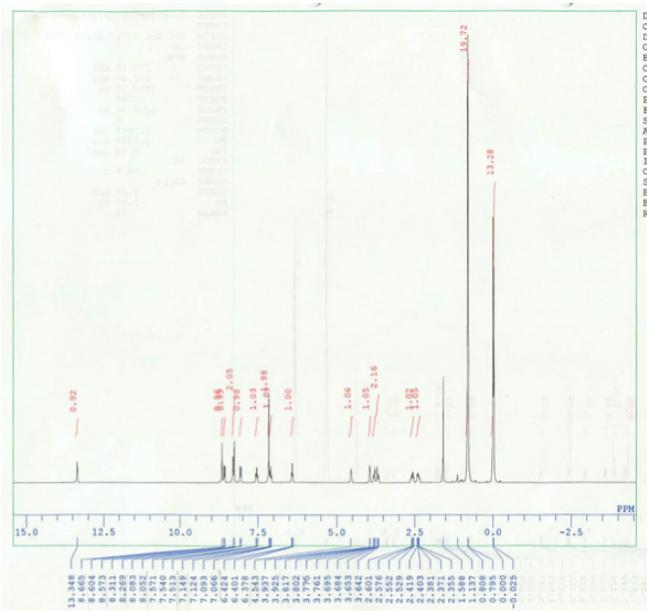


^{13}C NMR



3',5'-O-Bis-(*tert*-butyldimethylsilyl)-6-N-[N-(2-nitrophenyl)carbamoyl]deoxyadenosine 2e

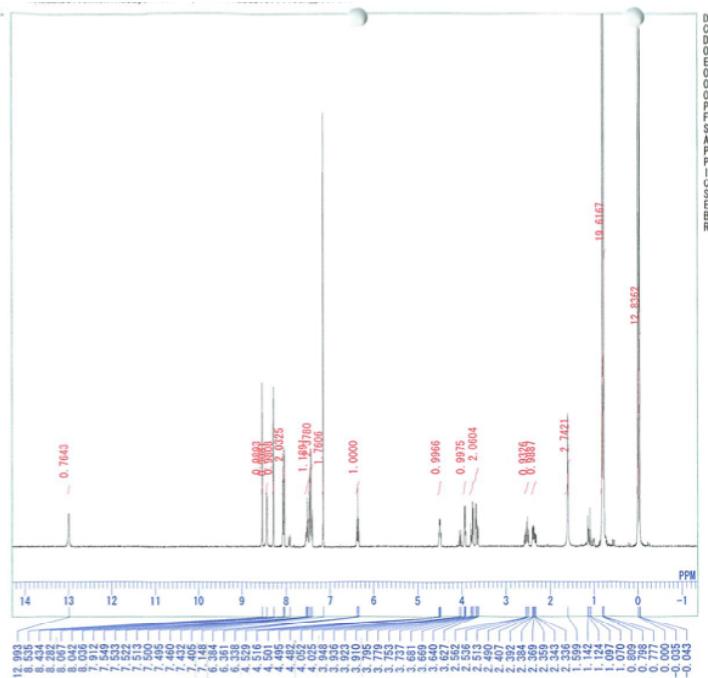
1H NMR



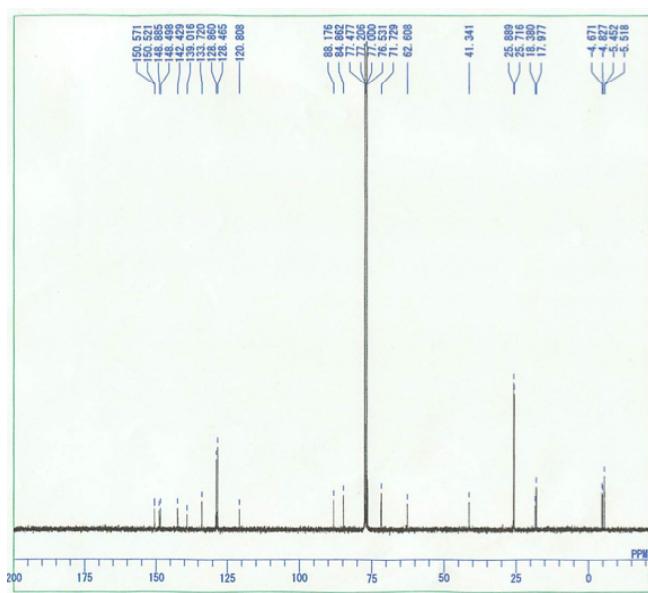
^{13}C NMR

3',5'-O-Bis-(*tert*-butyldimethylsilyl)-6-N-[N-(phenylsulfonyl)carbamoyl]deoxyadenosine 2f

¹H NMR

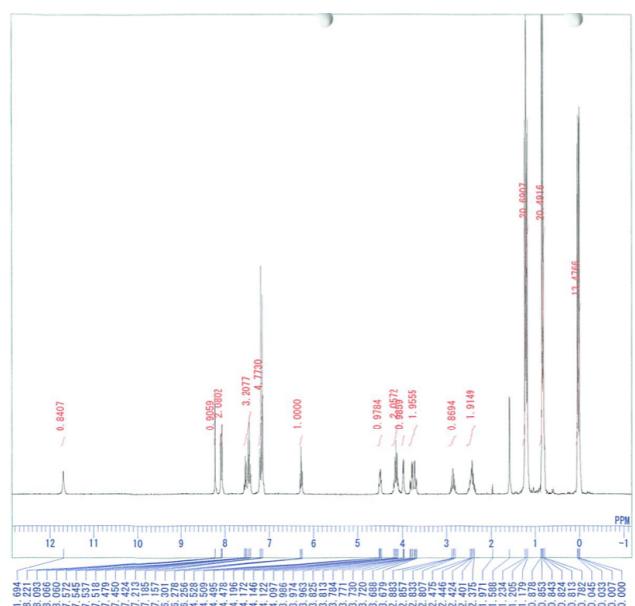


^{13}C NMR

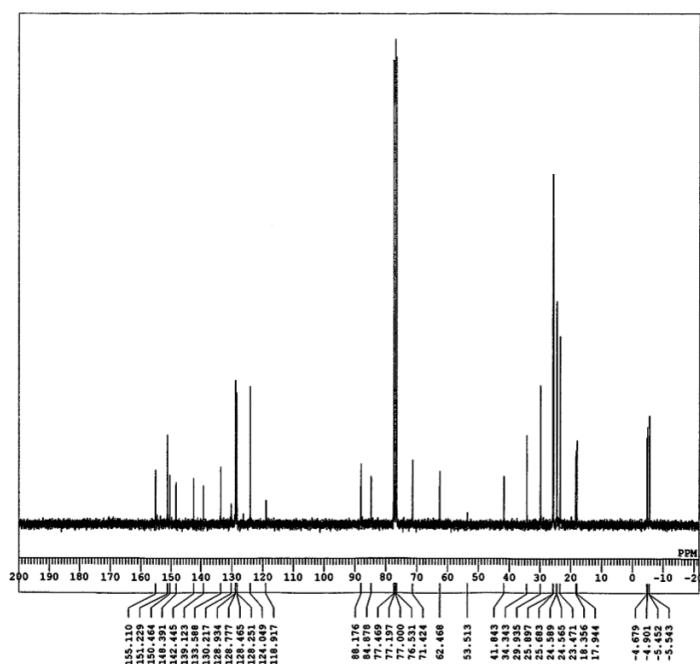


3',5'-O-Bis-(*tert*-butyldimethylsilyl)-2-N-[N-(phenylsulfonyl)carbamoyl]-6-O-(2,4,6-triisopropylbenzenesulfonyl)deoxyguanosine 2g

1H NMR

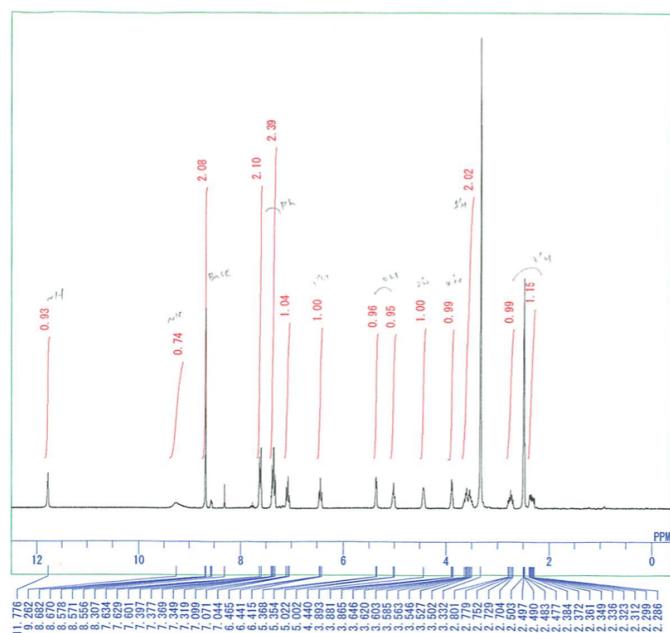


^{13}C NMR

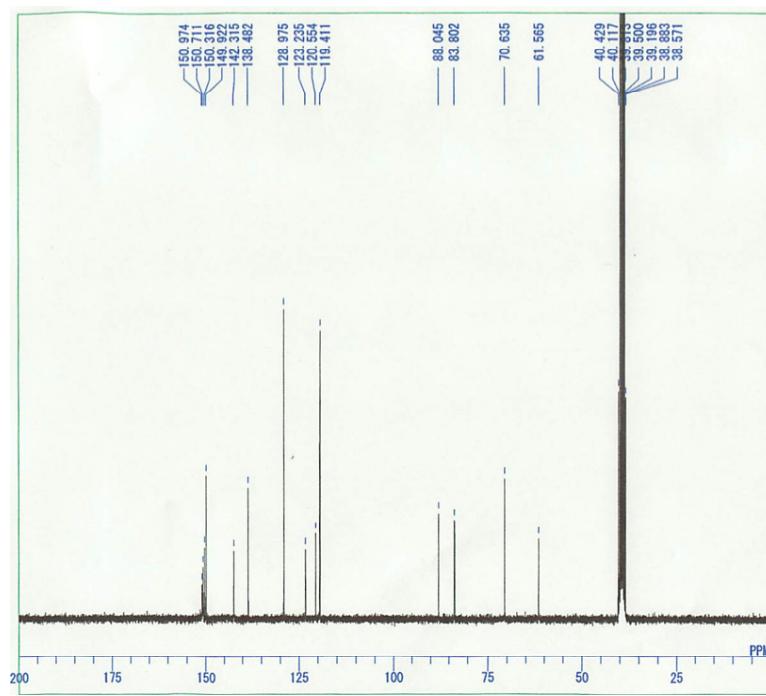


6-N-(N-Phenylcarbamoyl)deoxyadenosine 2h

^1H NMR

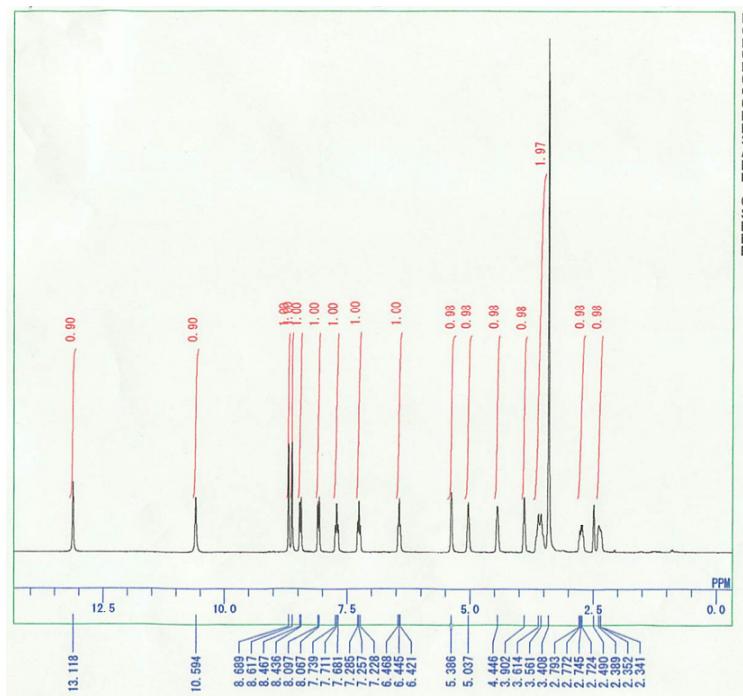


^{13}C NMR

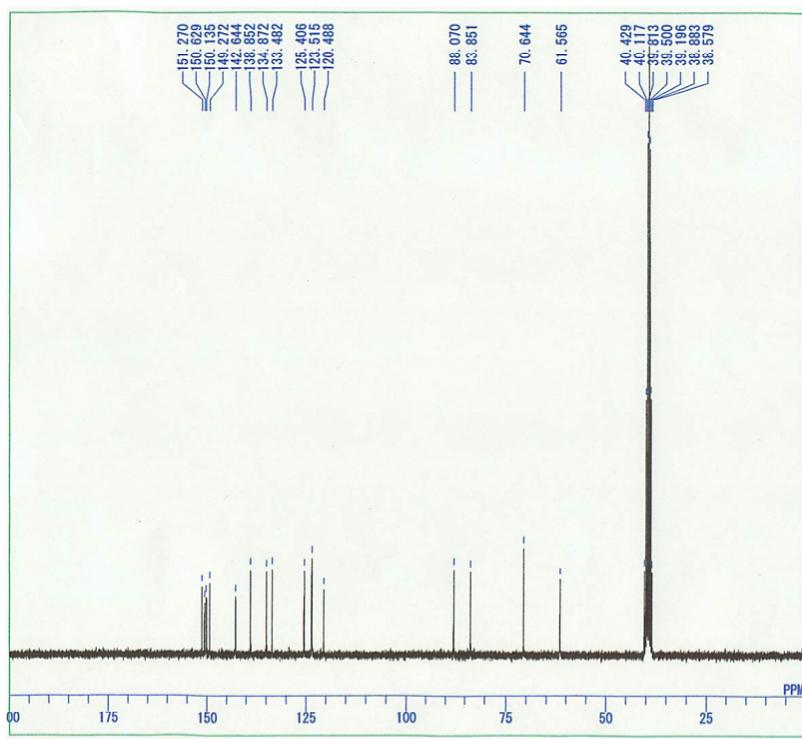


6-N-[N-(2-Nitrophenyl)carbamoyl]deoxyadenosine 2i

¹H NMR

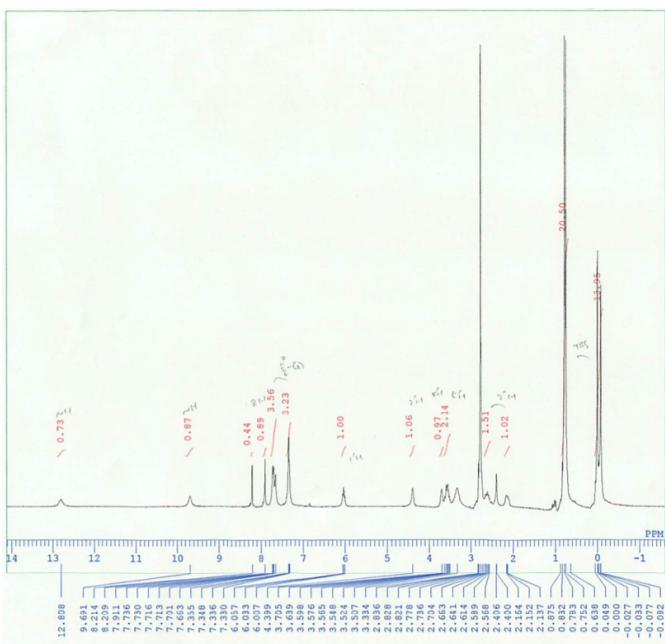


¹³C NMR

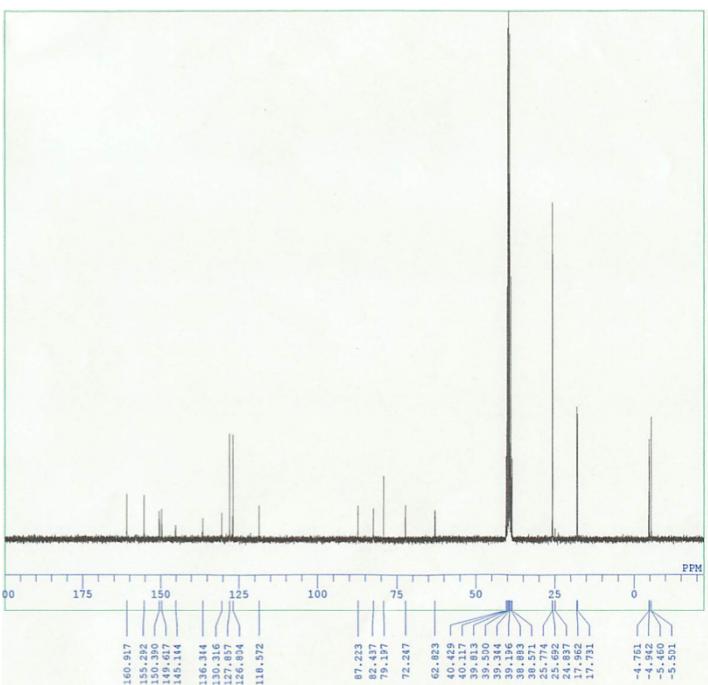


3',5'-O-Bis-(*tert*-butyldimethylsilyl)-2-N-[N-(phenylsulfonyl)carbamoyl]deoxyguanosine 2j

1H NMR

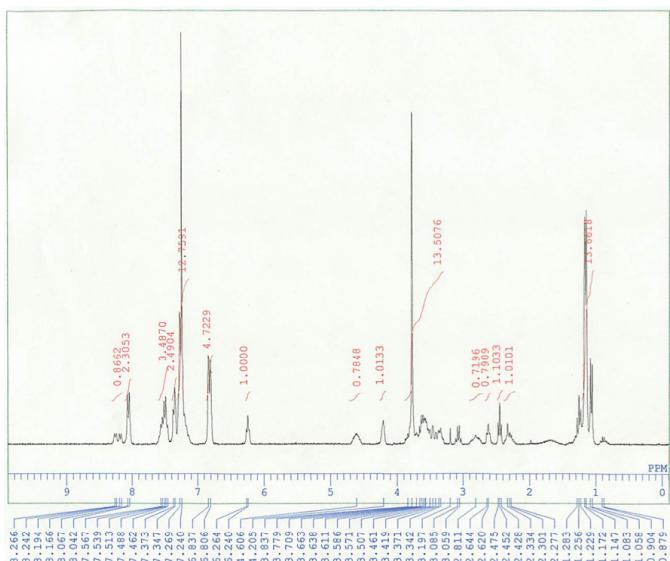


^{13}C NMR

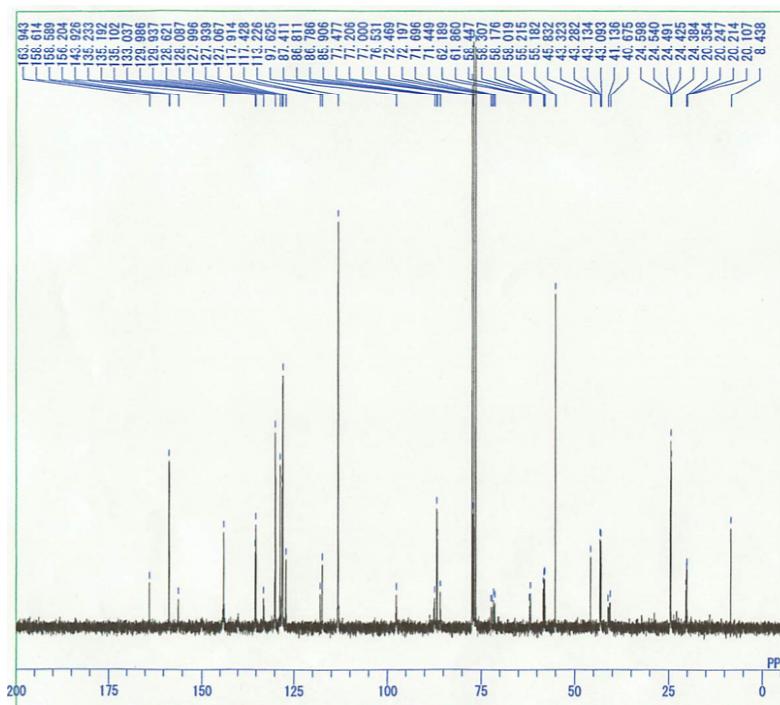


5'-O-(4,4'-Dimethoxytrityl)-6-N-[N-(phenylsulfonyl)carbamoyl]deoxycytidine-3'-O-(2-cyanoethyl)-N,N-diisopropylphosphoramidite 3a

1H NMR

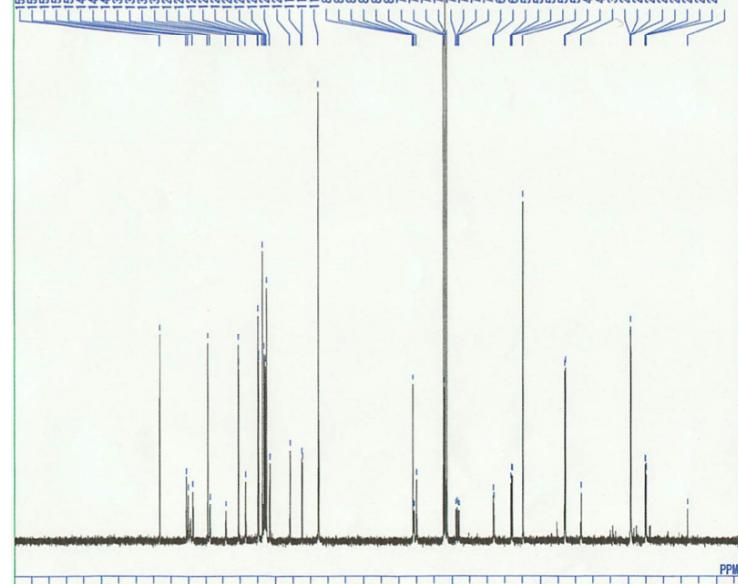
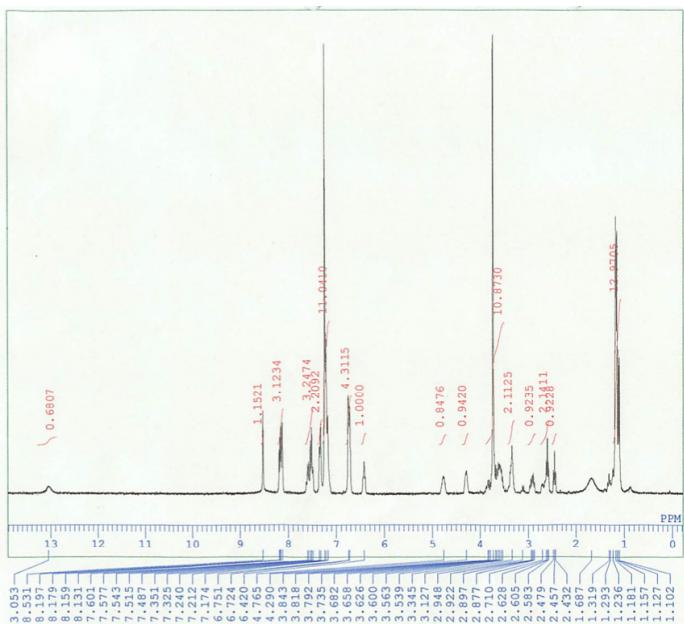


¹³C NMR

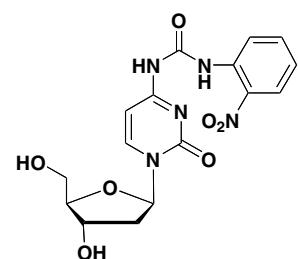
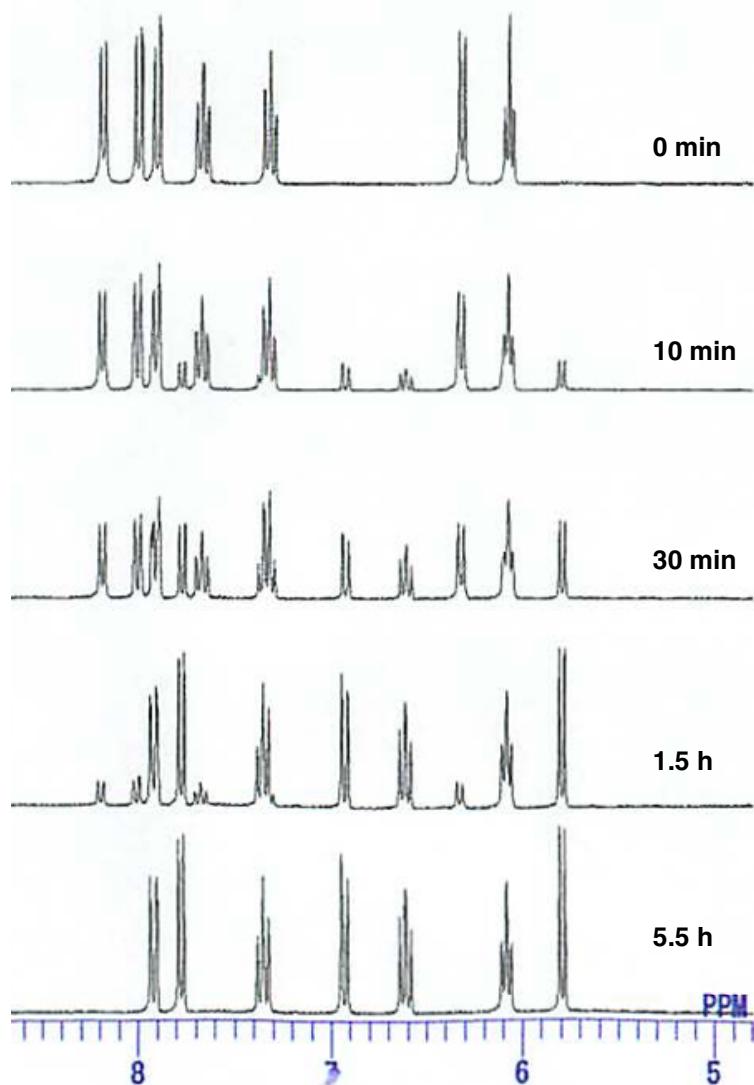


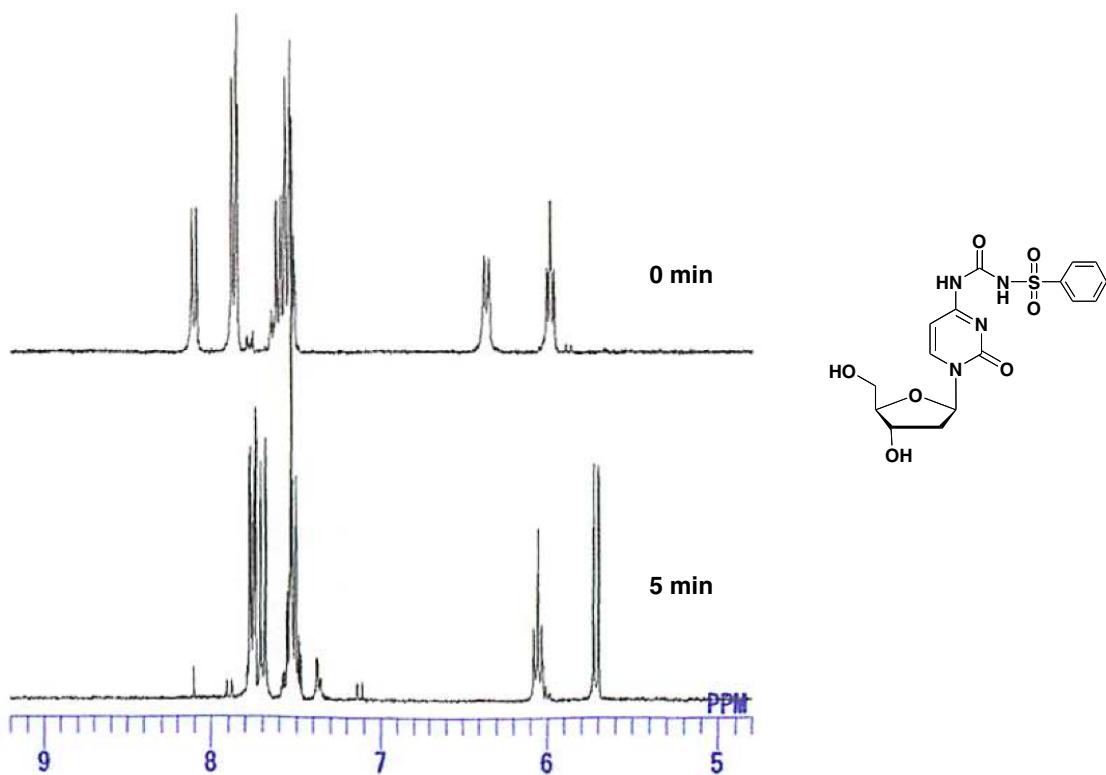
**5'-O-(4,4'-Dimethoxytrityl)-6-N-[N-(phenylsulfonyl)carbamoyl]deoxyadenosine-3'-
O-(2-cyanoethyl)-*N,N*-diisopropylphosphoramidite 3b**

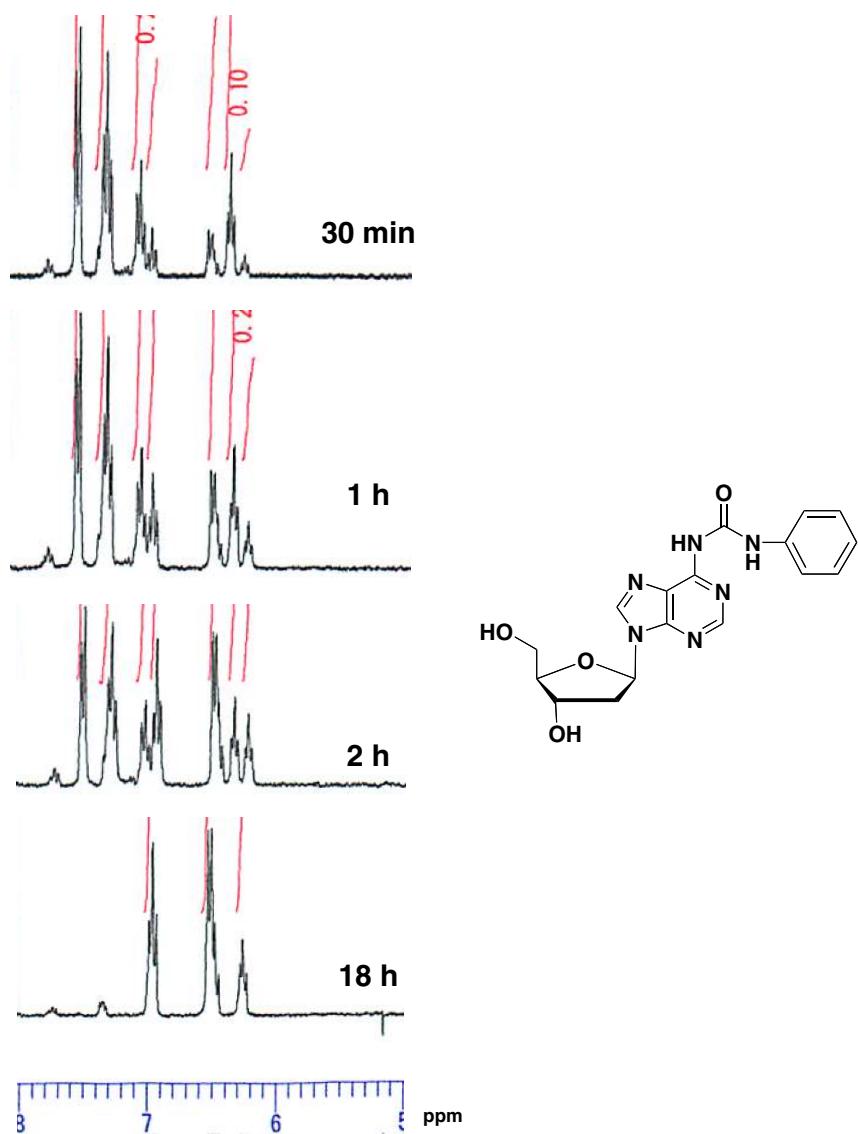
^1H NMR

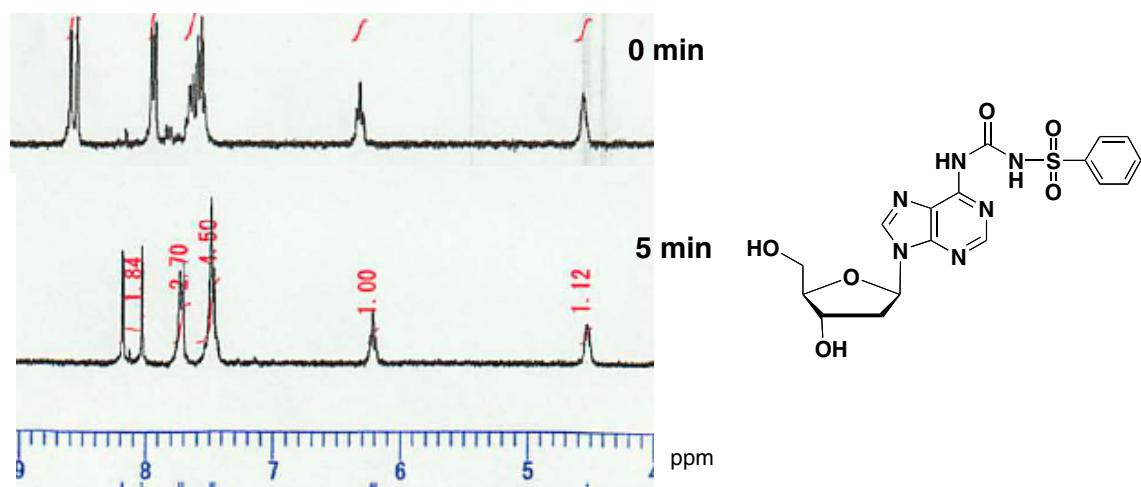
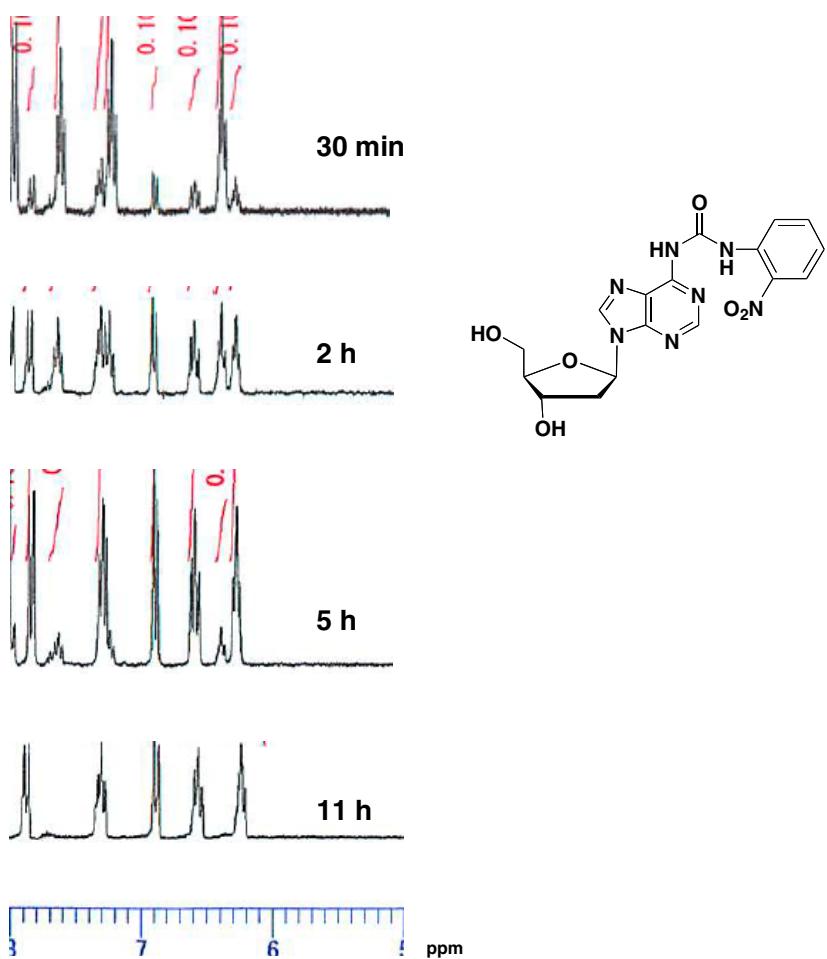


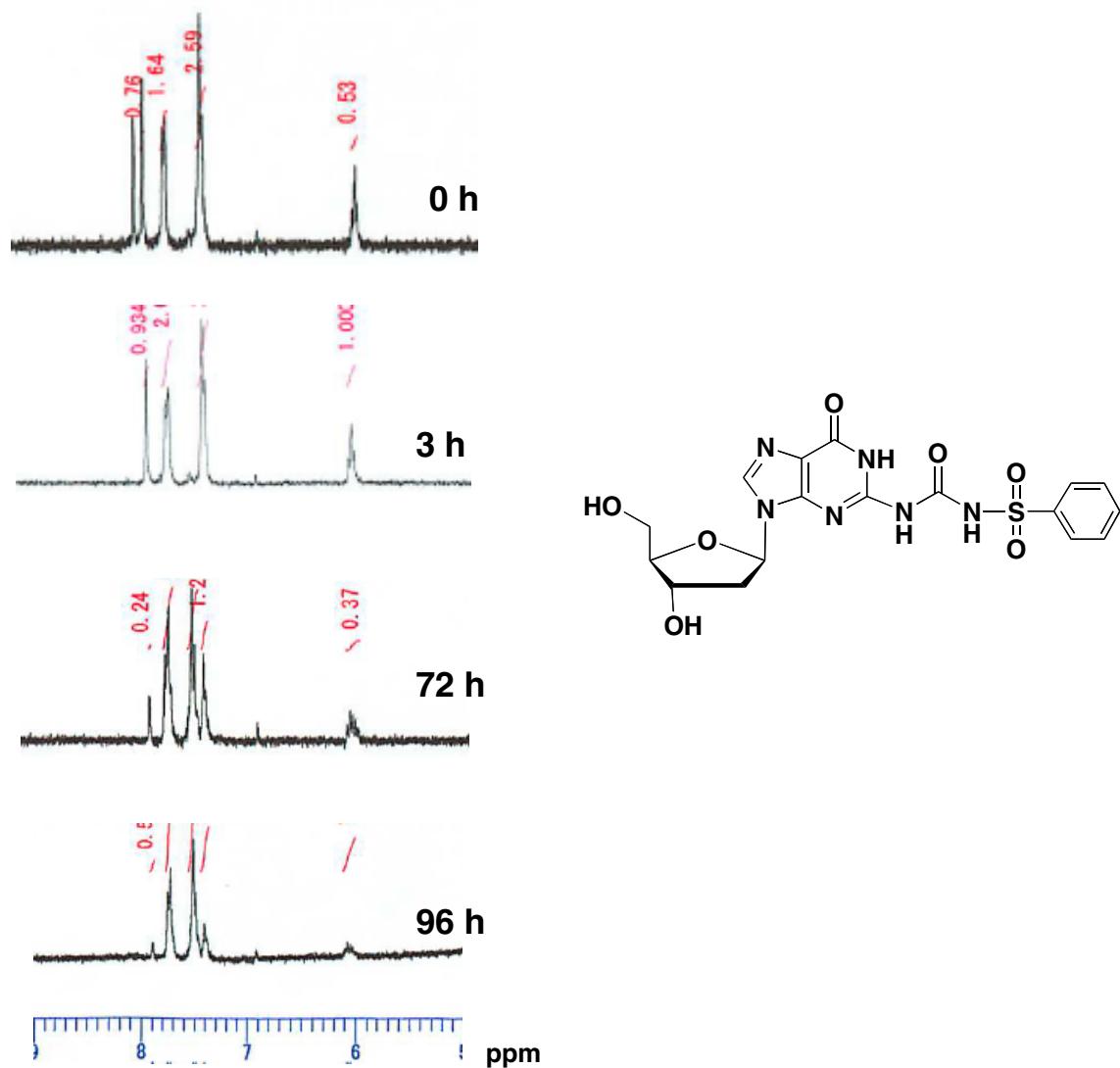
¹H NMR analysis for thermolytic deprotection





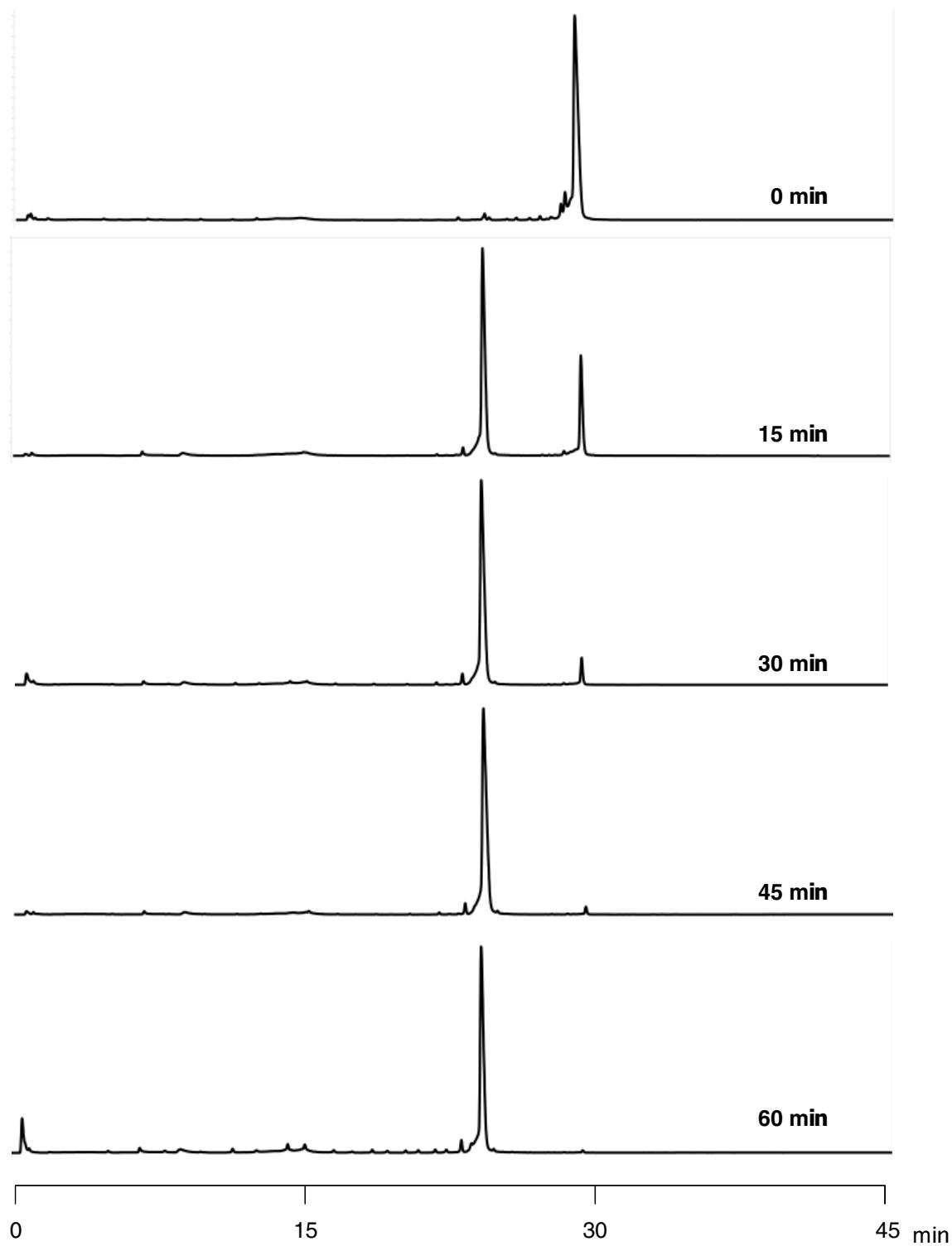






HPLC analysis for thermolytic deprotection

d[TTTTTT-psc⁴C-TTTTTT]



d[TTTTT-psc⁶A-TTTTT]

