Electron Supplementary Information

Endonuclease and Exonuclease Activities on Oligodeoxynucleotides Containing Spiroiminodihydantoin Depend on the Sequence Context and the Lesion Stereochemistry

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Fig. S1 Anion-exchange HPLC elution for the diastereomers of the dinucleotide 5'-d(Cp[Sp]-3'. The diastereomers elute at 14.1 and 14.6 min, respectively that were products from SVPD digestion of the ODN 5'-d(TTT TTT TAC [Sp]GT)-3' The digestion was done in Tris-HCl (pH 7.8) buffer at 37 ^{o}C. (b) Mass spectrum (negative ion) of dCSp dinucleotide from the digestion by snake venom phosphodiesterase (SVPD).

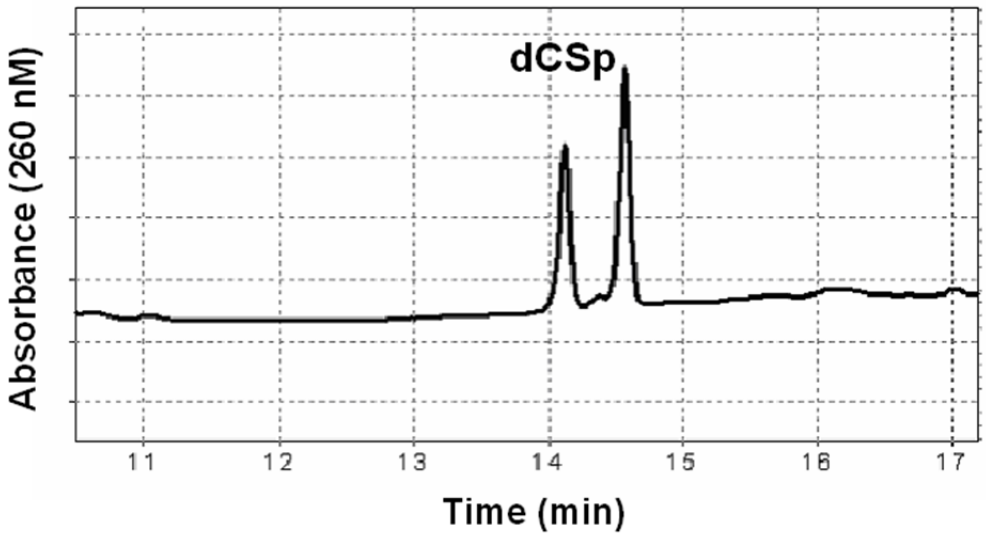


Fig. S2 ESI-MS for the diastereomer mixture of the dinucleotide 5'-d(Cp[Sp])-3'. The calculated mass is $(M-H)^-$ = 587.4; and the experimental mass is $(M-H)^-$ = 586.9.

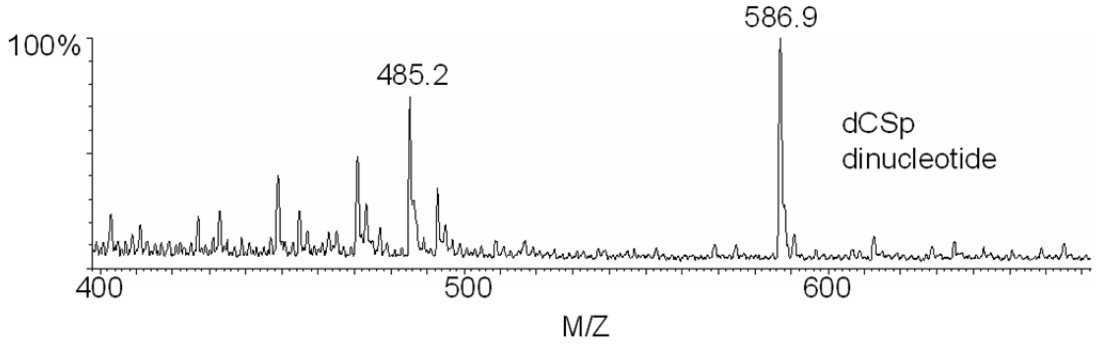
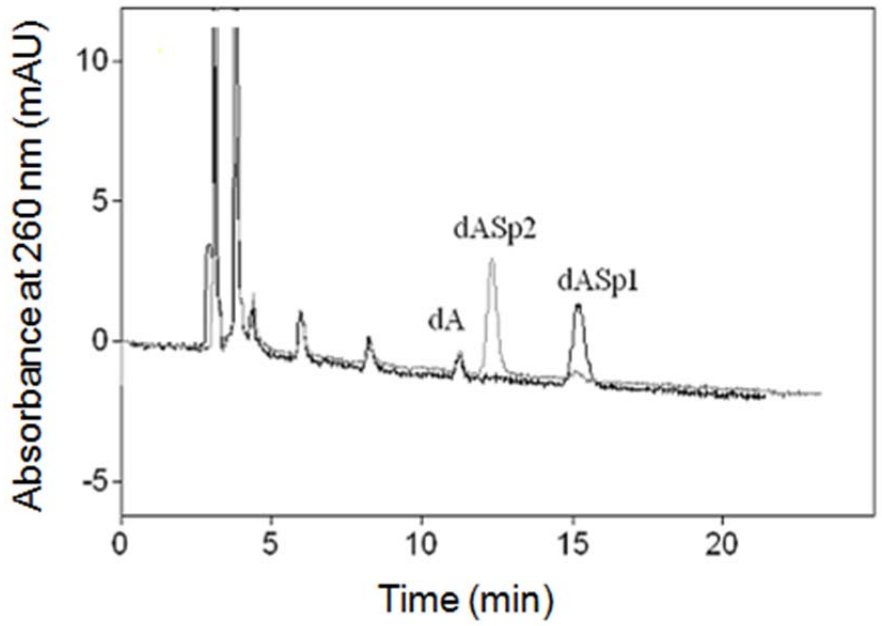


Fig. S3 Digestion of 5'-d(Ap[Sp])-3' was monitored by RP-HPLC and hypercarb column. (a) HPLC elution of dA, dASp1, dASp2 with a reversed phase column. Retention time: dA(11 min), dASp1 (15 min) and dASp2 (12 min). (b) Sp nucleoside after digestion eluted on hypercarb column.

(a)



(b)

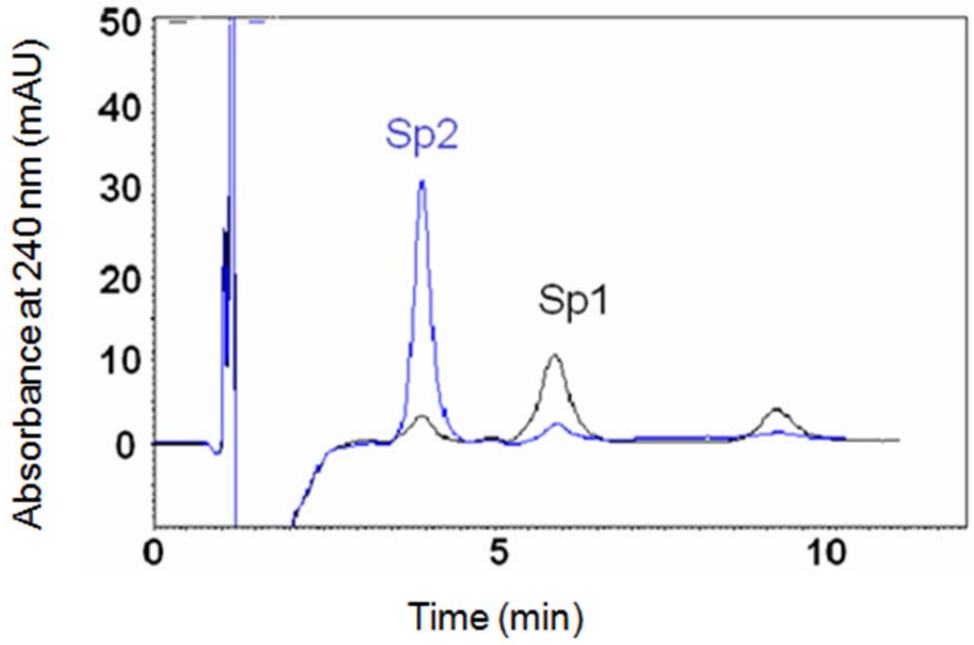
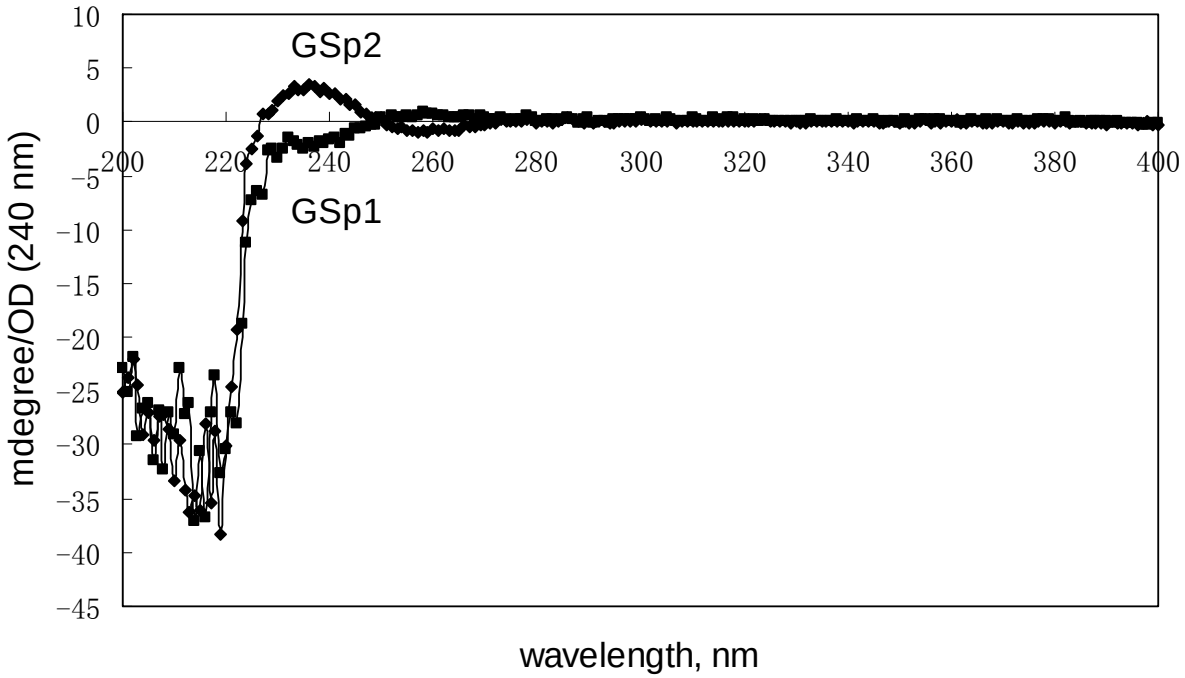


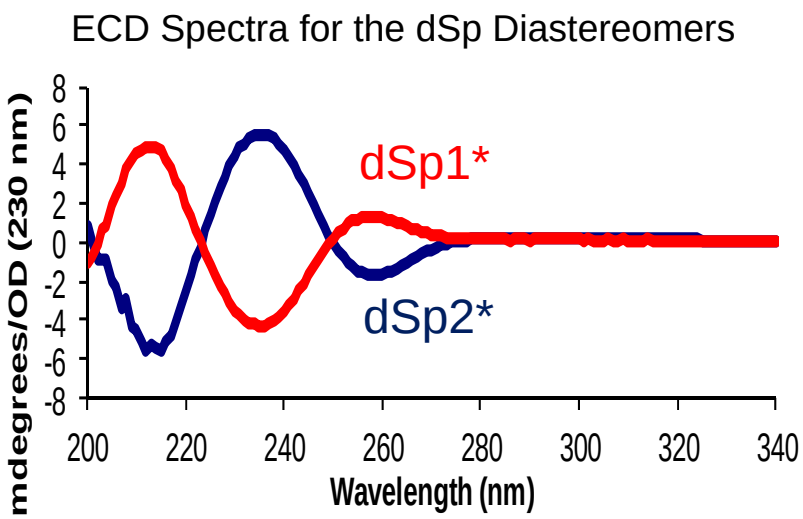
Fig. S4 Digestion efficiency of oligodeoxynucleotides containing Sp with combinations of enzymes.

(a) Digestion of ODNs with enzyme combinations (P1 = nuclease P1).

	GSpC	ASpG	TSpG	CSpG
P1 + SVPD	100%	100%	100%	100%
SVPD + SPD	100 ± 1 %	100 ± 3 %	70 ± 3 %	29 ± 8 %

Fig. S5 ECD spectra for the 5'-d(Gp[Sp])-3' and dSp diastereomers.

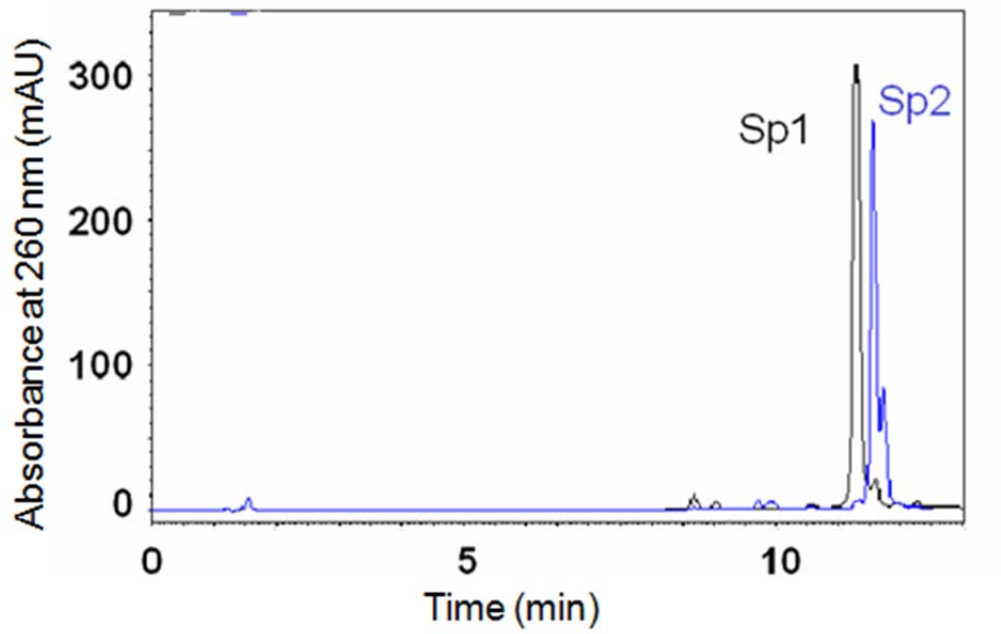




*The nucleoside numbering scheme is based on the elution order from an anion-exchange HPLC column.

Fig. S6 dSp elution order in and ODN and a free nucleoside. (a) dSp-containing ODN eluted on anion exchange. (b) dSp nucleoside after digestion eluted on hypercarb. The eluting order of these two columns is reversed.

(a)



(b)