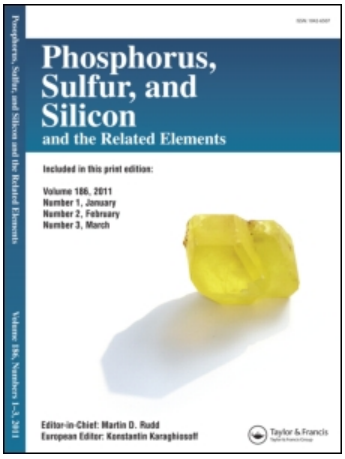

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Synthesis and Properties of Carbocyclic 5'- Nor Oligodeoxynucleotides as Potential Antisense Molecules

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SYNTHESIS AND PROPERTIES OF CARBOCYCLIC 5′-*NOR* OLIGODEOXYNUCLEOTIDES AS POTENTIAL ANTISENSE MOLECULES

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*We have synthesized carbocyclic 5′-*nor *oligodeoxynucleotides with a shortened overall chain length lacking the 5′-methylene. Their hybridization properties with DNA and RNA were investigated by UV and CD melting curves. These oligomers formed unstable duplexes with DNA, but formed stable duplexes with RNA selectively. In addition, these oligomers were very stable against nucleases.*

Keywords: Carbocyclic 5′-*nor* oligodeoxynucleotide; hybridization property; nuclease resistance; RNA selectivity

For research to find modified oligonucleotides as an efficient antisense molecule, oligomers having selective hybridization properties to targeting RNA and resistance against nucleases are urgent. We have reported carbocyclic nucleosides lacking the C-5′ methylene unit, designated as carbocyclic 5′-*nor* nucleoside, and the synthesis of the carbocyclic "D-like" 5′-*nor* 2′-deoxy and 3′-deoxyadenosine as an enantiomer. We also have reported synthesis and properties of carbocyclic 5′-*nor* oligodeoxynucleotides **1**, **2** (B = A, T, 24 mer) with a shortened overall chain length lacking the 5′-methylene (Figure 1). Their hybridization properties with DNA and RNA were investigated by UV and CD melting curves. These oligomers **1**, **2** (B = A, 24 mer) formed unstable duplexes with DNA, but formed stable duplexes with RNA selectively. In addition, these oligomers were very stable against nucleases.

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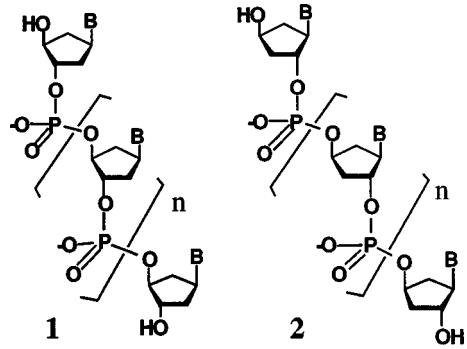

FIGURE 1 Carbocyclic 5′-*nor* oligodeoxynucleotides.