ABSTRACT

The present invention provides nucleic acids based on novel artificial base pairing, as well as a preparation method and uses thereof.

In the nucleic acids of the present invention, a nucleotide having a substituted or unsubstituted 2-formyl-1H-pyrrol-1-yl group as a base forms a base pair with a nucleotide having a 6-substituted 9H-purin-9-yl group as a base. The inventive method for preparing a nucleic acid comprises effecting transcription, reverse transcription or replication by using, as a template, a nucleic acid incorporating a nucleotide having a substituted or unsubstituted 2-formyl-1H-pyrrol-1-yl group as a base, so that the nucleotide having a 6-substituted 9H-purin-9-yl group is incorporated at a site complementary to the nucleotide having a substituted or unsubstituted 2-formyl-1H-pyrrol-1-yl group.