STRUCTURE OF A C-CYCLOPYRIMIDINE NUCLEOSIDE DERIVED FROM A 2'-C-NITROMETHYLURIDINE

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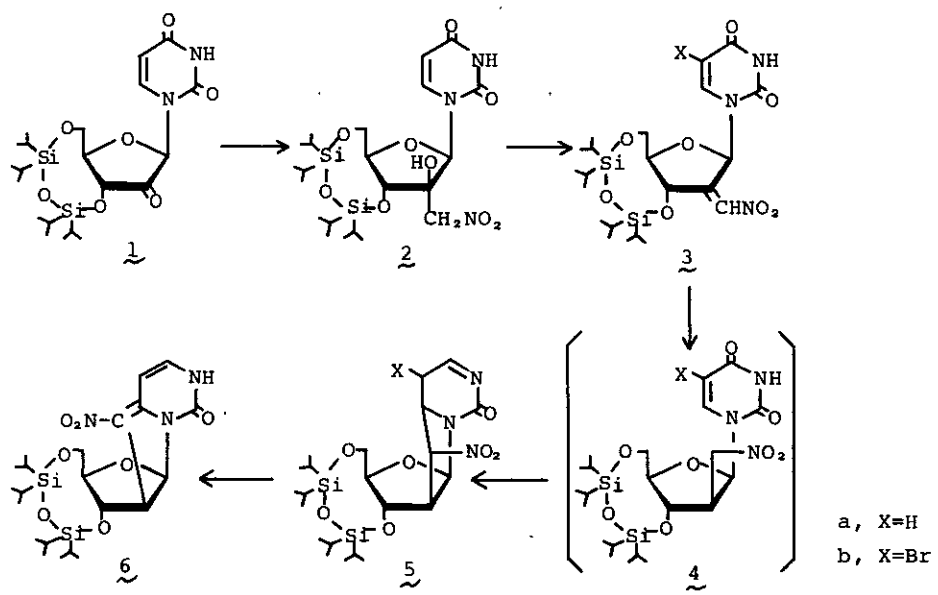
In the course of our studies on the transformation of nucleosides to carbon-branched sugar nucleosides, we found that 2'-carbon-branched uridine derivatives were easily prepared from protected 2'-ketouridine(1). For example, 6,2'-ethylene-cyclouridine was prepared from the Wittig product of 1 and ethoxycarbonylmethylene-triphenylphosphorane.[1] We envisioned that the synthesis of 6,2'-methylene-cyclo-uridines could be achieved by using a 2'-C-nitromethyluridine derivative(2) as the intermediate. For the preparation of 4, compound(3a) derived from 1 was allowed to react with $NaBH_4$ but the product obtained was 5,6-dihydro derivative(5a). To confirm its structure, 5-bromo derivative(3b) was treated with $NaBH_4$ in the same way. The product(5b) was then heated with DBU to afford a carbon-bridged 2-pyrimidinone cyclonucleoside(6).



1) T. Ueda, S. Shuto, T. Sano, H. Usui and H. Inoue, Nucleic Acids Res. Symp. Series, No. 11, 5 (1982).