



OXFORD
ACADEMIC



Nucleic Acids Research

Article Navigation

Termination of DNA synthesis by novel 3'-modifieddeoxyribonucleoside 5'-triphosphates

Michael L. Metzker , Ramesh Raghavachari, Stephen Richards, Swanee E. Jacutin, Andrew Civitello, Kevin Burgess, Richard A. Gibbs

Nucleic Acids Research, Volume 22, Issue 20, 11 October 1994, Pages 4259–4267,

<https://doi.org/10.1093/nar/22.20.4259>

Published: 11 October 1994 **Article history** ▼

 Cite  Permissions  Share ▼

Abstract

Eight 3'-modified-dNTPs were synthesized and tested in two different DNA template assays for incorporation activity. From this enzymatic screen, two 3'-O-methyl dNTPs were shown to terminate DNA syntheses mediated by a number of polymerases and may be used as alternative terminators in Sanger sequencing. 3-O-(2-Nitrobenzyl)-dATP is a UV sensitive nucleotide and was shown to be incorporated by several thermostable DNA polymerases. Base specific termination and efficient photolytic removal of the 3'-protecting group was demonstrated. Following deprotection, DNA synthesis was reinitiated by the incorporation of natural nucleotides into DNA. The identification of this labile terminator and the demonstration of a one cycle stopstart DNA synthesis are initial steps in the development of a novel sequencing strategy.

Issue Section: [CHEMISTRY](#)

Illumina Ex. 1097
 Illumina v. Columbia
 IPR2018-00291, -00318, -00322,
 -00385, and -00797