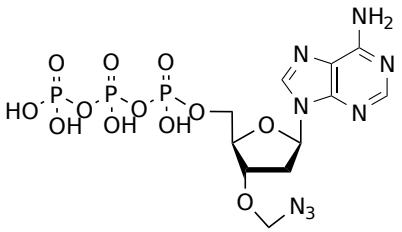
3'-O-Azidomethyl-dATP

Catalog Number: 17220, 17221
Unit Size: 1 umole, 10 umoles

Product Details

Storage Conditions	Freeze (< -15 °C), Minimize light exposure
Expiration Date	12 months upon receiving

Chemical Properties

Appearance	Liquid colorless
Molecular Weight	546.22
Soluble In	Water
Chemical Structure	

Spectral Properties

Excitation Wavelength	N/A
Emission Wavelength	N/A

Applications

3'-O-Azidomethyl-dATP is one of the four essential dNTPs (A, C, G, T) that can be used for the DNA sequencing by synthesis (SBS). DNA sequencing is a fundamental tool in biological and medical research (especially for personalized medicine). Various DNA sequencing methods have been developed. Currently, the dominant method is sequencing by synthesis (SBS), an approach that determines DNA sequences during the polymerase reaction. The most widely used high-throughput SBS technology uses cleavable fluorescent reversible nucleotide terminator sequencing chemistry. The reversible terminator sequencing chemistry is based on the principle: each of the four nucleotides (A, C, G, T) is modified by attaching a unique cleavable fluorophore to the base and capping the 3′-OH group with a small reversible chemical moiety so that they are still recognized by DNA polymerase as substrates. The fluorescence based SBS suffers limited read length since the current cleavable fluorescent dNTPs used in SBS leave a large fluorescence tag on the base of the growing DNA strand. Conceptually, the much smaller azidomethyl group on the dNTPs may be used as a tag for sequencing. Due to the small size of the azido label, the 3′-O-azidomethyl-dNTPs are efficient substrates for the DNA polymerase. In the SBS cycles, the natural nucleotides are restored after each incorporation and cleavage, producing a growing DNA strand that bears no modifications and will not impede further polymerase reactions.