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Technical Information about 7-N_3Ac-AParg-7-C-dGTP

Azide-containing analogue of dGTP

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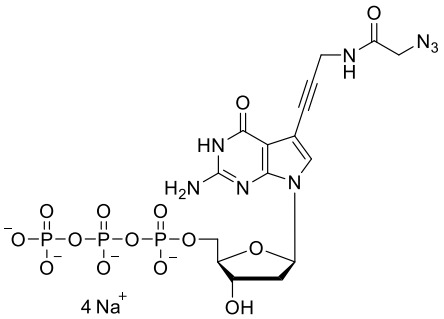

Abbreviation: **7-N_3Ac-AParg-7-C-dGTP**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
$C_{16}H_{21}N_8O_{14}P_3$ (free acid)	[pending]	642.3 (free acid)	λ_{max} 272 nm / ε 11900 / pH 7	A 392

Name: 7- (3- (2- Azidoacetyl)aminopropargyl)- 7- deaza- 2'- deoxyguanosine- 5'- O- triphosphate (7-N_3Ac-AParg-7-C-dGTP), sodium salt

Description: 7-N_3Ac-AParg-7-C-dGTP is an analogue of dGTP, in which the nitrogen in position 7 of the heterocyclic nucleobase is replaced by carbon, which is substituted with a lipophilic 3- (2-azidoacetyl)aminopropargyl moiety.

Properties: The azide-containing 7-N_3Ac-AParg-7-C-dGTP is an analogue of dGTP and a suitable molecular tool for the copper(I)-catalysed Huisgen azide-alkyne [3+2] cycloaddition (CuAAC) or copper(I)-free strain-promoted Alkyne-Azide Click Chemistry (SPAAC) with strained alkynes, respectively. Both reactions have attracted particular interest for the introduction of reporter groups and for the labelling of various biomolecules like dGTP-binding proteins by the so-called click-chemistry technique. Azide-functionalised 7-deaza purine nucleotides can replace their natural counterpart dGTP in polymerase reactions, resulting in functionalized DNA that can subsequently be further reacted and modified using click chemistry methods.

Specification: Aqueous solution of the sodium salt (1 mM). Other salt forms of 7-N_3Ac-AParg-7-C-dGTP are available upon request. Micromolar quantities are determined by UV at at λ_{max}. When opening the tube please make sure that no liquid is lost within the cap. A short spin-down in a bench centrifuge is recommended before use.

Purity: Typical analysis is better than 95% (HPLC / UV / 272 nm). The product is not sterile and has not been tested for endotoxins.

Stability and Storage: 7-N_3Ac-AParg-7-C-dGTP is most stable when stored as aqueous solution in the freezer (-20° Celsius necessary, -70° recommended), however, at ambient temperature the compound slowly starts to decompose. Thus, in order to maintain its original high quality it is recommended to allow thawing only before using the product. If you will not use up the vial with one application, please aliquot the contents of the vial in order to avoid repeated freeze/thaw cycles for the rest. When making such aliquots be sure to operate quickly and to freeze the vial again as soon as possible.

Toxicity and Safety: Please keep in mind, that the *in vivo* properties of this compound are not sufficiently characterized up to now. Avoid contact with eyes and skin or ingestion and allow only trained personnel to handle the product. Our products are designed, developed and sold for research purposes only! They are intended for *in vitro* and nonhuman *in vivo* laboratory applications. Any other use requires approval of health authorities. **Not for drug, household or related uses!**

Selected Reference for 7-N_3Ac-AParg-7-C-dGTP: 7-N_3Ac-AParg-7-C-dGTP is a new product and there are currently no references available.

Selected References for CuAAC and SPAAC click chemistry: General procedures for CuAAC reactions can be found in Hong et al. 2009 and Presolski et al. 2011, which can serve as a good starting point for establishing and optimising individual coupling protocols. An overview about SPAAC coupling strategies is provided in Dommerholt et al. 2016.

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Dommerholt, J.; Rutjes, F. P. J. T.; van Delft, F. L., *Top. Curr. Chem.*, **374**:16 (2016): "Strain-Promoted 1,3-Dipolar Cycloaddition of Cycloalkynes and Organic Azides"

Presolski, S. I.; Hong, V. P.; Finn, M. G., *Curr. Protoc. Chem. Biol.*, **3**, 153 - 162 (2011): "Copper-Catalyzed Azide-Alkyne Click Chemistry for Bioconjugation"

Hong, V.; Presolski, S. I.; Ma, C.; Finn, M. G., *Angew. Chem. Int. Ed. Engl.*, **48**, 9879 - 9883 (2009): "Analysis and Optimization of Copper-Catalyzed Azide-Alkyne Cycloaddition for Bioconjugation"

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