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Technical Information about 5-N_3Ac-AA-dUTP

Azide-containing analogue of dUTP

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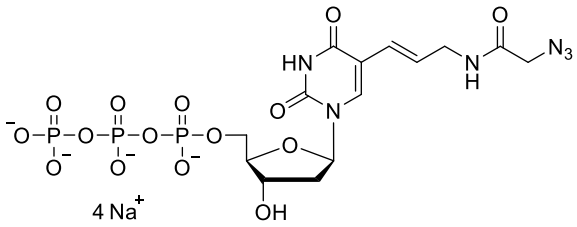

Abbreviation: **5-N_3Ac-AA-dUTP**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
$C_{14}H_{21}N_6O_{15}P_3$ (free acid)	[pending]	606.3 (free acid)	λ_{max} 290 nm / ε 8100 / pH 7	A 358

Name: 5- (3- (2- Azidoacetyl)aminoallyl)- 2'- deoxyuridine- 5'- O- triphosphate (5-N_3Ac-AA-dUTP), sodium salt

Description: 5-N_3Ac-AA-dUTP is an analogue of dUTP, in which position 5 of the heterocyclic nucleobase is substituted with a lipophilic 3- (2-azidoacetyl)aminoallyl moiety.

Properties: The azide-containing 5-N_3Ac-AA-dUTP is an analogue of dUTP 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 TTP-binding proteins by the so-called click-chemistry technique. 5-Azide-functionalised pyrimidine nucleotides can replace their natural counterpart TTP in polymerase reactions, leading to the generation of a modified and functionalized DNA strand 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 5-N_3Ac-AA-dUTP 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 / 290 nm). The product is not sterile and has not been tested for endotoxins.

Stability and Storage: 5-N_3Ac-AA-dUTP 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 5-N_3Ac-AA-dUTP: 5-N_3Ac-AA-dUTP 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.

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"

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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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