

Product Data Sheet

Product Name: 6-Azido-hexylamine

Cat. No.: GC65688

Chemical Properties

Cas. No. 349553-73-7

Formula $C_6H_{14}N_4$

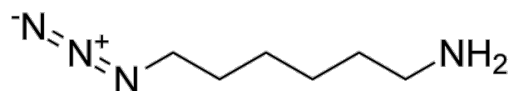
M.Wt 142.2

Solubility Storage -20°C, protect from light

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Application of 6-Azido-hexylamine in the Synthesis of 6-azido-hexylguanidine

This experimental protocol is compiled based on research content and is for reference only. Please adjust according to actual needs.

(1) Reagent Preparation: 6-Azido-hexylamine as the starting material; H-pyrazole-1-carboxamide hydrochloride as the guanidinylation reagent; N,N-Diisopropylethylamine (DIEA) as the base; anhydrous dimethylformamide (DMF) as the solvent; ether as the precipitating agent. All reagents should be dried before use. It is recommended to store 6-Azido-hexylamine protected from light.

Caution: Product has not been fully validated for medical applications. For research use only.

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(2) Reaction Mixture Preparation: Dissolve 6-Azido-hexylamine (10mmol), H-pyrazole-1-carboxamide hydrochloride (1.47g, 10mmol), and DIEA (1.74mL, 10mmol) in anhydrous DMF (15mL) under an inert atmosphere (e.g., nitrogen) and mix thoroughly.

(3) Reaction Process: The reaction mixture is allowed to stir at room temperature for approximately 12 hours (typically overnight). During this period, the reaction progress is monitored by techniques such as thin-layer chromatography (TLC) or nuclear magnetic resonance (NMR) spectroscopy, confirming the complete consumption of the starting material, 6-Azido-hexylamine

(4) Work-up and Isolation: Upon completion of the reaction, the crude product is precipitated by the addition of diethyl ether (150mL). The resulting solid is collected by filtration, thoroughly washed with several portions of cold ether to remove soluble impurities, and then dried under vacuum. This procedure affords 6-azido-hexylguanidine as a yellow liquid.

Precautions:

(1) This method is effective for converting 6-Azido-hexylamine to its guanidine derivative. The reaction must be carried out under anhydrous conditions to ensure successful conversion and minimize side products.

(2) Handle 6-Azido-hexylamine with extreme caution. The azide functional group is thermally and shock sensitive, presenting an explosion risk. Never expose the compound to heat sources, open flames, or physical impact.

(3) For your safety and health, please wear a lab coat and disposable gloves during operation.

References:

[1] Zhang R, Zheng N, Song Z, et al. The effect of side-chain functionality and hydrophobicity on the gene delivery capabilities of cationic helical polypeptides. *Biomaterials*. 2014 Mar;35(10):3443-54.

Background

6-Azido-hexylamine is a compound widely used in organic synthesis and chemical biology, capable of efficiently forming stable covalent linkages with molecules containing groups such as alkynes, DBCO, or BCN through click chemistry. 6-Azido-hexylamine is a cleavable antibody-drug conjugate (ADC) linker that can be used in the synthesis of antibody-drug conjugates. It enables the specific

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conjugation of antibodies to cytotoxic molecules via click chemistry, thereby facilitating the development of targeted drug delivery systems^[1-2].

References:

- [1] Beck A, Goetsch L, Dumontet C, et al. Strategies and challenges for the next generation of antibody-drug conjugates. *Nat Rev Drug Discov.* 2017 May;16(5):315-337.
- [2] Köhn M, Gutierrez-Rodriguez M, Jonkheijm P, et al. A microarray strategy for mapping the substrate specificity of protein tyrosine phosphatase. *Angew Chem Int Ed Engl.* 2007;46(40):7700-3.

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