

5-Aminovaleric acid

Chemical Properties

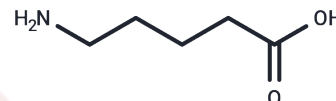
CAS No. : 660-88-8

Formula: C₅H₁₁NO₂

Molecular Weight: 117.15

Storage: Pure form: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.



Biological Description

Description	5-aminovalerate (or 5-aminopentanoic acid) is a lysine degradation product. It can be produced both endogenously or through bacterial catabolism of lysine. 5-aminovalerate is formed via the following multi-step reaction: L-lysine leads to cadverine leads to L-piperideine leads 5-aminovalerate . In other words it is a metabolite of cadaverine which is formed via the intermediate, 1-piperideine. Cadaverine is a foul-smelling diamine compound produced by protein hydrolysis during putrefaction of animal tissue. High levels of 5-aminovalerate in biofluids may indicate bacterial overgrowth or endogenous tissue necrosis. In most cases endogenous 5-aminovalerate is thought to be primarily a microbial metabolite produced by the gut or oral microflora, although it can be produced endogenously. 5-aminopentanoic acid is an in vivo substrate of 4-aminobutyrate:2-oxoglutarate aminotransferase .
Targets(IC50)	GABA Receptor,Endogenous Metabolite
In vitro	5-aminovalerate is a normal metabolite present in human saliva, with a tendency to elevated concentration in patients with chronic periodontitis. Bacterial contamination and decomposition of salivary proteins is primarily responsible for elevated salivary levels. Beyond being a general waste product, 5-aminovalerate is also believed to act as a methylene homologue of gamma-aminobutyric acid (GABA) and functions as a weak GABA agonist. It is also known as an antifibrinolytic amino acid analog and so it functions as a weak inhibitor of the blood clotting pathway.

Solubility Information

Solubility	DMSO: Slightly soluble, H ₂ O: 250 mg/mL (2134.02 mM) (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	8.5361 mL	42.6803 mL	85.3606 mL
5 mM	1.7072 mL	8.5361 mL	17.0721 mL
10 mM	0.8536 mL	4.268 mL	8.5361 mL
50 mM	0.1707 mL	0.8536 mL	1.7072 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

- Santos A , Zanetta S , Cresteil T , et al. Metabolism of irinotecan (CPT-11) by CYP3A4 and CYP3A5 in humans[J]. *Clinical Cancer Research*, 2000, 6(5):2012-2020.
- Fothergill J C , Guest J R . Catabolism of L-Lysine by *Pseudomonas aeruginosa*[J]. *Journal of General Microbiology*, 1977, 99(1):139-55.
- Callery P S , Geelhaar L A . Biosynthesis of 5-Aminopentanoic Acid and 2-Piperidone from Cadaverine and 1-Piperidine in Mouse [J]. *Journal of Neurochemistry*, 1984, 43(6):4.
- Cole K R , Castellino F J . The binding of antifibrinolytic amino acids to kringle-4-containing fragments of plasminogen[J]. *Archives of Biochemistry & Biophysics*, 1984, 229(2):568-575.
- Callery P S , Geelhaar L A . 1-Piperidine as an in vivo precursor of the gamma-aminobutyric acid homologue 5-aminopentanoic acid[J]. *Journal of Neurochemistry*, 2010, 45(3):946-948.

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