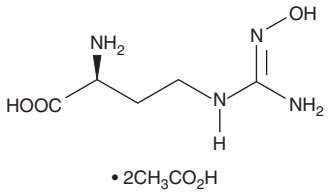
PRODUCT INFORMATION

nor-NOHA (acetate)

Item No. 10006861

CAS Registry No.: 1140844-63-8
Formal Name: 2S-amino-4-[[(hydroxyamino)iminomethyl] amino]-butanoic acid, diacetate
Synonym: N^{ω}-hydroxy-nor-Arginine
MF: $C_5H_{12}N_4O_3 \bullet 2C_2H_4O_2$
FW: 296.3
Purity: ≥97%
Supplied as: A lyophilized powder
Storage: -20°C
Stability: ≥4 years
Special Conditions: Very hygroscopic



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

nor-NOHA (acetate) is supplied as a lyophilized powder. A stock solution may be made by dissolving the nor-NOHA (acetate) in the solvent of choice, which should be purged with an inert gas. nor-NOHA (acetate) is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of nor-NOHA (acetate) in these solvents is approximately 5 and 1 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of nor-NOHA (acetate) can be prepared by directly dissolving the lyophilized powder in aqueous buffers. The solubility of nor-NOHA (acetate) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

L-Arginine serves as a common substrate for both nitric oxide synthase (NOS) and arginase in the cell. NOS catalyzes the oxidation of arginine to citrulline and NO with N^{ω}-hydroxy-L-arginine (NOHA) formed as an intermediate. Arginase, on the other hand, catalyzes the hydrolysis of arginine into urea and L-ornithine. nor-NOHA (acetate) is a potent, reversible inhibitor of rat liver arginase with a K_i value of 0.5 µM, which is 20-fold lower than the K_i of 10 µM observed for NOHA.[1] It is about 40-fold more potent than NOHA as an inhibitor of arginase from mouse macrophages, exhibiting an IC_{50} of 10-12 µM.[2] nor-NOHA (acetate) is not a substrate for any of the 3 NOS isoforms and does not inhibit nNOS or iNOS.[3,4]

References

1. Custot, J., Moali, C., Brollo, M., *et al.* A new α-amino acid *N*^{w}-hydroxy-nor-L-arginine: A highly-affinity inhibitor of arginase well adapted to bind to its manganese cluster. *J. Am. Chem. Soc.* **119(17)**, 4086-4087 (1997).
2. Tenu, J.P., Lepoivre, M., Moali, C., *et al.* Effects of the new arginase inhibitor *N*^{w}-hydroxy-nor-L-arginine on NO synthase activity in murine macrophages. *Nitric Oxide* **3(6)**, 427-438 (1999).
3. Dijols, S., Perollier, C., Lefevre-Groboillot, D., *et al.* Oxidation of *N*^{w}-hydroxyarginine analogues by NO-synthase: The simple, non amino acid *N*-butyl *N'*-hydroxyguanidine is almost as efficient an NO precursor as *N*^{w}-hydroxyarginine. *J. Med. Chem.* **44(20)**, 3199-3202 (2001).
4. Moali, C., Brollo, M., Custot, J., *et al.* Recognition of α-amino acids bearing various C=NOH functions by nitric oxide synthase and arginase involves very different strctural determinants. *Biochemistry* **39(28)**, 8208-8218 (2000).

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