

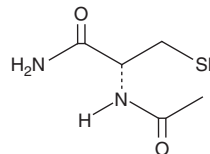
PRODUCT INFORMATION



N-acetyl-L-Cysteine amide

Item No. 25866

CAS Registry No.: 38520-57-9
Formal Name: (2R)-2-(acetylamino)-3-mercapto-propanamide
Synonyms: N-Acetylcysteine amide, NACA
MF: C₅H₁₀N₂O₂S
FW: 162.2
Purity: ≥95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

N-acetyl-L-Cysteine amide (NACA) is supplied as a crystalline solid. A stock solution may be made by dissolving the NACA in the solvent of choice. NACA is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of NACA in these solvents is approximately 50 mg/ml.

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 NACA can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of NACA in PBS, pH 7.2, is approximately 30 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

NACA is an antioxidant.^{1,2} It is the amide form of N-acetyl-L-cysteine (NAC; Item No. 20261) and has increased cellular membrane and blood-brain barrier permeability compared to NAC. NACA (750 μM) inhibits glutamate-induced cytotoxicity, decreases intracellular glutathione (GSH) levels, and increases intracellular reactive oxygen species (ROS) levels in PC12 cells.³ It reduces cortical tissue damage and decreases the distance traveled to the platform in the Morris water maze in a rat model of traumatic brain injury.² NACA (60 and 120 mg/kg) also inhibits ovalbumin-induced decreases in GSH, increases in nuclear NF-κB p65 and HIF-1α, and increases in IL-4, IL-5, and IL-13 levels in mouse lung tissue.⁴

References

1. Sunitha, K., Hemshekhar, M., Thushara, R.M., *et al.* N-Acetylcysteine amide: A derivative to fulfill the promises of N-Acetylcysteine. *Free Radic. Res.* **47**(5), 357-367 (2013).
2. Pandya, J.D., Readnower, R.D., Patel, S.P., *et al.* N-acetylcysteine amide confers neuroprotection, improves bioenergetics and behavioral outcome following TBI. *Exp. Neurol.* **257**, 106-113 (2014).
3. Penugonda, S., Mare, S., Goldstein, G., *et al.* Effects of N-acetylcysteine amide (NACA), a novel thiol antioxidant against glutamate-induced cytotoxicity in neuronal cell line PC12. *Brain Res.* **1056**(2), 132-138 (2005).
4. Lee, K.S., Kim, S.R., Park, H.S., *et al.* A novel thiol compound, N-acetylcysteine amide, attenuates allergic airway disease by regulating activation of NF-κB and hypoxia-inducible factor-1α. *Exp. Mol. Med.* **39**(6), 756-768 (2007).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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