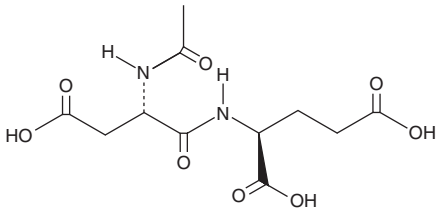
PRODUCT INFORMATION

α-NAAG

Item No. 33337

CAS Registry No.:	3106-85-2
Formal Name:	N-acetyl-L-α-aspartyl-L-glutamic acid
Synonyms:	NAAG, N-Acetylaspartylglutamic Acid, α-Spaglumic Acid
MF:	$C_{11}H_{16}N_2O_8$
FW:	304.3
Purity:	≥95%
Supplied as:	A 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

α-NAAG is supplied as a solid. A stock solution may be made by dissolving the α-NAAG in the solvent of choice, which should be purged with an inert gas. α-NAAG is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of α-NAAG in these solvents is approximately 20 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 α-NAAG can be prepared by directly dissolving the solid in aqueous buffers. The solubility of α-NAAG in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

α-NAAG is a peptide neurotransmitter that is widely expressed throughout mammalian central and peripheral nervous systems.[1] Following synaptic release, α-NAAG activates postsynaptic metabotropic glutamate receptor 3 (mGluR3) to inhibit cAMP production in neurons and astrocytes, as well as acts on presynaptic mGluR3 to inhibit the release of amine neurotransmitters, including GABA and glutamate.[1,2] Increasing α-NAAG levels *via* NAAG peptidase inhibition reduces trauma-induced excitotoxic cell death in a mouse model of traumatic brain injury, as well as reduces hyperalgesia in various rodent pain models and schizophrenia-like stereotypic behaviors induced by phencyclidine in rats.[1] Tumor levels of α-NAAG are positively correlated with tumor grade in patients with gliomas and meningiomas.[3]

References

1. Neale, J.H., Olszewski, R.T., Gehl, L.M., *et al*. The neurotransmitter N-acetylaspartylglutamate in models of pain, ALS, diabetic neuropathy, CNS injury and schizophrenia. *Trends Pharmacol. Sci*. **26(9)**, 477-484 (2005).
2. Neale, J.H., Olszewski, R.T., Zuo, D., *et al*. Advances in understanding the peptide neurotransmitter NAAG and appearance of a new member of the NAAG neuropeptide family. *J. Neurochem*. **118(4)**, 490-498 (2011).
3. Nguyen, T., Kirsch, B.J., Asaka, R., *et al*. Uncovering the role of N-acetyl-aspartyl-glutamate as a glutamate reservoir in cancer. *Cell Rep*. **27(2)**, 491-501 (2019).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM