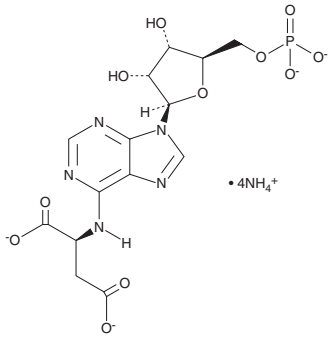
PRODUCT INFORMATION

Adenylosuccinic Acid (ammonium salt)

Item No. 34334

Formal Name:	N-[9-(5-O-phosphono-β-D-ribofuranosyl)-9H-purin-6-yl]-L-aspartic acid, tetraammonium salt
Synonyms:	Aspartyl Adenylate, Succinyl AMP, Succinyladenosine monophosphoric Acid
MF:	$C_{14}H_{14}N_5O_{11}P \bullet 4NH_4$
FW:	531.4
Purity:	≥95%
UV/Vis.:	λ_{max}: 214, 268 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥2 years



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

Laboratory Procedures

Adenylosuccinic acid (ammonium salt) is supplied as a crystalline solid. Aqueous solutions of adenylosuccinic acid (ammonium salt) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of adenylosuccinic acid (ammonium salt) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Adenylosuccinic acid is a purine nucleotide and an intermediate in the purine nucleotide cycle.[1] It is converted into AMP (Item No. 21094) and fumarate by adenylosuccinate lyase (ADSL) in the cytosol. Adenylosuccinic acid (10 µM) inhibits calcium-induced activation of non-selective cation channels in isolated rat brown adipocytes in a patch-clamp assay.[2] It induces contractions in isolated guinea pig uterus strips, which express adenosine receptors, when used at a concentration of 100 µM.[3] Adenylosuccinic acid (10 µM) increases glucose-induced insulin exocytosis in INS-1 832/13 insulinoma cells.[3] *In vivo*, adenylosuccinic acid (3,000 µg/ml in the drinking water) decreases muscle damage and pseudohypertrophy in a dystrophin-deficient *mdx* mouse model of Duchenne muscular dystrophy (DMD).[4] Urine levels of adenylosuccinic acid are increased in patients with *ADSL* deficiency, an inborn error of metabolism characterized by various neurological symptoms, including intellectual disability and seizures, as well as respiratory failure.[5]

References

1. Waarde, A. Operation of the purine nucleotide cycle in animal tissues. *Biol. Rev. Camb. Philos. Soc.* **63(2)**, 259-298 (1988).
2. Halonen, J. and Nedergaard, J. Adenosine 5'-monophosphate is a selective inhibitor of the brown adipocyte nonselective cation channel. *J. Membr. Biol.* **188(1)**, 183-197 (2002).
3. Gooding, J.R., Jensen, M.W., Dai, X., *et al.* Adenylosuccinate is an insulin secretagogue derived from glucose-induced purine metabolism. *Cell Rep.* **13(1)**, 157-167 (2015).
4. Timpani, C.A., Goodman, C.A., Stathis, C.G., *et al.* Adenylosuccinic acid therapy ameliorates murine Duchenne Muscular Dystrophy. *Sci. Rep.* **10(1)**, 1125 (2020).
5. Donti, T.R., Cappuccio, G., Hubert, L., *et al.* Diagnosis of adenylosuccinate lyase deficiency by metabolomic profiling in plasma reveals a phenotypic spectrum. *Mol. Genet. Metab. Rep.* **8**, 61-66 (2016).

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