



LKT Laboratories, Inc.

Substance P (1-4)

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Product Information

Product ID S8006

CAS No. 69355-89-1

Chemical Name

H-Arg-Pro-Lys-Pro-OH

Synonym

Formula $C_{22}H_{40}N_8O_5$

Formula Wt. 496.6

Melting Point

Purity $\geq 95\%$

Solubility Soluble in water (1 mg/mL).

Bulk quantities available upon request

Product ID	Size
S8006	1 mg
S8006	2 mg
S8006	5 mg

Store Temp -20°C

Ship Temp Ambient

Description Substance P (SP) is an endogenous tachykinin neuropeptide that is involved in inflammatory, pain, and stress signaling; it exhibits neuroprotective, cognition enhancing, and gastrointestinal motility modulating activities. SP exhibits neuroprotective activity by decreasing expression of Kv1.4 K⁺ channels in transgenic animal models of Alzheimer's disease and improving cognitive performance in the Morris water maze task. SP is the natural ligand for the neurokinin-1 (NK1) receptor. In various animal models, SP modulates opioid signaling, induces gastric mucosal protection, and inhibits retinal apoptosis. SP also prevents hyperoxia-induced lung damage, decreasing levels of malondialdehyde and increasing levels of superoxide dismutase (SOD); this activity may be regulated through SHH signaling. In melanoma cells, SP decreases levels of tyrosinase and melanin, inhibiting melanogenesis. In other cellular models, SP increases the viability and proliferation of osteoblasts and promotes gap junction intracellular communication.

References Yang L, Liu C, Dang H, et al. Substance P attenuates hyperoxia induced lung injury in neonatal rats. *Mol Med Rep.* 2014 Feb;9(2):595-9. PMID: 24247295.

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Yang JH, Guo Z, Zhang T, et al. Restoration of endogenous substance P is associated with inhibition of apoptosis of retinal cells in diabetic rats. *Regul Pept.* 2013 Nov 10;187:12-6. PMID: 24045094.

Ma W, Zhang X, Shi S, et al. Neuropeptides stimulate human osteoblast activity and promote gap junctional intercellular communication. *Neuropeptides.* 2013 Jun;47(3):179-86. PMID: 23726661.

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Ping F, Shang J, Zhou J, et al. Activation of neurokinin-1 receptor by substance P inhibits melanogenesis in B16-F10 melanoma cells. *Int J Biochem Cell Biol.* 2012 Dec;44(12):2342-8. PMID: 23041339.

Caution: This product is intended for laboratory and research use only. It is not for human or drug use.