



LKT Laboratories, Inc.

## Substance P

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### Product Information

Product ID S8005

CAS No. 33507-63-0

Chemical Name

H-Arg-Pro-Lys-Pro-Gln-Gln-Phe-Phe-Gly-Leu-Met-NH<sub>2</sub>

Synonym

Formula C<sub>63</sub>H<sub>98</sub>N<sub>18</sub>O<sub>13</sub>S

Formula Wt. 1347.66

Melting Point

Purity ≥95%

Solubility Soluble in water (0.8 mg/mL), DMSO, 5% acetic acid.

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<sup>+</sup> 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.

*Bulk quantities available upon request*

| Product ID | Size  |
|------------|-------|
| S8005      | 5 mg  |
| S8005      | 10 mg |
| S8005      | 25 mg |

**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.

Campolongo P, Ratano P, Ciotti MT, et al. Systemic administration of substance P recovers beta amyloid-induced cognitive deficits in rat: involvement of Kv potassium channels. *PLoS One.* 2013 Nov 12;8(11):e78036. PMID: 24265678.

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.

Brancati SB, Zádori ZS, Németh J, et al. Substance P induces gastric mucosal protection at supraspinal level via increasing the level of endomorphin-2 in rats. *Brain Res Bull.* 2013 Feb;91:38-45. PMID: 23328537.

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.