

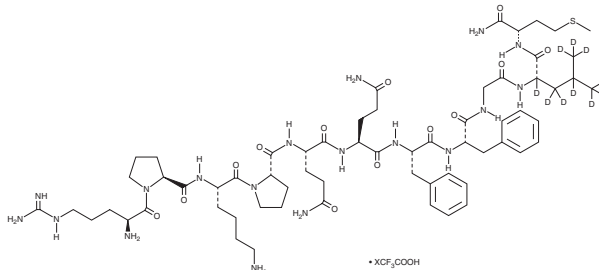
PRODUCT INFORMATION



Substance P-d₁₀ (trifluoroacetate salt) Item No. 44814

Formal Name: (S)-2-((S)-1-(L-arginyl-L-prolyl-L-lysyl)pyrrolidine-2-carboxamido)-N1-((S)-5-amino-1-(((S)-1-(((S)-1-((2-(((S)-1-(((S)-1-amino-4-(methylthio)-1-oxobutan-2-yl)amino)-4-(methyl-d₃)-1-oxopentan-2-yl)-2,3,3,4,4,5,5,5-d₇)amino)-2-oxoethyl)amino)-1-oxo-3-phenylpropan-2-yl)amino)-1-oxo-3-phenylpropan-2-yl)amino)-1,5-dioxopentan-2-yl)pentanediamide, trifluoroacetate salt

Synonym: SP-d₁₀
Peptide Sequence: RPKPQQFFGLM-NH₂-d₁₀
MF: C₆₃H₈₈D₁₀N₁₈O₁₃S • XCF₃COOH
FW: 1,357.7
Chemical Purity: ≥95% (Substance P (trifluoroacetate salt))
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₁₀); ≤1% d₀
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

Substance P-d₁₀ (trifluoroacetate salt) is intended for use as an internal standard for the quantification of substance P (Item No. 24035) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Description

Substance P is a tachykinin neuropeptide that selectively binds to neurokinin 1 (NK₁) receptors (K_s = 0.14 and 300 nM for NK₁ and NK₃, respectively) and has diverse biological activities.^{1,2} It is an endogenous peptide expressed in the central and peripheral nervous systems, including the enteric nervous system, and in immune cells.² Substance P is released with other neurotransmitters in the dorsal horn of the spinal cord following noxious peripheral stimulation and induces pain through NK₁ receptors.³ The NK₁ receptor is internalized following substance P binding, and in a rat hindpaw model of inflammation it is internalized in a greater number of spinal cord neurons following a mechanical or non-noxious stimuli, indicating a role for substance P in inflammation and hyperalgesia.⁴ Substance P is also involved in depression, anxiety, seizures, and emesis, among other functions.²

References

1. Gether, U., Johansen, T.E., Snider, R.M., *et al.* *Nature* **362(6418)**, 345-348 (1993).
2. Muñoz, M. and Coveñas, R. *Amino Acids* **46(7)**, 1727-1750 (2014).
3. Mantyh, P.H. *J. Clin. Psychiatry* **63(Suppl 11)**, 6-10 (2002).
4. Abbadie, C., Trafton, J., Mantyh, P.W., *et al.* *J. Neurosci.* **17(20)**, 8049-8060 (1997).

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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