

# PRODUCT INFORMATION



## Substance P (trifluoroacetate salt)

Item No. 24035

CAS Registry No.: 148470-19-3

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-1-oxopentan-2-yl)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

MF:  $C_{63}H_{98}N_{18}O_{13}S \cdot XCF_3COOH$

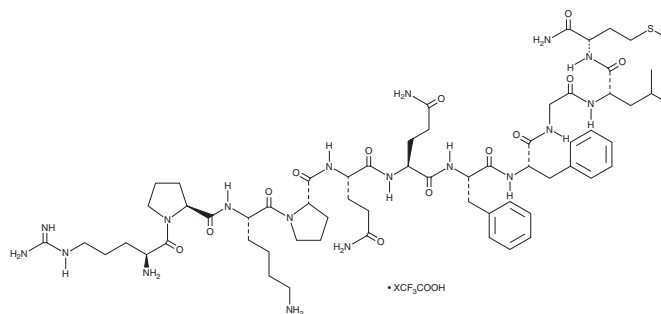
FW: 1,347.6

Purity:  $\geq 95\%$

Supplied as: A lyophilized powder

Storage:  $-20^\circ C$

Stability:  $\geq 4$  years



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

### Laboratory Procedures

Substance P (trifluoroacetate salt) is supplied as a lyophilized powder. A stock solution may be made by dissolving the substance P (trifluoroacetate salt) in water. The solubility of substance P (trifluoroacetate salt) in water is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Substance P is tachykinin neuropeptide that selectively binds to neurokinin 1 ( $NK_1$ ) receptors ( $K_i$ s = 0.14 and 300 nM for  $NK_1$  and  $NK_3$ , respectively) and has diverse biological activities.<sup>1,2</sup> It is an endogenous peptide expressed in the central and peripheral nervous systems, including the enteric nervous system and in immune cells.<sup>2</sup> Substance P is released with other neurotransmitters in the dorsal horn of the spinal cord following noxious peripheral stimulation and induces pain through  $NK_1$  receptors.<sup>3</sup> The  $NK_1$  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.<sup>4</sup> Substance P is also involved in depression, anxiety, seizures, and emesis among other functions.<sup>2</sup>

### References

1. Gether, U., Johansen, T.E., Snider, R.M., *et al.* Different binding epitopes on the  $NK_1$  receptor for substance P and non-peptide antagonist. *Nature* **362(6418)**, 345-348 (1993).
2. Muñoz, M. and Coveñas, R. Involvement of substance P and the NK-1 receptor in human pathology. *Amino Acids* **46(7)**, 1727-1750 (2014).
3. Mantyh, P.H. Neurobiology of substance P and the NK1 receptor. *J. Clin. Psychiatry* **63(Suppl 11)**, 6-10 (2002).
4. Abbadie, C., Trafton, J., Mantyh, P.W., *et al.* Inflammation increases the distribution of dorsal horn neurons that internalize the neurokinin-1 receptor in response to noxious and non-noxious stimulation. *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.

#### WARRANTY AND LIMITATION OF REMEDY

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