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## Product Information

### SUBSTANCE P Acetate Salt Hydrate

Product Number **S6883**

CAS #: 137348-11-9 (free base)

#### Product Description

Formula:  $C_{63}H_{98}N_{18}O_{13}S \cdot xC_2H_4O_2 \cdot yH_2O$

Formula Weight: 1347.63 (anhydrous free base)

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

Substance P is a undecapeptide belonging to a group of proteins named tachykinins characterized by contractile action on extravascular smooth muscle.<sup>1</sup> The substance is widespread in both central and peripheral nervous systems. At the periphery it is recognized for its hypotensive, vasodilatory and smooth muscle-contracting properties. In the central nervous system, it is suggested to play a role in sensory nerve transmission.<sup>2</sup> The substance is also capable of producing both analgesia and hyperalgesia in animals depending on the dose and pain responsiveness of the animal,<sup>3</sup> and may be an independent transmitter of pain signals in the brain.<sup>4</sup>

#### Preparation Instructions

Sigma tests the solubility of Substance P in water. At 10 mg/ml a clear, colorless solution is obtained.

#### Storage/Stability

Due to the presence of the methionine residue, the substance is very susceptible to oxidation. Aqueous solutions of this product may lose biological activity in a few minutes. This loss is prevented by storage at low pH (0.05 M acetic acid), under nitrogen, or by using oxygen free water. Addition of human plasma albumin or bovine serum albumin (1%) increases solution stability. Crude solutions are stable below pH 8 but are rapidly destroyed above pH 8.<sup>1</sup> Solutions should be stored frozen (quick freezing is best) at -20 to -70 degrees C in small aliquots. Repeated freeze-thaw cycles are not recommended.

#### References

1. Description and general use: *Merck Index*, 11th ed., p. 1398, #8834.
2. Bar-Shavit, Z. et al., *Methods in Enzymology* 132, 326 (1986).
3. Frederickson, R.C.A. et al., *Science* 199, 1359 (1978).
4. Minneman, K.P. et al., *Science* 204, 866 (1979).

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