



Product Information

Protamine sulfate salt from salmon

Product Number **P 4020**
Store at Room Temperature

Product Description

Molecular Weight: approximately 5.1 kDa (major component)¹
CAS Number: 53597-25-4
Synonym: Salmine

Protamine sulfate is a small cationic protein that binds and precipitates DNA. It may be used for the removal of DNA from protein samples or the purification of DNA binding proteins. Protamine sulfate may also be used as an alternative to polybrene in retroviral-mediated gene transfer.²

Protamine sulfate has antibacterial properties³ and inhibits pepsin activity.⁴ Protamine sulfate and other polycations have been shown to inhibit the classical pathway of complement.⁵ It neutralizes the anticoagulant activity of heparin^{6,7} and inhibits turnover of lipoproteins by lipoprotein lipase.⁸ The aggregation of erythrocytes in the presence of protamine sulfate, for application to the prediction of MN phenotypes, has been investigated.⁹

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

Protamine sulfate is soluble in water (10 mg/ml).

References

1. Ando, T., and Watanabe, S., A New Method for Fractionation of Protamine and the Amino acid Sequence of One Component of Salmine and the Three Components of Iridine. *Int. J. Protein Res.*, **1(3)**, 221-224 (1969).
2. Cornetta, K., and Anderson, W. F., Protamine Sulfate as an Effective Alternative to Polybrene in Retroviral-mediated Gene-transfer: Implications for Human Gene Therapy. *J. Virol. Methods*, **23(2)**, 187-194 (1989).
3. Johansen, C., et al., Antibacterial Effect of Protamine Assayed by Impedimetry. *J. Appl. Bacteriol.*, **78(3)**, 297-303 (1995).
4. Mekras, C. I., Inhibition of Pepsin by Polyions and C.D. Studies. *Int. J. Biol. Macromol.*, **11(4)**, 207-212 (1989).
5. Weiler, J. M., and Linhardt, R. J., Comparison of the Activity of Polyanions and Polycations on the Classical and Alternative Pathways of Complement. *Immunopharmacology*, **17(2)**, 65-72 (1989).
6. Martindale The Extra Pharmacopoeia, 30th ed., Reynolds, J.E.F., ed., The Pharmaceutical Press (London, England: 1993), p. 692.
7. Sie, P., et al., Neutralization of Dermatan Sulfate in Vitro and in Vivo by Protamine Sulfate and Polybrene. *Thromb. Res.*, **54(1)**, 63-74 (1989).
8. Hultin, M., et al., Effect of Protamine on Lipoprotein Lipase and Hepatic Lipase in Rats. *Biochem. J.*, **304 (Pt 3)**, 959-966 (1994).
9. Inglis, G., and Sheridan, R., A Study on the Erythrocyte Aggregating Properties of Polybrene and Protamine Sulphate. *Transfusion*, **18(1)**, 84-88 (1978).

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