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Product Information

Fibrinogen from bovine plasma

Catalog Number **F8630**
Storage Temperature –20 °C

CAS RN 9001-32-5
Synonyms: Factor I

Product Description

Fibrinogen is a blood protein that is involved in clotting and is converted to fibrin by thrombin. Fibrinogen has an approximate molecular mass of 340 kDa. It consists of three non-identical pairs of disulfide-bonded chains.[1-5] The α-chain has an approximate molecular mass of 63.5 kDa, the β-chain 56 kDa, and the γ-chain 47 kDa. At the amino termini, the three chains are connected in a dimeric disulfide knot (DSK). A second DSK occurs later in the molecule. Fibrinogen has ~4% carbohydrate content.

Since fibrinogen is very similar among species, correspondingly similar characteristics would be expected for bovine, cat, dog, guinea pig, human, sheep, mouse, and rat fibrinogens. In general, fibrinogen from any mammalian source will cross-react with thrombin from any mammalian source. When any mammalian thrombin is injected into a different mammal, clotting will occur.

Preparation Instructions

The optimal way to solubilize fibrinogen is to layer it on top of warm (37 °C) saline. Fibrinogen will not dissolve in water. The saline concentration can be in the range of 0.85-0.9%. The fibrinogen-saline solution can be gently agitated, but it must not be vortexed. The fibrinogen will slowly dissolve to give a hazy solution. Fibrinogen may be sterile-filtered, but may not go through a 0.1 μm filter. A 0.2 μm filter is suggested, with positive pressure using a syringe and "button" filter. Vacuum filtration should not be used, since this will lead to breakdown of the molecule during filtration.

Storage/Stability

After sterile filtration, stock solutions of fibrinogen at 2.5 mg/ml may be stored refrigerated for ~1 week.

Procedure

A 10 mg/ml fibrinogen solution in 0.9% NaCl can be prepared for clotting in the presence of thrombin. Neither deionized water nor Tyrode's buffer (containing calcium) is recommended as a solvent, since eventual precipitation of the fibrinogen solution may be observed. A 5 ml aliquot of the fibrinogen solution (10 mg/ml in saline) can be added to 0.5 ml of a 50 unit/ml solution of thrombin in saline. The solution is incubated at 37 °C from 30 minutes to 3 hours, but clot formation may be visible after 5 minutes. Using 1 unit of thrombin per ml of solution will lead to clot formation, but over a longer period of time.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

References

1. *The Plasma Proteins*, **I**, 2nd ed., Putnam, F.W., ed., Academic Press (New York, NY: 1975), pp. 66 and 112.
2. Doolittle, R.F., The Structure and Evolution of Vertebrate Fibrinogen. *Ann. N. Y. Acad. Sci.*, **408**, 13-27 (1983).
3. Henschen, A., *et al.*, Covalent Structure of Fibrinogen. *Ann. N. Y. Acad. Sci.*, **408**, 28-43 (1983).
4. Blomback, M., *et al.*, *Nature*, **218(137)**, 134-137 (1968).
5. Takagi, T., and Doolittle, R.F., *Biochemistry*, **14(5)**, 940-946 (1975).

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