



## Product Information

### Fibrinogen from human plasma

Product Number **F 4883**

Storage Temperature  $-0^{\circ}\text{C}$

#### Product Description

CAS Number: 9001-32-5

Molecular Weight: 340 kDa<sup>1</sup>

Extinction Coefficient:  $E^{1\%}_{1\text{cm}} = 15.1 (280\text{ nm})^2$

Stoke's Radius: 10.7 nm<sup>3</sup>

Human fibrinogen is a dimer consisting of two identical halves, each containing three different polypeptides:  $\alpha$ -chain (63.5 kDa),  $\beta$ -chain (56 kDa), and  $\gamma$ -chain (47 kDa). The three polypeptides are joined together by disulfide bonds. At the N-terminus, the three chains are linked together by a dimeric disulfide knot (DSK), which results in a configuration of  $\alpha\text{A}$ ,  $\beta\text{B}$ , and  $\gamma\text{C}$ . Fibrinogen is a glycoprotein containing approximately 4% carbohydrate.<sup>1</sup>

The normal concentration range of fibrinogen in human plasma is 200-450 mg/100 ml of plasma. Fibrinogen activation by thrombin during blood clotting involves the proteolytic release of two negatively charged fibrinopeptides. Fibrinopeptide A is released from the  $\alpha$ -chain and fibrinopeptide B from the  $\beta$ -chain. The removal of fibrinopeptide A is necessary for the polymerization of fibrin to occur. Release of fibrinopeptide B occurs more slowly and may be responsible for lateral aggregation. The fibrin clot is then stabilized and strengthened by transglutaminase, which introduces  $\gamma$ -glutamyl- $\epsilon$ -lysine crosslinks between amino acid side chains.<sup>1</sup>

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 animal, clotting will occur.

#### Precautions and Disclaimer

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

#### Preparation Instructions

Fibrinogen can be solubilized in 0.85% (w/v) sodium chloride (2 mg/ml) by layering the protein on top of the saline solution and placing it in a  $37^{\circ}\text{C}$  water bath for 4-6 hours, with gentle agitation.

#### Storage/Stability

Fibrinogen solutions may be sterile filtered through a  $0.22\text{ }\mu\text{m}$  filter, some positive pressure may be required. Sterile filtered fibrinogen solutions are stable for approximately 1 week at  $4^{\circ}\text{C}$ .

#### References

1. The Plasma Proteins, 2nd Ed., Vol. 1, Putnam, F.W., Ed., Academic Press (New York, NY: 1975) p. 66-112.
2. Marder, V.J., et al., High molecular weight derivatives of human fibrinogen produced by plasmin. I. Physicochemical and immunological characterization. J. Biol. Chem., **244**, 2111-2119 (1969).
3. Axelsson, I., Characterization of proteins and other macromolecules by agarose gel chromatography. J. Chrom., **152**, 21-32 (1978).
4. Bishop, et al., The preparation and evaluation of a standardized fibrin plate for the assessment of fibrinolytic activity, Thromb. Diath. Haemorrh., **23**, 202-210 (1970).

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