PRODUCT INFORMATION

Glycated Fibrinogen

Item No. 44245

Overview and Properties

Source:	Fibrinogen, purified from human plasma, that has been shown by certified tests to be negative for HBsAg and for antibodies to HIV and HCV
Molecular Weight:	α-chain isoform 1 (95 kDa), α-chain isoform 2 (69.8 kDa), β-chain (55.9 kDa) and isoform γ-B chain (51.5 kDa)
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥80% estimated by SDS-PAGE
Supplied in:	20 mM HEPES, 154 mM sodium chloride, 10% glycerol, pH 7.4
Special Conditions:	This product has a propensity to clot; avoid agitation and warm to room temperature after thawing on ice. Freeze thaws are not recommended as concentration may vary.

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

Description

Fibrinogen is a hexameric glycoprotein that has roles in coagulation and hemostasis.[1,2] It is composed of two sets of Aα, Bβ, and γ polypeptide chains encoded by *FGA*, *FGB*, and *FGG*, respectively, in humans.[1] Fibrinogen is synthesized in hepatocytes and secreted into the plasma. Following thrombin-mediated cleavage of N-terminal fibrinopeptides from the Aα and Bβ chains, yielding the α and β chains, respectively, fibrinogen assembles into fibrin protofibrils and then mature fibers, which provide structure and viscoelasticity to blood clots.[1,3,4] Under conditions of both intra- and extracellular hyperglycemia, fibrinogen is subject to glycation.[5,6] Glycation occurs through multiple non-enzymatic mechanisms, including the formation of early glycation products such as glucosylamines and fructosamines at lysine residues and modification by highly reactive products, such as methylglyoxal (MGO), which are formed under oxidative stress induced by a hyperglycemic environment.[6] Blood levels of glycated fibrinogen are increased in patients with type 2 diabetes.[7] Cayman's Glycated Fibrinogen was produced by incubating fibrinogen with glucose. This protein exhibits a greater than 180% increase in glycation compared with a non-glycated fibrinogen control as confirmed by mass spectrometry.

References

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3. Mosesson, M.W. Fibrinogen and fibrin structure and functions. *J. Thromb. Haemost.* **3(8)**, 1894-1904 (2005).
4. Weisel, J.W. and Litvinov, R.I. Fibrin formation, structure and properties. Subcell. Biochem. **82**, 405-456 (2017).
5. Borghi, S., Nencini, F., Giurranna, E., *et al.* Fibrinogen glycosylation and glycation: Molecular insights into thrombosis and vascular disease. *Front. Mol. Biosci.* **12**, 1680332 (2025).
6. Luzak, B., Boncler, M., Kosmalski, M., *et al.* Fibrinogen glycation and presence of glucose impair fibrin polymerization-an in vitro study of isolated fibrinogen and plasma from patients with diabetes mellitus. *Biomolecules* **10(6)**, 877 (2020).
7. Pieters, M., Covic, N., Loots, d., *et al.* The effect of glycaemic control on fibrin network structure of type 2 diabetic subjects. *Thromb. Haemost.* **96(5)**, 623-629 (2006).

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.

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