Recombinant Human Fibronectin GMP

Catalog Number: 4305B-GMP

DESCRIPTION

Source	*Spodoptera frugiperda*, *Sf* 9 (baculovirus)-derived Gln32-Pro1908, with a C-terminal 6-His tag Accession # CAE45932 Produced in an animal component free process (ACFP). Manufactured and tested under current Good Manufacturing Practice (GMP) guidelines.
N-terminal Sequence Analysis	Amino acid sequencing was blocked, suggesting it is consistent with Gln32 as the first N-terminal amino acid. Predicted N-terminal sequence: Gln_{32}-Ala-Gln-Gln-Met-Val-Gln-Pro-Gln-Ser
Predicted Molecular Mass	207 kDa

SPECIFICATIONS

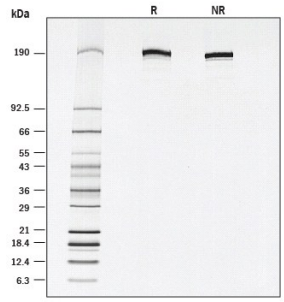
SDS-PAGE	180-250 kDa, reducing conditions
Activity	Measured by its ability to support cell attachment and spreading when used as a substratum for cell culture. In this application, the recommended concentration for this effect is 1-5 µg/cm^2. Fibronectin can also be added to the media to support cell spreading at a concentration of 0.5-50 µg/mL. **Optimal concentrations will need to be determined for individual user applications**.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Mycoplasma	Negative when tested in a ribosomal RNA hybridization assay.
Formulation	Lyophilized from a 0.2 µm filtered solution in HEPES, NaCl and Tween®. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile water.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● A minimum of 6 months when stored at ≤ -20 °C as supplied. Refer to lot specific COA for the Use by Date. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution.

DATA

SDS-PAGE



1 µg/lane of GMP-grade Recombinant Human Fibronectin (Catalog # 4305B-GMP) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing bands at approximately190 kDa.

bio-techne
bio-techne.com
Global info@bio-techne.com techsupport@bio-techne.com
North America TEL 800 343 7475 Europe | Middle East | Africa TEL +44 (0)1235 529449
China info.cn@bio-techne.com TEL +86 (21) 52380373
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BACKGROUND

Fibronectin (FN) is a large, modular glycoprotein that generates a polymeric fibrillar network in the extracellular matrix (ECM), and forms soluble, disulfide-linked dimeric protomers in plasma and other body fluids (1, 2). Fibronectin is a ligand for many molecules, including fibrin, heparin, chondroitin sulfate, collagen/gelatin, and integrins. It is involved in multiple cellular processes such as cell adhesion/migration, blood clotting, morphogenesis, tissue repair, and cell signaling. Fibronectin functions are mediated by the insoluble polymeric fibrillar network. Conversion of soluble Fibronectin to Fibronectin fibrils in the ECM is initiated by binding to cell surface integrins, resulting in exposure of cryptic epitopes necessary for polymerization (1). Fibronectin is made up of three types of homologous structural motifs termed FN type I, type II, and type III repeats (3-5). Alternative splicing generates multiple isoforms of Fibronectin which may have insertions of extra type III domains (EDA and EDB) or alteration of the type III connecting segment (IIICS) (5). Differential splicing within the IIICS domain determines the presence of CS1 and CS2 sequences, and its sensitivity to proteases (6, 7). The tilt angle between type III domains #9 and #10 (which contains an RGD motif) determines integrin binding affinity, suggesting how structural differences between fibrillar and soluble Fibronectin may influence their function (8). From the N-terminus to the furin cleavage site at amino acid 1908, human Fibronectin shares 92% amino acid sequence identity with mouse and rat Fibronectin.

References:

1. Mao, Y. and J.E. Schwarzbauer (2005) Matrix Biol. **24**:389.
2. Potts, J.R. and I.D. Campbell (1996) Matrix Biol. **15**:313.
3. Bernard, M.P. *et al.* (1985) Biochemistry **24**:2698.
4. Kornblihtt, A.R. *et al.* (1983) Proc. Natl. Acad. Sci. USA **80**:3218.
5. Kornblihtt, A.R. *et al.* (1985) EMBO J. **4**:1755.
6. Mould, A.P. *et al.* (1991) J. Biol. Chem. **266**:3579.
7. Abe, Y. *et al.* (2005) Biochem. Biophys. Res. Commun. **338**:1640.
8. Altroff, H. *et al.* (2004) J. Biol. Chem. **279**:55995.

MANUFACTURING SPECIFICATIONS

GMP Proteins

R&D Systems, a Bio-Techne Brand's GMP proteins are produced according to relevant sections of the following documents: WHO TRS, No. 822, 1992 Annex 1, Good Manufacturing Practices for Biological Products; USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and USP Chapter 92, Growth Factors and Cytokines Used in Cell Therapy Manufacturing.

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- Material review process for variances
- Monitoring of stability over product shelf-life

R&D Systems strives to provide our customers with the analytical characteristics of each product so that customers may determine whether our products are appropriate for their research. The Certificate of Analysis provided contains the following lot specific information:

- N-terminal amino acid analysis, SDS-PAGE analysis, and endotoxin level (as determined by LAL assay) performed on each bulk QC lot, not on individual bottlings of each QC lot
- Post-bottling lot-specific bioassay results (compliance with an established range) and results of microbial bioburden testing (using broth culture, Sabourand's dextrose and blood agar plates with results reported at 3 days and at 7 days)
- Mycoplasma testing by ribosomal RNA hybridization assay

Additional testing and documentation requested by the customer can be arranged at an additional cost. Testing may include, but is not limited to, USP <61> bioburden testing, positive identity testing, testing for adventitious agents and testing for residual host cell content.

Production records and facilities are available for examination by appropriate personnel on-site at R&D Systems in Minneapolis, Minnesota USA.

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bio-techne
bio-techne.com
Global info@bio-techne.com techsupport@bio-techne.com
North America TEL 800 343 7475 Europe | Middle East | Africa TEL +44 (0)1235 529449
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