CTGrade GMP rh PDGF-AA

Catalog #	Product	Size
500-23	CTGrade GMP rh PDGF-AA	50µg, 100µg, 1mg lyophilized

Intended Use

This product is for research or further manufacturing use only. Not for injection or diagnostic procedures. The safety and efficacy of this product in diagnostic or other clinical procedures has not been established.

Product Description

This product is produced from *E. coli* and is manufactured in a facility that does not use or process beta-lactam containing materials. No animal- or human-derived materials were used during manufacturing or as ingredients. As such, the risk for BSE/TSE contamination can be considered negligible. This product is manufactured, tested, and released in an ISO 9001:2015 certified facility and follows cGMP practices. USP chapter <1043> for ancillary materials has been considered in the manufacture of this product.

Synonyms: GDGF, ODGF

NIH Accession Number: P04085

Background: Platelet-derived growth factor (PDGF) serves as a crucial controller of cell growth, proliferation, and angiogenesis (1). PDGF exists as a dimeric glycoprotein, comprising two polypeptide chains (A and B) stabilized by disulfide bridges. These chains can combine to form either heterodimers (PDGF-AB) or homodimers (PDGF-AA and PDGF-BB) (2) PDGF-AA is commonly used for differentiation of neural progenitor cells derived from human pluripotent stem cells (hPSC) into oligodendrocyte precursor cells (3). The synthesis of PDGF is stimulated by signaling molecules such as IL-1, IL-6, TNF-α, TGF-β, and EGF. PDGF acts as a growth hormone that induces cell division in mesenchymal lineage cells like smooth muscle and glial cells. Furthermore, PDGF is stored within the alpha-granules of platelets and is released when these platelets adhere to injured tissues. The PDGF dimer binds to cell surface receptor tyrosine kinases, specifically PDGFR-α and PDGFR-β (4). Studies suggest that PDGF-AA plays a pivotal role as an autocrine regulator of vascular endothelial growth factor (VEGF) expression in non-small cell lung carcinomas (5). Additionally, PDGF-AA facilitates the proliferation of oligodendrocyte progenitor cells and guides their differentiation along the oligodendrocyte lineage through the activation of extracellular signal-regulated kinases 1 and 2 (ERK1/2) (6).

Specifications

Formulation:	CTGrade GMP rh PDGF-AA is lyophilized from a 0.2 µm filtered solution containing 0.1% Trifluoroacetic Acid (TFA).
Protein Purity:	≥97% determined by reducing and non-reducing SDS-PAGE analysis.
Endotoxin:	<0.01 EU/µg using USP <85>/ EP 2.6.14
Bioactivity:	ED50 is determined by the dose-dependent Proliferation of NR6R-3T3 cells. The ED50 is typically less than 50 ng/mL. Activiy is >1.0 x10^6 U/mg when calibrated against the internal standard PDGF-AA measured in cell proliferation assay using NR6R-3T3 cells.
Quality:	Carrier-free and no animal- or human-derived materials were used during manufacturing.

Quality Assurance

All quality control test results are reported on a lot specific Certificate of Analysis, which is available at www.irvinesci.com or upon request.

Shipping

This product is shipped at ambient temperature. Immediately upon receipt, store at the recommended temperature below.

Storage Instructions and Stability

Upon receipt, store the lyophilized protein at -20°C in a manual defrost freezer. Unopened vials are stable for 36 months from the date of manufacture. Reconstituted material should be apportioned in working volumes and stored at or below -20°C in manual defrost freezer.
For short term storage reconstituted material is stable for 4-6 weeks when stored at 2-8°C. Stability can be increased by adding at least 0.1% carrier protein.

Precautions

For *ex vivo* use only. Not for injection or diagnostic procedures. The safety and efficacy of this product in diagnostic or other clinical uses has not been established. Please refer to the Safety Data Sheet for information regarding hazards and safe handling practices.

Directions for Use

1. **Reconstitution**

   Allow the vial and sterile water (e.g. FUJIFILM Irvine Scientific, Inc. P/N 9309 Water for Injection) to equilibrate to room temperature. Draw up desired volume of reconstitution buffer. Aseptically puncturing through rubber stopper with sterile needle, inject the buffer to achieve the desired concentration (0.1-0.5 mg/mL). Swirl the vial gently, **do not vortex**. Allow protein to rehydrate for 10-15 minutes at room temperature with occasional gentle mixing.

2. **Optimum Concentration**

   The optimum concentration varies depending on cell type and culture conditions. Working concentration should be determined for each specific application.

Related Products

Catalog #	Product	Size
91149	PRIME-XV MSC Expansion XSFM	1L
91139	PRIME-XV FreezIS	10mL, 100mL
91201	PRIME-XV Neural Basal Medium	500mL
9309	Water for Injection	1L

References

1. Raica M, and Cimpean AM, 2010. Pharmaceuticals (3), 572-599. DOI: 10.3390/ph3030572.
2. Fretto et al., 1993. J Biol Chem. 15; 268(5):3625-3631. PMID: 7679113
3. Piao et al., 2015. Cell Stem Cell. 5; 16(2): 198–210. DOI: 10.1016/j.stem.2015.01.004
4. Kazlauskas et al., 2017. 30; 614:1-7. DOI: 10.1016/j.gene.2017.03.003
5. Shikada et al. Cancer Res. 15;65(16): 7241-7248 (2005).https://doi.org/10.1158/0008-5472.CAN-04-4171
6. Hu et al., 2008. Neuroscience. 2;151(1):138-47. DOI: 10.1016/j.neuroscience.2007.10.050

Technical Support

CONTACT US

For more information or assistance contact Customer Service at:

- Email: fisitmrequest@fujifilm.com
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WEBSITE RESOURCES

Visit the website at www.irvinesci.com for technical resources and information including:

- Safety Data Sheets (SDS)
- Certificate of Analysis (CoA) (when available)
- FAQs
- Product literature

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REVISION HISTORY

Version 01 Effective on 03-Oct-2023
Initial

Version 02 Effective on 01-Apr-2024
Added BSE/TSE statement, added GMP in name and internal standard activity

DOCUMENT ELECTRONIC SIGNATURES

DOCUMENT APPROVAL WORKFLOW

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