

Human Laminin 511 Protein (PG)



Cat. No. LMN-HM511

Description

Source	Mammalian cells
Purity	≥95%
Concentration	0.1 mg/ml
Endotoxin	<1 EU/ml
Mycoplasma	Negative
Animal origin	Animal origin-free

Formulation and Storage

Formulation	PBS, 10% glycerol, pH7.4
Storage	Valid for 2 years from date of receipt when stored at -20°C to -80°C. Thawed, undiluted stock is stable for 3 months when stored at 2-8°C under aseptic conditions.

Operation Guide

1. Thaw the Laminin 511 slowly at 2°C to 8°C. For prolonged operation, the product should be placed on ice. If longer storage is needed, we recommend dividing the thawed stock solution in smaller working aliquots and to store frozen.

NOTE: Avoid repeated freeze-thaw cycles.

2. Dilute the product in DPBS (with Ca²⁺ and Mg²⁺) to the final concentration of 5-10 µg/ml. When culturing cells with this product for the first time, higher coating concentrations are recommended for the first few cell passages until the cells have adapted to the matrix.

NOTE: The required concentration of Laminin 511 should be cell-dependent and optimized for each application. Once the cells are adapted, a lower coating concentration can usually be used. We recommend using an initial coating concentration of 0.5 µg/cm² on the culture surface and can operate according to the following formula:

Working conc. = Coating conc. × (Culture surface area / Vol. required for surface area)

Dilution factor = Stock concentration / Working concentration

(The Coating conc. and Vol. required for surface area depends on different experimental needs)

3. Mix solution gently, do not vortex.

4. Immediately add the diluted Laminin 511 to the cultureware. Recommended coating volumes are as follows:

Cultureware	Volume of diluted Laminin 511
6-well plate	1 ml/well
12-well plate	500 µl/well
24-well plate	300 µl/well
96-well plate	70 µl/well
T-25 cm ² flask	3 ml/flask
T-75 cm ² flask	8 ml/flask

NOTE: The above volume is calculated according to the concentration of 5 µg/ml. The bottom area is subject to the actual use.

5. Gently rock the cultureware back and forth to spread the Laminin 511 solution evenly across the entire surface.

6. Seal the cultureware to prevent evaporation of Laminin 511 solution, then incubate at 2-8°C overnight. If more rapid coating is required, incubate at 37°C for at least 2h before use. The cultureware can be coated in advance of experiments, sealed and stored at 2-8°C under aseptic conditions for up to 2-4 weeks.

NOTE: Do not allow the culture surface to dry as that will inactivate the matrix coating.

7. Aspirate Laminin 511 when cells are ready to be plated.

NOTE: The coating does not require washing before use.

Background

Laminin 511, also known as LN511 or Laminin-10, is a heterotrimeric glycoprotein composed of one alpha 5, one beta 1, and one gamma 1 chain. It is a potent adhesive and pro-migratory substrate that plays a crucial role in stem cell culture for its ability to support the self-renewal and maintenance of pluripotency in stem cells, particularly in the culture of embryonic stem cells (ES) and induced pluripotent stem cells (iPS). Laminin 511 is often used as a component of the extracellular matrix to replace traditional animal-derived matrices like Matrigel, offering a more defined and controlled culture system for research and therapeutic applications in regenerative medicine.

References

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- [2] Zhao C, Zhou Q, Duan H, Wang X, Jia Y, Gong Y, Li W, Dong C, Li Z, Shi W. Laminin 511 Precoating Promotes the Functional Recovery of Transplanted Corneal Endothelial Cells. *Tissue Eng Part A.* 2020 Nov;26(21-22):1158-1168. doi: 10.1089/ten.TEA.2020.0047.
- [3] Takizawa M, Arimori T, Taniguchi Y, Kitago Y, Yamashita E, Takagi J, Sekiguchi K. Mechanistic basis for the recognition of laminin-511 by $\alpha 6 \beta 1$ integrin. *Sci Adv.* 2017 Sep 1;3(9):e1701497. doi: 10.1126/sciadv.1701497.
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