

Recombinant Human Laminin-511 (E8), Animal Component-Free

Cat. No. :	H001H
Alternative Names:	LN511-E8; Laminin 511 E8; Laminin 511; LN511
Species:	Human
Accession No.:	O15230 & P07942 & P11047
Expression System:	HEK293
Protein Sequence:	Ala2534-Ala3323 & Leu1561-Leu1786 & Asn1364-Pro1609
Theoretical MW:	141.6 kDa
Tag:	Tag-Free.
Formulation buffer:	PBS, 5% Mannitol, 0.01% Tween 80, pH7.4.
Appearance:	Lyophilized Powder.
Purity:	≥95% as determined by SDS-PAGE.
Bioactivity:	This protein has an ED ₅₀ of ≤10.0 ng/mL in an NIH/3T3 cell adhesion assay when used as a coating.
Endotoxin Level:	≤0.01 EU/μg, as determined by the LAL assay.
Application:	Cell Culture; Activity Assays.

Preparation & Storage

Reconstitution:	<p>Reconstitute with sterile double-distilled water (ddH₂O).</p> <p>⚠ Centrifuge the vial briefly before opening to ensure full recovery of the solution. Avoid vortexing and minimize vigorous pipetting to maintain protein stability.</p> <p>❄ Immediately aliquot the reconstituted protein solution and store under recommended conditions. Avoid repeated freeze-thaw cycles.</p>
Shipping:	Shipped on dry ice. Short-term transit on cold packs (2–8°C) is acceptable.
Storage:	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -80°C as supplied. ● 2-7 days at 2 to 8°C under sterile conditions after reconstitution. ● 3-6 months at -20 to -80°C under sterile conditions after reconstitution.

Protein Description

Background: Laminin-511 E8 (LN511-E8) is a recombinant human protein that serves as a chemically defined matrix for feeder-free in vitro culture of various human pluripotent stem cell (PSC) lines. LN511-E8 is generated by targeted truncation of native laminin-511, resulting in a functionally minimized fragment that fully retains the integrin-binding domains essential for mediating cell adhesion and signaling.

Extensive experimental evidence demonstrates that LN511-E8 effectively maintains the characteristic proliferation kinetics and pluripotency of multiple PSC types—including embryonic stem cells (ESCs), induced pluripotent stem cells (iPSCs), and certain mesenchymal stromal cells (MSCs)—without inducing spontaneous differentiation. Moreover, PSCs cultured on LN511-E8 can be serially passaged for more than 10 passages while retaining genomic stability, with no detectable karyotypic abnormalities, and continuously retain their capacity to differentiate into all three germ layers (endoderm, mesoderm, and ectoderm).

References:

1. Miyazaki T. et al. Recombinant human laminin isoforms support undifferentiated growth of human embryonic stem cells. *Biochem Biophys Res Commun.* 2008;375(1):27-32.
2. Rodin S. et al. Long-term self-renewal of human pluripotent stem cells on recombinant laminin-511. *Nat Methods.* 2010;7(8):611-613.
3. Takazumi K. et al. Laminin E8 fragments: Next-generation substrates for stem cell culture. *Exp Cell Res.* 2021;401(2):112523.
4. Sun Y. et al. Integrin $\alpha\beta 1$ -laminin interactions regulate pluripotency in human embryonic stem cells. *Stem Cells.* 2014;32(9):2323-2333.

Product Disclaimer

- This product is intended for research use only and is not for use in diagnostic, therapeutic, or clinical procedures.
- Due to the inherent nature of research reagents, any liability arising from product quality issues is limited solely to the replacement or refund of the product itself and excludes all indirect, incidental, or consequential damages.

How to Choose Between Laminin-521 E8 and Laminin-511 E8?

- For iPSC culture, the recommended coating concentration for both products is 5-10 µg/mL.
- Application Guidance
 - H001H(Laminin 511 E8):** Ideal for routine iPSC maintenance, pre-differentiation expansion, and complex co-culture systems.
 - H002H(Laminin 521 E8):** Supports efficient single-cell adhesion, long-term pluripotency, and clonal expansion.



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