

Recombinant Human Laminin-521 (E8), Animal Component-Free

Cat. No. :	H002H
Alternative Names:	LN521-E8; Laminin 521 E8; Laminin 521; LN521
Species:	Human
Accession No.:	O15230 & P55268 & P11047
Expression System:	HEK293
Protein Sequence:	Ala2534-Ala3322 & Leu1573-Gln1798 & Asn1364-Pro1609
Theoretical MW:	141.0 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-521 is a heterotrimeric extracellular matrix glycoprotein composed of three distinct chains: α5 (LAMA5, UniProt O15230), β2 (LAMB2, UniProt P55268), and γ1 (LAMC1, UniProt P11047). It is one of the most widely expressed laminin isoforms in adult tissues and is a key structural and functional component of basement membranes in numerous organs, including the kidney glomerulus, vascular endothelium, and nervous system.

Laminin-521 plays essential roles in cell adhesion, migration, differentiation, survival, and tissue organization by interacting with cell surface receptors such as integrins (e.g., α3β1, α6β1, α7β1) and dystroglycan. It is particularly critical for maintaining the integrity and function of basement membranes and has been shown to support long-term self-renewal of human pluripotent stem cells (hPSCs) in defined, feeder-free culture systems.

Mutations in the LAMB2 gene, encoding the β2 chain of laminin-521, are associated with Pierson syndrome—a rare congenital disorder characterized by nephrotic syndrome and ocular abnormalities—highlighting the protein’s vital role in kidney and neural development.

This recombinant human laminin-521 is produced under stringent quality-controlled conditions and is suitable for research applications requiring physiologically relevant extracellular matrix support, especially in stem cell biology, regenerative medicine, and disease modeling.

References:

1. Miner, J. H., & Yurchenco, P. D. (2004). Laminin functions in tissue morphogenesis. *Annual Review of Cell and Developmental Biology*, 20, 255-284.
2. Domogatskaya, A., Rodin, S., & Tryggvason, K. (2012). The role of laminin-511 and -521 in stem cell maintenance and differentiation. *Seminars in Cell & Developmental Biology*, 23(3), 306-312.
3. Aumailley, M., et al. (2005). A simplified laminin nomenclature. *Matrix Biology*, 24(5), 326-332.
4. Suh, D. H., & Miner, J. H. (2013). The glomerular basement membrane as a barrier to albumin. *Nature Reviews Nephrology*, 9(8), 470-477.
5. Patton, B. L., et al. (1997). Properly folded β2 chain is required for assembly and secretion of laminin-521. *Journal of Biological Chemistry*, 272(45), 28139-28146.
6. Rodin, S., et al. (2014). Long-term self-renewal of human pluripotent stem cells on human recombinant laminin-511 and -521. *Nature Communications*, 5, 3195.

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 $\mu\text{g}/\text{mL}$.
- 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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