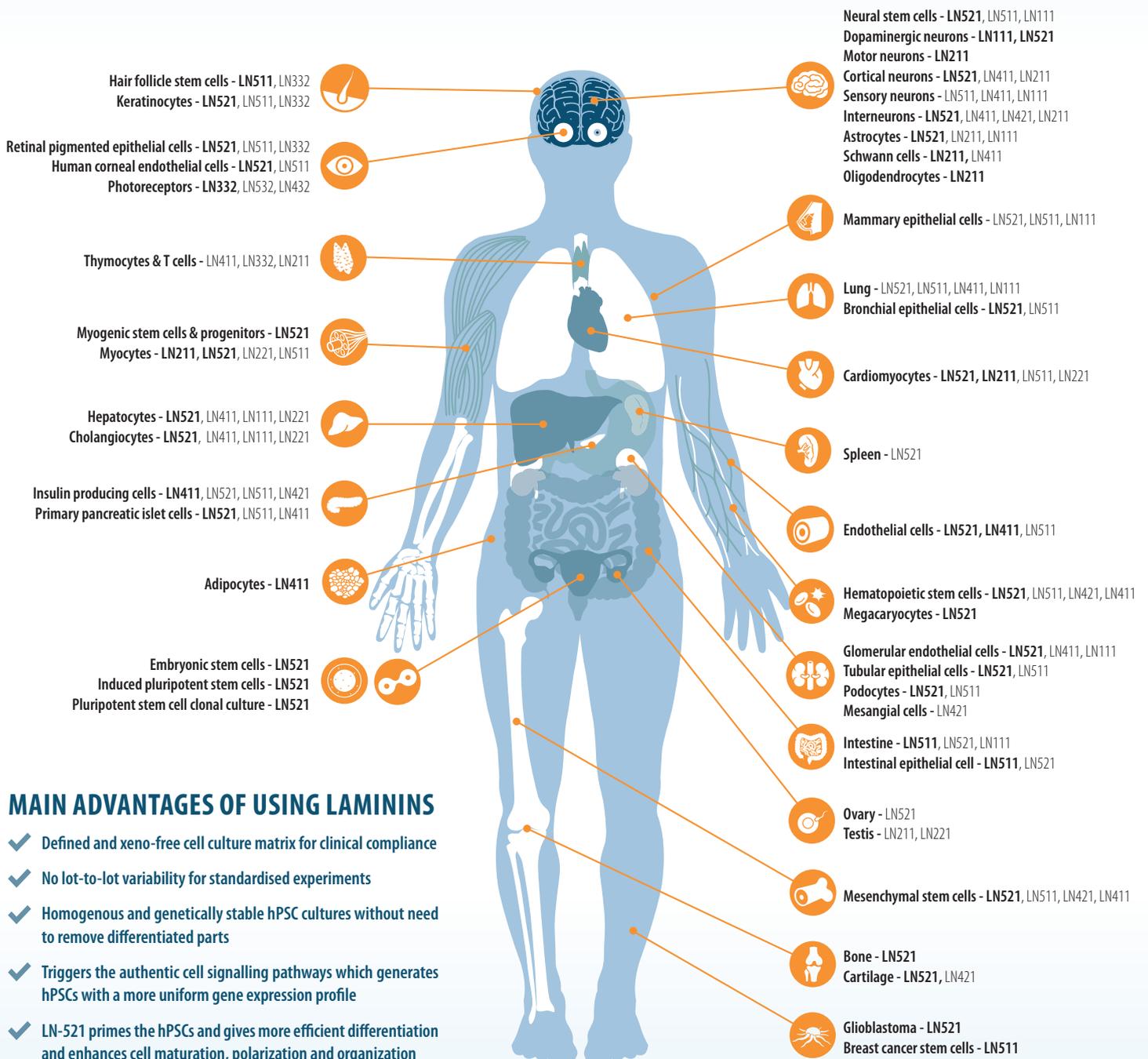


BioLamina's chemically defined and xeno-free laminin cell culture matrices allow you to imitate the natural cell-matrix interaction in vitro. Laminins are key components of the extracellular matrix. Through their interactions with specific receptors, laminins trigger the authentic cellular responses, pivotal for cell anchorage, survival, proliferation, migration, organization and specialization, leading to improved cell functionality.

WE OFFER AN EXPANSIVE PORTFOLIO OF RECOMBINANT LAMININ PROTEINS FOR A VARIETY OF APPLICATIONS, INCLUDING RELIABLE EXPANSION OF PLURIPOTENT CELLS AND DIFFERENTIATION AND MAINTENANCE OF SPECIALIZED CELL TYPES



## MAIN ADVANTAGES OF USING LAMININS

- ✓ Defined and xeno-free cell culture matrix for clinical compliance
- ✓ No lot-to-lot variability for standardised experiments
- ✓ Homogenous and genetically stable hPSC cultures without need to remove differentiated parts
- ✓ Triggers the authentic cell signalling pathways which generates hPSCs with a more uniform gene expression profile
- ✓ LN-521 primes the hPSCs and gives more efficient differentiation and enhances cell maturation, polarization and organization
- ✓ Flexible culture system and easy to control: compatible with any medium, supports weekend-free feeding, single-cells passage without ROCKi, low density seeding to high confluence culture

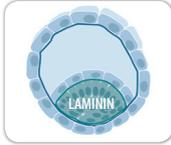
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# HIGHLIGHTED LAMININ APPLICATIONS



## Robust self-renewal of high quality hPSCs on the defined and xeno-free LN-521 stem cell matrix

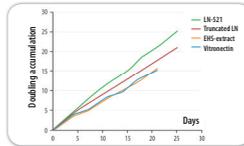
Laminin-521 (LN-521) is a key cell adhesion protein of the natural stem cell niche. The LN-521 stem cell matrix supports efficient expansion at low densities of single-cell plated human pluripotent stem cells (hPSCs) under defined and xeno-free conditions. LN-521 is compatible with any medium and support weekend-free feeding. Importantly, the cells behave predictably, are homogeneously pluripotent and karyotypically stable.



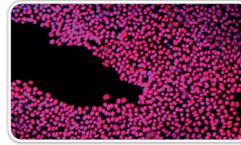
LN-521 is naturally expressed and secreted by hPSCs in the inner cell mass of the embryo.



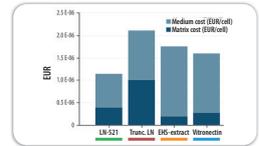
hPSCs can be seeded as single cells without ROCKi (day 0), grown as a homogenous monolayer (day 3) and can be cultured to high confluence without spontaneous differentiation.



hPSCs propagate faster on LN-521 compared to other feeder-free matrices.



The hPSCs remain pluripotent (Oct4+; pink) and show no areas of differentiation (only DAPI staining; blue).

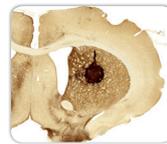
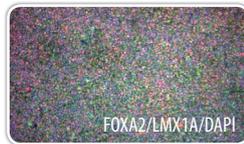
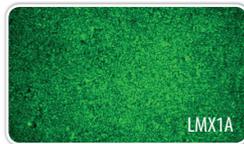


Due to faster growth rate and higher cell yield, the total cost per cell and passage is lowest for LN-521 compared to other feeder-free matrices.



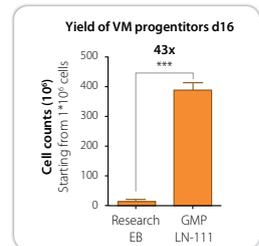
## LN-111 generates high yield of clinically compliant dopaminergic neurons

LN-111 supports efficient, GMP compliant differentiation of a homogenous population of hPSC-derived dopaminergic (DA) progenitor cells. Compared to embryoid bodies (EB)-based protocols, the yield of DA progenitors is >40x on LN-111. Starting from a single 6-well plate of hESCs, DA progenitor cells can be produced in a scale suitable for clinical production.



The DA progenitors homogeneously express the predictive markers FoxA2 (red) and Lmx1a (green).

The cells become TH+ neurons at the site of transplantation in rats.

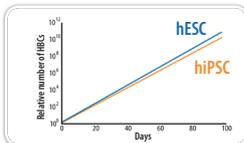


43-fold increase in yield of DA progenitors from human ES cells differentiated on LN-111, compared to research grade EB-based protocols.

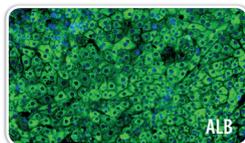


## LN-521 and LN-111 support hPSC derived hepatocyte differentiation and self-organization

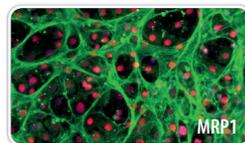
Human ES cells differentiated on LN-521 and LN-111 demonstrate efficient hepatocyte maturation and cell organization with significant improvements in cell function and stability of phenotype. The cells form canalicular-like structures, express multidrug resistance protein 1 (MRP1) and 2 (MRP2) and are capable of biliary efflux. The cell organization is coherent with the enhanced cellular function.



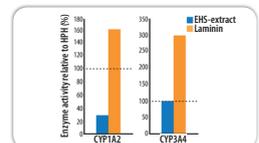
Efficient clonal expansion and maintenance of hESC and hiPSC derived hepatoblast-like cells (HBCs).



High ratio of hepatocyte-like cells express albumin (ALB; green).



The cells are highly organized and express transporter protein MRP1 (green).

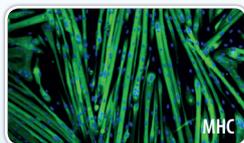


Large increase in P450 metabolic enzyme activity compared to cells on Engelbreth-Holm-Swarm (EHS) mouse sarcoma extract or human primary hepatocytes (HPH; dotted line).



## LN-521 maintains differentiation potential of satellite cell-derived myoblasts during long-term culture

LN-521 supports superior muscle cell performance in vitro by dramatically improving muscle cell proliferation and differentiation performance, with larger myotubes and higher amounts of nuclei per myotube. Importantly, LN-521 supports more consistent and reliable differentiation over long-term culture, and without altering the traditional Pax7/MyoD paradigm.



The cells form myotubes after 8 passages on LN-521. Myosin heavy chain expression (MHC; green).

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