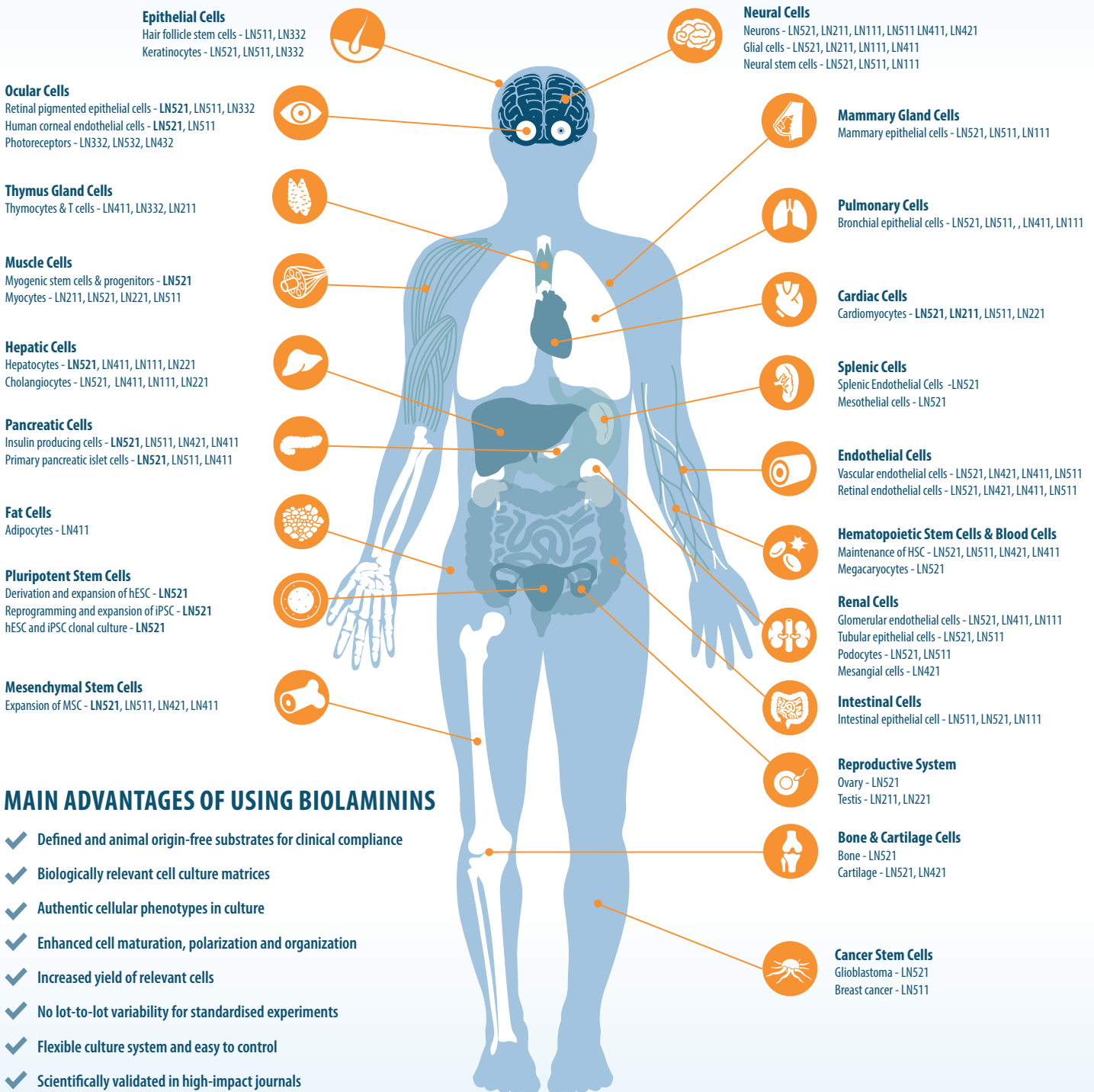


BioLamina's chemically defined and animal origin-free laminin cell culture matrices, Biolaminin™ matrices, allow you to imitate the natural cell-matrix interaction in vitro. Laminins are key components of the extracellular matrix. Through their interactions with specific receptors, laminins trigger the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

Read more about different cell applications for our Biolaminins [➔](#)

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 BIOLAMININS

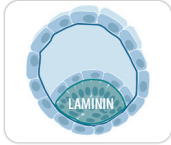
- ✓ Defined and animal origin-free substrates for clinical compliance
- ✓ Biologically relevant cell culture matrices
- ✓ Authentic cellular phenotypes in culture
- ✓ Enhanced cell maturation, polarization and organization
- ✓ Increased yield of relevant cells
- ✓ No lot-to-lot variability for standardised experiments
- ✓ Flexible culture system and easy to control
- ✓ Scientifically validated in high-impact journals

# HIGHLIGHTED BIOLAMININ APPLICATIONS

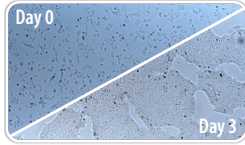


## Robust self-renewal of high quality hPSCs on the Biolaminin 521 stem cell matrix

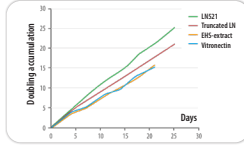
Laminin 521 is a key cell adhesion protein of the natural stem cell niche. The Biolaminin 521 (LN521) substrate supports efficient expansion at low densities of single-cell plated human pluripotent stem cells (hPSCs) under defined and animal origin-free conditions. LN521 is compatible with any medium and support weekend-free feeding. Importantly, the cells behave predictably, are homogeneously pluripotent and karyotypically stable.



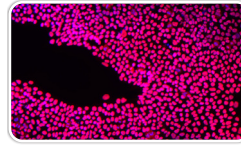
LN521 is naturally expressed and secreted by hPSCs in the inner cell mass of the embryo.



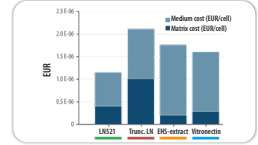
hPSCs can be seeded as single cells without ROCKi (day 0), grown as a homogenous monolayer (day 3) and can be cultured to high confluence without spontaneous differentiation.



hPSCs propagate faster on LN521 compared to other feeder-free matrices.



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

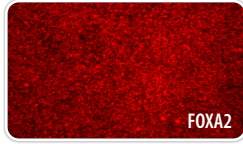


Due to faster growth rate and higher cell yield, the total cost per cell and passage is lowest for LN521 compared to other feeder-free matrices.

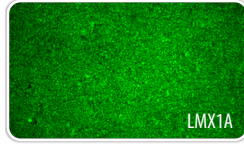


## LN111 generates high yield of clinically compliant dopaminergic neurons

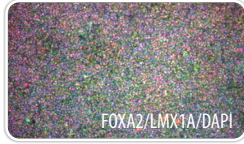
Biolaminin 111 (LN111) supports efficient, GMP compliant differentiation of a homogenous population of hPSC-derived dopaminergic (DA) progenitor cells. Compared to embryoid bodies (EB)-based protocols, the yield of DA progenitors is >40x on LN111. Starting from a single 6-well plate of hESCs, DA progenitor cells can be produced in a scale suitable for clinical production.



FOXA2

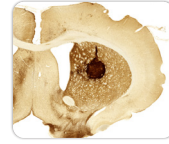


LMX1A

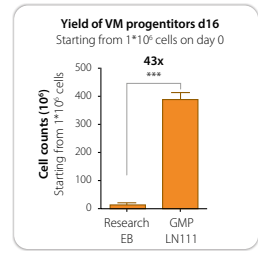


FOXA2/LMX1A/DAPI

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.

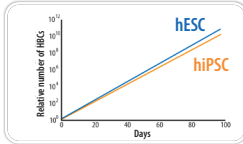


43-fold increase in yield of DA progenitors from human ES cells differentiated on LN111, compared to research grade EB-based protocols.

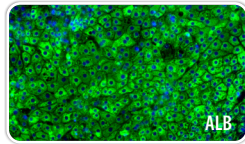


## LN521 and LN111 support hPSC derived hepatocyte differentiation and self-organization

Human ES cells differentiated on Biolaminin 521 (LN521) and 111 (LN111) 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.

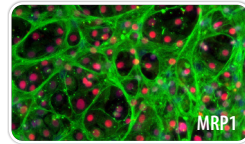


Efficient clonal expansion and maintenance of hESC and hiPSC derived hepatoblast-like cells (HBCs).



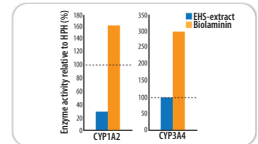
ALB

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



MRP1

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

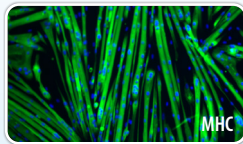


Large increase in P450 metabolic enzyme activity compared to cells on Engelbreth-Holm-Swarm (EHS) mouse sarcoma extract or human primary hepatocytes (HPH; dotted line).



## LN521 maintains differentiation potential of satellite cell-derived myoblasts during long-term culture

Biolaminin 521 (LN521) 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, LN521 supports more consistent and reliable differentiation over long-term culture, and without altering the traditional Pax7/MyoD paradigm.



MHC

The cells form myotubes after 8 passages on LN521. Myosin heavy chain expression (MHC; green).

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