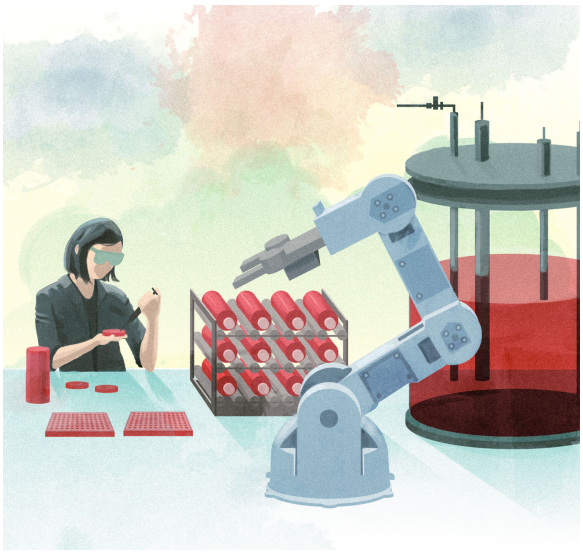
BioLamina

Large-scale cell production

Biolaminin® cell adhesion matrices for cell culture standardization and clinical compliance

Our biologically relevant tissue culture substrates are scientifically proven to improve stable stem cell cultivation. They are also defined, animal-origin free, and documented to better comply with clinical-stage regulatory requirements. The beneficial effects of the full-length laminins for cell culture, whether in 2D or 3D, will help in scaling up cell production and in enhancing cell models.



Why use Biolaminin?

Biologically relevant

Biologically relevant support improves cell authenticity and functionality

High expansion rate

A fast proliferation rate with maintained integrity facilitates the use of low passage cell lines for the production of clinically relevant cell numbers

Minimized variation

High lot-to-lot consistency and uniformed pluripotency gene expression patterns enable more standardized experiments

Effective specialization

Enhanced differentiation, cell maturation, and organization of specialized cell types such as hepatocytes, cardiomyocytes, and neurons

Defined and xeno-free

All BioLamina products are animal-origin free, defined recombinant proteins

Quality documentation

Animal-Origin Free Statement, Certificate of Analysis, and MSDS are available for all our products. Biolaminin CTG is designed for clinical studies.

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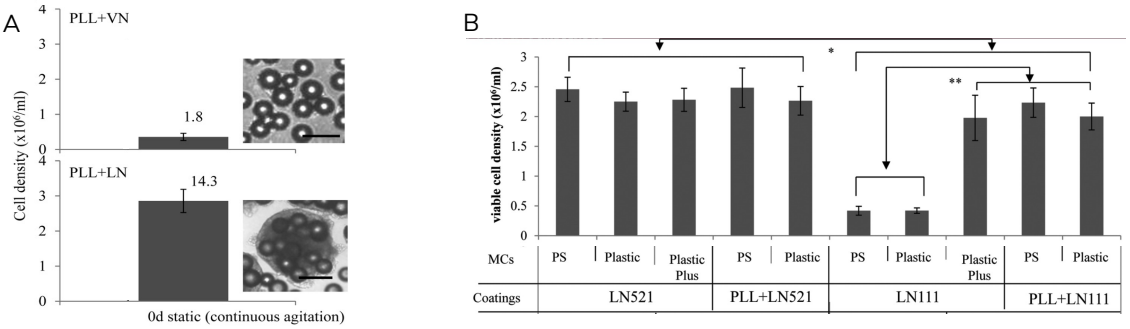
Read more about how Biolaminin improves large-scale cell manufacturing processes >

Order and more information:
www.biolamina.com

Supporting you:
support@biolamina.com

Biolaminin in large-scale cell production systems

Defined and scalable bioprocessing platform for the production of hPSCs with Biolaminin 521-based microcarrier system



Biolaminin 521 was shown to be an optimal coating substrate for pluripotent stem cell attachment and growth on microcarriers in agitated conditions. **A)** HES-3 embryonic stem cell density on coated polystyrene microcarriers (MC) after 7 days of culture. Images show representative hESC/MC aggregates, scale bars 200 µm. Modified from Lam *et al.* 2014 Stem Cells and Development, fig. 4 (CC BY 4.0). PLL = poly-L-lysine, LM = laminin-111. **B)** Biolaminin 521-based microcarrier system supported optimal viable hES cell growth, without the need for additional positive charges (PLL or Plastic Plus) to prevent preaggregation. PS = non-porous polystyrene MCs; Plastic = porous crosslinked polystyrene MCs. From Lam *et al.* 2015 Bioresearch Open Access, fig. 2 (CC BY 4.0).

Scaling up clinically adaptable red blood cell production from hPSCs using Biolaminin 521-coated microcarriers

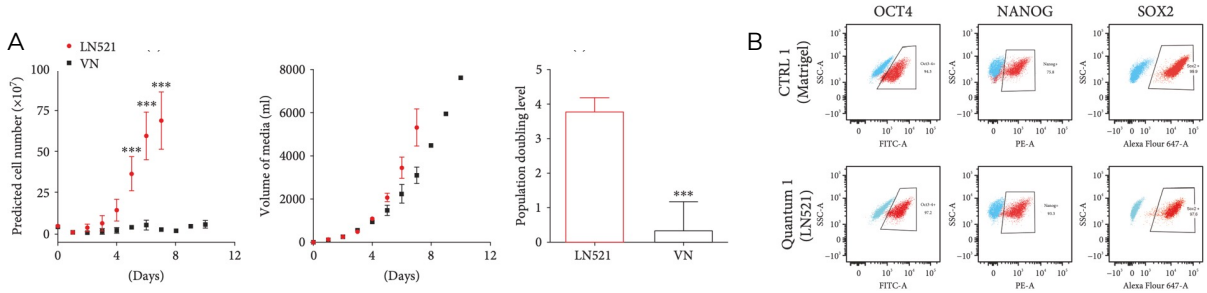
Read more:

Sivalingam *et al.* 2016. Tissue Engineering Part C: Methods. *Superior red blood cell generation from human pluripotent stem cells through a novel microcarrier-based embyoid body platform.*

Sivalingam *et al.* 2021 Stem Cell Reports. *A Scalable suspension platform for generating high-density cultures of universal red blood cells from human induced pluripotent stem cells*

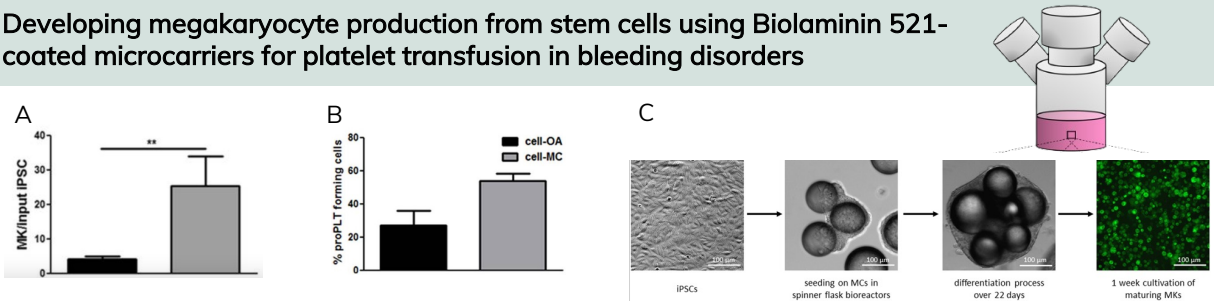
Yu *et al.* 2022 Cell Proliferation. *Selection of O-negative induced pluripotent stem cell clones for high-density red blood cell production in a scalable perfusion bioreactor system*

Biolaminin 521 as a superior hollow fiber coating substrate for large-scale expansion of hiPSCs in a closed cell expansion system



Pluripotent stem cell expansion in Quantum Expansion System with porous hollow fibers (composed of PAES, PVP, and PA polymers) coated with Biolaminin 521 (LN521). **A)** Significantly improved cell proliferation with LN521 coating. **B)** The cells maintained pluripotency, karyotype, and differentiation capability to all three germ layers. A subset of the measured pluripotency markers is shown in the figure. From Mesquita *et al.* 2019 Stem Cells International, figs. 2 and 3 (CC BY 4.0).

Developing megakaryocyte production from stem cells using Biolaminin 521-coated microcarriers for platelet transfusion in bleeding disorders



Megakaryocyte production from iPS cells in stirred bioreactors. **A)** Using Biolaminin 521-coated non-porous polystyrene microcarriers (cell-MC), 30 megakaryocytes (MKs) per input iPSC could be produced, compared to only 4 MKs in cell-aggregate suspension culture (cell-OA). **B)** Pro-platelet cells formed at a high percentage, indicating functional MK cells. **C)** Schematic representation of the process. From Eicke *et al.* 2018 Scientific Reports, figs. 3, 4 and 7 (CC BY 4.0).

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