BioLamina

BioLamina products in research and manufacturing

Biolaminin® matrices for all steps and scales

USER APPLICATION 001

A cell culture substrate for all formats

BioLamina products are biologically relevant cell culture substrates and scientifically proven to improve stable stem cell cultivation. Both research-grade and cell therapy grade (CTG) are available.
BioLamina products are defined, animal-origin free, and comply with clinical stage regulatory requirements. The beneficial effects of the full-length Biolaminin for cell culture can be used in any type of culturing format for every step, from microtiter plates to large scale formats, on almost all materials including glass and metal, from imaging systems to cell models.

Biolaminin advantages

Biologically relevant
Biologically relevant support improves cell authenticity and functionality.

High expansion rate
High 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, cardio-myocytes, 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.

Read more about how Biolaminin support all modalities and scales

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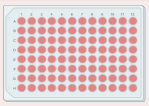
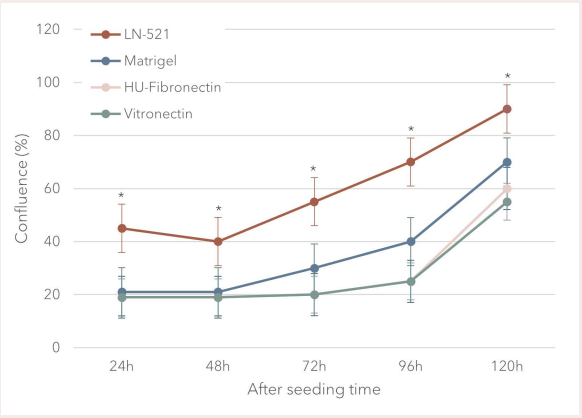
BioLamina products in research and manufacturing

Biolaminin® matrices for all steps and scale

1. Microtiter plate



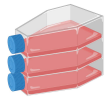


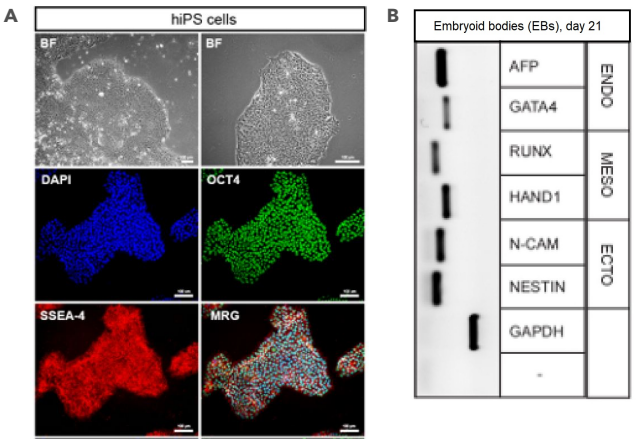
Biolaminin 521 substrate enables an robust automated imaging workflow for hPSC e.g. for gene editing. A) A high-content image analysis system assessed the best hiPSCs confluence on LN521 for gene editing in 96-well plates, compared to Matrigel, vitronectin and fibronectin [1].
hPSC clones on LN521 in 96/384-well plates result in clones that preserve pluripotency markers by nearly 100% of the cells and classical colony morphology [2].

REFERENCES

[1] Magliocca et al. 2020
[2] Vallone et al. 2020

2. Cell culture flask



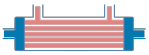


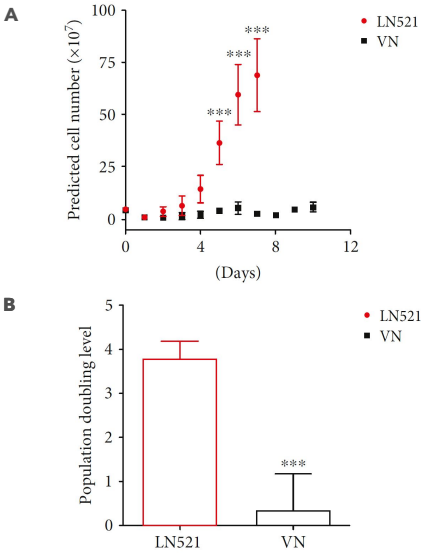
Xeno-free and fully defined protocols for iPSC generation and differentiation on Biolaminin 521. A) Representative images of fully reprogrammed homogeneous hiPSC line showing a homogeneous expression of pluripotency markers (OCT4, NANOG, SSEA4; Scale bar 100 µm). B) Pluripotency demonstrated by embryoid bodies (EB) formation assay, RT-PCR for germ layer markers at day 21 [3].

REFERENCE

[3] Uhlin et al. 2018

3. Hollow fiber



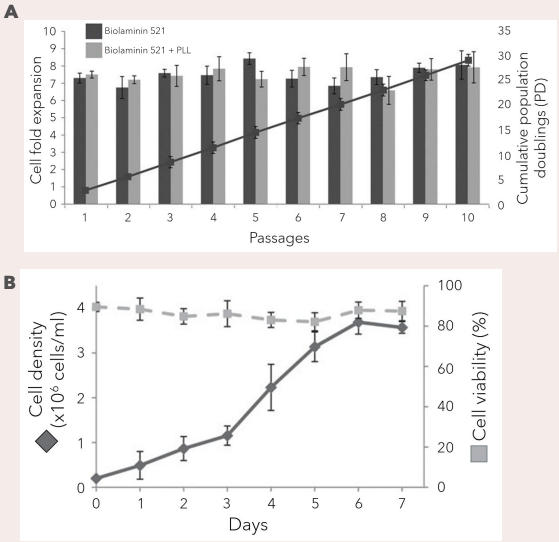


Biolamin 521 as potent substrate for large-scale expansion. iPSC expansion in Quantum Expansion System with porous hollow fibers (composed of PAES, PVP, and PA polymers) coated with LN521 increased significantly A) cell number, B) population doubling and maintained pluripotency, karyotype, and differentiation capability to all three germ layers [4].

REFERENCE

[4] Mesquita et al. 2019

4. Microcarrier



Defined, xeno-free and scalable system using Biolaminin 521-coated polystyrene microcarriers. The biorelevance of human, full-length Biolaminin 521 induces high hiPSC and hESC attachment (87%) and spreading (85%). A) About 7.5-fold cell expansion over long-term hESC culture of 10 passages. No pre-treatment with poly-l-lysine (PLL) needed, when comparing Biolaminin 521 (dark gray) and Biolaminin521-PLL (light gray). B) Improved kinetics of cell growth leading to a cell yield of ~3.56 x 10^6 cells/mL with a viability of 90%. The efficient coating of Biolaminin 521 on microcarriers lead to 34% savings in matrix and material costs [5].

REFERENCE

[5] Lam et al. 2015

ADDITIONAL REFERENCES

1. Blanch-Asensio et al. 2022
Dias et al. 2022
2. Tijin et al. 2020
Nolbrandt et al. 2017
Hong et al. 2019
3. Mesquita et al. 2022
4. Sivalingam et al. 2016
Eicke et al. 2018
Sivalingam et al. 2021
Yu et al. 2022

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