

iMatrix-511 Recombinant Human Laminin

E8 Fragments - Cell Culture Substrate



PROVEN
SUPERIORITY

Feeder-free ES/iPS cell culture

More cost effective

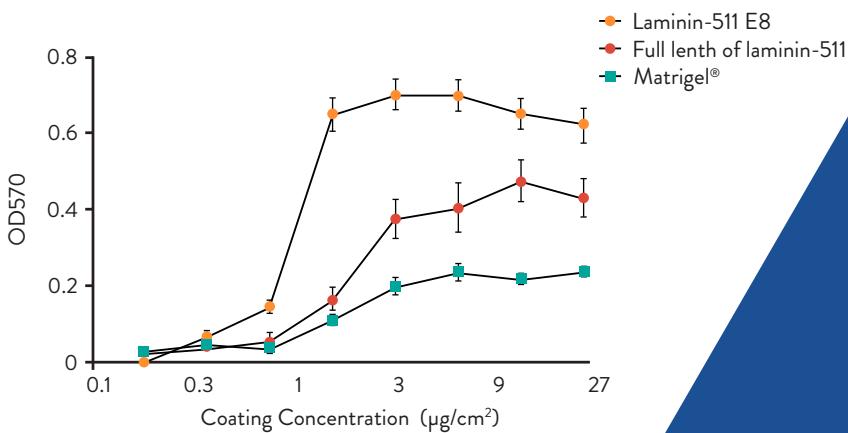
Save time

WHAT IS RECOMBINANT HUMAN LAMININ-511 E8?

iMatrix-511 is an innovative cell culture matrix compatible with a wide variety of cell types, and exceptionally well suited for pluripotent stem cells. This product is comprised of recombinant Laminin-511 E8 protein fragments which enable bulk proliferation and single-cell passaging of ESCs and iPSCs, and provide greater adhesion than full-length Laminin, Vitronectin or Matrigel®.

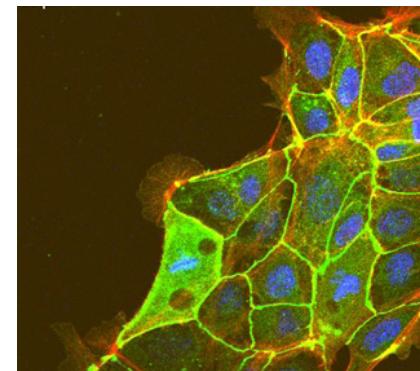
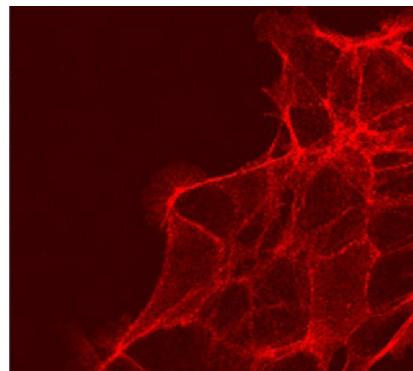
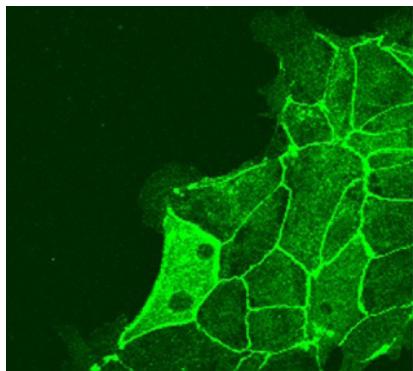
- Ideal for Feeder-Free Cell Culture
- Proven to provide superior adhesion of human ES and iPS cells
- Enables the passaging of single cells
- Eliminate need to coat plates
- Makes it easy to achieve extended cultures of hES/hiPS cells

Laminin-511 is a major component of the basement membrane, which is expressed in early development of the embryo and can be used as a matrix for pluripotent (ES/iPS) stem cells, as it binds to integrin on cell surfaces. However, Laminin-511 is a large protein (800kDa) composed of three chains (alpha, beta and gamma), making it difficult to produce recombinantly. In order to overcome this challenge, Laminin-511 proteins were fragmented to find the smallest integrin-binding component and hES cells were found to adhere more strongly to the E8 fragment than to the full-length protein.



The Binding activity of Laminin 511 E8 Fragment against ES cell was better than Full length 511 and traditional substrate.

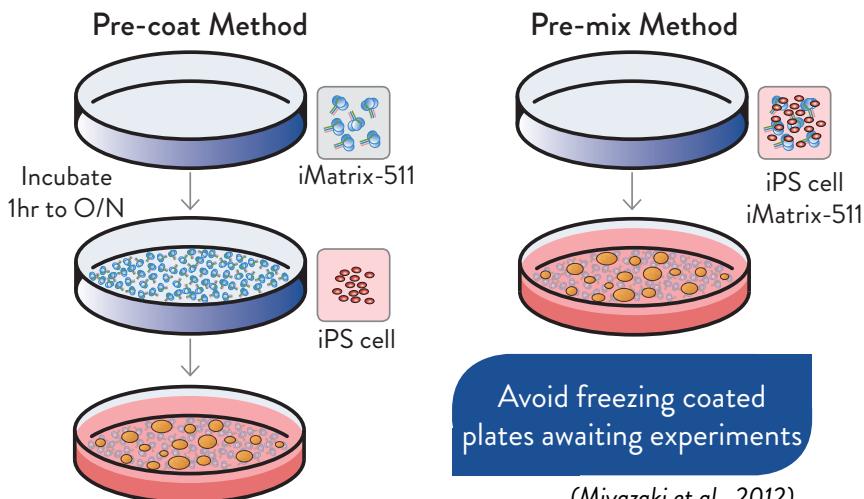
The horizontal axis of the graph shows the concentration of cell culture substrate, and the vertical axis shows the OD value (optical density at 570nm). This result shows that the Laminin-511 E8 fragment adheres to cells more strongly than its competitors.



Human iPS cells on laminin-511 E8 (coated laminin concentration 0.4 mkg(micrograms)/cm²): ZO-1, Beta-Actin and Objective lens; X40)

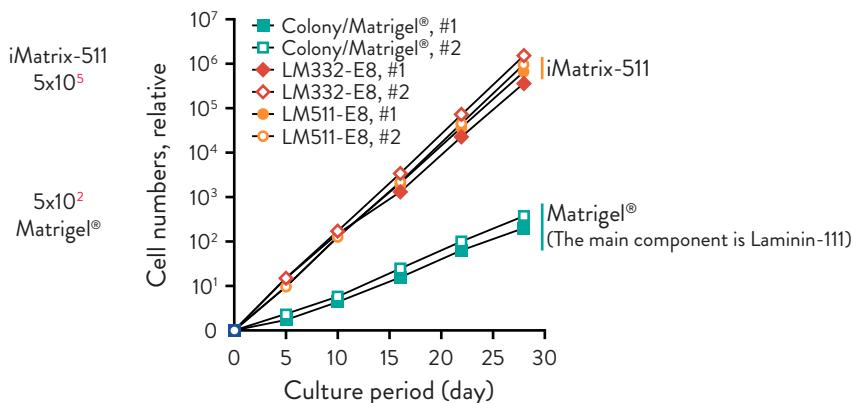
WHY USE RECOMBINANT HUMAN LAMININ-511 E8?

NO NEED TO PRE-COAT PLASTICWARE



HIGHER EFFICIENCY

iMatrix-511 allowed a higher passaging ratio during subculture.

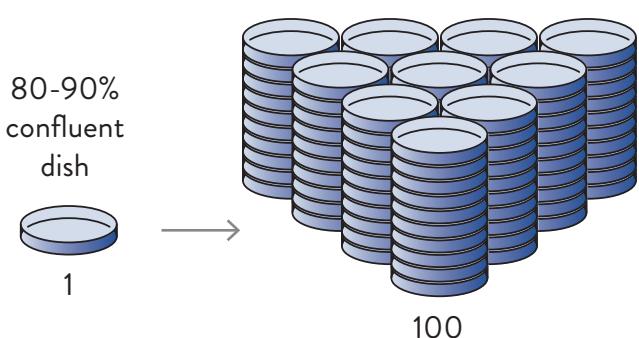


Comparison of the numbers of ES/iPS cells cultured by the conventional method (colony) for 30 days with those cultured by Laminin-511 E8 fragment. The results confirm that there is greater than 2000 fold increase in the number of cells when Laminin-511 E8 fragment was used.

(Miyazaki et al., 2012)

MAXIMUM PRODUCTIVITY

hESCs or hiPSCs	Doubling Time hrs	Fold Changes/ passage
KhES1	28.34	131.23
1027B6	29.05	95.85
1027B3	29.37	112.31
987A3	26.00	156.73
987A7	28.09	133.50
1020A12	30.30	106.75
201B7	26.90	177.49
201B6	28.97	124.05
Average	28.34	132.00



The hESCs and hiPSCs were efficiently passaged under the Feeder-free culture system. We calculated the doubling times of the hESCs and hiPSCs and the fold change in the cell number in each passage.

Best used with:



StemFit®

StemFit® is a xeno-free, defined medium proven to effectively maintain Induced Pluripotent Stem (iPS) and Embryonic Stem (ES) cells under feeder-free conditions during the reprogramming, expansion and differentiation phases of stem cell culture. StemFit® combines high colony forming efficiency with lower than standard media volume consumption to offer cost effective colony expansion when compared to leading competitors.

CELLBANKER®

CELLBANKER® is a series of easy-to-use cell freezing media offering superior protection against cell stress during freeze/thaw cycles, allowing successful cryopreservation of all mammalian cell types regardless of their sensitivity. STEM-CELLBANKER® is a chemically defined, animal-free freezing medium manufactured under GMP conditions- optimized for ES cell and iPS cell storage as well as other valuable cell types.

Featured References

- Nature Protocols 2017, April 12:683-696
Coordinated generation of multiple ocular-like cell lineages and fabrication of functional corneal epithelial cell sheets from human iPS cells.
- Scientific Reports 2017, January 7:1-8
Efficient Adhesion Culture of Human Pluripotent Stem Cells Using Laminin Fragments in an Uncoated Manner.
- Nature Communications 2016, 7:1-11
Purification of functional human ES and iPSC-derived midbrain dopaminergic progenitors using LRTM1
- Biochemical and biophysical research communications 2016, 474:91-96
Laminin 411 and 511 promote the cholangiocyte differentiation of human induced pluripotent stem cells.

Description	Pack Size	Cat. No.
iMatrix-511	0.35 mg/350ul	AMS.892 011
iMatrix-511	1.05 mg/1050ul	AMS.892 012
iMatrix-511silk	1.05 mg/1050ul	AMS.892 021
iMatrix-411	0.35 mg/350ul	AMS.892 042
iMatrix-411	1.05 mg/1050ul	AMS.892 041