

ECMatrix™-221 E8 Laminin Substrate

Stem Cell Reagent

Cat. # CC163-350UG

FOR RESEARCH USE ONLY.
NOT FOR USE IN DIAGNOSTIC PROCEDURES.
NOT FOR HUMAN OR ANIMAL CONSUMPTION.

Pack size: 350 µg

Store at 2-8°C



Data Sheet

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Description

Cardiomyocytes are the cardiac muscle cells that make up the heart and are responsible for generating contractile forces within the heart. Laminin-221 is known to bind to the integrin $\alpha 7 X 2 \beta 1$ which is located on the cell surface of pluripotent stem cells and is known to induce cardiac and skeletal muscle differentiation. Professor Kiyotoshi Sekiguchi's group (Matrixome, Inc.) have produced a recombinant E8 fragment of laminin-221 at large-scale while retaining the full integrin binding activity. ECMatrix™-221 E8 Laminin Substrates are recombinant Laminin-221-E8 fragments which bind to integrin $\alpha 7 X 2 \beta 1$ and increases the differentiation of pluripotent stem cells (ES/iPSCs) into functional cardiomyocytes.

Storage and Handling

ECMatrix™-221 E8 Laminin Substrates should be stored at 2-8°C. Avoid multiple freeze-thaw cycles and protect from light.

Presentation

1) 2 X 175 µg ECMatrix™-221 E8 Laminin Substrate (0.5 mg/mL in PBS). Expressed in CHO-S cells.

Quality Control Testing

- Purity (SDS-Page): > 95%
- Endotoxin Test: ≤ 750 EU/mg
- Mycoplasma Test: Negative
- Sterility Test: Negative
- Integrin Binding Assay (kDa): ≤ 10 nM

Protocol

Precoating Method

1. Dilute the 0.5 mg/mL stock solution with sterile PBS to achieve a 2.5 ug/mL working solution.
2. Coat dishes with ECMatrix™-221 at 0.25 ug/cm² (for example, for one well of a 6-well plate add 1 mL of the 2.5 ug/mL working solution).
3. Incubate for 1 hour at 37°C, 3 hours at room temperature or overnight at 4°C.
4. Before use, remove remaining fluid from the coated surface (do not rinse).
5. Detach cells into small clumps using Accutase.
6. Plate the cells at desired density.

Note: Do not allow the plates to dry, briefly spin down all liquids in the tube before use, avoid repeated freeze-thaw cycles.

References

1. Israeli-Rosenberg S, et al. Integrins and integrin-associated proteins in the cardiac myocyte. *Circ Res.* 2014 Jan 31;114(3):572-586.
2. Mummery CL, et al. Extracellular matrix formation after transplantation of human embryonic stem cell-derived cardiomyocytes. *Cell Mol Life Sci.* 2010 Jan;67(2):277-90.
3. Ja KP, et al. iPSC-derived human cardiac progenitor cells improve ventricular remodelling via angiogenesis and interstitial networking of infarcted myocardium. *J Cell Mol Med.* 2016 Feb;20(2):323-32.

SPECIES LEGEND: H Human Ca Canine M Mouse R Rat Rb Rabbit B Bovine P Porcine WR Most Common Vertebrates

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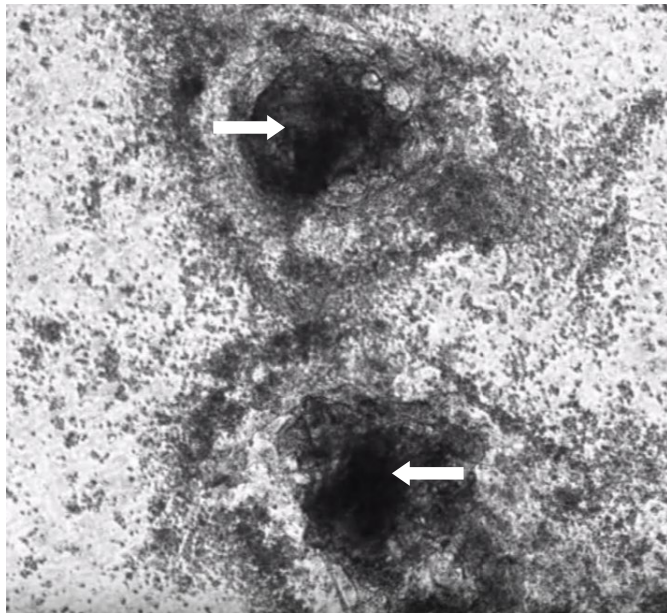


Figure 1. Differentiation of human embryonic stem cells into beating cardiomyocytes. Human ES cells differentiated into cardiomyocytes grown on ECMatrix™-221 E8 Laminin Substrates (arrows indicate beating cardiomyocytes).

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