ECMatrix™-221 E8 Laminin Substrate

Stem Cell Reagent

Cat. # CC163-1050UG

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

Pack size: 1050 µg

Store at 2-8°C

Data Sheet

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 α7X2β1 which is located on the cell surface of pluripotent stem cells and is known to induce cardiac and skeletal muscle differentaition. 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 α7X2β1 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) 6 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/cm^2 (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 temperate 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.

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

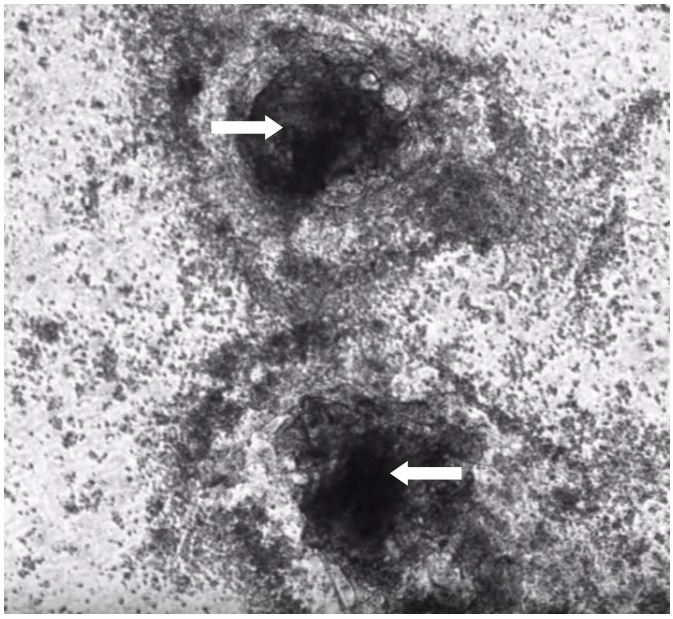

Figure 1. Differentiation of human embryonic stem cells into beating cardiomyocytes. Human ES cells differentiated into cardiomyocytes grown on ECMatrix™-221 E8 Laminin Substrates (arrows indicate beating cardiomyocytes).