



HumaTein™



<https://onsbio.com/bioprinting>

What is HumaTein™?

HumaTein™ is a primary human cell-derived whole extracellular matrix(ECM). It is an ideal coating material, comprised of more than 300 proteins and associated cytokines.

How is HumaTein™ made?

HumaTein™ is isolated from human cell grown in specific native stiffness matching micro-environment grown in human cells without harsh chemical processing. HumaTein™ composition is optimized for a target cell type growth and proliferation in native-like environment.

Growth Factor Types

GF type	Average GF Concentration
EGF	0.014ng
bFGF	0.164ng
NGF	0.188ng
PDGFA	2.291pg
PDGFB	3.595pg
PDGFC	0.622pg
PDGFD	1.844pg
IGF-1	4.431ng
TGF-β	0.166ng
VEGFA	0.167ng
VEGFB	0.114ng
VEGFC	0.249ng
VEGFD	0.602ng



HumaTein™ Lines

HumaTein™ **Essential Matrix**
(10mg/ml)
50mg | 100mg | 100mg*5

HumaTein™ **MSC**
(10mg/ml)
30mg | 60mg

HumaTein™ **Dermal Papilla**
(10mg/ml)
50mg | 100mg

HumaTein™ Premium Lines (Vascular, Cancer Cell, Cornea, and etc.)
Extract your own ECM from your cells. [Contact Us]

HumaTein™ Lines	Catalog #
HumaTein™ Essential Matrix 50mg / 5ml	HT-MD-001-A
HumaTein™ Essential Matrix 100mg / 10ml	HT-MD-001-B
HumaTein™ Essential Matrix 100mg*5 / 10ml*5	HT-MD-001-C
HumaTein™ MSC Matrix 30mg / 3ml	HT-MD-12
HumaTein™ MSC Matrix 60mg / 6ml	HT-MD-13
HumaTein™ Premium Matrix 30mg / 3ml	N/A

*HumaTein™ Lines are provided in i)Powder ii)Mixture(mixed with media) iii)Hydrogel

Applications

HumaTein™ is a next-generation cell culture material for diverse research applications.

Cancer Research

Drug Discovery

Stem Cell Research

Tissue Engineering & Regenerative Medicine

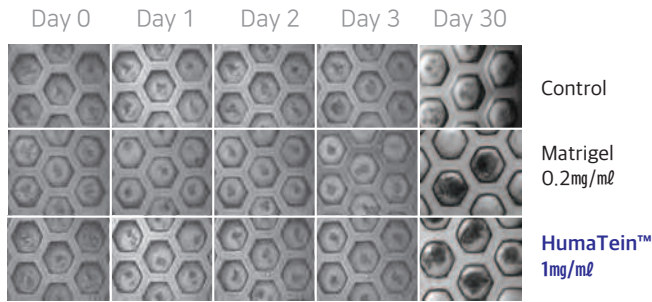
Skin Research

Wound Healing

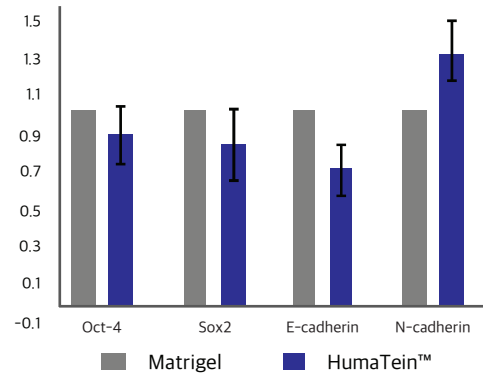
Organoid

iPSC Culture

Characteristic gene expression of iPSC cell culture on HumaTein™-coated surface without feeder layer



PCR result suggests Oct-4 and Sox-2 expressions are equivalent to those of the control

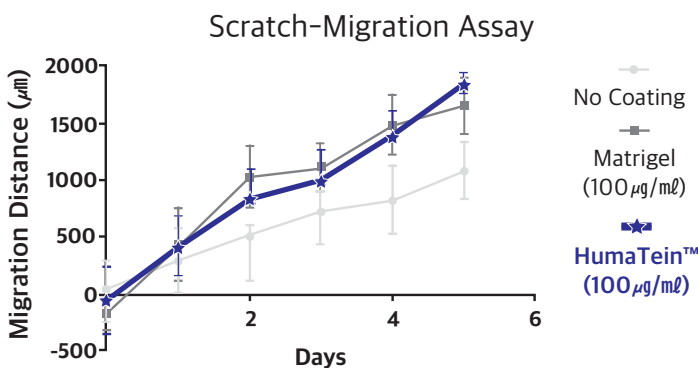
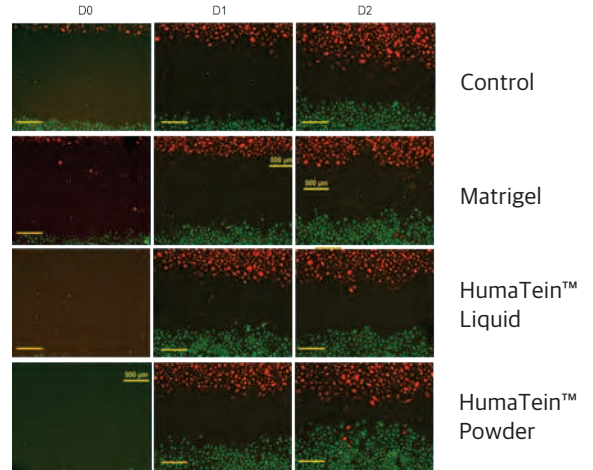
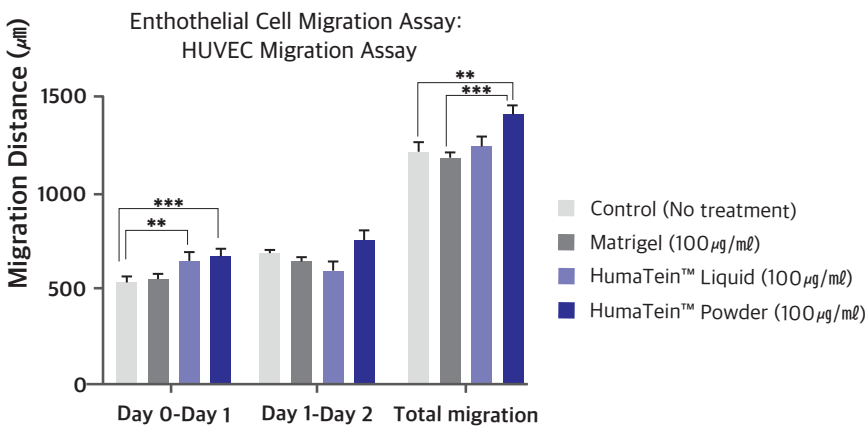


*Test in various concentrations of HumaTein™ is needed to find out optimal concentration range

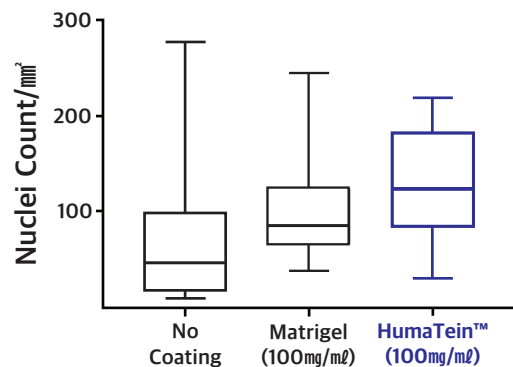
Cell Migration & Proliferation Assay

Effect of ECM material on vascular endothelial cell (HUVEC) migration

- * HumaTein™ vs. Matrigel coating
- * HUVEC showed faster migration on HumaTein™ coating
- * Shows potential of HumaTein™ for blood contacting material coating: re-endothelialization

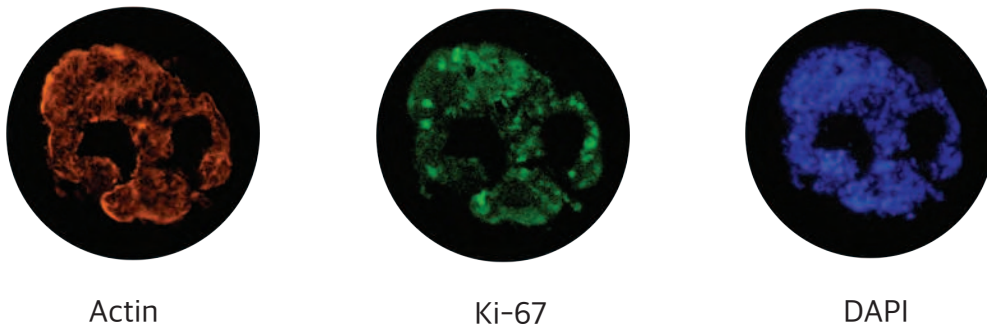


- *Coating (HumaTein™ vs. Matrigel) over 5mm width line scratch (wound) on a confluent dermal fibroblast to investigate the effect of ECM on wound healing
- *HumaTein™ coating promoted further migration than Matrigel.



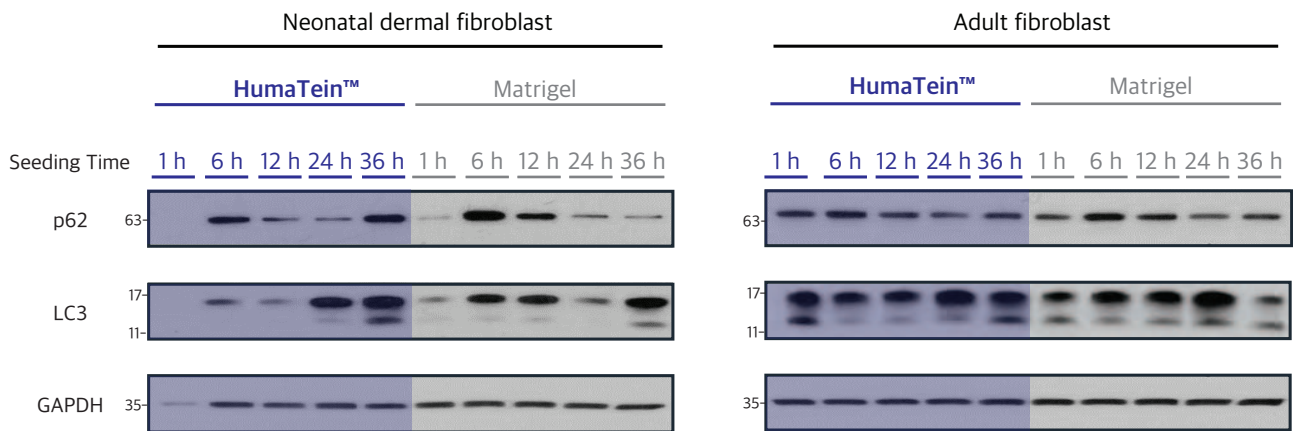
- *Coating (HumaTein™ vs. Matrigel) over dermal proliferation
- *High Ki-67 expression in cells grown on HumaTein™ coating.

Colon organoid using HumaTein™ (0.2%)



- * Matrigel free colon organoid with HumaTein™ Matrix (1 mg/ml)
- * Similar size and structure to 0.2 mg/ml Matrigel colon organoid

Autophagy in Fibroblasts



p62 is known as a autophagy adaptor protein. Once autophagy is induced, p62 expression level is upregulated. Lc3 is a protein associated to phagopore formation and when type 2 (Lower band) level is increased, autophagy is induced. When primary dermal fibroblast (adult or neonatal) is cultured on HumaTein™ coating and matrigel coating, the rate of authphagy induction was higher on cells grown on HumaTein™ coating. Furthermore, p62 expression was increased at 6 hr and 36 hr, allowing autophagy induction turning on and off function when dermal fibroblasts were cultured on HumaTein™ coating (100 $\mu\text{g}/\text{ml}$). However, when dermal fibroblasts were cultured on Matrigel (100 $\mu\text{g}/\text{ml}$), p62 expression level showed gradual decrease, suggesting the autophagy activation control function of the cell was interfered.



Native whole ECM



Regeneration



Custom ECM



in vivo-like environment



Organ-specific



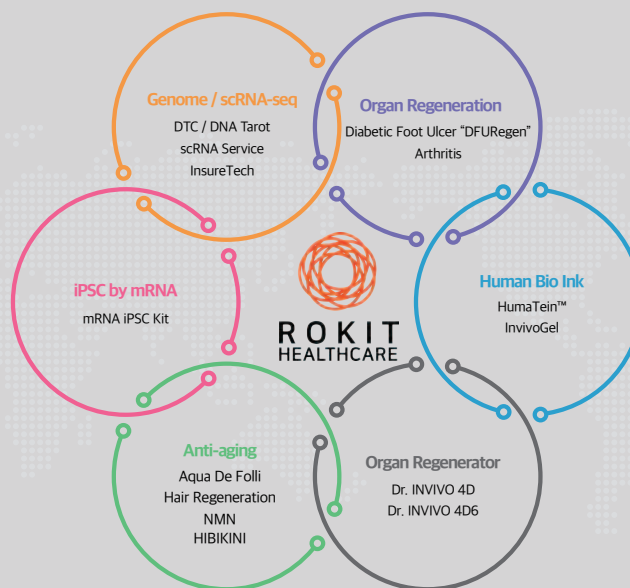
Stiffness-controlled

General Coating Protocol



PREPARATION : 1) Syringe 2) Needle(21-23G) 3) Media 4) 15 ml or 50 ml tube

You can use your media choice to dilute HumaTein™ for your cell type. In case of powder form, use sterile syringe & needle (around 21-23G) to deliver media to the glass bottle and gently vortex the bottle if necessary to make stock solution.



ROKIT Healthcare is committed to bringing the best healthcare solutions that come from a diversity of talent and convergence of fields. We provide the safest and most effective organ regeneration platform services. We, as a pioneer, are utilizing all advanced bio technologies such as organ regeneration, single-cell RNA sequencing, tissue engineering, bio-inks and cell sheet, 4D biofabrication, mRNA IPS technology and bio-platform technology.

For price quote and ordering contact US distributor ONS BIO LLC
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