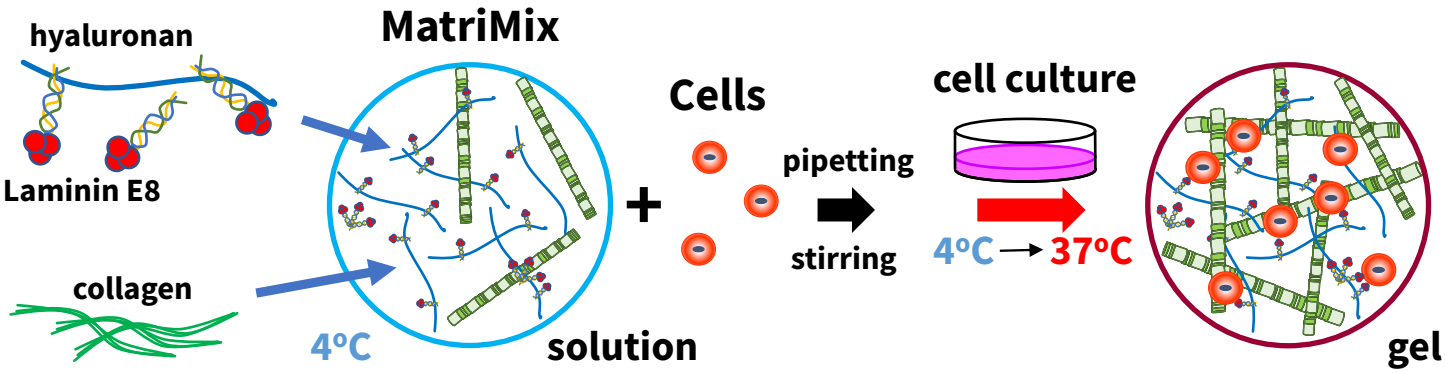
# MatriMix 3D Cell Culture Substrate

MatriMix is a new 3D culture substrate consisting of collagen, laminin E8 fragments (LME8), and hyaluronan. The type, combinations, and concentrations of each component can be customized to provide a micro-environment that is suitable for various types of cells. MatriMix is composed of 3 solutions (A: DMEM/LM E8 and hyaluronan, B: sodium bicarbonate, C: collagen), which are mixed just before incubation. The mixture is a solution when cold and becomes a gel when incubated at 37°C. MatriMix can be used not only for "in gel" and "on gel" cell culture, but also cell transplantation into mice.

New 3D Culture Substrate MatriMix

From nippi




## Laminin E8 fragment

The laminin C-terminal E8 fragment is a recombinantly express peptide comprising about 1/5 of the full length laminin. Laminin-511 E8 fragmenst have a strong interaction with integrin α6β1, which reduces cell motility.

| | MatriMix | EHS Tumour extract | Synthetic polymer-based gel |
|---|---|---|---|
| Component customization (collagen, laminins, other ECM components) | ++ | – | – |
| Adjustment of gel strength | ++ | – | – |
| Induction of organoid differentiation | + | + | – |
| Well-defined material composition | + | – | + |
| Growth factor (impurity free) | + | – Growth factor reduced type (+) | + |
| Gel transparency | + | + | – |
| Stromal induction in cancer cell organoids | + | – | – |

**The MatriMix series was developed especially for scientists not satisfied with their current 3D substrates.**

| Product name | Product Code | Pack Size | Pack Contents |
|---|---|---|---|
| **MatriMix (511)** | NP899-001 | 1 kit | Solution A: 3.6 mL cross-linked laminin 511 E8 in DMEM [1.85 ×]<br>Solution B: 1 mL sodium bicarbonate 2.5%<br>Solution C: 3.0 mL collagen 5.0 ng/mL |

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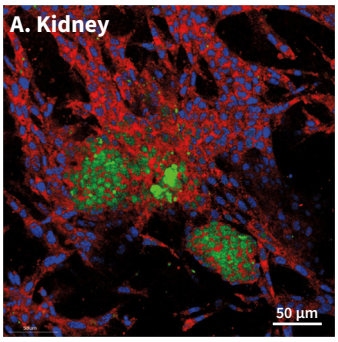
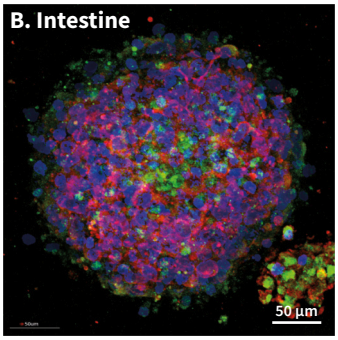
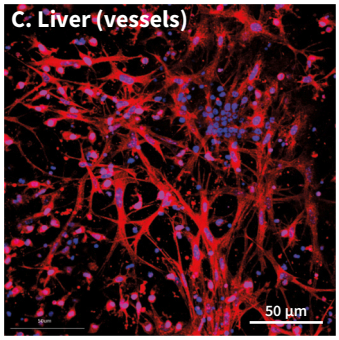
## Organoid formation (various tissues)



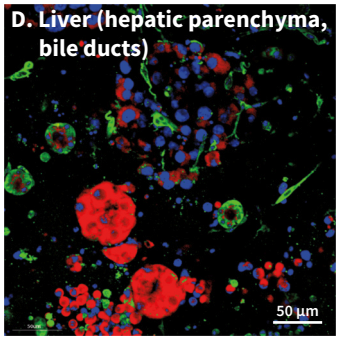

PECAM-1 / Podocalyxin / DAPI




Col IV / CDX2 / DAPI




PECAM-1 / DAPI

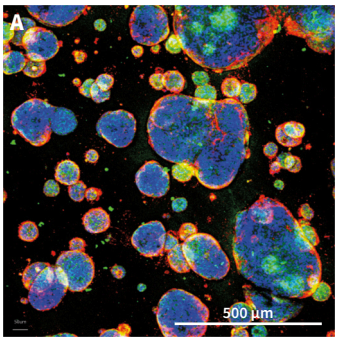



ALB / CK19 / DAPI

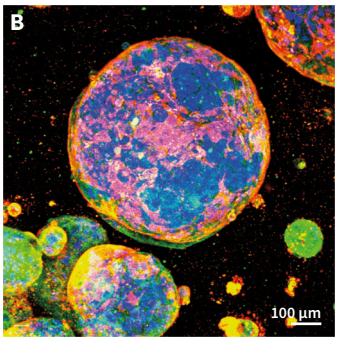
Cells derived from tissues during mouse development were cultured in 3D using MatriMix. Cell organization occurred by day 7 of culture.

**A:** Kidney — Green – Podocalyxin: glomerular epithelial cells; Red – PECAM-1: vessels
**B:** Intestine — Green – CDX2: mature intestinal cells; Red – Col IV: type IV collagen
**C:** Liver (vessel) — Red – PECAM-1: vessels
**D:** Liver (hepatic parenchyma, bile ducts) — Green – Podocalyxin: bile ducts; Red – PECAM-1: hepatic parenchyma

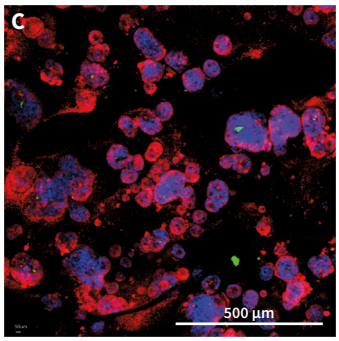
## Organoid formation (cells derived from colon cancer patient)



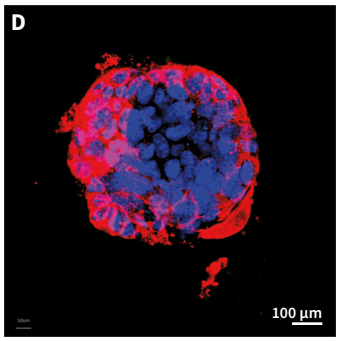

CEA / Vimentin / DAPI




CEA / Vimentin / DAPI




CEA / Vimentin / DAPI

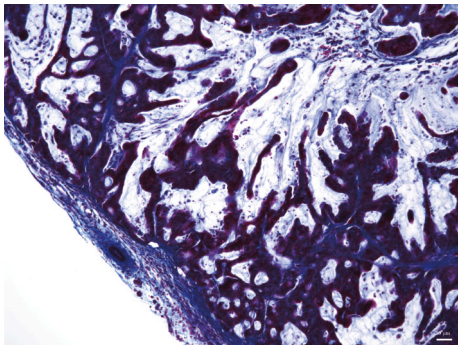



CEA / Vimentin / DAPI

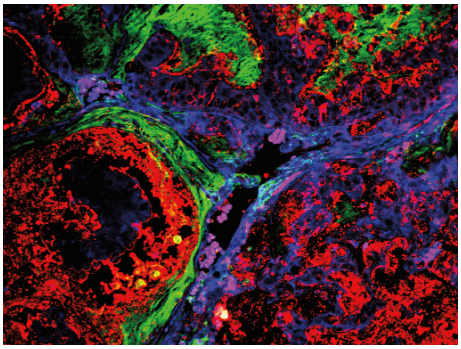
Cells derived from colon cancer patients were cultured in 3D on each substrate for 8 days. Organoids formed in MatriMix were positive for both Vimentin and CEA (Figure A,B). Organoids formed in EHS tumor extract culture were negative for Vimentin (Figure C,D).

## Transplantation model in mice (cells derived from colon cancer patient)

**PDSX model mouse**



**Masson trichrome stain**



Col I / CEA / Col IV

The PDSX (Patient-derived spheroid xenograft) model was created by transplanting spheroids of cells derived from colon cancer patient into immunodeficient mice (Figure A, red arrow: formed tumor). Tissue analysis revealed a large number of colon cancer marker (CEA)-positive cell populations in the tumors and vascular invasion had occurred (Figure B,C).

For more information and for other applications contact **info-us@reprocell.com**