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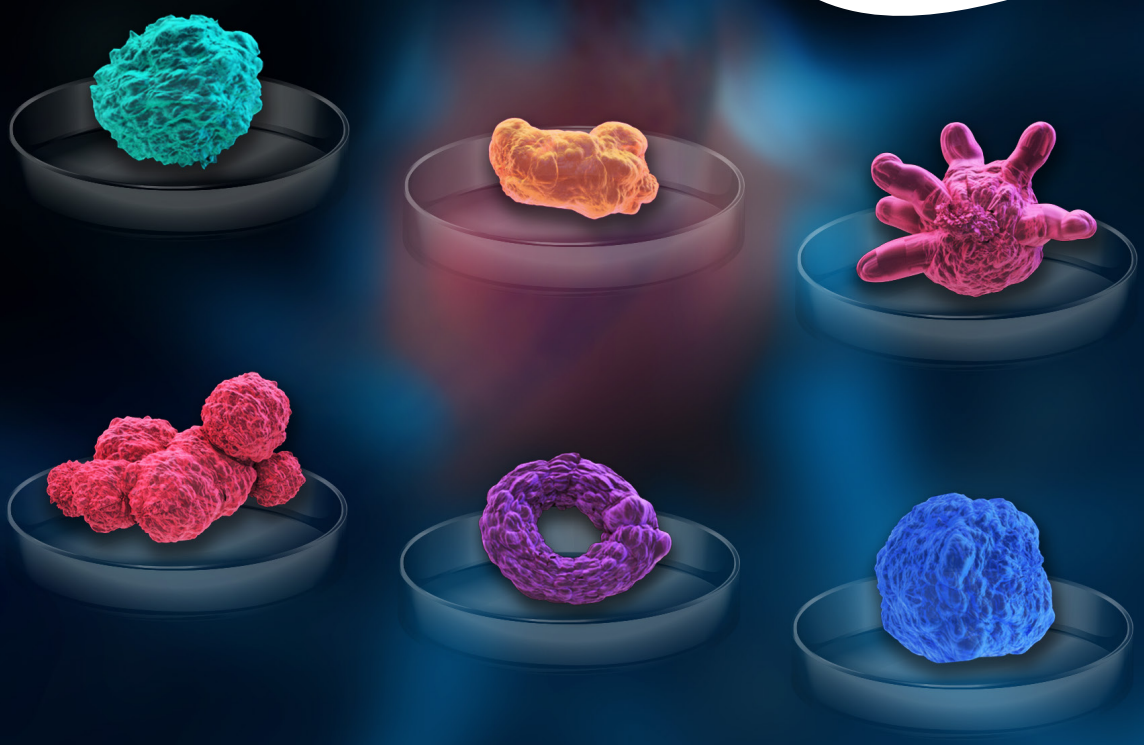


Organoid Culture

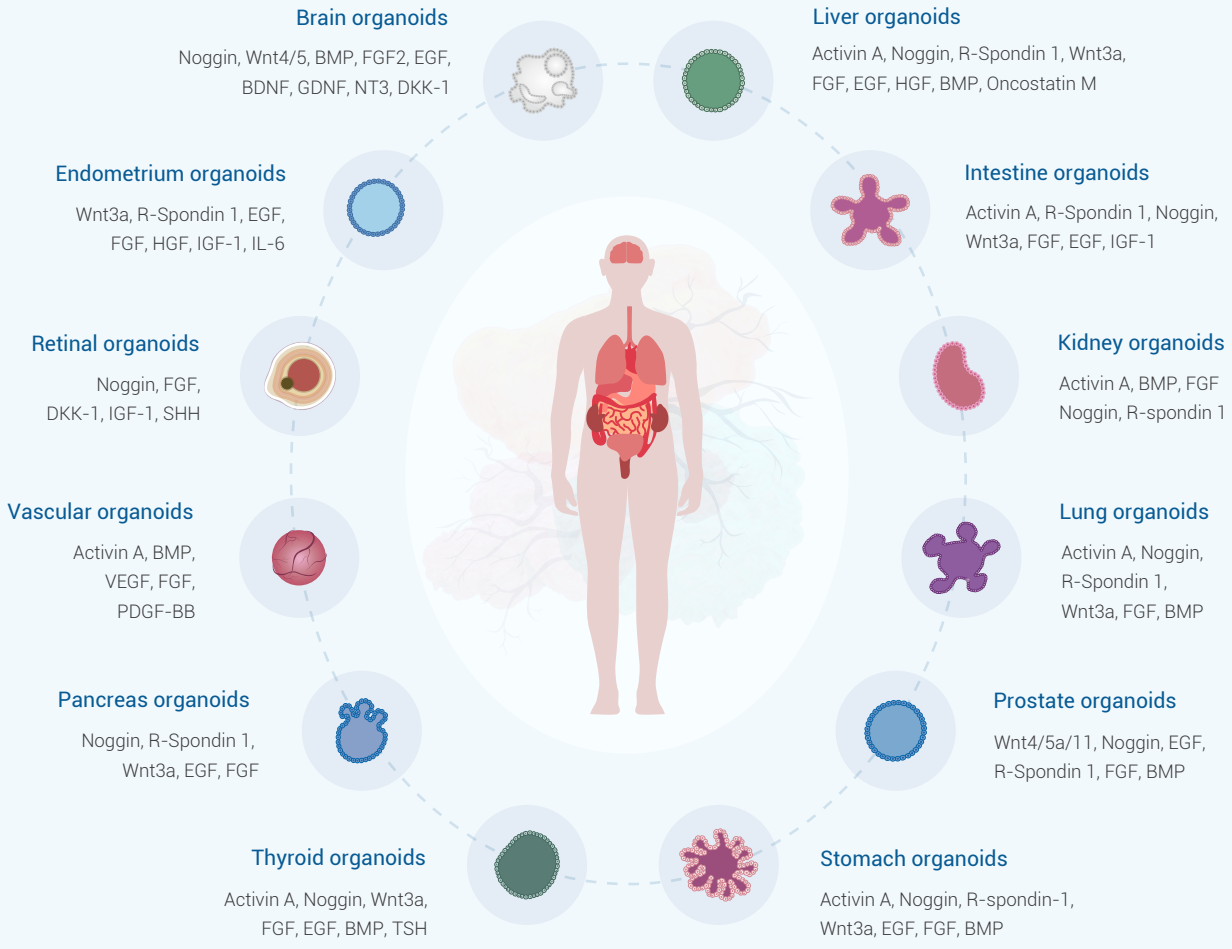
An organoid is an in vitro 3D multicellular tissue construct that mimics the complex structure and functionality of the corresponding organ.

Organoids recapitulate multiple tissue-specific biological parameters including the spatial organization of heterogeneous tissue-specific cells, cell-cell interactions, cell-matrix interactions, and certain physiological functions. They are more physiologically relevant than monolayer culture models and are far more amenable to manipulation of niche components, signalling pathways and genome editing than in vivo models.

- High Purity - Superior Biological Activity - Excellent Lot-to-Lot Consistency
- GMP-Grade Proteins - Low Endotoxin Levels

306, Agarwal City Mall, opposite M2K Pitampura,
Delhi-110034 (India)

Proteins for Organoid Culture



Organoid Related Products

Inhibitors/Agonists

Product Name	Cat. No	Function
Gastrin	HY-P1097	A hormone with mitogenic effect on gastric cells. Used in stomach organoids culture.
CHIR-99021	HY-10182	A selective GSK3 inhibitor that can be used for the generation of organoid.
Y-27632	HY-10583	A ROCK inhibitor; Used to increase the proliferation and reduce apoptosis of progenitor cells.
A 83-01	HY-10432	An inhibitor of TGF-β type I receptor ALK5, the Activin/Nodal receptor ALK4 and ALK7.
SB-431542	HY-10431	A selective TGF-β type I Receptor inhibitor; The addition of SB431542 in the culture medium prevents spontaneous differentiation in mouse embryonic stem cells.

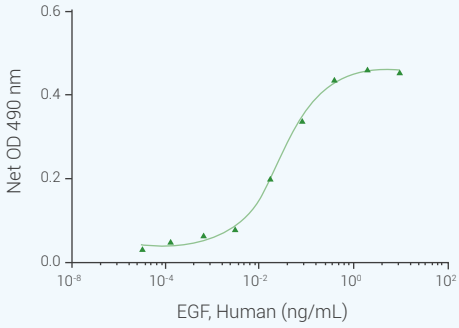
Recombinant Proteins

Proteins Category	Function	Product Name	Cat. No
EGF	A growth factor for epithelial tissues; binding to EGF receptors, induces hyperplasic changes. Used for the generation of Gastrointestinal tract, liver, thyroid, brain organoids.	Human EGF Mouse EGF	HY-P7109 HY-P70590
Activin A	A multifunctional cytokine with multiple roles in the development and homeostasis. In the case of intestinal organoids, it activates TGF-β signaling in PSCs to trigger endodermal differentiation.	Human/Mouse/ Rat Activin A	HY-P70311
Wnt	An essential niche component for maintaining the proliferation of Lgr5-positive stem cells in various organoids such as the intestine, stomach, pancreas and liver.	Human Wnt3a	HY-P70453
VEGF	VEGF-A is required during embryogenesis to regulate the proliferation, migration, and survival of endothelial cells. It is used in the generation of vascular organoids.	Human VEGF-A Mouse VEGF-A	HY-P7420 HY-P7312
HGF	A known hepatocyte mitogen that can be used for the liver organoid culture.	Human HGF	HY-P7121
DKK	A canonical WNT inhibitor that can induce retinal progenitors to self-organize.	Human DKK-1	HY-P7155A
PDGF	PDGF-BB induces vascular smooth muscle cells (VSMC) specification and cell differentiation in the vascular.	Mouse PDGF-BB	HY-P70699
R-spondin	The ligand of Lgr5 and a niche factor that is required for the self-renewal of stem cells and activates Wnt signaling. An essential additive of the organoid culture system.	Human R-spondin-1 Mouse R-spondin-1	HY-P7114 HY-P76012
FGF	FGFs play crucial roles in a wide variety of cellular functions, including cell proliferation, survival, metabolism, morphogenesis, and differentiation, as well as in tissue repair and regeneration. In a 3D extracellular matrix, FGF-2, FGF-7, FGF-9, and FGF-10 promote lung organoid formation.	Human FGF-4 Mouse FGF-4 Human FGF-7 Human FGF-9 Human FGF-10 Human FGF-19 Human FGF-basic/ FGF-2	HY-P7014 HY-P72649 HY-P7047A HY-P7177 HY-P70695 HY-P7172 HY-P7004
BMP	BMPs play crucial roles in embryogenesis and development, and also in maintenance of adult tissue homeostasis. BMP-2 and BMP-4 are widely used in vitro generation of hepatic cells from iPSC and ESCs.	Human BMP-4 Human BMP-7 Human/Mouse/ Rat BMP-2	HY-P7007 HY-P7008 HY-P7006
Noggin	An inhibitor of bone morphogenetic proteins that modulates cellular differentiation, proliferation, and apoptosis.	Human Noggin Mouse Noggin	HY-P7051A HY-P7086

Experiment validation — MCE EGF, Human

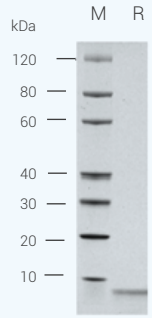
Superior Biological Activity

The ED_{50} is <0.2 ng/mL as measured by murine BALB/c 3T3 cells.



High Purity

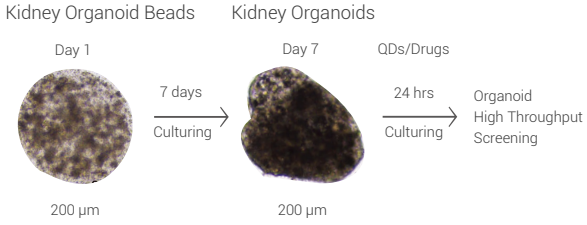
SDS-PAGE under reducing conditions.



Example — Generation of Reproducible Kidney Organoids.

Experimental Details

Mouse kidney cells are suspended in Matrigel liquid precursor and fabricated organoid beads by microfluid machine and 3D printer. Organoid beads are cultured supplement with Noggin (HY-P7086), R-spondin-1 (HY-P7114), FGF-4 (HY-P7014), FGF-basic (HY-P7066), SB-431542 (HY-10431), CHIR-99021 (HY-10182). The size, shape, and composition of the kidney organoids are highly reproducible.



MCE Products Cited in Small. 2020 Jun;16(22):e2001371.

References:

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[3] Small. 2020 Jun;16(22):e2001371.
[4] Nat Rev Mol Cell Biol. 2020 Oct;21(10):571-584.
[5] Front Med (Lausanne). 2021 Sep 23;8:746298.

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