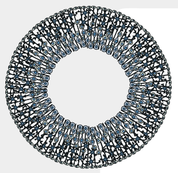
# pluripotent stem cell-derived organoids

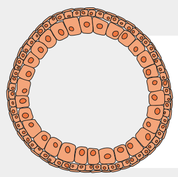
## media recipe quick reference guide

MBL
A JSR Life Sciences Company
https://ruo.mbl.co.jp/

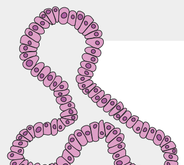


**cortical**
BDNF, FGF-8, GDNF, TGF-β1
Jacob *et al*. 2020

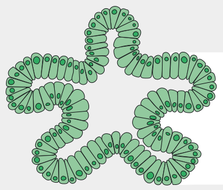
**retina**
IGF-1
Regent *et al*. 2020



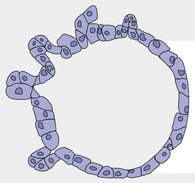
**lung**
activin A, FGF-4, FGF-10, noggin
Dye *et al*. 2015



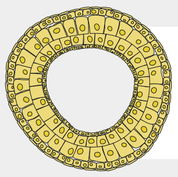
**mammary**
FGF-10, HGF
Qu *et al*. 2017



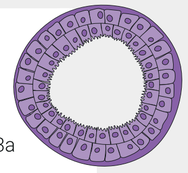
**stomach**
activin A, EGF, FGF-4, noggin, Wnt3a
McCracken *et al*. 2014



**pancreas**
activin A, BMP-4, FGF-4, noggin
Koike *et al*. 2021

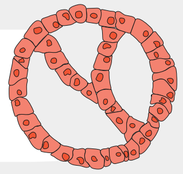


**skin**
FGF-2, BMP-4
Lee *et al*. 2020

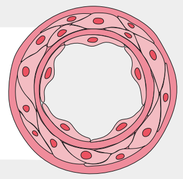


**esophagus**
activin A, BMP-4, EGF, FGF-2, FGF-10, KGF, noggin
Zhang *et al*. 2018

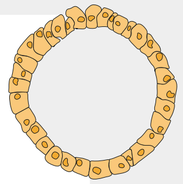
activin A, BMP-4, EGF, FGF-4, FGF-10, noggin, Wnt3a
Trisno *et al*. 2018



**heart**
FGF-2, TGF-β1
Drakhlis *et al*. 2021

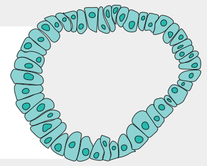


**blood vessel**
BMP-4, FGF-2, VEGF-A
Wimmer *et al*. 2019

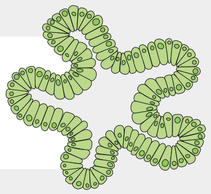


**liver**
activin A, OSM, (Wnt3a)
Sekine *et al*. 2020

activin A, BMP-4, BMP-7, EGF, FGF-2, FGF-19, HGF, KGF
Ramli *et al*. 2020



**kidney**
FGF-9
Takasato *et al*. 2015

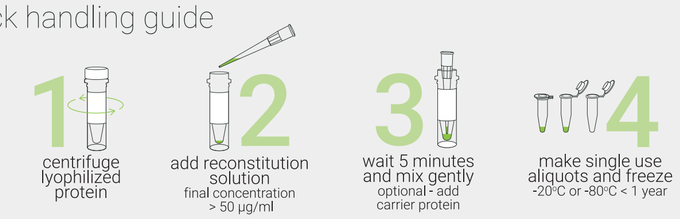


**intestine**
activin A, EGF, FGF-4, noggin, R-spondin 1, Wnt3a
McCracken *et al*. 2011

### three steps for choosing your growth factors

1. consider why you are using each growth factor: research alternative forms, optimize protein concentration and consider sources of experimental variability
2. look for evidence of protein quality and complete product data
   - ☐ quantitative bioactivity data with EC50
   - ☐ clear SDS-PAGE gel, with high protein loading and staining so you can see spurious bands
   - ☐ purity data such as mass spec to check protein identity, analytical reverse phase and endotoxin testing with limit <0.05 EU/µg (if relevant)
3. find a reliable supplier with good scientific support and rapid delivery (you don't want to run out mid-experiment!)

### quick handling guide




**reconstitution calculator**
for full reconstitution guidance see qkine.com/your-proteins

mass in vial (µg) ÷ desired concentration (µg/ml) × 1000 = volume to add (µl)

1mg = 1000µg  1µg = 1000ng

### how is Qkine improving growth factors for organoids

**animal-free**
Unmatched quality and reliability. All our proteins are made in a dedicated animal-free laboratory in Cambridge, UK.

**total-transparency**
Know what you're giving your cells. Stringent purity and bioactivity data for all proteins.

**protein innovation**
Solving stem cell culture challenges with optimised forms and animal-free firsts.

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