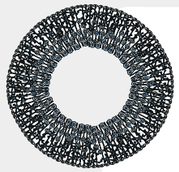
Pluripotent stem cell derived organoids

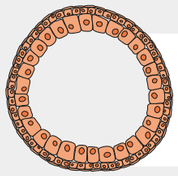
Media recipe quick reference guide

Qkine

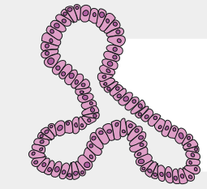


Cortical
BDNF, FGF-8, GDNF, TGF-β1
Jacob et al 2020

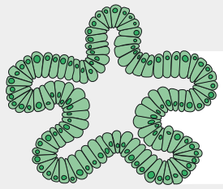
Retina
IGF-1
Regent et al 2020



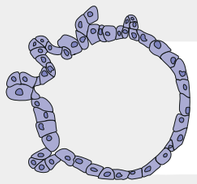
Lung
Activin A, FGF-4, FGF-10, Noggin
Dye et al 2015



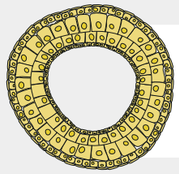
Mammary
FGF-10, HGF
Qu et al 2017



Stomach
Activin A, EGF, FGF-4, Noggin, Wnt3a
McCracken et al 2014



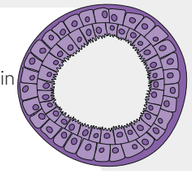
Pancreas
Activin A, BMP-4, FGF-4, Noggin
Koike et al 2021



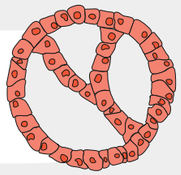
Skin
FGF-2, BMP-4
Lee et al 2020

Esophagus
Activin A, BMP-4, EGF, FGF-2, FGF-10, KGF, Noggin
Zhang al 2018

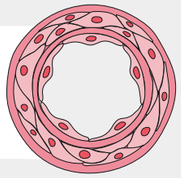
Activin A, BMP-4, EGF, FGF-4, FGF-10, Noggin, Wnt3a
Trisno al 2018



Heart
FGF-2, TGF-β1
Drakhlis et al 2021

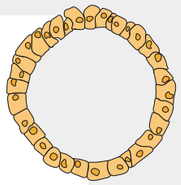


Blood vessels
BMP-4, FGF-2, VEGF-A
Wimmer et al 2019

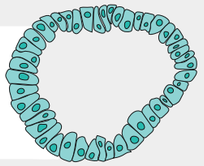


Liver
Activin A, OSM, (Wnt3a)
Sekine et al 2017

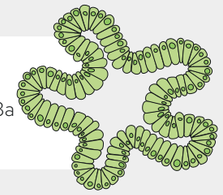
Activin A, BMP-4, BMP-7, EGF, FGF-2, FGF-7, FGF-19, HGF
Ramli et al 2020



Kidney
FGF-9
Takasato et al 2015



Intestine
Activin A, EGF, FGF-4, Noggin, R-spondin 1, Wnt3a
McCracken et al 2014

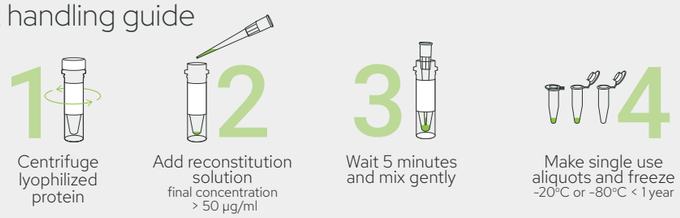


Three steps for choosing your growth factors

- Evidence of protein quality
  - Quantitative bioactivity data with EC50
  - Clear SDS-PAGE gel, high protein loading, good staining
  - Purity data such as mass spec, analytical reverse phase and endotoxin testing (with stringent limit <0.05. See our discussion on E.coli vs mammalian expressed growth factors)
- Good support and handling advice
- Reliable supplier, rapid delivery and complete product data

Find out more about protein quality control and growth factor selection qkine.com/choosing-growthfactors

Quick handling guide



Reconstitution calculator

Mass in vial (µg) ÷ Desired concentration (µg/ml) × 1000 = Volume to add (µl)

1mg = 1000µg 1µg = 1000ng

How Qkine is 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.

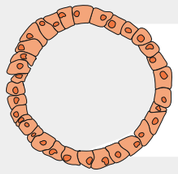
Total-transparency
Know what you're giving your cells. Stringent purity and bioactivity data for all proteins.

Protein innovation
Solving stem cell culture challenges with optimized forms and animal-free firsts.

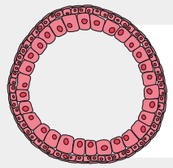
PIO-070223-v1.1

Adult stem cell derived organoids
Media recipe quick reference guide

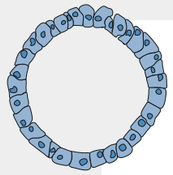
Qkine



Oral muscosa
EGF, FGF-2, FGF-10, Noggin, R-spondin 1
Driehuis et al 2019



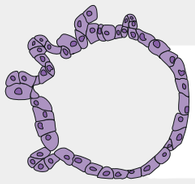
Lung
Activin A, FGF-4, FGF-10, Noggin
Dye et al 2015



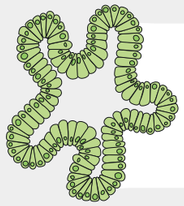
Liver
EGF, FGF-10, HGF, Noggin, R-spondin 1, Wnt3a
Huch et al 2015

Liver (hepatocyte)
EGF, FGF-7, FGF-10, HGF, TGF-a, R-spondin 1
Hu et al 2018

Extrahepatic biliary tree
R-spondin 1
Sampaziotis et al 2017



Pancreatic duct
EGF, FGF-10, Noggin, R-spondin 1, Wnt3a
Boj et al 2015

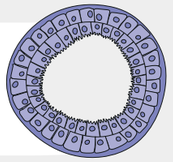


Intestine
EGF, Noggin, R-spondin 1, Wnt3a
Sato et al 2011

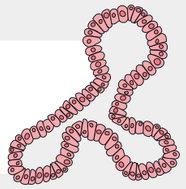
EGF, FGF-2, IGF-1, Noggin, R-spondin 1, Wnt3a
Fujii et al 2018

Uroepithelium
FGF-2, FGF-7, FGF-10
Mullenders et al 2018

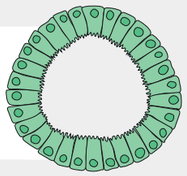
Oesophagus
EGF, FGF10, Noggin, R-spondin 1, Wnt3a
Jiang et al 2017



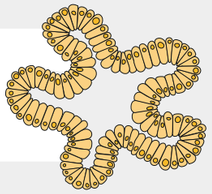
Mammary
EGF, FGF-7, FGF-10, NRG-1, Noggin, R-spondin 1
Sachs et al 2018



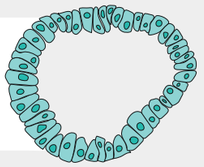
Gallbladder
EGF, FGF-10, HGF, Noggin, R-spondin 1
Lugli et al 2016



Stomach
EGF, FGF-10, Noggin, R-spondin 1, Wnt3a
Bartfeld et al 2015



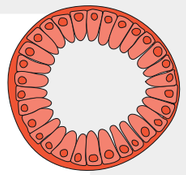
Kidney tubule
EGF, FGF-10, R-spondin 1
Schutgens et al 2019



Endometrium
EGF, FGF-10,HGF, Noggin, R-spondin 1
Turco et al 2017

Fallopian tube
EGF, FGF-10, Noggin, R-spondin 1, Wnt3a
Kessler et al 2015

Ovarian surface epithelium
Kooper et al 2019



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Quick handling guide

1. Centrifuge lyophilized protein
2. Add reconstitution solution
   final concentration > 50 µg/ml
3. Wait 5 minutes and mix gently
4. Make single use aliquots and freeze
   -20°C or -80°C < 1 year

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Protein innovation
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