Murine lung organoids

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SCOPE OF THE METHOD

The Method relates to	Human health
The Method is situated in	Basic Research
Type of method	In vitro - Ex vivo
This method makes use of	Animal derived cells / tissues / organs

DESCRIPTION

Method keywords

lung epithelial cells

lung disease

Scientific area keywords

Allergic disease

lung injury

Method description

Primary epithelial stem/progenitor cell populations are isolated from the murine lung using fluorescence-activated cell sorting (FACS) or magnetic-activated cell sorting (MACS). Purified epithelial stem/progenitor cells are grown together with mesenchymal cells in Matrigel, a material enriched for extracellular matrix proteins to support organoid growth and differentiation, in transwell plates.

Lab equipment

Biosaftey cabinet,
Flow cytometer,
Incubator,
Microscope.

Method status

Still in development
Published in peer reviewed journal

PROS, CONS & FUTURE POTENTIAL

Advantages

Over the past decade lung organoids have become an indispensable tool for basic and translational research. These organoids can recapitulate lung structure and function *ex vivo* while being amenable to experimental manipulation and are hence a new and exciting model system to investigate lung biology.

Challenges

Lung organoids do not yet recapitulate all of the complex structures and cellular interactions of the different regions of the lung, especially the highly vascularized and delicate alveolar region.

Future & Other applications

Lung organoids as *in vivo* replacement alternatives have not only the potential to address important questions in lung biology but also reduce the number of animals used. They can also contribute to the design of any subsequent animal procedures still considered necessary, so that any pain and suffering they may cause can be minimized.

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

References

Lung Organoids—The Ultimate Tool to Dissect Pulmonary Diseases?
https://doi.org/10.3389/fcell.2022.899368

Associated documents

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