



ESTS Biology Club Fellowship 2024

Centre: Otto-von-Guericke-university Magdeburg, Germany

Title:

In vitro long-term expansion of human primary bronchial epithelial cells for the generation of three-dimensional (3D) airway models

Supervisor:

Thorsten Walles, MD FETCS

<https://www.ctsnet.org/home/twalles>

Cornelia Wiese-Rischke, PhD

https://www.researchgate.net/profile/Cornelia_Wiese-Rischke

Lab:

<https://www.researchgate.net/lab/Experimental-Thoracic-Surgery-Lab-Thorsten-Walles>

Outline:

The use of human primary airway epithelial cells in biomedical research and tissue engineering is challenging due to their *limited proliferative lifespan in culture*. Recently, conditional reprogramming was introduced as a new culture method to overcome this hurdle: Primary epithelial cells are co-cultured on mitotically inactivated mouse fibroblasts in the presence of the ROCK inhibitor, Y-27632, which resulted in unlimited cell proliferation. However, cell culture protocols applying xenogenic cultivation additives in human tissue cultures impair physiologic tissue differentiation and function. In an independent research project we will therefore investigate new conditional media generated from fibroblast cell lines of differentiated human tissues (neonatal foreskin, fetal lung).

Contact:

Prof. Dr. med. Thorsten Walles
Chefarzt Abteilung Thoraxchirurgie

University Clinic for Cardio and Thoracic Surgery

Otto-von-Guericke-university Magdeburg
Medical faculty
Leipziger Str. 44
39120 Magdeburg

Phone +49-391-67-21905

Fax +49-391-67-21906

thorsten.walles@med.ovgu.de

<http://www.med.uni-magdeburg.de>