

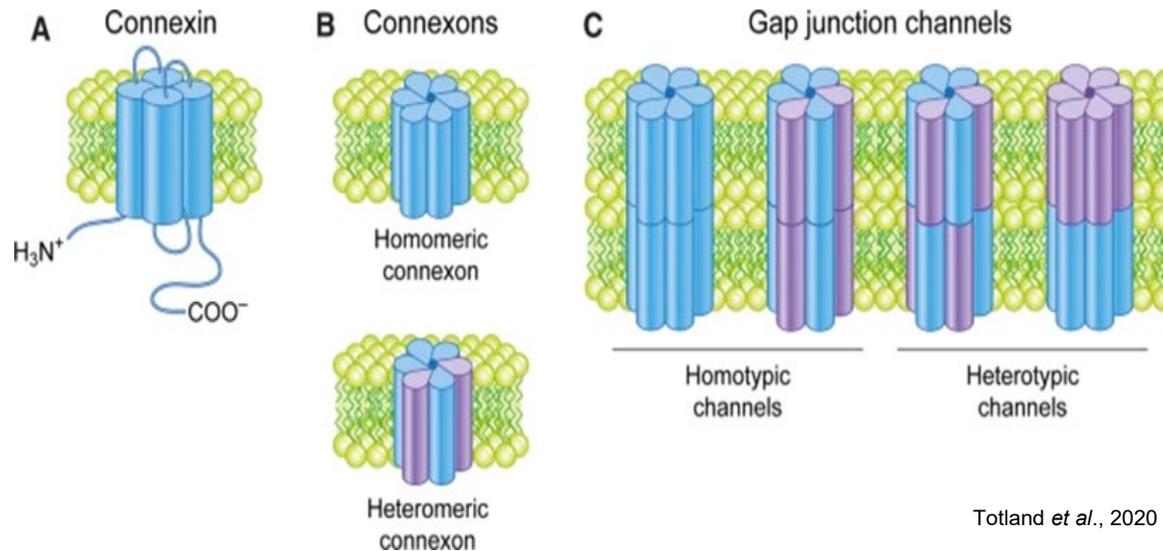
Abschlussarbeiten

Abteilung Zellphysiologie und Biophysik

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Prof. Dr. Anaclet Ngezahayo (ngezahayo@cell.uni-hannover.de)

Connexin channels in cellular development and pathology

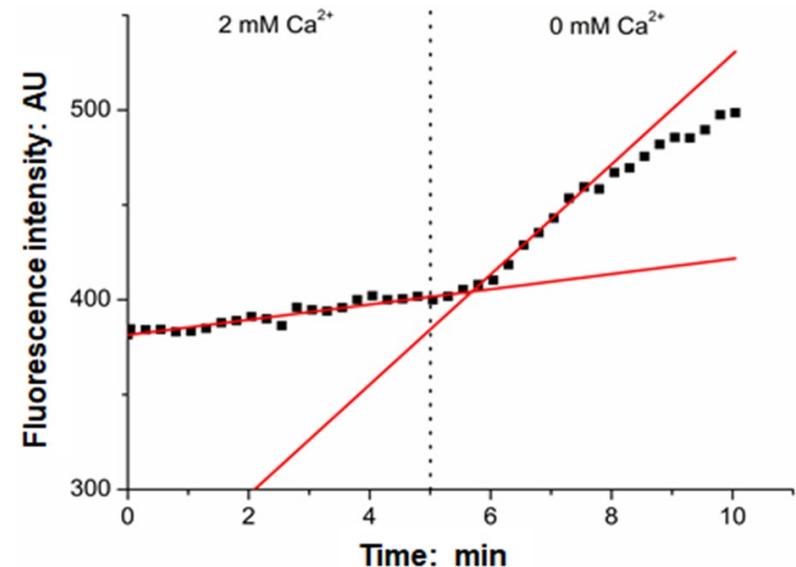


investigation of connexin (Cx) channels using functional and physiological experiments combined with biochemical and molecular biological as well as imaging methods

Connexin hemichannels in response to inflammatory stress

Endothelial and epithelial cells respond to inflammatory stress by increasing the activity of Cx hemichannels

- dye uptake assay to analyse hemichannel activity
- real time quantitative PCR to screen the expressed and responding Cx isoforms
- knock-down of Cx isoforms with specific siRNAs
- imaging of the Cx hemichannels in the cell membrane using expansion microscopy

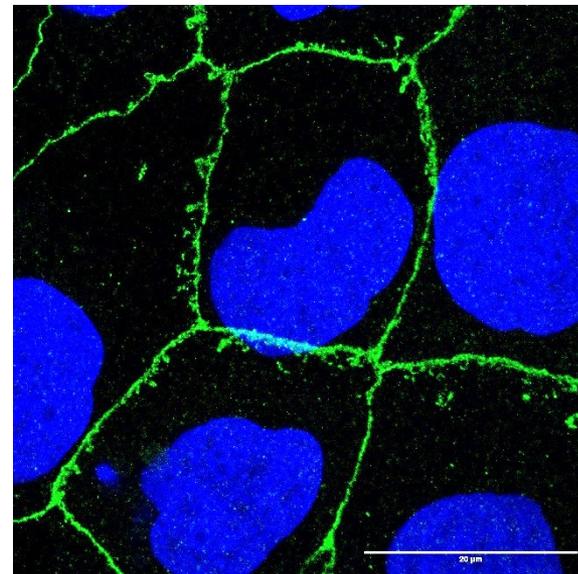
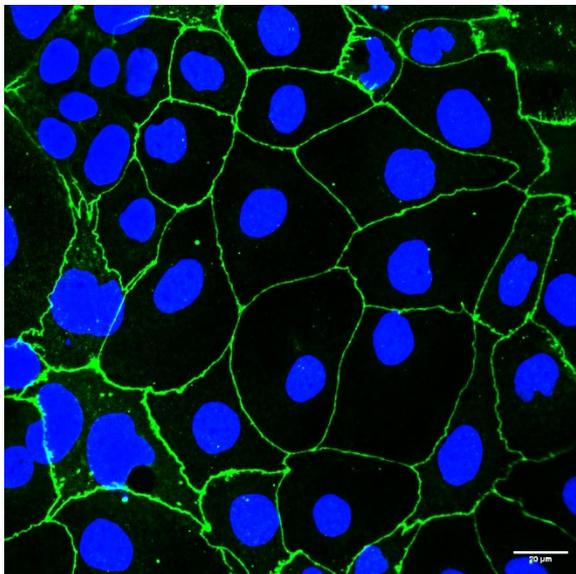
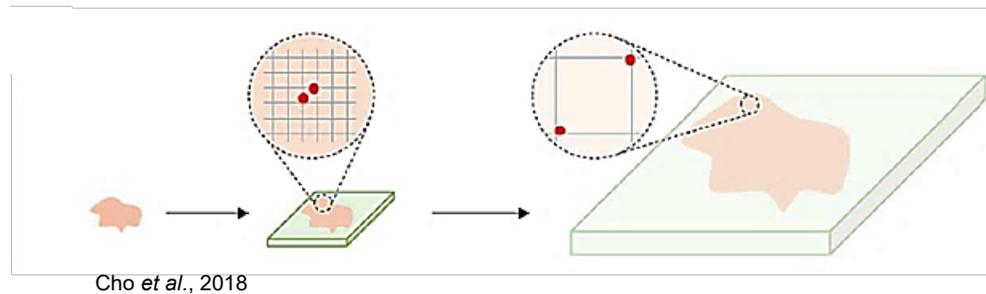


dye uptake as functional assay to evaluate the activity of Cx hemichannels.

Dierks et al., 2019

Expansion Microscopy (ExM)

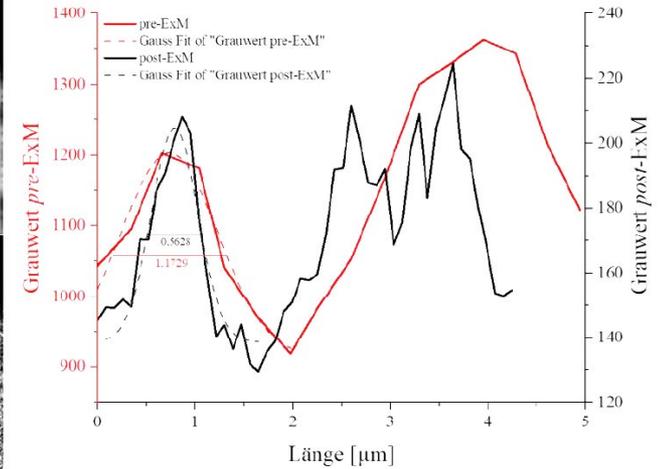
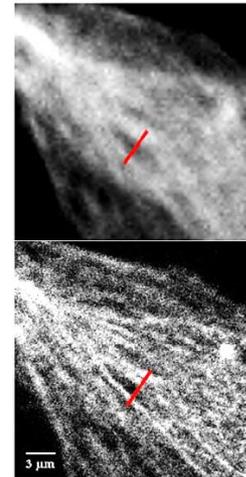
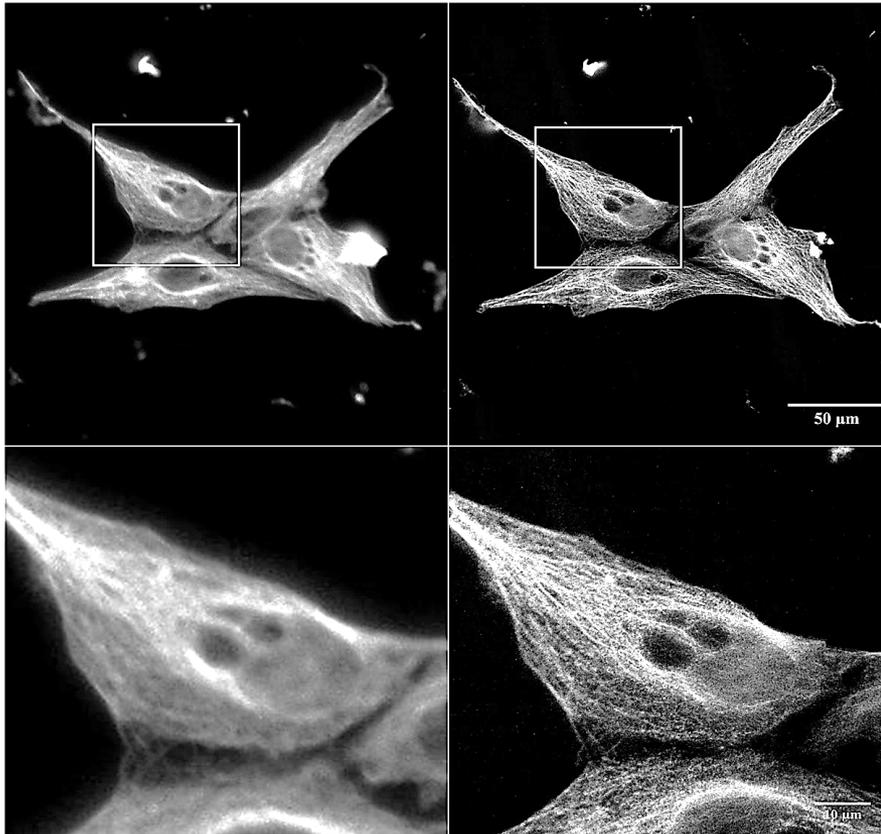
- super resolution without super resolution microscope



Expansion Microscopy (ExM)

Vor ExM (20x-Objektiv)

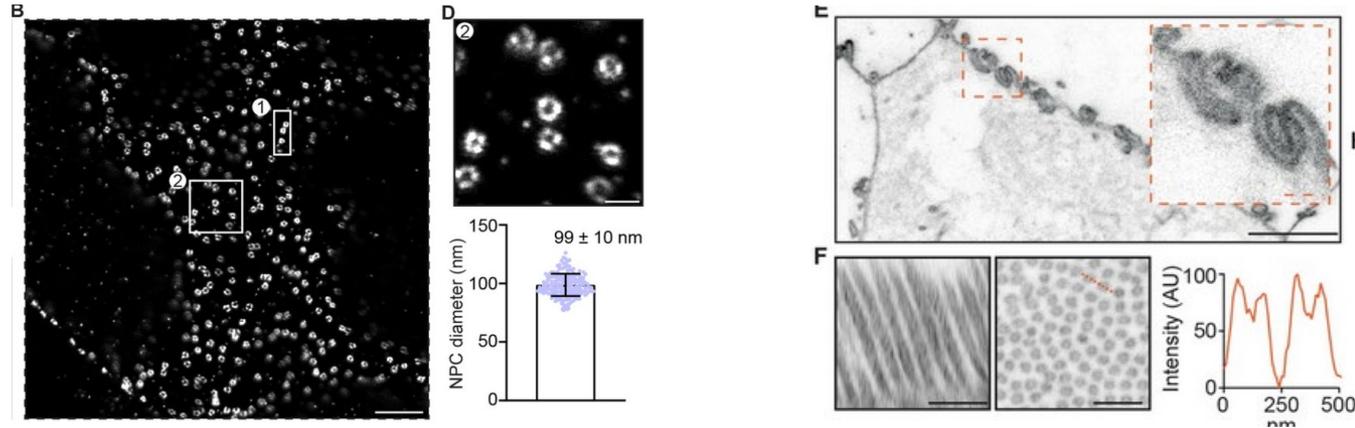
Nach ExM (EF: 3,8)



Masterarbeit Lehrich, 2021

Establishment of Ten-fold Robust Expansion Microscopy (TREx)

- TREx (Damstra *et al.*, 2022): improved gel recipe
→ higher expansion factors with even better resolution



- establishment of TREx and comparison to standard 4x-ExM
- application for Cx isoforms

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