



Entwicklung von Materialien zur Prävention und Behandlung von Wunden

Prof. Dr. René Rossi



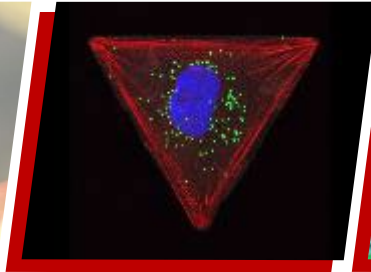
Forschungsschwerpunkt Gesundheit



Nanostrukturierte
Materialien



Tragbare Sensoren



Materialien für die
Präzisionsmedizin



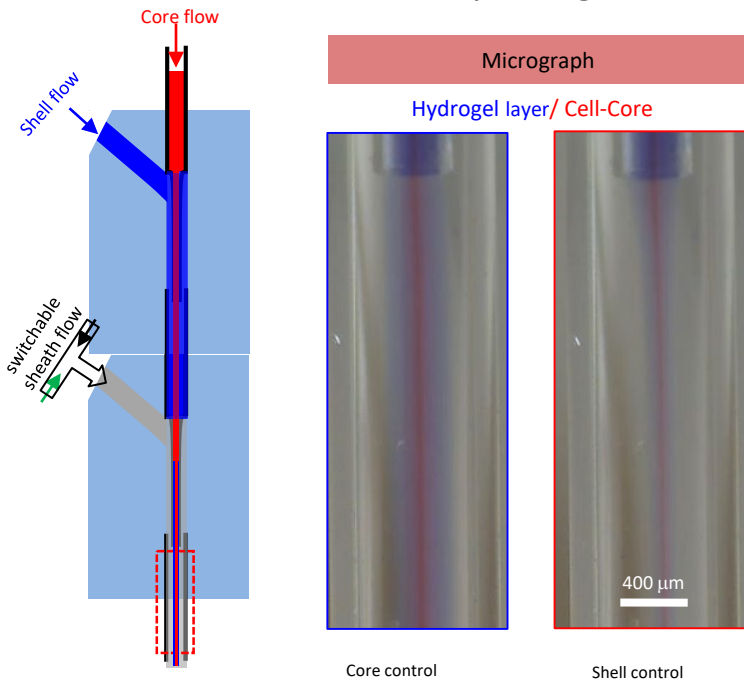
Implantate und
Biointerfaces



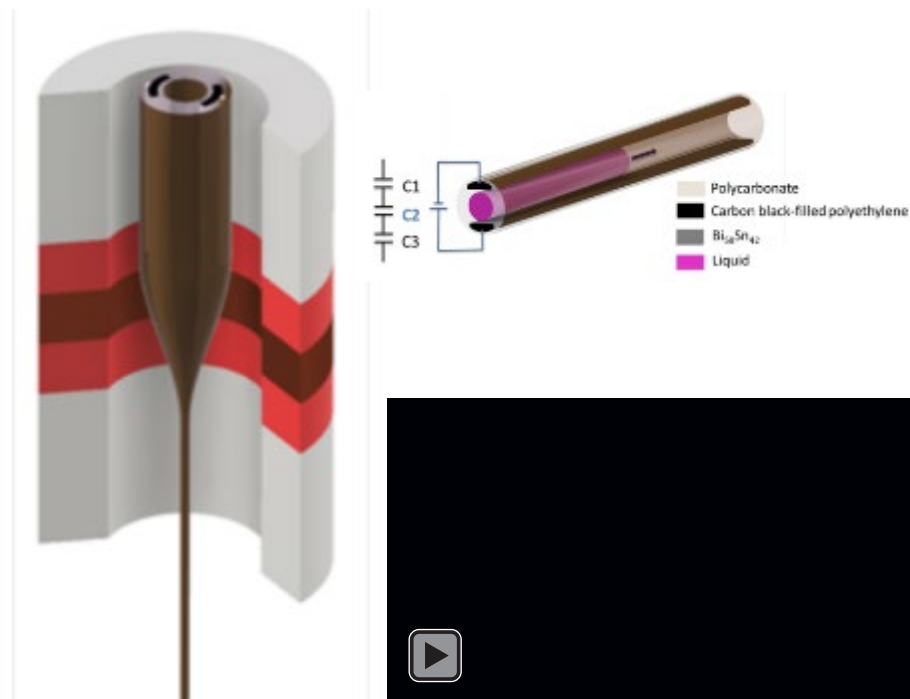
Biomedizinische
Bildgebungs-
technologien

Intelligente Fasern

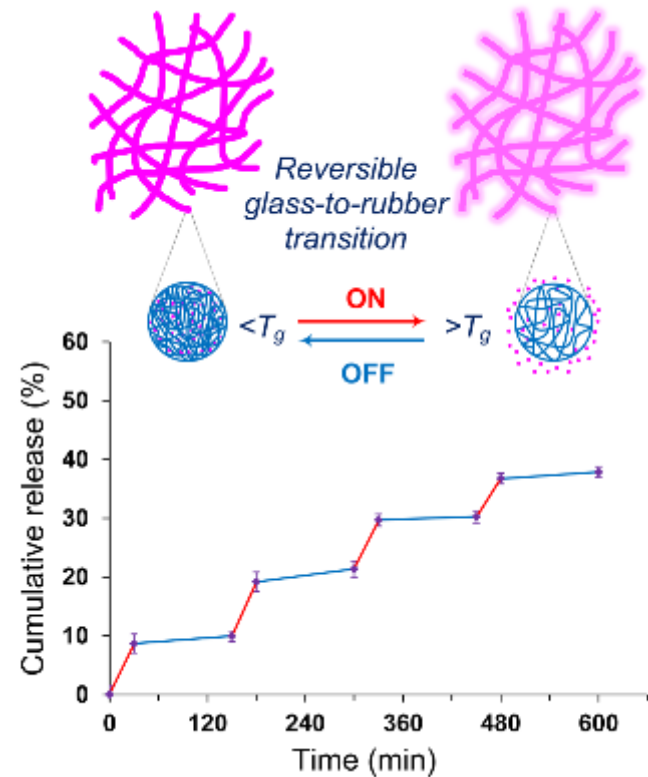
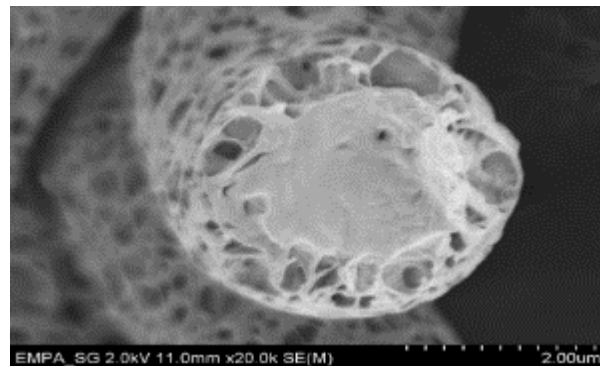
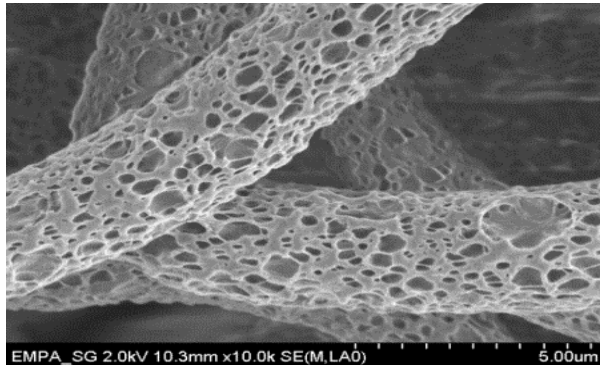
Microfluidic wet spinning



Thermal drawing



Intelligente Fasern - Medikamentenabgabe

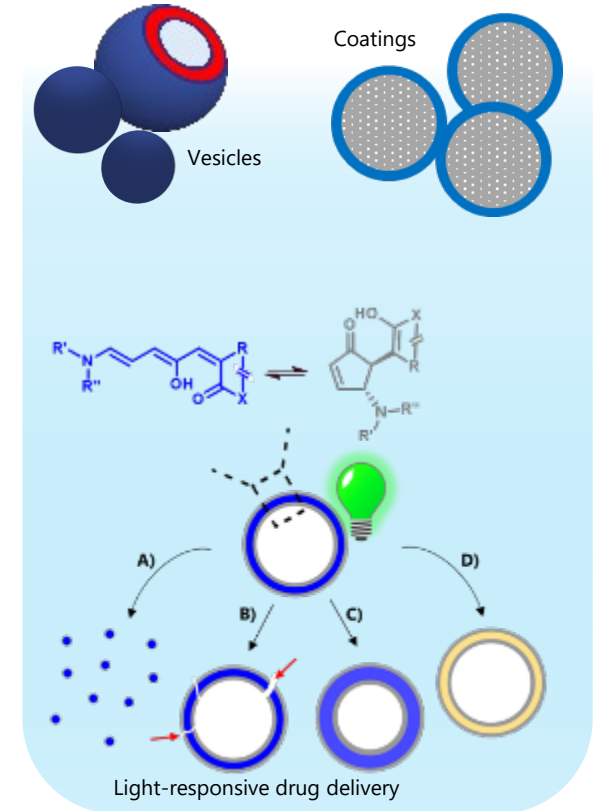
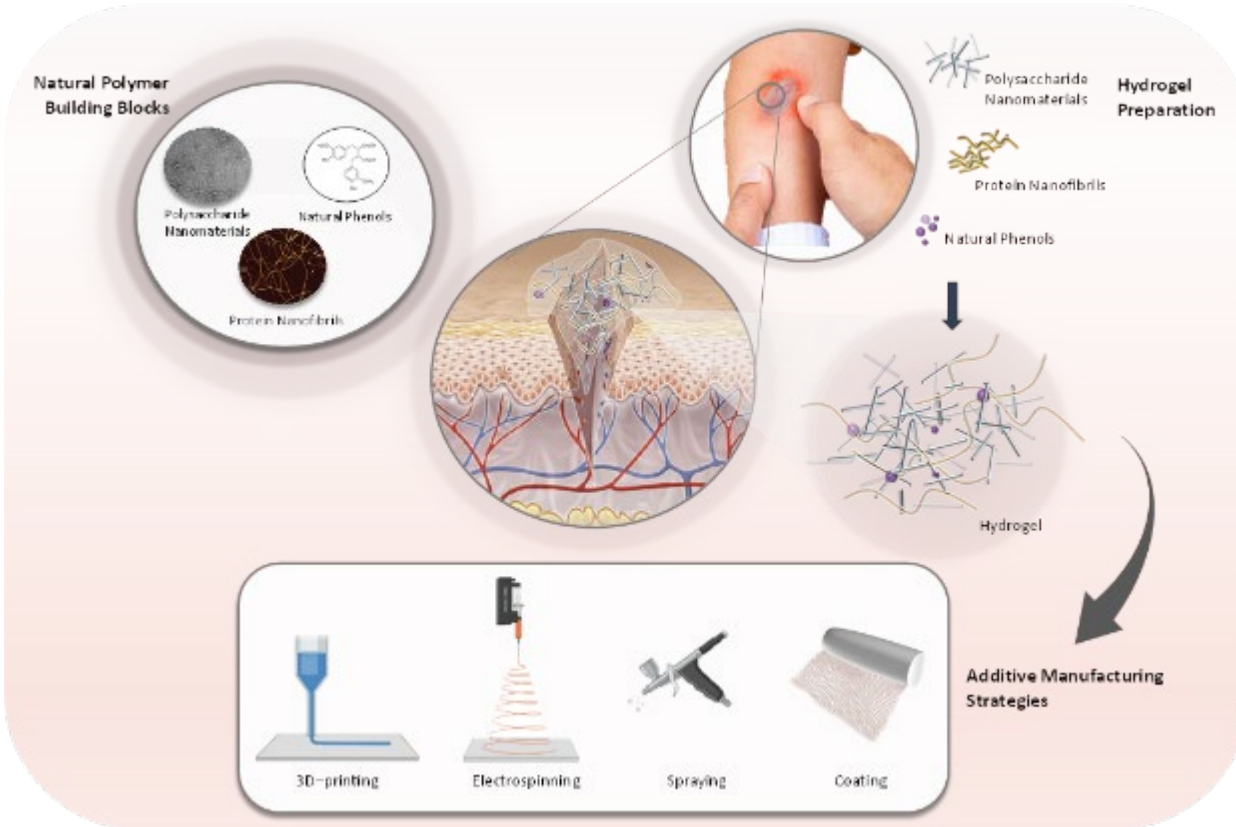


Schoeller, Rossi, et al. *Polymer Reviews* (2021): 1-49.

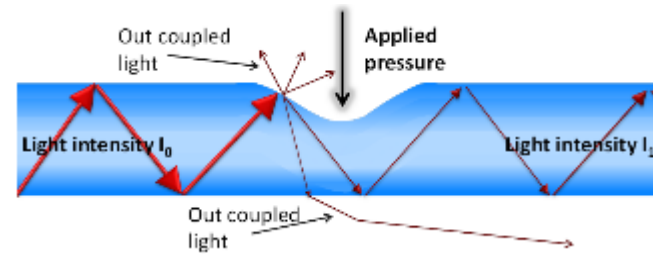
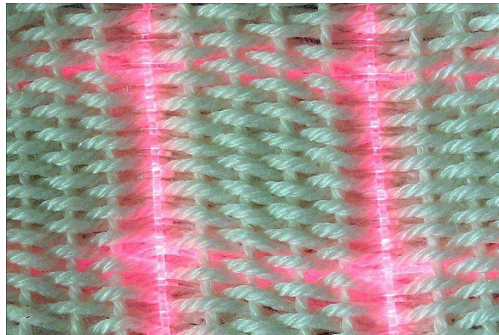
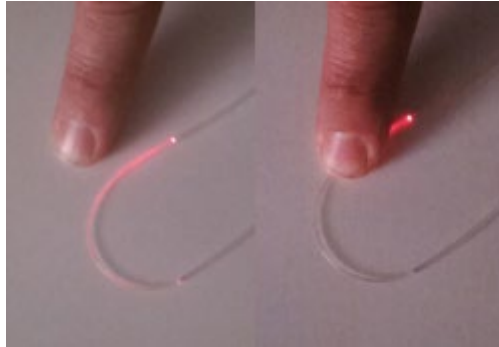
Ulrich, et al., *Sensors & Actuators: B. Chemical* 322 (2020) 128570

Amarjagal, Rossi, et al., 2019, *J. Drug Del Sci Technol.*, 52, 8-14

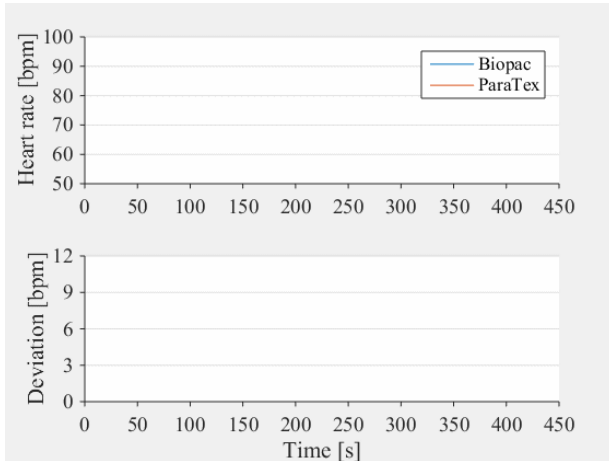
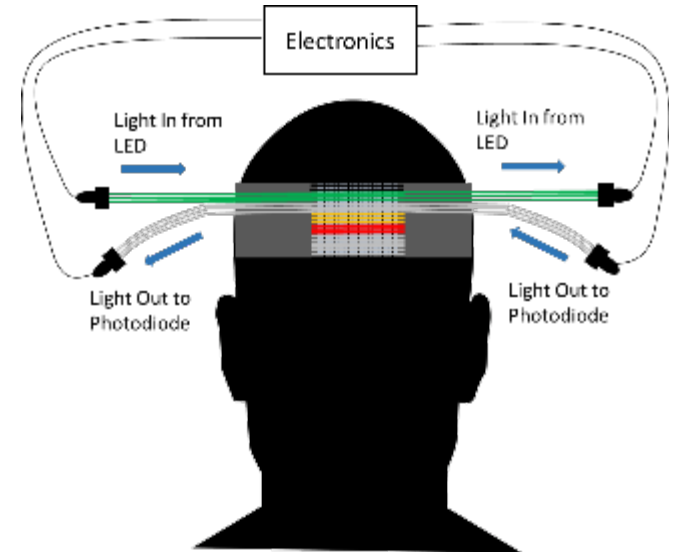
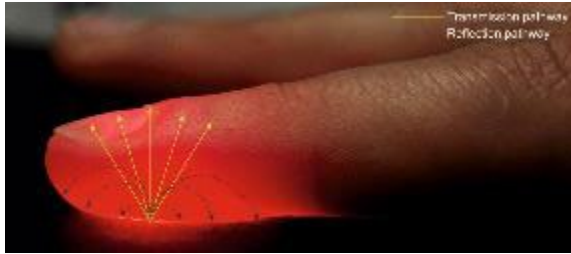
Materialien für Wundverbände / aktive Medikamentenabgabe



Drucksensoren

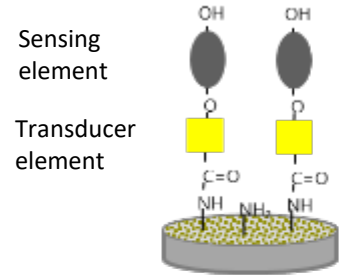


Messung der Sauerstoffsättigung



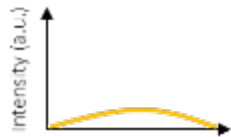
Quandt, Boesel, et al. *Journal of the Royal Society Interface* 14.128 (2017): 20170060.
Quandt, Rossi, et al. *Advanced healthcare materials* 4.3 (2015): 330-355.
Krehel Rossi, et al. *Biomed Optics Express*, 2014, 5, 2537-2547.

Biosensoren

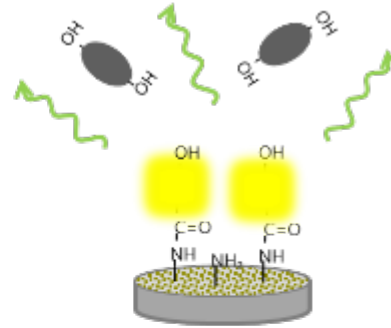
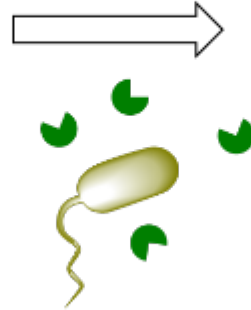


signal OFF

LOW FLUORESCENCE

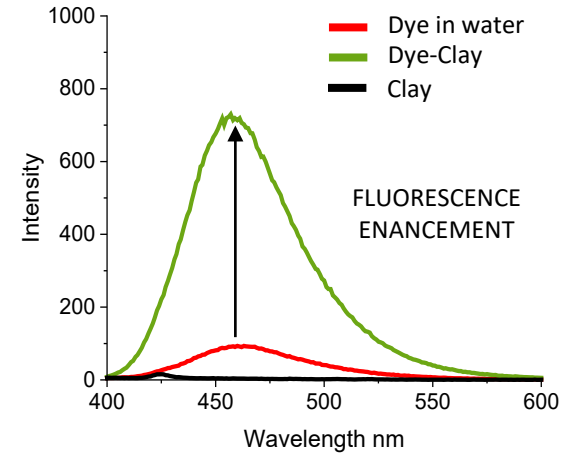
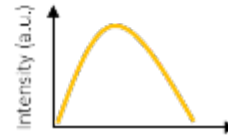


bacteria producing
Glucosidase
→ Enzymatic cleavage
(enzymatic and bacterial assays)

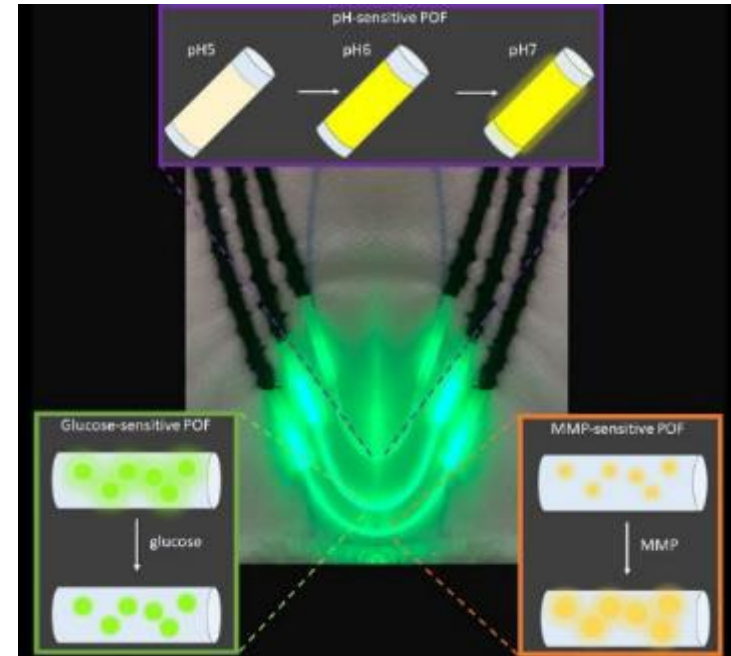
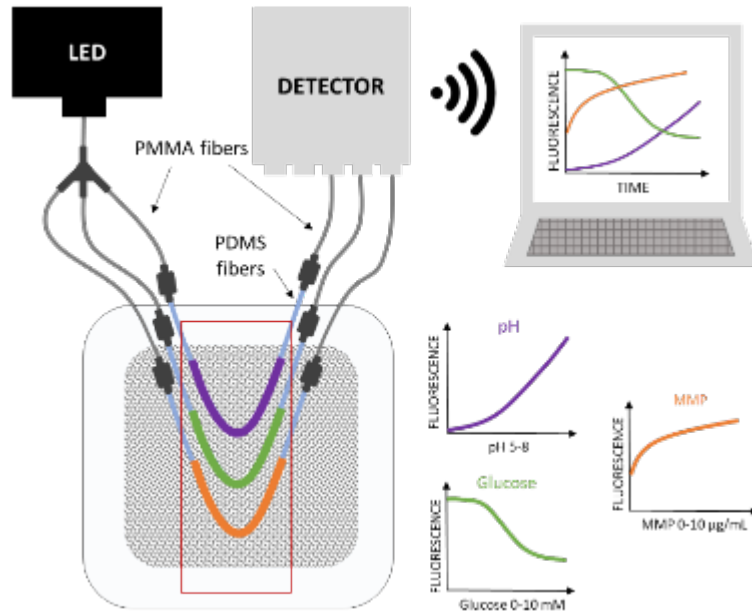


signal ON

HIGH FLUORESCENCE

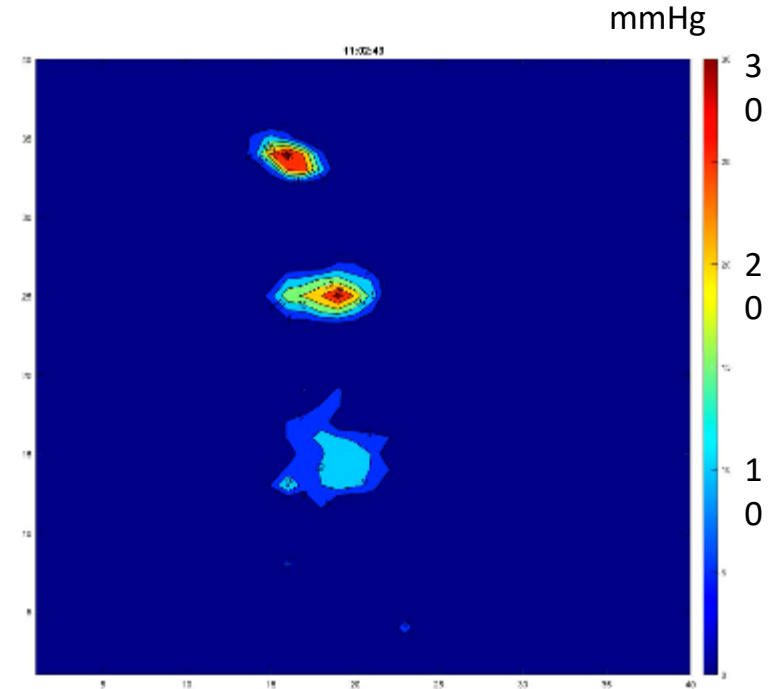


Lab-on-a-fiber



Giovannini, Rossi, et al. (2024). Lab-on-a-Fiber Wearable Multi-Sensor for Monitoring Wound Healing. *Advanced Healthcare Materials*, 2302603.

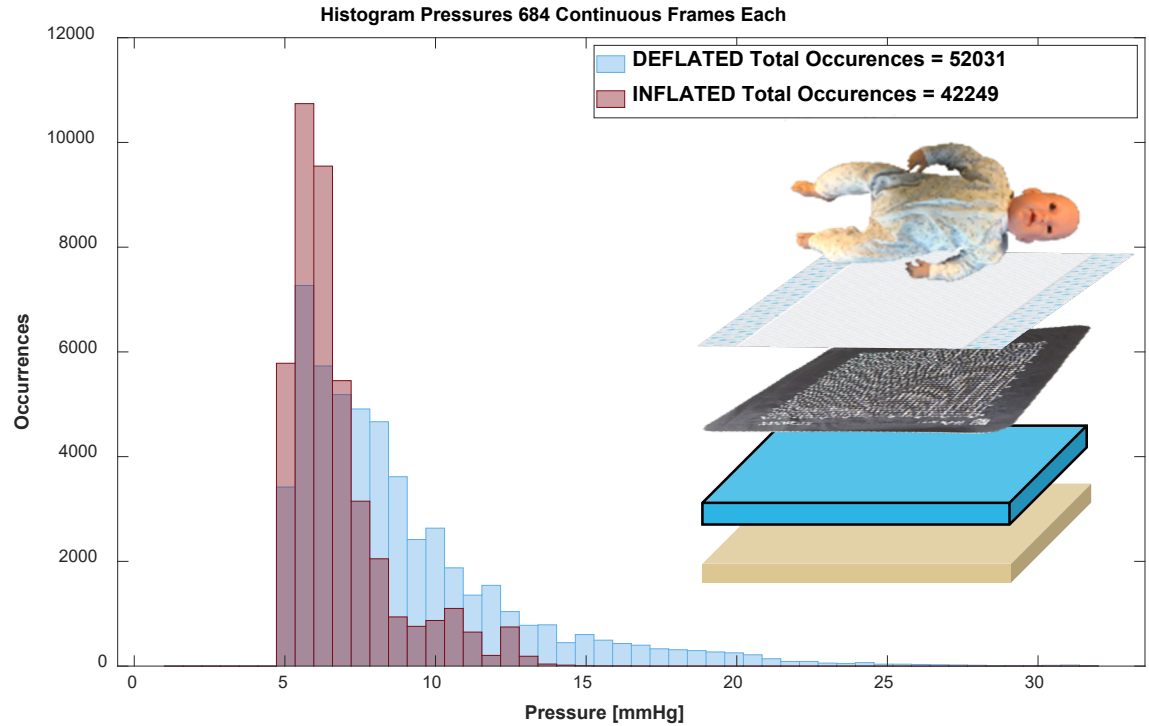
Intelligente Matratze zur Dekubitusprävention bei Neugeborenen



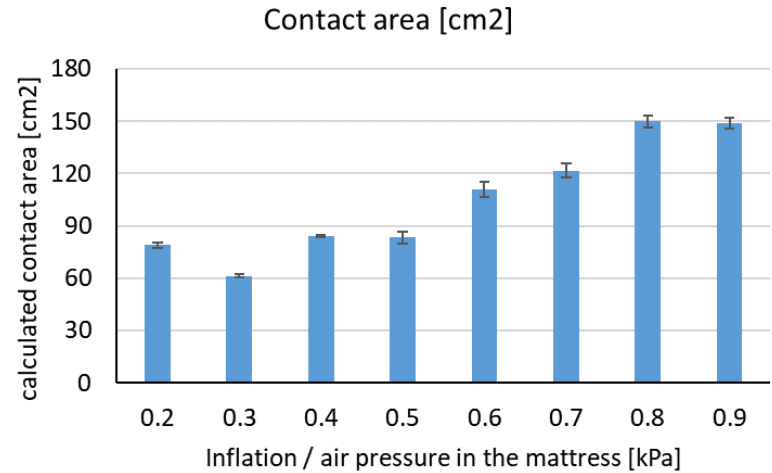
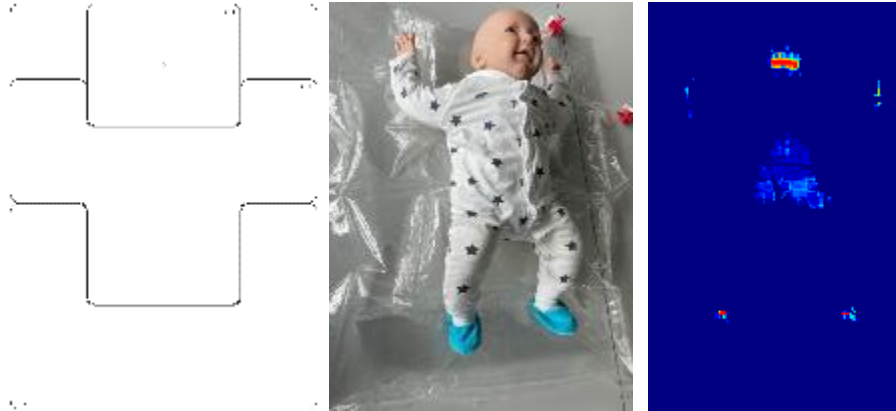
Müller Adrian, MSc Thesis, ETH Zürich, 2021

Schluer, Rossi, et al., BMC pediatrics 23.1 (2023): 593

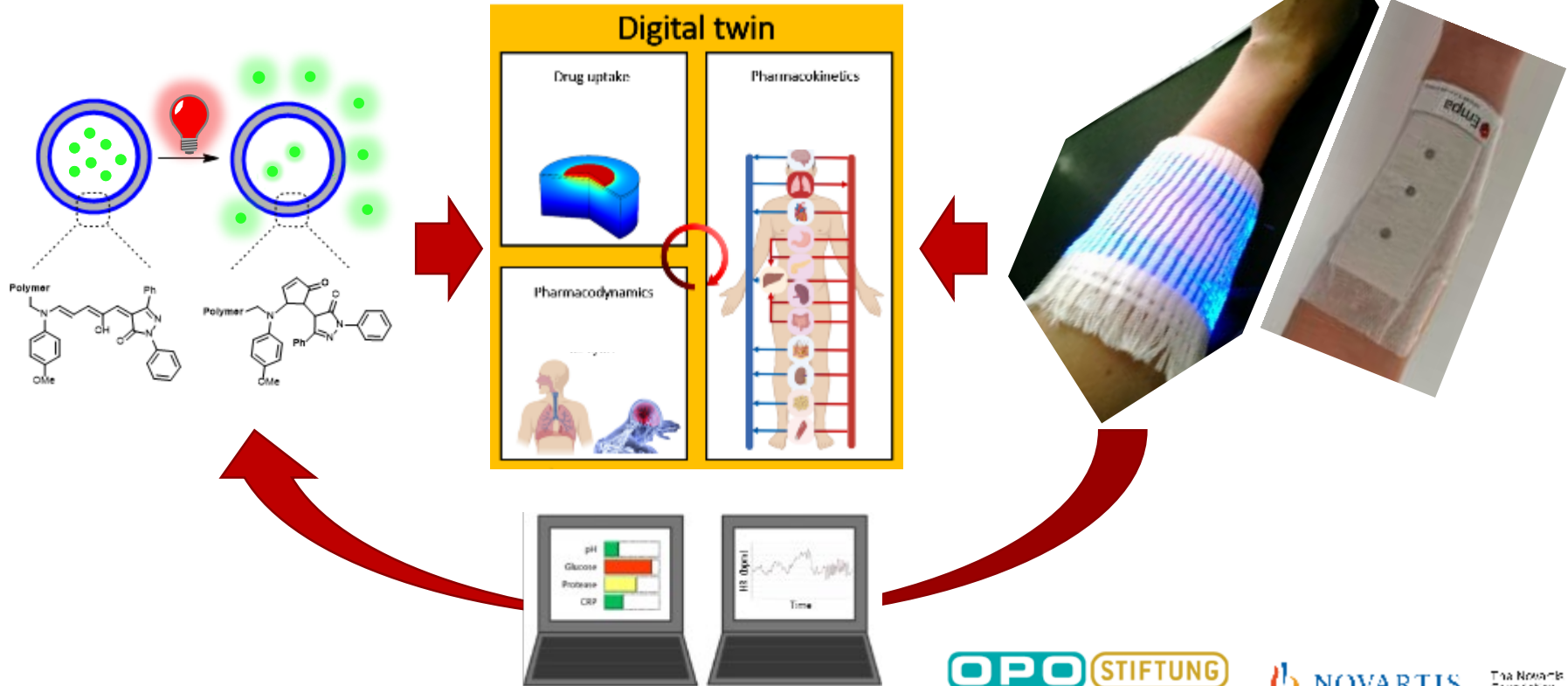
Erste klinische Versuche



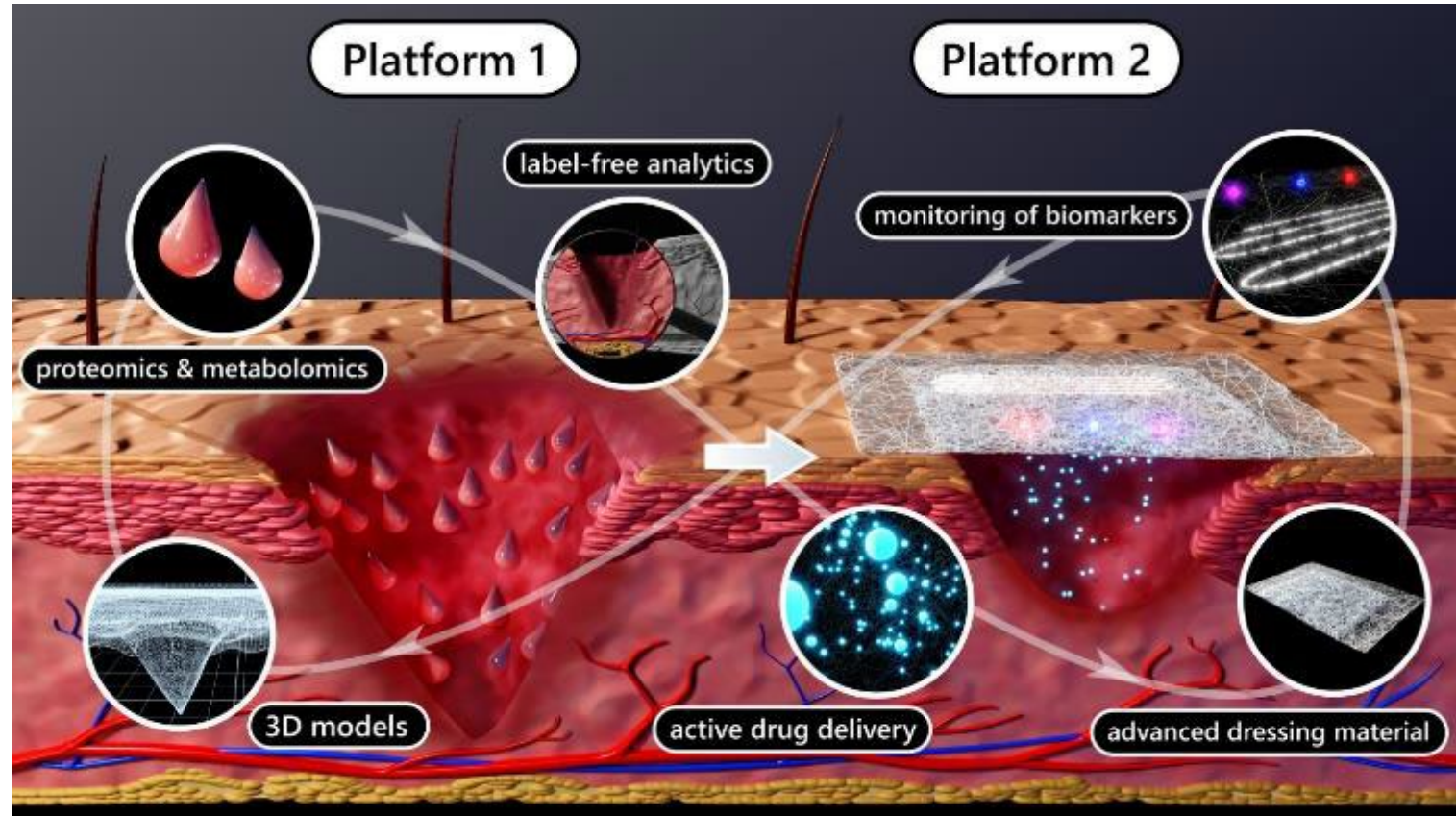
Optimierung der Druckfläche



Digitale Zwillinge – Wundmanagement für eine personalisierte Therapie



Wound booster project



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+41 58 765 77 65
rene.rossi@empa.ch

empa.ch

