Vincent Flacher
Cancéropôle Grand-Est, 15/11/2019

An innervated, vascularized immunocompetent human tissue-engineered skin to model cutaneous neuro-inflammation

Team « Immune-microenvironment interactions in health and disease » (C.G. Mueller)
CNRS UPR3572 – I²CT: Immunologie, Immunopathologie et Chimie Thérapeutique
Institut de Biologie Moléculaire et Cellulaire, Strasbourg

Université de Strasbourg

100% human Innervated, Vascularized immunocompetent Tissue-Engineered Skin = IV-iTES

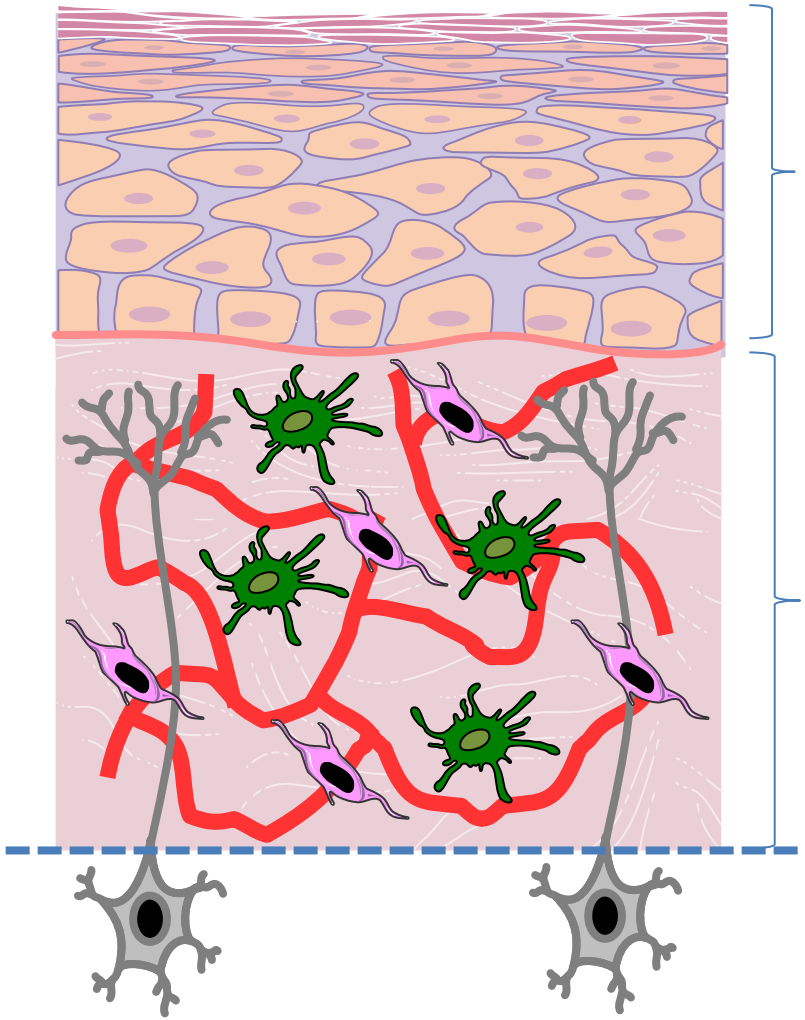
Keratinocytes

Fibroblasts

Endothelial network

Monocyte-derived dendritic cells / macrophages (immune sentinels)

iPS-derived sensory neurons

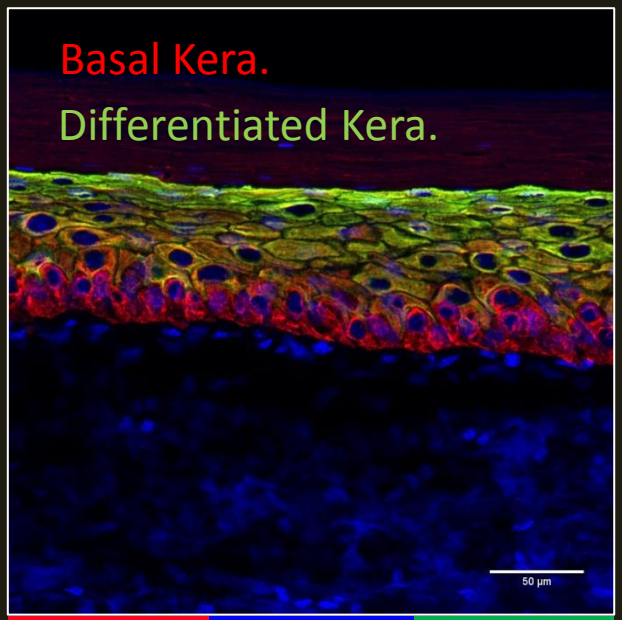


LOEX
Laboratoire D'Organogénèse Expérimentale

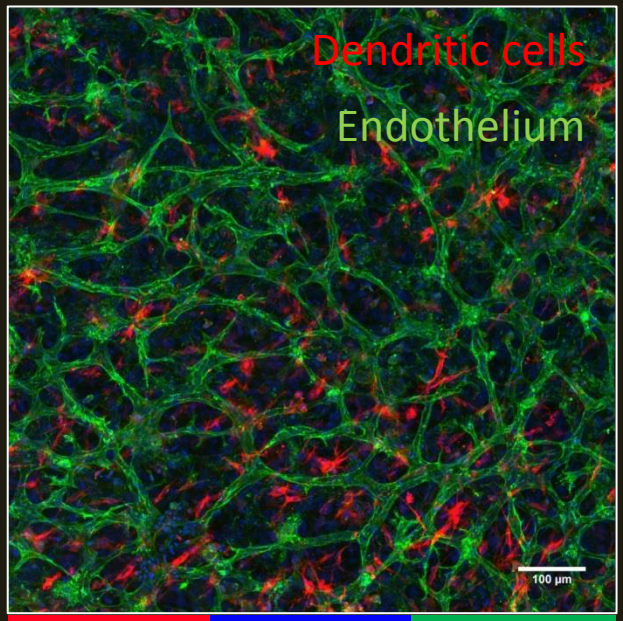
(Québec, Canada)
Dr. François Berthod

Readouts: activation markers of immune cells (flow cytometry), production of neuropeptides and cytokines (ELISA), angiogenesis or neuronal growth (IHC)

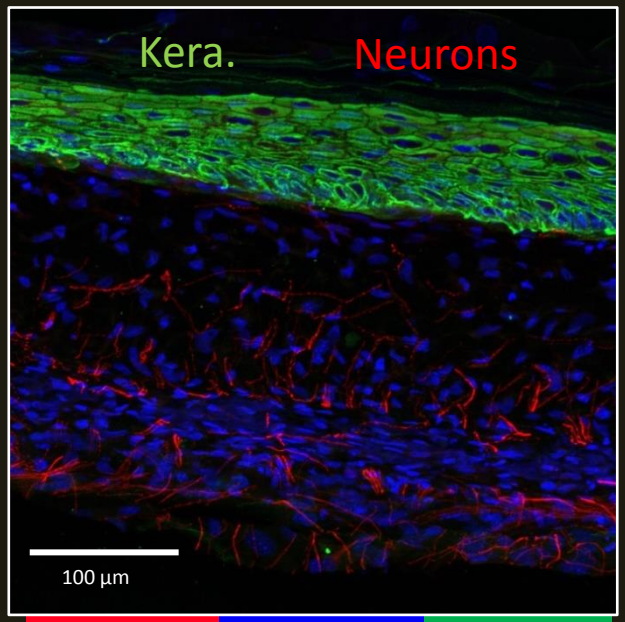
Characterization of IV-iTES



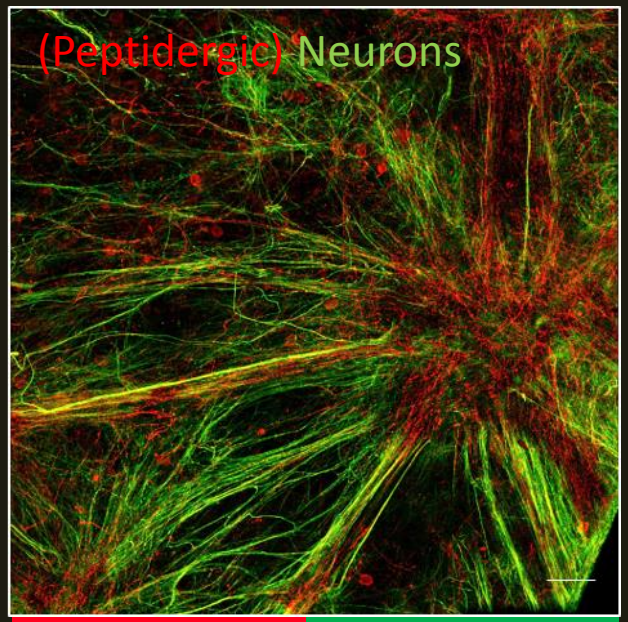
Keratin 14 | DAPI | Keratin 10



HLA-DR | DAPI | PECAM-1



β3 tubulin | DAPI | Keratin14



Substance P | Neurofilament H

Our current goals

- Disease models (atopic dermatitis, psoriasis, acne inversa)
- Validation as non-animal sensitization model
- iPS-derived sensory neurons
- Miniaturisation
- Microfluidics
- In situ, real-time readouts for activation of immune system and sensory innervation

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