Primary human keloid fibroblasts react to blue LED light irradiation with metabolic change

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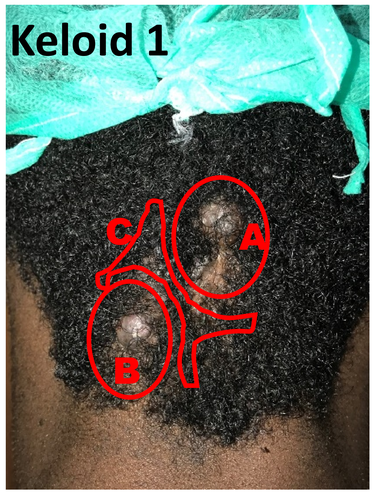
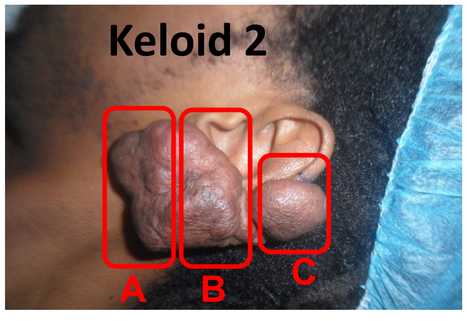
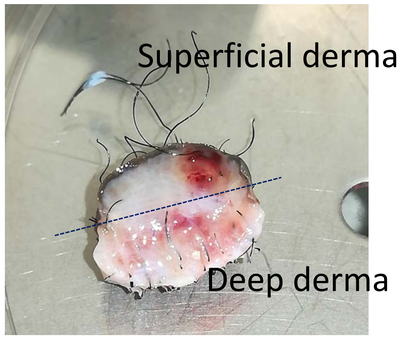
The aim of the study



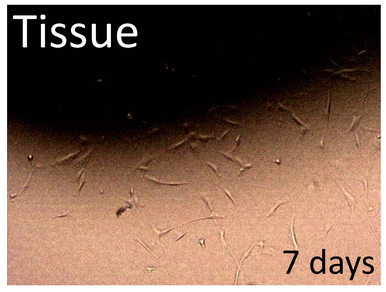


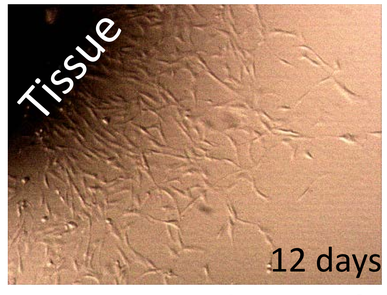
Keloids before surgery



Keloid after surgery

Primary culture setup





Primary culture of human fibroblasts cells

The blue LED device

Acknowledgement
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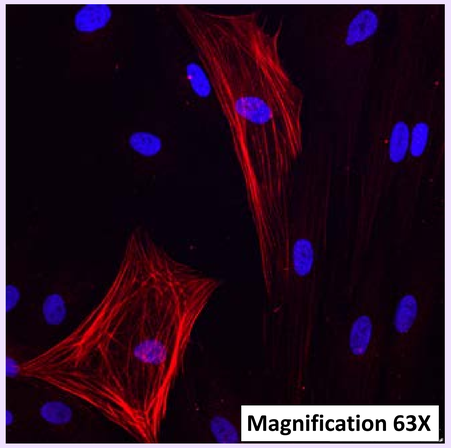
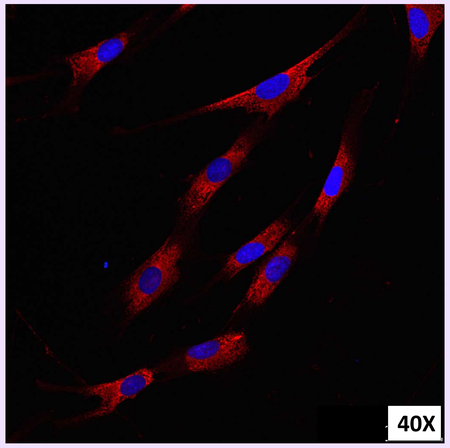
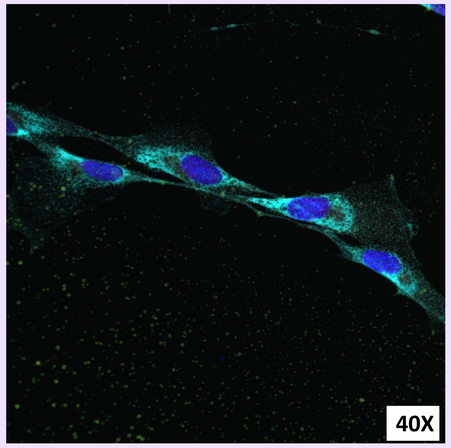
Confocal microscopy characterization of cultured cells



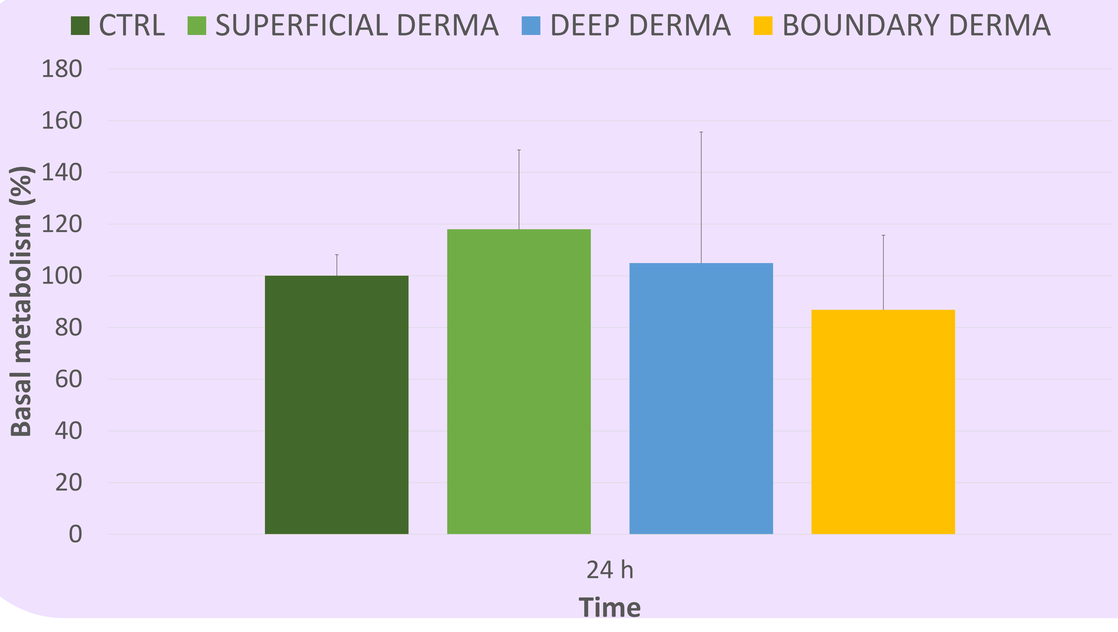
Blue: cells nuclei
Red: alpha-sma



Blue: cells nuclei
Red: type I collagen



Blue: cells nuclei
Cyan: cytokeratin



Basal metabolism of keloid fibroblasts compared to healthy skin fibroblast (CTRL).
The graph shows differences between different sections of keloid

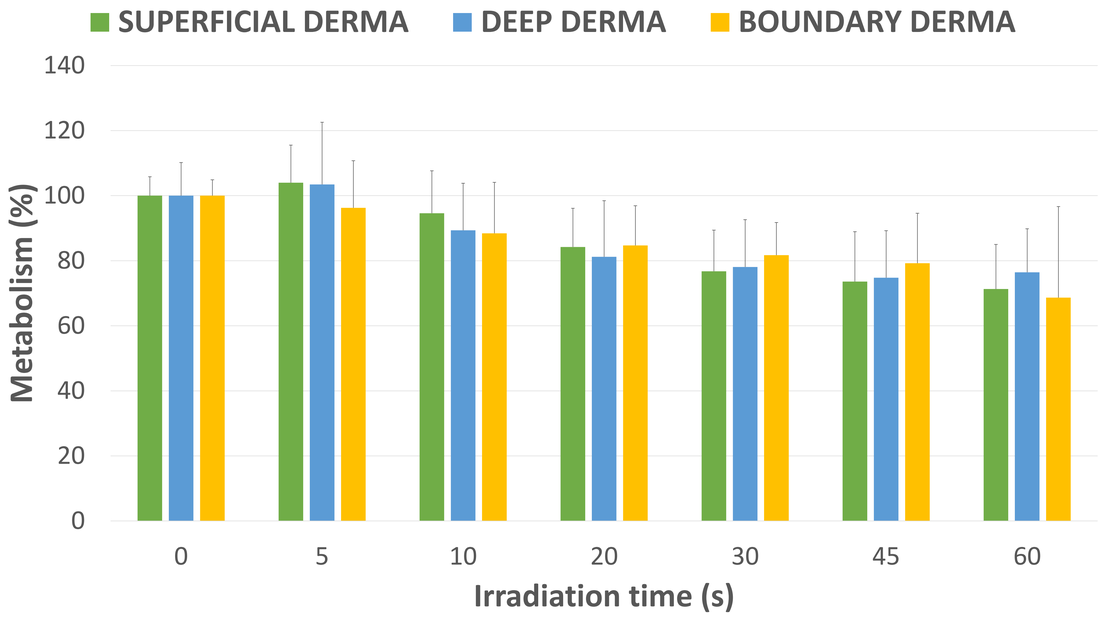
Colorimetric Tests on Cell Cultures

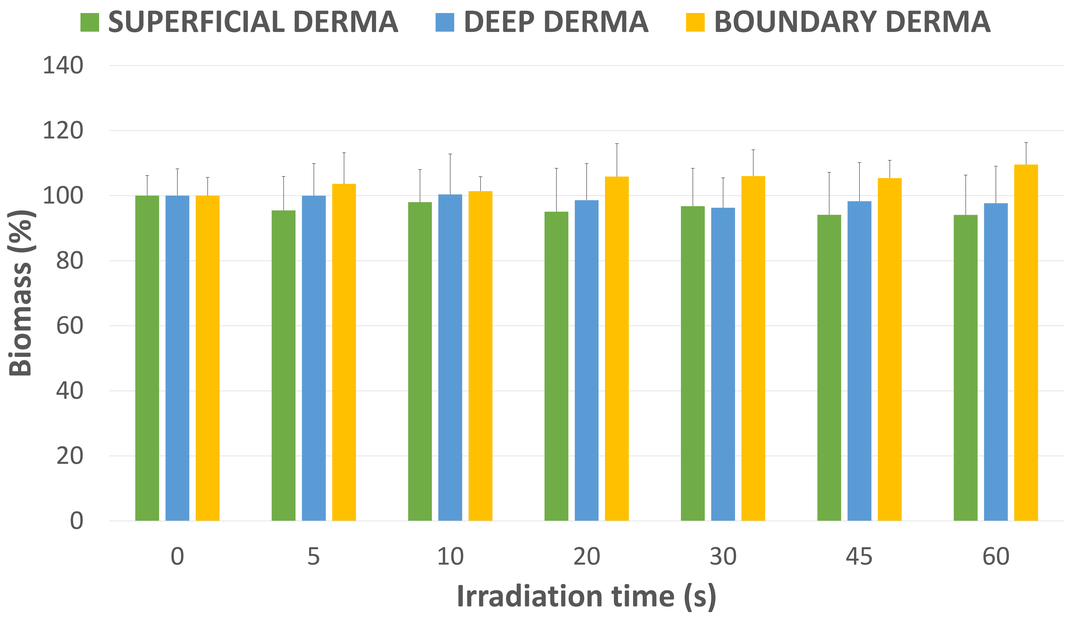
- Cells are irradiated with the BLUE LED at different irradiation times
- Metabolic test (WST-8) and cytotoxicity assay (SRB) are performed

WST-8 TEST

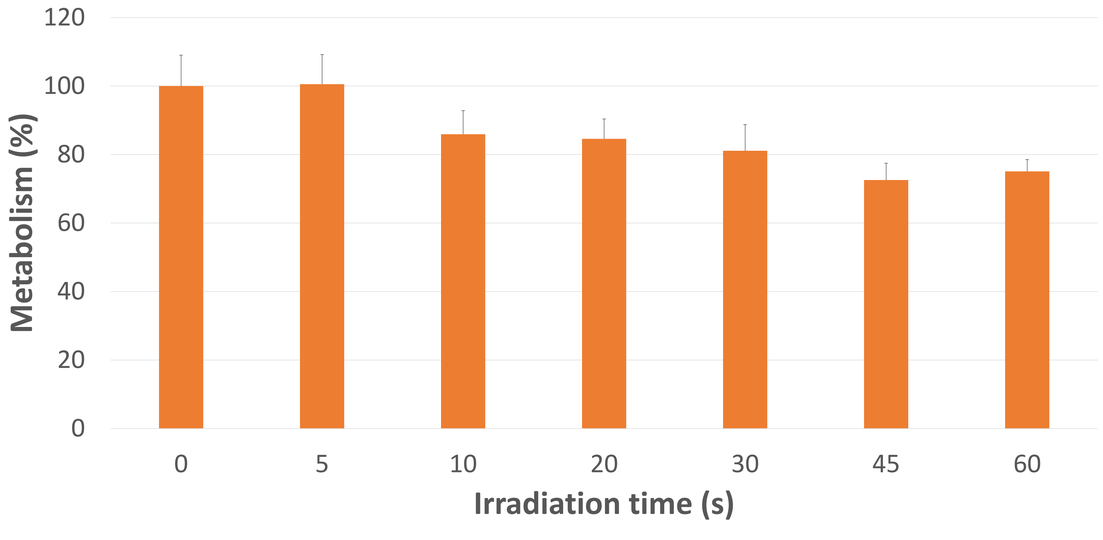
SRB ASSAY

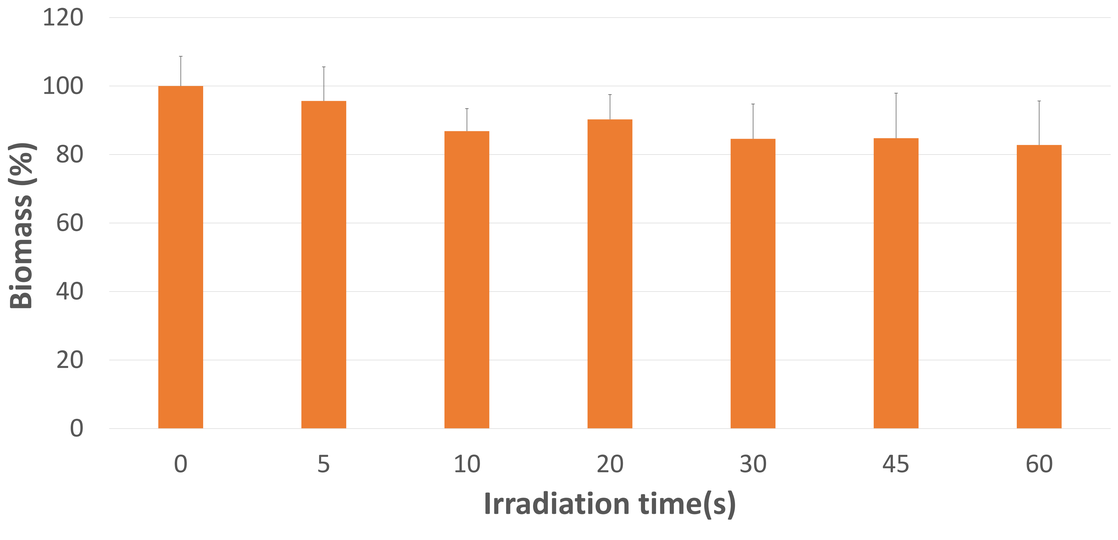
Keloids 1 and 2



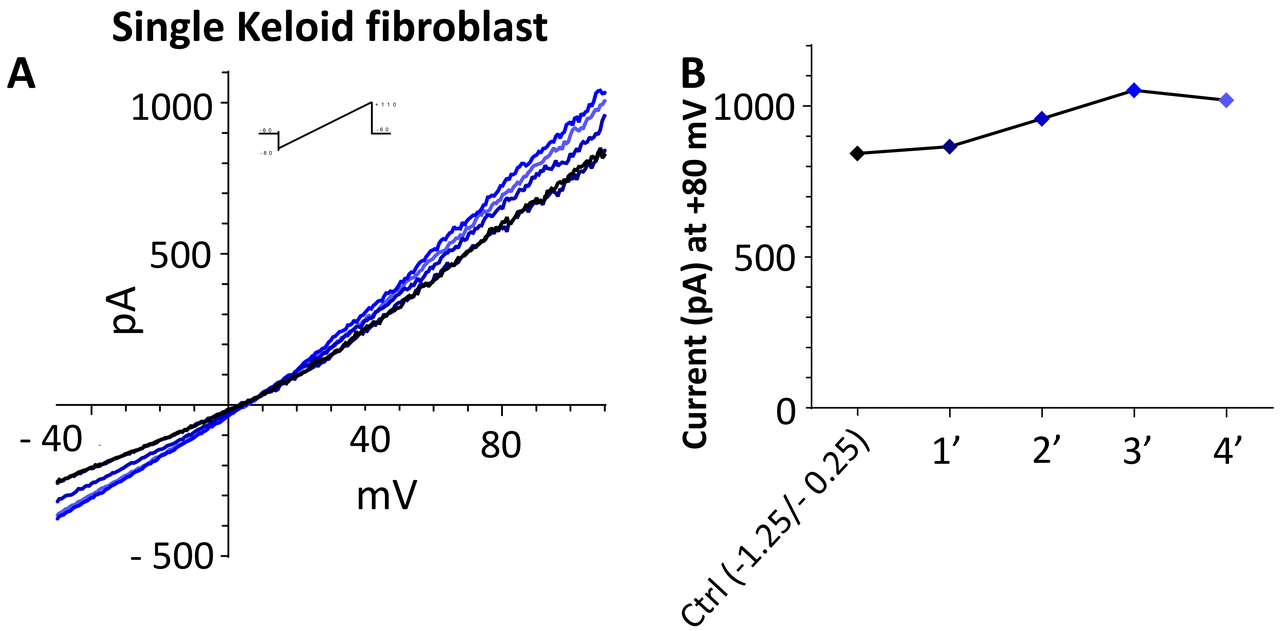


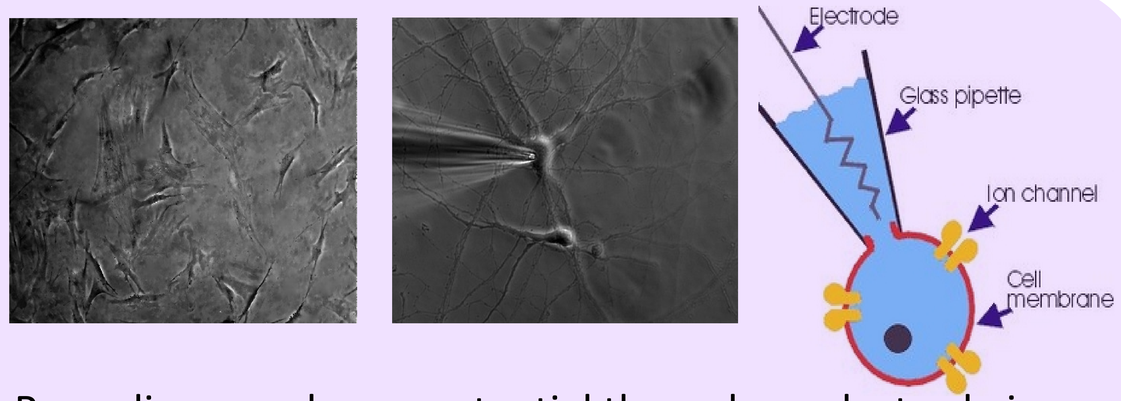
Healthy Skin



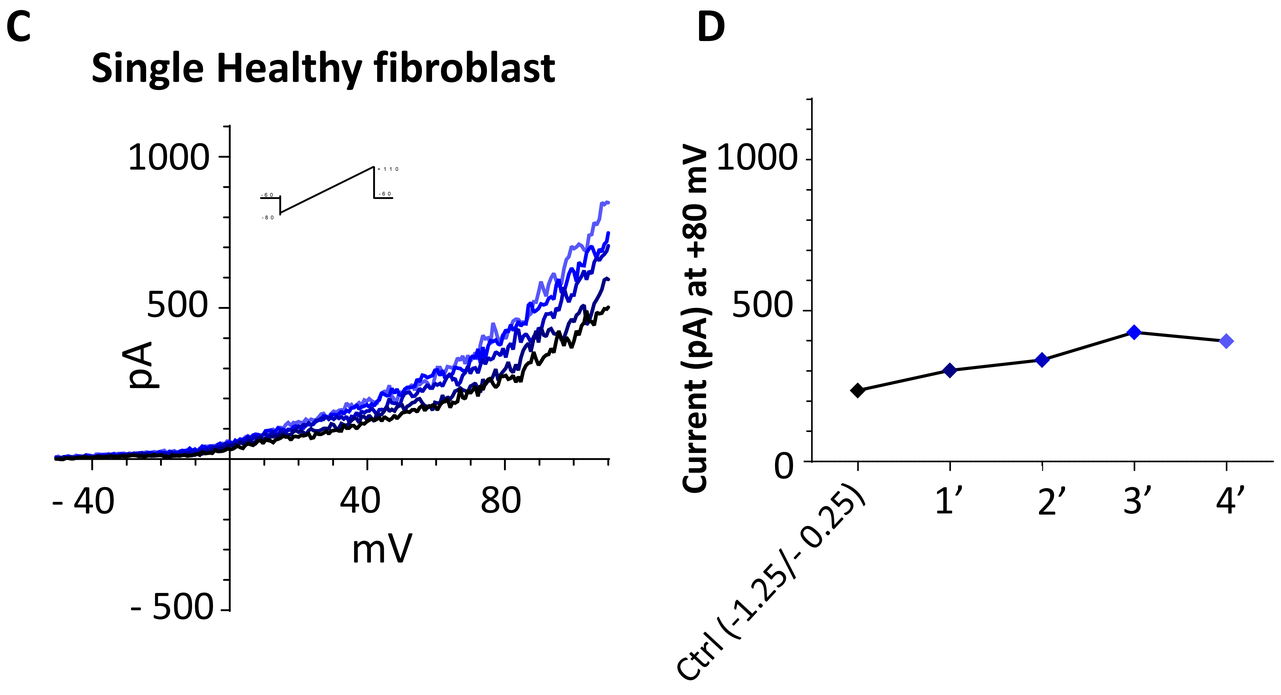


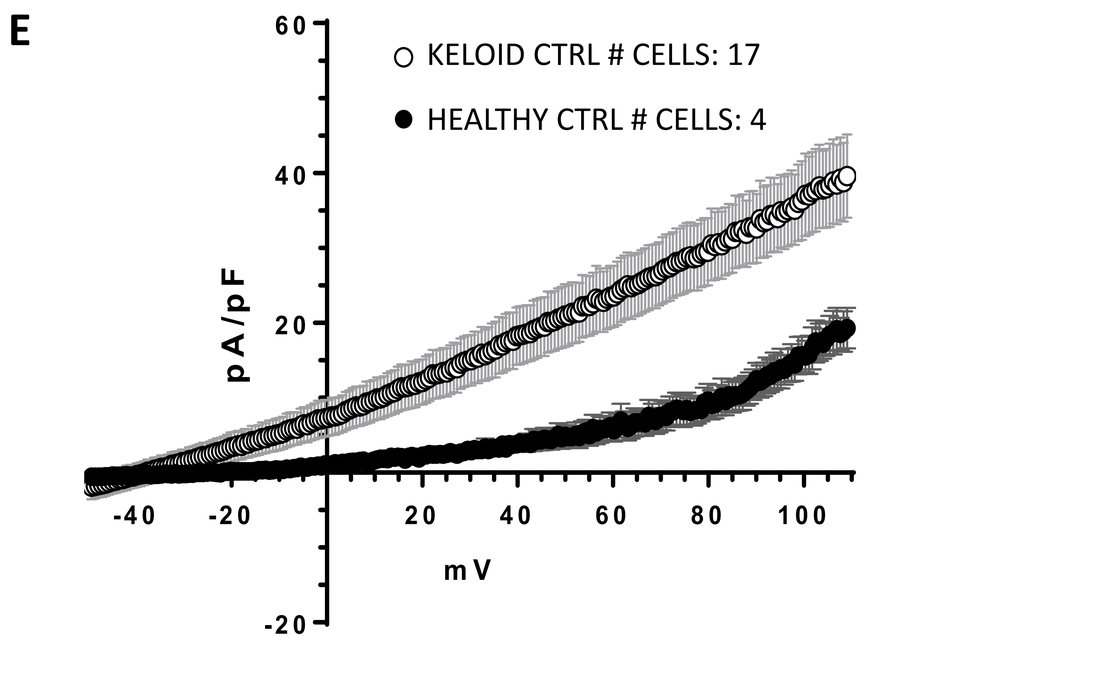
Preliminary electrophysiological recording of human keloid fibroblast and healthy skin





Recording membrane potential through an electrode in contact with the inside of the cell. Is it possible to record the membrane ion current by use of specific ionic solutions





Conclusions

From our in vitro preliminary experiments we pointed out that:

- Human keloids fibroblasts are sensitive to irradiation with blue LED light
- Fibroblasts reduce their metabolism but not their viability
- The effect increases with irradiation time
- The cells membrane potential is modulated by Blue LED light