

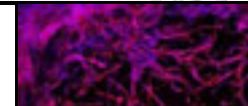
tissue repair and regeneration program



## Show Some Skin

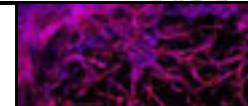
The HSE Model and  
Hyperbaric Oxygen: A model  
of accelerated wound healing

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# Introduction to Hyperbaric Oxygen Therapy

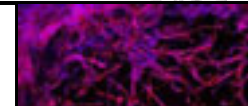
- History
  - Diving and radiation treatment 1930-1950
- Current indications for HBO
  - CO poisoning
  - Chronic wounds etc.
- HBO Centres
  - Wesley Private
- Research



# Chronic Wounds & Hyperbaric Oxygen

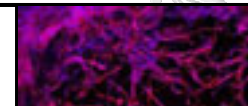
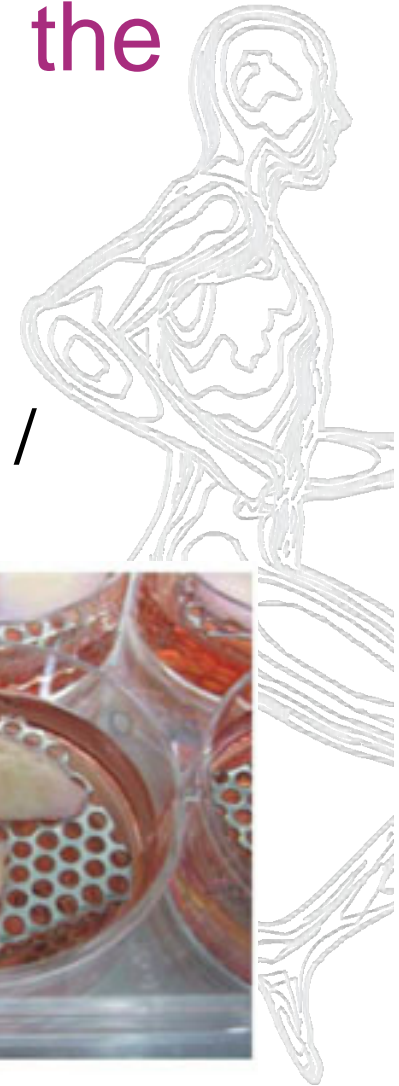
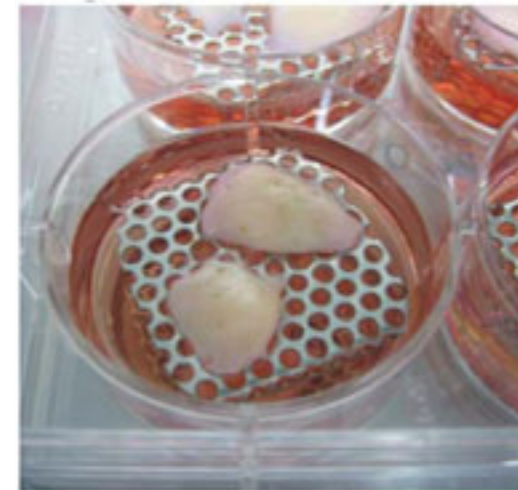


## Scientific Evidence



# HBO-Driven Wound Healing in the Laboratory

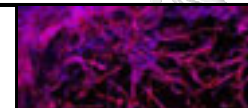
- Human Skin Equivalent Model
  - Model of HBO-driven wound healing / epithelialization
- Pros and Cons
  - Control - when, adjuncts
  - Cell types
  - Chronic vs acute wound



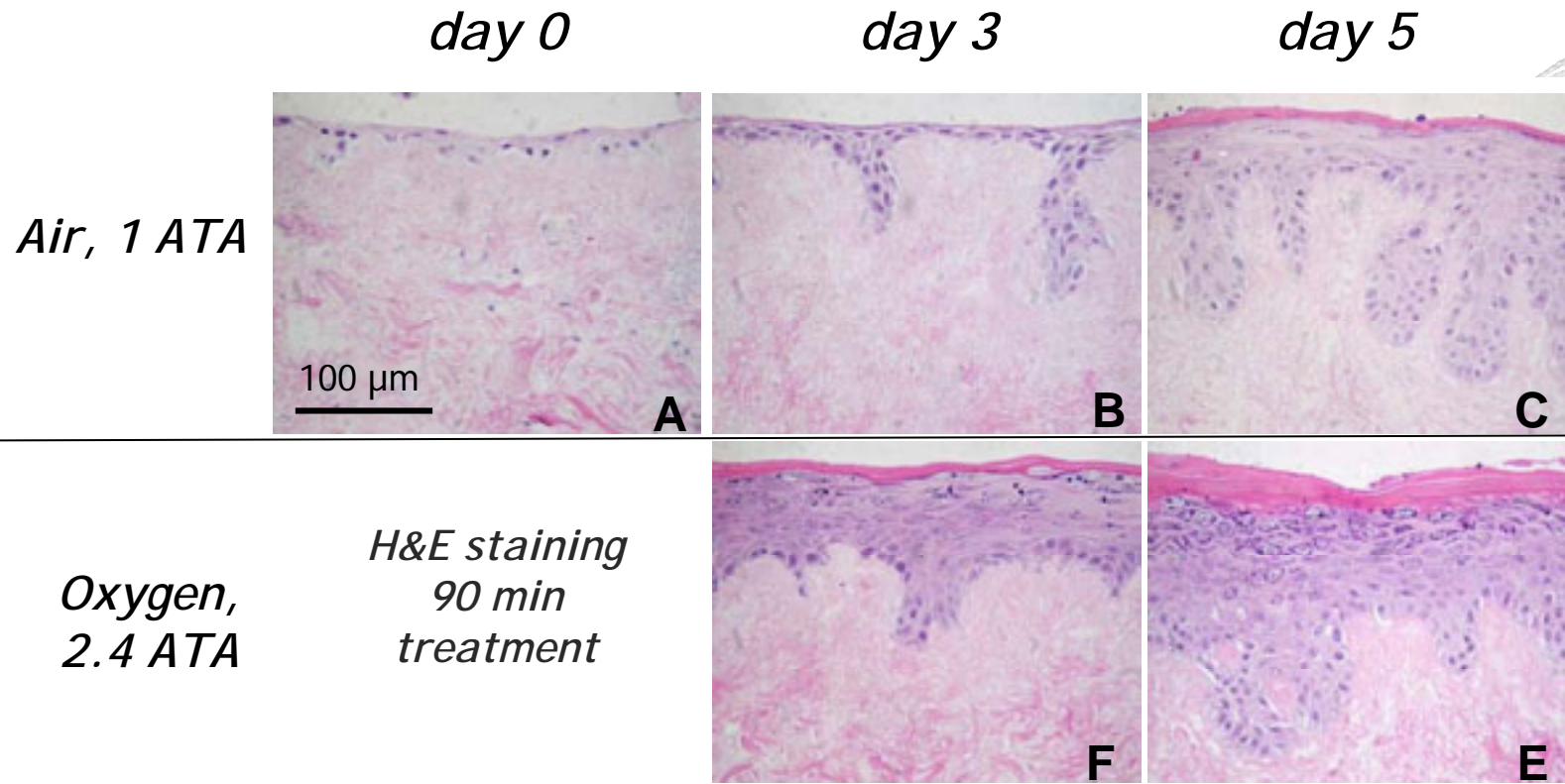
# HBO-Driven Wound Healing in the Laboratory (cont.)

- Methods

- HSE models
- Lab scale HBO chamber
- 2.4 (and 1) ATA, O<sub>2</sub> (air), 90 minutes/ day, 5 days
- Cell- and tissue-based healing parameters

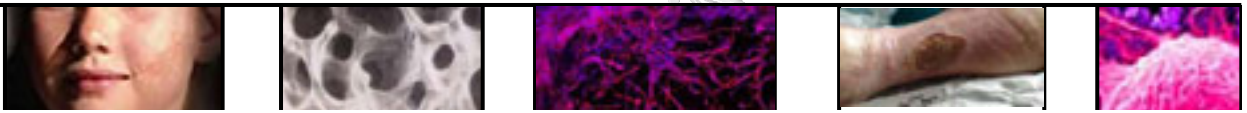


# Results

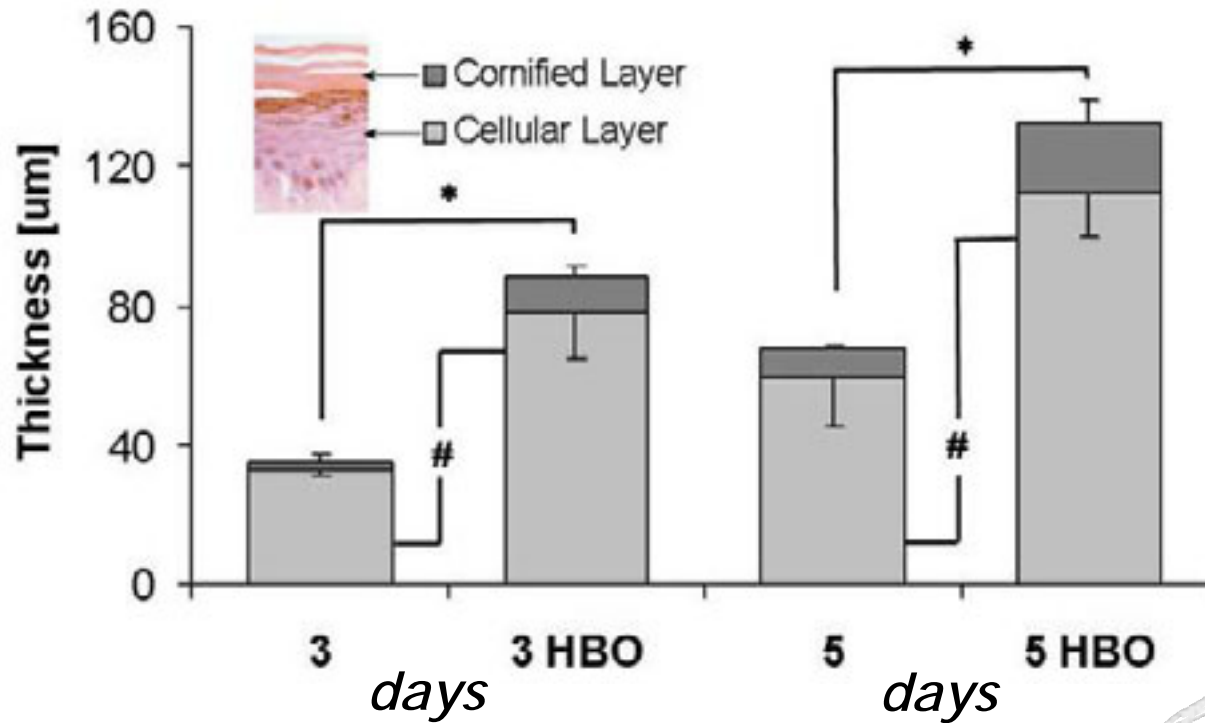


*n = 3, 4 independent replicates*

Kairuz et. al. Wound Rep Reg (2007) 15 266–274

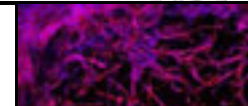


# Results



➤ HBO enhances epidermal thickness

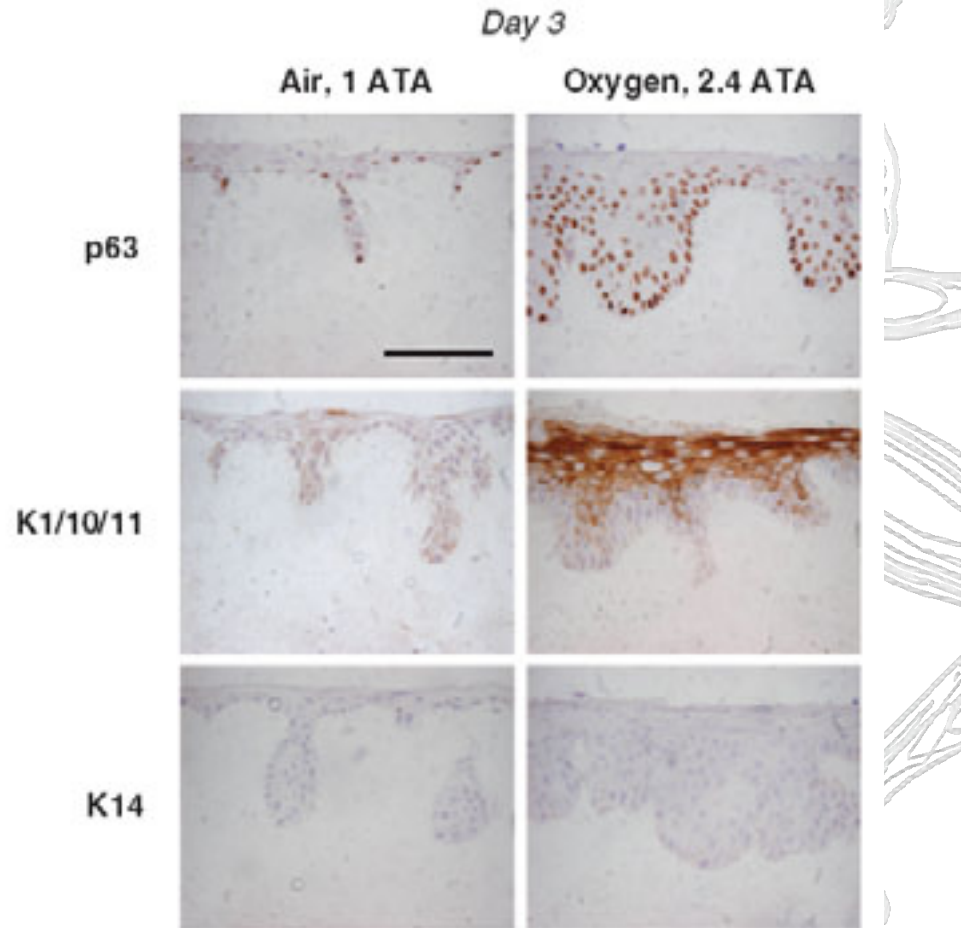
Kairuz et. al. Wound Rep Reg (2007) 15 266–274



# Results



- Other cell- and tissue-marker results
  - Proliferation and differentiation
- Very relevant, very applicable model of HBO-driven healing



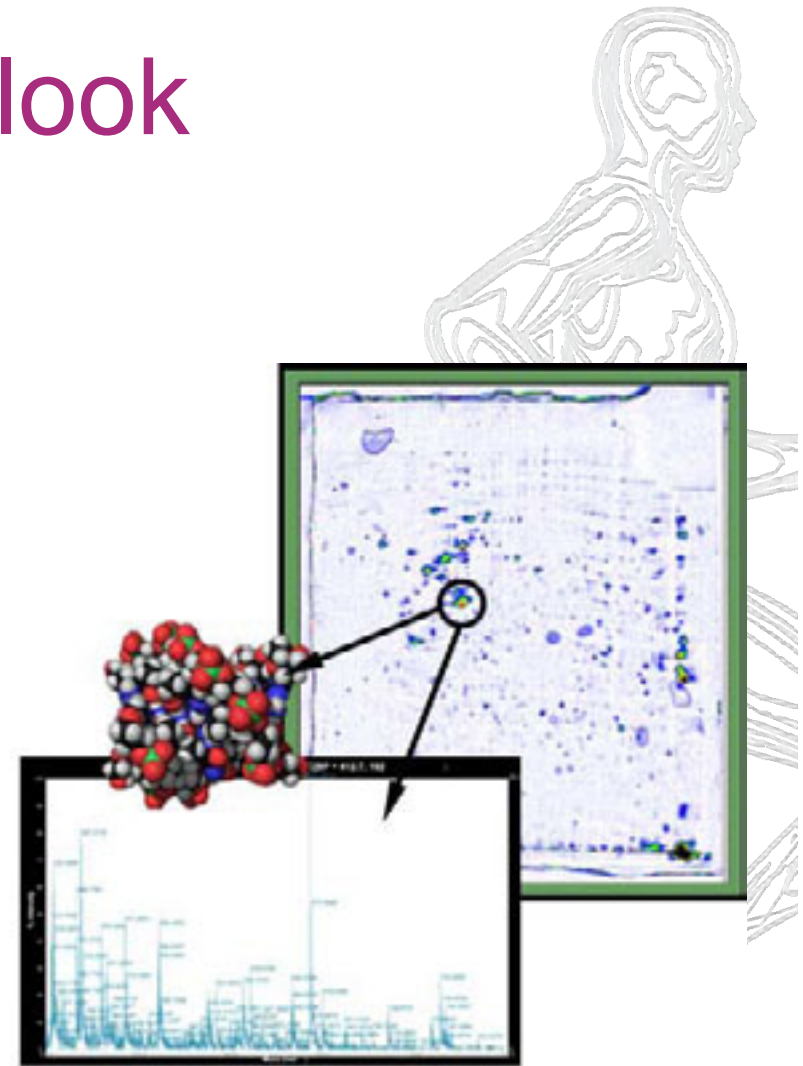
Kairuz et. al. Wound Rep Reg (2007) 15 266–274



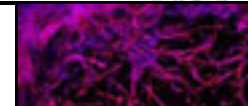


# Future Outlook

- Biological processes of HBO / O<sub>2</sub> tension
  - HBO-regulated proteins in the HSE model
  - Therapeutics
  - Diagnostics
  - Prognostics



[http://genome.uiowa.edu/TM\\_prot/](http://genome.uiowa.edu/TM_prot/)



# Acknowledgments

- Evette Kairuz, Rebecca Dawson and Jos Malda
- Zee Upton
- WCHM
- DART
- WRI
- Xtrata

