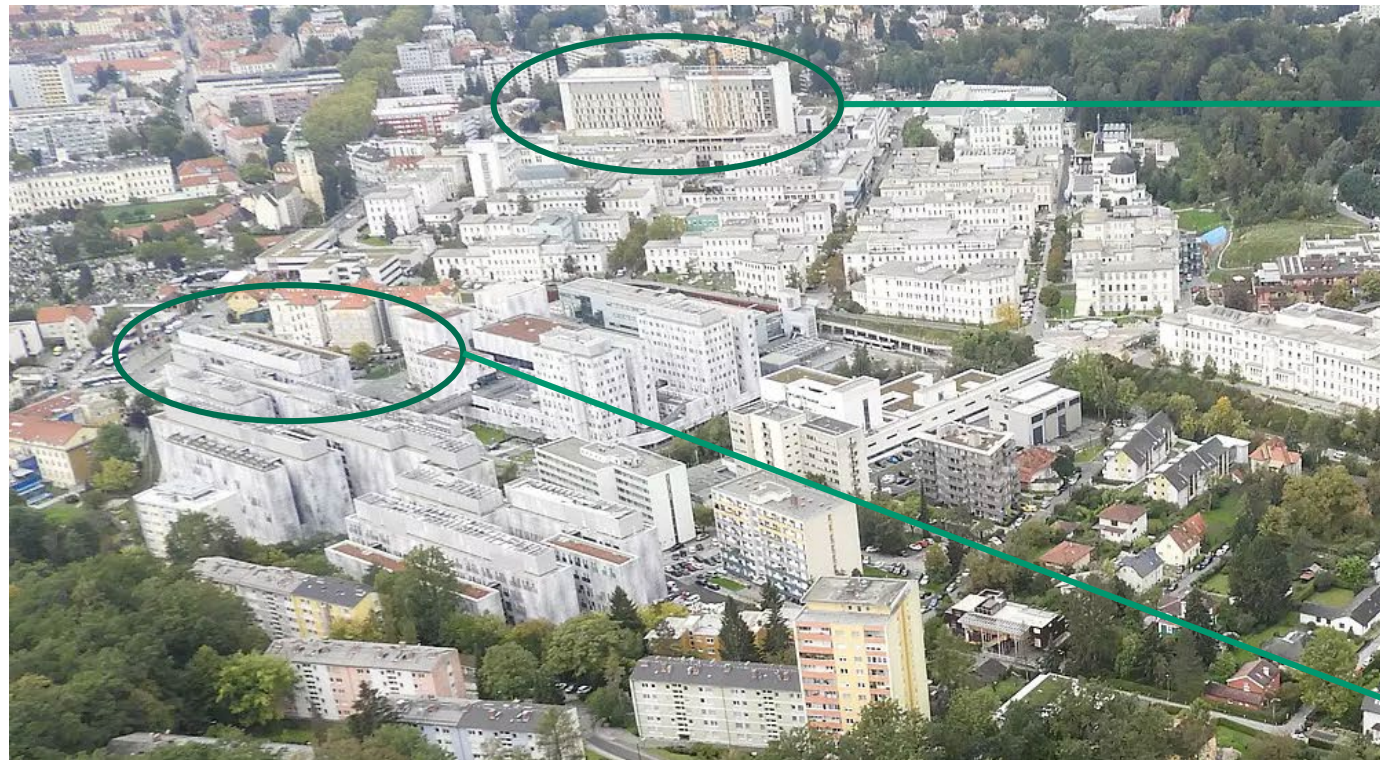
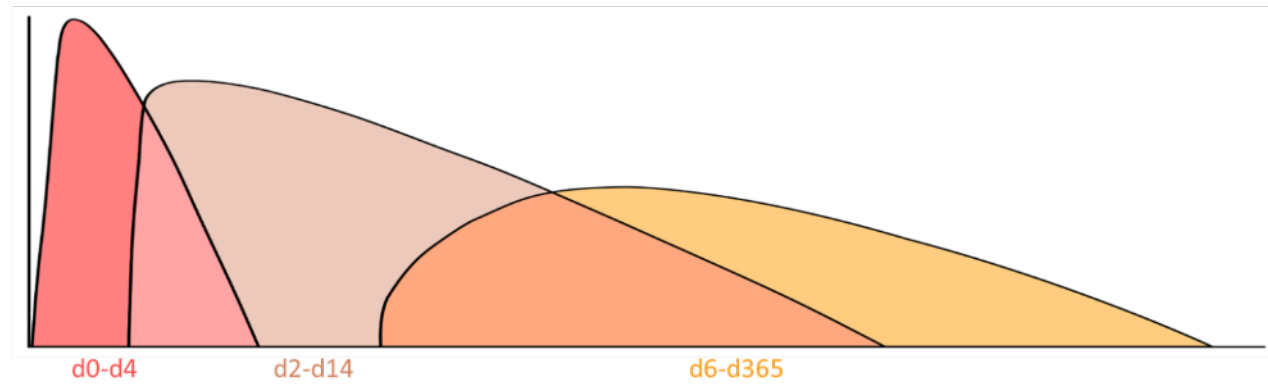
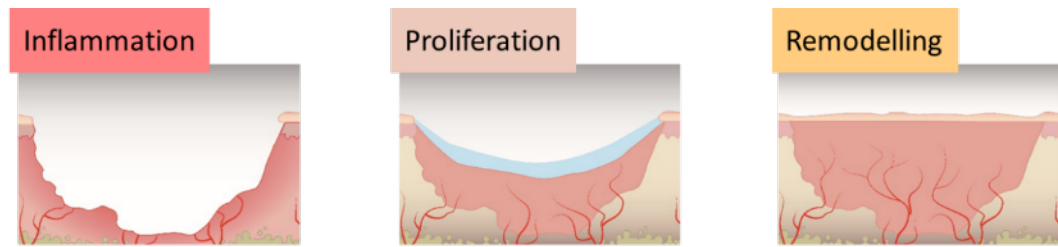


# Die Zukunft der Wundbehandlung

**Univ. Prof. Dr. Lars-Peter Kamolz M.Sc.**







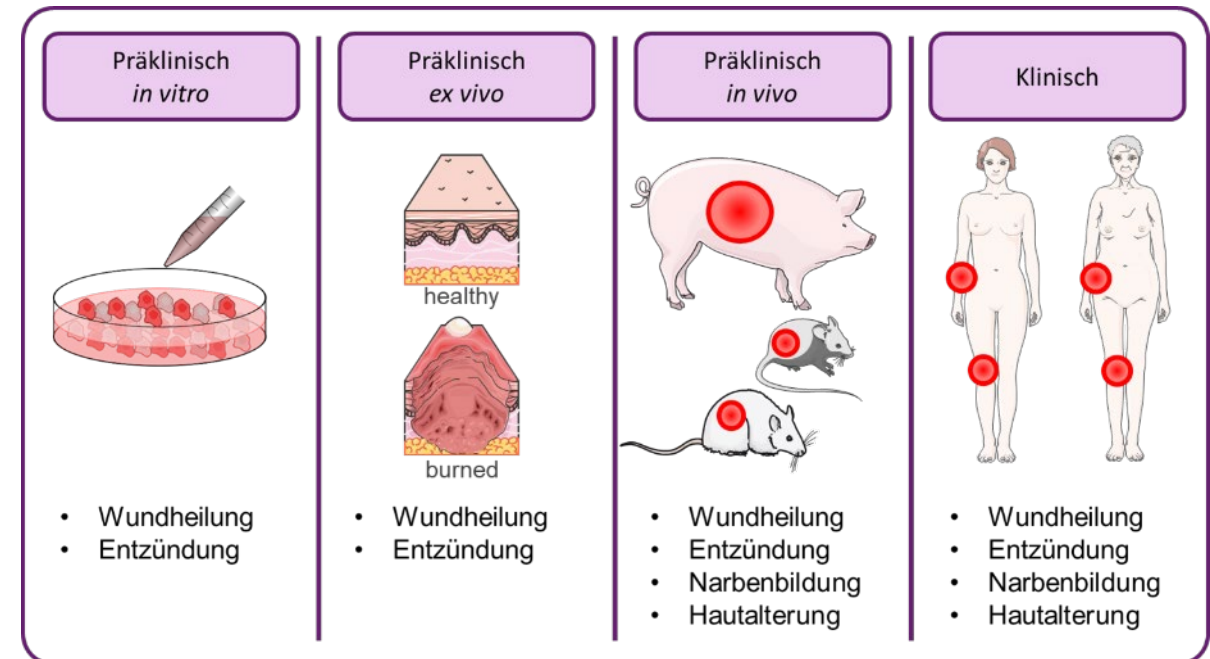
Credit: JOANNEUM RESEARCH



Chronic Wound

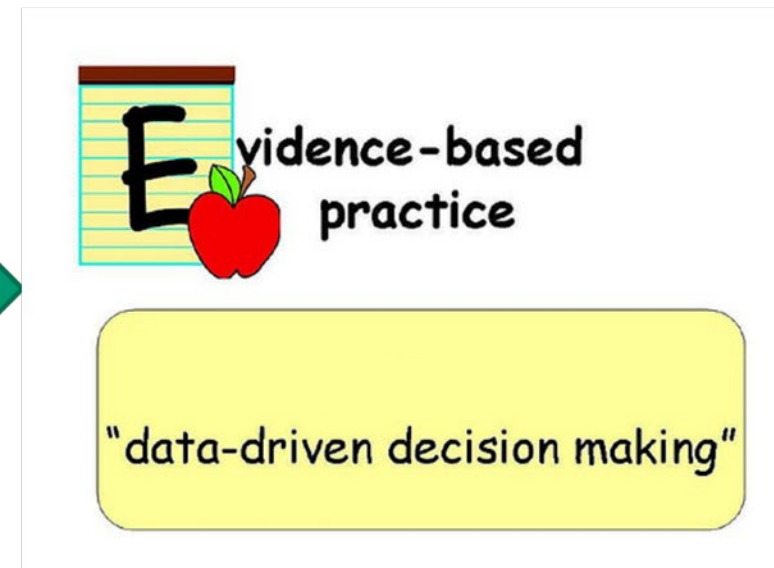
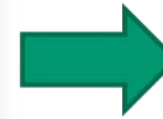


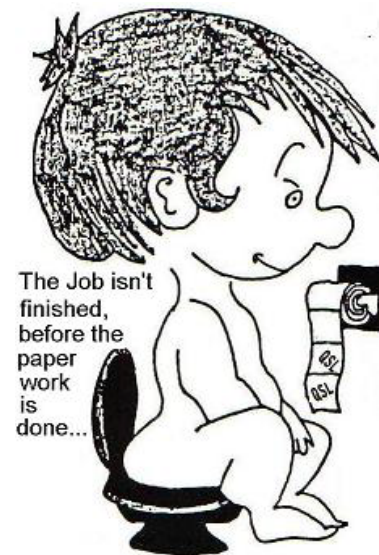
Hypertrophic Scar



Modernes **Wundmanagement** umfasst:

Wundanamnese und Wunddiagnostik,  
Wundbehandlung,  
Schmerzmanagement und  
Wunddokumentation





*„The future of wound documentation will require much more than traditional documentation systems can offer today. Wound documentation on paper will be no longer a valid method, because the requirements for future wound documentation, on which we will develop our future treatment concepts, will be very complex.“*

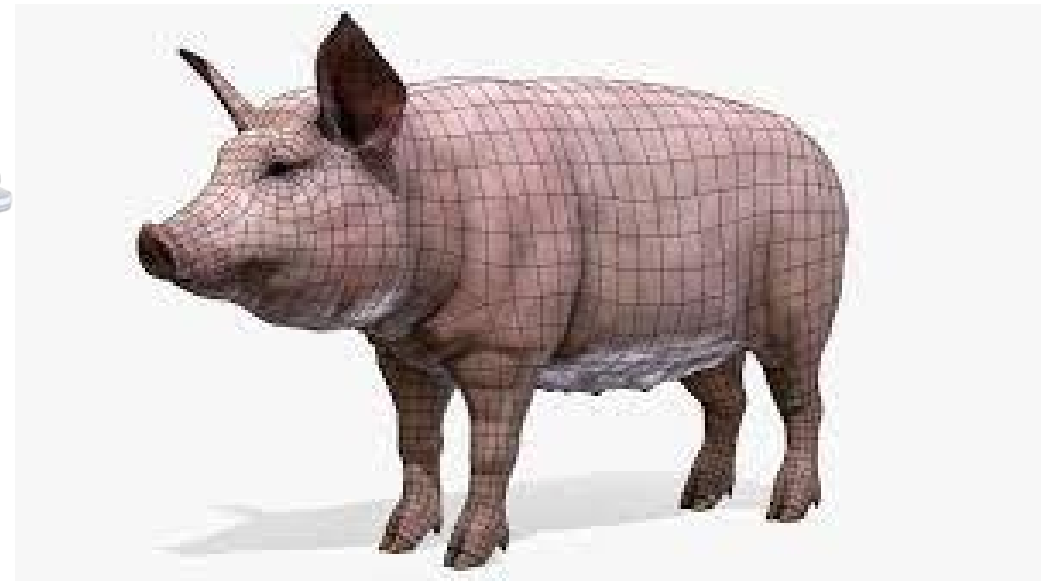
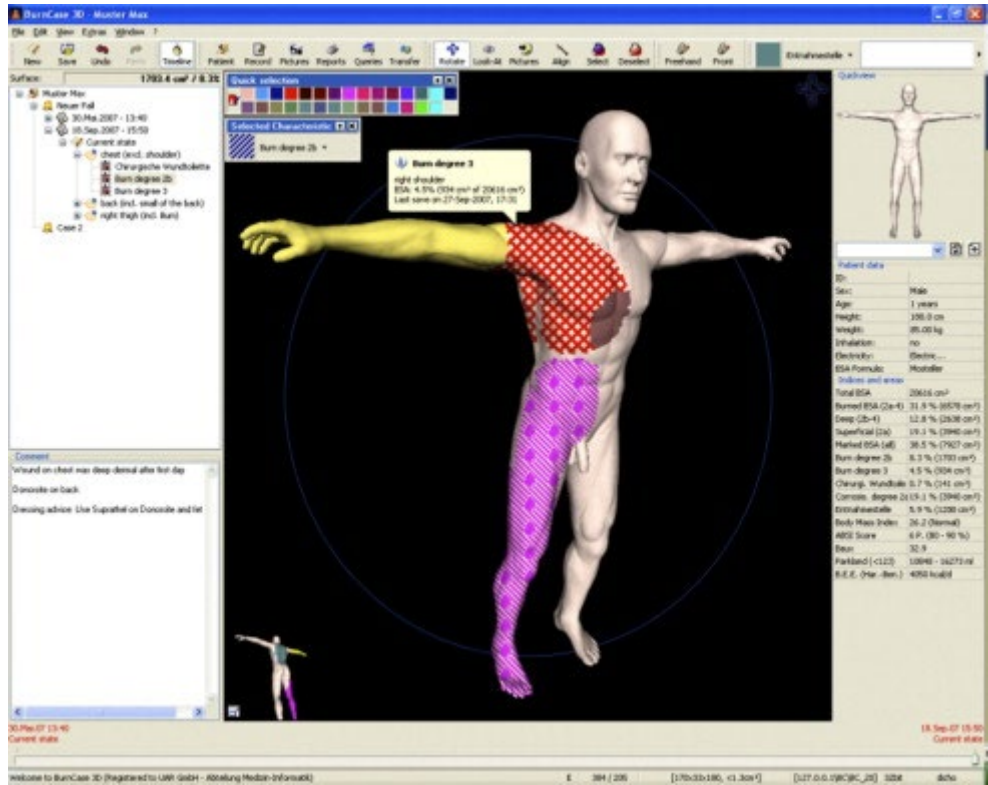


Digitale Dokumentation ermöglicht:

- Bessere Verfügbarkeit und Auswertungsmöglichkeiten der gesammelten Daten,
- Leichter Austausch von Daten und Informationen,
- Leichter Zugang zu Daten und Informationen,
- Leichtere und objektivere Möglichkeit neues medizinisches Wissen zu generieren.
- Schnellerer Transfer von Forschungsergebnissen in die Klinik
- ....



7







Burns  
Volume 42, Issue 2, March 2016, Pages 329-335



## BurnCase 3D software validation study: Burn size measurement accuracy and inter-rater reliability









Daryousch Parvizi<sup>a,1</sup>, Michael Giretzlehner<sup>b,1</sup>, Paul Wurzer<sup>a,c,d</sup>  ,  
Limor Dinur Klein<sup>e</sup>, Yaron Shoham<sup>f,g</sup>, Fredrick J. Bohanon<sup>c,d</sup>, Herbert L. Haller<sup>h</sup>,  
Alexandru Tuca<sup>a</sup>, Ludwik K. Branski<sup>a,c,d</sup>, David B. Lumenta<sup>a</sup>, David N. Herndon<sup>c,d</sup>,  
Lars-P. Kamolz<sup>a</sup>



Burns  
Volume 40, Issue 2, March 2014, Pages 241-245



## The potential impact of wrong TBSA estimations on fluid resuscitation in patients suffering from burns: Things to keep in mind



Daryousch Parvizi<sup>a</sup> , Lars-Peter Kamolz<sup>a</sup>  , Michael Giretzlehner<sup>b</sup> ,  
Herbert L. Haller<sup>c</sup> , Maria Trop<sup>d</sup> , Harald Selig<sup>a,e</sup> , Peter Nagele<sup>f</sup>,  
David B. Lumenta<sup>a</sup> 



Burns  
Volume 39, Issue 6, September 2013, Pages 1107-1113



## The determination of total burn surface area: How much difference?

M. Giretzlehner<sup>a</sup>  , J. Dirnberger<sup>a</sup>, R. Owen<sup>a</sup>, H.L. Haller<sup>b</sup>, D.B. Lumenta<sup>c</sup>,  
L.-P. Kamolz<sup>c</sup>



Burns  
Volume 41, Issue 1, February 2015, Pages 196-197



Letter to the Editor

## 3D photography is an accurate technique for measuring small wound areas

Paul Wurzer  , Michael Giretzlehner, Lars-Peter Kamolz



Burns  
Volume 42, Issue 4, June 2016, Pages e65-e69

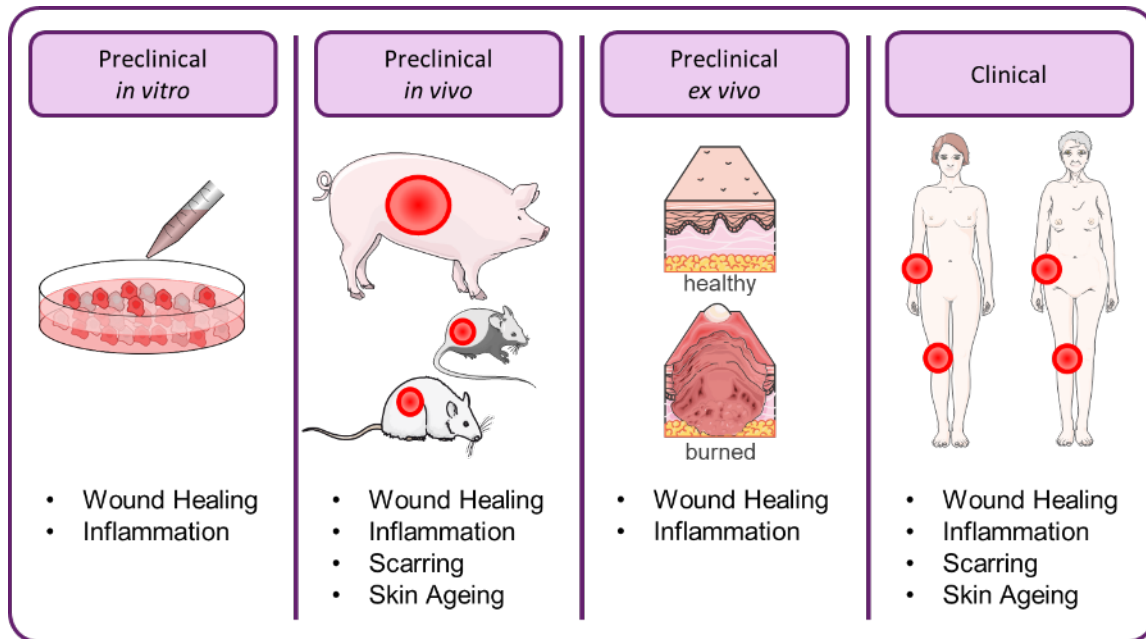


Case report

## Using a 3D tool to document and determine graft loss: A mini-review and case report

Nicole C. Benjamin<sup>a</sup>, Paul Wurzer<sup>a,b</sup>  , Charles D. Voigt<sup>a</sup>, Debra A. Benjamin<sup>a</sup>,  
David N. Herndon<sup>a</sup>





Article

**The Impact of Prolonged Inflammation on Wound Healing**

Judith C. J. Holzer<sup>1</sup>,  
Sonja Kainz<sup>3</sup>,  
Pe Hermann Fahrngru

Review

**Modelling the Complexity of Human Skin In Vitro**

Elisabeth Hofmann

Systematic Review

**In Vivo Models**

Stefan Rössler<sup>1</sup>,  
Robert Zrim<sup>1,2</sup>

Review

**Human Healing**

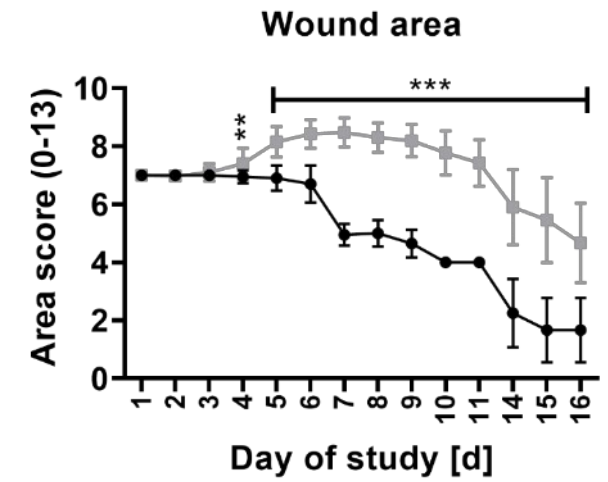
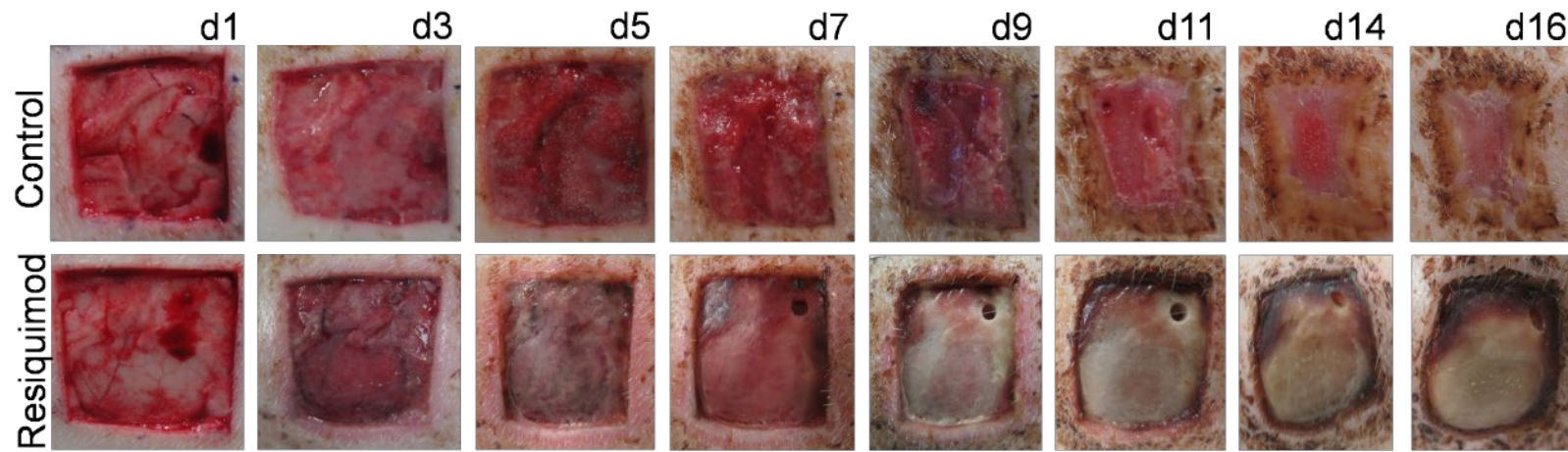
Elisabeth Hofmann,  
Marlies Schell,  
and Petra Kotzbeck

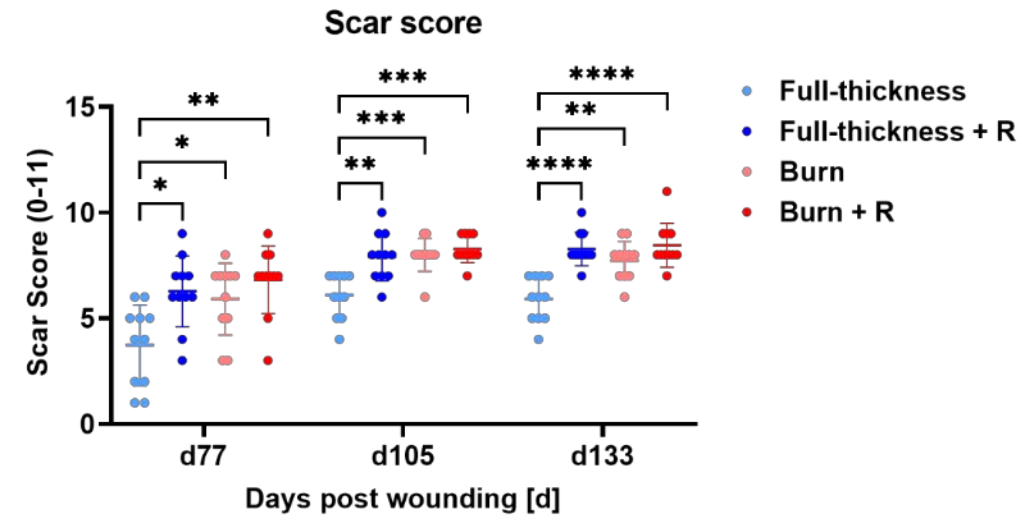
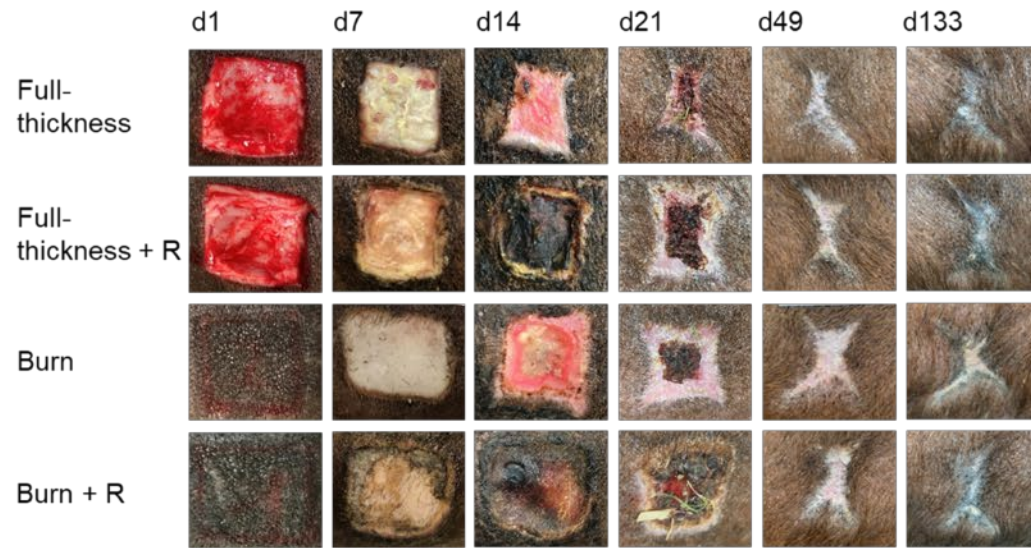
Article

**The Role of Local Inflammation and Hypoxia in the Formation of Hypertrophic Scars—A New Model in the Duroc Pig**

Sebastian P. Nischwitz<sup>1,2,\*</sup>, Julia Fink<sup>2</sup>, Marlies Schellnegger<sup>1,2</sup>, Hanna Luze<sup>1,2</sup>, Vladimír Bubalo<sup>3</sup>, Carolin Tetyczka<sup>4</sup>, Eva Roblegg<sup>4</sup>, Christian Holecek<sup>5</sup>, Martin Zacharias<sup>6</sup>, Lars-Peter Kamolz<sup>1,2</sup> and Petra Kotzbeck<sup>1,2,7</sup>

<sup>1</sup> Division of Plastic, Aesthetic and Reconstructive Surgery, Department of Surgery, Medical University of Graz, 8036 Graz, Austria  
<sup>2</sup> COREMED—Cooperative Centre for Regenerative Medicine, JOANNEUM RESEARCH Forschungsgesellschaft mbH, 8010 Graz, Austria  
<sup>3</sup> Biomedical Research Unit, Medical University of Graz, 8036 Graz, Austria  
<sup>4</sup> Department of Pharmaceutical Technology and Biopharmacy, Institute of Pharmaceutical Sciences, University of Graz, 8010 Graz, Austria  
<sup>5</sup> HEALTH—Institute for Biomedicine and Health Sciences, JOANNEUM RESEARCH Forschungsgesellschaft mbH, 8010 Graz, Austria  
<sup>6</sup> Diagnostic and Research Institute of Pathology, Medical University of Graz, 8036 Graz, Austria  
<sup>7</sup> Research Unit for Tissue Regeneration, Repair and Reconstruction, Division of Plastic, Aesthetic and Reconstructive Surgery, Department of Surgery, Medical University of Graz, 8036 Graz, Austria  
\* Correspondence: sebastian.nischwitz@medunigraz.at

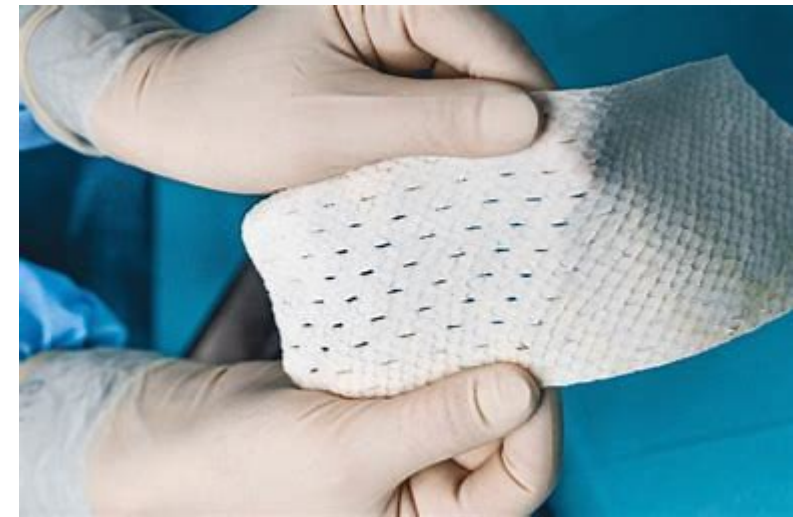


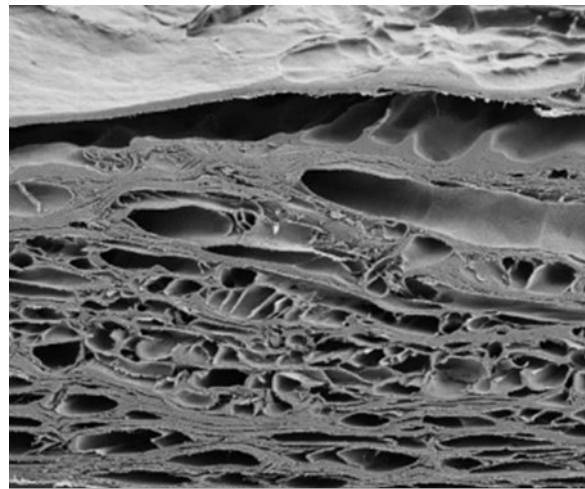






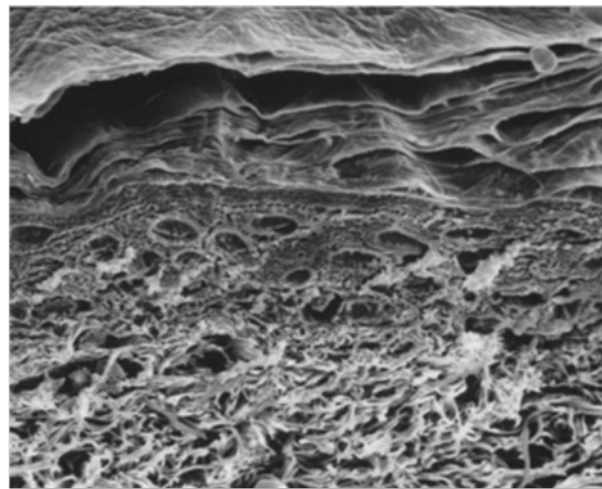
**kerecis**<sup>®</sup>



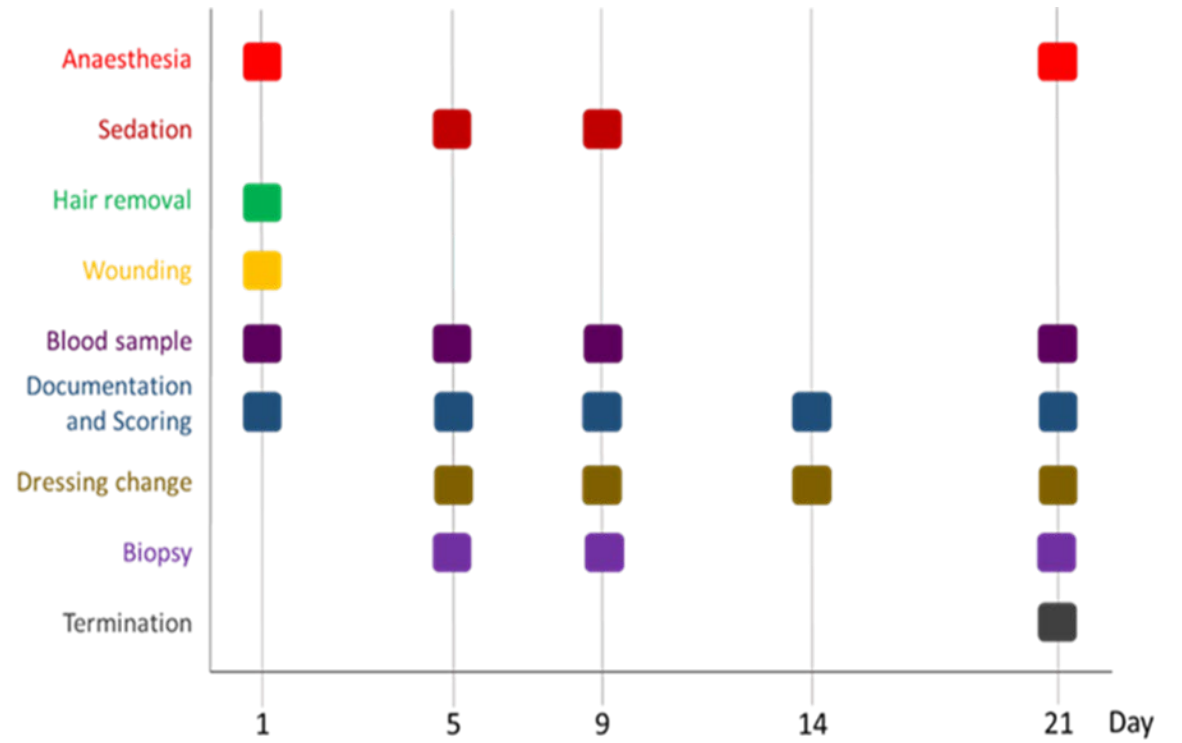
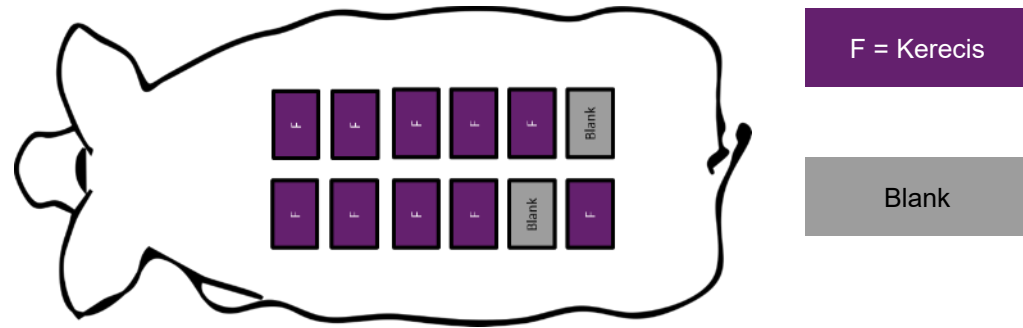


Epidermis

Dermis

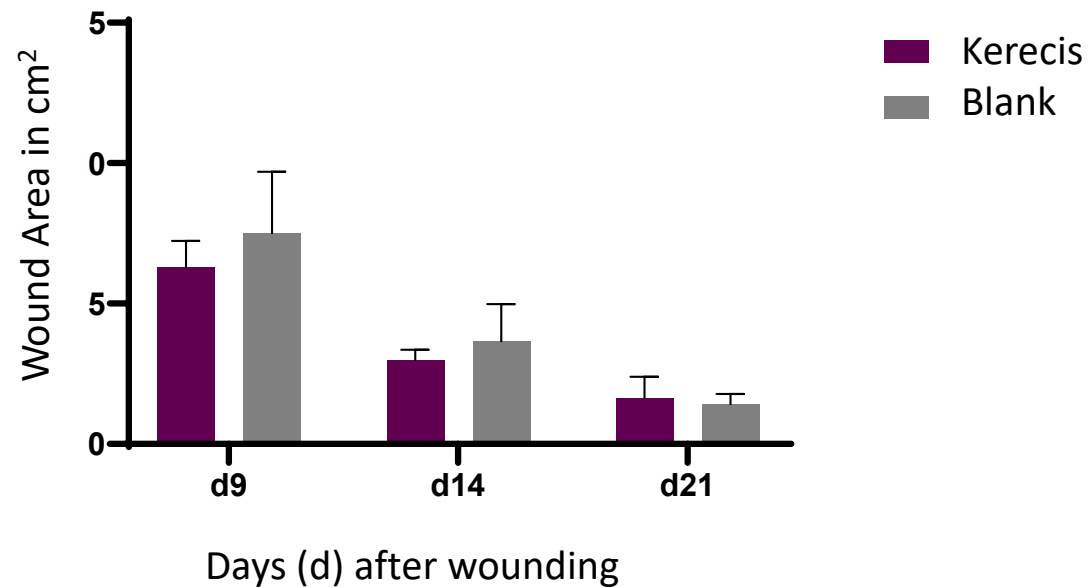








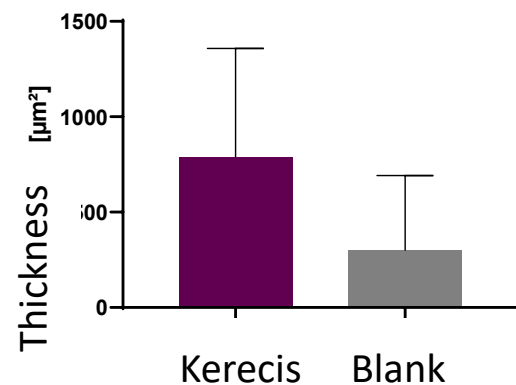
- From day 9 smaller unhealed areas than in the controls
- Effects primarily on the early phase of wound healing



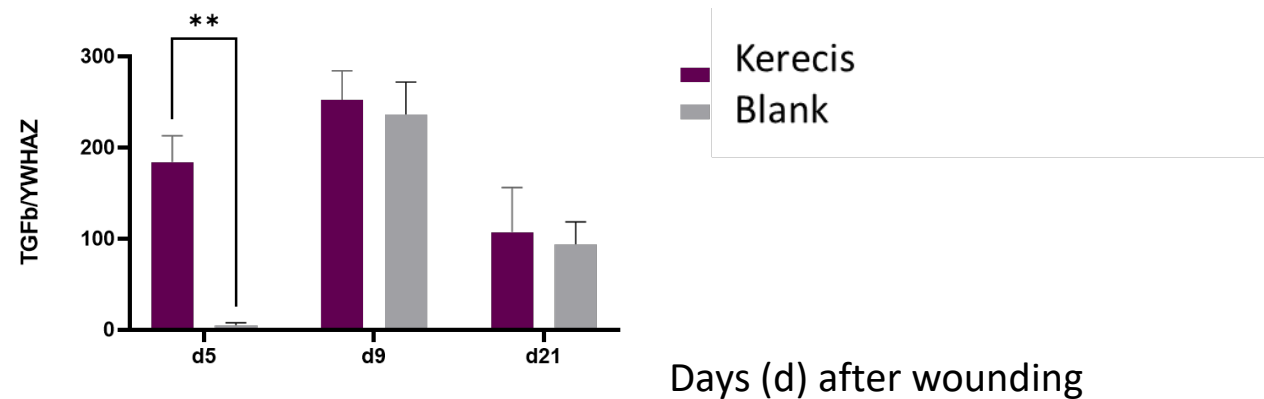
16 **Fish skin accelerates the formation of new tissue**

- More tissue formation from day 5 after injury (histology)
- Skin defect is already at skin level from day 9 on
- Increased expression of TGFb
  - Perfusion ↑
  - Proliferation ↑

**New tissue on Day 5 (Histology)**



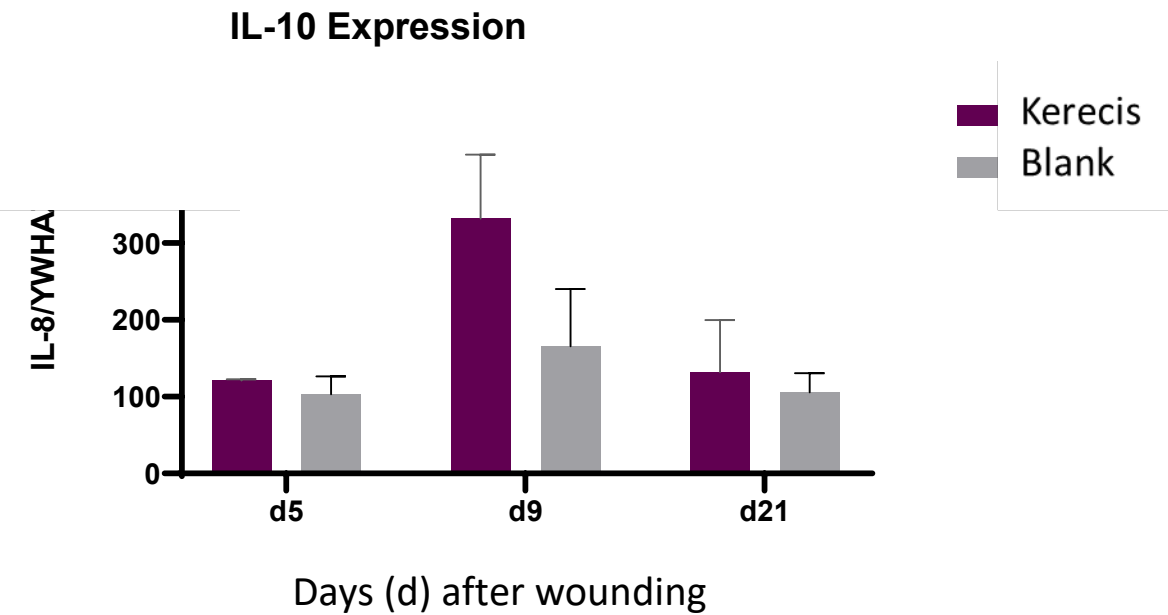
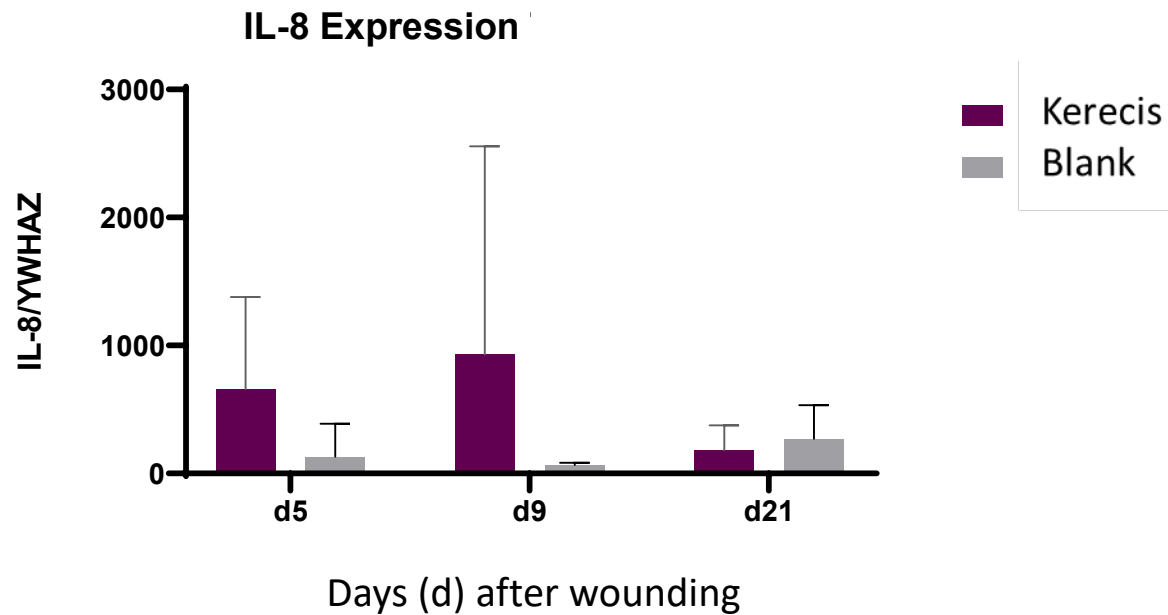
**Up Regulation of TGFb (qPCR)**



17 **Fish skin modulates the inflammatory response**

- Interleukin-8 upregulation (Day 5 + 9)
- Pro-inflammatory & proliferative

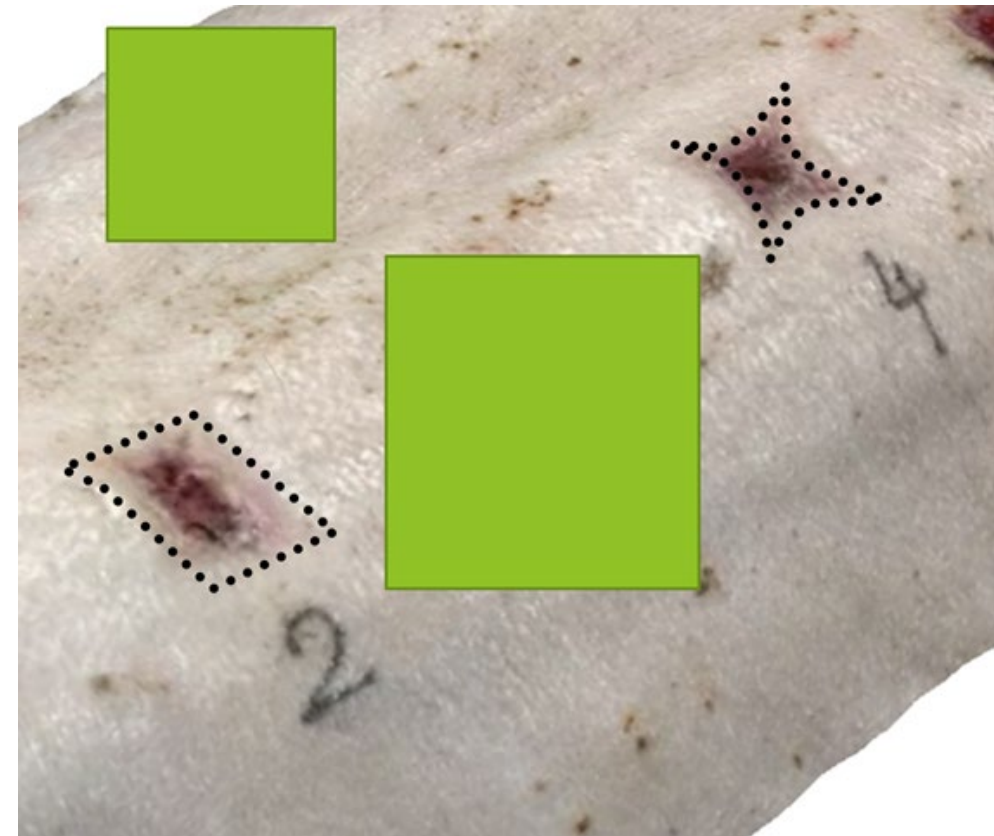
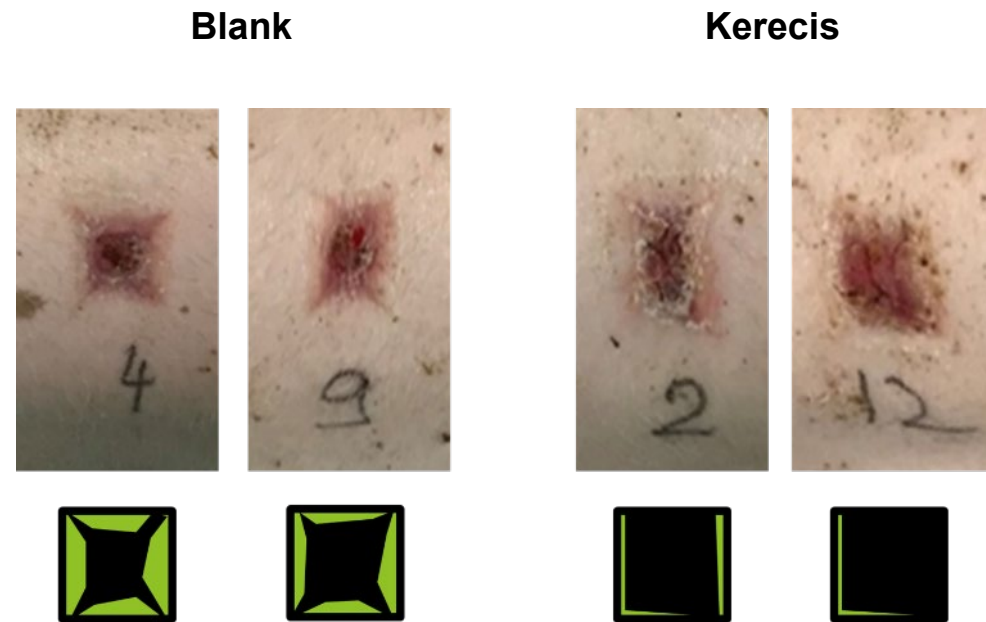
- Upregulation of Interleukin-10 (Day 9)
- Anti-inflammatory





### Fish skin counteracts wound contraction

- 21 days after wounding, the fish skin treated wounds show significantly less contraction than the controls



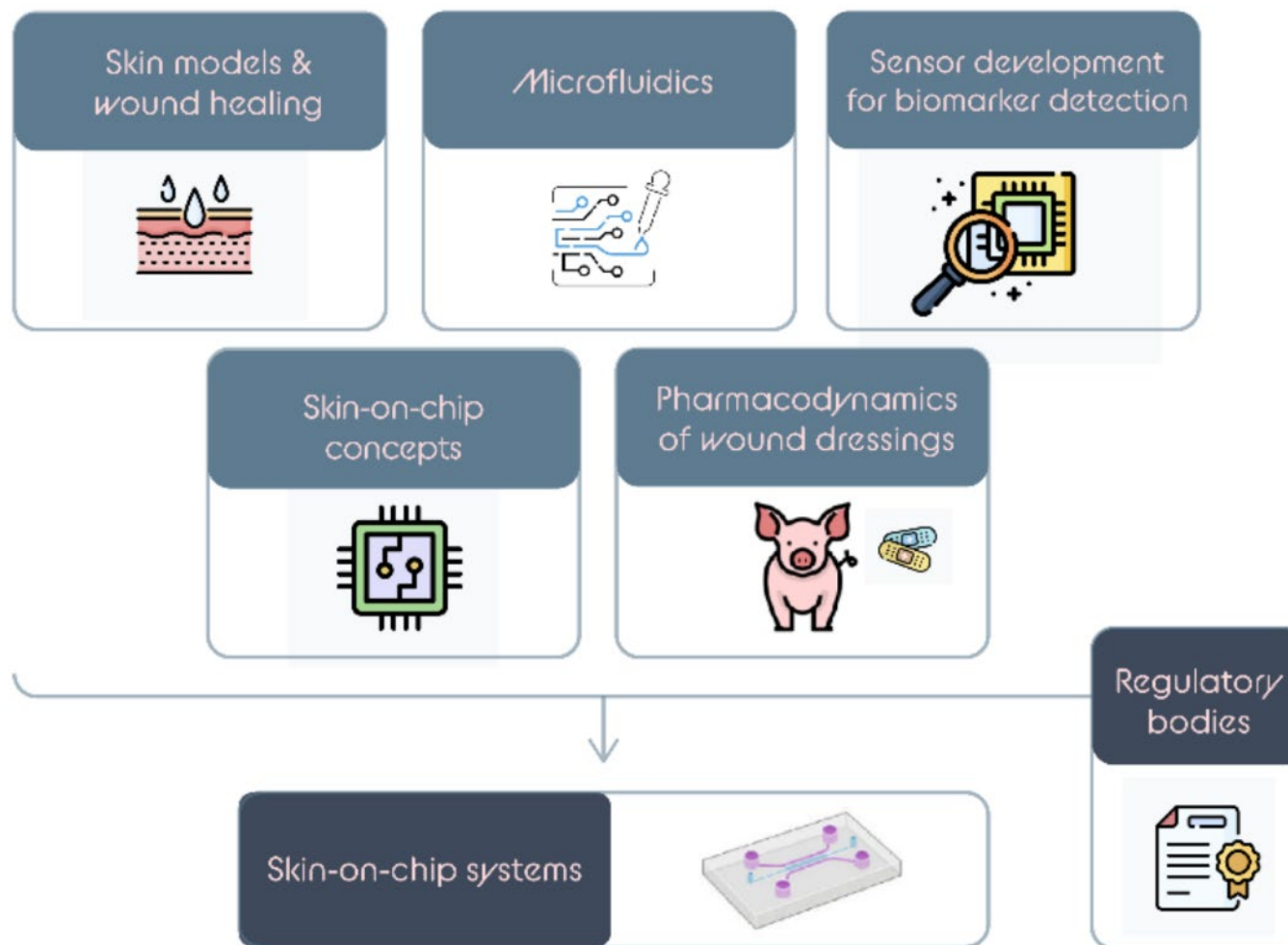
MILITARY MEDICINE, 00, 0/0:1, 2023

## Management of Severe Burn Wounds Colonized With Multi-resistant *Pseudomonas aeruginosa* and *Fusarium* Using Marine Omega3 Wound Matrix in a Female Victim of War

Christian Smolle, MD<sup>1</sup>\*; Judith C.J. Holzer-Geissler, MD\*<sup>2</sup>; Daniel Auinger, MD†<sup>3</sup>; Iurii Mykoliuk, MD†<sup>4</sup>; Hanna Luze, PhD, MD<sup>1</sup>\*; Sebastian P. Nischwitz, PD, PhD, MD\*<sup>5</sup>; Prof. Lars-Peter Kamolz, MD, MSc\*<sup>6</sup>

**ABSTRACT** War-related burns are common injuries, also among the civilian population. Additional trauma such as fractures or shrapnel wounds may add significant morbidity. Burn injuries in war zones are furthermore frequently undertreated and hence prone to complications. We report a case of a young female victim of war, whose severely infected burn wounds could be successfully healed using a combination of targeted antimicrobial therapy, wound conditioning using decellularized fish skin, and subsequent skin grafting.







***Danke für Ihre Aufmerksamkeit!***

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