



Nestlé Skin Health



Different skin preparation alternatives to curettage

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Introduction - Context

- DL-PDT with Metvix is efficacious for AK treatment
- Curettage is the recommended procedure to remove scales and crusts prior to PDT
 - To enhance penetration of MAL into the skin
 - To permit light to access all parts of the skin lesion ➡ PpIX activation
 - Improve efficacy



Aim of the study

- To compare different skin preparation alternatives to curettage :
 - Microneedle
 - Skin preparation pad
 - Tape stripping (reference)
- Endpoint measurement on *ex vivo* human skin model:
 - Transepidermal water loss (TEWL)
 - Dermal absorption of MAL



Experimental procedure

Microneedling



Dermaroller®
Model 902
200 µm needle length

Skin preparation pad



Gauze pads
PREPSTER™
Ambu® Unilect™

Tape stripping

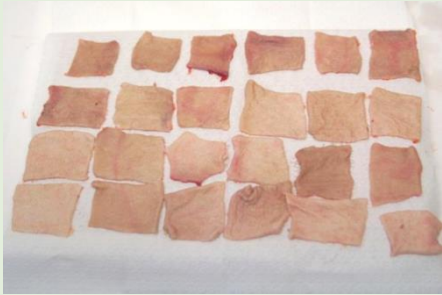


Adhesive tapes of
19 mm width



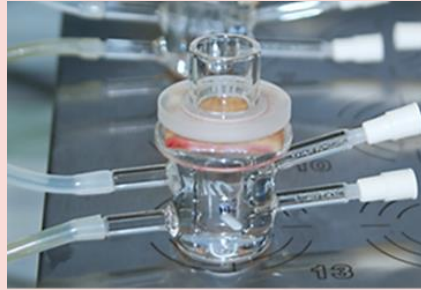
Experimental procedure

Ex vivo human skin



3 different donors

Franz diffusion cell



TEWL measurement

Multi-well plate

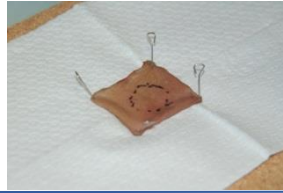


MAL dermal
absorption
measurement



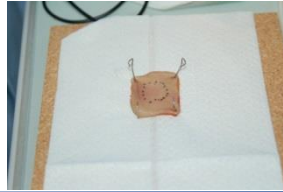
Experimental procedure

Tape stripping



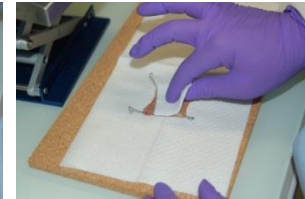
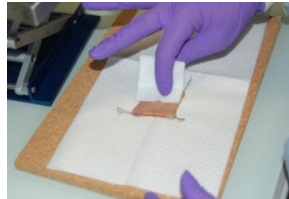
10 Tape strips

Skin preparation pad Ambu® Unilect™



6, 8, 10 passages

Skin preparation pad PREPSTER™



6, 8, 10 passages

Microneedling Dermaroller®



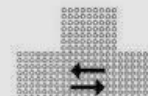
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Microneedle Moving Directions Figure:



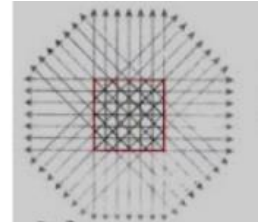
Vertically



Horizontally



Diagonally



Experimental procedure

TEWL Measurement



Tewameter



Before and after skin preparation

Dermal absorption - MAL



[¹⁴C]-MAL

Metvix cream



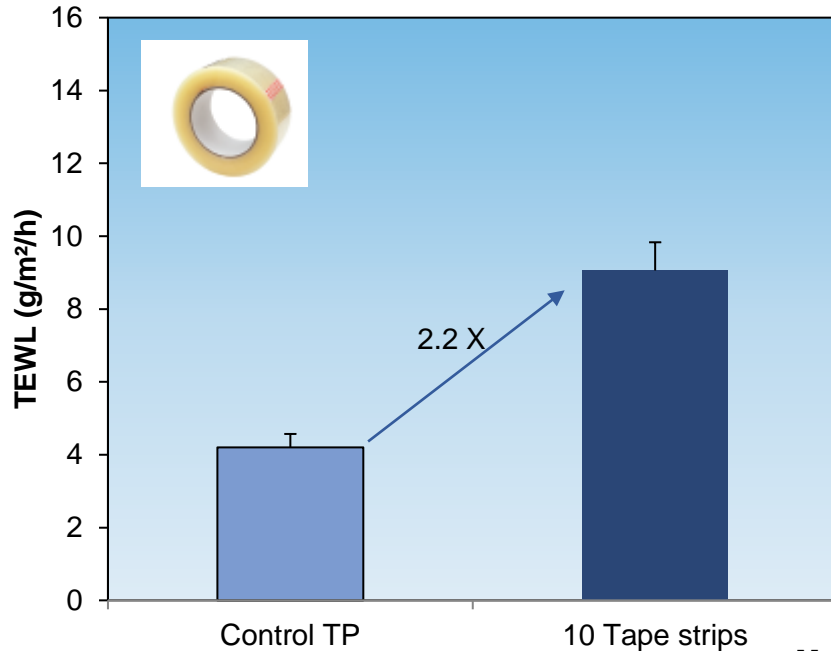
100 mg/cm², 2.5 h, N = 3



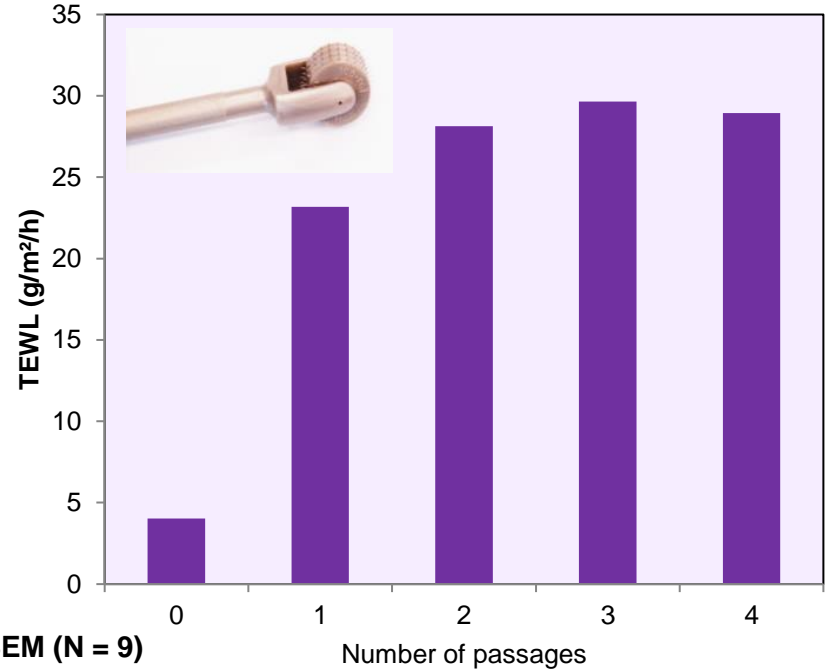
1. Results – TEWL



Skin preparation increases TEWL



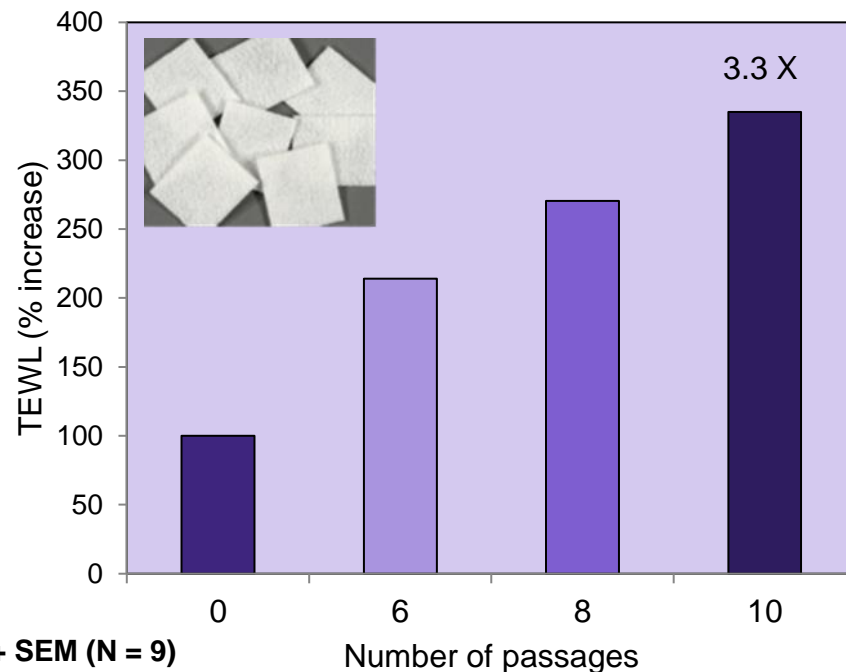
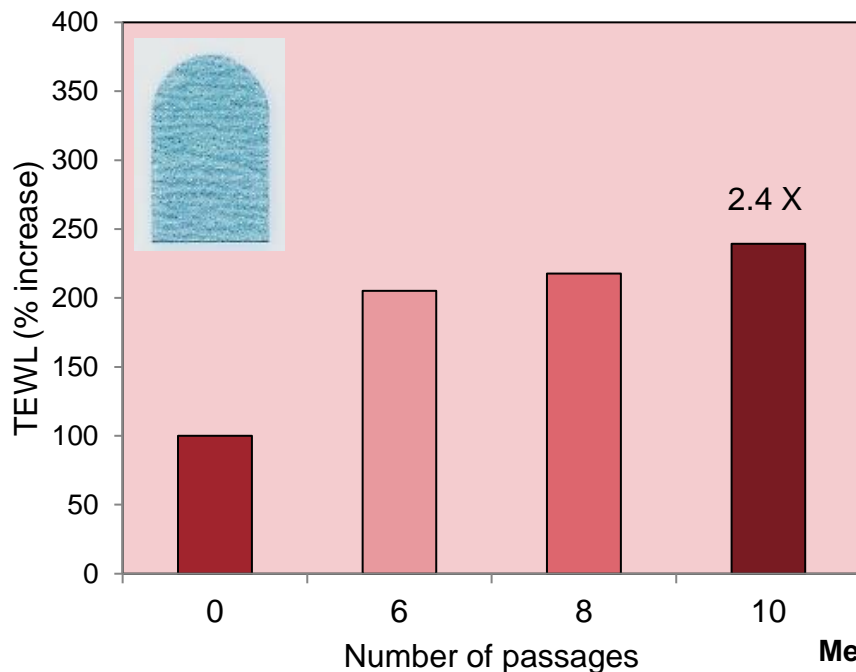
Mean + SEM (N = 9)



- TEWL increased after tape stripping and microneedling
- Skin barrier function impaired



Skin preparation increases TEWL



– TEWL increased with increasing number of pad passages

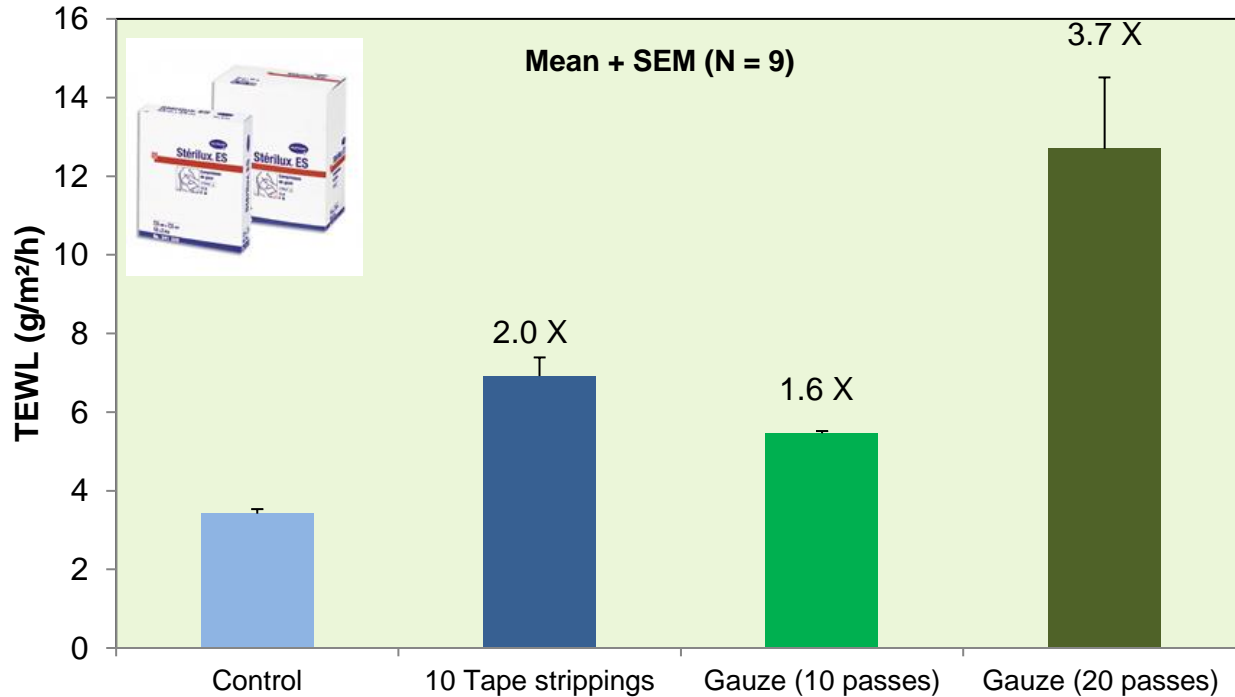
– PREPSTER™ > Ambu®

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Osman-Ponchet et al., 2017,
Dermatol Ther (Heidelb)

Confidential / 10

Skin preparation increases TEWL



- TEWL increased with increasing number of Gauze pads passages



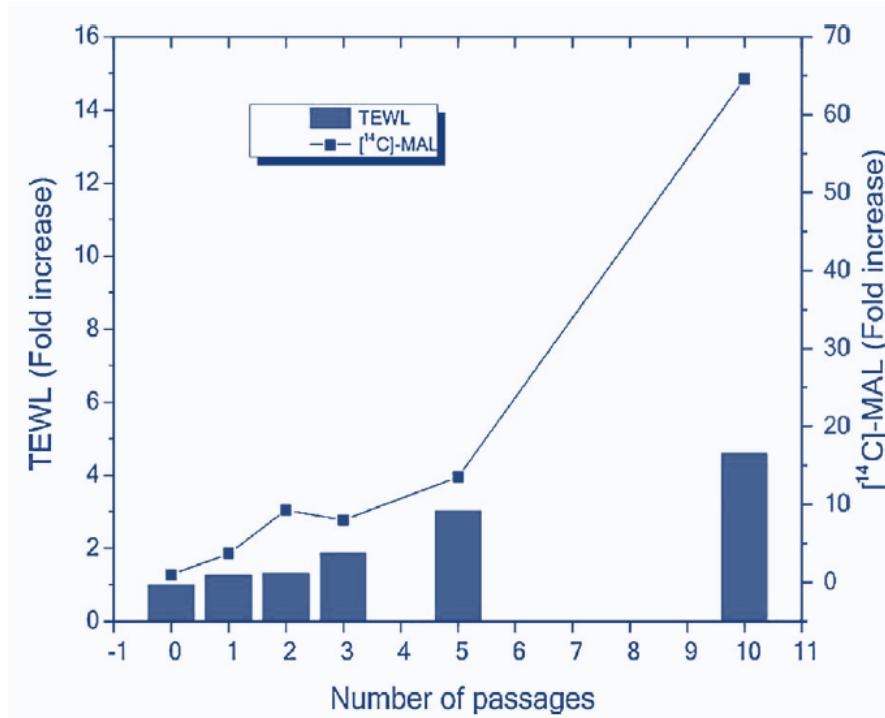
2. Results – Dermal absorption of MAL



Skin preparation increased MAL dermal absorption



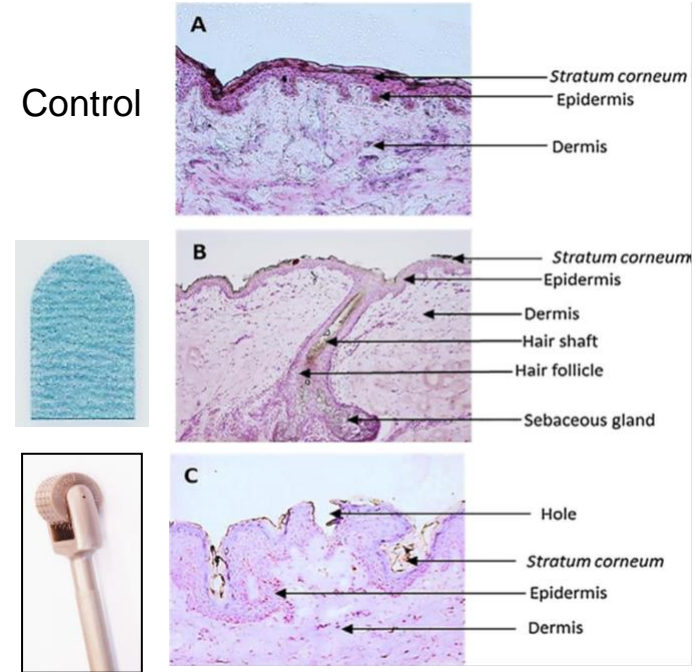
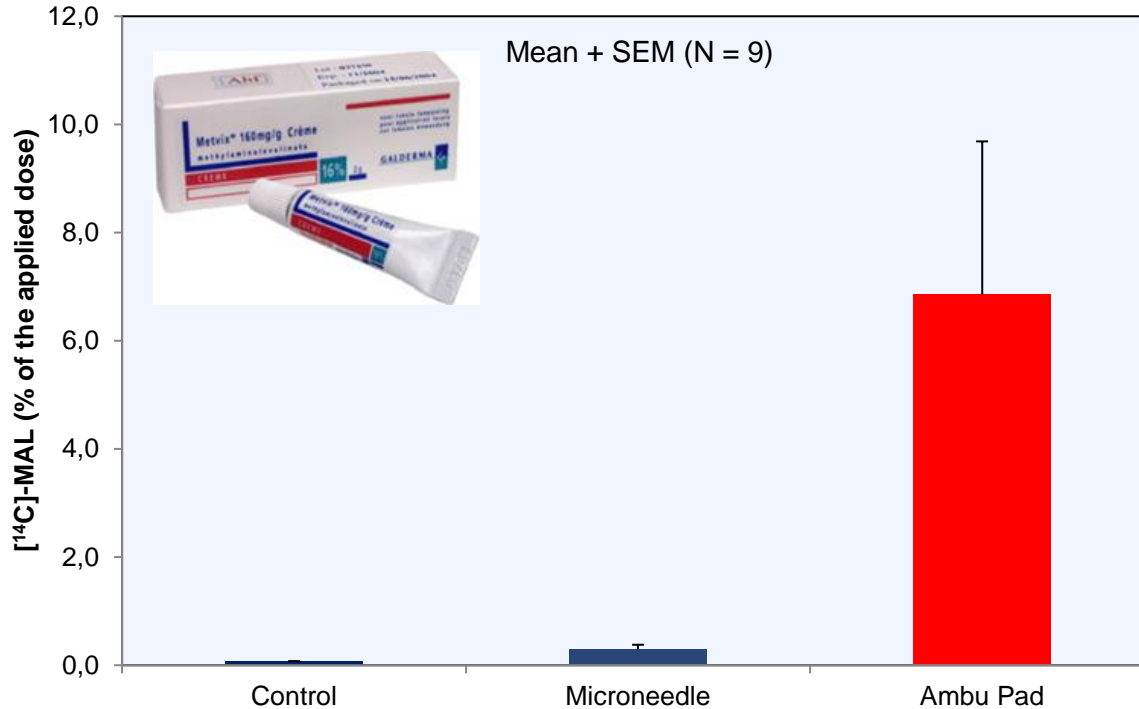
Ambu® Unilect™



*Osman-Ponchet et al., 2017,
Photodiagn. Photodyn. Ther*

- Dermal absorption of MAL increased by increasing number of pad passages
- Good correlation between TEWL and MAL absorption

Skin preparation increased MAL dermal absorption



- Dermal absorption of MAL increased by 4 times after microneedling and by 100 times after Ambu skin preparation pad

3. Conclusion



Conclusion

- Skin preparation pads improve skin penetration of MAL by approximately 100-fold
- Skin preparation pads:
 - Are good alternatives to curettage to treat larger surface areas in case of field treatment
 - Are cost effective, and very simple
 - Can be used for home-based treatment performed by patient



DMPK Team



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Thank you!