



# OpenTox 2020 Virtual Conference

## Cosmetics Assessment Session

Chair: Hanan Osman-Ponchet, PhD

September 22, 2020 | 13:00-14:00



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# Cosmetic definition (*Regulation (EC) No 1223/2009*)

- A "cosmetic product" is a substance or mixture intended to be placed in contact with the various external parts of the human body
  - Skin, hair, nails
  - Lips, teeth, mouth cavity
  - External genital organs
- **Intention**
  - Cleaning
  - Perfuming
  - Protecting
  - Changing their appearance,
  - Keeping in a good condition...



# European cosmetics regulation



- The 7<sup>th</sup> Amendment to the Cosmetics Directive 2003/15/EC (animal testing ban)
  - Prohibition to test finished cosmetic products and cosmetic ingredients on animals
- Regulation EC 1223/2009 (Safety)
  - Prohibition to supply a cosmetic product that may cause damage to human health
- Regulation EC 655/2013 (Claims “efficacy”)
  - Claims for cosmetic products shall be supported by adequate and verifiable evidence regardless of the types of evidential support used to substantiate them



# Cosmetic product criteria

- When developing a cosmetic product we should ensure:



# Testing categories – Cosmetic product

- There are three main types of *in vitro* testing for cosmetic products in the EU:
  - Quality testing
    - » Microbiological testing or Challenge testing (Preservative Efficacy Testing)
    - » Stability and compatibility testing
  - Safety and Toxicological testing
  - Efficacy and Performance testing (claims)

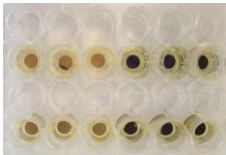


# Safety and toxicological testing



**Dermal absorption**

Poster presentation:  
Manon Barthe, PKDERM



**Skin and eye irritation**



**Phototoxicity**

**Genetic toxicology**

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**Skin sensitization**

Talk presentation:  
Andy Forreryd, SenzaGen



To evaluate the safety of cosmetic product on human health

# Efficacy and Performance testing (claims)

- Efficacy testing is made to demonstrate the efficacy of cosmetic product and justify product claims



Anti-inflammatory

Poster presentation:  
Douglas C Wu & Tzeira Sofer, Pomega Inc

Anti-ageing

Anti-pollution

Moisturizing

Sun protection

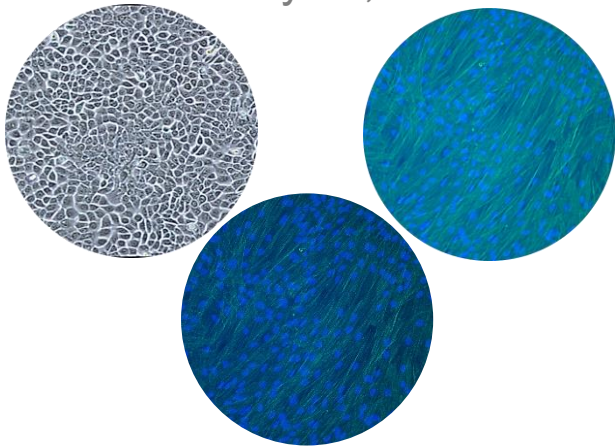
Wound healing

# Alternative skin models for safety and efficacy testing

## Early stage

- 2D-skin cell models

- Keratinocytes, Fibroblasts
- Melanocytes, dendritic cells...

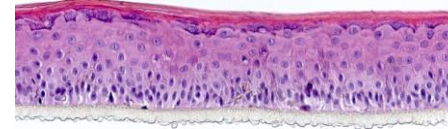


- Skin Sensitization
- Inflammation
- Skin ageing
- Pigmentation
- Wound healing

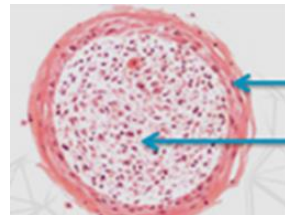
## Intermediate stage

- 3D-skin equivalent models

- Reconstructed human epidermis
- Full thickness skin models

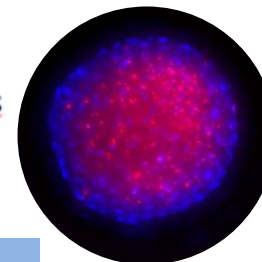


- Skin microtissues



Keratinocytes

Fibroblasts

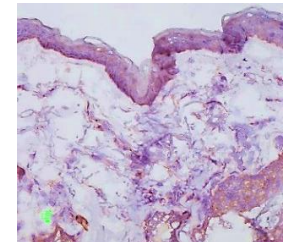


- Skin Irritation
- Inflammation
- Skin Sensitization

## Late stage

- Excised Human skin

- “Gold standard”



- Dermal absorption
- Skin metabolism
- Drug Transporters
- Inflammation



# Cosmetics Assessment Session 5 (22 September 2020)

- 13.00 – 13:10, Chair: Dr. Hanan Osman-Ponchet

- 13:10 – 13:40, Dr. Andy Forreryd

Dose-response analysis in GARD for assessment of skin sensitizer potency

- 13:40 – 13:55, Dr. Douglas C. Wu & Dr. Tzeira Sofer

Efficacy of a topical healing cream utilizing omega-5 conjugated linolenic acid based formulation on skin inflammation: *in vitro* evaluation on 3D-reconstructed human epidermis model

- 13:55 – 14:10, MSc Manon Barthe

Expression level of ABC transporters is not affected by lipopolysaccharide-induced inflammation in normal human keratinocytes and in 3D-reconstructed human epidermis model

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# Cosmetics Assessment Session 5 (22 September 2020)

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- 13:10 – 13:40, Dr. Andy Forreryd  
Dose-response analysis in GARD for assessment of skin sensitizer potency



- Dr. Andy Forreryd holds a Master of Science in molecular biotechnology from the Faculty of Engineering LTH at Lund University and a Doctor of philosophy in Immunotechnology from Lund University.
- He has many years of experience working with *in vitro* assay development, genomics and machine learning.
- Dr. Forreryd currently serves as a Scientific Liaison Manager at SenzaGen.
- He is also co-developer of the GARD platform for the assessment of chemical sensitizers and is the inventor of two patents related to the technology.

# Cosmetics Assessment Session 5 (22 September 2020)

13:40 – 13:55, Dr. Douglas C. Wu & Dr. Tzeira Sofer

Efficacy of a topical healing cream utilizing omega-5 conjugated linolenic acid based formulation on skin inflammation: *in vitro* evaluation on 3D-reconstructed human epidermis model



Douglas C. Wu, MD, PhD is a double board-certified dermatologist in both Canada and the USA with specialty training in cosmetic surgery via the prestigious American Society of Dermatologic Surgery

Dr. Wu has authored numerous medical articles and textbook chapters in both general and aesthetic dermatological literature and has lectured at major conferences across the globe



Dr. Tzeira Sofer is CEO at POMEGA Inc located in California, USA.

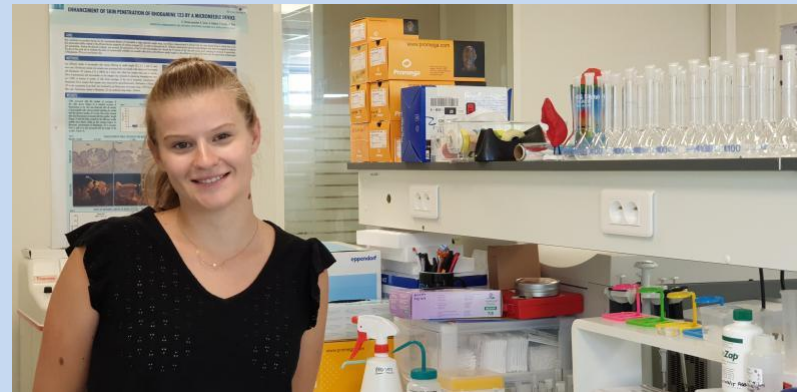
Tzeira now drew on her training as a nutritionist and her love for natural ingredients to begin developing her own creams based on the miracle oil from the pomegranate. She's preparing each formulation, hand selecting the freshest botanicals and adjusting combinations over time to deliver the perfect sensory experience.



# Cosmetics Assessment Session 5 (22 September 2020)

13:55 – 14:10, MSc Manon Barthe

Expression level of ABC transporters is not affected by lipopolysaccharide-induced inflammation in normal human keratinocytes and in 3D-reconstructed human epidermis model



- Manon is working at PKDERM. She has a Master of Science Degree in Health Engineering, Medicines and Health Products, mention Pharmacokinetics from Aix-Marseille University
- From her university education, she gained solid biotechnology, pharmacokinetics, and modeling skills.
- At PKDERM she is involved in several projects involving the impact of UV pollution on drug transporters in the skin and on the prevention of skin inflammation.
- She is going to start a PhD research program at PKDERM dealing with the impact of COVID-19 on skin and how to prevent infection of the skin with SARS-CoV-2.

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