

# Lipopolysaccharide-induced inflammation has no effect on the expression levels of ABC drug transporters in *in vitro* skin models

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*Pharmacokinetics courses – 2019/2020*

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# Outline

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PKDerm

About PKDerm

Context

Skin – ABC transporters

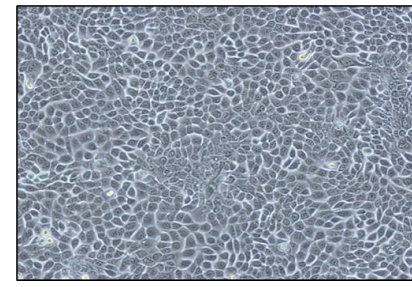
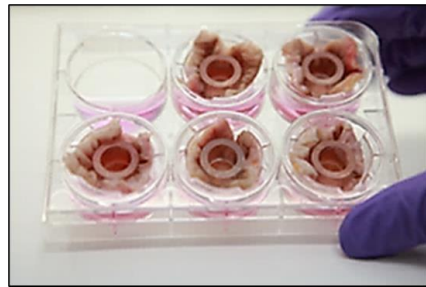
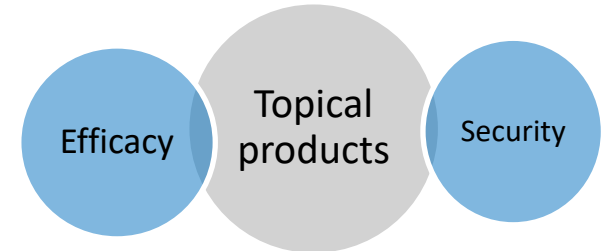
Results

mRNA expression of inflammatory markers  
mRNA expression of ABC transporters

Conclusions

# About PKDerm

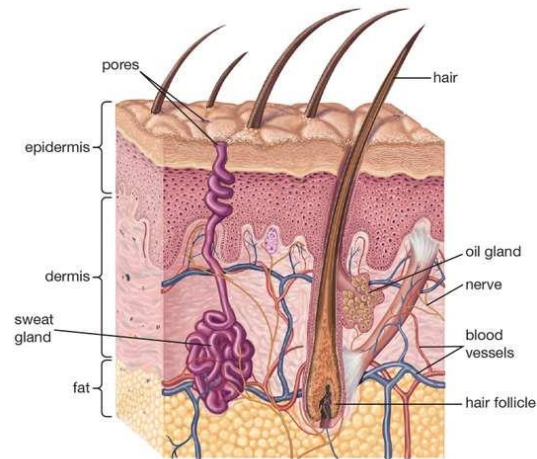
- Created in **2018**
- **Biotechnologie** laboratories, Grasse Biotech
  - Offers innovative *in vitro* solutions for :
    - Efficacy evaluation
    - Safety evaluation



- The market :
  - Cosmetic industry
  - Pharmaceutical industry
  - Agrochemical industry



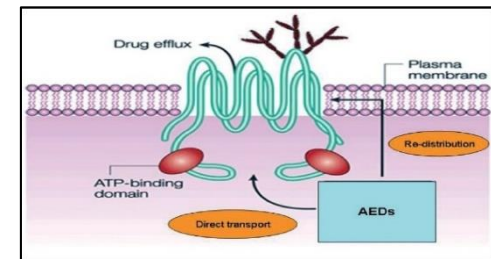
# Context



## Protective role

- Physical barrier (external aggression and dehydration)
- Biochemical barrier (metabolism enzyme & drug transporter)

ABC transporters: ATP-Binding Cassette = efflux transporters



A. Das et al; Indian J Human Genetics (2011)

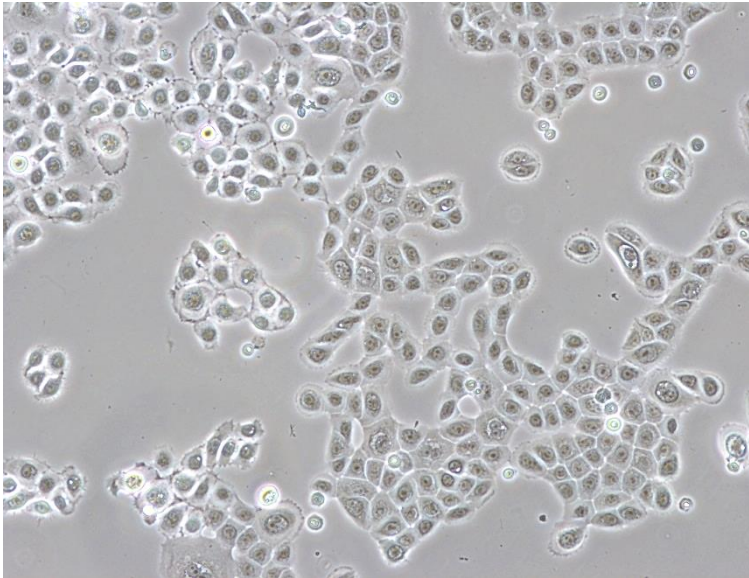
- **ABCB1, ABCC1/2 and ABCG2**
- **Expressed in the skin**

- **Role**
- **Physiological role:** Transport of glucose, lipids,...
- **Pharmacokinetics role:** drug-drug interactions

# Results

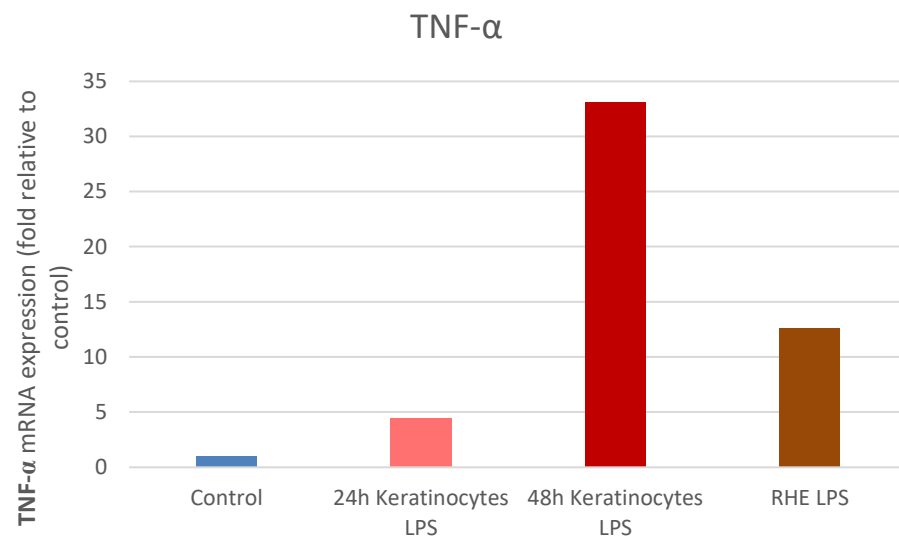
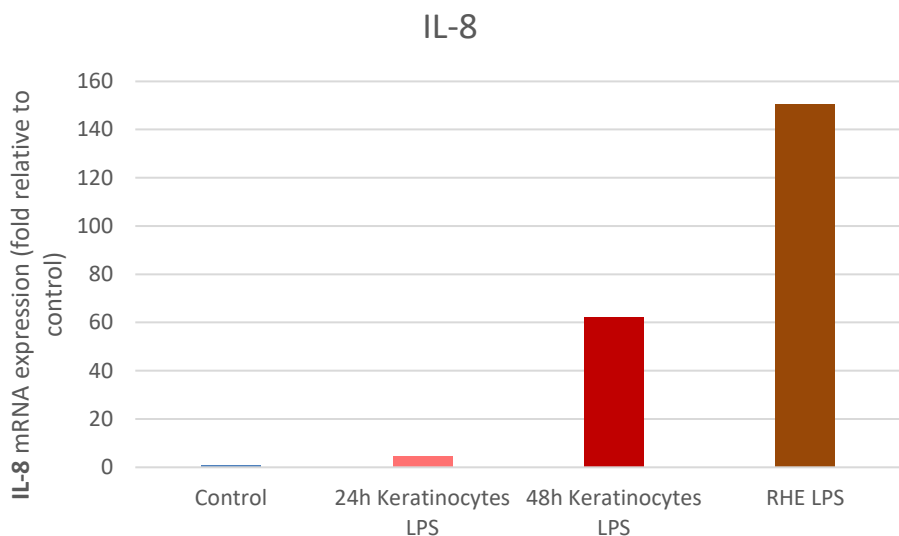
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mRNA expression of inflammatory markers





# mRNA expression of inflammatory markers

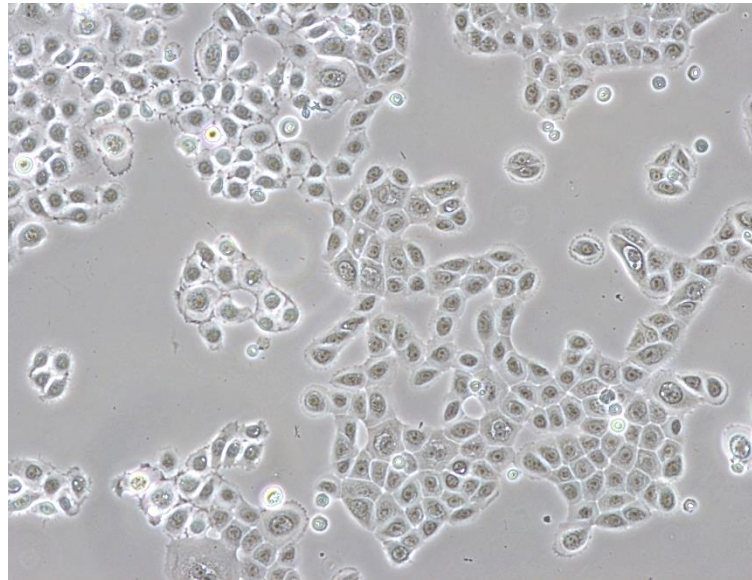


LPS increase mRNA expression of both inflammatory markers in any models

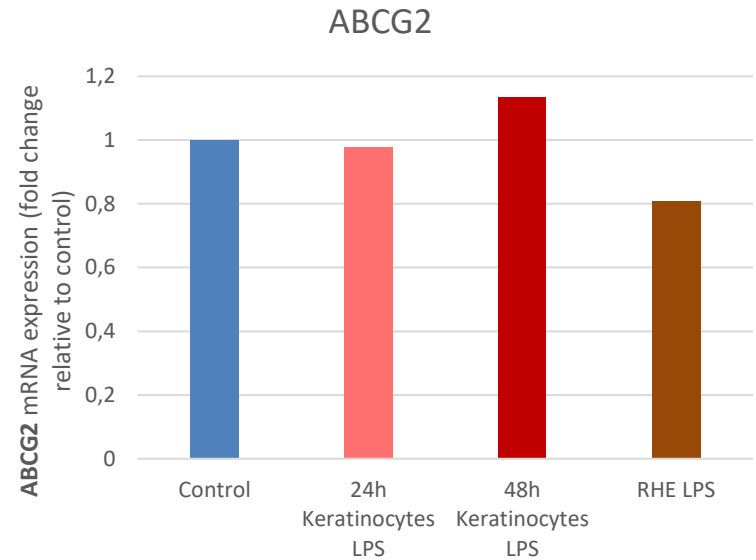
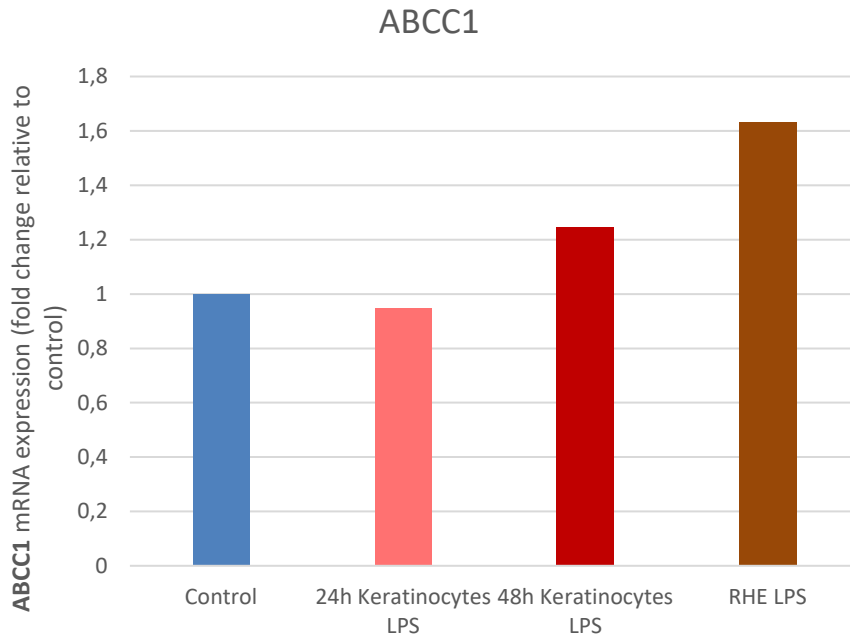
# Results

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## mRNA expression of ABC transporters



# mRNA expression of ABC transporters



Treatment with LPS did not induce any significant increase or decrease of ABCC1 and ABCG2 in keratinocytes and 3D-reconstructed human epidermis

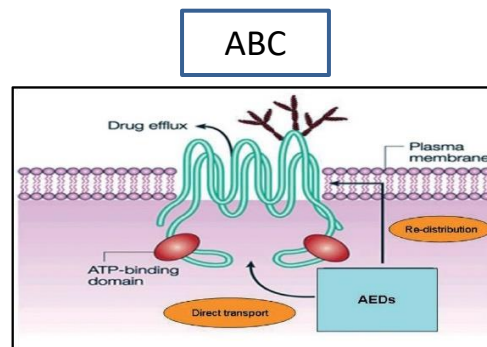


# Conclusions

- **No relationship** between inflammation induced by **LPS** and the expression of **ABC** transporters in the 2 in vitro skin models:
  - 2D-Keratinocytes
  - 3D-reconstructed human epidermis
- This result is of great importance and need to be considered in pharmacokinetic evaluation of anti-inflammatory agents when treating inflammatory skin



<https://biorender.com/>



A. Das et al; Indian J Human Genetics (2011)

***Merci de votre attention***

