



Gordon Research Conferences

**Gordon Research
conference on
Barrier Functions of
Mammalian Skin**

**Lucca (Barga)
Italy
April 18-23
1999**

Chair :
Hans Schaefer
Vice Chair :
Christopher Cullander

Gordon Research Conferences

Conference Program

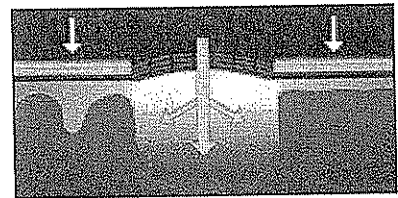
Barrier Function of Mammalian Skin

April 18-23, 1999
Renaissance Tuscany Il Ciocco Resort
Lucca (Barga), Italy

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The Gordon Research Conference on the Barrier Function of Mammalian Skin is a biennial event, scheduled for its sixth meeting. The past conferences have been held in the US. This meeting will be organized for the first time in Europe (April 18-23, at the Conference Center Il Ciocco in Barga, Italy). Il Ciocco is now frequently used for Gordon Conferences in Europe. As with all GRC's, registration is limited, and this meeting has always been oversubscribed.



The Barrier Function conference will fully conform to the GRC policy that: the subject matter has been and will be at the frontiers of science; the meeting will be attended by world leaders in the field; emphasis will be on the most recent advances; important and unresolved issues will be identified, defined and analyzed; new research opportunities will be identified; the presentations will allow time for extensive discussion and broad participation; and a diversity of participants will be encouraged, including a broad representation from academia, industry, and government. A significant participation of junior scientists is expected and will be specifically supported.

Sunday 18.4

2:00 - 6:00 pm Registration

6:00 pm Dinner

7:30 - 9:30 pm Evening Session

7:30 - 7:40 Introductory Remarks (**Hans Schaefer**, Clichy/France, Chair) (**Bruno Giannasi**, Il Ciocco, Local Manager)

Optical properties (**Christopher Cullander**, San Francisco/US, Vice Chair)

7:40 - 8:00 **Pierre Corcuff**, Aulnay-sous-Bois/France

"Optical Properties of the Skin Revisited by *in vivo* Confocal Microscopy"

8:15 - **Mark Orazem**, Gainesville/US

8:35 "Characterization of Transdermal Delivery *in-vitro* using Optical and Electrochemical Impedance"

8:50 - 9:10 **Robert Imhof**, London/United Kingdom

"Opto-Thermal *in-vivo* Transdermal Diffusion Measurement"

9:30 pm Welcome Reception (Italian Wine and Cheese)

Monday 19.4

9:00 - 12:30 am Morning Session

Barrier Formation (Hans Schaefer, Clichy/France, Chair)

9:00 - **Gonneke Pilgram**, Leiden/Netherlands

9:20 "Electron Diffraction: a New Tool to Establish the Lateral Lipid Packing of Human Stratum Corneum in vivo and ex vivo"

9:35 - 9:55 **Theodora Mauro**, San Francisco/US
"Ionic Gradients in the Skin"

10:10 - 10:30 **Richard Eckert**, Cleveland/US
"Calcium, S 100 Proteins and Cornified Envelope Formation"

10:45-11:15am - Photograph and Coffee Break

11:15 - 11:35 **Peter Steinert**, Bethesda/US
"Enzymatic Attachment of Ceramides to the Cornified Cell Envelope"

11:50 - **Kenneth Feingold**, Sans Francisco/US

12:10 "Regulation of Keratinocyte Differentiation and Barrier Development by PPAR and FXR Activators"

12:30 - Lunch

4:30 pm Coffee and Cookies

Monday 19.4

5:30 - 7:30 pm Evening Session

Modeling (Neil Kitson, Vancouver/Canada, Chair)

5:30 - 5:50 **Jonathan Hadgraft**, Cardiff/United Kingdom
"Physicochemical Determinants of Skin Penetration"

6:05 - 6:25 **Bo Michniak**, Columbia/US
"*In vitro* Activities of Novel Dermal Penetration Enhancers"

6:40 - 7:00 **William van Osdol**, Palo Alto/US
"Predictive Modeling of Permeation Enhancement"

7:15 - 7:35 **Thomas Magin**, Düsseldorf/Germany
"Barrier Defects in Keratin 10-Deficient Mice"

8:00 pm Dinner

9:15 pm Poster

Tuesday 20.4

9:00 - 12:00 am Morning Session

Models/Methods (Maja Ponec, Leiden/Netherlands, Chair)

9:00 - 9:20 **Isabelle Castiel**, Clichy/France
"Lipid Synthesis and Barrier Function of Reconstructed Skin"

9:35 - 9:55 **Esther Schnetz**, Erlangen/Germany
"Microdialysis as a Tool for in vivo and in vitro Studies of Percutaneous Penetration"

10:10 - **Esther Boelsma**, Leiden/Netherlands

10:30 "Skin Microdialysis as a Tool to Measure Percutaneous Penetration in Human Skin in vitro"

10:45-11:15am - Coffee Break

- 11:15 - **Delphine Imbert**, Foster City/US
11:35 "Characterization of Physical and Enzymatic Barriers in Porcine Buccal Mucosa in vitro"
11:50 - 12:10 **Dennis Roop**, Houston/US
"Transgenic Mouse Models Exhibiting Loss of Epidermal Barrier Function"
12:30 pm Lunch
4:30 pm Coffee and Cookies

Tuesday 20.4

5:30-7:30pm - Evening Session

Pathology and Repair of the Barrier (Manigé Fartasch, Erlangen/Germany, Chair)

- 5:30 - **Steven Hoath**, Cincinnati/US
5:50 "Considerations on the Role of the Stratum Corneum as the Boundary of an Autopoietic System"
6:05 - 6:25 **Ehrhardt Proksch**, Kiel/Germany
"Signaling in Barrier Repair"
6:40 - 7:00 **Paul Robbins**, Stanford/US
"Achieving Lasting Genetic Correction of Inherited Disorders of Cornification"
8:00 pm - Dinner
9:15 pm - Poster

Wednesday 21.4

9:00 - 12:30 am Morning Session

Exobiotics/Defense (Jens Thiele, Düsseldorf/Germany, Chair)

- 9:00 - 9:20 **Peter Elsner**, Jena/Germany
"Barrier Against Microorganisms"
9:35 - 9:55 **Gary Darmstadt**, Seattle/US
"Antimicrobial Barrier Function of the Skin"
10:10 - **Mitsuhiro Denda**, Yokohama/Japan
10:30 "The Effect of Environment on Permeability Barrier Homeostasis and Epidermal Proliferation"
10:45 - 11:15 am - Coffee Break
11:15 - **Karen Burke**, New York/US
11:35 "The Penetration and Efficacy of the Topical Antioxidants l-Selenomethionine and d-alpha Tocopherol"
11:50 - **Jean Krutmann**, Düsseldorf
12:10 "The Role of Ceramides in Ultraviolet A Radiation-Induced Gene Expression in Human Keratinocytes"
12:30 pm Lunch
4:30 pm Coffee and Cookies

Wednesday 21.4

5:30 - 7:30 pm Business Meeting

8:00 pm Dinner

9:15 - 10:30 pm - Debate

Quantitative Structure Penetration Relations, Do They Predict The Real Thing?

Moderator : **Bo Forslind**, Stockholm/Sweden

Pro Team : **Jonathan Hadgraft**, Cardiff/UK

Con Team : **Jean-Paul Marty**, Châtenay-Malabry/France

EFFECT OF STRATUM CORNEUM LIPID LIPOSOMES ON DISTURBED SKIN BARRIER

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Abstract

It seems that topical application of complete mixtures of stratum corneum (SC) lipids to damaged skin provides a normal rate of barrier repair. The mimetic bilayer character of liposomes in relation to the organized lipid structures of the stratum corneum may provide a suitable strategy to incorporate an additional lipid content into the skin. Recent work has demonstrated that liposomes prepared by lipids modelling the stratum corneum favour the retaining reservoir capacity of this layer contrary to the liposomes formed by conventional phospholipids, which enhanced transdermal penetration.

The aim of the present work is to study the effect of SC lipid liposomes when are topically applied on disturbed human skin, measured *in vivo* by changes in Transepidermal Water Loss (TEWL) and Skin Capacitance. Sodium lauryl sulfate (SLS) treatment and stripping technique were used as a chemical or a mechanical form to disrupt the skin barrier. SC lipid liposomes and placebo solution (0.9% NaCl) were applied in the delimited areas of damaged forearms. TEWL and Skin Capacitance measurements were performed before and after disturbing treatments, and 30min, 1, 2 and 3 hours after liposome applications on the skin. Increased values of Skin Capacitance together with no modified or decreased TEWL values may be related to an improvement of water holding capacity of the skin. Our results indicate that SC lipid liposomes compared with placebo solution, cause no effect in SLS damaged skin, whereas an increase in water holding capacity is produced when they are applied to stripped skin.