Gordon Research Conference

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Barrier Function of Mammaliam Skin

August 5-10, 2007

Salve Regina University
Newport, RI (USA)

Conference Program

Chairs

Mike S. Roberts
&
Antony V. Rawlings

Gordon Research Conferences

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Barrier Function of Mammalian Skin

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Chairs:
Mike S. Roberts & Anthony V. Rawlings

Vice Chairs:
Walter M. Holleran & Neil Kitson

The 10th Gordon Research Conference on Barrier Function of Mammalian Skin is scheduled to be held August 5-10, 2007 at Salve Regina University in Rhode Island. The Conference will seek to have an optimal mix of attendees from academics, industry and government, in seniority and in country. The 2007 conference proposes a balance of topics with individual sessions devoted to the Topics listed below. In addition, three poster sessions are scheduled for the evening with up to 30 presentations each, which will complement the diverse themes of the meeting.

The 2007 GRC meeting on Barrier Function of Mammalian Skin will be an important interdisciplinary venue, where the latest information and developments in this field will be shared. It will hopefully lead to immediate, practical consequences for patients with skin and other disorders as well as to new insights into the origin and maintenance of mammalian barrier function.

Contributors
NATIONAL INSTITUTES OF HEALTH JOHNSON & JOHNSON COMPANIES COLGATE-PALMOLIVE COMPANY PFIZER, INC. BEIERSDORF AG ESTEE LAUDER COMPANIES PENTAPHARM LTD TRANSFORM PHARMACEUTICALS L'OREAL

SUNDAY

2:00 pm - 11:00 pm	Arrival and Check-in
6:00 pm	Dinner
7:30 pm - 7:40 pm	Welcome / Introductory Comments by GRC Site Staff
7:40 pm - 9:30 pm	**The adaptive and reactive barrier** Discussion Leader: **Neil Kitson** (UBC, Canada)

7:40 pm - 8:05 pm	**Daniel Maes** (Estee Lauder, US) "Body site, seasonal, psychological, gender & racial differences in barrier function"
8:05 pm - 8:12 pm	Discussion
8:12 pm - 8:47 pm	**Brian Nickoloff** (University Of Chicago Medical Center, USA) "Cracking the Cytokine Code Contributing to Barrier Dysfunction in Psoriatic Plaques"
8:47 pm - 8:55 pm	Discussion
8:55 pm - 9:20 pm	**Michael Cork** (Children's Hospital, Sheffield, UK) "Barrier functionality & repair - a clinical view"
9:20 pm - 9:30 pm	Discussion
MONDAY	
7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	**Stratum corneum formation and maturation** Discussion Leader: **Tony Rawlings** (AVR Consulting Ltd, UK)
9:00 am - 9:30 am	**Eleftherios Diamandis** (Mount Sinai Hospital, Canada) "Desquamation : Whats new?"
9:30 am - 9:40 am	Discussion
9:40 am - 10:10 am	**Michel Simon** (Faculté de Médecine, Toulouse Cedex, France) "Peptidylarginine deiminase isoenzymes & function"
10:10 am - 10:15 am	Discussion
10:15 am	Coffee Break / Group Photo
10:50 am - 11:20 am	**Erwin Tschachler** (Medical University of Vienna, Austria) "Differentiation or apoptosis?"
11:20 am - 11:30 am	Discussion
11:30 am - 12:00 pm	**Irwin McClean** (University of Dundee, United Kingdom) "Functions of filaggrin & associated genes"
12:00 pm - 12:10 pm	Discussion
12:10 pm - 12:20 pm	Hot Topic: **Sheree Cross** (University of Queensland, Australia) "Skin surfactant Proteins"
12:20 pm - 12:30 pm	Poster Talk: **Carolyn Byrne** (Queen Mary University of London) "AKT signaling in skin barrier development and homeostasis"
12:30 pm	Lunch
1:30 pm - 6:00 pm	Free Time
6:00 pm	Dinner
7:30 pm - 9:30 pm	**Strategies to maximise and assess skin penetration** Discussion Leader: **Mike Roberts** (University of Queensland, Australia)
7:30 pm - 8:00 pm	**Annette Bunge** (Colorado School of Mines, USA) "Interplay of formulation thermodynamics, solute structure and the skin barrier"
8:00 pm - 8:10 pm	Discussion
8:10 pm - 8:40 pm	**Richard Guy** (University of Bath, UK) "Assessment of topical drug delivery and bioavailability"

CHARACTERIZATION OF SKIN BY DIFFRACTION OF COLLAGEN FIBRES

O. López[1], M. Cócera[2], A. de la Maza[1], M. Costa[3], C. Texeira[3], L. B. Barros[1], M. Fernández[4], M. Sabés[3].
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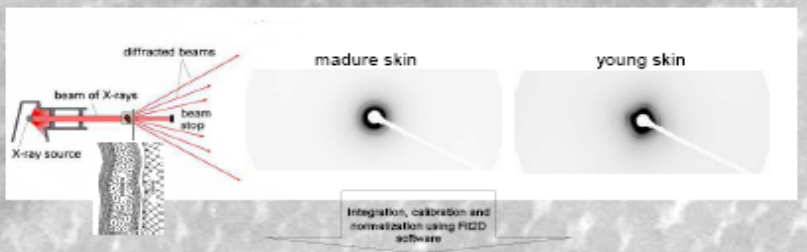
Changes in orientation and arrangement of collagen during aging and diseases processes are manifested as wrinkling, loss of elasticity, dryness and impairment in the barrier function. Thus, analysis of collagen characteristics such as distribution, and orientation can provide insight concerning skin functions and conditions.

OBJECTIVE

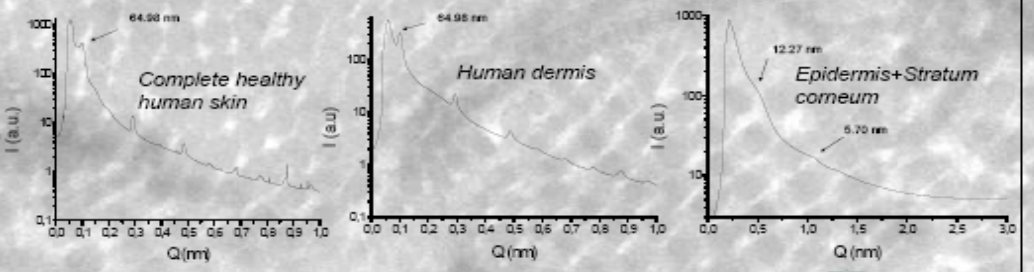
Study the supramolecular arrangement of skin layers: Stratum corneum, epidermis and dermis, by Small Angle X-ray Scattering (SAXS) using Synchrotron source.

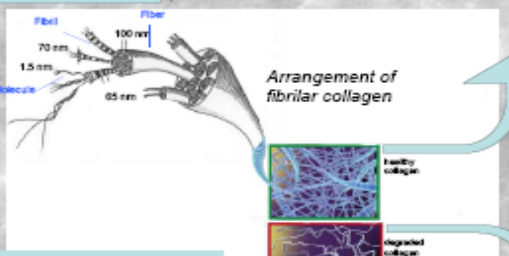
Experiments performed at the BM16 beam line, European Synchrotron Radiation Facility (ESRF). detector: MARCCD 165, positioned 1 and 5 m from the sample.



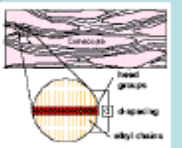
•Scattering patterns from complete healthy skin show several orders of the collagen peaks.
•Samples from younger subjects present higher number of diffraction orders and marked anisotropy probably due to a higher degree of orientation of collagen.

•Complete skin and dermis profiles consist on several peaks associated with the periodical axial electron density of the colagen fibrils about 65 nm. These peaks have been modeled from a periodical function representing the electron density (1).



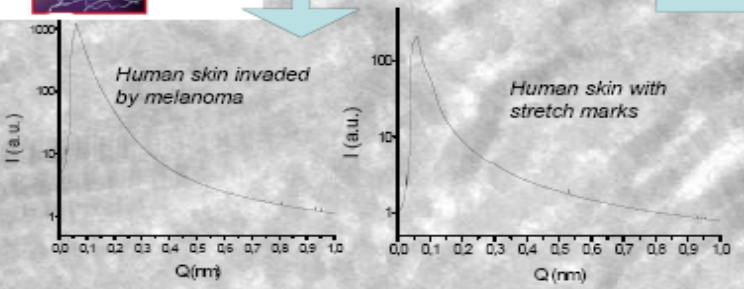


•Reflections corresponding to the intercellular lipid organization of SC were evidenced.



•Collagen peaks are clearly visible in healthy skin, while they are almost non-existing in invaded by melanoma or in stretched skin samples indicating the degeneration of collagen.

•The break-up of collagen fibers in tissue invaded by melanoma could be caused by collagenase, a metalloproteinase present in some tumours such as melanoma (2).



The evaluation of collagen arrangement using SAXS-Synchrotron reports information about the aging, conditions and pathology of the tissue and the systematic study of different samples allows obtaining scattering signatures characteristic of each skin layer. All in all, the potential of this methodology as a diagnostic tool for skin purposes should be considered.

References

(1) Suhonen H et al. Physics in Med Biol 50 (2005) 5401-5416.

(2) Iida J et al. Melanoma Res 17(4) (2007) 205-213.

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