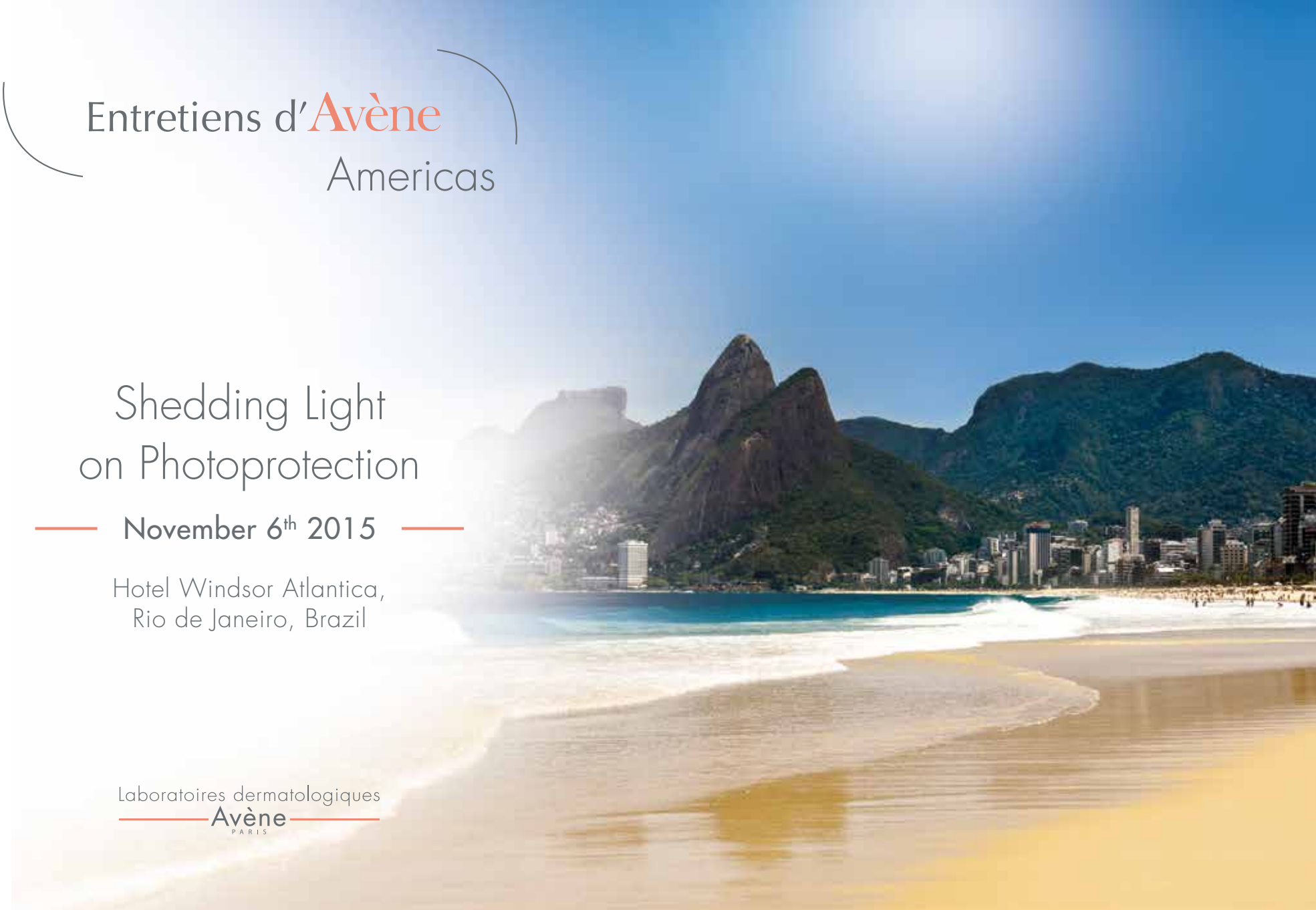
Entretiens d'Avène
Americas

Shedding Light on Photoprotection

November 6th 2015

Hotel Windsor Atlantica,
Rio de Janeiro, Brazil



Laboratoires dermatologiques
Avène
PARIS

SHEDDING LIGHT

on photoprotection

WELCOME NOTE

Tania F. Cestari - President

Dear colleagues,

It is my great pleasure to invite you to Brazil which is hosting the 14th edition of "Entretiens d'Avène". Since 2002, this meeting has enabled a transdisciplinary exchange between science and practice in different speciality topics of dermatology. Three years ago, I already had the opportunity to participate in the 11th edition of this event, which then took place in the tiny village of Avène in the south of France. It is a distinguished honor to now be the president of the first edition of "Entretiens d'Avène" to be held on the American continent.

The topic of this 14th edition, **photodermatology**, is at the center of every dermatologists's concerns. With skin cancer rates continuing to massively increase worldwide, dermatologists are at the forefront in dealing with what some people consider to be a real epidemic. We have seen relatively rapid and encouraging changes take place in the field of skin cancer treatment over the past few years. However, a lot is still to be done and not least in the field of prevention. Tremendous progress has been made in developing safe and effective sunscreens, and many of my respected friends and colleagues are also active in increasing skin cancer awareness and promoting public health education. However photodermatology comprises a wide field of different subject areas that are relevant in daily clinical practice: photodermatoses, hyperpigmentation, photoaging, phototherapy, etc. Even if our areas of speciality may be different, as clinicians, our common goal is to administer the best possible care to our patients. Therefore, the focus of "Entretiens d'Avène" will be on topics where recent research can be expected to be rapidly turned into new clinical progress.

It is a pleasure to see dermatologists embrace the new opportunities available for exchanging thoughts and ideas, and the "Entretiens d'Avène" meeting here clearly acts as a facilitator.

I would like to thank our two co-chairmen, Henry Lim and Antony Young, for their help in recruiting a distinguished international faculty for this event.

I am convinced that this first American edition of "Entretiens d'Avène" will be an exciting meeting and would like to thank the organizers for working hard on bringing specialists together in forums like this, thus ensuring that dermatology continues to be a field where the advances of science are turned into clinical solutions that benefit every patient, independent of his or her background and country.

With these thoughts in mind, we are looking forward to a very fruitful meeting, and I am looking forward to seeing you in Rio de Janeiro.

TANIA F. CESTARI,
University of Rio Grande do Sul,
Porto Alegre, Brazil

Entretiens d'Avène
Americas

PROGRAM

PRESIDENT

Tania F. Cestari, University of Rio Grande do Sul, Porto Alegre, Brazil

CHAIRS

Henry W. Lim,
Henry Ford Hospital, Detroit, USA
Antony R. Young,
King's College London, United Kingdom

DATE

Nov. 6th, 2015
Scientific session from 9:00 a.m. to 5:00 p.m.; Gala dinner in the evening

VENUE

Hotel Windsor Atlantica
Av. Atlantica, 1020
Copacabana, Rio de Janeiro - Brazil

9:00-9:05 **Welcome By Avène Laboratories**
Luc Ottavioli

9:05-9:15 **Introduction By the President**
Tania Cestari

9:15-9:45 **Introduction to photobiology**
Antony Young, UK

9:45-10:15 **Photoprotection in children**
Tania Cestari, BRAZIL

10:15-10:45 *Coffee break*

10:45-11:15 **Photoprotection and skin of color: Current knowledge and recommendations**
Kesha Buster, USA

11:15-11:45 **Controversies in photoprotection, UV filters and vitamin D**
Henry Lim, USA

11:45-12:00 **Panel discussion**

12:00-14:00 *Lunch break*

14:00-14:30 **Role of photoprotection in the prevention of photoaging and skin cancer**
Joël Claveau, CANADA

14:30-15:00 **Protection against visible light and infrared radiation**
Ivonne Arellano, MEXICO

15:00-15:30 Coffee break

15:30-16:00 **Sunscreen evaluation methods: Current status and perspectives**
Ana Beatris Rossi, FRANCE

16:00-16:30 **Where are we heading in photoprotection? Innovations and Developments**
Fernando Stengel, ARGENTINA

16:30-17:00 **Panel discussion & Closing words**
T. Cestari, H. Lim, A. Young

- Gala dinner in the evening -

ANTONY YOUNG

King's College
London, UK

Professor Antony Young has been involved in research on the effects of ultraviolet radiation (UVR) on human skin for the past 25 years. The European Commission (EC), UK Department of Health, UK Medical Research Council, research charities and industry have largely funded this research. Professor Young has a long-standing interest in photoprotection, and is also currently working on vitamin D, the photobiology of different skin types and the development of natural marine sunscreens. He was recently the coordinator of a 4-year EC €3.5 million research project, within its Framework 7 Environment and Climate Change Program, entitled "The impact of climatic and environmental factors on personal ultraviolet radiation exposure and human health". This multi-national project assessed the beneficial and detrimental health impacts of UVR in field studies of human populations in work and leisure situations in different European countries.

Professor Young is an active member of the American Society for Photobiology (ASP) and the European Society for Photobiology (ESP). He has been chairman of the British Photodermatology Group (BPG), a faculty member of the American Academy of Dermatology (AAD), and is currently an associate editor of Photodermatology, Photoimmunology and Photomedicine and section editor of the Journal of Dermatological Science. Professor Young is also a member of the United Nations Environment Program (UNEP) - Environmental Effects Assessment Panel.

Introduction to Photobiology

Photobiology is the study of the consequences of ultraviolet radiation (UVR) and visible light exposure on life: in humans, this is primarily the effects of UVR on the skin. Sunlight is the main source of UVR for most people, and contains UVB (~295-320nm) and UVA (320-400nm). Typically, maximum UVB is about 5% of terrestrial UVR. The UVB content is greatest at solar noon, because the ratio of UVB to UVA varies with the height of the sun.

The skin, especially the epidermis, is rich in UVR-absorbing molecules (chromophores). The consequences of UVR absorption by chromophores include their structural modifications and the generation of reactive oxygen species (ROS). The absorption of UVR by a given chromophore triggers specific acute and long-term effects of the sun on the skin. Most outcomes are detrimental and include sunburn (erythema), skin cancer and photoaging. DNA is a major chromophore that can undergo many different structural changes when it absorbs UVB and, to a lesser extent, UVA. The cyclobutane pyrimidine dimer (CPD) is the most important DNA photolesion.

Regulatory authorities require sunscreens to inhibit erythema and the SPF is the main index of efficacy. However, it is also very important that sunscreens can be shown to inhibit the molecular damage that initiates acute (other than erythema) and long-term effects. Recent studies have shown that a high SPF sunscreen can prevent in vivo molecular photodamage, including the CPD, under conditions of extreme insolation.

TANIA CESTARI

University of
Rio Grande do Sul,
Porto Alegre, Brazil

Professor Tania Cestari received her undergraduate degree in Medicine from the University of Rio Grande do Sul and her MS and PhD from the University of Rio de Janeiro. She is presently Associate Professor of Dermatology at the School of Medicine at the University of Rio Grande do Sul, Chairperson of the Department of Dermatology and of the Laboratory of Applied Photomedicine at the Hospital de Clinicas de Porto Alegre Research Center. Professor Cestari serves as an Effective Member of the Brazilian Society of Dermatology, the European Academy of Dermatology and Venereology, the American Academy of Dermatology, the International Society of Dermatology, the American Society of Photobiology, the Latin American Society of Photobiology and Photomedicine, the Latin American Society of Pediatric Dermatology and the Women's Dermatological Society.

She actively participates in these organizations and is currently, vicepresident and Chair of the Maria Duran Committee of the ISD, member of the AAD World Congress Fund Review Task Force, member of the International Affairs Committee of the Women's Dermatological Society and member of TC 6-48 (Americas' Sector - Sensitivity of human skin to ultraviolet radiation Task Force) of the CIE (Commission Internationale de l'Eclairage – International Commission on Illumination). Besides teaching post-grad students, Professor Cestari acts as supervisor and adviser for the post-grad course in Childhood and Adolescent Health and has directed 27 MS and 11 PhD theses. Her research interests mainly include pigmentary disorders, photodermatology and skin diseases in children.

Photoprotection in children

Children have a higher risk of burns and immunological alterations than adults. Their skin physiology favors percutaneous absorption, sensitization and toxicity triggered by foreign substances. Childhood is a critical period for the risk of skin cancer for life and adequate sun protection decreases the likelihood of non-melanoma skin cancer. However, behavioral studies show that young people usually have a little knowledge about photoprotection, do not believe in the risks of sun exposure and avoid using sunscreens. Sun protection strategies are discussed according to age group, emphasizing the correct use of sunscreens, its composition, physical aspect, safety measures and correct application, comparing different populations. Physical protection should be emphasized with information about safe day hours and amount of exposure time, providing shade in daily activities. Recommendations about clothing containing sunscreen, hats and sunglasses are fundamental.
The third strategy, photo education, is the most effective approach in the long term. School involvement is essential, activities adapted to age and included in the science curriculum. Disseminating information is essential for prophylaxis of many skin disorders and the best vehicles are the radio, outdoors and Sunday newspapers and supplements. Media training and uniform information should be provided by dermatological societies.

KESHA BUSTER

University of Alabama,
Birmingham, USA

Professor Kesha Buster, completed her undergraduate medical training at the University of Iowa Roy J. and Lucille A. Carver College of Medicine followed by a combined dermatology residency and post-doctoral research fellowship at the University of Alabama at Birmingham (USA). She completed her education with numerous awards and honors. She is now a dermatologist in private practice in Tulsa, Oklahoma (USA) and serves as a Clinical Assistant Professor of Dermatology at the University of Alabama at Birmingham.

Dr. Buster has authored several publications in peer-reviewed dermatology journals. Her most recent manuscript is a review with recommendations for sun safety in people of color (Agbai O, Buster K, Sanchez M, et al. Skin cancer and photoprotection in people of color: A review and recommendations for physicians and the public. J Am Acad Dermatol. 2014 Apr;70(4):748-62). She also recently authored a textbook chapter on this topic (Buster K, Ledet J. Photoprotection and skin of color. In Principles and Practices of Photoprotection. Editors Wang S and Lim H. In press). She is a member of several dermatology societies including the American Academy of Dermatology and the Skin of Color Society and has served on numerous committees and task forces, including the Photoprotection for Skin of Color Workgroup (AAD), the Access to Dermatologic Care Task Force (AAD), and Patient Education Committee (SOCS).

Photoprotection and skin of color: Current knowledge and recommendations

Skin of color consists of a wide spectrum of skin tones and racial/ethnic backgrounds. A number of skin color classification systems exist, but objective measures of constitutive skin pigmentation could serve as concrete, consistent, and biophysiologically relevant criteria for defining skin color. Ultraviolet radiation causes both photocarcinogenesis and photoaging, though to a lesser degree in darker skin types likely due to the photoprotective properties of melanin. Although people of color (POC) have a lower incidence of skin cancer compared to fair-skinned individuals, POC frequently have increased skin cancer morbidity and mortality. Sun protection has an established role in the treatment and prevention of pigmentary disorders such as melasma and postinflammatory hyperpigmentation, but it is often under-utilized in POC and there is a lack of sufficient data regarding ideal photoprotection practices for POC. This knowledge and public education gap is beginning to be addressed. Based on expert consensus, several guidelines issued by national organizations now provide sun protection recommendations for POC; these include those of the American Academy of Dermatology and the Australasian College of Dermatologists (the latter in collaboration with other Australian and New Zealand health organizations). The British Association of Dermatologists recommends tailored sun protection based on skin type and ultraviolet index. As we continue to learn more about the effects of ultraviolet radiation in POC, the ability to make photoprotection recommendations based on constitutive pigmentation should continue to improve.

HENRY LIM

Henry Ford Hospital,
Detroit, USA

Professor Henry W. Lim is Chairman and C.S. Livingood Chair of the Department of Dermatology, Henry Ford Hospital, and Senior Vice President for Academic Affairs, Henry Ford Health System, Detroit, Michigan, USA. He received his M.D. from SUNY Downstate Medical Center, Brooklyn, New York, USA, and completed his dermatology residency at New York University School of Medicine. Prior to coming to Henry Ford Hospital, he was a Professor of Dermatology at NYU School of Medicine, as well as the Chief of Staff of the New York VA Medical Center. He has published more than 350 articles, and is a recognized authority on photodermatology. He has been listed on America's Top Doctors for many years.

Dr. Lim has served as president of Michigan Dermatological Society, vice president of the American Academy of Dermatology, president of the American Board of Dermatology, and is the president of the American Dermatological Association. He is the incoming president elect of the American Academy of Dermatology, the world's largest dermatology society. He was an Associate Editor of the Journal of Investigative Dermatology, and was Editor-in-Chief of Photodermatology, Photoimmunology & Photomedicine. He is currently a Senior Editor of Journal of Drugs in Dermatology, a member of the editorial board of Photodermatology, Photoimmunology, and Photomedicine and Journal of Dermatological Sciences. He was a former editorial board member of Journal of Investigative Dermatology, Journal of the American Academy of Dermatology, and JAMA Dermatology. He is an elected honorary member of dermatology societies in Austria, the Philippines, and China. Dr. Lim is the editor/co-editor of five published textbooks: Clinical Photomedicine, Photoaging, Photodermatology, Clinical Guide to Sunscreens and Photoprotection and Cancer of the Skin. He is also a co-editor of three textbooks in preparation: Dermatology for Skin of Color (2nd edition), Vitiligo: Medical and Surgical Management (2nd edition), and Principles and Practice of Photoprotection.

Controversies in Photoprotection, UV Filters and Vitamin D

The following topics will be discussed:

1. Update on the United States FDA regulation of sunscreens. In June, 2011, the US FDA released Sunscreen Final Rule. For the first time in the US, UVA testing and labeling requirements were stated. The FDA has chosen in vitro critical wavelength test as a measurement of UVA protection of sunscreens. For sunscreens to be labeled as "broad spectrum," the critical wavelength must be ≥ 370 nm.
2. Controversies in Photoprotection. The following will be covered: role of sunscreens in skin cancer and photoaging, role of antioxidants, safety of nanoparticles, estrogenic effect of oxybenzone and protection against visible light. The safety profile of currently available UV filters are excellent, and regular use of sunscreens do decrease the risk of photocarcinogenesis (especially for squamous cell carcinoma) and photoaging. Photoprotection against the pigmentation induced by visible light in dark skinned individuals remains a challenge. While tinted sunscreens do provide protection against visible light, it is esthetically not very pleasing to users. Biologically-active topical antioxidants incorporated into sunscreens, or oral antioxidants, may provide the best solution for protection against visible light.
3. Vitamin D. Vitamin D is important for bone health. It is associated with many other health end points, from multiple sclerosis to alopecia. The effect of photoprotection on vitamin D status will be discussed. It is now known that regular use of sunscreens does not affect serum vitamin D levels; however, rigorous photoprotection does. Vitamin D levels are also affected by skin types, clothings and diet. As such, for those who are at risk of vitamin D deficiency, vitamin D supplements (600-800 IU of D3 daily) are appropriate.

JOEL CLAVEAU

Université Laval,
Quebec, Canada

Professor Joël Claveau is a dermatologist, specializing in the diagnosis and treatment of melanoma, and an Associate Professor with the Department of Medicine at Laval University, where he completed his Medical Study and Internal Medicine training. He completed his residency in Dermatology at McGill University and subsequently worked at the Melanoma Clinic at the Royal Victoria Hospital in Montreal, Quebec. He is a diplomate of the American Board of Dermatology and is a member of a number of medical societies including the American Academy of Dermatology and the International Dermoscopy Society. He has received awards including the Young Dermatologist's Volunteer Award of the Canadian Dermatology Association for his work on the prevention of skin cancers.

Since 1996, he has been the Co-Director of the Melanoma and Skin Cancer Clinic at Le Centre Hospitalier Universitaire, Hôtel-Dieu de Québec, and worked in Public Health for the province of Quebec, especially on the new Tanning Bed Legislation. He participated in the publication of many papers in peer-review journals including work on melanoma, skin cancers and sunscreens. He is actively involved in numerous Continuing Medical Education (CME) events.

Role of photoprotection in the prevention of photoaging and skin cancer

Regular photoprotection has a crucial role in the prevention of photoaging and skin cancers.
Numerous studies have demonstrated a link between UV light (especially UVA) in the development of signs of skin aging. An increase of collagen-degrading matrix metalloproteinases, mutations of mitochondrial DNA and a downregulation of tissue-specific inhibitors is observed after UV exposure. This leads to an increase degradation of collagen fibers and inhibition of hyaluronic acid formation. Scientific evidence of the importance of broad spectrum sunscreen use to prevent those signs will be reviewed.

UVB radiation has a strong carcinogenic effect by causing cyclobutane pyrimidine dimers, 6-4 photoproducts and free radicals. Endogenous repair enzymes can restore the original structure to a certain point but, if damage is too extensive, accumulation of DNA mutations leads to the development cutaneous carcinomas. UV light also has immunosuppressive properties and decreases the host immune recognition of damaged malignant cells.
As skin cancers are concerned, randomized controlled trials on the regular usage of sunscreens have studied the prevention of solar keratoses, squamous cell carcinomas, basal cell carcinomas, melanocytic naevi and melanomas. Results of these studies, as well as some basic science studies on sunscreens, will be presented.

IVONNE ARELLANO

Hospital General de México
"Dr. Eduardo Liceaga",
Mexico City, Mexico

Professor María Ivonne Arellano Mendoza is Professor Emeritus at La Salle University Faculty of Medicine in Mexico City. She is Professor of dermatology at the UNAM postgraduate residence program and has been Associate Professor and coordinator of 38 specialty courses. She currently holds a private practice in Hospital Dalinde and an institutional public practice in the Hospital General de México.

Pr. Arellano has authored numerous book chapters and scientific publications in national and international journals. She recently published Clinical Recommendations for Photoprotection in Mexico (Dermatología Cosmética, Médica y Quirúrgica 2014; 12(4):243-255), and the book chapter titled: "Common skin diseases and Treatment in North America: Mexico" (In Kelly P., Taylor S. 2015, Dermatology for Skin of Color, Mc Graw Hill Medical. NY, U.S.A).

She has been invited as Guest Speaker and Professor to 345 national & international conferences and is a member of several dermatology societies, including the Latin American Society of Photobiology and Photomedicine, the American Academy of Dermatology, the Mexican Dermatology Society and the Mexican Society of Dermatologic Surgery and Oncology .

Photoprotection against visible light and infrared radiation

Three mayor bands of the electromagnetic spectrum are important: ultra-violet (UV) radiation (290–400 nm), visible light (400–760 nm) and infrared (IR) radiation (760–4,000 nm). It is calculated that infrared radiation accounts for 54% of the solar energy reaching the skin, 38 to 45% represents visible light and UVR accounts for 7% of it. Infrared radiation mainly comes from the sun, but artificial sources can be found for therapeutic purposes. Visible light refers to electro-magnetic radiation that is visible to the human eye.

It has been demonstrated by Dr. Mahmoud that visible light induces darker and more sustained pigmentation in skin types IV-VI, and Dr. Porges found immediate erythema and pigment darkening within 24 hrs. after exposure. Infrared radiation interferes with apoptotic pathways, so it may act as a co-carcinogen, and as well as visible light, it is involved by different mechanisms in aging and photoaging of the skin, remaining a very important point of interest in research.

Only optically-opaque filters are capable of absorbing visible light, so photoprotection from visible light has been achieved by adding physical filters, mainly iron oxide, titanium oxide and zinc oxide to organic filters, as it is proven that the latter do not protect from visible light. Protection from infrared radiation has been mainly centered on the use of mitochondrially targeted antioxidants, reports on the use of Vit C and E, resveratrol, ubiquinone, grape-seed extract, lipoic acid and ferulic acid can be found in literature.

ANA BEATRIS ROSSI

Skin Research Center
Pierre Fabre Dermo-cosmétiques,
Toulouse, France

Doctor Ana Beatris Rossi is a French/Brazilian dermatologist with 25 years of experience practicing dermatology and 14 years of experience performing clinical studies to evaluate the efficacy and safety of drugs & cosmetics.

She is the head of cosmetic Dermatology at the University hospital of Toulouse, France, where she teaches residents on aesthetic procedures (chemical peels, injections and collagen stimulation) and cosmetic science.

She has worked as a dermatology expert for several pharmaceutical and cosmetics companies, including Unilever, Johnson & Johnson, Galderma, Novartis and Pierre Fabre. Currently, she is the head of the European Skin Research Center in Toulouse, and leads a team in charge of more than 500 clinical studies/year, focused on dermo-cosmetics.

She is a member of the Brazilian, American, European and French Societies of Dermatology and has authored several publications and book chapters in the field of dermatology.

Sunscreen Evaluation Methods: Current Status & Perspectives

Evaluation on the efficacy of sunscreens in vivo is essential. Nowadays, no standard unique test can measure the broad range of protection offered by a product, and several methods are proposed and accepted with variations around the world.
Efficacy of a sunscreen to protect against UVB radiation can be determined in vivo according to the protection provided against sunburn (erythema). The Sun Protection Factor (SPF) technique was introduced by Schulze in 1956, and has been extensively used since then. It is the broader standard worldwide for the evaluation of sunscreen efficacy. However, is erythema a good surrogate marker for the real UVB damage? Does the intensity correlate with the damage?
SPF results are highly variable depending on the phototypes included, amount of product application, and differences in the UV spectrum of the lamp.
Other "traditional" methods are the evaluation of UVA damage (in vitro and in vivo), water resistance and critical wavelength. A major criticism is that the conditions of sunscreen application in these methods does not represent the real life situation, especially regarding the amount of product applied.
The strengths and weaknesses of these methods, as well as the variability of results will be presented and discussed. Despite the number of methods described and used, little is known about specific damage to cell's DNA and proteins and many questions remain regarding the exact level of protection for each hazardous sun effect on our skin.
We have developed and validated a new sunscreen efficacy evaluation method that enables the visualization and quantification of DNA damage in conditions that simulate real life and will share the results and our experience.

FERNANDO STENGEL

Buenos Aires Skin,
Buenos Aires, Argentina

Professor Fernando M Stengel is the Medical Director of Buenos Aires Skin and President of the Fundación del Cáncer de Piel, Argentina. He received his MD from the University of Buenos Aires Medical School, Argentina, completed his Internal Medicine Residency at the "Instituto Modelo", University of Buenos Aires - Hospital Rawson and subsequently completed a Dermatology Residency at New York University School of Medicine. Before returning to Argentina he was an Assistant Professor of Dermatology at NYU Medical School, Dpt. of Dermatology. Dr. Stengel served as Editor in Chief and Associate Editor of "Archivos Argentinos de Dermatología" for over 20 years, became interim chief of Service at University Hospital Dermatology Service and subsequently served as Prof. of Dermatology, Director of the Residency Program and Chief of the Dermatology Service at the "Cemic University Institute" until 2012. His main areas of interest are Photodermatology and Skin Cancer. He has published over 40 articles, written educational booklets for children and youngsters and has promoted Photoeducation (the knowledge and practice of a healthy Skin - Sun relation) throughout Lat Am. He is former President of the 2010 RADLA meeting, was Scientific Secretary at the 2007 World Congress of Dermatology in Buenos Aires and President of the World Congress of Cancers of the Skin (Skin Cancer Foundation – 1995). Dr. Stengel is Co-Director of the Argentine Melanoma Registry and serves as a Council member at the International Psoriasis Council, and as a member of the Editorial Board of Photodermatology, Photoimmunology & Photomedicine. He is an elected honorary member of multiple dermatology organizations in Lat Am and a member of the Argentine Society of Dermatology, the American Academy of Dermatology and the American Dermatological Association.

Where are we heading in Photoprotection? Innovations and Developments

The field of photoprotection, both topical and systemic, has developed rapidly and positively in the past decade. Yet, there are many unmet needs to be addressed and resolved. Topical photoprotection (TPP) has made significant strides in the past decade, particularly in screening for a wider UVB + UVA spectrum; in improving the cosmetic characteristics of most products and in decreasing, albeit with complex and costlier formulations, the total amount (%) of both organic and inorganic UV filters. In addition, some UV filters involved in contact and photocontact reactions have been gradually excluded from some, not all formulations. Here, we will discuss some of the most recent innovations and desirable developments to come in the field of TPP. Systemic photoprotection, including primarily systemic sunscreens, are possibly the best route to wide acceptance by the community. This remains a goal at present. Natural compounds, mainly with primary antioxidant activity plus other potential health benefits, are awaiting solid proof of efficacy. MSH-like compounds are in the human development and testing stage. We introduced the term Photoeducation over 20 years ago. The term, implying a step further than topical protection, is as valid today as it was then. The new FDA mandatory statements about sun exposure, clothing and application methods on sunscreen products, substantiates the term. However, with multiple controversies on the table, the field of photoeducation is a particularly complex one. "Knowledge – beliefs" and "attitudes – conducts" issues should be tackled with a multiple pronged approach. Even the best products, without individual acceptance and motivation, will fail. Positive innovations in the area of photoeducation, communication and alertness, are being developed by the electronics field.

SPOTLIGHT ON RIO DE JANEIRO

Founded in 1565 by the Portuguese, with a tropical savanna climate, Rio as it is commonly known and called the Cidade Maravilhosa (Marvelous City), is the second-largest city in Brazil , the sixth-most populous in the Americas, and the eighteenth-largest in the world. Its vibrant city center is bursting with culture and pulsating with a deep sense of history and heritage.

Rio de Janeiro is one of the most visited cities in the Southern Hemisphere and is known for its natural settings, Carnival, samba, bossa nova and balneario beaches such as Barra da Tijuca, Recreio, Copacabana, Ipanema and Leblon. In addition to the beaches, some of the most famous landmarks include the giant statue of Christ the Redeemer atop Corcovado mountain, named one of the New Seven Wonders of the World, Sugarloaf Mountain with its cable car, the Sambódromo, a permanent grandstand-lined parade avenue, which is used during the Carnival, and Maracanã Stadium, one of the world's largest football stadiums.

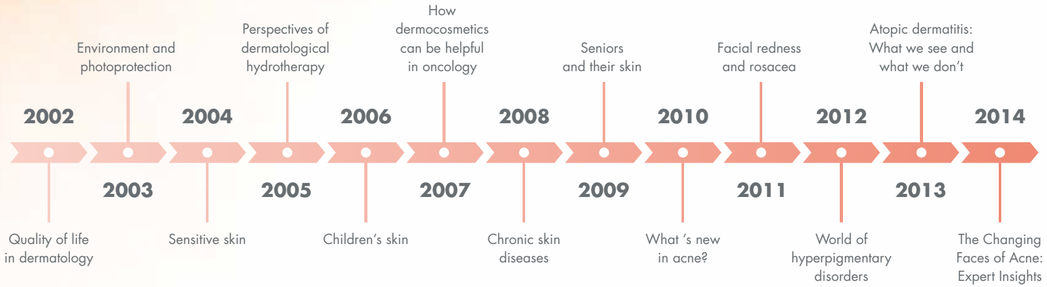
Rio will host the 2016 Summer Olympics and the 2016 Summer Paralympics (Rio 2016).

CONCEPT

Entretiens d'Avène have been held annually since 2002, originally at the Avène Hydrotherapy Center, nestled within the Haut-Languedoc Regional Park. This year, the event is taking place abroad for the first time. It is designed as a roundtable-style meeting between experts on a key theme, with the aim of informing the scientific and non-scientific communities about the latest advances in dermatology research.

Entretiens d'Avène

PREVIOUS MEETINGS



NOTES

EAU THERMALE

Avène

Laboratoires dermatologiques

Avène

PARIS

Pierre Fabre