

New! Skin Biochemistry

April 7, 8, 9, and 10, 2024 – 9:30 am to 12:30 pm AEST, Live Online

Intensive Twelve-Hour Training Event

Directed by: **Paolo Giacomoni, Ph.D.**, Consultant to the Skin Care Industry



Course Topics Include:

- The epidermis and the dermis
- The basics of gene expression
- Skin pigmentation
- Biochemical effects of solar radiation
- Aging and skin aging
- The skin microbiome

course description

Skincare products face multiple challenges, such as compatibility with the nature of the epidermis, addressing unwanted skin conditions while simultaneously modifying the surface of the skin aesthetically and protectively, and resisting contamination by foreign microorganisms. By taking advantage of the scientific progress that has occurred in the field of dermatology and biochemistry, particularly for pigmentation and sun protection, as well as aging and microbiome, the Skin Care industry can now envision and design products that address these challenges quickly and visibly improve skin conditions. Therefore, it is important for the cosmetic chemist, marketing executive, and research & development leader to have a concise yet precise knowledge of the basic skin biochemistry of the epidermis and the dermis to be able to define reasonable goals, select the appropriate ingredients, and design the relevant clinical trials.

In collaboration with CfPA, pH Factor offers this intensive 12-hour accredited course taught in 3-hour sessions over four consecutive days. It is intended to help participants become familiar with skin biochemistry. Topics addressed in this course include Epidermis and Dermis, Basics in Gene Expression, Skin Pigmentation and Ethnic Skin, Biochemical effects of Ultraviolet exposure, Skin Aging, and the Skin Microbiome. Becoming familiar with these subjects will allow one to envision the possible interactions between a topically applied formulation and the skin as a viable organ. Additionally, innovative concepts and products can be developed through an understanding of these topics.

Since this training is highly interactive, those attending the live training event must have a **webcam** on their computer as well as a **microphone** and **speakers/headset** to participate fully.

who should attend

This course is intended for professionals in the cosmetic and personal care industry, pharmaceutical skin care and skin care related medical devices.

It will be especially valuable for:

- Research and development scientists
- Formulation/laboratory chemists
- Marketing and sales executives
- Professionals with a background in physics and chemistry who wish to strengthen their knowledge in skin biochemistry

learning objectives

Upon completion of this course, you will be able to:

- Identify properties of the epidermis
- Classify cellular and clinical characteristics observed in different ethnicities
- Compare the biochemical effects of exposure to ultraviolet and visible radiation
- Outline skin aging criteria and factors
- Propose products with possible and credible claims
- Design products with testable efficacy
- Choose ingredients according to their mechanism of action

course outline

Review of Learning Objectives

Epidermis, Dermis, and Skin Types

- The epidermis: cells, layers
- Skin components: proteins, lipids, polysaccharides, small molecules, vitamins, nucleic acids
- Stratum corneum, enzymes, amino acids
- Stratum basale: living epidermis, keratinocytes, and skin's stem cells (if any)
- Melanocytes and pigmentation
- Merkel cells and the sensation of touch - Langerhans cells and skin's immune system
- The dermis: cells, ground substance, glands
- The dermis: definitions of cosmetic skin types and conditions
- Beneficial effects by topical application of products

The Basics of Gene Expression

- Epigenetics
- Examples of control of gene expression
- Inducible genes and differentiation
- The different layers of the epidermis
- Gender-linked differences
- Possible beneficial applications to skin care

Ethnic Skin and Pigmentation

- Fitzpatrick skin types
- The melanocyte and the chemistry of melanins
- The genetics of blue eyes
- Pigmentation disorders
- Ethnicity and biological/physiological differences
- Ethnicity and the physical chemistry of the melanosome
- Ethnicity, skin lipids, hydration, and sensitivity
- Ethnicity and skin aging
- Ethnicity and pigmentation
- Melanin and sun protection
- Repair after sun damage
- Possible beneficial applications to skincare

Biochemical effects of Solar Radiation

- Solar radiation: Physics
- Solar radiation: clinical effects
- Solar radiation: cellular and molecular effects
- Melanin
- Protection against solar radiation
- Selecting sun-filters
- Visible light and chronobiology
- Possible beneficial applications to skin care

Aging and Skin Aging

- Aging and longevity
- Definitions of aging
- Skin aging: clinical data
- Skin aging: histology and ultrastructure
- The micro-inflammatory theory of skin aging
- Factors of skin aging
- Possible beneficial applications to skincare

The Skin Microbiome

- An overview of the micro-organisms colonizing the human body
- Pathogens and commensal micro-organisms
- A summary description of the micro-organisms colonizing human skin
- Micro-organisms and skin conditions
- Possible beneficial applications to skin care

Assessment Opportunity

course director

Dr. Paolo Giacomoni is an independent consultant to the Skin Care industry. He holds an M.Sc. degree in Atomic Physics and a Ph.D. in Biochemistry. He is a quality-focused leader with over 25 years of experience in product research and development for cosmetic product providers. He is presently Head of R&D with L-Raphael, Geneva, Switzerland. He was Chief Scientific Officer of Elan Rose International. He served as VP of Skin Care World Wide R&D with Herbalife. He was Executive Director of R&D with Estée Lauder and served as scientific spokesperson for Clinique. During his tenure at L'Oréal, he served as Head of the Department of Biology and then as scientific attaché to the Director of Applied Research. In his academic years, he was Maître de Conférences at the University of Paris, France, and a Visiting Professor at the University of Milano, Italy.

Dr. Giacomoni is presently Editor-in-Chief of the Journal of Cosmetic Science. He also served in that position for the years 2017-2020.

Dr. Giacomoni is fluent in French, Italian, German, Spanish, and English and is the author of 100+ publications and 20+ patents representing breakthrough industry concepts. He received his Ph.D. in Biochemistry from the University of Paris, Paris, France; his master's degree in Atomic Physics from the University of Milano, Milano, Italy, and has had Post-Doctoral Training at Deutsches Krebsforschungszentrum at Heidelberg, Germany, at the University of Wisconsin, Madison, WI and at the University of California, San Diego, CA.

Upon request of the European Society for Photobiology, he edited two monographs: Sun Protection in Man (Elsevier, 2001) and Biophysical and Physiological Effects of Solar Radiation on Human Skin (The Royal Society of Chemistry, 2007).

accreditations/recertifications for this course



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pricing, location, terms and conditions

Refer to our website www.cfpa.com for pricing, location, and terms/conditions.

about us

pH Factor, a renowned name in cosmetic formulation, education & training, brings a wealth of expertise to the table. Their commitment to innovation and product development has made them a pioneer in the industry.

CfPA is a premier global provider of continuing education and training for individuals and organizations. We offer practical, strategic, and innovative solutions for today's professionals. Choose from hundreds of instructor-led, accredited course topics in multiple industries to meet your needs.

Classroom Training: In-person course delivered in multiple locations/venues. All training is instructor-led by a CfPA subject matter expert.

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