

Giuseppe Valacchi, PhD
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Giuseppe Valacchi obtained his B.S. with Laude in physiology, MS in physiopathology and his PhD degree in Cell Physiology and Neuroimmunophysiology at the University of Siena. During his training he has worked as “exchange PhD student” in the “Department of Molecular and Cell Biology at the University of California at Berkeley” where he started out some studies on the effect of environmental oxidative stress such as O₃ and UV on skin physiology. After his PhD graduation, he continued working as Post Doc at the University of Berkeley until December 2000. Between 2000 and

2004 he was appointed first as Post Doc in the “Department of Internal Medicine” and then in the “Department of Nutrition” at the University of California at Davis (UCD). In 2005 he became Faculty and member of the Academic Federation in the Department of Internal Medicine (UCD). At the end of 2006 he was awarded with the “progetto rientro dei cervelli”, granted by the Italian Ministry of Health and returned to Italy at the University of Siena as Assistant Professor until 2011. Since 2011 he was appointed at the University of Ferrara first as Associate Professor and in 2021 as Full Professor in Physiology. From 2008 is also Adjunct Prof. at Kyung Hee University, Seoul, South Korea and starting from August 2016 he was first Associate and then Full Professor in Regenerative Medicine at North Carolina State University. His research has been focused in understanding the cellular, and molecular mechanisms that define the tissues physio-pathological responses to altered redox homeostasis. He has been a member of the SFRR Europe Council from 2017 to 2021 and he is author of more than 270 peer reviewed international papers, 15 book chapters, one book. He has been invited speaker to more than 120 international conferences and organizer/Chair to over 50 international meetings. He has won several awards among them the Entelligence Award from Actelion, OCC Award, Science and Education Award and in 2019 the Exposome grant. In 2018 he was awarded with the “Doctorate Honoris Causa” in Biochemistry and Pharmacy from the University of Buenos Aires for his work in the redox biology field in addition he is the recipient of the 2020 Clinical Research award from the SFRR-E. He is the Associate Editor of several international journals among which is Mediators of Inflammation, Frontiers in Cellular Biochemistry, World Research Journal of Biochemistry, Journal of Complementary and Traditional Medicine, Biomed Research International (Dermatology Subjects), Oxidative Medicine and Cellular Longevity; in addition he is member of the Editorial Board of several journals such as Genes and Nutrition, Open Biochemistry Journal, Archives in Biophysics and Biochemistry, Clinical Immunology Endocrine & Metabolic Drugs, Frontiers in Inflammation Pharmacology, Clinical Anti-Inflammatory & Anti-Allergy Drugs, BioFactors, Cosmetics, Free Radicals in Biology and Medicine, Antioxidants.

Abstract:

Inflammasome activation in pollution-induced skin conditions

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Exposure to air pollutants has been now associated with detrimental effects on a variety of organs, including the heart, lungs, GI tract, and brain. However, recently it has become clear that pollutants exposure can also promote the development/exacerbation of a variety of skin conditions, including premature aging, psoriasis, acne, and atopic dermatitis. Although the molecular

mechanisms by which pollutant exposure results in these cutaneous pathological manifestations, it has been noticed that an inflammatory status is a common denominator for all those skin diseases. For this reason, recently, the activation of a cytosolic multiprotein complex involved in inflammatory responses, the inflammasome, able to promote the maturation of proinflammatory cytokines interleukin (IL)-1 β and IL-18 has been hypothesized to play a key role in pollution induced skin damage, making cutaneous inflammasome as a novel target of pollutant exposure. Therefore, the eventual usage of inflammasome inhibitors as new technology to counteract pollution induced skin damage can be a novel approach in dermatology. Possibly, the ability to inhibit the inflammasome activation could prevent the cutaneous inflammaging and oxinflammation so to ameliorate the health and the appearance of our skin.