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Vaccinopolis
University of Antwerp

Enabling the Evaluation of COVID-19 Vaccines with Correlates of Protection Vaccinopolis University of Antwerp, Belgium February 16 - 17, 2023



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Education:

Humanistic studies at Liceo Classico "T. Tasso" in Rome (1974-1979); Enrolled in the Department of Biological Sciences of the University of Rome (1980-1984); Graduated in Biological Sciences (*maximum cum laude*) with an experimental thesis, realized under the supervision of Prof. G. Doria, on "Age-related changes in radiosensitivity of the immune system." (July 1984); Graduated from 6-month intensive program on Leadership and Management (LAMP) at the University of California San Diego (UCSD, July 1994)

Professional Positions:

1988-1996 Various positions; Staff Scientist-Director of Immunology, Cytel Corp, San Diego, CA
1996-2002 Chief Scientific Officer, Epimmune Inc., San Diego, CA
2002-Present Adjunct Professor, The Scripps Research Institute, San Diego, CA
2002-Present Fully Tenured Member, La Jolla Institute for Immunology, San Diego, CA
2003-Present Head of the Division of Translational Immunology/Vaccine Discovery, La Jolla Institute for Immunology, San Diego, CA
2017-Present Adjunct Professor, University of California, San Diego, CA (Past: 2003-2009)
2019-Present Professor, Center for Infectious Disease and Vaccine Research, Center for Autoimmunity and Inflammation, La Jolla Institute for Immunology, San Diego, CA





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Editorial Board, Peer Review Responsibilities and Translational Science impact:

Past and Current Editorial Positions: The Journal of Immunology, Immunome research, Nature Vaccines NPJ, Human Immunology, Current Pharmaceutical Biotechnology; Current Drugs, Tissue Antigens, Immunogenetics, Expert Review of Vaccines.

Standing Study Section Memberships: National Arthritis Foundation (1994-1997), HIV Vaccines (NIH) (1998-1999), Allergy Immunology and Transplantation Committee (NIAID) (2007-2013) and Cancer Prevention Research Institute of Texas (CPRIT) (2014-), Vaccine Microbial Diseases (NIAID) (2017-), Swiss National Science Foundation (2020-)

Ad hoc Reviewer and Panelist: for over 20 NIH NIAID panels, study sections and programs, and for 20 different organizations, including the Bill & Melinda Gates Foundation, Instituto Superiore di Sanita', The Rome Foundation, and the European Research Council.

Translational Science impact: Consultant and Scientific Advisory Board Member for over 70 different biotech and large pharma companies. Inventor on 45 issued U.S., 6 International and 18 European Patents.

Honors and Awards:

51st Oregon State University Biological Colloquium Award (1990); American Association of Immunologists Investigator Award (1995); Member of the Kriegler Lecture and Award Selection Committee (1998); American Liver Foundation Award for Biotechnology Companies (2000); Board of Directors, Member of the American Liver Foundation, San Diego Chapter (2001-2006); Vice-President, American Liver Foundation, San Diego Chapter (2002-2005); International Immunomics and Immunogenics Society Award (2006); 10th Annual ViE Vaccine Industry Excellence Award (2017); Elected Fellow of the AAAS (2020); Elected Honorary Member of the Accademia Medica di Roma (2021); 2021 Gold Medal from the Italian Society of Internal Medicine (SIMI), Fellow of Sigma Xi The Scientific Research Honor Society (2021-); Boule-SEI International Award (Alicante, Spain 2021); Member of the Scientific Committee of CISI (Centro Interdipartimentale Scienze Immunologiche) of Università di Napoli Federico II (2021-), Faculty member of Dottorato in Immunologia Clinica e Sperimentale, Università di Genova (2022-), Member of the Istituto Spallanzani (Roma) International Advisory Board (2022-)

Over 980 publications in peer-reviewed journals with over 113,000 citations and an h-index of 180 2001 ISI highly cited investigator (top 100 in the Immunology category over the (1981- 2000 period); Named as one of the top 400 influential researchers in the last 15 years (out of 15 million worldwide) (Boyack et al. PMID: 24134636); Ranked 4th amongst Italian Scientist in Biomedical Sciences. (<http://www.topitalianscientists.org>; 2022); Ranked amongst the Top 1% Thomson Reuters Highly Researchers in the last decade for several years in a row (2018-2022). (<https://www.ncbi.nlm.nih.gov/sites/myncbi/alessandro.sette.1/bibliography/40968398/public/?sort=date&direction=ascending>)

Media outreach:

Over 300 interviews since the beginning of the COVID-19 pandemic, including the New York Times, Washington Post, Wall Street Journal, Scientific American, National Geographic, CNN, BBC Radio, La Repubblica, Paziente zero/podcast, WIRED.it, Corriere della sera, La Gazzetta del Mezzogiorno.it, and RAI.





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Contributions to Science:

Early work. I devoted more than 36 years to understanding basic mechanisms of antigen recognition and immune responses, measuring and predicting immune activity, and developing disease intervention strategies against cancer, infectious diseases, autoimmune diseases and allergies.

My early work, in the mid-80s to mid-90s, demonstrated that the main biological function of MHC is to bind epitopes. From those studies, we further developed the notion that different MHCs have distinct binding specificities that can be used to predict epitopes. Our group has defined motifs for over one hundred different class I and class II MHC variants expressed from humans, and several other species.

Our group also discovered and characterized how MHC variants can be grouped according to broad functional specificities (MHC supertypes), greatly facilitating epitope classification, characterization and understanding the basic rules of epitope-MHC interactions. Over the last 36 years, I have been continuously involved in hundreds of epitope identification studies, in cancer, autoimmunity, allergy, and infectious disease. A recent focus of my laboratory has been the study of SARS-CoV-2 adaptive immunity, as describe in more detail below.

The study of SARS-CoV-2 adaptive immunity. Our group was first to define successful adaptive response to SARS CoV2, by studying mild convalescent samples, and defined durability of immune memory in natural infection and vaccination. We reported the phenomenon of SARS CoV2 preexisting immune memory in unexposed donors, and demonstrated its influence on vaccination outcomes. We also demonstrated that T cell responses are largely preserved in terms of recognition of SARS CoV2 variants, including Omicron and Delta. Overall, my work in the SARS CoV2 resulted in over 100 peer reviewed publications. The epitope pools developed by the group are used to measure responses; they have been provided to over 187 labs, in 34 different countries in 6 continents. Last, but not least, since the start of the pandemic advocated a fact-based approach to informing the general public, though publications, social media and media interviews This resulted in over 600 interviews which were published and/or aired in over 100 different countries.

The Immune Epitope Database and Analysis Resource (IEDB). Over the last 17 years, I designed, directed, developed and managed the IEDB, (<http://www.iedb.org>), a freely available bioinformatics resource funded by the NIAID. The database catalogs all epitopes for humans, non-human primates, rodents, and other vertebrates, from allergens, infectious diseases, autoantigens, and transplantation epitopes. Currently, almost one million epitopes derived from almost 20,700 different literature reports are included. The IEDB can also access the Analysis Resource, a suite of bioinformatics tools to analyze epitope data and predict epitopes. The user can predict epitopes with the tools contained in the Analysis Resource (<http://tools.iedb.org>). The IEDB receives about 15,400 visits/month on the main website and an additional 18,300 visits/month on the tools website.

