Curriculum Vitae Professor Dr. Dorairajan Balasubramanian

Name: **Dorairajan Balasubramanian**
Born: **28 August 1939**

Main areas of research: Diseases of the Eye, biochemistry and photochemistry of cataract, Molecular genetic analysis of some inherited eye diseases

Dorairajan Balasubramanian is distinguished for his important contributions to the understandig of the basic biological processes involved in some eye diseases, notably cataract and glaucoma.

Academic and Professional Career

2007 - 2010	President of the Indian Academy of Sciences, Bangalore, India
since 1998	Director of Research, L. V. Prasad Eye Institute, Hyderabad, India
1982 - 1998	Deputy Director and Director, centre for Cellular and Molecular Biology, Hyderabad, India
1977 - 1982	Professor and Dean, School of Chemistry, University of Hyderabad, Hyderabad, India
1967 - 1977	Lecture and Assistant Professor in Chemistry, Indian Institute of Technology, Kanpur, India
1965 - 1966	Post-doctoral Research (as a Jane Coffin Foundation Fellow) at the Department of Biochemistry, University of Minnesota Medical School, Minneapolis, USA
1965	Ph.D. degree in Chemistry, Columbia University, New York, USA

Project coordination, Membership in collaborative research projects

Project Coordinator, Champalimaud Foundation's Translational Centre in Eye Diseases (CTRACER), LV Prasad Eye Institute, Hyderabad, India

Project Coordinator, Wellcome Trust project on R & On Affordable Healthcare, India (project on the use of scaffolds for cultivating stem cells)

Functions in Scientific Societies and Committees

2019 - 2021 Vice President of The World Academy of Sciences (TWAS), Trieste, Italy

Member of the Council of the Indian Academy of Sciences

Secretary General, Academy of Sciences of the Developing World (TWAS)

Member, International Human Rights Network of Academies and Scholarly Societies

Member, International Basic Sciences Panel, UNESCO, Paris, France

Member, International Chapters Committee, Association for Research in Vision and Ophthalmology (ARVO), USA

Honours and Awarded Memberships

since 2009 Member of the German National Academy of Sciences Leopoldina

Elected Fellow of the Indian Academy of Sciences, Bangalore, India

Elected Fellow of the Indian National Science Academy, New Delhi

Elected Fellow of the National Academy of Sciences India, Allahabad

Elected Fellow of the American Association for the Advancement of Science (AAAS), USA

Elected Fellow of the Academy of Sciences of the Developing World (earlier called the Third World Academy of Sciences, TWAS)

Elected Fellow of the Mauritius Academy of Science and Technology

Major Scientific Interests

Molecular and Cellular Approaches to Understand and Treat Diseases of the Eye: Studies on the biochemistry and photochemistry of cataract, Oxidative etiology of cataract and attempts to delay its progression, Molecular genetic analysis of some inherited eye diseases, Successful use of limbal stem cell techniques to restore vision in patients

Dorairajan Balasubramanian is distinguished for his important contributions to the understandig of the basic biological processes involved in some eye diseases, notably cataract and glaucoma. His expertise in biophysical chemistry and molecular biology have enabled him to (a) identify the origin and chemical identities of several chromophores and pigments that accumulate in the aging and

cataractous human lens; (b) to show how some of these accumulants contribute further to the covalent damage of the lens proteins, through oxidative and cross-linking mechanisms; (c) to suggest the mechanistic link between smoke inhalation and cataractogenesis; (d) to evaluate the ability of some plant natural products in delaying/preventing cataract; and (e) to do molecular functional analysis of mutant crystallins that are seen in congenital cataracts in children, and show how these molecules form scattering particles in situ in lens cells.

More recently, he has been able to suggest one of the functions of the glaucoma-associated protein optineurin and how mutations in it lead to retinal ganglion cell death.