
Curriculum Vitae Professor Dr Dorairajan Balasubramanian

Name: Dorairajan Balasubramanian

Date of birth: 28 August 1939



Research Priorities: Eye diseases, biochemical and photochemical principles of cataracts, molecular-genetic analysis of various congenital eye diseases

Dorairajan Balasubramanian is an Indian chemist. The scientist has made significant contributions to the understanding of the basic biological processes involved in some eye diseases, notably cataract and glaucoma.

Academic and Professional Career

- 2007 - 2010 President, 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 Lecturer and Adjunct Distinguished Professor of Chemistry, Indian Institute of Technology, Kanpur, India
- 1965 - 1966 Research Postdoctoral Fellow (Jane Coffin Foundation Fellow), Department of Biochemistry, University of Minnesota Medical School, Minneapolis, USA
- 1965 PhD in Chemistry, Columbia University, New York City, USA

Functions in Scientific Societies and Committees

- 2019 - 2021 Vice President, Third World Academy of Sciences (TWAS), Italy
- Council Member, Indian Academy of Sciences, India

Secretary General, TWAS, Italy

Member, International Human Rights Network of Academies and Scholarly Societies

Member, International Basic Sciences Panel, UNESCO

Member, International Chapter Affiliate Committee, Association for Research in Vision and Ophthalmology (ARVO), 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 "R & D For Affordable Healthcare (Project on the use of scaffolds for cultivating stem cells)", Wellcome Trust, London, UK

Honours and Awarded Memberships

2015 Indira Ghandi Prize, Indian National Science Academy (INSA), India

2015 Jawaharlal Nehru Centenary Award for Achievement in Science, Indian Science Congress Association, India

since 2009 Member, German National Academy of Sciences Leopoldina, Germany

2002 National Order of Merit "Chevalier de l'Ordre National de Merite", France

2002 "Padma Shiri" Award, India

2002 National Prize for Popularization of Science, Department of Science and Technology, India

1997 Kalinga Prize for the Popularization of Science, UNESCO

Elected Member, Indian Academy of Sciences, India

Elected Member, INSA, India

Elected Member, The National Academy of Sciences India, Allahabad, India

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

Elected Member, Academy of Sciences of the Developing World (formerly known as: Third World Academy of Sciences (TWAS)), Italy

Elected member, Mauritius Academy of Science and Technology (MAST), Mauritius

Research priorities

Dorairajan Balasubramanian is an Indian chemist. The scientist has made significant contributions to the understanding of the basic biological processes involved in some eye diseases, notably cataract and glaucoma.

His expertise in biophysics, biophysical chemistry and molecular biology have enabled him to identify the origin and chemical identities of several chromophores and pigments that accumulate in the lens of the human eye during the ageing process prior to cataracts. The accumulation of these chromophores and pigments can damage the lens proteins via oxidation and cross-linking. Balasubramanian's team also investigated substances in terms of their ability to delay or even prevent the forming of a cataract. With the help of a molecular functional analysis, the team also investigated the structure of mutant crystallins that are seen in congenital cataracts in children and were able to show how these molecules form scattering particles in situ in lens cells.

Balasubramanian then extended his research to the protein optineurin, which plays a role in the forming of glaucoma and identified the mutations that can lead to retinal ganglion cell death.

Balasubramanian and his working group were further able to isolate and cultivate adult stem cells from the cornea region. Corneal epithelial cells were later obtained from these.

In addition, the scientist is committed to public health information. He has contributed to the public's improved understanding of chemistry and biochemistry with his popular science articles. Dorairajan Balasubramanian has worked to ensure that as many people as possible have access to scientifically sound ophthalmology.