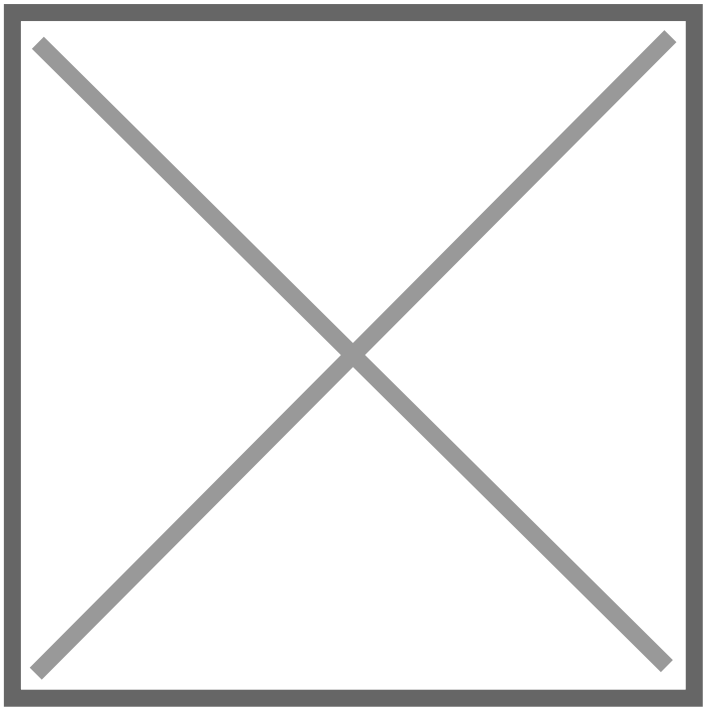
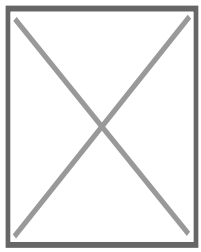
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Molecular mimicry master

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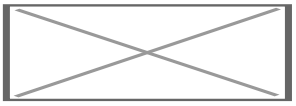




Dr Dinakar M Salunke
executive director, Regional Center for Biotechnology, Gurgaon

With his 30 years of experience in research, Dr Dinakar M Salunke has made outstanding contributions to the understanding of generation of antibody diversity and in elucidating the various facets of molecular mimicry in the context of humoral immune response. He has successfully analyzed several chemically dissimilar but functionally equivalent molecular structures, establishing structural basis and immunological implications of molecular mimicry.

Currently working at the National Institute of Immunology (NII), Delhi, Dr Salunke is busy nurturing the Regional Center for Biotechnology (RCB) as its first executive director. The center is an institution of education, training and research established by the Government of India under the auspices of the United Nations Educational, Scientific and Cultural Organization.



Dr Salunke's research journey began in 1978 when he joined Prof M Vijayan for his PhD degree in molecular biophysics at the Indian Institute of Science, Bangalore. Following this, he set out for Brandeis University, Waltham, Massachusetts, USA, for his post doctoral research in 1984 under Prof DLD Caspar, a renowned structural biologist. He returned to India in 1988 to join the NII where he developed a strong group in structural biology, addressing issues concerning immune mechanisms.

His research on the pluripotency of primary immune response led to the discovery of new ways of antibody degeneracy and has impacted the evolving paradigm shift in immune recognition and generation of antibody repertoire. He also analyzed how the immune system reacts when it encounters antigens that keep changing shape. He also showed that the restricted paratope conformational repertoire, on binding of an antigen to multiple independent antibodies, may be relevant for minimizing possibility of self-reactive antibodies.

Utilizing the structural, immunological and thermodynamic approaches, Dr Salunke's group addressed the molecular insights into functional mimicry in the context of immune response. His team has successfully demonstrated that the antibody paratope plasticity could facilitate molecular mimicry of otherwise unrelated antigens. His group also demonstrated the structural basis of molecular mimicry involving porphyrins and sugar moieties as well. Ã¢â?¬Å?While our analysis of carbohydrate-peptide mimicry provided important conceptual leads towards design and development of new generation

vaccines, the analysis involving carbohydrate-porphyrin mimicry provided possible mechanistic understanding of the molecular pathology of porphyria,Ã¢â?¬? says Dr Salunke.

In 2000, he received the Shanti Swarup Bhatnagar Prize for Science and Technology in the category of biological sciences. He also received the National Bioscience Award in 1999, recognition from the National Institute of Immunology for outstanding scientific achievements consecutively in 2000 and 2001, and Ranbaxy Research Award for Basic Research in Medical Sciences in 2002. More recently in September 2011, the Council of Scientific & Industrial Research bestowed on him the GN Ramachandran Gold Medal for Excellence in Biological Sciences & Technology for the year 2010.

Dr Salunke, who started as a student of physics and mathematics, moved to molecular biophysics and finally utilized these skills in modern biology. He strongly believes that multi-disciplinary approach to biotechnology will create more effective researchers. The RCB, where he is actively involved in developing advanced educational and training programs, is expected to create opportunities for students to engage in research where they will learn the discovery tools by appropriately integrating science, engineering, medicine and agriculture to provide healthcare solutions and to develop agricultural and environment technologies.

Rahul Koul in New Delhi