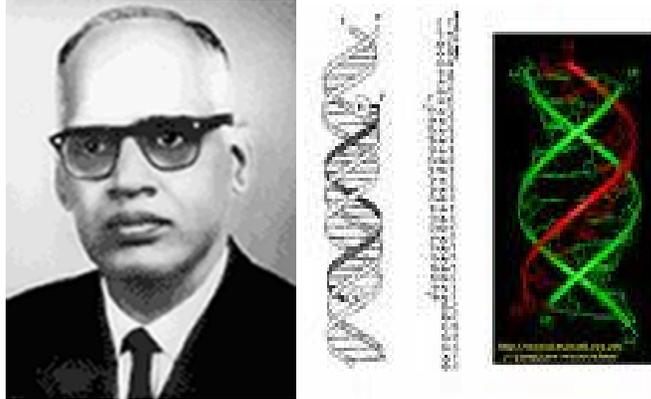


DR G N RAMACHANDRAN
A Jewel in the Crown of the Indian Science



"...Ramachandran, a remarkable creative individual with an active mind that never relaxed, constantly striving to shed light on one problem or another. His life has been one of varied experience punctuated by ups and downs, success and failure, as is the case with many other famous scientists of our times. Fortunately they did not impact on his scientific creativity or productivity; it simply added a new dimension to his life. In spite of these he put India on the map of *molecular biophysics*. Clearly Ramachandran belongs to the same league as some of the most famous scientists of this century, for example Sir C.V. Raman, M.N. Saha or S.N. Bose (of Bose - Einstein Statistics fame). "Ramachandran was clearly a "Nobel Class" scientist. He was nominated a record seven times for the Nobel Prize. But his active career was all too brief by modern day standards. For the last twenty years Ramachandran was not really visible internationally, reminding us of one of the ironies of modern science. Ramachandran did all his work in India, following the footsteps of his mentor, C.V. Raman.... But even at the height of his career Ramachandran most enjoyed scientific discussion; unfortunately his surroundings could rarely rise to the levels he demanded... In many ways, when the end came it was indeed time to go. But, Ramachandran has left behind a rich scientific legacy. His achievements will serve as a source of inspiration for generations to come. Ramachandran was undoubtedly one of the most outstanding scientists of post-independence India and truly, a jewel in the crown of India's science".

His most important contributions were:

- Discovery of the triple helical structure of the protein collagen.
- '*The Ramachandran phi-psi Plot*' has become a standard description & prediction of protein structure.
- Development of the theory of image reconstruction from *shadowgraphs* (such as X-radiograms) using the Convolution Technique.

Ramachandran worked in a number of fields in physics, chemistry and biology. He contributed more than 250 publications and several reviews in well-known international journals. His first major research contribution was the discovery of the *triple helical structure of collagen*. Ramachandran was drawn to collagen by J.D. Bernal's remarks that structural proposals for collagen were unsatisfactory. Bernal made these remarks in a casual conversation during his visit to Madras in 1952. Ramachandran, co-authored with Gopinath Kartha, first published his paper on the *triple helical structure of collagen* in 1955. Their concept of coiled-coil structure paved the way for the now famous Ramachandran Plot, which proves to be a fundamental advance in the understanding of polypeptide structure. All modern-day investigations in to the protein structure prediction & design, protein-protein interactions, protein-ligand interactions and the like have been founded on his theory. His structure was criticized by none other than Francis H.C. Crick, who along with James D. Watson, unraveled the double helical structure of D.N.A. Crick and Alexander Rich wrote in the November 1955 issue of *Nature*: "Very recently Ramachandran and Kartha have made an important contribution by proposing a coiled-coil structure of collagen; we believe this idea to be basically correct."

SUMMARY OF G.N. RAMACHANDRAN'S CAREER

Gopalamudram Narayana Ramachandran

Born on October 8, 1922

Father: G.R. Narayana Ayer

Mother: Lakshmi Ammal

Education

- **1939-42 B Sc (Hons) Physics, St. Joseph's College, Tiruchirappalli, TN.**
- 1942-44 M Sc Physics, India Institute, of Science (H Sc), Bangalore
- 1944-47 D Sc Physics, H Sc (Under the supervision of Prof. C.V. Raman)
- 1947-49 Ph D Crystallography, Cavendish lab, University of Cambridge

Professional Occupations

- 1949-52 Assistant Professor of Physics, H Sc Bangalore
- 1952-70 Professor & Head of Dept. of Physics, University of Madras
- 1971-78 Professor & Head, Molecular Biophysics Unit, IISc, Bangalore
- 1978-81 Institute Professor, Mathematical Philosophy, IISc, Bangalore
- 1981-84 CSIR Distinguished Scientist
- 1984-89 INSA Albert Einstein Professor, Mathematical Philosophy Group, IISc Bangalore

He also held the following assignments:

- Director, Centre for Advanced Study in Biophysics & Crystallography, University of Madras (1962-70);
- Jawaharlal Nehru Fellowship (1967-71);
- Part-time professor of Biophysics, University of Chicago, Chicago.
- Fellow of the Indian National Science Academy (FNA)
- Fellow of the Royal Society of Arts, London (FRSA)
- Fellow of the Royal Society, London (FRS)
- Founder Member, The Third World Academy of Sciences
- Member, Council of International Union of Pure & applied Biophysics (IUPAB)
- Member, various Sub-commissions of the Commission on Biochemical Nomenclature of the IUPAC-IUB (1966-79).
- Professor Ramachandran was a member of editorial boards of a number of national and international journals.
- Membership in many professional organizations/bodies (all are not included)
- Ramachandran received a number of national/international awards.

His Creator called him up on April 07, 2001.