

C. V. Raman nominated G. N. Ramachandran for the Nobel Prize in Chemistry

Rajinder Singh

Nobel Prizes are one of the most prestigious awards in the scientific community. Until 1964 only one Indian, that is, G. N. Ramachandran was nominated for the Chemistry Nobel Prize. The documents regarding Ramachandran, such as nomination letters, expert's and the Nobel Committee's reports were obtained from the Royal Swedish Academy of Sciences, Stockholm. The summarized results of their analysis are presented here.

Gopalasamundram Narayana Ramachandran, better known as G. N. Ramachandran, is well known among the Indian scientific community. A few short articles deal with his life and scientific work¹⁻⁶. So far as I am aware, the existing literature does not throw light on his nomination for the Nobel Prize. The present note shows why he did not receive the Nobel Prize.

On 11 December 1963, C. V. Raman wrote a letter to the Chemistry Nobel Prize Committee and proposed G. N. Ramachandran, University of Madras, for the Chemistry Nobel Prize 'on the basis of his discovery of the structure of Collagen and his elucidation of its properties in terms of the structure of that substance'. In a long letter, Raman reasoned that Ramachandran's work on the structure of collagen has applications in the fields of medicine and biochemistry. Raman supported his case by mentioning the organization of an 'International Symposium on Protein Structure and Crystallography' in Madras. It was attended by renowned scientists in the field. Raman reproduced the testimony of some of the scientists as follows: 'Dr M. F. Perutz, Nobel-Laureate, Cambridge: "The holding of an international conference of this kind in Madras is symbolic ... of the international fame attained by your laboratory as a result of your inspired leadership in teaching and research." Prof. J. D. Bernal, FRS, London: "I have felt for a long time that the Madras School has made a great contribution to protein studies." Professor K. H. Gustavson, Stockholm: "This symposium is a signal token of the international recognition of the high scientific standard of research of the Madras School"...' (Raman's letter to the Nobel Committee, dated 11 December 1963).

In another letter (dated 13 December 1963), Raman wrote to the Nobel Committee that he is sending the following

documents to support his candidate by surface mail registered post: (1) *Aspects of Protein Structure*, (2) *Crystallography and Crystal Perfection*, both edited by Ramachandran and published by Academic Press, London and New York, (3) A bound volume of Ramachandran's and his collaborators' publications. (4) A brochure regarding the International Symposium (organized by Ramachandran) on protein structure and crystallography.

On 8 June 1964, Gunnar Hägg, the expert of the Nobel Committee wrote a three-page long report. Based on it, in 1964, the Chemistry Nobel Committee concluded:

- The Indian researcher has proposed a structure for collagen – biologically important substance. But other researchers have also suggested a different structure model. The two structures are admittedly quite similar, but differ in the way in which the molecular chains are 'bevelled' in relation to each other and with respect to the hydrogen bonds that hold the chains together. The differences are thus not of much significance.
- Mr G. Hägg says that the exact knowledge of the structure is extremely important to explain the properties of collagen. In medicine, currently, it is very interesting as 'collagen diseases' are caused or accompanied by changes in the collagen substance. A clarification of these issues would, of course, eminently deserve the Nobel Prize in the field of medicine.

According to the Rules and Regulations of the Nobel Foundation, documents older than 50 years can be consulted for research purposes. Thus, one needs to wait to know whether Ramachandran was nominated after 1964. He was the only Indian to be nominated by Raman. In fact, until 1964, Ramachandran was

the only Indian to be nominated for the Chemistry Nobel Prize⁷. The Chemistry Nobel Committee appreciated Ramachandran's scientific achievement; however, it was of the opinion that it belongs to medicine.

Ramachandran's researches show the difficulties of recognition of interdisciplinary scientific work by specialists from different fields.

1. Mahanti, S., *G. N. Ramachandran – A Jewel in the Crown of the Indian Science*, Vigyan Prasar, New Delhi, 2004.
2. INSA, *Ramachandran: A Biography of the Famous Indian Biophysicist*, Indian National Science Academy, New Delhi; <http://www.jbsdonline.com/ramachandran-biography-famous-indian-biophysicist-p10559.html> (accessed on 12 April 2016).
3. Balaram, P. and Ramaseshan, S., *Curr. Sci.*, 2001, **80**, 908–910.
4. Vijayan, M., *Biogr. Mem. – Fellows Indian Natl. Sci. Acad.*, 2001, **24**, 81–97.
5. Vijayan, M. and Johnson, L. N., *Biogr. Mem. Fellows R. Soc.*, 2005, **51**, 367–377.
6. <http://insaindia.org/deceaseddetail.php?id=N630596> (accessed on 29 April 2016).
7. Singh, R., *India's Nobel Prize Nominators and Nominees – The Praxis of Nomination and Geographical Distribution*, Shaker Verlag, Aachen, 2016, pp. 10–17.

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*Rajinder Singh is in the Research Group – Physics Education and History of Science, Physics Institute, University of Oldenburg, Germany.
e-mail: rajinder.singh@uni-oldenburg.de*