

Celebrating life with Rita Levi-Montalcini: A hundred years and more

Sanjay Kalra, Manash P. Baruah¹, Ambika Gopalakrishnan Unnikrishnan²

Department of Endocrinology, Bharti Hospital and B.R.I.D.E, Karnal, Haryana, ¹Excel Hospital, Guwahati, and ²AIMS, Kochi, India

Frail and lean, hard of hearing, with limited vision, she makes an unlikely brand ambassador for endocrinology. And an even unlikelier icon for youth and antiaging! At 103, and hoping for more, Dr. Rita Levi-Montalcini is a living celebration of our subject, and what it stands for.

It was in 1986 that she, along with Dr. Stanley Cohen, was awarded the Nobel Prize in Medicine or Physiology. The prize was conferred upon her for the discovery of the nerve growth factor (NGF), and upon Dr. Cohen for discovering epidermal growth factor (EGF).^[1]

This recognition, though, went far beyond a simple award. It highlighted the contribution of a woman researcher in a male-dominated field, with Dr. Rita being just the fourth female recipient of the Medicine or Physiology Prize. Earlier, two other gutsy ladies had been honored for their contributions in endocrinology: Gerty Theresa Cori in 1947 for discovering the course of the catalytic conversion of glycogen, and Rosalyn Yalow in 1977 for inventing radioimmunoassay to measure peptide hormones.^[1]

The laurel was special in another way, too. It brought to center stage, her determination, fortitude, and courage. Her achievement was no mean feat, hailing as she did, from a minority community living under a hostile government. The medical community realized the odds she had faced, first in convincing her traditionally minded father to allow her to study, then in completing medical college, and later in beginning her research as a displaced person in wartime Italy.^[2]

The acknowledgment of her work showcased the advantages of cross-fertilization that occurs between various disciplines of medicine. A physician by training, a neurologist by profession, and a hardcore neuroembryology researcher at heart, she discovered an endocrine entity, which straddled the worlds of neurology, endocrinology, embryology, geriatrics, and many other specialties.

The conferral of the Nobel Prize also brought into limelight, the important growth factors, which had been discovered in the early 1950s, but were ignored by endocrinologists and other medical specialists. It took 35 years of hard work (and chance), according to Dr Rita, for NGF to be discovered.^[3] Interest was created in this family of hormones, however, only after Dr. Rita and Dr. Cohen became Nobel laureates.

How has Dr. Rita become an icon for endocrinology? Is her discovery, the NGF, really a hormone? And is *IJEM* justified in bringing out this editorial?

NGF, for the modern student of endocrinology, is a paradox. Is it a hormone? Or is it not? A small peptide, secreted in minute quantities, found in circulation, acting on specific receptors, to create well-characterized downstream effects in various organs, it certainly fits the definition of a hormone.

Dr. Rita's discovery expanded the frontiers of endocrinology like never before. Till then, the budding specialty had focused on "circulating hormones" secreted from the "classic" glands. On one hand, newer entities were being discovered, isolated, and measured, faster than textbooks could document. On the other hand, clinical endocrinology, and endocrine therapeutics, was limited, to the study of a few major glands. NGF, however, brought attention to a novel family of growth factors or hormones.

Dr. Rita stimulated endocrinologists to look beyond the traditional definition of hormones, and to go where

Access this article online	
Quick Response Code:	Website: www.ijem.in
	DOI: 10.4103/2230-8210.95657

Corresponding Author: Dr. Sanjay Kalra, Department of Endocrinology, Bharti Hospital and B.R.I.D.E, Karnal, Haryana, India.
E-mail: brideknl@gmail.com

none had gone before. Her work also fueled interest in paracrinology, and later, autocrinology and intracrinology. These fields, today, are an accepted part of endocrine science.

The story of the discovery of NGF did not end in the laboratory Petri dishes. Dr. Rita, and later researchers, tried to explore the therapeutic benefits and clinical applications of this hormone as well.

NGF has been studied for its antiaging properties, thus adding fuel to the controversy related to this subspecialty of science. NGF has also been tried in neurodegenerative disorders, and in cardiovascular disease as well. NGF promotes angiogenesis and cardiomyocyte survival,^[4] and may turn out to be a potential treatment for coronary artery disease. It may also be utilized in future for the management of diabetic neuropathy.^[5]

Dr. Rita reportedly takes NGF in the form of eye drops, and states that she is well, and her mind is clearer than before. Whether because of this, or otherwise, she is the oldest living Nobel laureate ever, and the first ever to reach a hundredth birthday.^[6] “I am not afraid of death—I am privileged to have been able to work for so long,” says Levi-Montalcini. “If I die tomorrow or in a year, it is the

same—it is the message you leave behind you that counts, and the young scientists who carry on your work.”^[6]

Today, as we go to press, Dr. Rita, who lives in Italy, nears her 103rd birthday. On April 22, 2012, we hope that she celebrates life, “with her mind clearer than before.” She is, for us, and for our chosen specialty, an icon of inspiration.

Ma, tujhe salaam! (Mother, we salute thee).

REFERENCES

1. Available from: http://www.nobelprize.org/nobel_prizes/medicine/shortfacts.html. [Last Accessed on 2012 Feb 1].
2. Available from: http://www.nobelprize.org/nobel_prizes/medicine/laureates/1986/levi-montalcini.html. [Last Accessed on 2012 Feb 1].
3. Available from: http://www.nobelprize.org/nobel_prizes/medicine/laureates/1986/levi-montalcini-lecture.pdf. [Last Accessed on 2012 Feb 1].
4. Meloni M, Caporali A, Graiani G, Lagrasta C, Katare R, van Linthout S, *et al.* Nerve growth factor promotes cardiac repair following myocardial infarction. *Circ Res* 2010;106:1275-84.
5. Hellweg R, Hartung HD. Endogenous levels of nerve growth factor (NGF) are altered in experimental diabetes mellitus: A possible role for NGF in the pathogenesis of diabetic neuropathy. *J Neurosci Res* 1990;26:258-67.
6. Abbott A. Neuroscience: One hundred years of Rita. *Nature* 2009;458:564-7.

Announcement

iPhone App



Download
iPhone, iPad
application

FREE

A free application to browse and search the journal's content is now available for iPhone/iPad. The application provides “Table of Contents” of the latest issues, which are stored on the device for future offline browsing. Internet connection is required to access the back issues and search facility. The application is Compatible with iPhone, iPod touch, and iPad and Requires iOS 3.1 or later. The application can be downloaded from <http://itunes.apple.com/us/app/medknow-journals/id458064375?ls=1&mt=8>. For suggestions and comments do write back to us.