

Preface

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Preface

This special issue of *Neurochemistry International* contains the proceedings of the Satellite Symposium of the 54th Annual Meeting of the Japanese Society for Neurochemistry (JSN) and of the Kanazawa University Research Center for Child Mental Development, entitled, "Genetic and Molecular Basis of Synapses, Circuits, Memory, Behavior, and Psychiatric Disorders: In Memory of Dr. Marshall Nirenberg." This conference took place at the No-Zangetsu theater in the Ruriko Hotel, at the Yamashiro Spa area in Kaga City, Ishikawa, near Kanazawa, Japan, from 26 – 28 September 2011. It was not surprising to have such a symposium in a joint form to the JSN meeting, because Dr. Nirenberg was the first Foreign Honorable Member of the JSN elected in 2002 (Fig. 1) with the support of Dr. Toshiharu Nagatsu, Professor Emeritus of Nagoya University.

Dr. Nirenberg's great achievement in deciphering of the genetic code is well known, and he was honored with the Nobel Prize in Physiology or Medicine in 1968 at age 41 along with many other awards. In the late 1960s, his research interests turned to Neurobiology, probably with an eye toward decoding brain memory. He developed many interesting aspects in the fields of neurochemistry and neuroscience together with research fellows in the post-genetic code and neurobiology era. However, he did not publish many research works or reviews during this time, with the exception of a few articles in *Science* and some books (Trisler et al., 1981; Nirenberg et al., 1983a and b).

Sadly, Marshall Nirenberg passed away on 15 January 2010 after battling right ascending colon cancer, a malignant neuroendocrine tumor, for 4 – 5 months at the Sloan Kettering Institute Hospital and at Myrna Weissman Nirenberg's residence in New York. The official memorial symposium on Nirenberg and Neurobiology was held at the National Institutes of Health on 8 October 2010. Some of Marshall's laboratory alumni who had

post-doctoral training during early 1970 to 1980, including Haruhiro Higashida, David Trisler, and Frank Walsh from Japan, Maryland, and Pennsylvania, respectively, also attended the memorial service. Haruhiro Higashida proposed holding a symposium in memory of Marshall in Japan during the JSN's annual meeting organized by these three, because the meeting is held in the Kanazawa area in which Haruhiro Higashida, the chairman of the organizing committee of the meeting, has held an academic position for 30 years. In addition, Haruhiro Higashida is a director of Kanazawa University Research Center for Child Mental Development, which receives support from the Japanese central government, and Marshall contributed a great deal to faculty development around Haruhiro at Kanazawa University, and was a mentor for the Kanazawa University Center of Excellence Program for Innovative Brain Science for Development, Learning and Memory (to Haruhiro). He also received an honorary doctorate from Kanazawa University. Therefore, it was decided to support this plan to honor Marshall from the institute.

This symposium and the resulting special Issue "Honoring Nobel Laureate Dr. Marshall Nirenberg" provide a fitting tribute to Nirenberg's memory, especially his scientific carrier spanning from 1970 to 1980, including cloning of neuronal cells, hybridization, synapse formation, and monoclonal antibodies for neural antigens. Further information on the late Marshall Nirenberg in relation to JSN and world science can be found in three articles in this issue (Nagatsu, Walsh, and Higashida, respectively).

The aim of the conference was to summarize recent advances in our understanding of the brain memory process. Therefore, we will not focus on a single issue, but on many different aspects of brain memory. The speakers at this conference were collaborators and colleagues of Nirenberg's laboratory, the Laboratory of Biochemical Genetics, National Heart, Lung, and Blood Institute, National Institutes of Health, USA, and

others who are interested in the memory process from all around the Pacific Rim, including Japan, South Korea, China, and the USA, as well as Europe. The 150 invited speakers and participants in the JSN annual meeting will be exposed to the latest work on various functions on brain activity, including learning and memory, synaptic development, and drug development on the nervous system (Fig. 2). The presentations also encompass diseases causally linked to autism, Parkinson's disease, depression, Alzheimer's disease, multiple sclerosis, eating disorders, and diabetic retinopathy, i.e., research which developed during the period of more than 30 years after alumni have left Marshall's laboratory.

Figure 3 shows Marshall Nirenberg's statement at the Vatican, 2008, when he was invited to the Academy of Vatican, Italy, with his signature, which was kindly provided by Myrna Weissman Nirenberg, his second wife. She also attended this symposium to introduce "Personal side of Marshall" and to present her lifelong work on a study of generations at high-risk for major depression.

We would like to acknowledge Professor Yukio Yoneda, the President of the Annual Meeting and an editor of this special issue of *Neurochemistry International*, Shizuka Aikawa, and Tomoko Maru for invaluable administrative and secretarial assistance.

Haruhiro Higashida, David Trisler, and Frank S. Walsh

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Figure legends

Fig. 1. Marshall Nirenberg, together with Myrna, seriously cuts a Golden leaf (Kin-paku), and sticks on a plate in a craft shop at Kanazawa, Japan, as always does during his work for master charts of genetic code and lists of neuroblastoma clones. He delivered his special lecture and received honorary membership in 46th Annual meeting of JSN at Niigata, 2003.

Fig. 2. Group picture of speakers and associates after lunch on September 28, 2011.

Fig. 3. Marshall's writing on what he spoke at Vatican's academy. Courtesy by Myrna Weissman Nirenberg.

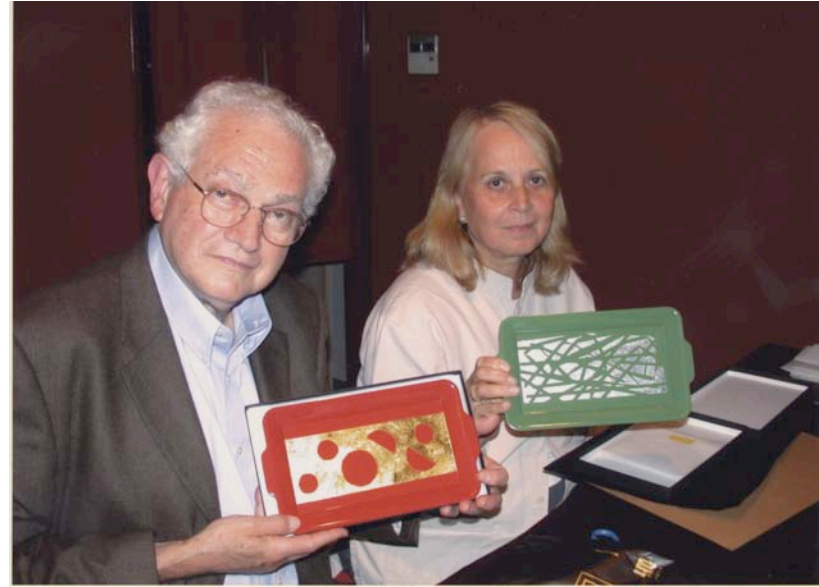


Fig. 1



Fig. 2

The Genetic Code and Evolution

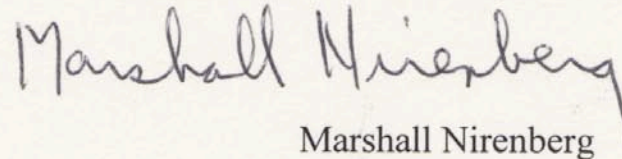
The Genetic code appeared very early during biological evolution.

All forms of life on Earth use the same or very similar genetic codes.

All forms of life on Earth descended from a common ancestor and thus, all forms of life on this planet are related to one another.

The molecular language is used to solve the problem of biological time. It is easier to construct a new organism than it is to repair an aging, malfunctioning one.

The messages in DNA that we inherit from parents contain wisdom gradually accumulated over billions of years. The messages slowly change with time, but the translation of the language remains essentially the same.

A handwritten signature in dark ink, reading "Marshall Nirenberg". The signature is fluid and cursive, with the first name "Marshall" and last name "Nirenberg" clearly distinguishable.

Marshall Nirenberg
The Vatican
November 1, 2008

Fig. 3