

SYMPOSIUM
THE ROLE OF NITRIC OXIDE
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NO-producing neurons in the central nervous system: advances on morphology and functional roles

GianCarlo Panzica

Dept. Anatomy, Pharmacology, and Forensic Medicine, University of Torino (Italy)

The following section of this issue of the *European Journal of Anatomy* gathers the invited short lectures that were presented during the symposium on *The Role of Nitric Oxide* that was held during the *51st Annual Meeting of the Italian Society of Anatomy (Torino, October 1997)*. The putative neurotransmitter role of nitric oxide (NO), one of the simplest molecules in nature, has recently been proposed. *Science* magazine named NO the molecule of the year in its December 18, 1992 issue, and, following the first pioneering studies, an impressive amount of investigations have elucidated the distribution of neurons producing NO, as well as suggested different physiological roles for this gas. It is now very well established that NO is one of the most ubiquitous endogenous signalling molecules in neurobiology and probably a major player in inflammation and host defense.

It is hence hopeless try to review all the functions of NO in a single short symposium or collection of papers, and in Torino we have centered the focus of interest only on few important topics that are reported in the papers of this special issue.

In particular, the article of *Aimar et al.* provides an overview on the ultrastructure, as well as on their synaptic connections, of NO-producing elements in the spinal cord, the study of *Sánchez et al.* reviews the expression and plasticity of NO-

producing neurons in the neuroendocrine hypothalamic system in comparison with that of other neurochemical markers, the paper of *Vercelli et al.* investigates the role of the NO for the organization of target centers during the development of retinal projections. The study from *Mariotti* elucidates factors inducing the expression of NO synthase activity in motoneurons. Finally, the review of *Panzica et al.* summarizes studies performed on some non-mammalian vertebrates, as well as the results of colocalization studies in the avian brain.

These papers give also information on the morphological techniques for the detection of NO producing elements that are today available. In particular, all these studies have been performed using the histochemical reaction for the NADPH diaforase, a good marker for the NO synthase in the nervous system. This reaction has been here adapted to elucidate the ultrastructure of NO producing neurons, as well as to detect them in a variety of conditions, including double staining with other neurochemical markers, development, and reactive conditions.

I would like to thank here Ricardo Vázquez, Editor-in-Chief of the *European Journal of Anatomy*, for agreeing to publish this collection of papers in a high quality volume that will provide an important documentation of our symposium.

