

## Behaviour of nitric oxide synthase isoforms in inflammatory human joint diseases: an immunohistochemical study.

Debora Di Mauro<sup>1-3</sup>, Linda Bitto<sup>1-2</sup>, Letterio D'Andrea<sup>4</sup>,  
Angelo Favalaro<sup>1-3</sup>, Oddone Giacobbe<sup>1</sup>, Ludovico Magaudda<sup>1-2-3</sup>,  
Giuseppina Rizzo<sup>1</sup> and Fabio Trimarchi<sup>1-3</sup>.

<sup>1</sup> Department of Biomorphology and Biotechnologies - University of Messina, Italy

<sup>2</sup> School of Sport Medicine - University of Messina, Italy

<sup>3</sup> Interuniversity Institute of Miology - University of Messina, Italy

<sup>4</sup> Orthopedic and Traumatological Institute - University of Messina, Italy

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### SUMMARY

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Nitric oxide (NO) is produced by nitric oxide synthases (NOS) expressed in various human tissues and, depending on the amount of NO produced in each tissue, the physiological function of NO is determined. Since increased inducible nitric oxide synthase (iNOS) expression and NO generation are associated with pathogenesis of idiopathic osteoarthritis of synovial tissue and data about constitutive nitric oxide isoform (cNOS) in this tissue are scarce, in this study we investigated the localization and distribution of nitric oxide isoforms in normal, acute and chronic diseased synovium.

The immunohistochemical and histologic analysis was performed in human synovial tissue obtained from 10 patients with post-traumatic inflammation, 14 patients with idiopathic osteoarthritis and normal synovial specimens were obtained from 7 patients undergoing surgery for reconstruction of the anterior cruciate ligament. Immunohistochemical data showed iNOS was strongly expressed in the synovial lining layer, subsynovium and blood vessels from patients with acute and chronic inflammation pathology, on the contrary, normal joints were negative. A similar pattern of cNOS immunoreactivity was seen in synovial lining and vascular smooth muscle in the pathological samples, while in the normal joint the intensity of staining was weaker than the inflamed. These data indicate that NO is produced locally in the pathological synovial lining not only by iNOS but also by cNOS.

### INTRODUCTION

In recent years, nitric oxide (NO) has drawn a growing amount of attention as a major mediator of inflammation (Zamora et al., 2000). This free radical is an important signaling molecule that acts in many tissues regulating a wide series of physiological process as including regulation of vascular tone, neurotransmission, mediator