

Foreword

Since the discovery of the physiological role of nitric oxide in the late 1980s, this simple molecule has been the focus of attention of biochemical and biomedical research. Originally, the main emphasis was on its vasodilating effect in the mammalian vasculature because it was in this context that the importance of NO had been recognized first. Only gradually it was realized that nitric oxide fulfills other important functions as well, for example, in neuronal signal transduction and in the immune system. In recent years, a fresh and powerful impulse was given by the discovery that NO acts as a modulator of gene expression and apoptosis. The list of physiological processes where a role of NO is recognized keeps growing daily and appears unlimited. It sometimes seems that NO appears wherever you take a close look. The actions of NO span a wide field covering the physiology of healthy organisms as well as many pathophysiologicals in mammals and humans.

Recent years have seen a tremendous step forward: It was the discovery that a broad range of other compounds can fulfill one or more of the roles of true NO. Some but not all of these compounds are metabolites of NO, and are endogenously formed in the presence of NO. Examples are nitrite and *S*-nitrosothiols. Others like heme-nitrosyl or dinitrosyl-iron complexes are not metabolites *per se* but form by reversible binding of NO as a nitrosyl ligand to a transition metal ion. Until now, the knowledge of these alternative forms of nitric oxide was not yet collected and ordered in the form of a monograph. Instead, it was widely scattered in the specialized scientific literature and difficult to access. The purpose of the editors was to close this gap, and make the huge body of information available to researchers in a very compact form. Our aim was to make the book accessible and readable for biochemists, clinicians, biologists, and biomedical researchers from all disciplines. That is not easy as all disciplines have developed their own special jargon and ways of expression. We have tried to adopt a language common to these various disciplines, and review the current status of the field rather than dwell on technical details. Up to date reference lists will help the readers to locate more specialized literature and find the original sources of relevant reaction constants and the like.

Compiling a book is a large task, and we would not have completed the work without the cooperation and enthusiasm of our contributors and collaborators, and the patient encouragement from the staff at Elsevier. We hope that the readers will find the volume a useful tool for their research, and enjoy reading about the many surprising aspects and forms of the small diatomic molecule called NO.

Anatoly Fyodorovich Vanin and Ernst van Faassen