
Preface

It has been more than five years since the appearance of the first edition of *Nitric Oxide Protocols*. According to Medline, more than 32,500 publications dealing with nitric oxide have appeared in the primary literature in the intervening time from 1999 to April 2004. These numbers attest to the continuing vitality of a field dealing with a deceptively simple, although extremely interesting and promiscuous molecule, nitric oxide. Despite its apparent chemical simplicity, nitric oxide continues to amaze, with an extremely wide spectrum of functions and effects. In particular, the last few years have witnessed an explosion of nonclassical effects, involving the direct interaction of nitric oxide and related oxidized products with proteins to yield such novel combinations as nitrosylated and nitrated proteins. Another emergent area has been that of NO's clinical applications, including interesting developments related to the virus-mediated expression of nitric oxide synthase and the use of nitric oxide in gene therapy.

In *Nitric Oxide Protocols*, I have gathered chapters dealing with the some of the latest methodologies for the measurement of nitric oxide. Many of these deal with quantitation in biological fluids or tissues, and they cover a wide spectrum of technologies, including capillary electrophoresis, microcoaxial electrodes, the in vivo measurement of nitric oxide in exhaled air, confocal microscopy, gas chromatography–mass spectroscopy, *in situ* hybridization, and real-time polymerase chain reaction. Also included are chapters on the measurement of novel products of nitric oxide, such as nitrated proteins, S-nitrosylated proteins, and dioxygen-dependent NO metabolism. Finally, I have included a section dealing with the expression of nitric oxide synthase via the use of viral vectors. These chapters include such approaches as gene therapy for erectile dysfunction or cancer, as well as retrovirus, adenovirus, or adeno-associated virus-mediated expression of nitric oxide synthase in vivo.

In accordance with the overall philosophy of the series, the chapters were written with special emphasis on the full description of methods. Particular attention was paid to the section of Notes, which greatly amplifies the description of various methodologies and is an integral and unique aspect of the current series and of this particular volume.

I would like to express my sincere gratitude to authors for their contributions to this volume in timely fashion. Without their work, the volume would obviously not exist. Finally, I would like to express special thanks to Series Editor, John Walker, who provided many excellent suggestions during the preparation of this project.

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