PREFACE

The first edition of *Neuroinflammation: Mechanisms and Management* was the first book to organize the early concepts of neuroinflammatory mechanisms and the role of these processes in complex neurodegenerative diseases. The field is unique in the neuroscience area in that it has required the skills and experimental analyses of an extremely diverse array of scientific and clinical research groups. This field includes publications from neurologists, psychiatrists, pathologists, clinical imaging groups, neurophysiologists, neurochemists, immunologists, molecular biologists, anatomists, biochemists, and pharmacologists. This field has also generated excitement in both academic and pharmaceutical research arenas, and since the last edition of this book, has resulted in the introduction of two novel inhibitors of neuroinflammation into clinical trials. These include CEP-1347 for Parkinson's disease and CPI-1189 for Alzheimer's disease. Both compounds are currently in Phase II clinical trials, and pivotal efficacy data should be available within the next 3 years.

In the second edition, we have included extensive updates of new knowledge of the mediators produced by activated microglia and their role in neuroinflammatory-induced neuronal lysis. In addition, we have increased the coverage of animal models used in the study of neuroinflammatory mechanisms and in the new imaging methods that allow the noninvasive evaluation of microglial activation in human neurodegenerative disorders. These imaging techniques have demonstrated that microglial activation and the associated neuroinflammation precedes neuronal degeneration in a number of clinical conditions.

Another important aspect of neuroinflammation that has evolved since the first edition of this book is the role of neuroinflammation in amyloid-dependent neuronal lysis. Both in vitro and in vivo data indicate that amyloid is unlikely to be directly neurotoxic, but that amyloid deposition activates neuroinflammatory processes that lead to neuronal degeneration.

In summary, the field of neuroinflammation is evolving rapidly and advancing new potential therapeutics into clinical trials. When scientific concepts result in drugs with clinical utility, a research field has achieved significant maturity and productivity. I hope that this maturity, and its benefit to the treatment of devastating neurological disorders, is solidly in place for the next edition of *Neuroinflammation: Mechanisms and Management*.

Paul L. Wood