

# Preface

During the last tens of years, we have witnessed major advances in the fields on molecular and cellular biologies, neurosciences around involving the spinal cord and nerve tissues, immunohistochemical neuropathology, and other relevant scientific technologies such as molecular neuroimaging. These advances in basic science areas have aided and facilitated neurosurgeons as well as spine surgeons in elaborate clinical studies, and, in turn, so many issues have once again prompted basic scientists to further investigate in the deepest areas of the spinal cord neuroscience and neuroimaging. So now, both basic scientists and neuro-orthopaedic surgeons have begun to mutually tightly communicate more closely for to enhance the basic neuropathology as well as neurosciences of the spinal cord. During these recent years, not only basic scientists but clinical physicians have been enthusiastically investigating understanding of spinal cord pathologies in order for to achieve better clinical treatments in the clinical areas. To enhancing enhance understanding of spinal cord neurosciences, it is essential to know be knowledgeable about the problems and difficulties in the clinical aspects of spinal cord diseases and then to communicate with basic scientists. This mutual communications will ultimately result in the best treatment for patients.

In this book, we have focused on recent outstanding records in neuroscience, cellular biology, neuropathology, and molecular neuroimaging. The contributors of the book's chapters are today's frontrunners in diverse fields of science in Japan, delivering outstanding lectures at medical conventions and publishing the highest-quality articles in top-ranking journals. Selected monographs are listed in this book for the readers in order to summarize the contemporary achievements in research into spinal cord neuroscience. Those who are new to the field are encouraged to enrich their work with the knowledge contained hereby and to enhance their creative research with these monographs. Clinicians and neurosurgeons will learn of new trends in neurochemistry and neuropathology as well as the study of practical applications for their work in clinical practice. The result will be a better understanding of works in basic neuroscience. Ultimately, it is believed that these works

in neuroscience will bring about neurological improvements for patients and a better quality of life for them. We clinical neuro-orthopedic researchers hope that young practitioners can facilitate their outstanding work in the name of scientific advancement as well as patients' health care.

We thank the many outstanding authors who contributed to this volume in spite of their demanding clinical duties. Special thanks are given to the Governmental Committee on Ossification of Spinal Ligaments. We are also grateful to Springer Japan for the opportunity to share this knowledge and these monographs with others.

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