The objective of the book is to describe the main findings and concepts that have emerged during about three decades of studies of the role of biologically active peptides in ageing. Chapter 1 presents a brief introduction to the basics of peptide biology. There are emphasized those aspects of peptide biology, which are most relevant to the biology of ageing and to the clinical use of biologically active peptides. Chapter 2 is a review of the main experimental findings – from isolation of the first biologically active peptide preparations from the thymus and pineal gland in early 70-ies to the construction of small biologically active peptides with defined structures. Among the biological effects of the peptides the most notable refer to their ability to improve many immunological and endocrine functions undergoing a progressive impairment in the course of ageing and to increase the lifespan of mice, rats, and fruit flies in different experimental settings. These findings have provided the basis for the concept of tissue-specific effects of peptides obtained from respective body organs and for the peptide theory of ageing advocated by the author. The most recent findings suggest that the effects of the peptides under consideration are realized through changes in gene activity. Chapter 3 describes clinical effects of the complex peptide preparations and synthetic peptides, 6 of which are included into the State Pharmacopoeia of Russia. These therapeutics seems to ameliorate many pathological conditions typical of human ageing. In fact, clinical trials have shown that the two of the peptide preparations, Thymalin and Epithalamin, are among few pharmaceuticals producing anti-ageing or geroprotective effect in humans. On the whole, the book may be useful for clinicians and biomedical researchers. It may suggest novel approaches to widespread clinical problems and provide challenges that can drive further research in the field of biologically active peptides and biology of ageing.
Among other outcomes it has been reported that a synthetic tetrapeptide designed basing on amino acid composition of a mixture of peptides extracted from the pineal gland could restore melatonin production in old monkeys, reduce spontaneous and induced tumour incidence in rats and mice, enhance antioxidative defence in flies, rats, and humans, and slow down retinal degeneration in rats with Retinitis Pigmentosa. All this is a result of more than thirty years of research effort, which mostly remained concealed being reported in obscure Russian journals unavailable to the Western audience.

Now, thanks to this book, for which this foreword has been written, the entire range of evidences that substantiate the advances achieved by the developers of the preparations in question is open to anyone. So, it is up to readers to decide whether they believe what they read or not. Of course, although the book fills many gaps evident from the first glance at scattered publications, it exposes other gaps not filled by research. It is only quite recently that the most advanced methods of modern biology including DNA-microarray have been used to get a better insight into mechanisms of action of the peptides described in this book. Hopefully, it will stimulate efforts to control the data expose, confirm the results obtained, regarding the biological and clinical activity of the peptide developed in St.Petersburg as well as to understand the mechanisms of action of these preparations.

Professor Mario Passeri
President
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International Association of Gerontology

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