Regulatory Gut Peptides in Paediatric Gastroenterology and Nutrition

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Regulatory Gut Peptides in Paediatric Gastroenterology and Nutrition

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Preface

Growth and function of the gastrointestinal tract are highly dependent on specific interactions of regulatory gut peptides (RGP) with their target tissues. Peptides originating from outside the body, from the circulation or from inter- or intracellular compartments bind to specific receptors and induce - via the activation of cellular signal transduction mechanisms - characteristic biological actions. This occurs by use of a complicated network of interdependent morphological, biological and biochemical pathways, which are themselves subject to genetic regulation.

Investigations into these mechanisms have been greatly facilitated since it has been possible to identify RGP - and the molecules interacting with them - by means of specific antibodies and/or radioactive tracers. With their help we can now relatively easily determine the localization as well as the pharmacological and biochemical characteristics of peptidereceptor interactions and subsequent postreceptor events regulating biological functions. The advent of molecular biology makes it now feasible to study the gene expression of RGP and their receptors using hybridization of complementary nucleotide sequences on tissue preparations.

Despite great advances in the elucidation of basic biochemical and biological mechanisms involving RGP, comparatively little is known with regard to their physiological and pathophysiological significance. Most of the knowledge available concerns their existence and their pattern of major biological actions in adult animals and much less of this is known in human adults. Similarly, there are some data on RGP in the developing animal, particularly with respect to ontogeny. For healthy children, however, the information on RGP (apart from plasma and tissue concentrations and a few established biological functions) is very limited.

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It was, therefore, felt timely to compile a series of state-of-the-art
reviews on the existence, the cellular mechanisms of action and the biological functions of RGP and their significance in health and disease during the pediatric age period. To this end the present volume consists of 4 sections. In the first section the distribution, biology and physiology of RGP are described in a more general way. The second section relates specific functions of the normal gastrointestinal tract, such as transit, digestion, absorption and secretion, to the action of RGP and finally summarizes what is actually known about these functions in healthy children. The impact of RGP on growth and nutrition in the healthy child as well as the influence of feeding on their release is dealt with in the third section. The fourth section discusses extensively the significance of RGP for pediatric gastrointestinal diseases (including tumors, acute and chronic diarrhea of various etiologies, inflammatory bowel disease and motility disorders) and finally gives an outlook on the now rapidly emerging therapeutic potential of this class of compounds.

Most reviews in this volume have been presented at the 6th Annual Meeting of the GPGE ('Gesellschaft fr Pdiatrische Gastroenterologie und Ernhrung') in Goldegg/Austria 1991. We thank the members of GPGE who have stimulated us in preparing the meeting and this publication. We would also like to thank S. Karger AG, Medical and Scientific Publishers, Basel, for their efficient preparation of this volume. We are particularly grateful to Milupa AG for their financial backing of publication.

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