GASTROINTESTINAL
ENDOCRINOLOGY
CONTEMPORARY ENDOCRINOLOGY

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The subject of gastrointestinal endocrinology is not young or new; present-day endocrinology had its birth near the turn of the century with the finding that pancreatic secretion of bicarbonate into the duodenal lumen of dogs is regulated by a blood-borne substance (i.e., hormone), named secretin, that was secreted by the small intestine. The structure of secretin was finally elucidated approximately six decades later. Today, gastrointestinal endocrinology still deals primarily with small peptides, and in the last three decades gastrointestinal endocrinology has experienced a logarithmic growth resulting from the discovery of numerous new gut peptides, along with the characterization of many of their receptors and their intracellular signal transduction mechanisms. In the early years of gut endocrinology, the function of a gut hormone was easily recognized by its name; for instance, the intestinal hormone, cholecystokinin (CCK), stimulated the gallbladder to contract and release bile into the intestinal lumen. Secretin was named for its ability to stimulate pancreatic exocrine secretion. Today, in many cases, it is impossible to imagine what the cryptic names of gut peptides signify. For instance, what does peptide YY (PYY) do in the gastrointestinal tract? We all know that "Y" is the peptide chemist's shorthand for the amino- and carboxy-terminal amino acid residues, tyrosine, but the remainder of the nomenclature is less clear.

Gut peptides are part of a complex biological signaling system and provide the substrate for intercellular communication in the gut as well as between the gut and other organs in the body. Gastrointestinal and pancreatic peptides are better called regulatory peptides since they are also found outside of the gastrointestinal tract and pancreas, are produced in non-endocrine cell types, and participate in the regulation of many processes that ultimately result in physiologic homeostasis and adaptation. The term "endocrinology" is also misleading since many of these peptides exert their plethora of regulatory effects by multiple pathways using paracrine, autocrine, neurocrine, as well as endocrine routes.

It is impossible to cover all gut peptides in a single volume; therefore, the purpose of *Gastrointestinal Endocrinology* is to focus on a select few gut peptides, their physiology and pathophysiology, and regulatory mechanisms underlying their actions in the gut.

*Gastrointestinal Endocrinology* is divided into four main sections. There is one introductory chapter followed by three sections that focus on gut peptide pharmacology, processing, and receptor biology; regulatory mechanisms in the gut; and lastly, specific gut peptides.

*George H. Greeley, Jr.*
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