It further discusses the interaction of peptides with gastrointestinal cells and their ability to modulate such diverse functions as gastric acid secretion, hormone release, smooth muscle contractility, and intestinal neural activity, growth, immunity, electrolyte transport and blood flow. Its concluding chapters address the role of gut peptides in the etiology and diagnosis of disease states and their use as drugs. This volume focuses on the biology of peptides acting as regulatory molecules within the digestive system. It provides a broad yet comprehensive approach to this rapidly advancing field, emphasizing general concepts that have emerged from research on gut peptide expression and function at the cellular and molecular levels. Gastrointestinal regulatory peptides. January 2021. Current Opinion in Endocrinology Diabetes and Obesity Publish Ahead of Print. Vagal afferent neurons also express receptors for gut peptides that are secreted from enteroendocrine cells (EECs), such as cholecystokinin (CCK), ghrelin, leptin, peptide tyrosine tyrosine (PYY), glucagon-like peptide-1 (GLP-1), and 5-hydroxytryptamine (5-HT, serotonin). Gut microbiota can regulate levels of these gut peptides to influence the vagal afferent pathway and thus regulate intestinal metabolism via the microbiota-gut-brain axis. In addition, bile acids, short-chain fatty acids (SCFAs), trimethylamine-N-oxide (TMAO), and Immunoglobulin A (IgA) can also exert metabolic control through localization and colocalization of gastrointestinal peptides. Regulatory peptides play crucial roles in the transfer of information within cells and tissues, between tissues and organs in the body, or between different organisms. They are produced by all species belonging to the different phyla, from bacteria to mammals. They display, by far, the most diverse structures of all signaling molecules. Regulatory peptides exert a broad spectrum of biological effects, acting notably as neurotransmitters, neuromodulators, hormones, pheromones, growth factors, cytokines, toxins, antibiotics, etc. In the animal kingdom, they control all physiological activities.