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Nota di contenuto	1. Introduction -- 2. Intestinal architecture and development -- Mucosal wall architecture -- Development and functions 3. Characteristics of gut mucosal growth -- 4. Intestinal stem cells -- ISCs and their niches -- Cancer stem cells -- Signaling pathways regulating ISCs -- 5. Role of GI hormones on the gut mucosal growth -- Gastrin -- CCK -- Secretin -- Somatostatin -- Ghrelin -- Neurotensin -- Bombesin/GRP -- Other GI hormones -- 6. Peptide growth factors in GI mucosal growth -- EGF family -- TGF-[beta] family -- IGF family -- FGF family -- Other factors -- 7. Luminal nutrients and microbes in gut mucosal growth -- Luminal factors -- Microbes in health and mucosal growth -- Dietary supplements -- 8. Polyamines in the regulation of mucosal growth -- Polyamine metabolism -- Polyamines stimulate mucosal growth by enhancing gene transcription -- Polyamines regulate epithelial renewal by altering expression of protooncogenes -- Polyamines are required for protooncogene transcription -- Possible mechanisms of action of the polyamines -- Induced mRNA stabilization and growth arrest after polyamine depletion -- Polyamine depletion stabilizes p53 --

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9. Noncoding RNAs in gut mucosal growth and epithelium integrity -- miRNAs in gut mucosal growth and homeostasis -- miR-222 -- miR-29B -- miR-503 -- miR-195 -- miR-122a and others -- LncRNAs in gut mucosal integrity -- LncRNA H19 -- LncRNA SPRY 4-IT 1 -- Summary and conclusions -- Acknowledgments -- References -- Author Biographies.

Sommario/riassunto

The mammalian gastrointestinal mucosa is a rapidly self-renewing tissue in the body, and its homeostasis is preserved through the strict regulation of epithelial cell proliferation, growth arrest, and apoptosis. The control of the growth of gastrointestinal mucosa is unique and, compared with most other tissue in the body, complex. Mucosal growth is regulated by the same hormones that alter metabolism in other tissues, but the gastrointestinal mucosa also responds to host events triggered by the ingestion and presence of food within the digestive tract. These gut hormones and peptides regulate the growth of the exocrine pancreas, gallbladder epithelium, and the mucosa of the oxyntic gland region of the stomach and the small and large intestines. Luminal factors, including nutrients or other dietary factors, secretions, and microbes that occur within the lumen and distribute over a proximal-to-distal gradient, are also crucial for maintenance of normal gut mucosal regeneration and could explain the villous-height-crypt-depth gradient and variety of adaptation, since these factors are diluted, absorbed, and destroyed as they pass down the digestive tract. Recently, intestinal stem cells, cellular polyamines, and noncoding RNAs are shown to play an important role in the regulation of gastrointestinal mucosal growth under physiological and various pathological conditions. In this book, we highlight key issues and factors that control gastrointestinal mucosal growth and homeostasis, with special emphasis on the mechanisms through which epithelial renewal and apoptosis are regulated at the cellular and molecular levels.