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Special Issue Reprint

Crohn's Disease and Ulcerative Colitis

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Inflammatory bowel disease (IBD), comprising Crohn's disease and ulcerative colitis, emerges from intersecting genetic risk, environmental exposures, microbiota shifts, and mucosal immune dysregulation. This Reprint, "Crohn's Disease and Ulcerative Colitis: From Pathophysiology to Novel Therapeutic Approaches (2nd Edition)," integrates 18 peer reviewed articles that connect mechanisms to practice. Mechanism guided targets include epithelial barrier injury, innate immune and pyroptosis pathways, bile acid signaling, and candidate genes such as SLC26A2 with diagnostic and therapeutic relevance. Microbiome aware care spans mucosa associated dysbiosis, oral fungi and herpesviruses as extra intestinal reservoirs, dietary signals such as coffee consumption, and emerging interventions from refined fecal microbiota transplantation to next generation probiotics. Model informed therapeutics evaluate route and dose optimization with physiologically based pharmacokinetics for infliximab, external validation of vedolizumab population pharmacokinetic models, pharmacogenetic markers of biologic response, and comparative effectiveness of subcutaneous versus intravenous IL 12/23 blockade. Patient centered outcomes and complications are addressed through evidence on postoperative recurrence in Crohn's disease, extraintestinal manifestations including ocular involvement, and the role of acceptance and perceived control in health experience. A genetics study links IBD to related immune mediated diseases and identifies novel loci, sharpening paths to precision care.

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