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Khalil N Bitar

Wake Forest School of Medicine Winston Salem, USA

What the future holds for tissue engineering in the GI tract?

Tissue engineering and regenerative medicine aim to restore, repair, or regenerate the function of the tissues. Gastrointestinal tissue engineering is a challenging process given the specific phenotype and alignment of each cell type that colonizes the tract. These properties are critical for proper functionality. Regeneration of the neuromuscular apparatus is of critical importance. New materials are emerging. Regeneration can be divided into acellular approaches such as decellularized matrices, synthetic and natural scaffolds as replacements to reconstruct the gut, or cell-based approaches such as tissue specific cells (smooth muscle cells, neural progenitor cells and epithelial cells), gut derived organoid units, and stem cells (organ buds). New stem cell strategies for in vitro modeling and in vivo therapies are emerging.

Biography

Khalil N Bitar is a Professor of Regenerative Medicine, Gastroenterology, Physiology and Biomedical Engineering. He is the Director of Gastroenterology Program at the Wake Forest Institute for Regenerative Medicine. He has published more than 100 papers in high impact journals and has been funded by NIH for more than 30 years. He is a Fellow of the American Gastroenterological Association.

kbitar@wakehealth.edu

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