



WEEKLY GI RESEARCH WEBINAR

"Developing a functional tissue-engineered intestine for children with intestinal failure"



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Intestinal failure is a devastating disease for a growing number of children. Contemporary management has reduced mortality considerably; but morbidity remains significant and there is a desperate need for more effective therapies. Tissue-engineered intestine is a promising solution; however, complex intestinal functions have yet to be confirmed in existing human intestinal organoid (HIO)-derived tissue-engineered intestine models. This seminar will review recent work from my laboratory in the HIO model, specifically: HIO epithelial barrier function, sex as a biological variable in HIO development, and optimizing the incorporation of an enteric nervous system into HIOs.

References: (1) Boyle MA, et al. In vivo transplantation of human intestinal organoids enhances select tight junction gene expression. *J Surg Res.* 2021 Mar;259:500-508. doi: 10.1016/j.jss.2020.10.002. Epub 2020 Nov 7. PMID: 33168233. (2) Speer AL, et al. Bioengineering of the digestive tract: approaching the clinic. *Cytotherapy.* 2021 April 8;S1465-3249(21)00061-X. <https://doi.org/10.1016/j.jcyt.2021.02.006>. PMID: 33840629. (3) Shansky RM. Are hormones a "female problem" for animal research? *Science.* 2019;364(6443),825-826. DOI: 10.1126/science.aaw7570

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