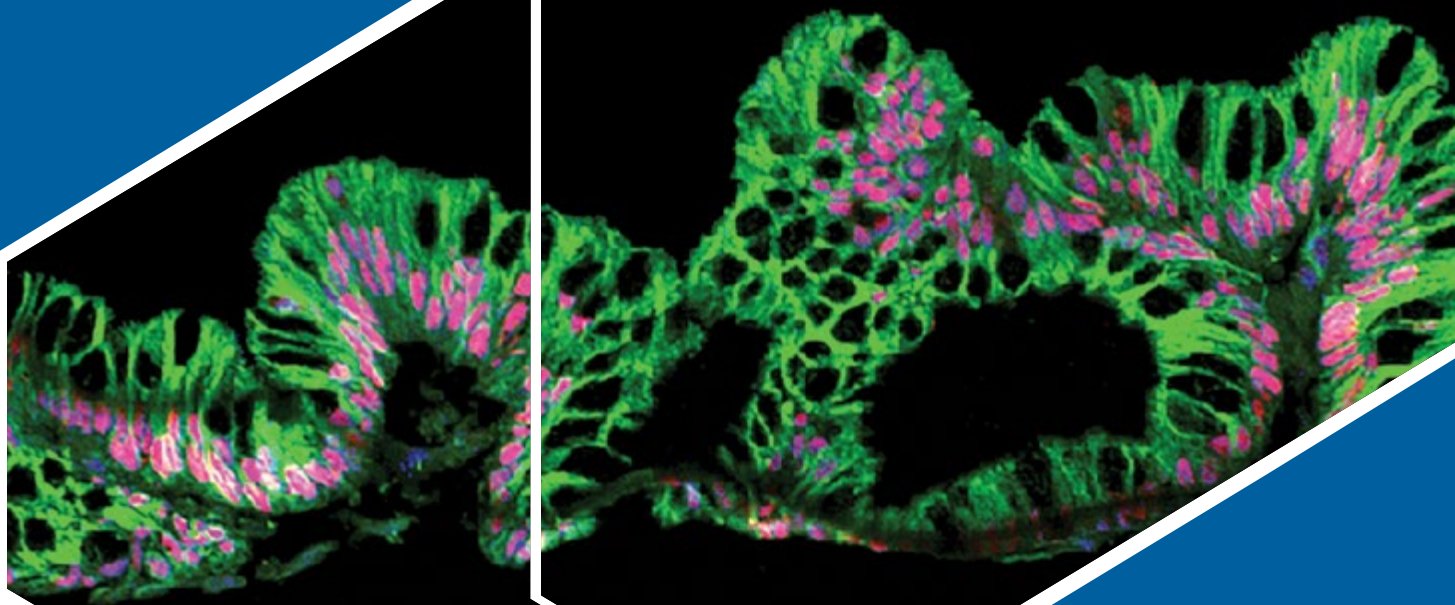


R&D SYSTEMS
a **bio-technne** brand

MimEX™ GI

A 3-D Gastrointestinal Tissue Culture System



MimEX™ GI: A 3-D Gastrointestinal Tissue Culture System

MimEX™ GI is a 3-dimensional (3-D) culture system for the generation of *in vitro* gastrointestinal (GI) tissue. Utilizing the power of gastric and intestinal adult stem cells, MimEX™ GI builds upon the physiological and structural advancements of gastrointestinal organoids by providing better accessibility, lower variability, regional specificity, and flexibility for disease modeling.

MimEX™ GI media and reagents allow for the expansion and differentiation of ground-state, adult stem cell populations from specific regions of the gastrointestinal tract. 3-D tissue generated using MimEX™ GI recapitulates native organ cytoarchitecture, including intestinal crypt-like structures, apical-to-basolateral polarity, Goblet cells, Paneth cells, and Enteroendocrine cells.

MimEX™ GI System Overview

Isolate Adult GI Stem Cells

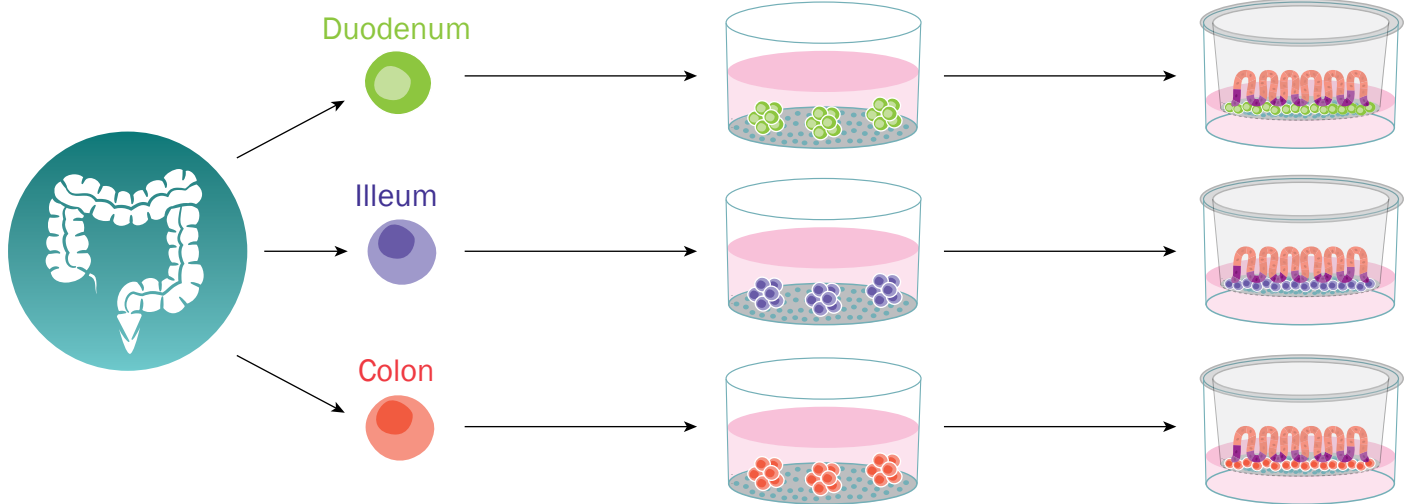
using the MimEX™ Tissue Processing Kit OR start directly with MimEX™ GI Stem Cells.

Expand Adult GI Stem Cells

in a 2-D culture using MimEX™ GI Expansion Media.

Differentiate Adult GI Stem Cells into 3-D Gastrointestinal Tissue







using MimEX™ GI Differentiation Media and an air-liquid culture system.



Benefits of MimEX™ GI

Organoids Unfolded	Tissue Consistency	Regional Specificity	Memory of Diseased State	Clonal Expansion and Gene Editing
MimEX™ GI generates 3-D gastrointestinal tissue on a 2-D surface. These open-faced organoids make the epithelial tissue accessible for experimentation.	MimEX™ GI provides greater control over the size and shape of 3-D gastrointestinal tissue, which can be variable in other 3-D cell culture models.	The MimEX™ GI System can be used to generate tissue from specific regions of the gastrointestinal tract, including the esophagus, stomach, and specific regions of the small and large intestines.	Adult gastrointestinal stem cells retain memory of diseased tissue and can be used to study a range of intestinal diseases and conditions.	Individual cells can be isolated and robustly expanded using the MimEX™ GI System. Gene editing techniques, such as CRISPR/Cas9, can be used on Adult gastrointestinal stem cells.
<p>Organoid Tissue</p> <p>MimEX™ Tissue</p>			<p>Crohn's Disease Irritable Bowel Disease Celiac Disease Colon Cancer</p>	<p>CRISPR/Cas9</p>

MimEX™ GI Media and Reagents

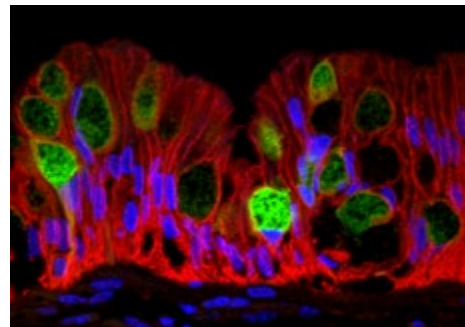
	MimEX™ GI Starter Kit	MimEX™ GI Expansion Media	MimEX™ GI Differentiation Media	MimEX™ Irradiated Fibroblast Kit	MimEX™ Human Descending Colon Adult Stem Cells	MimEX™ Tissue Processing Kit
						
Description	Contains all of the necessary reagents for the expansion and differentiation of adult gastrointestinal epithelial stem cells.	Media for the expansion of adult stem cells from the gastrointestinal tract.	Media to differentiate gastrointestinal stem cells into 3-D tissue.	Irradiated fibroblasts that support the expansion and differentiation of gastrointestinal stem cells.	Adult gastrointestinal stem cells for use with MimEX™ GI Reagents.	Reagents for the processing of tissue samples for isolation of adult epithelial stem cells.
Catalog #	MIM002	MIM003	MIM004	MM005	MIM006	MIM001

MimEX™ GI Starter Kit (Catalog # MIM002)

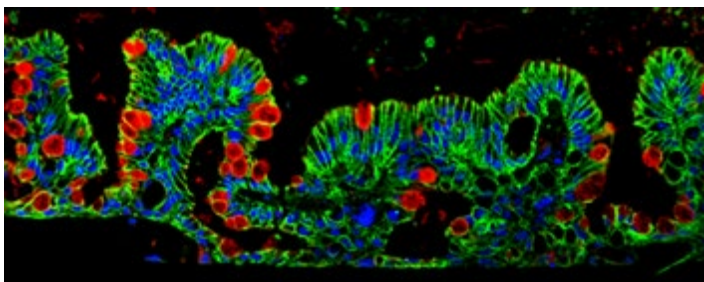
The MimEX™ GI Starter Kit contains media and reagents to expand adult gastrointestinal stem cells and differentiate them into 3-D gastrointestinal tissue. This kit is quality control tested for consistent performance and contains enough reagents to generate tissue in 12 transwell inserts of a 24-well plate.

Kit Contents

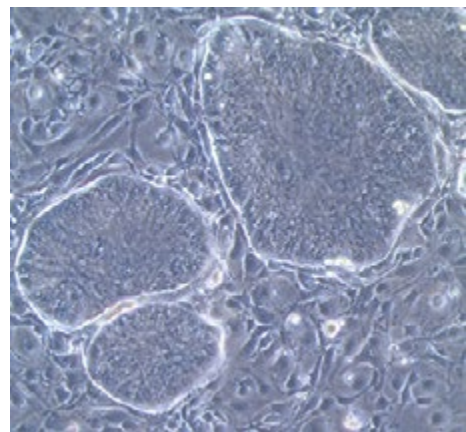
- 250 mL of MimEX™ GI Expansion Media
- 100 mL of MimEX™ GI Differentiation Media
- 12 vials of MimEX™ Irradiated Fibroblasts
- 100 mL of MimEX™ Fibroblast Media
- 1.5 mL of Cultrex® Stem Cell Qualified RGF Basement Membrane Extract, Pathclear®
- 1 24-well plate containing 12 transwell inserts



Human Descending Colon Adult Stem Cells Differentiate into Descending Colon Tissue using reagents in the MimEX™ GI Starter Kit. Descending colon tissue generated using MimEX™ GI media and reagents was immersion-fixed, paraffin-embedded, and sections were stained with Mouse Anti-Human/Mouse/Rat Intelectin-1/2 Monoclonal Antibody (green; R&D Systems; Catalog # MAB42542) and Goat Anti-Human A33 Antigen Affinity-purified Polyclonal Antibody (red; R&D Systems; Catalog # AF3030). The tissue was counterstained with DAPI (blue; Tocris; Catalog # 5748). A33 staining was detected in cellular membranes throughout the epithelial layer while Intelectin-1/2 staining was localized specifically to Goblet cells.



Human Ascending Colon Adult Stem Cells Differentiate into Ascending Colon Tissue. Adult Human GI Stem Cells from the ascending colon were cultured using MimEX™ GI media and reagents for nine days under air-liquid interface conditions. To evaluate differentiation, adult stem cell-derived ascending colon tissue was stained with Mouse Anti-Human Cadherin-17 Monoclonal Antibody (green; R&D Systems; Catalog # MAB1032) and Rabbit Anti-Human/Mouse MUC2 Antibody (red; Novus Biologicals; Catalog # NBP1-31231). Cadherin-17 staining was detected in cellular membranes throughout the epithelial layer while MUC2 staining was localized specifically to Goblet cells.



Intestinal Stem Cell Colony Morphology During Expansion. MimEX™ Human Descending Colon Stem Cells were cultured on fibroblast-coated plates in MimEX™ GI Expansion Media. Colony morphology was assessed using brightfield microscopy at seven days of culture. Based on the size and distribution of the colonies, this culture is ready for passaging.

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