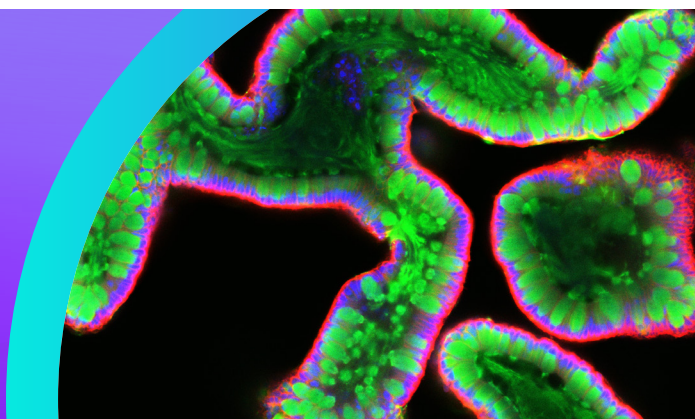


Two leaders, one goal.

Advancing organoid research together.

A validated intestinal organoid workflow from Molecular Devices and STEMCELL Technologies.



Partnering to advance automated human intestinal organoid culture

Molecular Devices and STEMCELL Technologies have collaborated to develop a validated automated workflow for human intestinal organoid culture. Executed on the CellXpress.ai® Automated Cell Culture System using IntestiCult™ Plus Organoid Growth Medium, the protocol gives researchers a practical path to reproducible automated culture and expansion with fewer manual steps.

A validated workflow designed for scale

As intestinal organoid models become increasingly important in drug discovery and disease research, investigators need validated approaches that deliver consistent results while supporting larger, more complex studies. Developed through a collaboration between STEMCELL and Molecular Devices, this workflow combines expertise in organoid biology, precision automation, high-content imaging, and AI-driven analysis to help standardize culture, monitoring, and passaging across plates, experiments, and teams. Standardized execution helps reduce operator-dependent variability while preserving the flexibility needed for evolving experimental requirements.

A well-characterized model for more representative, reproducible biology

IntestiCult Plus supports simultaneous expansion and differentiation, helping generate intestinal organoids with greater cellular diversity and physiological relevance. Its serum- and conditioned medium-free formulation also reduces media-related variability, while the CellXpress.ai system helps standardize culture execution, enabling researchers to more clearly distinguish meaningful biological signals from process noise.

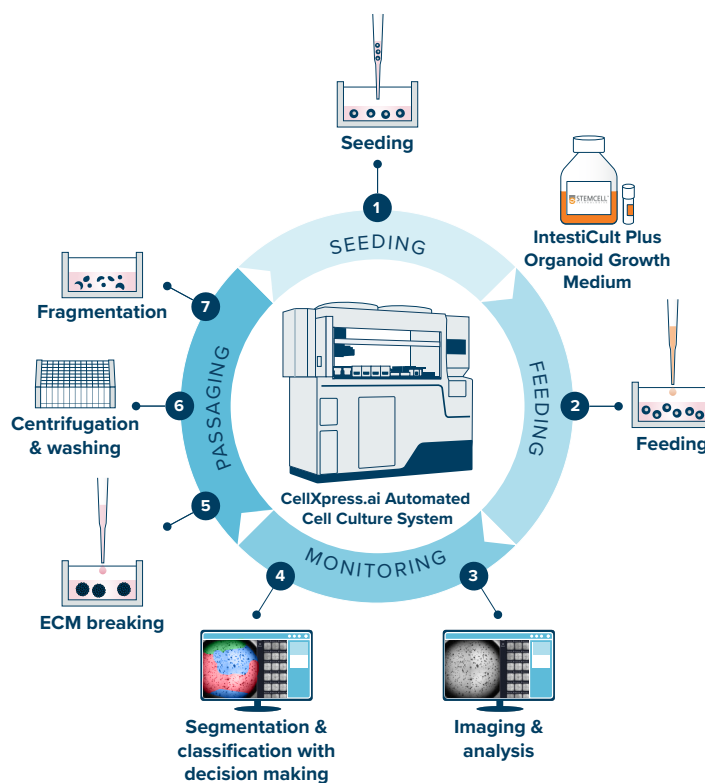


Figure 1. End-to-end automated intestinal organoid culture workflow including, organoid seeding to automated culture and feeding, scheduled imaging and monitoring, image-guided maturity assessment, automated passaging, and reseeded for expansion or downstream assays.

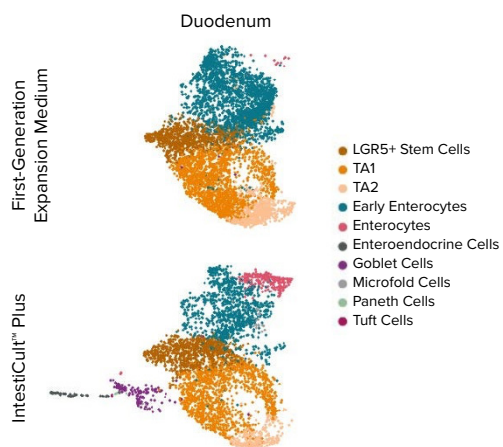


Figure 2. IntestiCult Plus supports a more physiologically relevant intestinal model. Donor- and passage-matched human duodenal organoids were expanded in first-generation expansion medium (IntestiCult Organoid Growth Medium) or IntestiCult Plus. On Day 7 of culture, organoids were dissociated into single cells and prepared for single-cell RNA sequencing (scRNAseq). UMAP analysis showed increased representation of goblet, enteroendocrine, and enterocyte cell lineages in IntestiCult Plus-generated organoids, supporting greater cellular diversity for downstream studies.

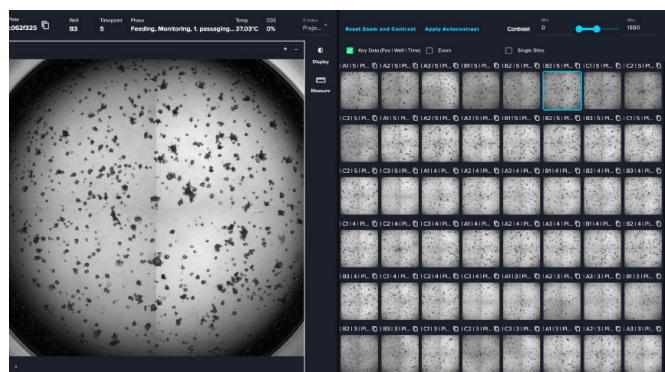


Figure 3. Imaging within the CellXpress.ai system enables automated segmentation and classification of organoids into mature and immature states based on high-content morphological features. Using Molecular Devices' IN Carta software, including SINAP (Segmentation is not a problem) segmentation and Phenoglyph-based phenotypic profiling, the system quantitatively extracts complex features to inform data-driven decisions on continued passaging.

What you'll need to implement this solution

Product	Description	Part number
STEMCELL Technologies IntestiCult Plus Organoid Growth Medium	Use with the validated automated human intestinal organoid culture workflow.*	Catalog # 100-1677
The Molecular Devices CellXpress.ai Automated Cell Culture System	Executes the validated automated human intestinal organoid culture workflow.	SKU # CELLXPRESS AI
Protocol Download	Validated automated workflow for human intestinal organoid culture using IntestiCult Plus on the CellXpress.ai system.	Download from support.moleculardevices.com
Protocol Guide	Guides protocol setup and execution for the automated IntestiCult Plus workflow on the CellXpress.ai system.	Download guide 3020A from support.moleculardevices.com



Scan the QR code to talk with our team about bringing this reproducible automated culture workflow into your lab.

*Consult the Protocol Guide for additional reagent requirements

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9/26 3021A
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