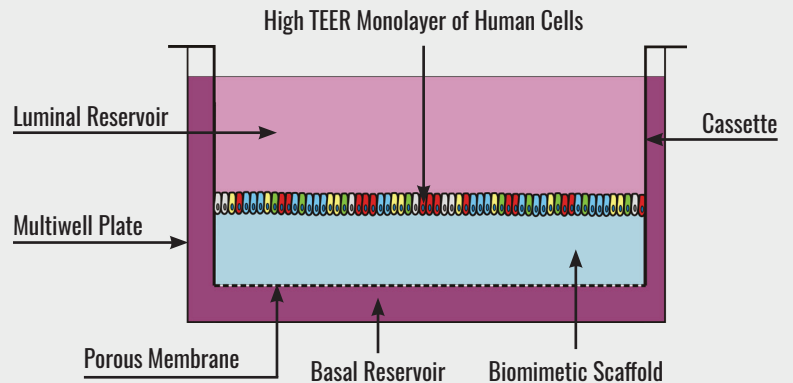


Altis Biosystems has developed a stem cell platform which recreates the human intestinal epithelium for compound screening and microbiome research in a high-throughput format.

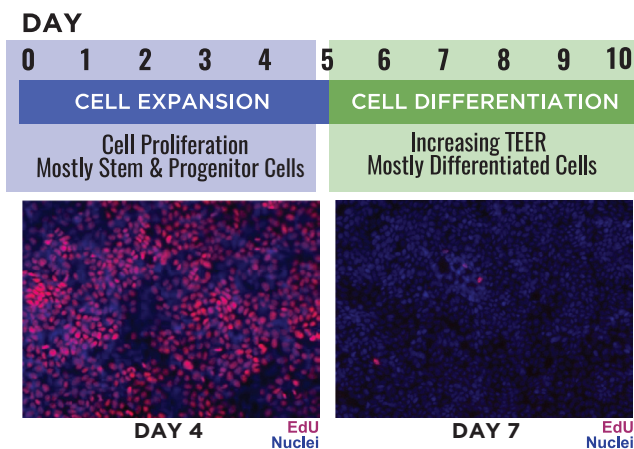
RepliGut allows scientists to culture a contiguous monolayer of primary human epithelial cells.

Altis's biobank provides epithelial stem cells from multiple donors and both the small intestine or colon.



RepliGut Planar is available in 6-, 12-, 24-, or 96-well transwell plates

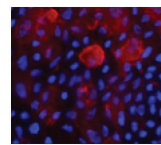
10 Day Culture Timeline



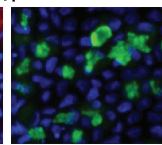
Jejunum epithelial monolayers contain a majority of proliferative (EdU+) cells during cell expansion, but lack proliferative cells during differentiation, after a 24-hour EdU pulse.

Differentiated Monolayer Characteristics

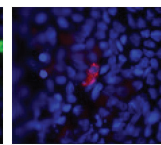
Differentiated Cell Types



ALP
ENTEROCYTES

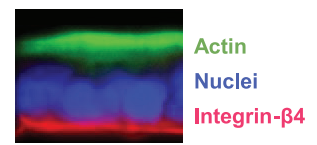


MUC2
GOBLET CELLS

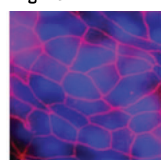


CHGA
ENTEROENDOCRINE CELLS

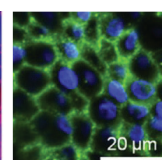
Monolayer Cross-section



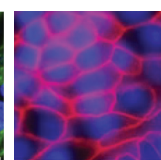
Tight Junction Proteins



ZO-1

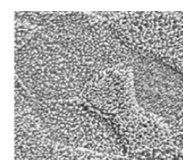


E-cadherin



Occludin

Microvilli



5 μm

Altis can provide services using RepliGut or sell the platform to the end-user

IN-HOUSE ASSAYS AVAILABLE

Permeability

- Transepithelial Resistance (TEER)
- Flux of fluorescent dyes

Protein Expression

- ELISA
- Immunostaining

Gene Expression

- qRT-PCR

Transport Assays

Toxicology Assays

IN-HOUSE SERVICES AVAILABLE

Experimental Design

- Compound Screening
- Custom Cell Isolation

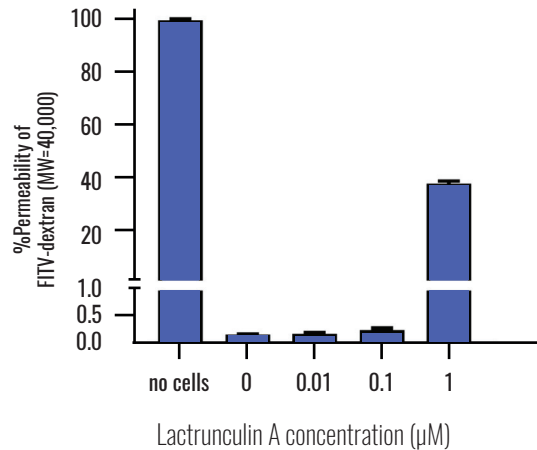
REPLIGUT IS ALSO AVAILABLE AS A READY-TO-USE KIT

Complete kit includes:

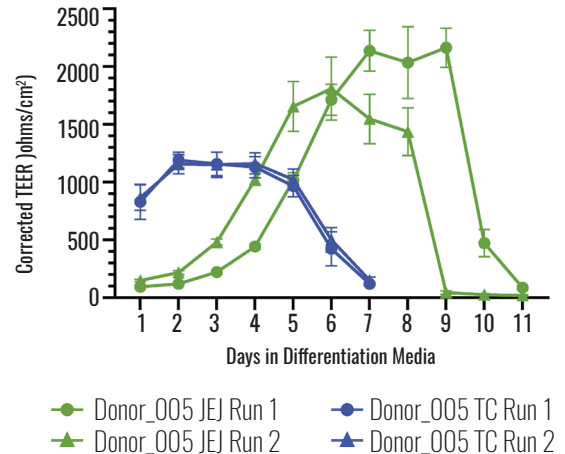
- Multi-well plate
- Transwells with scaffold
- Proliferative intestinal epithelial stem cells
- Expansion & Differentiation Media

INTESTINAL EPITHELIAL MONOLAYERS ARE IMPERMEABLE

Colon Monolayer Permeability Assay

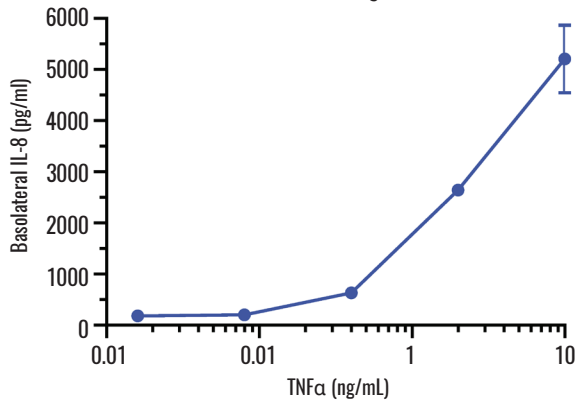


TEER in Response to Cell Differentiation on 12-well Transwells



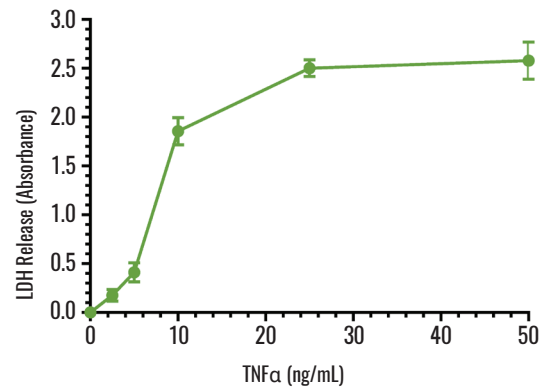
DIFFERENTIATED MONOLAYERS RESPOND TO CYTOKINES

IL-8 Assay



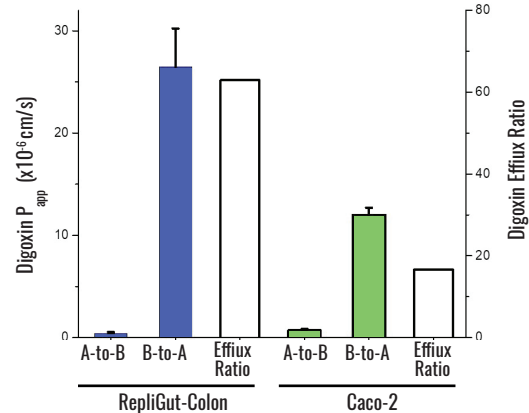
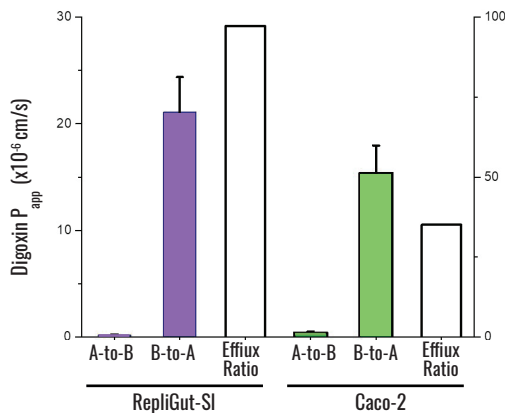
IL-8 protein concentration in basolateral compartment after 4hrs stimulation with TNFα in basolateral compartment

LDH Cytotoxicity Assay



Lactate dehydrogenase (LDH) enzyme measurement in basal supernatants after 24hrs stimulation with TNFα

DRUG TRANSPORTERS ARE EXPRESSED AND FUNCTIONAL



RepliGut with Small Intestine (purple bars) and Colon (blue bars) monolayers actively transport Digoxin through the Pgp efflux pump, similar to Caco-2 cells (green bars).