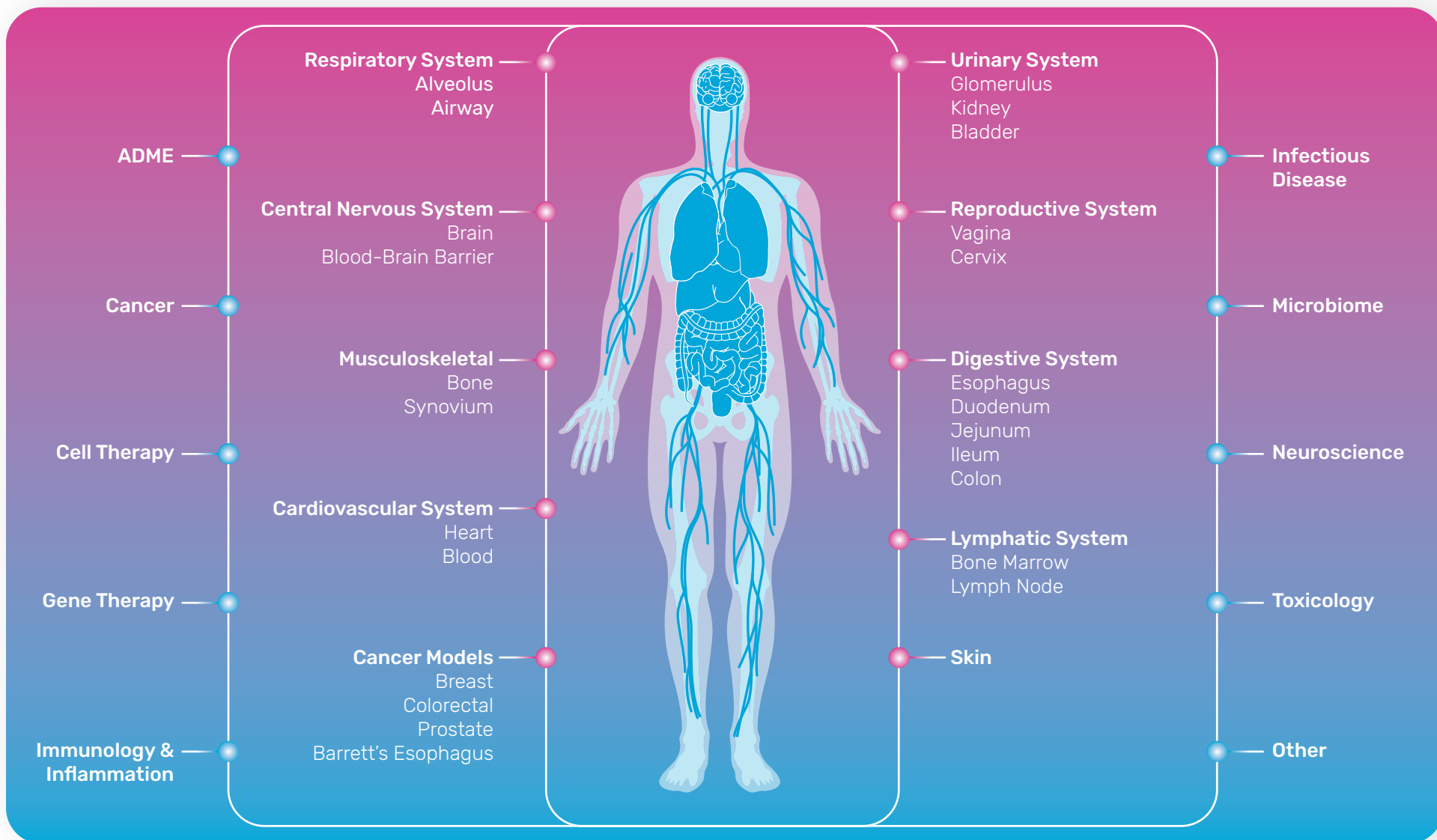


# Emulate Community Publications Digest

## Summer 2024 Issue



Explore by Organ Model

Explore by Application

## Cancer Models

Organ	Application	Article	Journal	Year
Barrett's Esophagus	Cancer	<a href="#">Epithelial-Stromal Interactions in Barrett's Esophagus Modeled in Human Organ Chips</a>	Gastro Hep Advances	2023
Breast and prostate cancer bone metastasis model	Cancer	<a href="#">A Novel Primary Cilium-Mediated Mechanism Through which Osteocytes Regulate Metastatic Behavior of Both Breast and Prostate Cancer Cells</a>	Advanced Science	2023
Breast and prostate cancer bone metastasis model	Cancer	<a href="#">Mechanical Stimulation Modulates Osteocyte Regulation of Cancer Cell Phenotype</a>	Cancers	2021
Intestine (Colorectal cancer)	Cancer	<a href="#">Multiplexed imaging and effluent analysis to monitor cancer cell intravasation using a colorectal cancer-on-chip</a>	STAR Protocols	2021
Review Article	Cancer	<a href="#">Organ-on-a-Chip and Microfluidic Platforms for Oncology in the UK</a>	Cancers	2023

## Cardiovascular System

Organ	Application	Article	Journal	Year
Blood	Model Development	<a href="#">Organ-on-Chip Recapitulates Thrombosis Induced by an anti-CD154 Monoclonal Antibody: Translational Potential of Advanced Microengineered Systems</a>	Clinical Pharmacology & Therapeutics	2018
Heart	Toxicology	<a href="#">Multi-lineage heart-chip models drug cardiotoxicity and enhances maturation of human stem cell-derived cardiovascular cells</a>	Lab on a Chip	2024

## Central Nervous System

Organ	Application	Article	Journal	Year
Brain	Model Development	<a href="#">Human iPSC-Derived Endothelial Cells and Microengineered Organ-Chip Enhance Neuronal Development</a>	Stem Cell Reports	2018
Brain	Neuroscience	<a href="#">Organ-Chips Enhance the Maturation of Human iPSC-Derived Dopamine Neurons</a>	International Journal of Molecular Science	2023
Brain	Neuroscience	<a href="#">Modeling alpha-synuclein pathology in a human brain-chip to assess blood-brain barrier disruption</a>	Nature Communications	2021
Brain	Neuroscience, Immunology & Inflammation	<a href="#">A microengineered Brain-Chip to model neuroinflammation in humans</a>	iScience	2022
Brain - Blood Brain Barrier	Neuroscience, ADME	<a href="#">Evaluation of Drug Blood-Brain-Barrier Permeability Using a Microfluidic Chip</a>	Pharmaceutics	2024

## Central Nervous System - Continued

Organ	Application	Article	Journal	Year
Brain - Blood Brain Barrier	Neuroscience	<a href="#">Generation of a Human iPSC-Based Blood-Brain Barrier Chip</a>	JoVE	2020
Brain - Blood Brain Barrier	Neuroscience	<a href="#">Human iPSC-Derived Blood-Brain Barrier Chips Enable Disease Modeling and Personalized Medicine Applications</a>	Cell Stem Cell	2019

## Digestive System

Organ	Application	Article	Journal	Year
Esophagus	Cancer	<a href="#">Epithelial-Stromal Interactions in Barrett's Esophagus Modeled in Human Organ Chips</a>	Gastro Hep Advances	2023
Intestine (Caco2 & organoids)	Cancer	<a href="#">Human colorectal cancer-on-chip model to study the microenvironmental influence on early metastatic spread</a>	iScience	2021
Intestine (Caco2)	ADME	<a href="#">Validation of a Caco-2 microfluidic Chip model for predicting intestinal absorption of BCS Class I-IV drugs</a>	International Journal of Pharmaceutics	2024
Intestine (Caco2)	ADME	<a href="#">Addressing the ADME Challenges of Compound Loss in a PDMS-Based Gut-on-Chip Microphysiological System</a>	Pharmaceutics	2024
Intestine (Caco2)	Immunology & Inflammation	<a href="#">Cytokine induced inflammatory bowel disease model using organ-on-a-chip technology</a>	PLOS ONE	2023
Intestine (Caco2)	Infectious Disease	<a href="#">4D live imaging and computational modeling of a functional gut-on-a-chip evaluate how peristalsis facilitates enteric pathogen invasion</a>	Science Advances	2022
Intestine (Caco2)	Infectious Disease	<a href="#">Bioengineered Human Organ-on-Chip Reveals Intestinal Microenvironment and Mechanical Forces Impacting Shigella Infection</a>	Cell Host & Microbe	2019
Intestine (Caco2)	Infectious Disease	<a href="#">Human Gut-On-A-Chip Supports Polarized Infection of Coxsackie B1 Virus In Vitro</a>	PLOS ONE	2017
Intestine (Caco2)	Infectious Disease	<a href="#">Clostridioides difficile binary toxin CDT induces biofilm-like persisting microcolonies</a>	bioRxiv	2024
Intestine (Caco2)	Microbiome	<a href="#">Characterization of an engineered live bacterial therapeutic for the treatment of phenylketonuria in a human gut-on-a-chip</a>	Nature Communications	2021
Intestine (Caco2)	Microbiome	<a href="#">Effects of human milk oligosaccharides on the adult gut microbiota and barrier function</a>	Nutrients	2020
Intestine (Caco2)	Microbiome	<a href="#">A complex human gut microbiome cultured in an anaerobic intestine-on-a-chip</a>	Nature Biomedical Engineering	2018
Intestine (Caco2)	Microbiome	<a href="#">Human gut-on-a-chip inhabited by microbial flora that experiences intestinal peristalsis-like motions and flow</a>	Lab on a Chip	2012

Digestive System - Continued				
Organ	Application	Article	Journal	Year
Intestine (Caco2)	Model Development	<a href="#">SCRIB controls apical contractility during epithelial differentiation</a>	Journal of Cell Biology	2023
Intestine (Caco2), Liver	Organ-on-a-Chip Technology (Other)	<a href="#">Identification of pharmacological inducers of a reversible hypometabolic state for whole organ preservation</a>	eLife	2024
Intestine (Colon and Duodenum)	Model Development	<a href="#">Combining Human Organoids and Organ-on-a-Chip Technology to Model Intestinal Region-Specific Functionality</a>	JoVE	2024
Intestine (Colon and Duodenum), Lung	Toxicology, Immunology & Inflammation, Cancer	<a href="#">Human immunocompetent Organ-on-Chip platforms allow safety profiling of tumor-targeted T-cell bispecific antibodies</a>	eLife	2021
Intestine (Colon mouse)	Microbiome, Infectious Disease	<a href="#">Harnessing Colon Chip Technology to Identify Commensal Bacteria That Promote Host Tolerance to Infection</a>	Frontiers in Cellular and Infection Microbiology	2021
Intestine (Colon)	Immunology & Inflammation	<a href="#">A Novel Microphysiological Colon Platform to Decipher Mechanisms Driving Human Intestinal Permeability</a>	Cellular and Molecular Gastroenterology and Hepatology	2021
Intestine (Colon)	Infectious Disease	<a href="#">Species-specific enhancement of enterohemorrhagic E. coli pathogenesis mediated by microbiome metabolites</a>	Microbiome	2019
Intestine (Colon)	Model Development	<a href="#">Human Colon-on-a-Chip Enables Continuous In Vitro Analysis of Colon Mucus Layer Accumulation and Physiology</a>	Cellular and Molecular Gastroenterology and Hepatology	2020
Intestine (Colon), Lung (Alveolus)	Immunology & Inflammation	<a href="#">Safety Profiling of Tumor-targeted T Cell-Bispecific Antibodies with Alveolus Lung- and Colon-on-Chip</a>	Bio-protocol	2023
Intestine (Colorectal cancer)	Cancer	<a href="#">Multiplexed imaging and effluent analysis to monitor cancer cell intravasation using a colorectal cancer-on-chip</a>	STAR Protocols	2021
Intestine (Duodenum)	ADME	<a href="#">Developing an adult stem cell derived microphysiological intestinal system for predicting oral prodrug bioconversion and permeability in humans</a>	Lab on a Chip	2023
Intestine (Duodenum)	ADME	<a href="#">Duodenum Intestine-Chip for preclinical drug assessment in a human relevant model</a>	eLife	2020
Intestine (Duodenum)	Immunology & Inflammation	<a href="#">Enhanced Utilization of Induced Pluripotent Stem Cell-Derived Human Intestinal Organoids Using Microengineered Chips</a>	Cellular and Molecular Gastroenterology and Hepatology	2017

## Digestive System - Continued

Organ	Application	Article	Journal	Year
Intestine (Duodenum)	Infectious Disease	<a href="#">Enteric coronavirus infection and treatment modeled with an immunocompetent human intestine-on-a-chip</a>	Frontiers in Pharmacology	2021
Intestine (Duodenum)	Model Development	<a href="#">Direct therapeutic effect of sulfadoxine-pyrimethamine on nutritional deficiency-induced enteric dysfunction in a human intestine chip</a>	eBioMedicine	2023
Intestine (Duodenum)	Model Development	<a href="#">Establishment of physiologically relevant oxygen gradients in microfluidic organ chips</a>	Lab on a Chip	2022
Intestine (Duodenum)	Model Development	<a href="#">Nutritional deficiency in an intestine-on-a-chip recapitulates injury hallmarks associated with environmental enteric dysfunction</a>	Nature Biomedical Engineering	2022
Intestine (Ileum)	Immunology & Inflammation	<a href="#">Microfluidic device facilitates in vitro modeling of human neonatal necrotizing enterocolitis-on-a-chip</a>	JCI Insight	2023
Intestine (Jejunum)	Infectious Disease	<a href="#">Mechanical Stimuli Affect Escherichia coli Heat-Stable Enterotoxin-Cyclic GMP Signaling in a Human Enteroid Intestine-Chip Model</a>	Infection and Immunity	2020
Intestine (Small)	Model Development	<a href="#">Development of a primary human Small Intestine-on-a-Chip using biopsy-derived organoids</a>	Scientific Reports	2018
Review Article	Toxicology	<a href="#">Trust your gut: Establishing confidence in gastrointestinal models - An overview of the state of the science and contexts of use</a>	ALTEX	2024
Small Intestine	Model development	<a href="#">An iPSC-derived small intestine-on-chip with self-organizing epithelial, mesenchymal and neural cells</a>	bioRxiv	2024
Small Intestine, Colon, Cervix, Vagina, Lung (Airway)	Model development	<a href="#">Modeling mucus physiology and pathophysiology in human organs-on-chips</a>	Advanced Drug Delivery Reviews	2022

## Liver

Organ	Application	Article	Journal	Year
Liver	ADME	<a href="#">Phenotypic Characterization of Liver Sinusoidal Endothelial Cells on the Human Liver-Chip for Potential in vitro Therapeutic Antibody Pharmacology Applications</a>	bioRxiv	2022
Liver	ADME, Toxicology	<a href="#">Integrated in vitro models for hepatic safety and metabolism: evaluation of a human Liver-Chip and liver spheroid</a>	Archives of Toxicology	2019
Liver	Immunology & Inflammation	<a href="#">Organ-on-a-chip for studying immune cell adhesion to liver sinusoidal endothelial cells: the potential for testing immunotherapies and cell therapy trafficking</a>	Archives of Toxicology	2024
Liver	Immunology & Inflammation	<a href="#">Modeling alcohol-associated liver disease in a human Liver-Chip</a>	Cell Reports	2021
Liver	Toxicology	<a href="#">Beyond the Hype and Towards Application: Liver Complex In Vitro Models in Preclinical Drug Safety</a>	Expert Opinion on Drug Metabolism & Toxicology	2024

## Liver - Continued

Organ	Application	Article	Journal	Year
Liver	Toxicology	<a href="#">A human liver organoid screening platform for DILI risk prediction</a>	Journal of Hepatology	2023
Liver	Toxicology	<a href="#">A novel approach to interrogating the effects of chemical warfare agent exposure using organ-on-a-chip technology and multiomic analysis</a>	PLOS ONE	2023
Liver	Toxicology	<a href="#">Performance assessment and economic analysis of a human Liver-Chip for predictive toxicology</a>	Communications Medicine	2023
Liver	Toxicology	<a href="#">Co-Culture of Human Primary Hepatocytes and Nonparenchymal Liver Cells in the Emulate® Liver-Chip for the Study of Drug-Induced Liver Injury</a>	Current Protocols	2022
Liver	Toxicology	<a href="#">Utilization of a model hepatotoxic compound, diglycolic acid, to evaluate liver Organ-Chip performance and in vitro to in vivo concordance</a>	Food and Chemical Toxicology	2020
Liver (Human, dog, rat)	Toxicology	<a href="#">Reproducing human and cross-species drug toxicities using a Liver-Chip</a>	Science Translational Medicine	2019
Liver, Intestine (Caco2)	Organ-on-a-Chip Technology (Other)	<a href="#">Identification of pharmacological inducers of a reversible hypometabolic state for whole organ preservation</a>	eLife	2024

## Lymphatic System

Organ	Application	Article	Journal	Year
Bone Marrow	Toxicology	<a href="#">On-chip recapitulation of clinical bone marrow toxicities and patient-specific pathophysiology</a>	Nature Biomedical Engineering	2020
Bone Marrow (mouse)	Model Development	<a href="#">Bone Marrow Microenvironment-On-Chip for Culture of Functional Hematopoietic Stem Cells</a>	Frontiers in Bioengineering and Biotechnology	2022
Lymph Node	Immunology & Inflammation	<a href="#">Recapitulating memory B cell responses in a Lymphoid Organ-Chip to evaluate mRNA vaccine boosting strategies</a>	bioRxiv	2024
Lymph Node	Immunology & Inflammation	<a href="#">Ectopic Lymphoid Follicle Formation and Human Seasonal Influenza Vaccination Responses Recapitulated in an Organ-on-a-Chip</a>	Advanced Science	2022
Lymph Node	Infectious Disease	<a href="#">DNA origami vaccine (DoriVac) nanoparticles improve both humoral and cellular immune responses to infectious diseases</a>	bioRxiv	2024



## Musculoskeletal System

Organ	Application	Article	Journal	Year
Bone	Model Development	<a href="#">Bone Chip System to Monitor Osteogenic Differentiation Using Optical Imaging</a>	Microfluidics and Nanofluidics	2019
Breast and prostate cancer bone metastasis model	Cancer	<a href="#">A Novel Primary Cilium-Mediated Mechanism Through which Osteocytes Regulate Metastatic Behavior of Both Breast and Prostate Cancer Cells</a>	Advanced Science	2023
Breast and prostate cancer bone metastasis model	Cancer	<a href="#">Mechanical Stimulation Modulates Osteocyte Regulation of Cancer Cell Phenotype</a>	Cancers	2021
Synovium	Immunology & Inflammation	<a href="#">Human vascularised synovium-on-a-chip: a mechanically stimulated, microfluidic model to investigate synovial inflammation and monocyte recruitment</a>	Biomedical Matererials	2023

## Reproductive System

Organ	Application	Article	Journal	Year
Cervix	Microbiome	<a href="#">Mucus production, host-microbiome interactions, hormone sensitivity, and innate immune responses modeled in human cervix chips</a>	Nature	2024
Vagina	Microbiome	<a href="#">Modeling Healthy and Dysbiotic Vaginal Microenvironments in a Human Vagina-on-a-Chip</a>	JoVE	2024
Vagina	Microbiome	<a href="#">Vaginal microbiome-host interactions modeled in a human vagina-on-a-chip</a>	Microbiome	2022
Vagina, Cervix	Microbiome	<a href="#">Modulation of dysbiotic vaginal complications by cervical mucus revealed in linked human vagina and cervix chips</a>	bioRxiv	2023
Vagina, Cervix, Small Intestine, Colon, Lung (Airway)	Organ-on-a-Chip Technology (Other)	<a href="#">Modeling mucus physiology and pathophysiology in human organs-on-chips</a>	Advanced Drug Delivery Reviews	2022

Respiratory System				
Organ	Application	Article	Journal	Year
Lung	ADME	<a href="#">Simulating drug concentrations in PDMS microfluidic organ chips</a>	Lab on a Chip	2021
Lung (Airway)	Immunology & Inflammation	<a href="#">Modeling pulmonary cystic fibrosis in a human lung airway-on-a-chip</a>	Journal of Cystic Fibrosis	2021
Lung (Airway)	Infectious Disease	<a href="#">Clinically Relevant Influenza Virus Evolution Reconstituted in a Human Lung Airway-on-a-Chip</a>	Microbiology Spectrum	2021
Lung (Airway)	Infectious Disease	<a href="#">A human-airway-on-a-chip for the rapid identification of candidate antiviral therapeutics and prophylactics</a>	Nature Biomedical Engineering	2021
Lung (Airway)	Infectious Disease	<a href="#">A Microengineered Airway Lung Chip Models Key Features of Viral-induced Exacerbation of Asthma</a>	American Journal of Respiratory Cell and Molecular Biology	2020
Lung (Airway)	Model Development	<a href="#">Breathing on Chip: Biomechanical forces change airway epithelial cell biology in a human Airway Lung-Chip</a>	Materials Today Bio	2023
Lung (Alveolus)	Immunology & Inflammation	<a href="#">Dissolved gases from pressure changes in the lungs elicit an immune response in human peripheral blood</a>	Bioengineering & Translational Medicine	2024
Lung (Alveolus and Airway)	Immunology & Inflammation	<a href="#">Self-assembling short immunostimulatory duplex RNAs with broad-spectrum antiviral activity</a>	Molecular Therapy Nucleic Acids	2022
Lung (Alveolus)	Gene Therapy	<a href="#">AAV-mediated gene therapy targeting TRPV4 mechanotransduction for inhibition of pulmonary vascular leakage</a>	APL Bioengineering	2019
Lung (Alveolus)	Infectious Disease	<a href="#">Modelling SARS-CoV-2 infection in a human alveolus microphysiological system</a>	Access Microbiology	2024
Lung (Alveolus)	Infectious Disease	<a href="#">Mechanopathology of biofilm-like Mycobacterium tuberculosis cords</a>	Cell	2023
Lung (Alveolus)	Infectious Disease	<a href="#">Mechanical control of innate immune responses against viral infection revealed in a human Lung Alveolus Chip</a>	Nature Communications	2022
Lung (Alveolus)	Infectious Disease	<a href="#">The cGAS-STING pathway drives type I IFN immunopathology in COVID-19</a>	Nature	2022
Lung (Alveolus)	Infectious Disease	<a href="#">Rapid endotheliitis and vascular damage characterize SARS-CoV-2 infection in a human lung-on-chip model</a>	EMBO reports	2021
Lung (Alveolus)	Infectious Disease	<a href="#">A lung-on-chip model of early Mycobacterium tuberculosis infection reveals an essential role for alveolar epithelial cells in controlling bacterial growth</a>	eLife	2020



## Respiratory System - Continued

Organ	Application	Article	Journal	Year
Lung (Alveolus)	Model Development	<a href="#">Organoid-based expansion of patient-derived primary alveolar type 2 cells for establishment of alveolus epithelial Lung-Chip cultures</a>	American Journey of Physiology Lung Cellular and Molecular Physiology	2022
Lung (Alveolus)	Toxicology	<a href="#">A human lung alveolus-on-a-chip model of acute radiation-induced lung injury</a>	Nature Communications	2023
Lung (Alveolus)	Toxicology, Immunology & Inflammation	<a href="#">Reconstituting Organ-Level Lung Functions on a Chip</a>	Science	2010
Lung (Alveolus), Intestine (Colon)	Immunology & Inflammation	<a href="#">Safety Profiling of Tumor-targeted T Cell-Bispecific Antibodies with Alveolus Lung- and Colon-on-Chip</a>	Bio-protocol	2023
Lung (Alveolus), Skin	Model Development, Cancer	<a href="#">Reconstituting Cytoarchitecture and Function of Human Epithelial Tissues on an Open-Top Organ-Chip</a>	JoVE	2023
Lung (Alveolus), Skin	Model Development, Cancer	<a href="#">A novel Organ-Chip system emulates three-dimensional architecture of the human epithelia and allows fine control of mechanical forces acting on it.</a>	Biomaterials	2021
Lung (Bovine)	Infectious Disease	<a href="#">Development and evaluation of a bovine lung-on-chip (bLOC) to study bovine respiratory diseases</a>	In vitro models	2022
Lung, Intestine (Colon & Duodenum)	Toxicology, Immunology & Inflammation, Cancer	<a href="#">Human immunocompetent Organ-on-Chip platforms allow safety profiling of tumor-targeted T-cell bispecific antibodies</a>	eLife	2021

## Skin

Organ	Application	Article	Journal	Year
Skin, Lung (Alveolus)	Model Development	<a href="#">Reconstituting Cytoarchitecture and Function of Human Epithelial Tissues on an Open-Top Organ-Chip</a>	JoVE	2023
Skin, Lung (Alveolus)	Model Development, Cancer	<a href="#">A novel Organ-Chip system emulates three-dimensional architecture of the human epithelia and allows fine control of mechanical forces acting on it.</a>	Biomaterials	2021

Urinary System				
Organ	Application	Article	Journal	Year
Bladder	Infectious Disease	<a href="#">Dynamic persistence of UPEC intracellular bacterial communities in a human bladder-chip model of urinary tract infection</a>	eLife	2021
Kidney (Glomerulus)	Model Development	<a href="#">An ultrathin membrane mediates tissue-specific morphogenesis and barrier function in a human kidney chip</a>	Science Advances	2024
Kidney (Glomerulus)	Model Development	<a href="#">Physiological Replication of the Human Glomerulus Using a Triple Culture Microphysiological System</a>	Advanced Science	2023
Kidney (Glomerulus)	Model Development	<a href="#">Directed differentiation of human induced pluripotent stem cells into mature kidney podocytes and establishment of a Glomerulus Chip.</a>	Nature Protocols	2018
Kidney (Glomerulus)	Toxicology	<a href="#">A Personalized Glomerulus Chip Engineered from Stem Cell-Derived Epithelium and Vascular Endothelium</a>	Micromachines	2021
Kidney (Glomerulus)	Toxicology	<a href="#">Mature induced-pluripotent-stem-cell-derived human podocytes reconstitute kidney glomerular-capillary-wall function on a chip</a>	Nature Biomedical Engineering	2017
Kidney (Glomerulus, mouse)	Model Development	<a href="#">REST and Stress Resistance in the Ageing Kidney</a>	Journal of the American Society of Nephrology	2021
Kidney (Proximal Tubule)	ADME	<a href="#">Assessment of Human Renal Transporter Based Drug-Drug Interactions Using Proximal Tubule Kidney-Chip</a>	bioRxiv	2022
Kidney (Proximal Tubule)	ADME, Toxicology	<a href="#">Human kidney proximal tubule-on-a-chip for drug transport and nephrotoxicity assessment</a>	Integrative Biology	2013
Kidney (Proximal Tubule)	Immunology & Inflammation	<a href="#">Circulating extracellular vesicles in human cardiorenal syndrome promote renal injury in Kidney on Chip system</a>	JCI Insight	2023
Technology				
Subject	Application	Article	Journal	Year
Bioinformatics	Organ-on-a-Chip Technology (Other)	<a href="#">An Information-Theoretic Approach for Measuring the Distance of Organ Tissue Samples Using Their Transcriptomic Signatures</a>	Bioinformatics	2020
Imaging Analysis	Organ-on-a-Chip Technology (Other)	<a href="#">Introducing an automated high content confocal imaging approach for Organs-on-Chips</a>	Lab on a Chip	2019
Review Article	Organ-on-a-Chip Technology (Other)	<a href="#">Human organs-on-chips for disease modelling, drug development and personalized medicine</a>	Nature Reviews Genetics	2022
Review Article	Organ-on-a-Chip Technology (Other)	<a href="#">Opportunities and challenges with microphysiological systems: a pharma end-user perspective</a>	Nature Reviews Drug Discovery	2020

## Technology - Continued

Subject	Application	Article	Journal	Year
Review Article	Organ-on-a-Chip Technology (Other)	<a href="#">Organs-on-Chips in Clinical Pharmacology: Putting the Patient Into the Center of Treatment Selection and Drug Development</a>	Clinical Pharmacology & Therapeutics	2019
Review Article	Toxicology	<a href="#">The Future of Uncertainty Factors With In Vitro Studies Using Human Cells</a>	Toxicological Sciences	2022
Review Article	Toxicology	<a href="#">Application of Microphysiological Systems to Enhance Safety Assessment in Drug Discovery</a>	Annual Review of Pharmacology and Toxicology	2018
Review Article	Toxicology	<a href="#">Optimizing Drug Discovery by Investigative Toxicology: Current and Future Trends</a>	ALTEX	2018

ADME			
Organ	Article	Journal	Year
Brain - Blood Brain Barrier	<a href="#">Evaluation of Drug Blood-Brain-Barrier Permeability Using a Microfluidic Chip</a>	Pharmaceutics	2024
Intestine (Caco2)	<a href="#">Validation of a Caco-2 microfluidic Chip model for predicting intestinal absorption of BCS Class I-IV drugs</a>	International Journal of Pharmaceutics	2024
Intestine (Caco2)	<a href="#">Addressing the ADME Challenges of Compound Loss in a PDMS-Based Gut-on-Chip Microphysiological System</a>	Pharmaceutics	2024
Intestine (Duodenum)	<a href="#">Developing an adult stem cell derived microphysiological intestinal system for predicting oral prodrug bioconversion and permeability in humans</a>	Lab on a Chip	2023
Intestine (Duodenum)	<a href="#">Duodenum Intestine-Chip for preclinical drug assessment in a human relevant model</a>	eLife	2020
Kidney (Proximal Tubule)	<a href="#">Assessment of Human Renal Transporter Based Drug-Drug Interactions Using Proximal Tubule Kidney-Chip</a>	bioRxiv	2022
Kidney (Proximal Tubule)	<a href="#">Human kidney proximal tubule-on-a-chip for drug transport and nephrotoxicity assessment</a>	Integrative Biology	2013
Liver	<a href="#">Phenotypic Characterization of Liver Sinusoidal Endothelial Cells on the Human Liver-Chip for Potential in vitro Therapeutic Antibody Pharmacology Applications</a>	bioRxiv	2022
Liver	<a href="#">Integrated in vitro models for hepatic safety and metabolism: evaluation of a human Liver-Chip and liver spheroid</a>	Archives of Toxicology	2019
Lung	<a href="#">Simulating drug concentrations in PDMS microfluidic organ chips</a>	Lab on a Chip	2021

Cancer			
Organ	Article	Journal	Year
Breast and prostate cancer bone metastasis model	<a href="#">A Novel Primary Cilium-Mediated Mechanism Through which Osteocytes Regulate Metastatic Behavior of Both Breast and Prostate Cancer Cells</a>	Advanced Science	2023
Breast and prostate cancer bone metastasis model	<a href="#">Mechanical Stimulation Modulates Osteocyte Regulation of Cancer Cell Phenotype</a>	Cancers	2021
Esophagus	<a href="#">Epithelial-Stromal Interactions in Barrett's Esophagus Modeled in Human Organ Chips</a>	Gastro Hep Advances	2023
Intestine (Caco2 & organoids)	<a href="#">Human colorectal cancer-on-chip model to study the microenvironmental influence on early metastatic spread</a>	iScience	2021
Intestine (Colon & Duodenum); Lung	<a href="#">Human immunocompetent Organ-on-Chip platforms allow safety profiling of tumor-targeted T-cell bispecific antibodies</a>	eLife	2021
Intestine (Colorectal cancer)	<a href="#">Multiplexed imaging and effluent analysis to monitor cancer cell intravasation using a colorectal cancer-on-chip</a>	STAR Protocols	2021
Lung (Alveolus) and skin	<a href="#">A novel Organ-Chip system emulates three-dimensional architecture of the human epithelia and allows fine control of mechanical forces acting on it.</a>	Biomaterials	2021
Review Article	<a href="#">Organ-on-a-Chip and Microfluidic Platforms for Oncology in the UK</a>	Cancers	2023

## Gene Therapy

Organ	Article	Journal	Year
Lung (Alveolus)	<a href="#">AAV-mediated gene therapy targeting TRPV4 mechanotransduction for inhibition of pulmonary vascular leakage</a>	APL Bioengineering	2019

## Immunology & Inflammation

Organ	Article	Journal	Year
Brain	<a href="#">A microengineered Brain-Chip to model neuroinflammation in humans</a>	iScience	2022
Intestine (Caco2)	<a href="#">Cytokine induced inflammatory bowel disease model using organ-on-a-chip technology</a>	PLOS ONE	2023
Intestine (Colon)	<a href="#">A Novel Microphysiological Colon Platform to Decipher Mechanisms Driving Human Intestinal Permeability</a>	Cellular and Molecular Gastroenterology and Hepatology	2021
Intestine (Colon & Duodenum); Lung	<a href="#">Human immunocompetent Organ-on-Chip platforms allow safety profiling of tumor-targeted T-cell bispecific antibodies</a>	eLife	2021
Intestine (Duodenum)	<a href="#">Enhanced Utilization of Induced Pluripotent Stem Cell-Derived Human Intestinal</a>	Cellular and Molecular Gastroenterology and Hepatology	2017
Intestine (Ileum)	<a href="#">Microfluidic device facilitates in vitro modeling of human neonatal necrotizing enterocolitis-on-a-chip</a>	JCI Insight	2023
Kidney (Proximal Tubule)	<a href="#">Circulating extracellular vesicles in human cardiorenal syndrome promote renal injury in Kidney on Chip system</a>	JCI Insight	2023
Liver	<a href="#">Modeling alcohol-associated liver disease in a human Liver-Chip</a>	Cell Reports	2021
Lung (Airway)	<a href="#">Modeling pulmonary cystic fibrosis in a human lung airway-on-a-chip</a>	Journal of Cystic Fibrosis	2021
Lung (Alveolus)	<a href="#">Dissolved gases from pressure changes in the lungs elicit an immune response in human peripheral blood</a>	Bioengineering & Translational Medicine	2024
Lung (Alveolus)	<a href="#">Reconstituting Organ-Level Lung Functions on a Chip</a>	Science	2010
Lung (Alveolus and Airway)	<a href="#">Self-assembling short immunostimulatory duplex RNAs with broad-spectrum antiviral activity</a>	Molecular Therapy Nucleic Acids	2022
Lung (Alveolus) & Intestine (Colon)	<a href="#">Safety Profiling of Tumor-targeted T Cell-Bispecific Antibodies with Alveolus Lung- and Colon-on-Chip</a>	Bio-protocol	2023
Lymph Node	<a href="#">Recapitulating memory B cell responses in a Lymphoid Organ-Chip to evaluate mRNA vaccine boosting strategies</a>	bioRxiv	2024
Lymph Node	<a href="#">Ectopic Lymphoid Follicle Formation and Human Seasonal Influenza Vaccination Responses Recapitulated in an Organ-on-a-Chip</a>	Advanced Science	2022
Synovium	<a href="#">Human vascularised synovium-on-a-chip: a mechanically stimulated, microfluidic model to investigate synovial inflammation and monocyte recruitment</a>	Biomedical Matererials	2023

Infectious Disease			
Organ	Article	Journal	Year
Bladder	<a href="#">Dynamic persistence of UPEC intracellular bacterial communities in a human bladder-chip model of urinary tract infection</a>	eLife	2021
Intestine (Caco2)	<a href="#">Clostridioides difficile binary toxin CDT induces biofilm-like persisting microcolonies</a>	bioRxiv	2024
Intestine (Caco2)	<a href="#">4D live imaging and computational modeling of a functional gut-on-a-chip evaluate how peristalsis facilitates enteric pathogen invasion</a>	Science Advances	2022
Intestine (Caco2)	<a href="#">Bioengineered Human Organ-on-Chip Reveals Intestinal Microenvironment and Mechanical Forces Impacting Shigella Infection</a>	Cell Host & Microbe	2019
Intestine (Caco2)	<a href="#">Human Gut-On-A-Chip Supports Polarized Infection of Coxsackie B1 Virus In Vitro</a>	PLOS ONE	2017
Intestine (Colon)	<a href="#">Species-specific enhancement of enterohemorrhagic E. coli pathogenesis mediated by microbiome metabolites</a>	Microbiome	2019
Intestine (Colon, mouse)	<a href="#">Harnessing Colon Chip Technology to Identify Commensal Bacteria That Promote Host Tolerance to Infection</a>	Frontiers in Cellular and Infection Microbiology	2021
Intestine (Duodenum)	<a href="#">Enteric coronavirus infection and treatment modeled with an immunocompetent human intestine-on-a-chip</a>	Frontiers in Pharmacology	2021
Intestine (Jejunum)	<a href="#">Mechanical Stimuli Affect Escherichia coli Heat-Stable Enterotoxin-Cyclic GMP Signaling in a Human Enteroid Intestine-Chip Model</a>	Infection and Immunity	2020
Lung (Airway)	<a href="#">Clinically Relevant Influenza Virus Evolution Reconstituted in a Human Lung Airway-on-a-Chip</a>	Microbiology Spectrum	2021
Lung (Airway)	<a href="#">A human-airway-on-a-chip for the rapid identification of candidate antiviral therapeutics and prophylactics</a>	Nature Biomedical Engineering	2021
Lung (Airway)	<a href="#">A Microengineered Airway Lung Chip Models Key Features of Viral-induced Exacerbation of Asthma</a>	American Journal of Respiratory Cell and Molecular Biology	2020
Lung (Alveolus)	<a href="#">Modelling SARS-CoV-2 infection in a human alveolus microphysiological system</a>	Access Microbiology	2024
Lung (Alveolus)	<a href="#">Mechanopathology of biofilm-like Mycobacterium tuberculosis cords</a>	Cell	2023
Lung (Alveolus)	<a href="#">Mechanical control of innate immune responses against viral infection revealed in a human Lung Alveolus Chip</a>	Nature Communications	2022
Lung (Alveolus)	<a href="#">The cGAS-STING pathway drives type I IFN immunopathology in COVID-19</a>	Nature	2022
Lung (Alveolus)	<a href="#">Rapid endotheliitis and vascular damage characterize SARS-CoV-2 infection in a human lung-on-chip model</a>	EMBO reports	2021
Lung (Alveolus)	<a href="#">A lung-on-chip model of early Mycobacterium tuberculosis infection reveals an essential role for alveolar epithelial cells in controlling bacterial growth</a>	eLife	2020
Lung (Bovine)	<a href="#">Development and evaluation of a bovine lung-on-chip (bLOC) to study bovine respiratory diseases</a>	In vitro models	2022



## Infectious Disease - Continued

Organ	Article	Journal	Year
Lymph Node	<a href="#">DNA origami vaccine (DoriVac) nanoparticles improve both humoral and cellular immune responses to infectious diseases</a>	bioRxiv	2024

## Microbiome

Organ	Article	Journal	Year
Cervix	<a href="#">Mucus production, host-microbiome interactions, hormone sensitivity, and innate immune responses modeled in human cervix chips</a>	Nature	2024
Intestine (Caco2)	<a href="#">Characterization of an engineered live bacterial therapeutic for the treatment of phenylketonuria in a human gut-on-a-chip</a>	Nature Communications	2021
Intestine (Caco2)	<a href="#">Effects of human milk oligosaccharides on the adult gut microbiota and barrier function</a>	Nutrients	2020
Intestine (Caco2)	<a href="#">A complex human gut microbiome cultured in an anaerobic intestine-on-a-chip</a>	Nature Biomedical Engineering	2018
Intestine (Caco2)	<a href="#">Human gut-on-a-chip inhabited by microbial flora that experiences intestinal peristalsis-like motions and flow</a>	Lab on a Chip	2012
Intestine (Colon, mouse)	<a href="#">Frontiers in Cellular and Infection Microbiology</a>	Frontiers in Cellular and Infection Microbiology	2021
Vagina	<a href="#">Modeling Healthy and Dysbiotic Vaginal Microenvironments in a Human Vagina-on-a-Chip</a>	JoVE	2024
Vagina	<a href="#">Vaginal microbiome-host interactions modeled in a human vagina-on-a-chip</a>	Microbiome	2022
Vagina, Cervix	<a href="#">Modulation of dysbiotic vaginal complications by cervical mucus revealed in linked human vagina and cervix chips</a>	bioRxiv	2023

## Model Development

Organ	Article	Journal	Year
Blood	<a href="#">Organ-on-Chip Recapitulates Thrombosis Induced by an anti-CD154 Monoclonal Antibody: Translational Potential of Advanced Microengineered Systems</a>	Clinical Pharmacology & Therapeutics	2018
Bone	<a href="#">Bone Chip System to Monitor Osteogenic Differentiation Using Optical Imaging</a>	Microfluidics and Nanofluidics	2019
Bone Marrow (Mouse)	<a href="#">Bone Marrow Microenvironment-On-Chip for Culture of Functional Hematopoietic Stem Cells</a>	Frontiers in Bioengineering and Biotechnology	2022
Brain	<a href="#">Human iPSC-Derived Endothelial Cells and Microengineered Organ-Chip Enhance Neuronal Development</a>	Stem Cell Reports	2018
Intestine (Caco2)	<a href="#">SCRIB controls apical contractility during epithelial differentiation</a>	Journal of Cell Biology	2023

Model Development - Continued			
Organ	Article	Journal	Year
Intestine (Colon)	<a href="#">Human Colon-on-a-Chip Enables Continuous In Vitro Analysis of Colon Mucus Layer Accumulation and Physiology</a>	Cellular and Molecular Gastroenterology and Hepatology	2020
Intestine (Colon and Duodenum)	<a href="#">Combining Human Organoids and Organ-on-a-Chip Technology to Model Intestinal Region-Specific Functionality</a>	JoVE	2022
Intestine (Duodenum)	<a href="#">Direct therapeutic effect of sulfadoxine-pyrimethamine on nutritional deficiency-induced enteric dysfunction in a human intestine chip</a>	eBioMedicine	2023
Intestine (Duodenum)	<a href="#">Establishment of physiologically relevant oxygen gradients in microfluidic organ chips</a>	Lab on a Chip	2022
Intestine (Duodenum)	<a href="#">Nutritional deficiency in an intestine-on-a-chip recapitulates injury hallmarks associated with environmental enteric dysfunction</a>	Nature Biomedical Engineering	2022
Intestine (Small)	<a href="#">An iPSC-derived small intestine-on-chip with self-organizing epithelial, mesenchymal and neural cells</a>	bioRxiv	2024
Intestine (Small)	<a href="#">Development of a primary human Small Intestine-on-a-Chip using biopsy-derived organoids</a>	Scientific Reports	2018
Kidney (Glomerulus)	<a href="#">An ultrathin membrane mediates tissue-specific morphogenesis and barrier function in a human kidney chip</a>	Science Advances	2024
Kidney (Glomerulus)	<a href="#">Physiological Replication of the Human Glomerulus Using a Triple Culture Microphysiological System</a>	Advanced Science	2023
Kidney (Glomerulus)	<a href="#">Directed differentiation of human induced pluripotent stem cells into mature kidney podocytes and establishment of a Glomerulus Chip.</a>	Nature Protocols	2018
Kidney (Glomerulus, mouse)	<a href="#">REST and Stress Resistance in the Ageing Kidney</a>	Journal of the American Society of Nephrology	2021
Lung (Airway)	<a href="#">Breathing on Chip: Biomechanical forces change airway epithelial cell biology in a human Airway Lung-Chip</a>	Materials Today Bio	2023
Lung (Alveolus)	<a href="#">Organoid-based expansion of patient-derived primary alveolar type 2 cells for establishment of alveolus epithelial Lung-Chip cultures</a>	American Journal of Physiology Lung Cellular and Molecular Physiology	2022
Lung (Alveolus) and Skin	<a href="#">Reconstituting Cytoarchitecture and Function of Human Epithelial Tissues on an Open-Top Organ-Chip</a>	JoVE	2021
Lung (Alveolus) and Skin	<a href="#">A novel Organ-Chip system emulates three-dimensional architecture of the human epithelia and allows fine control of mechanical forces acting on it.</a>	Biomaterials	2023

Neuroscience			
Organ	Article	Journal	Year
Brain	<a href="#">Organ-Chips Enhance the Maturation of Human iPSC-Derived Dopamine Neurons</a>	International Journal of Molecular Science	2023
Brain	<a href="#">A microengineered Brain-Chip to model neuroinflammation in humans</a>	iScience	2022
Brain	<a href="#">Modeling alpha-synuclein pathology in a human brain-chip to assess blood-brain barrier disruption</a>	Nature Communications	2021
Brain - Blood Brain Barrier	<a href="#">Evaluation of Drug Blood-Brain-Barrier Permeability Using a Microfluidic Chip</a>	Pharmaceutics	2024
Brain - Blood Brain Barrier	<a href="#">Generation of a Human iPSC-Based Blood-Brain Barrier Chip</a>	JoVE	2020
Brain - Blood Brain Barrier	<a href="#">Human iPSC-Derived Blood-Brain Barrier Chips Enable Disease Modeling and Personalized Medicine Applications</a>	Cell Stem Cell	2019

Toxicology			
Organ	Article	Journal	Year
Bone Marrow	<a href="#">On-chip recapitulation of clinical bone marrow toxicities and patient-specific pathophysiology</a>	Nature Biomedical Engineering	2020
Heart	<a href="#">Multi-lineage heart-chip models drug cardiotoxicity and enhances maturation of human stem cell-derived cardiovascular cells</a>	Lab on a Chip	2024
Intestine (Colon & Duodenum); Lung	<a href="#">Human immunocompetent Organ-on-Chip platforms allow safety profiling of tumor-targeted T-cell bispecific antibodies</a>	eLife	2021
Kidney (Glomerulus)	<a href="#">A Personalized Glomerulus Chip Engineered from Stem Cell-Derived Epithelium and Vascular Endothelium</a>	Micromachines	2021
Kidney (Glomerulus)	<a href="#">Mature induced-pluripotent-stem-cell-derived human podocytes reconstitute kidney glomerular-capillary-wall function on a chip</a>	Nature Biomedical Engineering	2017
Kidney (Proximal Tubule)	<a href="#">Human kidney proximal tubule-on-a-chip for drug transport and nephrotoxicity assessment</a>	Integrative Biology	2013
Liver	<a href="#">Beyond the Hype and Towards Application: Liver Complex In Vitro Models in Preclinical Drug Safety</a>	Expert Opinion on Drug Metabolism & Toxicology	2024
Liver	<a href="#">A human liver organoid screening platform for DILI risk prediction</a>	Journal of Hepatology	2023
Liver	<a href="#">A novel approach to interrogating the effects of chemical warfare agent exposure using organ-on-a-chip technology and multiomic analysis</a>	PLOS ONE	2023
Liver	<a href="#">Performance assessment and economic analysis of a human Liver-Chip for predictive toxicology</a>	Communications Medicine	2023
Liver	<a href="#">Co-Culture of Human Primary Hepatocytes and Nonparenchymal Liver Cells in the Emulate® Liver-Chip for the Study of Drug-Induced Liver Injury</a>	Current Protocols	2022

## Toxicology - Continued

Organ	Article	Journal	Year
Liver	<a href="#">Utilization of a model hepatotoxic compound, diglycolic acid, to evaluate liver Organ-Chip performance and in vitro to in vivo concordance</a>	Food and Chemical Toxicology	2020
Liver	<a href="#">Integrated in vitro models for hepatic safety and metabolism: evaluation of a human Liver-Chip and liver spheroid</a>	Archives of Toxicology	2019
Liver (Human, dog, rat)	<a href="#">Reproducing human and cross-species drug toxicities using a Liver-Chip</a>	Science Translational Medicine	2019
Lung (Alveolus)	<a href="#">A human lung alveolus-on-a-chip model of acute radiation-induced lung injury</a>	Nature Communications	2023
Lung (Alveolus)	<a href="#">Reconstituting Organ-Level Lung Functions on a Chip</a>	Science	2010
Review Article	<a href="#">Trust your gut: Establishing confidence in gastrointestinal models - An overview of the state of the science and contexts of use</a>	ALTEX	2024
Review Article	<a href="#">The Future of Uncertainty Factors With In Vitro Studies Using Human Cells</a>	Toxicological Sciences	2022
Review Article	<a href="#">Application of Microphysiological Systems to Enhance Safety Assessment in Drug Discovery</a>	Annual Review of Pharmacology and Toxicology	2018
Review Article	<a href="#">Optimizing Drug Discovery by Investigative Toxicology: Current and Future Trends</a>	ALTEX	2018

## Organ-on-a-Chip Technology (Other)

Organ	Article	Journal	Year
Liver, Intestine (Caco2)	<a href="#">Identification of pharmacological inducers of a reversible hypometabolic state for whole organ preservation</a>	eLife	2024
N/A	<a href="#">An Information-Theoretic Approach for Measuring the Distance of Organ Tissue Samples Using Their Transcriptomic Signatures</a>	Bioinformatics	2020
N/A	<a href="#">Introducing an automated high content confocal imaging approach for Organs-on-Chips</a>	Lab on a Chip	2019
Review Article	<a href="#">Human organs-on-chips for disease modelling, drug development and personalized medicine</a>	Nature Reviews Genetics	2022
Review Article	<a href="#">Opportunities and challenges with microphysiological systems: a pharma end-user perspective</a>	Nature Reviews Drug Discovery	2020
Review Article	<a href="#">Organs-on-Chips in Clinical Pharmacology: Putting the Patient Into the Center of Treatment Selection and Drug Development</a>	Clinical Pharmacology & Therapeutics	2019
Small Intestine, Colon, Cervix, Vagina, Lung (Airway)	<a href="#">Modeling mucus physiology and pathophysiology in human organs-on-chips</a>	Advanced Drug Delivery Reviews	2022