

CN-BIO



PhysioMimix[®]



Complex human organ models that accurately predict drug responses

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Explore PhysioMimix®

About us

CN Bio's organ-on-a-chip systems, which include the PhysioMimix Single- and Multi-organ microphysiological systems, enable researchers to model human biology in the lab to perform rapid and predictive human tissue-based studies.

The technology bridges the gap between traditional cell culture and human studies, enabling the simulation of human biological conditions to accelerate the development of new therapeutics. By reliably predicting drug effects, PhysioMimix can help to develop safe and efficacious therapeutics, faster and more cost-effectively.

Learn more at cn-bio.com

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PhysioMimix[®] OOC

Generate human-specific pre-clinical safety and efficacy data with pioneering PhysioMimix single- and multi-organ-on-a-chip solutions

PhysioMimix organ-on-a-chip (OOC) instruments allow researchers to culture microtissues that mimic the structure and function of human tissues and organs.

A wide range of routine laboratory assays can be run to identify drug targets, understand drug interactions and mechanisms of toxicity to more closely predict clinical outcomes.

PhysioMimix is a suite of hardware, consumables and assay protocols that enable the co-culturing of human cells straight out of the box. The perfused system provides accurate fluidic flow that replicates the bloodstream promoting 3D organ model formation and supports the inclusion of circulating immune cells to mimic the immune system.

The PhysioMimix approach provides larger scale tissue and media volumes (up to 1mL) for deriving high content multi-omics and microscopy data. Its open-well plate format is designed for ease of use, facilitating acute and chronic dosing studies and enabling the recovery of media samples throughout the experiment for real-time monitoring and longitudinal data collection.

CN Bio's PhysioMimix range of microphysiological systems can be used to culture single-organ models or fluidically link multiple organs together to form systems for studying crosstalk.

Our product portfolio enables researchers to uniquely recapitulate key pathophysiology, phenotypes and functions of human organs *in vitro*.



Take a tour with our animated video
cn-bio.com/physiomimix-ooc

Lab benchtop ready

Compact and compatible with existing equipment

User friendly

Program and start a run in less than 1 minute

Open-well design

Supports your 2D to 3D cell culture transition

Real-time monitoring

Remove samples for analysis, experiments continue to run

“Set-and-Run” Perfusion

Long-term automated experiments with minimal user input

Tissues and cells

Compatible with a range of pre-formed tissues and cell types for ultimate flexibility

Multi-organ compatible

Connect two organs via microfluidics to study cross-talk

Reduced cost/chip

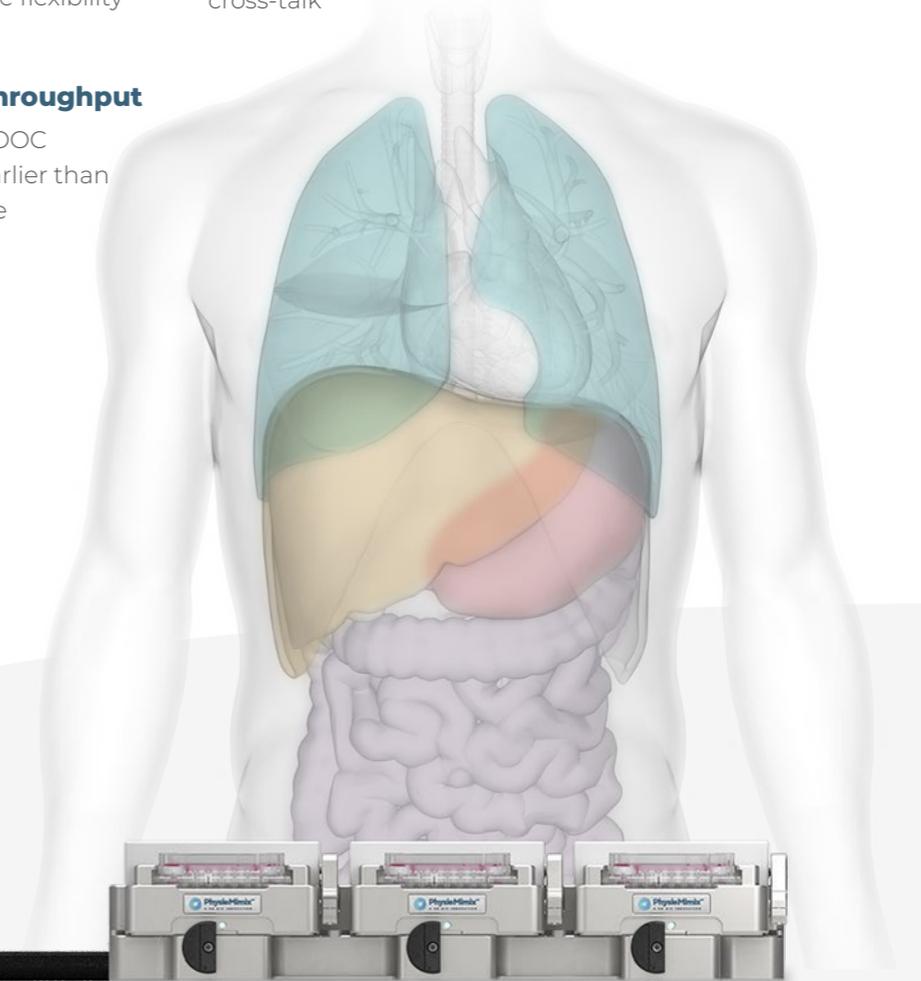
More experiments, same cost reduces adoption barriers

Data confidence

In-plate replicates, controls and dose-responses

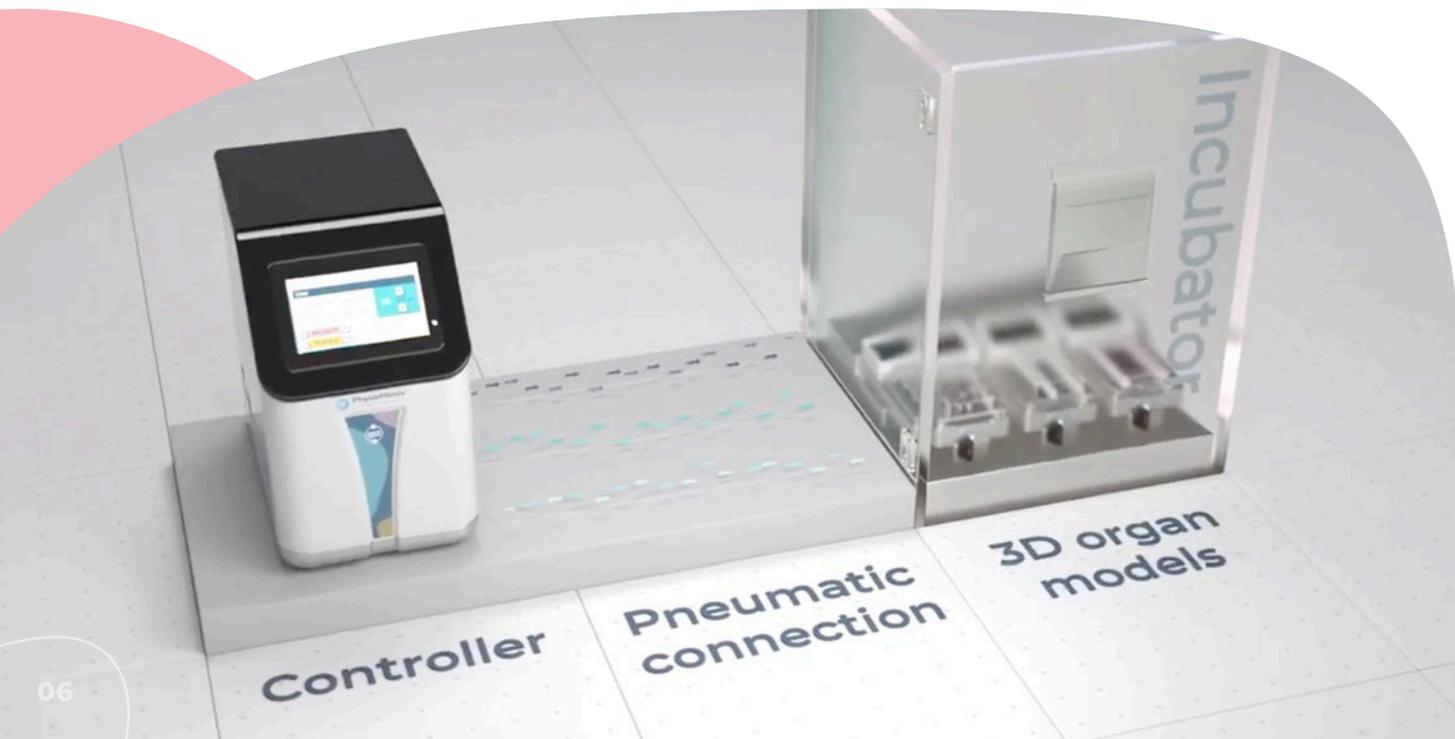
Higher throughput

Generate OOC insights earlier than ever before

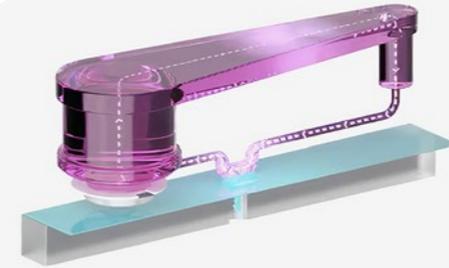


PhysioMimix[®] tech tour

PhysioMimix systems consist of one, or two docking stations that run up to six multi-chip plates in parallel. The controller provides adjustable media flow for long-term tissue culture (up to 4 weeks) via a pneumatic connection for total perfusion of 3D organ models



Single-organ models



Liver

Perfusion around the plate and through the scaffold enables the formation of 3D tissue



Barrier

Circulating flow supports physiological barrier function for barrier models such as gut and lung

Multi-organ models



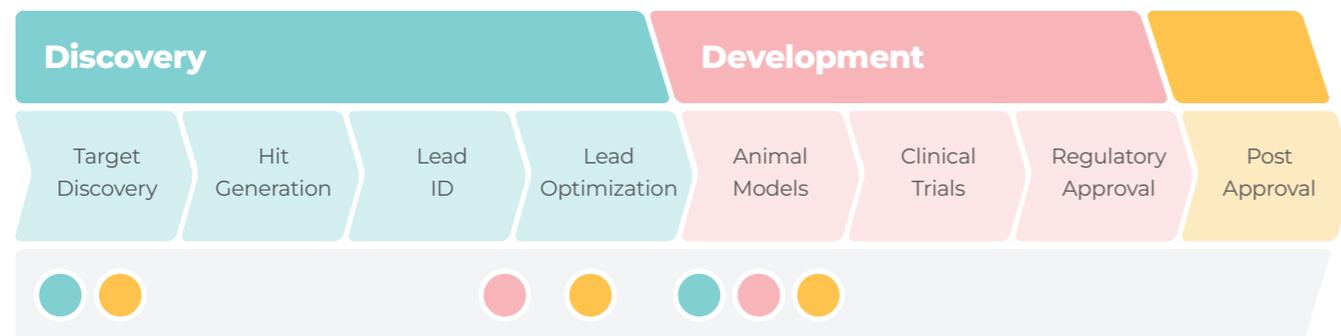
Dual-organ

Interconnected barrier and liver chambers enable two organs to interact and communicate as part of a complex system

Selecting the right PhysioMimix®

PhysioMimix OOC systems are designed to meet a wide range of research needs across the drug discovery and development workflow

Whether you need higher throughput for comparative drug evaluation studies, detailed data to understand disease mechanisms or a multi-organ system to investigate crosstalk, we have the right solution for you.



● PhysioMimix Single-organ Standard System

● PhysioMimix Single-organ HT System

● PhysioMimix Multi-organ Standard System



PhysioMimix Single-organ Standard System

An entry-level system that enables the rapid creation of *in vitro* 3D single-organ models to provide detailed insights into drug, or disease mechanism of action.

Includes guided software modules to support “in-a-box” kit adoption. Enables insightful decision making by delivering clinically translatable human data. Generate Liver-on-a-chip models that mimic the human liver microarchitecture using the PhysioMimix Multi-chip Liver-12 plate. Generate barrier models (such as Gut- or Lung-on-a-chip) on Transwell® inserts using the PhysioMimix Multi-chip Barrier plate.



PhysioMimix Single-organ HT System

A next-generation system with higher throughput to generate additional data from more experiments in parallel. Get enhanced data robustness and reproducibility for greater data confidence.

Perform comparative drug studies to evaluate safety, efficacy and potency with 6x higher throughput. And more cost-effective experiments via an 8x reduction in cost/sample (versus single-chip alternatives). Delivers clinically translatable human data earlier in discovery than ever before. Compatible with the PhysioMimix Multi-chip Liver-48 plate, plus all Single-organ Standard System's plates and guided software modules.



PhysioMimix Multi-organ Standard System

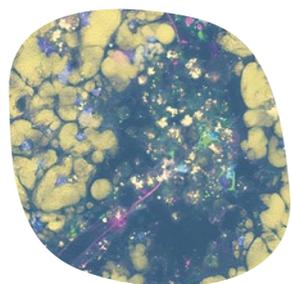
Providing additional functionality over the Single-organ Standard System, the Multi-organ System enables you to interconnect our liver model with an additional organ, such as the gut or lung.

Benefit from a deeper human-specific understanding of disease states and drug behavior by mimicking how organs interact and communicate as part of a complex system. Compatible with the PhysioMimix Multi-chip Dual-organ plate, plus those of the Single-organ Standard System, including guided software modules.

Application areas

Our models can be used for a myriad of applications in almost every step of drug discovery and development

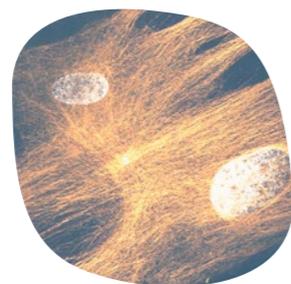
The capacity of microphysiological systems to accurately represent the human body makes them useful in furthering our understanding of disease mechanisms, uncovering potential therapeutic targets, and assisting with the safe and efficacious development of potential therapeutics.



Disease modeling

Studying disease models provides insight into disease cause and progression. Modeling specific disease states can help identify potential therapeutic approaches and assess drug efficacy.

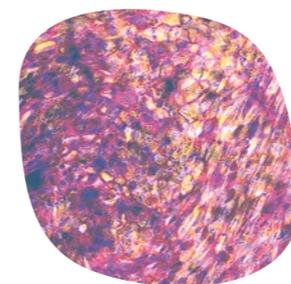
Our models functionally mimic the organ and give a realistic expression of the disease phenotype to ensure more clinically translatable data.



Safety toxicology

Many drugs with clean preclinical toxicity profiles will produce adverse effects in human trials.

Our predictive safety toxicology models closely mimic *in vivo* function and can more accurately predict drug safety allowing potential side effects to be addressed early in the drug discovery pipeline and avoid unexpected adverse effects in human trials.



ADME / Pharmacology

Determining the ADME properties of compounds is essential for lead optimization and candidate selection in early drug discovery.

Our single- and multi-organ models accurately mimic the complexity of the physiological environment and closely predict human *in vivo* pharmacokinetics.

PhysioMimix
Single-organ

PhysioMimix
Multi-organ

Disease modeling

✓	Metabolic diseases	✓
✓	Oncology	✓
✓	Infectious diseases	✓

Safety-Toxicology

✓	Drug-induced liver injury	✓
✓	Genotoxicity	

ADME/Pharmacology

✓	Drug absorption	✓
✓	Drug metabolism	✓
	Bioavailability	✓

Systems Biology

	Organ crosstalk	✓
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Consumables

PhysioMimix® consumables look and feel like standard cell culture plates to rapidly transition from 2D assays into organ-on-a-chip

Our consumables are compatible with the PhysioMimix OOC range of single- and multi-organ microphysiological systems. These plates allow users to adapt our models to suit their research needs, develop their own models, or bring existing models into a PhysioMimix format.



Liver plates

Designed to create optimal conditions for primary human hepatocytes and non-parenchymal cells in 12-, or 48-well plates.

12    48 



Barrier plate

Designed to achieve more physiologically relevant biological barrier models, such as gut and lung. Compatible with other organ models such as kidney.

3D validated cells

We've identified physiologically relevant cells that are validated to thrive in long-term 3D cell culture.

By choosing cells from our 3D validated cell catalog you can rapidly generate reliable and robust human translatable data from organ-on-a-chip research.



NASH-in-a-box

NASH-in-a-box contains everything required to recreate our industry-validated human *in vitro* non-alcoholic steatohepatitis (NASH) model in your laboratory.

Designed for use with our single- and multi-organ microphysiological systems they enable the rapid adoption of an organ-on-a-chip approach.



Dual-organ plate

Designed to enable two-organ communication between interconnected barrier and liver models.



System compatibility

-  PhysioMimix Single-organ Standard System
-  PhysioMimix Single-organ HT System
-  PhysioMimix Multi-organ Standard System

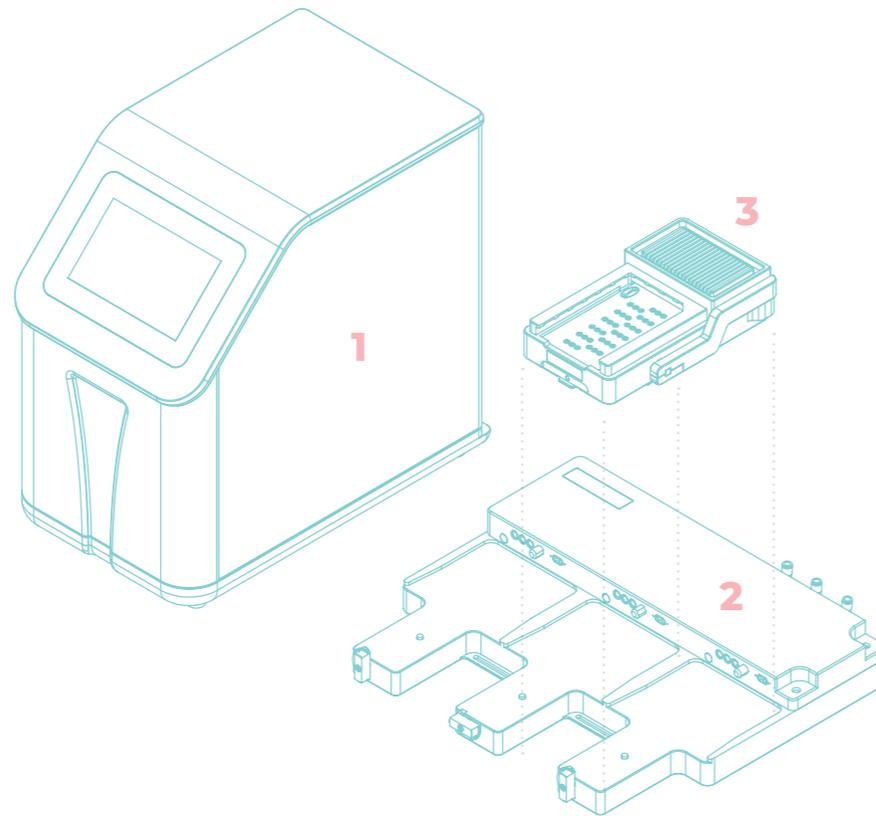
Tech spec

PhysioMimix® OOC systems include the following hardware:

- 1 Controller
- 2 Docking station(s)
- 3 Driver(s)

One standard software licence*

One-year manufacturer's warranty



* Additional modules are required for certain consumables and applications.

Product	Dimensions	Mass	Requirements	Cat. No
PhysioMimix Controller Controller capable of parallel operation of up to 6 Multi-chip plates mounted on 2 Docking stations	230 (W) x 430 (D) x 415 (H) mm	17.5 kg	Power Supply 100-240V~ 50/60Hz Maximum Power Consumption 500W	Single-organ Standard PMX-T1-CON Single-organ HT PMX-T1- HT-CON Multi-organ PMX-M1-CON
PhysioMimix Docking Station Docking station acts as an interface between the PhysioMimix MPS Driver and Controller	435 (W) x 380 (D) x 65 (H) mm	4.4 kg	Incubator with side/rear port. One Docking Station per shelf in a standard cell culture incubator	Single-organ PMX-T1-DS3 Multi-organ PMX-M1-DS3
PhysioMimix MPS Driver One Multi-chip plate per MPS Driver	135 (W) x 230 (D) x 55 (H) mm	1.9 kg		Single-organ Standard PMX-T1-MD6 Single-organ HT PMX-T1-MD7 Multi-organ PMX-M1-MD5

PhysioMimix OOC systems are CE marked and RoHS compliant. They comply with the following standards:

EN 61010-1:2010/A1:2019, EN 61326-1:2013 and 47 CFR Part 15.

Resources hub

Dive deeper into our technology, its applications, and how its helping enhance the development of tomorrow's medicines around the world



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SOPs

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