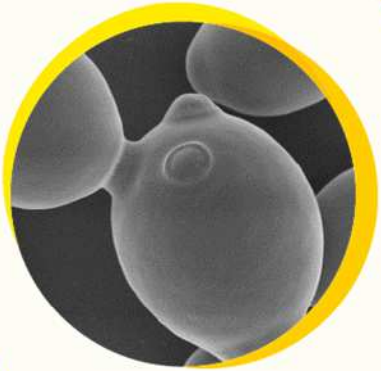
LINK-J セミナー
ショートプレゼンテーション

オリエンタル酵母工業株式会社の
ＭＰＳに対する取り組み

2025 年 10 月 16 日（木曜日）



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オリエンタル酵母工業株式会社

HESPEROS
THE HUMAN-ON-A-CHIP COMPANY

Dr. Hickman

- **設立**: 2015年
- **拠点**: アメリカ フロリダ
  Dr. Shuler and Dr. Hickman
- **社員**: 50人 (生物学者、表面化学者、エンジニア)
- **特徴**: Human-on-a-Chip® プラットフォーム
  CROサービスに特化 (製薬、化粧品、食品)
  Pharmacologyに強み
  20以上の特許を保有

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Human-on-a-Chip® (HoaC) プラットフォーム

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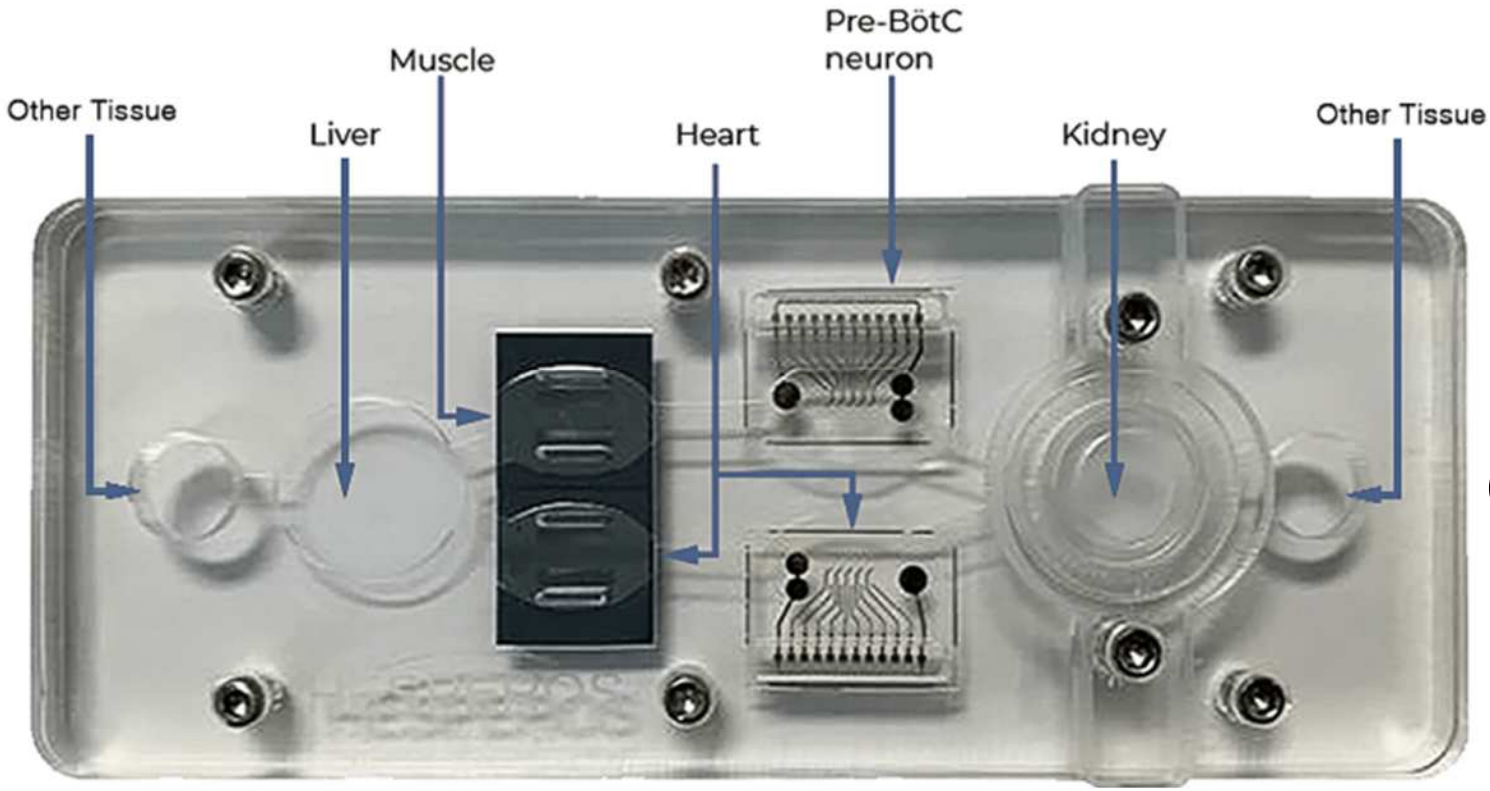
THE HUMAN-ON-A-CHIP COMPANY



2-5 Organ+

Custom Models

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Human-on-a-Chip® (HoaC) プラットフォーム

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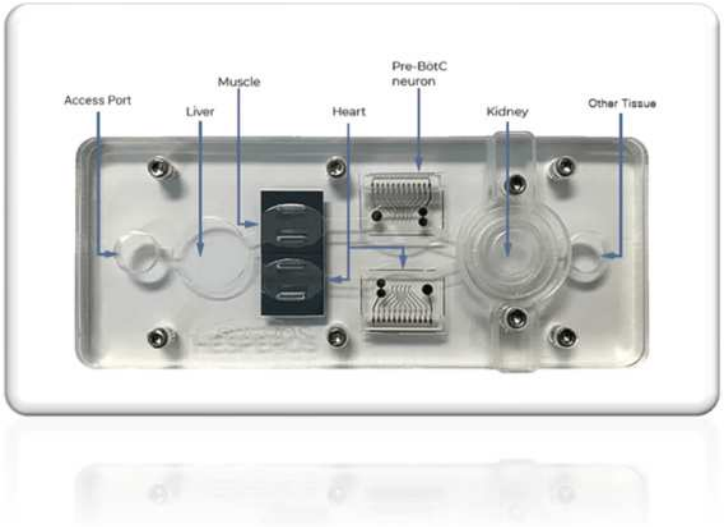
Key Advantages

Custom design and Home made

- **Efficacy & Toxicity**
- **Flexible & Reconfigurable**
- **Scalable**
- **Serum Free**



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Human-on-a-Chip® (HoaC) プラットフォーム

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モデル例

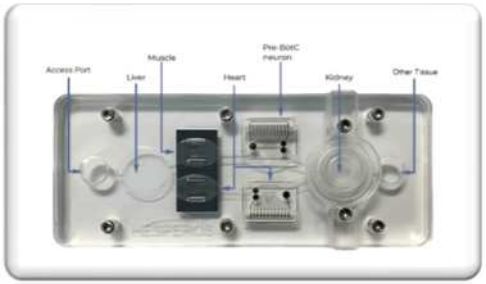
2 Organ	3 Organ	4 Organ
Base efficacy & toxicity models	A more complete view of the human body	Our most advanced, standard system
Heart-Liver	Heart-Liver-Cancer	Heart-Liver-Neuron-Muscle
Neuromuscular Junction (NMJ)	Heart-Liver-Skin	

Absorption, Distribution, Metabolism, Excretion (ADME)

Drug-Drug Interactions

Disease Modeling

Safety & Efficacy, simultaneously



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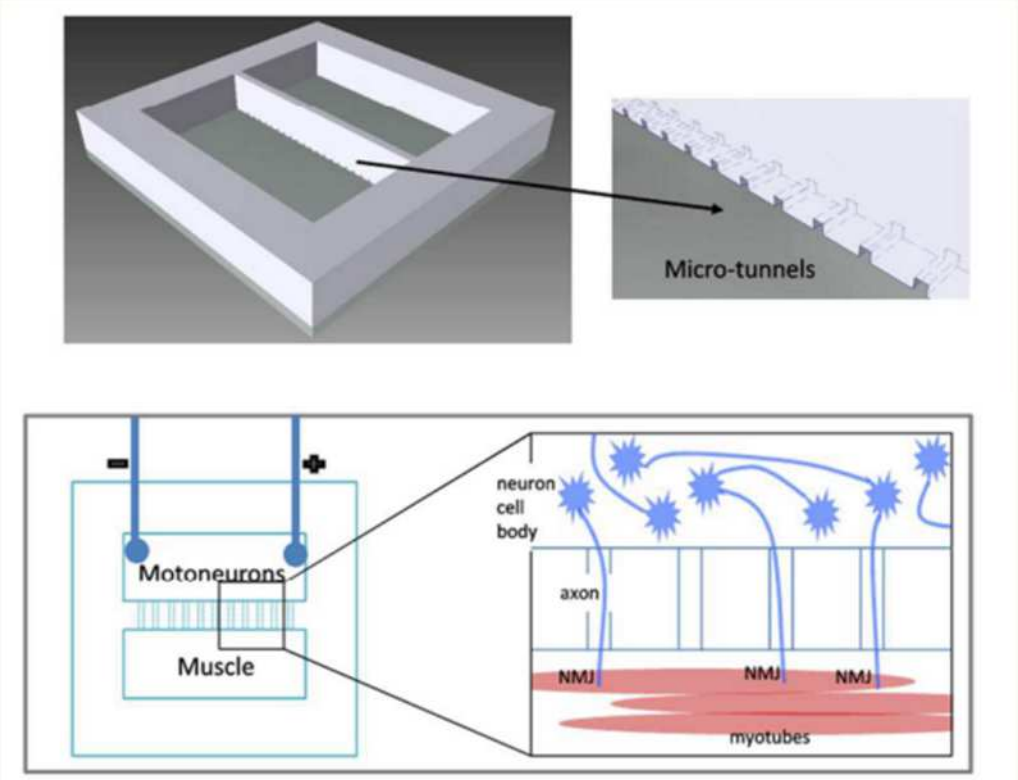
Human-on-a-Chip® : NMJ プラットフォーム



- PDMS modeled chambers bonded to glass coverslips
- Two chambers separated by micro-tunnels
- Motoneurons send axons thorough tunnels and form NMJs
- Electrical stimulation and drug partitioned by barrier

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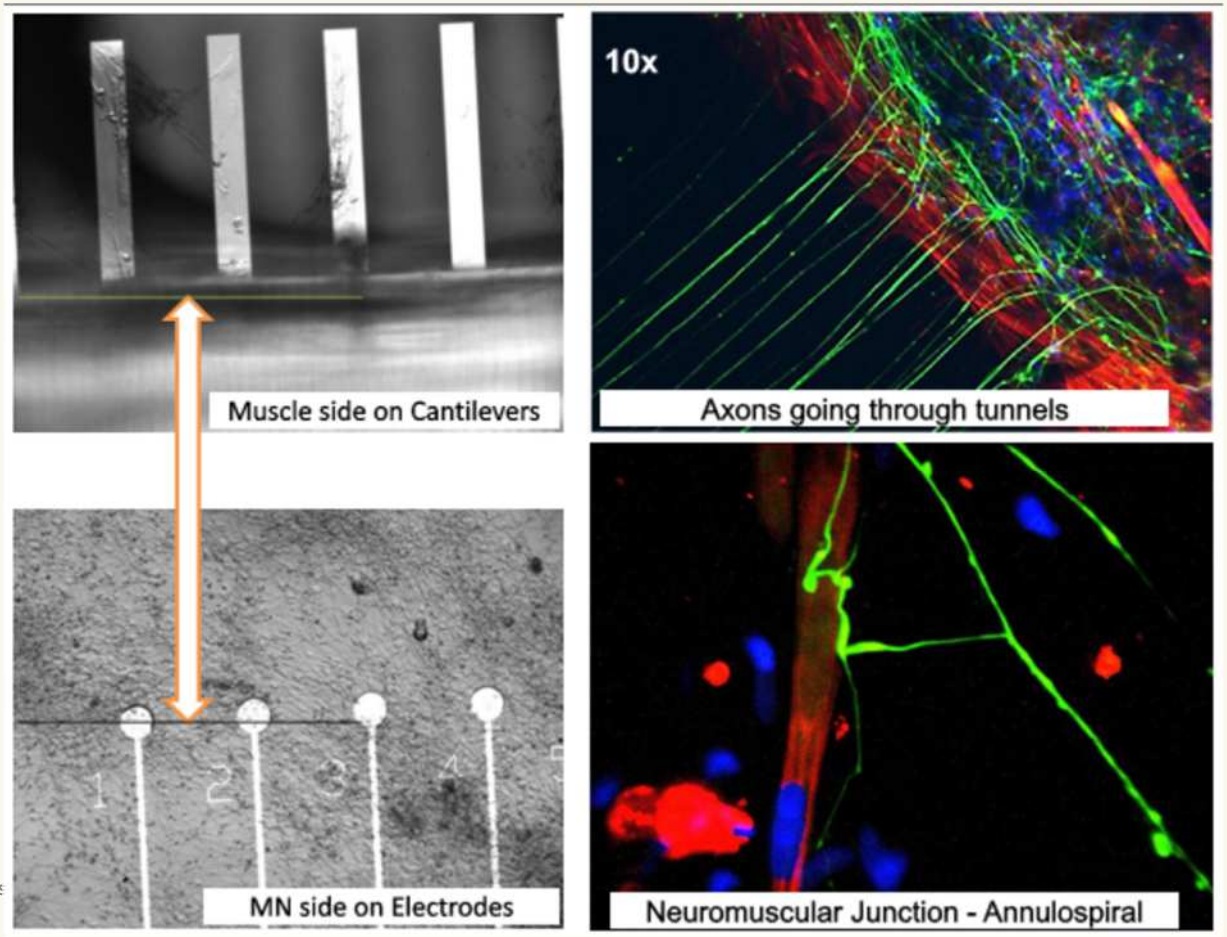
Human-on-a-Chip® : NMJ プラットフォーム



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Phase II / III	Trial	Indication	Asset	Sponsor	Hesperos Contribution
II	Proof-of-Concept [NCT04658472]	Chronic Inflammatory Demyelinating Polyneuropathy (CIDP)	TNT005	Sanofi	Using patient sera, Hesperos' conduction velocity model confirmed the ability of TNT005 (riliprubart) a C1s inhibitor to hinder complement activation and downstream membrane attack complex (MAC) formation.
III	MOBILIZE [NCT06290128]	Chronic Inflammatory Demyelinating Polyneuropathy (CIDP)	Riliprubart	Sanofi	The successful Phase II trial enabled a Phase III trial to investigate the efficacy of riliprubart compared to placebo in adult participants with CIDP whose disease is refractory to standard of care.
III	VITALIZE [NCT06290141]	Chronic Inflammatory Demyelinating Polyneuropathy (CIDP)	Riliprubart	Sanofi	The successful Phase II trial enabled a second Phase III trial to evaluate efficacy of riliprubart compared to IVIg in adult participants with CIDP who are receiving maintenance treatment with IVIg.
II	MOMENTUM [NCT06537999]	Multi-focal Motor Neuropathy (MMN)	DNTH-103	Dianthus Therapeutics	Using Hesperos' conduction velocity model to induced a dysfunctional neuronal phenotype using patient sera in healthy co-cultures of iPSC derived motoneurons and primary Schwann cells mediated by autoantibodies to determine efficacy of DNTH103 and complement deposition.
III	CAPTIVATE [NCT06858579]	Chronic Inflammatory Demyelinating Polyneuropathy (CIDP)	DNTH-103	Dianthus Therapeutics	This Phase III study is designed to demonstrate the efficacy of DNTH103 compared to placebo in participants with chronic inflammatory demyelinating polyneuropathy (CIDP).
II	MERIDIAN [NCT04579666]	Amyotrophic lateral sclerosis (ALS)	Pegcetacoplan	Apellis Pharmaceuticals	Efficacy of pegcetacoplan (APL2) was determined using Hesperos' NMJ-ALS neuroinflammation system to evaluate the most common amyotrophic lateral sclerosis (ALS) mutation (aka 'sporadic' ALS) involving TDP43 and one of the most common rarer types that involves SOD1—a form of 'familial' ALS.
II	ReALiSe [NCT06441682]	Amyotrophic lateral sclerosis (ALS)	ARGX-119	Argenx	Efficacy of ARGX-119 to ameliorate neuromuscular deficits in sporadic and familial types of ALS associated with TDP43 and SOD1 phenotypes, respectively, was confirmed using Hesperos' neuromuscular junction (NMJ) model.
II	MAGIC [NCT06282159]	Myasthenia Gravis (MG)	DNTH-103	Dianthus Therapeutics	Employing Hesperos' neuromuscular junction (NMJ) model, comprised of healthy iPSC-derived motoneurons and skeletal muscle myotubes, a MG phenotype was induced using patient sera; the results found that DNTH103 anti-active C1s antibody ameliorated deficits in NMJ functionality and complement deposition.
II	CMTA-STAR	Charcot-Marie-Tooth Type 2S	VCA-894A	Vanda Pharmaceuticals	Using Hesperos' NMJ model, an antisense oligonucleotide (ASO) wasndesigned to treat Charcot-Marie-Tooth disease type 2S (CMT2S), an ultra-rare for of CMT. VCA-894A has been shown to restore IGHMBP2 gene expression in Hesperos' NMJ models.

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Phase	Trial	Indication	Asset	Sponsor	Hesperos Contribution
					speros' conduction velocity model confirmed the ability of TNT005 (riliprubart) er complement activation and downstream membrane attack complex (MAC)
					e II trial enabled a Phase III trial to investigate the efficacy of riliprubart
	VITALIZE [NCT06290141]	Demyelinating Polyneuropathy (CIDP)			
	MOMENTUM [NCT06537999]	Multi-focal Motor Neuropathy (MMN)			
	CAPTIVATE [NCT06858579]	Chronic Inflammatory Demyelinating Polyneuropathy (CIDP)			
	MERIDIAN [NCT04579666]	Amyotrophic lateral sclerosis (ALS)			
	ReALiSe [NCT06441682]	Amyotrophic lateral sclerosis (ALS)			
	MAGIC [NCT06282159]	Myasthenia Gravis (MG)			
	CMTA-STAR	Charcot-Marie-Tooth Type 2S	VCA-894A	Pharmaceuticals	Marie-Tooth disease type 2S (CMT2S), an ultra-rare for of CMT. VCA-894A has been shown to restore IGHMBP2 gene expression in Hesperos' NMJ models.

Human-on-a-Chip Data Enables Clinical Trial (NCT04658472) Highlighting Potential for In Vitro Approach in lieu of Animal Studies for Rare Neuromuscular Disorders

April 19, 2022 | Hesperos

This is the first investigational new drug (IND) filed using microphysiological systems data leading to the authorization of a Phase II clinical trial (NCT04658472).

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Press Release: Hesperos and Bayer Consumer Health Develop First Human-on-a-Chip® Model of Stress-Induced Cognitive Dysfunction

By Hesperos | October 7, 2025 | 0 Comments

Hesperos and Bayer unveil the first Human-on-a-Chip® model replicating stress-induced cognitive decline to advance non-animal CNS drug research.

Hesperos Demonstrates First Digital Twin of Human Disease Using Organ-on-a-Chip Platform

By Hesperos | July 22, 2025 | 0 Comments

Contact

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Ready to get started?

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