

Advancing global adoption of microphysiological systems: Progress and impact of the 3Rs Collaborative's MPS initiative

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What is the 3Rs Collaborative (3RsC)?

US-based non-profit organization facilitating collaborative opportunities to implement all 3Rs

- **Mission:** Advance better science - for both people & animals

Focused on 8 key initiatives:

- **Microphysiological systems**, translational digital biomarkers, artificial intelligence, refinement, NHP-specific refinement, compassion fatigue resiliency, environmental health monitoring & 3Rs certificate course

What are the 3Rs?

The 3Rs are internationally accepted principles for the ethical consideration of animals in research

- 1. Refinement:** minimize pain, suffering & distress of research animals
- 2. Reduction:** minimize # of animals for good quality data
- 3. Replacement:** technologies which avoid, or replace, use of animals

*Microphysiological systems primarily address replacement although they can sometimes contribute to refinement & reduction.

3RC Microphysiological Systems Initiative: Driving Industry Adoption & Member Visibility

WHY

MPS have potential for drug discovery & development BUT implementation is currently low

GOAL

Increase adoption & regulatory acceptance of MPS, in coordination with animal studies

WHO

117 individuals from commercial developers/enabling companies, 3 consultants, 8 end-users, 3 regulatory representatives, 4 additional stakeholders.

WHAT

3 workstreams focused on:

- **Regulatory**
- **End-User Engagement**
- **Technology Expo**

3 Primary Workstreams: Regulatory, End-User Engagement, & Technology Expo

1. Website Hub

Microphysiological Systems
 We collaborate to increase industry adoption & regulatory use of microphysiological systems.

Join our Initiative | Visit our Tech Hub

Microphysiological Systems | MPS Tech Hub | MPS Publication Hub | Presentations | MPS for Regulatory Applications

MPS & the FDA Modernization Act | Conferences | Initiative FAQ & How to Join

- Overview:** MPS include tissue models like spheroids, organoids and organs-on-chips
- FDA Acts:** 10 important points & takeaways from the FDA Modernization Act & what it means for MPS
- Presentations:** MPS overview, Past webinars
- Tech Hub:** End users: explore available technologies; Companies: share yours!
- Publication Hub:** End users: explore peer-reviewed publications; Companies: share yours!
- How to Join:** Who can be a member? How do you benefit? What makes us unique?

2. Regulatory Advancement

Advances appropriate use of MPS in regulatory submissions, especially to FDA Center for Drug Evaluation & Research (CDER)

- Publication:** The Use of MPS in 3Rs & Regulatory Applications: Perspectives from Developers on Stakeholder Responsibilities
- DILI (drug-induced liver injury) project:** working with 6 core stakeholders & 8 developers on a cross-platform project building confidence
- Thought leadership, discussions, and presentations on regulatory acceptance** at 3D Tissue Summit, MPS World Summit, 3Rs Sharing Conference and more
- In Progress:** Benchmarking survey on use of & attitudes towards MPS in discovery versus development.

3. 3RsC & IQ MPS Webinar Series

The 3RsC has a formal partnership with the International Consortium for Innovation & Quality (IQ) MPS Affiliate to put on a series of webinars to **facilitate communication between MPS technology providers and end-users.**

Year	Topics	Max Attendees
2022	Kidney, Liver, Neuro	77 attendees
2023	BBB, Vasculature, GI, Lung	149 attendees
2024	Immune & Lymph, Neuromuscular & Fibrosis, Cell Sources & Suppliers, Oncology	162 attendees
2025	AI/ML + Retina & Ocular, Multi-organ, I STAND Program, Drug Development	291 attendees
2026	Heart, June 8 & 9: Liver, Sep 8 & 9, Dec 1 & 2	121 attendees

COMING SOON
 June 8 & 9: Liver MPS | Sept. 8 & 9: TDB | Dec. 1 & 2: TDB

4. Technology & Publication Expos

MPS Tech Hub

Explore 48 MPS companies offering commercially available in vitro models or enabling technologies.

Filter by:

<https://3rc.org/mps/tech-hub>

Tissue: 26 tissues | Disease: 23 diseases | Species: 5 species

MPS Publication Hub

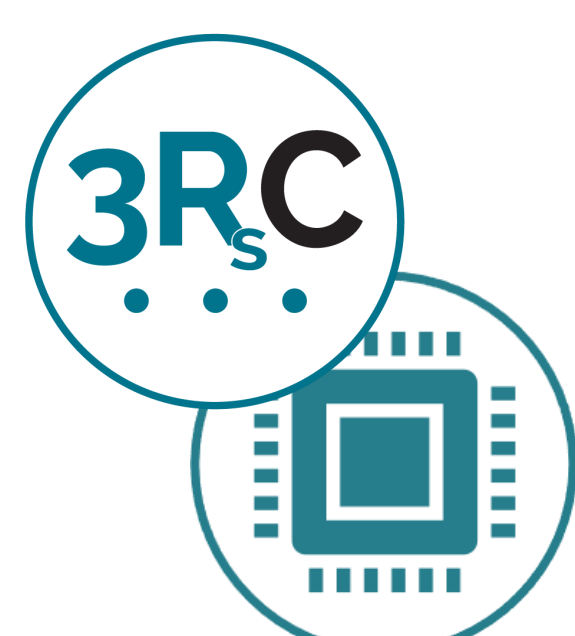
Explore >375 peer-reviewed MPS publications with key filters. Searchable by title & abstract.

Filter by:

<https://3rc.org/mps/publication-hub>

Year, Article Type, Tissue, Disease, Application

3RsC MPS Initiative



Thank you to all the individuals and companies that are members of the 3RsC MPS initiative for their contributions to the work presented within this poster and your continued support!

Interested in joining?

Benefits of Joining

- Networking with Developers, End-Users, Regulators
- Year-Round Company & Product Visibility
- Support Critical MPS Advancement & Policy



Scan here to learn more & apply to join



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