Facilitating Global Connections Through the Microphysiological Systems for COVID Research (MPSCoRe) Working Group

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The emergence and global spread of the coronavirus disease 2019 (COVID-19) emphasizes the need for effective approaches to prevent, control, and treat infectious diseases. Although animal models have historically been used to address such challenges, human cell-based *in vitro* platforms known as microphysiological systems (MPS) have the potential to more efficiently and effectively model the human lung and other organ systems affected by COVID-19. However, absent a venue for coordination, widespread application of MPS to COVID-19 research presents a risk of overlapping investigations and duplication of efforts among researchers. The MPS for COVID Research (MPSCoRe) working group was organized to reduce this risk by globally connecting key MPS stakeholders from the research, method development, drug and vaccine manufacturing, and regulatory sectors. The working group facilitates open communication among stakeholders to maximize the impact of MPS technologies in understanding disease mechanisms and treatments and reducing animal use while improving human health. In this way, the group aims to promote adoption of MPS for studying COVID-19 and future emerging infectious diseases. Activities currently supported by MPSCoRe include a proof-of-concept study to evaluate MPS models for testing the safety and efficacy of novel COVID-19 therapeutics. Additionally, MPSCoRe is supporting development of a web-based repository for sharing COVID-19 experimental data and other MPS resources. These efforts will accelerate the development and adoption of MPS in infectious disease research, thereby reducing the reliance on animal models in this space. This project was funded with federal funds from NIEHS, NIH under Contract No. HHSN273201500010C.