Postdoctoral Researcher at the intersection of virology and fluid physics

We are looking for a highly motivated individual as a postdoctoral researcher on a collaborative project at the interface of Fluids and Health driven by the Fluid Dynamics of Disease Transmission Laboratory at MIT, Cambridge, MA and the Mühlberger Laboratory at the National Emerging Infectious Diseases Laboratories (NEIDL) at Boston University, Boston, MA. The Fluid Dynamics of Disease Transmission Laboratory at MIT, directed by Prof. Bourouiba, has a strong research focus on fluid dynamics and modeling of infectious disease transmission and medical applications at various scales. Dr. Mühlberger’s laboratory at the NEIDL has a strong research focus on viral replication strategies and pathogenesis mechanism of highly pathogenic viruses, including filoviruses, henipaviruses, and more recently, SARS-CoV-2.

The project will focus on the study of currently poorly understood mechanisms of respiratory virus transmission through the lens of fluid- and bio-physics and will be part of an interdisciplinary effort to tackle important knowledge gaps in our understanding of the various phases of host-to-host transmission that are the root of pandemics for a range of viral diseases. Viruses of interest include SARS-CoV-2 and Nipah virus among others. Following applicable background checks and training, this position will require work in the Biosafety Level 4 (BSL-4) facility at the NEIDL. The individual will be co-mentored by Profs. Bourouiba and Mühlberger and be part of an integrated collaborative interdisciplinary team of virologists, biologists and physical and engineering scientists in their two labs and collaborating labs of Profs. Heldt and Gray at the Institute of Medical Engineering and Sciences of MIT. Specialized training in BSL-4 cell culture infection studies and fluid- and bio-physics concepts will also be provided by the collaborating laboratories.

A Ph.D. in virology, microbiology, biomedical engineering, or other engineering or physical science disciplines is required. Experience in biophysics and modeling, microfabrication and microfluidics is strongly desired. The candidate should have experience in molecular biology and BSL-2 virology with a focus on RNA viruses.

The work to be performed includes SARS-CoV-2 and Nipah virus cell culture infection studies, microscopy and spectroscopy analyses, designing and prototyping devices at various scales using additive/subtractive/molding techniques, functionally testing devices for use in the virological studies, and quantitative analyses of the obtained results, with interfacing with the modelling team members.

Further requirements include the ability to work independently and as part of a team in a multidisciplinary setting, the desire to meet and exceed expectations, a proven commitment to producing accurate, high-quality work, the ability to independently manage time, write, and prioritize deadlines. The candidate is also expected to maintain a safe work environment, prepare regular written reports and presentations, and engage in team and sponsor meetings.

Apply by sending the application package by email to bgadmin@mit.edu with the subject line including the following [Fluids and Viruses: Postdoctoral Position] and attaching a cover letter explaining interest in the job and research vision, CV, a research statement highlighting fit, and three publications considered by the applicant to be representative of their strength and most important contributions and explaining how they showcase their fit and potential for growth and contribution for this position.

Applications will be reviewed on a first come basis until the position is filled.