

Keynote Symposium

KS-1

Advancing Cell Culture to Meet Scientific and Societal Needs. THOMAS HARTUNG. Johns Hopkins Bloomberg School of Public Health, 615 N. Wolfe St., W7032, Baltimore, MD 21205. Email: thartun1@jhu.edu

Science has become a central societal driver; in turn, substantial funding but also enormous expectations as to the benefit from science have been created. These include expectations to provide us with safe and effective drugs as well as protect us against toxicants. While drug development is based on a competition of ideas, the safety sciences largely lack this competition employing often protocols in essence unchanged for more than 50 years. Bioengineering and stem cell technologies have changed the way cell culture can be carried out. This is increasingly embraced in the drug development process, as just evidence in the race to find drugs and vaccines for COVID-19. It is timely, to leverage these technologies also for the safety of patients and consumers, where both an enormous ignorance of the potential risks of large numbers of substances and chemophobia fueled by precautionary approaches and disproportionate risk communication are the consequence. The advent of microphysiological

systems (MPS), i.e., cell cultures replicating aspects of organ architecture and functionality represent a key scientific opportunity to develop more relevant test systems and serve society. In combination with the novel computational tools from machine learning (A.I.) and improved objective and transparent handling of the resulting evidence, science, economical applications, regulation and policy-making are served. The field of MPS is forming with dedicated conferences, societies, journals, best practices for culture (GCCP 2.0) and reporting standards, and educational offers.

