

KEYNOTE WEBINAR

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Novel human cell models in drug development:

***How 3D, Organoids & Organs on Chips can improve and renew
current paths and our vision for the future***

Using human-relevant, translational in vitro models has been widely considered to reduce attrition during drug discovery and development. Over the past decade a considerable hype emerged regarding the transformative potential of microphysiological systems for pharmaceutical research; yet - while it is agreed that such models could bring value - currently, mostly proof-of-concept studies are available and widespread application is still lacking. Thus, while acknowledging the opportunity and value such human relevant cell systems could provide, the adoption by pharma companies is moderate. Realizing the full potential of these models will need more clear use-cases demonstrating clinical translation, improvements on technical ease of use and greater collaboration between stakeholders. Furthermore, it is proposed that refining existing platforms for specific contexts of use where significant gaps exist in drug development will help broader application, rather than unrealistic claims that microphysiological systems can right away replace the complete drug discovery engine at once. Key advantages of such tissue systems over traditional pre-clinical models, e.g., the ability to mimic human-specific biology such as immunology or defined contexts of rare diseases should be further exploited to establish more use cases that demonstrate true added value. Modeling & analytics can help with back- and forward translation using real world data. Furthermore, the ability to generate patient-derived tissue models will allow personalization of treatments and support precision medicine approaches in clinical trials.



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