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Organs-On-A-Chip: A New Tool for Drug Discovery

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Abstract : Novel micro fluidic tools allow new ways to manufacture and test drug delivery systems, Organ-on-a-chip systems microscale recapitulations of complex organ functions promise to improve the drug development pipeline. This review highlights the importance of integrating micro fluidic networks with 3D tissue engineered models to create organ-on-a-chip platforms, able to meet the demand of creating robust preclinical screening models. Specific examples are cited to demonstrate the use of these systems for studying the performance of drug delivery vectors and there by reduce the discrepancies between their performance at preclinical and clinical trials. We also highlight the future directions that need to be pursued by the research community for these proof- of-concept studies to achieve the goal of accelerating clinical translation of drug delivery nanoparticles.

Keywords: Organs-on-a-chip, Animal Testing, Micro physiological Systems Technology.

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