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Kidney MicroPhysiological Models for Nephrotoxicity Assessment

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Current drug discovery models, including 2D in vitro culture and in vivo experiments, must improve their efficiency and limitations in predicting human responses. Microphysiological systems may be superior for advanced alternative tests to overwhelm these limitations.
MPS is modeling human tissues in micro physiologically relevant chips. Three common causes of AKI are ischemia, drug nephrotoxicity, and infection/sepsis. We mimic several nephrotoxic models using gentamicin, colistin, and radiocontrast media. We also developed ischemic and LPS-induced injury models in kidney chips.
Future nephrotoxic models may guide organ-organ interactions such as liver and kidney, lung and kidney, or intestine and kidney.