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Tumor-on-a-chip in an integrated microfluidic platform

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Organoid and organ-on-a-chip technologies are rapidly advancing towards deployment for drug and toxicology screening applications. The organoids replicate native tissue structure and function and thus are superior to traditional 2D cultures in order to study organ development, function and drug toxicity. We developed an assortment of bioengineered tissue organoids and tissue constructs that are integrated in a closed circulatory perfusion system, facilitating inter-organ responses.

We observe drug responses that depend on inter-tissue interaction, illustrating the value of multiple tissue integration for in vitro study of both the efficacy of and side effects associated with candidate drugs. Other applications focus on diseases such as tissue fibrosis and cancer. Specifically, to study tumor growth and drug response for future use in personalized/precision medicine

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