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Stem Cell Derived Placenta-On-A-Chip

Tech ID: 33767 / UC Case 2024-926-0

BRIEF DESCRIPTION

This technology offers a groundbreaking approach to mimic human placental development and study pregnancy-related complications in vitro.

FULL DESCRIPTION

Researchers at UC Irvine have developed a placenta-on-a-chip technology utilizing human induced pluripotent stem cells (iPSCs) to create placental organoids within a microfluidic device, simulating the human placental environment and its interactions with maternal vasculature. This innovative platform enables the study of placental development, drug toxicity, and various pregnancy-associated complications without the ethical and practical limitations of using human subjects.

SUGGESTED USES

- » Research and development in developmental biology and maternal health.
- » Drug toxicity and efficacy testing specific to pregnancy.
- » Advanced academic and pharmaceutical research into pregnancy complications and fetal development.
- » Innovative platforms for studying the effects of environmental factors on placental and fetal health.

ADVANTAGES

- » Enables the study of human placental development and diseases in vitro.
- » Overcomes ethical and accessibility issues associated with using human subjects and placental samples.
- » Provides a physiologically relevant model with the inclusion of vascular structures.
- » Offers an unlimited source of placental cells for research purposes.
- » Facilitates disease modeling and toxicity screening with higher reproducibility and lower costs.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

CATEGORIZED AS

- » **Medical**
 - » Research Tools
- » **Research Tools**
 - » Other
 - » Screening Assays

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