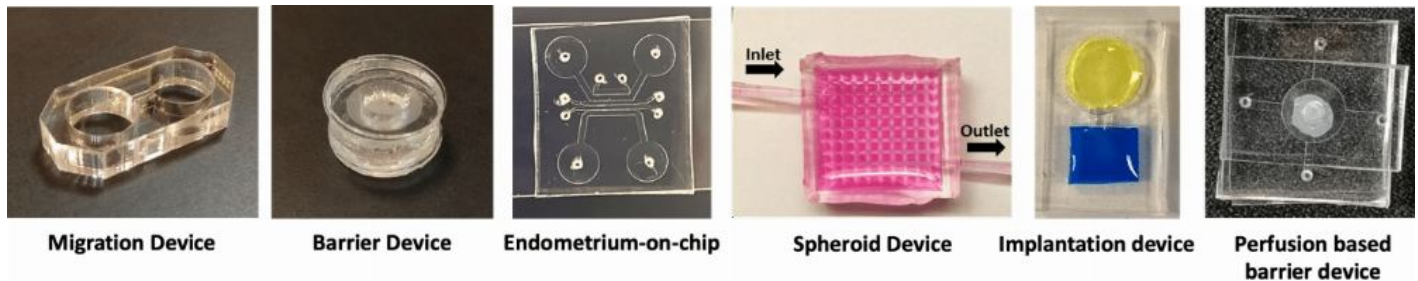


Placenta on Chip

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About Placenta on Chip

- A bunch of devices mimicking the placenta at various **stages of pregnancy can help in drug discovery, study of toxicity of chemicals like caffeine**, and understanding the effects of conditions such as preeclampsia and diabetes mellitus during pregnancy.
- In pregnancy, the placenta shields the baby from harmful drugs and chemicals. But some can still cross this barrier and cause harm to the baby in the womb.
- Thus, pregnant women are not given most medications and they continue to suffer. Determining which medicines can be given during pregnancy that would not cross the placenta is a daunting task.
- Researchers **have used microfluidic technology which can integrate processes**, to create an environment that represents basic organ structure and functions of the placenta.
- The placenta in a lab dish developed by the team **allows different cells to interact with each other, incorporate mechanical properties** and mimic the blood flow, which closely resembles the in-vivo condition.
- Among various available POC models, these devices are more suitable for probing placental development as well as diseases caused due to defects in the placenta. Also, patient-specific sample screening will be possible for personalised medicine.

Advantage of placenta-on-chip

- It will **enable early detection of adverse conditions** and allows researchers and healthcare professionals to observe, study, and identify potential issues that may arise during pregnancy.
- It enables the **study of placental function, detection of complications**, personalized medicine, and the development of new therapies.

Q1) What is placenta?

The placenta is a temporary organ that develops during pregnancy to provide essential nutrients and oxygen to the developing fetus and remove waste products. It forms inside the uterus and attaches to the uterine wall, connecting to the fetus via the umbilical cord.

Source: [Bunch of new Placenta in chip devices can help making pregnancies safe](#)

Source: <https://vajiramandravi.com/current-affairs/placenta-on-chip/>

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