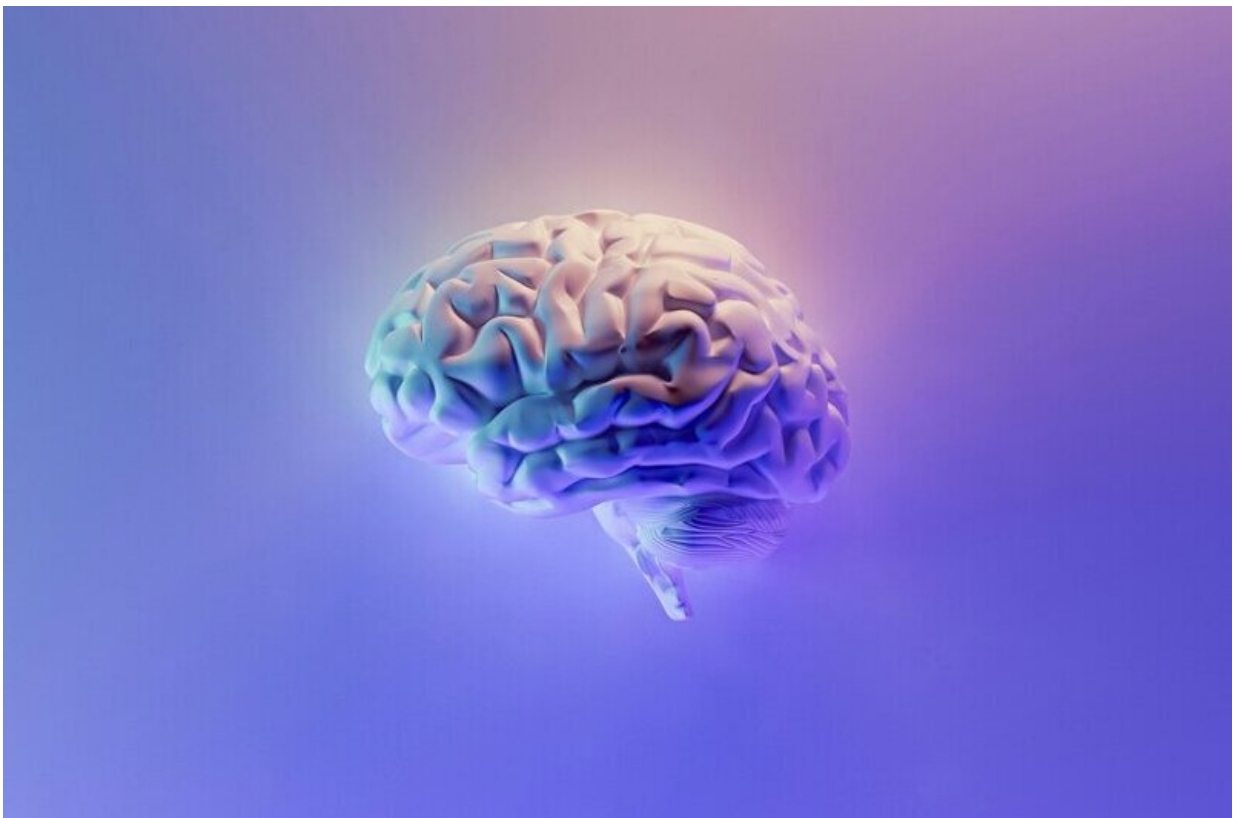


Exploring ethical and legal ramifications of growing brain organoids from human fetal brain tissue

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Credit: Unsplash/CC0 Public Domain

Brain organoids, though often referred to as "mini brains," are not truly human brains. But the concerns over these lab-grown brain tissues,

especially when they are developed from human fetal tissues, can be very human indeed.

Researchers from the Graduate School of Humanities and Social Sciences at Hiroshima University offer valuable insights into the complexities inherent in brain organoid research, making significant contributions to the ongoing discourse surrounding this innovative biotechnology and paving the way for informed decision-making and legal and ethical stewardship in the pursuit of scientific advancement.

Their paper was published on in [*EMBO Reports*](#).

Brain organoids are three-dimensional human brain tissues derived from stem cells, which are capable of developing into many different cell types. They replicate the complexity of the human brain in a laboratory setting, allowing researchers to study [brain development](#) and diseases in the hopes of acquiring vital insights and making innovative medical advancements.

Traditionally, brain organoids are grown from [pluripotent stem cells](#), an especially potent sub-type that is typical of early embryonic development, but new technologies now make it possible to generate these organoids from human fetal brain cells. This method comes, however, with even more heated legal and ethical debates about brain organoids—debates that are already intense in conventional organoid research.

"Our research seeks to illuminate previously often-overlooked ethical dilemmas and legal complexities that arise at the intersection of advanced organoid research and the use of fetal tissue, which is predominantly obtained through elective abortions," said Tsutomu Sawai, an associate professor at Hiroshima University and lead author of the study.

The study highlights the urgent need for a sophisticated and globally harmonized [regulatory framework](#) tailored to navigate the complex ethical and legal landscape of fetal brain organoid (FeBO) research. The paper emphasizes the importance of informed consent protocols, ethical considerations surrounding organoid consciousness, transplantation of organoids into animals, integration with computational systems, and broader debates related to embryo research and the ethics of abortion.

"Our plan is to vigorously advocate for the development of thorough ethical and regulatory frameworks for brain organoid research, including FeBO research, at both national and international levels," said Masanori Kataoka, a fellow researcher at Hiroshima University.

"Rather than being limited to issues of consciousness, it's imperative, now more than ever, to systematically advance the ethical and regulatory discussion in order to responsibly and ethically advance scientific and medical progress," Sawai said.

Moving forward, the research duo plans to continue supporting the advancement of ethical and regulatory discussions surrounding brain organoid research. By promoting responsible and ethical progress in science and medicine, they aim to ensure that all research involving [brain organoids](#), including FeBOs, is conducted within a framework that prioritizes human dignity and ethical integrity.

More information: Tsutomu Sawai et al, The ethical and legal challenges of human foetal brain tissue-derived organoids, *EMBO Reports* (2024). [DOI: 10.1038/s44319-024-00099-5](https://doi.org/10.1038/s44319-024-00099-5)

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