Larger than a Small Brain – The Bioethical Implications of Brain Organoid Research

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What?

Organoids are artificial, stem cell-derived **structures that replicate human organs** on a micro scale. They can be used to model normal organ development as well as pathogenesis – but what if they could develop "feelings" too?

Why?

Brain organoids have a variety of applications in neuroscience, but they also constitute a **bioethical minefield.** They are capable of **self-patterning,** developing **active neuronal networks** and **responding to stimuli** [1] – what does this entail?

*'If we make our models "too good," they may themselves deserve some of the kinds of **ethical and legal respect** that have limited brain research in human beings.'*[2]

Who?

Brain organoids have been used with some success to investigate developmental brain disorders such as **microcephaly** and **ASD**, as well as **neurodegenerative disease** and **brain tumours**. Future applications could include transplantation therapy for neurodegenerative disorders, and drug screening.

Author Comments

While stem cell research has always been bioethically sensitive, fundamental questions about the **reproducibility of consciousness** make brain organoids applications especially vulnerable to both **unethical practice** and **media misrepresentation**. A transparent bioethical framework, often invoked,[3] will be vital to keep this line of research viable.

References

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