



# HUMAN BRAIN ORGANOID TRANSPLANTATION

TESTING THE FOUNDATIONS OF ANIMAL RESEARCH ETHICS

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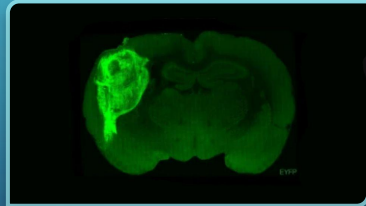
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# HUMAN BRAIN ORGANOIDS (HBOS)



# TRANSPLANTING HUMAN BRAIN ORGANOIDS INTO NON-HUMAN ANIMALS



## Goals:

- Achieve greater maturation & complexity than *in vitro*
- Test new drugs
- Study new methods of brain repair

# CONCERNS ABOUT “HUMANIZATION” & ANIMAL ENHANCEMENT



- 2 kinds of brain enhancement in animals:
  1. **Enhancements that cross ethically relevant threshold & substantially alter animal's moral status;**
  2. Enhancements that don't have that effect, though might still be ethically relevant.

# ANIMAL ENHANCEMENT THROUGH HBO TRANSPLANTATION: A PREMATURE CONCERN?

- Suggested f. ex. by the International Society for Stem Cell Research (ISSCR)'s 2021 guidelines on stem cell research
  - “any statements implying human cognitive abilities, human consciousness or self-awareness, as well as phrases or graphical representations suggesting human-like cognitive abilities risks misleading the public and sowing doubts about the legitimate nature of such research” (ISSCR, 2021)

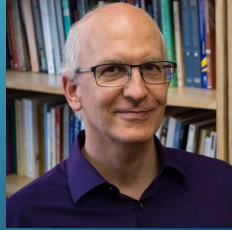


Insoo Hyun



# CHALLENGING THE SKEPTICAL POSITION

- Cognitive threshold it sets for full moral status is too demanding
  - Ex: Hyun requires “human-like” self-consciousness
- Lower cognitive threshold more plausible: that associated with great apes
- Cf. DeGrazia’s (2007) idea of “borderline person”
  - Animals transplanted with HBOs, esp. primates, could potentially achieve that status

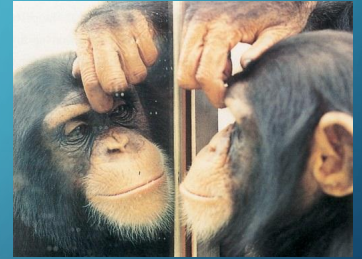


# WHY PREFER THIS LOWER THRESHOLD?

- Moral caution appropriate given that requiring “human-like” self-consciousness for full moral status is not intuitively compelling
- Secures needed consistency with existing protections for great apes
- Increases range of humans who deserve protection from harmful research on intrinsic grounds (compared with skeptical position)

# IDENTIFYING BORDERLINE PERSONS AMONG ANIMALS TRANSPLANTED WITH HBOS

- Exact nature of cognitive threshold should be established via dialogue & consensus-building among experts
- Candidate tests for determining if threshold accidentally crossed:
  - Mirror test
  - Test for self-agency
  - False belief test: “goggles” test
  - A combination of such tests





# ETHICAL IMPLICATIONS OF TRANSPLANTED ANIMALS CROSSING THE THRESHOLD

- Animal entitled to greater protections vs. harmful treatment
- Standard of minimally acceptable QoL should be agreed on
- Not necessarily impermissible *in principle* to predictably enhance animal to full moral status
  - Yet may often be so in cases that might occur in foreseeable future





THANK YOU FOR YOUR  
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