

Ethics and Use of NHPs as Transgenic or Chimeric Models for Human Disease

Jeffrey Kahn, PhD, MPH

Andreas C. Dracopoulos Director

Johns Hopkins Berman Institute of Bioethics

Ethical considerations

- Why use non-human animals?
 - Science; similarity to humans and relevance to human translation
 - Argues for NHPs
 - Allows research on animals rather than humans
- The scientific reasons for using NHPs contribute to ethical considerations
 - The goal is to make them (more) similar to us
 - The models are meant to model human diseases and their symptoms
 - The better the model the more we can appreciate the impact of the symptoms on their experiences
 - If we are concerned about effects of symptoms on humans, shouldn't we be concerned about effects of symptoms on animals modeling the same diseases? And what to do about that?
- Does the particular disease matter?
 - What counts as sufficiently important research?
- Does the amount or type of “humanization” matter?
 - Which capacities matter?
 - How could they be assessed?
 - Is this question different in NHPs than in other species?

How to think about justification

- What are relevant reasons to create and use these models?
 - Echoing Steve Hyman, matching appropriate model with the research question to be answered
 - Limitations of research approaches on humans
 - Research question not possible to answer in humans or
 - Research not ethically permissible in humans
 - No other research model by which the knowledge could be obtained

Some potential features of appropriate oversight

- Specialized expertise in review
- Consideration of the scientific rationale in addition to animal care and use
 - Consensus-based criteria to apply
 - Identified by the community of researchers with input from relevant stakeholders
- Centralized review in addition to IACUC
- Additional features for animal care
- Should such oversight be applied only to NHP models or other animal species created and used in similar ways?