

**NATIONAL INSTITUTES OF HEALTH**  
**Workshop on Research with Animals Containing Human Cells**

**AGENDA**  
***November 6, 2015***

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**8:30 AM**      **Welcome and Opening Remarks**  
Francis Collins, MD, PhD – National Institutes of Health

**8:40 AM**      **State of the Science Overview**  
George Daley, MD, PhD – Harvard Medical School

***Session I: Introducing Human Pluripotent Cells into  
Early-Stage Non-Human Vertebrate Animal Embryos***

**9:00 AM**      **Panel Presentations**  
*Moderator:*

- Janet Rossant, PhD, FRS, FRSC – The Hospital for Sick Children

*Panelists:*

- Jacob Hanna, MD, PhD – Weizmann Institute of Science
- Juan Carlos Izpisua Belmonte, PhD – Salk Institute for Biological Studies
- Hiromitsu Nakauchi, MD, PhD – Stanford University School of Medicine
- Walter Low, PhD – University of Minnesota and Recombinetics Inc.
- Qi Zhou, PhD – Institute of Zoology, Chinese Academy of Sciences

**10:00 AM**      **Break**

**10:15 AM Discussion Session**

- What scientific questions are best addressed through the use of human/animal chimera models?
- What advances have been made using these models and what advances are on the horizon?
- Are there technical barriers or other limitations in this area of research?
- Would the use of cells from non-human primates (instead of or prior to use of human cells) be informative?

**11:30 AM Lunch**

***Session II: Introducing Human Neural Stem Cells or Progenitor Cells into Non-Human Vertebrate Animal Embryos or Fetuses***

**12:00 PM Panel Presentations**

*Moderator:*

- Rusty Gage, PhD – Salk Institute for Biological Studies

*Panelists:*

- Rudolf Jaenisch, MD – Massachusetts Institute of Technology
- Rick Livesey, MD, PhD – University of Cambridge
- Lorenz Studer, MD – Memorial Sloan Kettering Cancer Center
- Steven Goldman, MD, PhD – University of Rochester Medical Center

**1:00 PM Discussion Session**

- What scientific questions are best addressed through the use of human/animal chimera models?
- What advances have been made using these models and what advances are on the horizon?
- Are there technical barriers or other limitations in this area of research?
- Would the use of cells from non-human primates (instead of or prior to use of human cells) be informative?
- What are the types of cognitive and behavioral changes anticipated in these experiments and how are unexpected changes monitored?

**2:15 PM**      **Break**

***Session III: Ensuring the Responsible Conduct of Research with  
Animals Containing Human Cells***

**2:30 PM**      **Panel Presentations**

*Moderator:*

- Hank Greely, JD – Stanford Law School

*Panelists:*

- Jonathan Kimmelman, PhD – McGill University
- Nancy Lee, Blnt Bus, LLB, LLM – Wellcome Trust
- Patricia Olson, PhD – California Institute for Regenerative Medicine
- Kathryn Bayne, PhD, DVM – Association for Assessment and Accreditation of Laboratory Animal Care International
- Patricia Brown, VMD – National Institutes of Health

**3:30 PM**      **Discussion Session**

- Does the research discussed at the workshop raise unique animal welfare and safety issues?
- Is the existing oversight structure capable of evaluating and mitigating these concerns?
- Are there measurable behaviors to assess the impact of human neural cells/non-human primate neural cells on animal behavior and neurological function?
- Are there particular experimental outcomes that should be avoided?

**4:45 PM**      **Workshop Wrap-Up and Concluding Remarks**  
Carrie Wolinetz, PhD – National Institutes of Health

**5:00 PM**      **Adjourn**