

State of Knowledge and Research Needs Regarding Heritable Genomic Modification in Food Animals: A Workshop

February 27-28th, 2024 | Keck Center 500 5th Street NW, Washington, DC 20001 | Room Keck 100

TUESDAY, FEBRUARY 27TH, 2024

8:15-8:30 AM Welcome and Introductions

- Eric Hallerman, Committee Chair, *Virginia Tech University*- Opening remarks
- Committee members briefly introduce themselves.

8:30-9:30 AM *Session 1. Methods for generating heritable genetic modifications in food animals - Progress towards more precise CRISPR-based vectors.*

Moderator: Elizabeth Maga, *University of California Davis*

Panelists:

- Jonathan Gootenberg, *Harvard University*
- Omar Abudayyeh, *Harvard University*
- Jon Oatley, *Washington State University*

9:30-9:45 AM Break

9:45-12:30 PM *Session 2. Horizon scan – What traits might be pursued within the next two years?*

Moderator: Thomas Spencer, *University of Missouri*

Panelists:

- Mike McGrew, *Roslin Institute*
- Dan Carlson, *Recombinetics*
- Kevin Wells, *University of Missouri*
- Ross Houston, *BMK Genetics*
- Martin Lema, *National University of Quilmes*

12:30 PM Break for Lunch

2:00-3:30 PM *Session 3: Views of Stakeholders*

Moderator: Jon Oatley, *Washington State University*

Panelists:

- Tad Sonstegard, *Acceligen*
- Elena Rice, *Genus*
- Bo Harstine, *Select Sires*

Panel 1 - Industry

- 1) How the biotech industrial sector perceives agricultural animal biotechnologies

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- 2) What are the priority traits that the industry is most interested in developing
- 3) Which are most likely to be targeted by GM (e.g., single gene traits)?
- 4) What are industry concerns about GM?

3:30-4:30 PM **Panel 2 - Public agencies, consumers, and the public**

Moderator: Bernadette Dunham, *George Washington State University*

Panelists:

- Steven Moeller, *USDA-ARS Food Animal Production Program*
- Adam Moyer, *U.S. Food and Drug Administration*
- Jennifer Kuzma, *North Carolina State University*

4:30-5:30 PM **Session 4: Animal Welfare**

Moderator: Bill Muir, *Purdue University*

Panelists:

- Mark Tizard, *CSIRO - Australian view*

5:30 PM

ADJOURN FOR THE DAY

WEDNESDAY, FEBRUARY 28TH, 2024

8:00-9:20 AM **Session 5. Genome annotation and relation to food safety of HGM animals**

Moderator: Penny Riggs, *Texas A&M University*

Panelists:

- Fiona McCarthy, *University of Arizona*
- Peter Harrison, *EMBL's European Bioinformatics Institute, UK*
- Terence Murphy, *NCBI*

9:20-10:20 AM **Session 6. Biological mechanisms that may present novel hazards. Change in food composition/quality due to transgene expression/gene editing:**

Moderator: Lyda Garcia, *The Ohio State University*

Panelists:

- Allison Van Eenennaam, *University of California Davis*
- Fred Gould, *North Carolina State University*

10:20 AM **BREAK**

10:40-12:00 PM **Session 7. Novel resistance to disease**

Moderator: Aspen Workman, *USDA-ARS*

Panelists:

- Darrell Kapczynski, *USDA-ARS*
- Julie Lenocho, *USDA-APHIS*
- Shayan Sharif, *University of Guelph, Canada*
- Wendy Barclay, *Imperial College London*

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12:00-2:00 PM LUNCH

2:00-2:40 PM Session 8. Genomics

Moderator: Fiona McCarthy, *University of Arizona*

Panelists:

- Michel Georges, *University of Liege, Belgium*
- Elena Rice, *Genus*
- Rachel Hawken, *Cobb-Vantress*

- 1) What is the degree of variation among breeds, individuals, and generations?
- 2) What can livestock 1000-genome projects teach us about frequencies of mutations and, hence, our ability to detect off-targets in genome-edited livestock?
- 3) Do we need breed-specific genome projects?

2:40 PM CLOSING STATEMENTS

MEETING ADJOURNS