

International Workshop Assessing the Security Implications of Genome Editing Technology

11-13 October, 2017
Herrenhausen Palace • Hanover, Germany

PRELIMINARY PROGRAM

WEDNESDAY, 11th OCTOBER

09.00 A.M. REGISTRATION & COFFEE

10.00 P.M. MINI-HACKATHON SATELLITE EVENT, GLOBAL YOUNG ACADEMY
(Invitation Only)

12.30 P.M. REGISTRATION & LUNCH

01.30 P.M. WELCOME

Chair: Volker ter Meulen, InterAcademy Partnership

Wilhelm Krull, Secretary General, Volkswagen Foundation
Volker ter Meulen, InterAcademy Partnership
Thierry Courvoisier, European Academies Science Advisory Council
Diane Griffin, U.S. National Academies of Sciences, Engineering, and Medicine
Jörg Hacker, President, German National Academy of Sciences Leopoldina

02.00 P.M. KEYNOTE LECTURES: A NEW AGE OF BIOLOGY

Chair & Introduction: Indira Nath, All India Institute of Medical Sciences, New Delhi

Statements (20 min each):

A New Age of Biology
Sir Venki Ramakrishnan, Royal Society

The Latest Advances in Genome Editing: Between Promise and Alarm
Robin Lovell-Badge, The Francis Crick Institute

The Importance of Public Engagement for Discussions about Emerging Technologies
Dominique Brossard, University of Wisconsin-Madison

Questions & Answers

03.30 P.M. COFFEE BREAK

04.00 P.M. SESSION 1
ADVANCES IN GENOME EDITING: PROMISE AND READINESS

Chair and Introduction: [Bärbel Friedrich](#), Alfried Krupp Institute of Advanced Studies, Greifswald

Statements (20 min each):

Genome Editing in Medicine

TBA

Genome Editing in Agriculture

[Dan Voytas](#), University of Minnesota, St. Paul

Gene Drives: From Species Eradication to Species Preservation

[Fred Gould](#), North Carolina State University

Genome Editing in Microbes

[Lennart Randau](#), Max Planck Institute for Terrestrial Microbiology, Marburg

Questions & Answers

05.45 P.M.

SESSION 2

ASSESSING THE SECURITY DIMENSIONS ASSOCIATED WITH SPECIFIC APPLICATIONS OF GENOME EDITING TECHNOLOGIES

Chair & Introduction: [David Relman](#), Stanford University

Assessing the Security Implications of Emerging Technologies: What Do We Need to Know?

[Piers Millett](#), Future of Humanity Institute, Oxford University

Questions & Answers

Introduction to the Breakout Groups

06:30 P.M.

APERITIF

07:00 P.M.

DINNER

THURSDAY, 12th OCTOBER**09:00 A.M. SESSION 2
BREAKOUT DISCUSSIONS: ASSESSING THE SECURITY DIMENSIONS
ASSOCIATED WITH SPECIFIC APPLICATIONS OF GENOME EDITING
TECHNOLOGIES****Breakout Group 1: Potential security concerns arising from human cell editing applications** (Auditorium)

Chair: Anthony Perry, University of Bath
Jonathan Moreno, University of Pennsylvania

Breakout Group 2: Potential security concerns arising from applications in agriculture (Seminar 2)

Chair: Diane Griffin, US National Academies of Sciences, Engineering, and Medicine
Joachim Schiemann, German Federal Research Centre for Cultivated Plants
Angelika Schnieke, Technical University of Munich

Breakout Group 3: Potential security concerns arising from gene drive applications (Seminar 5)

Chair: Zachary Adelman, Texas A&M University
Todd Kuiken, North Carolina State University

Breakout Group 4: Potential security concerns arising from microbial applications (Seminar 6)

Chair: Iqbal Parker, International Centre for Genetic Engineering and Biotechnology, Cape Town
Bert Rima, Queen's University Belfast

10.30 A.M. COFFEE BREAK**11.00 A.M. SUMMARY OF SESSION 2
BREAKOUT GROUPS AND PLENARY DISCUSSION**

Chair: Ernst-Ludwig Winnacker, Human Frontier Science Program

Report Out from Human Cell Editing Group
Report Out from Agriculture Group
Report Out from Gene Drive Group
Report Out from Microbe Group

Discussion of Breakout Group Reports**12.30 P.M. LUNCH (Ceremony Hall)****01.30 P.M. SESSION 3, Part I
STRATEGIES FOR ADDRESSING POTENTIAL SECURITY RISKS OF GENOME
EDITING**

Chair: Pilar Ossorio, University of Wisconsin-Madison

Discussions (25 min each):**Legal, Regulatory, and Policy Strategies for Genome Editing: General**

Michele Garfinkel, EMBO
S.R.Rao, Ministry of Science & Technology, Government of India

Legal, Regulatory, and Policy Strategies: Security-Specific

Daniel Feakes, Implementation Support Unit, Biological Weapons Convention
Catherine Rhodes, Center for the Study of Existential Risk, University of Cambridge

Norms of Responsible Behavior and Voluntary Guidelines

Ernst-Ludwig Winnacker, Human Frontier Science Program, on Lessons from the IAP Work on Responsible Conduct of Science

TBA, on Recommendations from the Committee on the Handling of Security-Relevant Research in Germany

03.00 P.M. BREAK

**03.30 P.M. SESSION 3, Part II
STRATEGIES FOR ADDRESSING POTENTIAL SECURITY RISKS OF GENOME EDITING**

Scientific and Technical Strategies

Ursula Jenal, Jenal & Partners

Owain Edwards, Commonwealth Scientific & Industrial Research Organisation

Discussion with Session 3 Speakers

Introduction to the Breakout Groups

Pilar Ossorio, University of Wisconsin-Madison

04.45 P.M. COFFEE BREAK

**05.15 P.M. SESSION 4
BREAKOUT DISCUSSIONS: MAPPING POTENTIAL SECURITY RISKS TO MITIGATION STRATEGIES**

Breakout Group 1: Mitigation to the risk of human cell editing applications

(Auditorium)

Chair: Duanqing Pei, Chinese Academy of Sciences

Abhimanyu Veerakumarasivam, Sunway University

Breakout Group 2: Mitigation to the risk of applications in agriculture (Seminar 2)

Chair: Sarah Hartley, University of Exeter

Rene Custers, Vlaams Institute for Biotechnology

Breakout Group 3: Mitigation to the risk of gene drive applications (Seminar 5)

Chair: Elizabeth Heitman, University of Texas Southwestern Medical Center

Ary Hoffman, University of Melbourne

Breakout Group 4: Mitigation to the risk of microbial applications (Seminar 6)

Chair: Herawati Sudoyo, Eijkman Institute for Molecular Biology

Filippa Lentzos, Kings College London

06.45 P.M. APERTIF AND POSTER SESSION

07.30 P.M. DINNER

FRIDAY, 13th OCTOBER**09.00 A.M. SUMMARY OF SESSION 4
BREAKOUT GROUPS AND PLENARY DISCUSSION**

Chair: Peter Mills, Nuffield Council

Report Out from Human Cell Editing Group
 Report Out from Agriculture Group
 Report Out from Gene Drive Group
 Report Out from Microbe Group
 Report-Out from Hackathon: Alexander Kagansky, University of Edinburgh

Plenary Discussion of Breakout Group Reports**10.30 A.M. COFFEE BREAK****11.00 A.M. SESSION 5
PUBLIC COMMUNICATION AND ENGAGEMENT ON POTENTIAL SECURITY
RISKS OF GENOME EDITING APPLICATIONS**

Chair & Introduction: Dietram Scheufele, University of Wisconsin-Madison

Commentaries (7 min each):

Science Journalism in a Changing World
 Volker Stollorz, Science Media Center Germany

The Science of Communicating Risks and Benefits: When, Why, and How?
 Dominique Brossard, University of Wisconsin-Madison

Public Engagement: Rationales, Methods and Intended Outcomes
 Jason Delborne, North Carolina State University

Lessons from Engaging Global Communities of Science
 Elizabeth Heitman, University of Texas Southwestern Medical Center

**Connecting with Publics in a World of Twitter, Blogs, and Online News
Environments**
 Reiner Korbmann, Wissenschaft Kommuniziert

Panel Discussion**12.30 P.M. SESSION 6
THE WAY AHEAD**

Chair: Robin Lovell-Badge, The Francis Crick Institute

Bärbel Friedrich, Alfried Krupp Institute of Advanced Studies, Greifswald
 Ernst-Ludwig Winnacker, Human Frontier Science Program
 Piers Millett, Future of Humanity Institute, Oxford University
 Pilar Ossorio, University of Wisconsin-Madison
 Peter Mills, Nuffield Council
 Indira Nath, All India Institute of Medical Sciences, New Delhi
 Dietram Scheufele, University of Wisconsin-Madison

01.15 P.M. CLOSING REMARKS

Volker ter Meulen, InterAcademy Partnership

01.30 P.M. END OF WORKSHOP / REFRESHMENTS