



Policy Mini-Hackathon on Future Security Challenges of Genome Editing Technologies

11 October, 2017
Herrenhausen Palace
Seminar Room 2 (ground floor)
Hanover, Germany



Rapid advances in genome editing approaches and applications as well as advancements the field of synthetic biology have led to increased capabilities in Do-It-Yourself (DIY) biotechnology development communities. While the potential positive impacts of genome editing are immense, there is also a growing concern that accelerated progress and widespread use of genome editing could also facilitate harmful outcomes. The ability of the scientific community and the various stakeholders to collectively and accurately predict potential negative outcomes, such as intentional misuse of genome editing, necessitates the development of effective and scalable policy strategies to reduce or prevent potential security risks. Secrecy, competitive agendas, and a lack of an interdisciplinary dialogue in the development of nuclear physics in the 20th century allowed for the inhumane testing of human subjects and failed to prevent weaponisation of these technologies, accidents and circumstances that have led to contamination. The failure to address potential negative impacts could threaten our very existence.

An integral role of a responsible scientific community is to propagate a '*culture of responsibility*' that helps us transcend from strict and defined regulations that not only fail to mitigate the undesired consequences but often stifle progress of desired outcomes to one where creating knowledge, innovating and sharing the latest information in genome editing is not only safe but promotes positive progress. For this culture of responsibility to be pervasive in our research ecosystem, all stakeholders need to be prepared to forecast, recognise and accept these security considerations, and subsequently agree on how to

collaborate in developing globally-adaptable and practical solutions to address these threats. Effective communication and sound ethical reflection are key components towards ensuring societal acceptability, and thus education and awareness is central to many of these solutions.

Therefore, we invite participants of the workshop, *Assessing the Security Implications of Genome Editing Technology*, to engage in an interactive mini-hackathon focussed on approaches to predict and address security risks associated with technological progress in the field of genome editing. The hackathon will be a first of its kind pilot event to explore mechanisms by which DIY communities can contribute to the development of science policy for the rapidly advancing field of genome editing. In an informal game-like setting, hackathon participants, including researchers, policy makers and security professionals, will brainstorm and exchange ideas about brainstorm future national and international policy solutions to potential, future security challenges posed by genome editing applications. A primary goal of the hackathon is to facilitate interdisciplinary collaborative mechanisms to assess potential security risks, build capacity to evaluate and mitigate identified risks, and develop policy tools to counteract future problems and increase mutual trust between scientific community, policy makers, and members of the public.

Hackathon participants are expected to actively share their ideas about policy-relevant aspects of genome editing research and applications, including risks and security issues. Participants will pitch their ideas within small groups, and subsequently merge the ideas into hypothetical scenarios of the future. The point of the idea exchange is to create a safe space that stimulates the imagination and immerses the participants in potentially undesired future scenarios in an informal, friendly, and game-like setting with top experts from different disciplines who are gathered together because of their common interest in the future of genome editing.

Preliminary Programme

09:00 **Greetings & Networking over Coffee***

***Hackathon facilitators will meet at 8:30am**

09:30 **Warm-Up Session: Icebreaking, Networking, Ideas Pitching, and Splitting into Groups**

Directions: A maximum of 6 groups (5 to 7 individuals per group) will be formed based on the selected challenges to be “hacked” that can be chosen from options the hackathon organisers will provide. Each group should contain a mix of disciplinary expertise and experience.

10:00 **Small Group Brainstorming**

Directions: Groups will exchange ideas and other thoughts about their selected topics, with the goal of clearly defining their challenge, future implications, and potential policy solutions. Groups are encouraged to search the internet for evidence in support their claims and policy suggestions. In their discussions, groups should address the following:

- Problem description. What is the challenge, and why is it a challenge?
- Policy solution(s). What is the goal of the policy? What are the anticipated outcomes of the policy? What (if anything) is new or unique about the policy?
- Key considerations for implementation. How should the policy be implemented? What are the barriers? What are the opportunities? How will progress be measured to determine whether the policy is effective?

12.00 **Presentation of Policy Ideas**

Directions: Each group will be given 2 minutes to present their challenge and policy solution(s). Each presentation will be followed by brief Q&A period.

12:30 **Selection of Policy Ideas & Assessment of Hackathon**

Directions: Participants will discuss which policy ideas should be presented during plenary discussion at the genome editing workshop, including assignments to write 1-page mock grant or policy proposal (to be completed within 24-28 hours and sent to hackathon organisers).

Participants will also discuss potential and key considerations for a full hackathon (2-3 day event) focused on genome editing issues.

The 1-page policy brief should include the following elements:

- Title
- Problem description.
- Policy solution(s).
- Key considerations for implementation.
- Final remarks/conclusions (no more than 1 paragraph)

1:00 **Adjourn***

*Lunch available for participants of the workshop, *Assessing the Security Implications of Genome Editing Technologies*