Press Release

Interdisciplinary symposium on gene drives: International scientists call for a critical public discourse

Bern, 24 May 2019

Today, 120 international representatives from science, politics, national authorities and civil society organisations will discuss the gene drive technology at an interdisciplinary symposium in Bern. At the same time, a new report on gene drives will be published and presented. The publishers of the report are three scientific organisations - Critical Scientists Switzerland (CSS), European Network of Scientists for Social and Environmental Responsibility (ENSSER) and the Association of German Scientists (FGS) - who want to initiate a critical discourse involving the public.

First speaker at the Symposium, Ricarda Steinbrecher, molecular geneticist and member of FGS, explained the technique, its risks and limitations: “Our research shows serious limitations of gene drives, such as their inefficacy in many organisms, the rapid emergence of resistance or off-target effects”. Moreover, the questions of irreversibility and the impossibility of containment or recall once released need more attention. Kevin Esvelt, an inventor of CRISPR-based gene drives and leader of the *Sculpting Evolution* lab at MIT promotes an idea to restore any given population to its original genetic state. However as Steinbrecher explains: “Current promoted strategies to reverse, recall or contain CRISPR/Cas gene drives are only theoretical models and lack proof of concept.” Esvelt will later participate in a panel discussion as part of the symposium.

In his presentation about potential gene drive applications Doug Gurian Sherman explained why a deep understanding about the respective organism, its behaviour in the wild and its roles and functions in the ecosystems are required to identify the negative consequences that may arise from the release of a gene drive organism: “Our case studies have shown that the data are insufficient and the complexities too intricate to allow for clear and reliable predictions of the impacts from a release of invasive gene drives“, he said.

"It is important that new (and critical) findings on gene drive technology are made public," says Mareike Imken from Safe our Seeds, a symposium participant. "There are currently too many euphoric voices completely ignoring the unpredictable effects of gene drives on our severely degraded ecosystem and dwindling biodiversity and who promote the technology as the panacea for malaria", she adds.

Ali Tapsoba from Terre A Vie who visited the Symposium in Bern criticised the *Target Malaria* research consortium that aims to control the spread of malaria by releasing genetically modified gene drive mosquitoes: “The Burkinabé and African populations have never given their free, prior and informed consent for the Target Malaria project. We refuse to be the guinea pigs of a hazardous experiment. Moreover, we have endogenous knowledge about this diseases and how to deal with it.”

Further questions on the social, ethical and regulatory aspects of gene drives will be discussed in the afternoon.

Gene drive organisms are designed to 'drive' their modified genes into wild populations, by enforcing their own propagation to all offspring and by circumventing the rules of inheritance. Gene drives are a new form of genetic engineering to permanently alter or even exterminate populations and species in the wild. The report has compiled and critically examined current findings on gene drive technology from an interdisciplinary perspective. The report is divided into a chapter on the functioning of gene drives, their possible applications and their social, ethical and regulatory aspects.

The gene drive report is available at https://genedrives.ch/report
Press fotos: https://genedrives.ch/press

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