# Bio-safety measures can keep gene drives from causing ecological havoc

**The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion and analysis.**

In parallel with their development of the first synthetic gene drives — which greatly increase the chance a specific gene will be passed on to all offspring — George Church, Ph.D., and Kevin Esvelt, Ph.D., helped pioneer proactive biosafety measures to ensure that gene drives are investigated effectively and safely in confined laboratory experiments. They envision that synthetic gene drives designed using an RNA-guided gene editing system known as CRISPR-Cas9 — which works like a pair of molecular scissors to precisely cut or edit DNA–could one day be used outside of the lab to prevent transmission of deadly insect and animal-borne diseases and eradicate invasive species that threaten the ecosystem and agriculture.

Now, in a new study published in *Nature Biotechnology*, a team led by Church and Esvelt at the Wyss Institute for Biologically Inspired Engineering at Harvard University and Harvard Medical School (HMS) demonstrates effective safeguarding mechanisms for working with gene drives and unveils a first-of-its-kind method for reversing the changes they spread.

Alongside researchers on the Wyss Institute's Synthetic Biology platform, Church and Esvelt, who is a Wyss Technology Development Fellow, have led the gene drive research community in discussions about responsible laboratory conduct and proactive confinement guidelines for the safeguarding of gene drive research. Their latest study verifies the efficacy of safeguarding protocols developed by their team, such as increased and improved physical biocontainment barriers and the introduction of so-called "molecular confinement" mechanisms which use genetic engineering to block laboratory organisms from surviving and reproducing in the highly unlikely event they ever escaped into the ecosystem.

**Read full, original post:** Gene drive reversibility introduces new layer of biosafety