

Gene experts set to tackle pest control

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Experts are to investigate how genetic techniques could be applied to help control pest species.

The team is evaluating how a technology called gene drive could be used to spread an infertility gene in rats and mice. The technique could provide a more humane method of controlling vermin populations.

A similar approach is already being tested in mosquitoes. The researchers are interested in whether it will also work in mammals.

Gene drive is a powerful technique for ensuring that a particular genetic trait is inherited by all descendants.

It means that a gene of interest can spread throughout an entire population within a few generations.

Usually, mammals inherit two versions of every gene - one from their mother and one from their father. As a result, there is a 50 per cent chance that a parent will pass on a particular trait to their offspring.

Gene drive works by targeting other versions of a particular target gene and converting it to the desired version.

The technology makes use of a DNA editing technique called CRISPR/ Cas 9. It acts like a pair of molecular scissors that cuts out the target gene that would be inherited from the other parent.

The body's natural mechanisms then repair the damaged DNA. It does so by using the gene drive as a template so that all of the offspring now carry two copies of the gene drive.

Researchers at the University of Edinburgh's Roslin Institute are using mice to evaluate the technology's effectiveness in a contained laboratory environment.

They are targeting [genes](#) linked to female fertility, to explore how this could be used to curb [pest](#) rodent populations.

Pest control costs the UK economy an estimated £1.2 billion each year. Current methods of tackling the problem are typically inhumane and can affect other animals in the environment.

The researchers stress that additional research to investigate the potential risks associated with [gene drive](#) technology would have to be carried out before the approach could ever be applied in the real world.

If their approach is found to be successful, they say it could potentially be applied to help control other [pest species](#), such as rabbits and cane toads.

Professor Bruce Whitelaw, of the University of Edinburgh's Roslin Institute, said: "We have the makings of a technology that could reduce or eliminate a [pest population](#) in a humane and species-specific manner. We need more research to better understand the risks, and whether these can be mitigated, but we believe the potential benefits merit further investigation."

The study is published in *Trends in Biotechnology*.

More information: *Trends in Biotechnology*, [DOI: 10.1016/j.tibtech.2017.10.001](https://doi.org/10.1016/j.tibtech.2017.10.001)

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