



Vocabulary: Genetics and disease 词汇：遗传学和疾病

By now, most of us will have heard of GMOs. In case you haven't, GMO stands for **genetically-modified organism**. This basically means that an organism has had a foreign **genetic sequence** introduced into it. In theory, this gives the organism certain advantages – it may become **hardier** by developing a **resistance to disease**, or in the case of GM food, may be bigger and require fewer **nutrients** to develop.

GM organisms have been used for a while. Scientists in the UK are **triallying** a GM wheat which allegedly yields 40% more crop in greenhouse conditions. GM hens, which are able to lay eggs from different poultry breeds, have been used by scientists in Edinburgh to conserve rare birds by storing their **stem cells** in a seed bank. And more recently, scientists in China used information from the **genome** of a plant to increase the production of a key malaria **drug**, helping to meet the large global demand.

But now scientists at the University of Edinburgh's Roslin Institute have created GE pigs which are allegedly **immune** to one of the world's costliest livestock diseases. GE stands for gene editing. Unlike GM, gene editing merely alters the **DNA** of the creature. In this case, a small region of pig DNA was deleted, preventing **contraction** of the PRRS **virus**, or Porcine **Reproductive and Respiratory Syndrome** virus.

The virus causes breathing problems and death, but even after the GE pigs were **exposed** to it, none have become ill. And the effect is permanent, so the resistance will be **passed on** through natural breeding. Tests so far showed that the animals are not weakened in any other way by the process, claims Research leader Dr Christine Tait-Burkard. "The main thing that this edit will do is benefit animal welfare because the animals will not get a devastating disease."

However, critics have argued that the creature's welfare will actually suffer because of this. Helen Browning of the Soil Association believes this only addresses the **symptom** of the problem and not the root cause. "It is not encouraging companies to change the way they keep their pigs so they don't become diseased in the first place", she says.

Regardless, this is an experiment and while the technique appears to work, it is several years away from regulation and implementation. "On top of that, only if these studies are

successful and the public are accepting, would we integrate these gene edits into commercial breeding stocks," Dr Tait-Burkard told the BBC. So it seems we may have a while yet.

词汇表

genetically-modified	转基因的
organism	生物体
genetic sequence	基因序列
hardy	强壮的
resistance to disease	抗病
nutrient	营养物, 养分
trial	试验
stem cell	干细胞
genome	染色体组, 基因组
drug	药物
immune	有免疫力的
DNA	脱氧核糖核酸
contract a virus	感染一种病毒
reproductive	繁殖
respiratory	呼吸的
syndrome	综合症
expose to (a virus)	感染 (一种病毒)
pass on	传下去, 遗传给...
symptom	症状

测验与练习

1. 阅读课文并回答问题。

1. What is a GMO?
2. True or false: *Genetic modification and gene editing are the same thing.*
3. What effect has gene-editing had on these pigs?
4. In what way does Helen Browning believe that gene editing targets the symptom and not the root cause of the problem?
5. Which word in the text means 'physical and mental health and happiness'?

2. 请在不参考课文的情况下完成下列练习。选择一个意思合适的单词填入句子的空格处。

1. I'm very _____. I almost never get sick and I've never broken a bone!

hardy	resistance	nutrient	immune
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2. Anyone who has been to the tropics recently may have been _____ to the virus.

passed on	contracted	trialled	exposed
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3. Whether or not your character is determined by your _____ is still hotly debated.

stem cell	DNA	syndrome	genetically-modified
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4. The plants absorb water and other _____ through their roots.

resistances	nutrients	drugged	symptoms
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5. The life-saving medicine is still undergoing _____, but should be available shortly.

trials	exposure	immunity	resistance
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答案

1. 阅读课文并回答问题。

1. What is a GMO?

A GMO is a genetically-modified organism.

2. True or false: *Genetic modification and gene editing are the same thing.*

False. Genetic modification introduces foreign material into a creature. Gene editing alters a creature's DNA.

3. What effect has gene-editing had on these pigs?

The pigs are allegedly immune to the PRRS virus.

4. In what way does Helen Browning believe that gene editing targets the symptom and not the root cause of the problem?

She says it doesn't encourage companies to improve the way they keep their pigs, stopping them from becoming diseased in the first place.

5. Which word in the text means 'physical and mental health and happiness'?

Welfare. (Critics have argued that the creature's welfare will actually suffer because of this.)

2. 请在不参考课文的情况下完成下列练习。选择一个意思合适的单词填入句子的空格处。

1. I'm very **hardy**. I almost never get sick and I've never broken a bone.

2. Anyone who has been to the tropics recently may have been **exposed** to the virus.

3. Whether or not your character is determined by your **DNA** is still hotly debated.

4. The plants absorb water and other **nutrients** through their roots.

5. The life-saving medicine is still undergoing **trials**, but should be available shortly.