【3.26】

**3.26每日一篇 | 外刊精读**

Gene editing：Second chances  
   
CRISPR technologies hold **enormous** promise for **farming** and medicine. Don't **waste** it  
   
【1】Of the many patients who need an **organ** from a **donor**, 90% go without. About 240m people live with rare **genetic** **diseases**, most of which cannot be **treated**. Each year poor **diets** cause more than 10m early deaths. Suffering on such an **immense** scale can appear **hopeless**. However, a **technique** called CRISPR gene editing **promises** to help deal with these issues and many more—and wise **regulation** can spur it on.Panda Foreign Magazine Intensive Reading:Respect for Originality, Piracy Must Be Punished  
   
【2】CRISPR is like an editor that can **rewrite** DNA letter by letter or gene by gene, to remove harmful **mutations** or add **protective** ones. **clinical** **trials** will begin this summer on pig organs edited for **transplanting** into humans. Last year the first new **therapy** went on the market. It **seemingly** **cures** **sickle**-cell disease and beta-**thalassemia**, two blood **disorders** that **afflict** millions. If **ongoing** **clinical** **trials** succeed, a one-off **therapy** could provide **lifelong** protection against heart attacks. **farming** will benefit, too: CRISPR could raise yields or protect **crops** from climate change. Consumers could soon get white bread with **fibre**-like **starch** or tastier **varieties** of healthy but unpopular foods, such as **mustard** greens.  
   
【3】But as we report in our Technology Quarterly, now is a **critical** moment. Since CRISPR’s discovery in 2012, it has begun supplanting old ideas that never reached their **potential**. Gene **therapy**, a different **technique** that uses **viruses** to insert genes into patients, can treat many rare **genetic** **diseases** but is and will remain costly to prepare. Genetically **modified** (GM) **crops**, which **borrow** genes from other species, have faced **misguided** **opposition** in Europe and elsewhere. CRISPR offers an **alternative** to both. But if, unlike them, it is to live up to its promise, it will need to attract a **continuing** flow of investment—which, in turn, means **chalking** up some real-life successes.  
   
【4】For that to happen, scientists must show that they can get CRISPR into more types of cells in the body **cheaply** and easily. The technology would also be **boosted** if it could serve as a platform to create personalised **therapies** for people’s **individual** **mutations**. That will require new science, but it would also be catalysed by a better system of **regulation**.Panda Foreign Magazine Intensive Reading:Respect for Originality, Piracy Must Be Punished  
   
【5】Regulations that govern drugs for rare **diseases** were not designed for an era of **specialist** medicines and will **hinder** patients from receiving new treatments. Developing drugs for a small group of people has always been difficult and many CRISPR **companies** are struggling, despite government help. But CRISPR is **programmable**, meaning that the same drug can be **tweaked** to target many different **mutations**. On-demand, small-**batch** drugs for rare **diseases** could be made more **cheaply** today if requirements on safety testing and **manufacturing** **standards** were **loosened**. For many **desperately** ill people who may die before a drug is **approved**, if it is developed at all, that is a **worthwhile** trade-off. In America the Food and Drug Administration has already taken some steps towards liberalisation.  
   
【6】Agriculture also badly needs reform. Gene-edited foods fall under GM **regulation** in many regions, including the European Union, despite being quite different: gene-edited plants have had their own genes **tweaked** rather than **incorporating** genes from other species. Mindful of the threat of climate change to food security, Britain is **poised** to **implement** new **liberal** laws governing gene-edited foods; the EU should follow. However, public trust in regulators and scientists could become a problem with the **confirmation** as health **secretary** of Robert F. Kennedy junior. He has **invested** in CRISPR **therapies**, but is also anti-GM. If America slows down or even goes into **reverse**, it will be a blow to progress—and humanity.

**①短语**

1.原文：Last year the first new therapy went on the market.

词典：go on the market 上市

例句：Our new product will go on the market.

我们的新产品即将上市。

2.原文：But if, unlike them, it is to live up to its promise, it will need to attract a continuing flow of investment

词典：live up to its promise 兑现承诺

例句：While the technology remains in limited use for now, advertising industry analysts say it is finally beginning to live up to its promise.

尽管该技术目前仍处于有限的应用当中，但广告业的分析人士认为它最终将会达到预期的目标。

3.原文：which, in turn, means chalking up some real-life successes

词典：chalk up 归因于，归功于；取得，获得

例句：For almost 11 months, the Bosnian army chalked up one victory after another.

 在差不多十一个月的时间里，波斯尼亚军队取得了一个又一个的胜利。

4.原文：and will hinder patients from receiving new treatments

词典：hinder from 阻止（某人）做某事；无法阻止（某人）表达意见

例句：The child shall not hinder me from accepting the offer, I tell you that!

我告诉你，这孩子不会妨碍我接受工作的！

5.原文：Mindful of the threat of climate change to food security

词典：mindful of 留意；注意到；关注到

例句：Mindful of the danger of tropical storms, I decided not to go out.

想到热带风暴的危险，我决定不出门。

6.原文：Britain is poised to implement new liberal laws governing gene-edited foods

词典：be poised to 准备好做某事

例句：Kate is poised to become the highest-paid supermodel in the fashion world.

凯特决心成为时装界最高薪的超级模特儿。

7.原文：If America slows down or even goes into reverse, it will be a blow to progress—and humanity.

词典：a blow to 打击

例句：That ruling comes as a blow to environmentalists.

那项规定对环境保护主义者是一个打击。

**②长难句**

原文：Gene therapy, a different technique that uses viruses to insert genes into patients, can treat many rare genetic diseases but is and will remain costly to prepare.

分析：这个句子的主语是 “Gene therapy”（基因疗法），“a different technique that uses viruses to insert genes into patients”作为同位语对主语进行解释说明，其中“that uses viruses to insert genes into patients”是修饰“technique”的定语从句；谓语部分由“can treat”和“is and will remain”两个部分构成，“can treat”接宾语 “many rare genetic diseases”说明基因疗法的作用，“is and will remain” 后接“costly to prepare”作表语，描述基因疗法在准备方面的情况，“but” 连接了这两个不同的谓语内容，体现了基因疗法既能治疗多种罕见遗传疾病但准备成本昂贵的对比关系 。

译文：基因疗法，这一利用病毒将基因植入患者体内的不同技术，虽能治疗众多罕见遗传病，但无论是现在还是将来，其制备成本都将居高不下。

原文：For many desperately ill people who may die before a drug is approved, if it is developed at all, that is a worthwhile trade-off.

分析：“that is a worthwhile trade-off”为主干，“that”作主语，指代特定情况，“is”是系动词，“a worthwhile trade - off”为表语，表明是值得的权衡。“For many desperately ill people who may die before a drug is approved”作状语，其中“For many desperately ill people”说明针对的对象，“who may die before a drug is approved”是修饰“people”的定语从句，“who”作从句主语，“may die”为谓语，“before a drug is approved”是时间状语从句。“if it is developed at all”是条件状语从句，全句清晰阐述了对可能在药物获批前离世的重病患者而言，某情况是值得权衡的观点，且通过各类从句详述了背景与条件。

译文：对于那些病情危急、可能在药物获批（假设药物真能开发成功）之前就不幸离世的患者来说，这样的权衡无疑是值得的。

**③写作技巧**

But if, unlike them, it is to live up to its promise, it will need to attract a continuing flow of investment—which, in turn, means chalking up some real-life successes.

然而，若要使CRISPR真正兑现其承诺，就必须吸引持续不断的投资。而这，又势必要求它在现实生活中取得一些实实在在的成功。

在原句里，这里“chalk up”形象地传达出“积累、获取”成功的含义，就像在黑板上用粉笔记录成功点数一样，给人一种逐步积累、实现目标的感觉。如果想表达同样的意思，可以使用achieve、attain和score等等。

例句：

He worked hard and achieved great success in his career.

他努力工作，在职业生涯中取得了巨大的成功。

She has attained her goal of becoming a famous singer.

她实现了成为一名著名歌手的目标。

The team scored a major victory in the competition.

该团队在比赛中取得了重大胜利。

④背景知识

CRISPR技术是源自细菌抵御噬菌体入侵的免疫防御系统改造而来的基因编辑手段。它主要由能识别目标DNA序列的CRISPR - RNA（crRNA）和具有核酸酶活性、负责切割DNA的Cas蛋白组成。工作时，通过设计特定的crRNA引导Cas蛋白精准定位并切割目标DNA，细胞随后对断裂DNA进行修复，借此实现基因敲除、插入或替换等操作。该技术操作简便、成本低廉、编辑效率高且特异性强，在医学疾病治疗、农业作物改良、工业微生物改造以及基础生物学研究构建基因编辑模型、探究基因功能等诸多领域都有极为广泛的应用。

**⑤段落大意**

【1】现状严峻：众多患者缺器官、罕见病难医、不良饮食致大量早逝，困境凸显

【2】技术利好：CRISPR可编辑DNA，猪器官移植将试验，能治病、利农业、惠消费者

【3】发展关键：CRISPR取代旧理念，有优势但需吸引投资并取得现实成功

【4】发展要点：科学家需低成本导入CRISPR至多种细胞，开发个性化疗法，需科研与监管协同

【5】监管阻碍：罕见病药物监管滞后，阻碍患者获新疗法，CRISPR 公司艰难，放宽要求可降成本

【6】农业待变：农业需改革，基因编辑食品被误管，英国将推宽松法律，欧盟应效仿，美国有隐忧