参考译文

Donut Sugar Could Help Stored Blood Last

多纳圈糖可以帮助血液保存

Blood donations save lives. But blood can only be stored under refrigeration for up to six weeks. After that, it’s no longer usable for transfusions.“Because of that limitation, people have to continually donate blood to meet the needs. But also, in places where refrigeration may not be available, that can also be a challenge. It’s difficult to have blood available when needed.”

献血拯救生命。但是血液只能在冷藏条件下保存6周。在那之后，它就不能再用于输血了。“由于这个限制，人们只能不断地献血来满足需求。但是，在没有冷藏设备的地方，这也是一个挑战。在需要的时候很难获得血液。”

University of Louisville bioengineer Jonathan Kopechek. He says disruptions to regular blood donations due to COVID-19 have put stress on the blood supply, and the pandemic underscores the need for more reliable long-term storage methods. Blood can be frozen for extended periods of time ...

路易斯维尔大学的生物工程师乔纳森·科佩切克说。他说，COVID-19导致的定期献血中断给血液供应带来了压力，而这场大流行凸显出需要更可靠的长期储存方法。血液才可以冷冻很长一段时间。

“But it’s pretty rare because of all the challenges and complexities with that process.”

“但这种情况非常罕见，因为这个过程充满了挑战和复杂性。”

Instead Kopechek’s team has developed a method of preserving blood so it can be stored in a dehydrated state at room temperature. To do so, they turned to an unusual preservative: a sugar called trehalose, which is a common ingredient in donuts ...

相反，Kopechek的团队开发了一种保存血液的方法，这样血液就可以在室温下以脱水状态储存。为了做到这一点，他们使用了一种不同寻常的防腐剂:一种叫做海藻糖的糖，它是甜甜圈中常见的成分……

“To help make them look fresh even when they might be months old, and you wouldn’t know the difference.”

“为了让血液看起来更新鲜，即使可能血液已经存储几个月了，你也不知道它们有什么不同。”

The researchers chose trehalose because, in nature, it’s made by hardy animals like tardigrades and sea monkeys—aka brine shrimp—famous for their ability to survive dehydration.

研究人员之所以选择海藻糖，是因为在自然界中，海藻糖是由像缓步动物和海洋猴子(又名盐水虾)这样的耐寒动物制造的，而这些动物因脱水后仍能存活而闻名。

“So these animals can dry out completely for a long period of time and then be rehydrated and resume normal function. So we wanted to use the trehalose that’s produced by these organisms and apply that to preserving blood cells in a dried state, just like those organisms are.”

“所以这些动物可以在很长一段时间内完全干燥，然后再补水，恢复正常功能。”所以我们想利用这些生物产生的海藻糖，并将其用于保持血细胞处于干燥状态，就像那些生物一样。”

But first, the researchers had to get trehalose into blood cells. They used ultrasound to drill temporary holes in the cell membranes—which let some trehalose get in.

但首先，研究人员必须让海藻糖进入血细胞。他们用超声波在细胞膜上钻出临时的孔，让一些海藻糖进入细胞膜。

“And they need to have sufficient levels of trehalose on both the inside and the outside of the cell in order to survive the dehydration and rehydration process.”

“而且它们的细胞内外都需要有足够的海藻糖，这样才能在脱水和再水化过程中存活下来。”

At that point, the blood could be dried and made into a powder.

此时，血液可以被干燥并制成粉末。

“And then we can rehydrate the blood and have it return back to normal.”

“然后我们可以给血液补水，让它恢复正常。”

The team is still trying to improve yields but thinks the dried blood could be stored at room temperature for years. The study is in the journal Biomicrofluidics.

研究小组仍在努力提高产量，但他们认为干燥的血液可以在室温下保存多年。这项研究发表在《生物微流体》杂志上。

Kopechek says the technique could be ready for clinical trials in three to five years. If successful, it could be used to create stores of dried blood in case of future pandemics or natural disasters—and for humanitarian aid work, military operations or even missions to Mars. Maybe first aid kits on the Red Planet will include dried red blood cells.

科佩切克说，这项技术可以在三到五年内投入临床试验。如果成功，它可以用来储存干燥的血液，以备未来的流行病或自然灾害，也可以用于人道主义救援工作、军事行动甚至火星任务。也许在这个红色星球上的急救箱将包括干燥的红细胞。

听力原文

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University of Louisville bioengineer Jonathan Kopechek. He says disruptions to regular blood donations due to COVID-19 have put stress on the blood supply, and the pandemic underscores the need for more reliable long-term storage methods. Blood can be frozen for extended periods of time ...

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