



2023 年 10 月第 2 週 高校生ニュース教材 単語テスト

音声を聴いて、次の単語（熟語）を書きとって下さい。また、その意味を日本語で書いて下さい。

	words/phrases	meaning
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1	vaccine	ワクチン	*アメリカ発音は[væksí:n] イギリス発音は[væksi:n]
2	vaccination	予防接種	
3	distribute	配布する	
4	immune	免疫	
5	response	反応	
6	genetic	遺伝子の	
7	cell	細胞	
8	protein	たんぱく質	
9	antibody	抗体	
10	infection	感染	
11	unstable	不安定な	
12	allergy	アレルギー	

6 mRNA vaccines have been studied and tested for influenza and rabies since 1990s. However, the use of mRNA vaccines was considered unrealistic for two reasons. First, the mRNA molecule is incredibly unstable and so easy to break down. Second, mRNA caused inflammatory reactions because the immune system sees the mRNA as an invader and overreact.

7 These obstacles did not discourage Karikó. During the early 1990s when she was an assistant professor at the University of Pennsylvania, she and her new colleague Drew Weissman discovered that when they swap out uridine for pseudouridine, mRNA can get their message to cells without triggering inflammations.

8 The COVID-19 pandemic brought more attention to the mRNA vaccines, Karikó said. One of the most exciting aspects of mRNA technology is how rapidly it can be developed to target a particular virus. While traditional vaccines can take years, creating an mRNA vaccine that targets a new virus can be accomplished in a short period of time (even days to weeks). This greatly speeds up vaccine development. Now, scientists are trying out mRNA approaches for cancer, allergies and other diseases.

rabies 狂犬病 molecule 分子 inflammatory 炎症性の invader 侵入者 overreact 過剰反応する
obstacle 障害物 colleague 同僚 swap 取り替える uridine ウリジン pseudouridine シュードウリジン
inflammation 炎症 aspect 面 target~(動詞):~を目標にする accomplish 仕上げる・完成させる
try out 試してみる・試用する

Q10 Since when have scientists studied and tested mRNA vaccines?




Q11 mRNA ワクチンの実用が現実的でないと考えられていた理由を、2つ説明しましょう。

Q12 According to the discovery of Karikó and Weissman, how can they reduce the inflammatory reactions of the mRNA vaccines?

Q13 How long does it take to create an mRNA vaccine for a new virus?

Q14 What are the diseases that scientists are trying out mRNA approaches for?.

★参考動画

	【ノーベル生理学・医学賞】カリコ氏 "喜びの声" メッセンジャーRNA でコロナワクチンに貢献 ノーベル賞受賞直後に、日本人のアナウンサーさんがカリコ博士にインタビューしています。
	Scientists Katalin Kariko, Drew Weissman win Nobel Prize in medicine for work on mRNA vaccines [CBS News/3 分] ノーベル賞受賞者の発表の瞬間から始まり、カリコさんとワイズマンさんの功績をアナウンサーがまとめています。
	What is mRNA, and how does it work? [UNSW/1 分] mRNA の働きについて説明してくれる動画です。

Never Give Up: Dr. Karikó's dream as a scientist

1 Karikó began her career in her native country Hungary in the 1970. She earned her PhD at the University of Szeged and studied mRNA at its Biological Research Center. But the university's research program ran out of money and she lost her job in 1985. She decided to go to the U.S. after she got an invitation from Temple University in Philadelphia to pursue her research.

[2] In 1985, Karikó, her husband and her young daughter left Hungary for the U.S. At that time, people living in the Eastern European countries were not allowed to take more than \$100 out of the country so that the citizens would not emigrate to foreign countries. Karikó's family had to sell their car on the black market for about \$1200. Karikó unstitched the back of her daughter's teddy bear, carefully put the money inside, sewed it back up, and the family flew to the U.S. with the teddy bear.

3 Karikó's daughter Susan Francia is a two-time Olympic gold medalist rower. She won gold medals at the Beijing games in 2008 and the London games in 2012. She says she is proud of her mother, and it was her mother that inspired her to win Olympic gold medals. "Sport is a lot like science (ア) you have a passion for something and you just go and you train, and attain your goal, whether it was making this discovery that you truly believe in, or for me, it was trying to be the best in the world," Francia said.

4 “Now that I’m a parent, I think about what I (1) if I had to pick my family up and move somewhere entirely new, especially with those kinds of political restrictions on me. It makes me really proud of how courageous they were for doing that. ①We came over (to the U.S.) with so little, and ②even though the streets are not paved with gold here, you can have incredible success if you work hard.”

PhD 博士号 pursue 追求する so that S will/can V: ~が~する(できる)のように emigrate 移住する
unstitch ほどく sew 縫う rower ボート選手(row:漕ぐ) attain 達成する political 政治的な
restriction 制限 courageous 勇敢な ★()

Q1 What caused Karikó to decide to go to the United States?

Q2 Why were Hungarian people prohibited to carry more than \$100 out of the country?

Q3 Give an example of an Eastern European country under socialism.

Q4 How did she carry \$1 200 when she left Hungary with her family?

Q5 What is Karikó's daughter Susan Francia famous for?

Q6 According to Susan, who inspired her to win the Olympics gold medals?

Q7 空欄(ア)に当てはまる語を選びましょう。 a) as if b) in case c) in that d) so that

Q8 Susan さんによれば、スポーツと科学はどんな点で似ていますか。

Q9 空欄(イ)に当てはまる語句を選びましょう。 a) will do b) would do c) would have done d) did

Q10 下線①は、具体的にどんなことを指していますか。(※little とは、何がほとんどなかったのですか。)

Q11 “gold”が何の比喩かを明らかにしながら、下線②を訳しましょう。



クマのぬいぐるみにお金隠し渡米…「mRNA」でノーベル賞 カリコ氏の“数奇な半生”(2023 年 10 月 2 日)[ANNnewsCH] カリコさんのインタビュー(日本オリジナル)や、渡米時にお金を隠したクマのぬいぐるみが映し出されます。

Q12 What do you think about the news?

★次の文を 3 回ずつ読んで、暗唱しましょう。

- 1) Katalin Karikó and Drew Weissman were awarded the Nobel Prize in Physiology or Medicine for their efforts for the rapid development of effective mRNA vaccines against COVID-19.
- 2) mRNA vaccines tell the body to make a protein that produces an immune response, which releases antibodies.
- 3) Second, mRNA caused inflammatory reactions because the immune system sees the mRNA as an invader and overreact.
- 4) She says she is proud of her mother, and it was her mother that inspired her to win Olympic gold medals.

(和訳)

- 1) カタリン・カリコとドリュー・ワイズマンは、新型コロナウイルスに効果的な mRNA ワクチンを迅速に開発した努力のため、ノーベル生理医学賞を受賞した。
- 2) mRNA ワクチンは、免疫反応を産み出すたんぱく質を作るように体に命令を与えることができ、その免疫反応によって抗体が出される。
- 3) 第二に、mRNA ワクチンは炎症反応を引き起こしていた。なぜなら、免疫システムが mRNA を侵入者と判断し、過剰反応するからである。
- 4) 彼女は、母親を誇りに思う、そして、オリンピックでゴールドメダルをとるように彼女を勇気づけたのは、母親だったと語る。