



2023 年 11 月第 3 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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・・・・・・・・・・・・・・・・切 り 取 り ・・・・・・・・・・・・・・・・

1. transplant 移植／移植する
2. experimental 実験的な、試験的な
3. surgery 外科手術
※operation は手術そのもの、surgery は手術前後の処置を含めた外科治療全体を指す
4. organ 臓器
5. species 種
6. terminal (病気が)末期の
7. reject ～に対して、拒絶反応を起こす
8. anatomy 解剖(学)、このニュースでは「解剖学的構造」
9. detect 検出する
10. gene 遺伝子
11. immune 免疫の(形容詞) immune system=免疫系
※be immune to ～:～に免疫がある／immunity(名詞) 免疫
12. shortage 不足

Second person to receive pig heart transplant dies

1 Lawrence Faucette, the second person to receive a genetically modified pig heart in a transplant, died on October 30th, nearly six weeks after ①the highly experimental surgery, his doctors of the University of Maryland Medical Center announced. The practice of transplanting live organs, tissues, or cells between species is called ②xenotransplant.

2 Faucette, 58, was a Navy veteran and married father of two sons. Mr. Faucette first came to the University of Maryland Medical Center as a patient on September 14th. He was a patient with terminal heart disease and other complicated medical conditions. ③(彼の病気は非常に重かったため、人間のドナーの臓器を用いた全ての移植プログラムに拒絶されていた。) And the doctors offered the pig heart transplant. Faucette was informed of all the risks, and ④consented to the experimental treatment. He received the surgery on September 20th.

3 “My only real hope left is to go with the pig heart, the xenotransplant. At least now I have hope and I have a chance,” Mr. Faucette said before the surgery. His wife Ann said, “We have no expectations other than hoping for more time together. That could be as simple as sitting on the front porch and having coffee together.”

4 His surgery seemed successful. During the first month, his doctors reported that ⑤he was making significant progress. He was engaged in physical therapy, and spent time with family members, playing cards with his wife. However, a month later, his heart began to show signs of rejection, the most significant challenge with transplants involving human organs as well. ⑥Despite the medical team's greatest efforts, he ultimately passed away.

genetically-modified	遺伝子操作(組み換え)をされた	tissue	細胞の組織	veteran	退役軍人
consent to ~: ~に同意する	be informed of ~: ~について知らされる	xenotransplant	異種移植		
significant	重要な、著しい	be engaged in ~: ~に参加している、忙しくしている	physical therapy	理学療法	
rejection	拒絶反応	pass away=die	★学んだ語()

Q1 下線①は(1)どのような手術ですか。(2)どのような意味で“highly experimental”ですか。

Q2 What is ②xenotransplant?

Q3 When Laurence Faucette first came to the hospital, what kind of disease was he suffering from?

Q4 ③の日本語の意味を表すように、下記の語句を並べ替えましょう。[*so ~that~構文を用いること]

[all transplant programs / human donor organs / been / he / he / from / had / sick / use / so / rejected / that / that / was / .]

Q5 下線④と同じ意味を表す語を選びましょう。 a)condemned b)assented to c)refused d)dealt with

Q6 手術前、Faucette さんの奥さんは、何と言いましたか。

Q7 下線⑤について具体的に説明しましょう。

Q8 下線⑥を、節を使って書き換える時、空欄に当てはまる語を答えましょう。

= () the medical team () the greatest efforts,

5 Dr. Griffith, who performed the surgery on Mr. Faucette, said, "Faucette's last wish was for us to make the most of what we have learned from our experience, so that other patients may be guaranteed a chance for a new heart when a human organ is unavailable. He was consistently telling the nurses, support staff, and doctors how much he 7appreciated what they were doing for him. He was not only thinking about 8how this journey was helping to advance the xenotransplant program, but 9how it affected his family. We will miss him tremendously."

Xenotransplant: its history and possibility

6 The possibility of xenotransplant to meet the demand has long been considered, and using pig heart valves is already common. As pig hearts are very similar to human hearts in structure, size and function, they have been used for a long time in order to study the anatomy of human hearts. Just like a human heart, a pig heart consists of four chambers(two atria and two ventricles), and has four valves and an aorta. These similarities allow blood to flow through a pig's heart in the same way it flows through a human's heart.

7 The first person in the world to get a heart transplant was David Bennett. He also received surgery at the University of Maryland in January 2022 and survived for two months after the transplant. While there were no signs of rejection in the initial weeks following the transplant, an autopsy concluded that Bennett ultimately died of heart failure from complex factors, including Bennett's weak condition before the surgery, and a pig virus that was detected in the heart

be guaranteed	～:～を保証される	consistently	絶えず	tremendously	大いに、ものすごく	meet the	
demand	要望に応じる	valve(心臓の)弁	structure	構造	chamber	部屋	
		atria	心房(atriumの複数形)				
		ventricle	心室	similarity	類似点	aorta	大動脈
				autopsy	死体解剖	conclude	結論づける
ultimately	最終的に	complex	複雑な	★学んだ語()			

Q9 執刀医 Dr. Gryffithによれば、Faucetteさんの最後の望みは何でしたか。

Q10 下線⑦の意味として適切でないものを選びましょう。

- a) admired and was grateful for b) recognized the full worth of
c) was affected and determined by d) understood the situation and realize the importance of

Q11 下線⑧を、the journeyが何を指すか明らかにしながら、日本語にしましょう。

Q12 ⑨: How did this surgery affect Faucette's family?

Q13 Why do doctors use a pig heart for a transplant?

Q14 How long did (1)David Bennett and (2)Lawrence Faucette survive after the surgery?

Q15 Why did David Bennett die?

8 The heart given to Faucette was more carefully screened to ensure it was clear of the virus. The heart transplanted into Mr. Faucette came from a pig that had received 10 genetic modifications. Scientists removed three pig genes that cause rejection of pig organs by the human immune system, and instead inserted six human genes that allow the immune system to accept the organ. An additional pig gene, responsible for the heart's growth, was knocked out to prevent the organ from becoming too large.

9 The xenotransplant will offer new options to patients who need new organs. It would bring the world one step closer to solving ⑩the organ shortage crisis. According to the federal government, there are more than 113,000 people on the organ transplant list, including more than 3,300 people in need of a heart. The group Donate Life America says that 17 people die each day waiting for a donor organ.

screen(価値のあるものと、ないものを)選別する、ふるいにかける ensure 保証する clear of～:～と無縁の
genetic modification 遺伝子組み換え(操作) insert 差し込む・挿入する knock out 不活性化させる
option 選択肢 federal government 連邦政府 ★()

Q16 フォーセットさんに移植された豚の心臓に施された遺伝子操作について、まとめましょう。



[10の遺伝子操作について]

- () 3つの豚の遺伝子を取り除いた
- () 6つの人間の遺伝子を挿入した
- () 1つの豚の遺伝子を不活性化させた

Q17 下線⑩について、同じ段落を参考に、具体的に説明しましょう。

Q18 If you had a terminal heart disease, would you undergo a pig heart transplant surgery?
Why?

Q19 Some people carry donor cards. A donor card says, "If I die in an accident, take my heart and other important organs. Give them to sick people." Do you want a donor card?

	Maryland surgeons for the second time have transplanted a pig's heart into a dying man https://www.youtube.com/watch?v=Mh4f9AYRCZY
	Frederick man gets second ever pig heart transplant [FOX5 Washington DC] https://www.youtube.com/watch?v=XWa6NNKhkGw

★次の文を3回以上読んで、暗唱しましょう。

1. Lawrence Faucette, the second person to receive a genetically-modified pig heart in a transplant, died nearly six weeks after the highly experimental surgery.
 2. “His last wish was for us to make the most of what we have learned from our experience, so that other patients may be guaranteed a chance for a new heart when a human organ is unavailable.”
 3. As pig hearts are very similar to human hearts in structure, size and function, they have been used for a long time in order to study the anatomy of human hearts.
 4. The xenotransplant would bring the world one step closer to solving the organ shortage crisis.
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(和訳)

1. 遺伝子組換えを行った豚の心臓の移植を受ける2人目の人物となった、ローレンス・フォーセットさんは、この非常に試験的な手術の6週間後に亡くなった。
2. 彼の最後の願いは、他の患者たちが人の臓器が手に入らない時に、新しい心臓を手に入れる機会を保証されるように、私達(医療関係者)がこの経験から学んだことを最大限に生かすことだった。
★「so that 主語 may 動詞の原形」・・・S が～できるように[目的を表す]
3. 豚の心臓は構造、大きさ、機能の点において人間の心臓に似ているので、人間の心臓の解剖学の研究のために長い間用いられてきた。
4. 異種移植は、世界を臓器不足の難局の解決に向けて一歩近づけることになるだろう。