滋賀医科大学

平成29年度

医学科一般入試(前期日程)

問題冊子

英　　語

(注　意)

1. 問題冊子は試験開始の合図があるまで開かないこと。
2. 問題冊子は表紙のほか7ページである。
3. 試験中に問題冊子及び解答用紙の印刷不鮮明，ページの落丁・乱丁等に気付いた場合は，手を挙げて監督者に知らせること。
4. 解答用紙のすべてに受験番号及び氏名をはっきり記入すること。
5. 解答はすべて解答用紙の所定の解答欄に明瞭に記入すること。
6. 解答に関係のないことを書いた答案は，無効にすることがある。
7. 本学受験票を机の右上に出しておくこと。
8. 試験時間は90分である。
9. 問題冊子は持ち帰ってもよいが，解答用紙は持ち帰らないこと。

英　　語 (2問題)

Ⅰ. 次の文章を読んで，下の設問に本文の内容に沿って答えよ。記号以外の解答はすべて日本語ですること。右肩に＊印のある語には下に注がある。 (配点 160 点)

1 Our species evolved in Africa about 200,000 years ago. Scientists are still working out how humans later populated the other continents. Dr. Willerslev of the University of Copenhagen uses ancient DNA to reconstruct the past 50,000 years of human history. He was one of the early pioneers of the study of ancient DNA, and today he remains a leader in an increasingly competitive field. The scientific enterprise that Willerslev helped invent now sometimes crosses into culturally sensitive (1) areas.

2 In the 1980s, university researchers had found some 4,000-year-old hair in Greenland, a huge Danish island north of Canada, that had been stored — and forgotten — in a basement. In 2010, Willerslev and his colleagues removed DNA from the hair and used powerful new methods to reconstruct the genome* of the "Greenlander." It was the first time scientists had recovered an entire ancient human genome. The hair turned out to belong to a man, but most interesting of all, his genes contained clues about the history of Greenland and the native Inuit who still live there today. By analyzing the ancient genome, Willerslev and his colleagues concluded that the ancient Greenlander belonged to a different group known as Paleo-Eskimos, who were later replaced by the Inuits. Paleo-Eskimos migrated from Siberia about 5,500 years ago and endured for centuries in Canada and Greenland before vanishing.

3 In the six years since that report, Willerslev and his colleagues have published a series of studies that have fundamentally changed how we think about human history. A lot of evidence indicates that Native Americans originated from a population somewhere in Asia more than 15,000 years ago. In search of clues to that founding population, Willerslev and his colleagues examined a 24,000-year-old bone buried near a village called Mal'ta in eastern Siberia, just north of Mongolia. They analyzed its DNA and found that it was a genome unlike anything they expected. Parts of the boy's genome closely resembled the DNA of today's Europeans, but more of it resembled that of Native Americans. "It was really an eye-opener," Willerslev said. "This individual has nothing to do with East Asians. He has something to do with Europeans and Native Americans."

4 It appears that the Mal'ta boy belonged to an ancient population spread out across Asia 24,000 years ago. They came into contact with an East Asian population at some point, and members of the two groups had children together. Native Americans are the descendants of

those children. The Mal'ta people are not related to the Asians who live in the region (2) today, but before they disappeared, they also passed down their DNA to Europeans. Later research revealed the route those genes took from Asia to Europe.

5 The new research has prompted Willerslev to give up his earlier belief (3) that the major groups of people in different parts of the world had largely separate genetic histories. "These results made it clear this simplified picture is not the truth," he said. In 2011, Willerslev and his colleagues made history once again by publishing the first genome of an aboriginal* Australian. The research gave him new insights about human history, but it also taught Willerslev a lesson about the ethics involved in studying ancient DNA. Evidence shows that humans arrived in Australia at least 50,000 years ago. Scientists have long wondered if the aboriginals on the continent today are descendants of those first settlers, or of later arrivals. Willerslev saw a weakness in early genetic studies on modern aboriginal Australians. It had long been known that many aboriginals had some European ancestry. He decided to look for an aboriginal genome free of European DNA. In 2010, he and his colleagues retrieved DNA from a piece of hair collected in Australia in the 1920s that had been kept at the University of Cambridge, and reconstructed the owner's genome. Their analysis revealed that the ancestors of aboriginal Australians split off from other non-Africans (peoples that had migrated out of Africa) about 70,000 years ago. That finding supports the idea that the first settlers in Australia were the ancestors of today's aboriginals.

6 Willerslev was eager to share the new finding, but one of Willerslev's co-authors, Dr. Rasmus Nielsen of the University of California, Berkeley, declared that they had made a grave mistake by not getting the consent of living aboriginal Australians. "It didn't seem right to go around the wishes of the aboriginal community by using that sample (4)," Nielsen said. "I was about to remove myself from the study due to these concerns." At first, Willerslev did not understand the fuss (5). "My view was that human history belongs to all of us because we're all connected, and no people have a right to stop our understanding of human history," he said. However, Willerslev decided to travel to Australia to meet with aboriginal representatives. He was shaken to learn of the unethical history of scientific research on aboriginal Australians.

7 Nineteenth-century British scientists, for example, carried off bones from burial grounds to put in museums without the consent of local aboriginals. Years of such exploitation had left many aboriginal Australians suspicious of scientists. Today, geneticists who want to study aboriginal DNA need to obtain consent not just from living donors, but also from community organizations. In many cases, there are limits on how widely scientific results can be shared. "Paying attention now, I could see why they were skeptical* and resistant," Willerslev said. "I should have definitely approached those people before undertaking the study. Just because

it's legally right doesn't make it ethically right." In Australia, Willerslev met with the Goldfields Land and Sea Council, which represents aboriginal people in the region where the hair sample had been obtained. He described the results of his analysis and asked for the council's consent to publish them. The council gave him permission. In fact, when the study came out, they praised the results in a statement, saying that their people feel relief and pride "in showing the broader community that they are by far the oldest continuous civilization in the world." His experiences in Australia have changed the way he and his colleagues investigate DNA derived from indigenous people. "I've evolved,"(6) he said.

8 In 2011, Willerslev learned of a 12, 700-year-old skeleton of a baby that had been found in 1968 on the Montana, USA, ranch of Melvyn and Helen Anzick. Willerslev was aware that many Native Americans, like aboriginal Australians, have grown suspicious about being exploited by scientists, so he got in touch with the family and received permission to search the bones of the so-called Anzick child(7) for DNA. Willerslev and his colleagues succeeded in getting DNA out of the bones. Based on his research in Greenland, he had suspected that the child belonged to a vanished population with no close kinship to living Native Americans. However, the genome proved otherwise: The child was closely related to living Native Americans.

9 As the preliminary results emerged, Willerslev was introduced to Dr. Shane Doyle, a member of the Crow Tribe who was then a graduate student at Montana State University. Doyle took Willerslev to a series of meetings with tribal representatives. Many of the people there were interested by the results, but many also told them that the Anzick child skeleton, like other remains found in Montana, deserved a proper burial. With tribal representatives in attendance, the Anzick family buried the remains in June 2014, four months after the genome paper was published. "It was a complicated case, and it would have been complicated for anyone," said a geneticist who was not involved in the research. He said it would have been best if Willerslev and his colleagues had been able to confer with the tribes before doing the research. "But I was pleased to see that it was ultimately done," he said.

10 Willerslev was then invited to look for DNA in one of the most controversial skeletons ever found: Kennewick Man, an 8, 500-year-old skeleton from Washington State. In 1996, Dr. Ripan Mahli, then a graduate student, had tried to find DNA in the newly discovered remains. The methods at the time were too crude for the job,(8) and research on Kennewick Man soon came to a halt as local tribes went to court to claim the bones as one of their ancestors and thus coming under a federal law protecting Native American graves. However, scientists argued that the specimen had European features and could not be closely related to present-day Native Americans and so was open to scientific investigation. After a decade of lawsuits,

a team of scientists won the right to study Kennewick Man, and in 2013, Willerslev was invited to try again to retrieve DNA from the bones, using his latest methods. As he assembled a team of experts, he asked Mahli if he would join. (9) At first, Mahli was reluctant. He had spent years building better relationships between scientists and Native Americans. A study of Kennewick Man might weaken those links. However, Mahli decided to join the team when Willerslev began meeting with local tribes. "My mind changed when I realized Willerslev was engaging with these communities," he said. The Kennewick Man genome, like the Anzick child's, revealed an ancient continuity between living Native Americans and the earliest people in the New World.

11 Willerslev has (10) mixed feelings about the consequences of his research on Kennewick Man. "I'm a scientist, and it means I regret that important material is getting reburied," he said. "But when you find that these remains are genetically Native Americans, it's not our call anymore." Since the Kennewick Man project, Willerslev has hosted visits from a number of Native American tribes to his laboratory in Copenhagen. (11) His guests have helped him see how differently he, as a European, treats history than they do. Willerslev once proudly showed off a collection of ancient Danish skulls to Native American visitors, only to find them upset by the sight. "How can you treat your ancestors like that, so disrespectfully?" he recalls them asking.

12 At another time, Willerslev hosted Doyle and some other members of the Crow Nation. Willerslev took them around the lab and proposed research he hoped the tribe would consider. Willerslev would like to investigate the influence of genes on the high rate of diabetes* in Native Americans, for example. One tribal member said he was intrigued by the idea. "I have family members younger than I am who are gone because of this disease," he said. Willerslev also raised the possibility of studying Crow DNA to understand their history. Doyle said he doubted the tribe would be interested. "We've had white people coming in and telling us things for a long time, and it's never really impressed us much," he said. Willerslev accepts that kind of rejection as part of his work. "We have to respect (12) that as scientists," he said. "We don't have to agree." Scientists should find a point somewhere between the two demands, scientific and cultural.

出典：

http://www.nytimes.com/2016/05/17/science/eske-willerslev-ancient-dna-scientist.html?rref=collection%2Fsectioncollection%2Fscience&action=click&contentCollection=science&region=stream&module=stream_unit&version=latest&contentPlacement=304&pgtype=sectionfront"

http://www.bbc.com/news/science-environment-33170655

注：

genome*＝ゲノム，生物の遺伝情報

aboriginal*＝(オーストラリア)先住民アボリジニ(の)

skeptical*＝懐疑的な

diabetes*＝糖尿病

設問 1　第1パラグラフの中で，コペンハーゲン大学の Willerslev 博士はどのような研究者であると記述されているか，簡潔にまとめよ。

設問 2　下線部 (1) の "sensitive" に最も意味が近い形容詞を選び，その記号を記入せよ。

A．affectionate　　B．gentle　　C．delicate　　D．fatal

設問 3　第2パラグラフに述べられている 4,000 年前の遺物を解析することによって何が判明したのか説明せよ。

設問 4　第3，4パラグラフにおいて

(1)　下線部 (2) の "the region" とはどこを指すか述べよ。

(2)　24,000 年前の遺物の解析によって判明した，Mal'ta boy の人類集団と，現代のヨーロッパ人，ネイティブ・アメリカン，東アジア人との間の遺伝学的関係を説明せよ。

設問 5　下線部 (3) の "his earlier belief" の内容を説明せよ。

設問 6　オーストラリア先住民アボリジニの人々の祖先について，

(1)　Dr. Willerslev の二つの仮説を説明せよ。

(2)　現代のアボリジニの DNA 解析ではそれらの仮説を検証することが困難であることの理由を述べよ。

設問 7　1920 年代のアボリジニの DNA を用いた研究から得られた結論は何か，説明せよ。

設問 8　下線部 (4) の "that sample" は何を指すか述べよ。

設問 9　下線部 (5) の “the fuss” にこの文脈で最も意味の近いものを選び，その記号を記入せよ。

A．Nielsen’s hesitation to remove himself from the study

B．Nielsen’s claim to use the sample

C．Nielsen’s wish to share the new finding with a larger audience

D．Nielsen’s seemingly unnecessary or excessive concern

設問10　第 7 パラグラフにおいて，今の Willerslev がアボリジニの懐疑や抵抗の理由は何だと考えているか，説明せよ。

設問11　アボリジニの DNA 解析結果を Willerslev が公表しようとした時，the Goldfields Land and Sea Council はいかなる反応を示したか，そしてそれはなぜかを説明せよ。

設問12　下線部 (6) において Willerslev が “I’ve evolved” と言うとき，いかなる変化を指しているのか，述べよ。

設問13　下線部 (7) の “Anzick child” とは誰(何)か，またその DNA 解析から判明したことは何かを述べよ。

設問14　下線部 (8) の “crude for the job” の意味をこの文脈に沿って説明せよ。

設問15　下線部 (9) において，なぜ Mahli は Willerslev の招きに躊躇したのかを述べよ。

設問16　下線部 (10) において，何について，そしてなぜ，Willerslev は “mixed feelings” を抱くのかを述べよ。

設問17　下線部 (11) を和訳せよ。

設問18　第 12 パラグラフにおいて，Willerslev がネイティブ・アメリカンと糖尿病との関係を遺伝学的に調べたいと言った時，あるネイティブ・アメリカンが興味を示したとある。なぜ興味を示したのかを説明せよ。

設問19　下線部 (12) の “that” が指示する内容をできるだけ詳しく説明せよ。

Ⅱ．以下の文章のかっこ「　」内を英訳せよ。　(配点 40 点)

(1) 次の文章は，作家村上春樹のエルサレム賞受賞演説の一部である。

「どんなに壁が正しくどんなに卵が間違っていても，私は卵の側に立つ。」

(2) 次の文章は野球選手イチローの格言として知られているものである。

「高い目標を成し遂げたいと思うなら，常に近い目標を持ち，できればその次の目標も持っておくことです。それを省いて遠くに行こうとすれば挫折感を味わうことになるでしょう。高い所にいくには下から積み上げていかなければなりません。」