

平成 30 年度 神奈川県立保健福祉大学
特別選抜（推薦 A、推薦 B、帰国生徒）入学試験

小論文試験
問題用紙

- 指示があるまでは中を見てはいけません。
- 解答はすべて解答用紙に記入してください。

問題

次の英文を読み、以下の設問に答えなさい。

Nearly 40 years after the world was jolted ^(注1) by the birth of the first test-tube baby, a new revolution in reproductive technology is on the horizon — and it promises to be far more controversial than in vitro fertilization ^(注2) ever was. Within a decade or two, researchers say, scientists will likely be able to create a baby from human skin cells that have been coaxed ^(注3) to grow into eggs and sperm ^(注4) and used to create embryos ^(注5) to implant in a womb ^(注6). The process, in vitro gametogenesis ^(注7), or I.V.G., so far has been used only in mice. But stem cell ^(注8) biologists say it is only a (1) of time before it could be used in human reproduction — opening up mind-boggling ^(注9) possibilities.

With I.V.G., two men could have a baby that was biologically related to both of them, by using skin cells from one to make an egg that would be fertilized by sperm from the other. Women with fertility problems could have eggs made from their skin cells, rather than go through the lengthy and expensive process of stimulating their ovaries ^(注10) to retrieve their eggs. “It gives me an unsettled feeling because we don’t know what this could lead to,” said Paul Knoepfler, a stem cell researcher at the University of California, Davis. “You can imagine one man providing both the eggs and the sperm, almost like cloning himself. You can imagine that eggs becoming so easily available would lead to designer babies.”

Some scientists even talk about what they call the “Brad Pitt scenario” when someone retrieves a celebrity’s skin cells from a hotel bed or bathtub. Or a baby might have what one law professor called “multiplex” parents.

“There are groups out there that want to reproduce among themselves,” said Sonia Suter, a George Washington University law professor who began writing about I.V.G. even before it had been achieved in mice. “You could have two pairs who would each create an embryo, and then take an egg from one embryo and sperm from the other, and create a baby with four parents.”

① Three prominent academics in medicine and law sounded an alarm about the possible consequences in a paper published this year. “I.V.G. may raise the specter ^(注11) of ‘embryo farming’ on a scale currently unimagined, which might exacerbate ^(注12) concerns about the devaluation of human life,” Dr. Eli Y. Adashi, a medical science professor at Brown; I. Glenn Cohen, a Harvard Law School professor; and Dr. George Q. Daley, dean of Harvard Medical School, wrote in the journal *Science Translational Medicine*. Still, how soon I.V.G. might become a reality in human reproduction is open to debate.

“I wouldn’t be surprised if it was five years, and I wouldn’t be surprised if it was 25 years,” said Jeanne Loring, a researcher at the Scripps Research Institute, who, with the San Diego Zoo, hopes to use I.V.G. to increase the population of the nearly extinct northern white rhino ^(注13). Dr. Loring said that when she discussed I.V.G. with colleagues who initially said it would never be used with humans, their (2) often melted away as the talk continued. But not everyone is convinced that I.V.G. will ever become a regularly used process in human reproduction — even if the ethical issues are resolved. “People are a lot more complicated than mice,” said Susan Solomon, chief executive of the New York Stem Cell Foundation. “And we’ve often seen that ② the closer you get to something, the more obstacles you discover.”

I.V.G. is not the first reproductive technology to challenge the basic paradigm of baby-making. Back when in vitro fertilization was beginning, many people were horrified by the idea of creating babies outside the human body. And yet, I.V.F. and related procedures have become so commonplace that they now account for about 70,000, or almost 2 percent, of the babies born in the United States each year. According to the latest estimate, there have been more than 6.5 million babies born worldwide through I.V.F. and related technologies. Of course, even I.V.F. is not

universally accepted. The Catholic Church remains firm in its (3) to in vitro fertilization, in part because it so often leads to the creation of extra embryos that are frozen or discarded.

I.V.G. requires layers of complicated bioengineering. Scientists must first take adult skin cells — other cells would work as well or better, but skin cells are the easiest to get — and reprogram them to become embryonic stem cells capable of growing into different kinds of cells. Then, the same kind of signaling factors^(注14) that occur in nature are used to guide those stem cells to become eggs or sperm.

出典：Tamar Lewin “Babies From Skin Cells? Prospect Is Unsettling to Some Experts”
The New York Times <https://www.nytimes.com/2017/05/16/health/ivg-reproductive-technology.html?_r=0>
(2017年5月16日掲載、最終アクセス2017年10月16日、一部改変)

- (注1) jolt：衝撃を与える、揺るがす (注2) in vitro fertilization：体外受精 (I.V.F.)
(注3) coax：誘導する (注4) sperm：精子
(注5) embryo：胚 (注6) womb：子宮
(注7) in vitro gametogenesis：体外配偶子形成 (I.V.G.)
(注8) stem cell：幹細胞
(注9) mind-boggling：あぜんとさせるような、信じられないような
(注10) ovary：卵巣 (注11) specter：恐ろしいもの
(注12) exacerbate：悪化させる (注13) white rhino：シロサイ
(注14) signaling factor：シグナル伝達因子

問1 本文中の (1) ～ (3) に入る最も適切なものを選び、記号で答えなさい。

- (1) ア gap イ gaze ウ matter エ merge
(2) ア materialism イ skepticism ウ organism エ mechanism
(3) ア accordance イ compromise ウ obedience エ opposition

問2 次の (1) ～ (3) について、本文の内容と一致しているものには○を、一致していないものには×を、それぞれ解答欄に記入しなさい。

- (1) I.V.G. の技術を用いれば、1組の男女がいなくても、2人の男の人から遺伝情報を引き継いだ子どもを作ることが可能である。
(2) 最近の推定によると、アメリカにおいては現在までに、650万人以上の子どもが体外受精またはそれに準じた生殖技術によって生まれたと考えられる。
(3) 皮膚以外の細胞をI.V.G. に用いることは不可能であるため、研究者たちはもっぱら皮膚の細胞をI.V.G. に用いてきた。

問3 下線部①を和訳しなさい。

問4 下線部②を参考に、“the + 比較級 ～ , the + 比較級 ～ ” を用いて次の日本語を英訳しなさい。

「彼女がその城の歴史を説明すればするほど、私は、その王様の運命を考えて、より恐くなった。」

問5 本文の内容を踏まえて、生殖技術の進歩について、あなたの考えを日本語650字以上800字以内で述べなさい (字数は厳守すること)。

