

お試し指導課題 08-2(40分)

I. 次の英文を読み, 設問 1 ~ 3 に答えよ。

1)Every day at Children's Hospital Boston, doctors wage life-and-death battles against blood diseases---the leukemias and anemias that can strike early in life. One of the powerful tools these doctors have is a bone marrow transplant, but many patients can't find a donor who is a close enough match to limit the risk of rejection. And even when there is a good match, the procedure is risky: the Children's program is considered one of the world's best, but 8 percent of its transplant patients died within one year, according to last year's statistics. Just down the block, 2)in a steel-and-glass research building constructed by the hospital, scientists are putting together an ambitious effort to radically improve the bone marrow transplant, making it safer and bringing it to a much larger number of patients. Their plan is to clone the skin cells of the patients themselves to create blood stem cells-a perfectly matched transplant, in theory, with virtually no risk of rejection.

The group of researchers at Children's is one of only five academic teams in the world with plans to clone human cells, a highly controversial technique. Yet, unlike the other groups, which hope for medical applications down the road, but are geared toward basic science, the team at Children's is focused on making cells to cure patients. 3)Being at this hospital, where doctors sometimes watch helplessly as a young life slips away, makes them feel they do not have a day to waste. "It can be very emotional," said Dr. Leonard Zon, director of a new stem cell program at Children's. "There is a sense of urgency." In pursuit of this goal, Zon and his colleague, Dr. George Daley, have been drawn deeply into an area of science that is looking for a precise answer to a seemingly simple question: where does blood come from?

Blood is so complex that scientists refer to it as an organ, like the brain or the heart. It includes the red blood cells that carry oxygen, at least five main types of white blood cells that protect the body, doing battle with invaders, as well as other specialized cells. Many things can go wrong with this system, such as leukemia, when blood cells become cancerous, or a long list of genetic diseases, including anemia, where the red blood cells do not form properly. To do bone marrow transplants today, doctors first use a combination of drugs and radiation to kill a patient's blood system. Then they give the patient bone marrow from a donor-often a family member-whose marrow is similar, and unlikely to be rejected to the body. In this bone marrow are a small number of blood stem cells. After they are injected into the patient, these stem cells travel to the patient's bone marrow, take up residence, and then completely rebuild the entire blood and immune systems. These blood stem cells, like every other cell in the body, began as a single fertilized egg cell. Using mice and tiny fish, scientists at Children's and elsewhere have been discovering how cells specialize as an embryo develops and trying to imitate that specialization in the laboratory. 4)While these experiments are under way, the work on cloning human cells has not begun because the team does not yet have permission from the participating institutions, or from an independent board, which by

U.S. federal law, reviews all research that involves people.

[注] bone marrow transplant: 骨髄移植 stem cell: 幹細胞

immune: 免疫の embryo: 胎芽, 腫

1. 本文中で言われていることと異なるものを a ~ d から一つ選べ。
 - a. For patients who survive the transplant, there can still be serious complications.
 - b. Using bone marrow from a donor that is not closely matched dramatically increases the risks.
 - c. Bone marrow transplant is a procedure to completely rebuild the entire blood and immune system.
 - d. Scientists succeeded in imitating the specialization of human skin cells in the laboratory.

2. 本文の題名として最も適したものを a ~ e から一つ選べ。
 - a. The Risk of Bone Marrow Transplant
 - b. The Validity of Cloning Human Cells
 - c. Making Cells to Cure Blood Disease
 - d. How to Cure Leukemia
 - e. Using Embryos for Bone Marrow Transplant

3. 全文をしっかり読んだことを踏まえて、下線部1) ~ 4)を日本語にきなさい。