The Guardian Weekly

# Koreans succeed in cloning human embryos

Level 3 | **Advanced**

## 1 Key Vocabulary

Fill the gaps using these words:

| | | | |
|---|---|---|---|
| **chromosome** | **stem cells** | **primates** | **degenerative** |
| **cloning** | **diabetes** | **blatocysts** | **fertility clinic** |

1. _____ is the procedure of creating an exact copy of an animal or plant cell using DNA.
2. The agents that transform a single fertilised human egg into 10 trillion cells in just 9 months are called _____ .
3. _____ are a small group of human cells that become an embryo.
4. A _____ is a place where people who are unable to have children can receive treatment.
5. A _____ is a part of the nucleus of a human cell containing genes.
6. A _____ disease is one that gradually gets worse.
7. If you suffer from _____, your body does not produce enough insulin to reduce the level of sugar in the blood.
8. Monkeys and apes belong to the group of animals known as _____ .

## 2 What do you know?

Are the following statements True or False?

| | True | False |
|---|---|---|
| 1. Stem cell research might result in treatment for long-term diseases like diabetes and Alzheimer's. | ☐ | ☐ |
| 2. Apart from sheep, scientists have also cloned rabbits, horses and a mule. | ☐ | ☐ |
| 3. President Bush is in favour of stem cell research. | ☐ | ☐ |
| 4. The human gestation period is nine months. | ☐ | ☐ |
| 5. Cloning is done by replacing DNA with chromosomes from another cell. | ☐ | ☐ |
| 6. The aim of stem-cell research is to produce cloned babies. | ☐ | ☐ |
| 7. The US government has approved the use of government money for stem cell research. | ☐ | ☐ |

Now read the text and check your answers.

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# Stem cell breakthrough brings hope of cures for genetic diseases, but raises alarm

South Korean and American scientists have cloned human embryos and successfully extracted stem cells from one of them. The research opens the way for once-undreamed of treatments for long-term diseases such as diabetes, Parkinson's and Alzheimer's. It also reignites the debate about human cloning. The team used 242 eggs from 16 women to clone 30 blastocysts - the tiny ball of cells that become an embryo. Stem cells are the agents that turn a single fertilised egg into up to 10 trillion cells in just nine months' gestation.

Scientists around the world have cloned sheep, mice, rats, rabbits, horses, and even a mule. But despite dramatic yet unsupported claims from European fertility clinics, primates and humans were thought to be almost impossible to clone.

The Korean and US scientists sucked the original DNA out of the egg, and substituted it with chromosomes from an adult cell. Then they "tricked" the egg into thinking it had been fertilised. "Nobody has cloned a human here," said Donald Kennedy, a biologist and editor in chief of Science.

Dr Kennedy hoped that it might prompt American politicians to think again about the ban on using government money for such research. It could offer the possibility that people with degenerative diseases such as Alzheimer's could be given tissue transplants with their own genetic "signature".

But the White House responded to the news of the breakthrough with a reminder that President George Bush is opposed to stem cell research. "The age of human cloning has apparently arrived: today cloned blastocysts for research, tomorrow cloned blastocysts for baby-making," said Leon Kass, chairman of the president's council on bioethics. Last week's announcement was the culmination of years of research into the potential benefits of therapeutic cloning. But for those benefits to be realised, researchers must now work out how to turn the cells into replacement human tissue needed to treat disease.

In the long term, some scientists believe it could be possible to grow entire organs. Linda Kelly of the Parkinson's Disease Society in the UK said: "This announcement is clearly a milestone in medical research." But the pressure group Human Genetics Alert warned that researchers had given a big boost to those who want to make cloned babies. Such fears arise because the initial steps in therapeutic cloning and reproductive cloning are identical.

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## 3 Comprehension Check

Choose the best answer for each question:

**1.** What is the main task still remaining for stem cell researchers?
- **a.** They have to learn how to clone babies.
- **b.** They have to work out how to turn stem cells into replacement human tissue.
- **c.** They have to trick eggs into believing they have been fertilised.

**2.** Why is stem cell research controversial?
- **a.** Because it involves using human eggs.
- **b.** Because the US government does not support it.
- **c.** Because some people believe it will lead to human cloning.

**3.** What is therapeutic cloning?
- **a.** Treating human cells.
- **b.** Using tissue transplants to treat degenerative diseases.
- **c.** It is another word for reproductive cloning.

**4.** What warning was given by the pressure group Human Genetics Alert?
- **a.** They claimed that the initial steps in therapeutic and reproductive cloning are identical.
- **b.** They warned that stem cell research would lead to human cloning.
- **c.** They said that the latest development would encourage those people who want to clone babies.

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## 4 Vocabulary: Find the word

Look in the text and find the following:

1. A phrase which means 'reopens the discussion'.
2. A verb which means 'to cause something to happen or de done'.
3. A noun which means 'a discovery or an achievement which comes after a lot of hard work'.
4. A noun which means 'the final result of a process'.
5. A noun which means 'an event or achievement that marks an important stage in a process'.
6. An adjective which means 'exactly the same'.

## 5 Vocabulary: Prepositions

Which prepositions follow these words?

1. extract _____
2. debate _____
3. substitute _____
4. respond _____
5. opposed _____
6. culmination _____
7. research _____
8. ban _____

## 6 Discussion

What are the points for and against stem cell research? Do you think it is morally acceptable to create a human clone?

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## 7 Key

### 1 Key Vocabulary

Fill the gaps using these words:

| | |
|---|---|
| chromosome | stem cells |
| primates | degenerative |
| cloning | diabetes |
| blatocysts | fertility clinic |

1. cloning;
2. stem cells;
3. blatocysts;
4. fertility clinic;
5. chromosome;
6. degenerative;
7. diabetes;
8. primates.

### 2 What do you know?

1. T; 2. T; 3. F; 4. T;
5. T; 6. F; 7. F.

### 3 Comprehension Check

1. b; 2. c; 3. b; 4. c.

### 4 Vocabulary: Find the word

1. reignites the debate;
2. to prompt;
3. breakthrough;
4. culmination;
5. milestone;
6. identical.

### 5 Vocabulary: Prepositions

1. from; 2. about; 3. with; 4. to;
5. to; 6. of; 7. into; 8. on.

Now look in the text and check your answers.