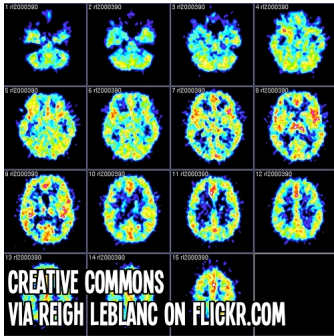


# Scientists find gene that erases memories

25<sup>th</sup> September, 2013



Researchers from the Massachusetts Institute of Technology have found the gene that could help people forget traumatic experiences. They say the research could benefit people with painful memories. Soldiers, crime victims and people who

survived natural disasters are some of the people this research could help. Many of these people suffer from very bad stress because of their memories. It is an illness called post-traumatic stress disorder (PTSD). The scientists found the memory gene in mice. They hope that one day they can erase painful memories in humans. They think they can replace upsetting memories with more positive thoughts and feelings. This would help millions of people who suffer from PTSD.

The head researcher, Li-Huei Tsai, did many tests to make mice forget their fear. Scientists put the mice into a cage and gave them a small electric shock. After many shocks, the mice became afraid of the cage. They were stressed when they saw it. Once the mice had "cage shock," the scientists put the mice in the cage again but didn't give them an electric shock. After a period of time, the mice no longer feared the cage. Positive feelings replaced their stress and fear. The scientists looked at the brain activity when the mice were afraid and when they were not afraid. They were surprised to find the gene that replaced old memories with new ones. They will now try to find this gene in humans.

Sources: *Medical News Today / Sky News*

## Writing

*It is wrong to change people's brains.* Discuss.

## Chat

Talk about these words from the article.

*researchers / traumatic / benefit / crime victims / memories / stress / positive thoughts / fear / electric shock / a period of time / brain activity / surprised / genes in humans*

## True / False

- a) Scientists have found the gene in human brains to erase memories. T / F
- b) Scientists say their research could help people who are very stressed. T / F
- c) Many people suffer from an illness called PDST. T / F
- d) Scientists think they can replace bad memories with good ones. T / F
- e) Researchers gave mice electric shocks to make them afraid. T / F
- f) Mice became stressed about and afraid of a cage. T / F
- g) The mice never lost their fear of the cage. T / F
- h) Scientists said they will never find the gene in human brains. T / F

## Synonym Match

- |                |                |
|----------------|----------------|
| 1. traumatic   | a. frightened  |
| 2. benefit     | b. locate      |
| 3. erase       | c. shocking    |
| 4. replace     | d. have        |
| 5. suffer from | e. good        |
| 6. tests       | f. amazed      |
| 7. afraid      | g. swap        |
| 8. positive    | h. experiments |
| 9. surprised   | i. help        |
| 10. find       | j. delete      |

## Discussion – Student A

- a) What do you think about what you read?
- b) Would you like to forget painful memories?
- c) Is this research dangerous?
- d) How can we help people with post-traumatic stress disorder?
- e) What do you do when you get stressed?
- f) Is it good to replace bad memories with good ones?
- g) Could this research make everyone happy one day?
- h) What do you do to relieve stress?

## Phrase Match

- |                                       |                           |
|---------------------------------------|---------------------------|
| 1. the gene that could                | a. stress disorder (PTSD) |
| 2. an illness called post-traumatic   | b. gene in humans         |
| 3. erase painful                      | c. who suffer from PTSD   |
| 4. replace upsetting memories with    | d. shock                  |
| 5. This would help millions of people | e. help people forget     |
| 6. tests to make mice                 | f. memories in humans     |
| 7. electric                           | g. activity               |
| 8. the mice no                        | h. more positive thoughts |
| 9. brain                              | i. longer feared the cage |
| 10. They will now try to find this    | j. forget their fear      |

## Discussion – Student B

- Is it wrong to give mice electric shocks?
- Would you go to a doctor to forget memories?
- Could doctors erase all your memories?
- Who would you be if all your memories disappeared?
- Could this research make fear disappear?
- Would we hurt ourselves if we had no fear?
- What's your worst memory?
- What questions would you like to ask the researchers?

## Spelling

- the Massachusetts testIuitn of Technology
- help people forget aartucitm experiences
- the research could ifenetb people
- natural idssersta
- ipustentg memories
- eoiivspt thoughts
- head ercheesrra
- eeltcicr shock
- They were sdessret
- After a iepodr of time
- the mice were fradai
- They were isupsrdre to find the gene

### Answers – Synonym Match

|      |      |      |      |       |
|------|------|------|------|-------|
| 1. c | 2. i | 3. j | 4. g | 5. d  |
| 6. h | 7. a | 8. e | 9. f | 10. b |

## Role Play

### Role A – Memories of first love

You think memories of first love are most important. Tell the others three reasons why. Tell them things that aren't important about their memories. Also, tell the others which is the least important of these (and why): the earliest memories of school, memories of winning or our earliest family memories.

### Role B – Earliest memories of school

You think the earliest memories of school are most important. Tell the others three reasons why. Tell them things that aren't important about their memories. Also, tell the others which is the least important of these (and why): memories of first love, memories of winning or our earliest family memories.

### Role C – Memories of winning

You think memories of winning are most important. Tell the others three reasons why. Tell them things that aren't important about their memories. Also, tell the others which is the least important of these (and why): the earliest memories of school, memories of first love or our earliest family memories.

### Role D – Earliest family memories

You think our earliest family memories are most important. Tell the others 3 reasons why. Tell them things that aren't important about their memories. Also, tell the others which is the least important of these (and why): the earliest memories of school, memories of winning or memories of first love.

## Speaking - Feelings

Rank these and share your rankings with your partner. Put the feelings you would like to erase most at the top. Change partners often and share your rankings.

- |                 |            |
|-----------------|------------|
| • fear          | • pain     |
| • stress        | • hate     |
| • embarrassment | • jealousy |
| • sadness       | • anger    |

### Answers – True False

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| a | F | b | T | c | F | d | T | e | T | f | T | g | F | h | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Answers to Phrase Match and Spelling are in the text.