



Scientists Discover Alzheimer's Trigger with Drug Potential in Mice

Description

Dementia affects millions globally and remains hard to treat. Scientists have found a potential new target for future treatments. They slowed dementia in mice using this discovery.

The target is an enzyme called G protein-coupled receptor kinase 2 (GRK2), important for cell health. GRK2 helps cells handle stress. Researchers found a faulty version of GRK2 that may relate to dementia.

This inactive GRK2 gathers around mitochondria, which are vital cell parts often linked to Alzheimer's disease. A team at ETH Zurich in Switzerland studied the connection between GRK2 and dementia.

They found a lot of inactive GRK2 in the brain cells of both mice and humans with Alzheimer's. In mice, it also increased amyloid-beta protein, associated with this disease.

Inactive GRK2 builds up like amyloid beta and harms mitochondria, causing stress in brain cells. This creates a harmful cycle, worsening the problem.

The researchers developed a compound called Compound 10. It stops inactive GRK2 from clumping, helping mitochondria work better and reducing amyloid beta. In mice, this slowed dementia's progress.

While more research is needed, including on human samples, results are promising. GRK2 was not deeply studied in Alzheimer's before. Researchers say GRK2 could offer new ways to address the complex disease. The study was published in *Cell Reports Medicine*.

Vocabulary List:

1. **dementia** //dɪ'mɛnfə// (noun): loss of memory and thinking abilities
2. **enzyme** //ɛnzɑɪm// (noun): a protein that helps chemical reactions
3. **mitochondria** //,maɪtə'kɑndrɪə// (noun): small parts in cells that make energy
4. **inactive** //ɪn'æktɪv// (adjective): not working or not doing anything
5. **compound** //'kɑmpaʊnd// (noun): a substance made of two or more parts
6. **clumping** //'klʌmpɪŋ// (verb): forming into a thick group or mass

Comprehension Questions



Multiple Choice

1. What enzyme is identified as a potential target for dementia treatment?
Option: GRK1
Option: GRK2
Option: GRK3
Option: GRK4
2. Which institution conducted the study on GRK2 and dementia?
Option: Harvard University
Option: ETH Zurich
Option: Stanford University
Option: Oxford University
3. What is the function of GRK2 in cells?
Option: To promote cell division
Option: To handle stress
Option: To enhance cell motility
Option: To regulate cell death
4. What compound did researchers develop to help with GRK2 inactivity?
Option: Compound 1
Option: Compound 5
Option: Compound 10
Option: Compound 20
5. What harmful protein is associated with Alzheimer's disease that increased in mice?
Option: Tau protein
Option: Neurofibrillary tangles
Option: Amyloid-beta
Option: Cerebral amyloid angiopathy
6. Is more research needed on human samples regarding GRK2's effects on dementia?
Option: Yes
Option: No



True-False

7. Inactive GRK2 has a beneficial effect on mitochondria.
8. The study on GRK2 and dementia was published in Cell Reports Medicine.
9. GRK2 is known to promote Alzheimer's disease.
10. The researchers found an active version of GRK2 in the brain cells of Alzheimer's patients.
11. Compound 10 assists in preventing inactive GRK2 from clumping.
12. Dementia only affects a small number of individuals globally.

Gap-Fill

13. Dementia affects millions globally and remains hard to treat. Scientists have found a potential new target for future treatments, specifically an enzyme called GRK2, which is important for cell health. GRK2 helps cells handle _____.
14. Inactive GRK2 gathers around mitochondria, which are vital cell parts often linked to _____ disease.
15. In the brain cells of mice and humans with Alzheimer's, researchers found a lot of _____ GRK2.
16. Inactive GRK2 builds up like amyloid beta and harms mitochondria, causing stress in brain _____.
17. The researchers developed a compound called Compound 10, which stops inactive GRK2 from clumping and helps _____ work better.



18. While more research is needed, including on human samples, results from the study were very

Answer

Multiple Choice: 1. GRK2 2. ETH Zurich 3. To handle stress 4. Compound 10 5. Amyloid-beta 6. Yes

True-False: 7. False 8. True 9. False 10. False 11. True 12. False

Gap-Fill: 13. stress 14. Alzheimer's 15. inactive 16. cells 17. mitochondria 18. promising

CATEGORY

1. Health - LEVEL3

POST TAG

1. Alzheimer's
2. B1
3. ESL learning
4. esl news
5. Level 3
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