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# Tests raise life extension hopes

<http://news.bbc.co.uk/go/pr/fr/-/1/hi/health/8139816.stm>

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## **A drug discovered in the soil of a South Pacific island may help to fight the ageing process, research suggests.**

When US scientists treated old mice with rapamycin it extended their expected lifespan by up to 38%. The findings, published in the journal Nature, raise the prospect of being able to slow down the ageing process in older people.

However, a UK expert warned against using the drug to try to extend lifespan, as it can **suppress *immunity***.

Rapamycin was first **discscovered** on Easter Island in the 1970s. It is already used to prevent organ rejection in transplant patients, and in stents implanted into **pateints** to keep their coronary arteries open. It is also being tested as a possible treatment for cancer.

Researchers at three centres in Texas, Michigan and Maine gave the drug to mice at an age equivalent to 60 in humans. The mice were bred to **mimic** the genetic diversity and susceptibility to disease of humans as closely as **posible**. Rapamycin extended the animals' expected lifespan by between 28% and 38%.

The researchers estimated that in human terms this would be greater than the **predicted** increase in extra years of life, if both cancer and heart **diseese** were prevented and cured.

Researcher Dr Arlan Richardson, of the Barshop Institute, said: "I've been in ageing research for 35 years and there have been many so-called 'anti-ageing' interventions over those years that were never successful. I never thought we would find an anti-ageing pill for people in my lifetime; however, rapamycin shows a great deal of promise to do just that."

Professor Randy Strong, of the University of Texas Health Science Center, said: "We believe this is the first **convincing** evidence that the ageing process can be slowed and lifespan can be extended by a drug therapy starting at an advanced age."

### **Calorie restriction**

Rapamycin appears to have a **similar** effect to restricting food intake, which has also been shown to **boost** longevity. It targets a protein in cells called mTOR, which controls many processes involved in metabolism and response to stress.

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The **reserchers** had to find a way to re-formulate the drug so that it was stable enough to make it to the mice's intestines before **begining** to break down.

The original aim was to begin feeding the mice at four months of age, but the delay caused by developing the new formulation meant that feeding did not start until the animals were 20 months old. The researchers thought the animals would be too old for the drug to have any effect - and were surprised when it did.

Professor Strong said: "This study has clearly **identified** a potential therapeutic target for the development of drugs aimed at preventing age-related diseases and extending healthy lifespan.

"If rapamycin, or drugs like rapamycin, works as **envisioned**, the potential reduction in health cost will be enormous."

### 'Don't try it now'

Dr Lynne Cox, an expert in ageing at the University of Oxford, described the study as "exciting".

She said: "It is especially interesting that the drug was effective even when given to older mice, as it would be much better to treat ageing in older people rather than using drugs long-term through life."

However, she added: "In no way should anyone consider using this **particelar** drug to try to extend their own lifespan, as rapamycin **supreses** immunity. While the lab mice were **protected** from infection, that's simply impossible in the human population. What the study does is to highlight an important molecular pathway that new, more specific drugs might be designed to work on."

"Whether it's a sensible thing to try to increase lifespan this way is another matter; perhaps **increaseing** health span rather than **overall** lifespan might be a better goal."

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## A. Read the article

Now answer the following questions.

1. Where and when was rapamycin discovered?
2. What is its current use?
3. What was the age of the mice in "human" terms?
4. What is the age group of those who would benefit from this drug?
5. How did the researchers come to try the drug on older mice?
6. Why does Lynne Cox advise against the use of rapamycin to extend lifespan?

**B.** What are your views? Should we be looking to prolong life? If we are, should we be doing experiments on animals? Why should we just not grow old naturally? Use the space below to explain your views on the issues raised in this article.

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C. Look at the words in the text that are in **bold**. They are listed on the left below. Can you match them with a word on the right that can replace them in the text.

For example **suppress** can be replaced by stifle

<b>suppress</b>	—————→	stifle
<b>mimic</b>		envisaged
<b>predicted</b>		total
<b>convincing</b>		imitate
<b>similar</b>		recognised persuasive
<b>boost</b>		
<b>identified</b>		shielded
<b>envisioned</b>		comparable
<b>protected</b>		expected
<b>overall</b>		improve

D. The words in **italics and underlined** are misspelled. Can you identify the correct spelling?

1. What is the correct spelling of **imunity?**

- a. imunnity
- b. immunity
- c. imunitty
- d. imunnitty

2. What is the correct spelling of **discscovered?**

- a. dicsoverd
- b. discoverd
- c. discovered
- d. discoverd

3. What is the correct spelling of **pateints?**

- a. patience
- b. pattients
- c. patiants
- d. patients

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4. What is the correct spelling of possible?

- a. possible
- b. posibble
- c. possibble
- d. possibel

5. What is the correct spelling of diseese?

- a. dissees
- b. disisease
- c. disease
- d. diseasse

6. What is the correct spelling of reserchers?

- a. researchers
- b. ressearchers
- c. resserchers
- d. reasearchers

7. What is the correct spelling of begining?

- a. begginning
- b. beggining
- c. beginning
- d. begenning

8. What is the correct spelling of particelar?

- a. particular
- b. partickular
- c. perticular
- d. perticuler

9. What is the correct spelling of supreses?

- a. suppresses
- b. supreses
- c. serpresses
- d. supresses

10. What is the correct spelling of increaseing?

- a. increesing
- b. increassing
- c. increasing
- d. incresing

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## Answers

A.

1. Easter Island in the 70s
2. To prevent organ and stent rejection.
3. 60
4. Older people
5. There was delay as they had to develop a new formulation.
6. It suppresses immunity.

C

<i>suppress</i>	stifle
<i>mimic</i>	imitate
<i>predicted</i>	expected
<i>convincing</i>	persuasive
<i>similar</i>	comparable
<i>boost</i>	improve
<i>identified</i>	recognised
<i>envisioned</i>	envisaged
<i>protected</i>	shielded
<i>overall</i>	total

D.

- b. immunity
- c. discovered
- d. patients
- a. possible
- c. disease
- a. researchers
- c. beginning
- a. particular
- a. suppresses
- c. increasing