

## Diseases in 'Factor X' could be next global threat

16th November 2023



Scientists say there could be something under frozen ground that contains many deadly diseases. Ancient microbes have been trapped for millennia in the permafrost that covers large areas of Earth. Permafrost is ground that stays completely frozen for

at least two years. It is common high in mountains and near the North and South Poles. The scientists say the permafrost is melting because of climate change. The result could be the release of unknown, harmful viruses, which scientists are calling 'Factor X'. Birgitta Evengard, a professor in infectious diseases at a university in Sweden, said we know little about Factor X and the biological dangers trapped in Earth's permafrost.

Virologist Jean-Michel Claverie says there are viruses deep in the permafrost that are more than 50,000 years old. He said these could be harmful to humans. Professor Claverie said "ancient viruses up to a million years old" would be the most terrifying because they are unknown and we have never encountered them before. He added that deadly bacterial diseases like smallpox and anthrax could be released on a large scale. Factor X could pose even bigger problems. However, many scientists agree that a bigger danger from melting permafrost is the release of methane. This is a greenhouse gas that is 80 times more harmful than CO<sub>2</sub>.

Sources: [newsweek.com](http://newsweek.com) / [sciencealert.com](http://sciencealert.com) / [msn.com](http://msn.com)

### Writing

We should start protecting the world against Factor X.

### Chat

Talk about these words from the article.

scientists / frozen / deadly diseases / microbes / permafrost / the North Pole / virus / virologist / ancient / terrifying / smallpox / anthrax / methane / greenhouse gas / CO<sub>2</sub>

### True / False

- 1) Scientists say there could be deadly diseases on the permafrost. T / F
- 2) The article says ancient bacteria has been trapped for billions of years. T / F
- 3) Permafrost is found near the North and South Poles. T / F
- 4) Scientists say they know a lot about Factor X. T / F
- 5) The deadliest viruses are in permafrost that is 50,000 years old. T / F
- 6) The diseases anthrax and smallpox are trapped in the permafrost. T / F
- 7) Melting permafrost is a bigger danger than the release of methane. T / F
- 8) Methane is 80 times more harmful than CO<sub>2</sub>. T / F

### Synonym Match

(The words in **bold** are from the news article.)

- |                       |                |
|-----------------------|----------------|
| 1. <b>under</b>       | a. freeing     |
| 2. <b>deadly</b>      | b. experienced |
| 3. <b>common</b>      | c. contagious  |
| 4. <b>release</b>     | d. fatal       |
| 5. <b>infectious</b>  | e. peril       |
| 6. <b>harmful</b>     | f. beneath     |
| 7. <b>ancient</b>     | g. present     |
| 8. <b>encountered</b> | h. damaging    |
| 9. <b>pose</b>        | i. widespread  |
| 10. <b>danger</b>     | j. very old    |

### Discussion – Student A

- a) What do you think about what you read?
- b) How can doctors help us with ancient, deadly viruses?
- c) What would you do if there was another deadly pandemic?
- d) What do you know about smallpox and anthrax?
- e) Do you like looking at movies about viruses?
- f) What do you know about methane and CO<sub>2</sub>?
- g) Are you more worried about viruses or methane?
- h) What questions would you like to ask the scientists?

## Phrase Match

- |  |                              |
|--|------------------------------|
| 1. there could be something under              | a. harmful viruses           |
| 2. Ancient microbes have been trapped          | b. stays completely frozen   |
| 3. Permafrost is ground that                   | c. even bigger problems      |
| 4. The result could be the release of unknown, | d. in Earth's permafrost     |
| 5. the biological dangers trapped              | e. the release of methane    |
| 6. ancient viruses up                          | f. like smallpox and anthrax |
| 7. deadly bacterial diseases                   | g. frozen ground             |
| 8. Factor X could pose                         | h. more harmful than CO2     |
| 9. a bigger danger from melting permafrost is  | i. to a million years old    |
| 10. a greenhouse gas that is 80 times          | j. for millennia             |

## Discussion – Student B

- How much do you worry about diseases?
- What do you know about microbes?
- How can we make sure microbes do not trouble us?
- What do you know about permafrost?
- What do you know about the North and South Poles?
- What do you think if Factor X was released?
- How can we stop the permafrost melting?
- How big a threat is factor X compared to other global threats?

## Spelling

- something under neorfz ground
- trapped for miallnine in the permafrost
- It is omnmoc high in mountains
- the eslaeer of unknown, harmful viruses
- fuetnciois diseases
- iaollcoqbi dangers
- these could be harmful to shanum
- nteicna viruses
- the most ytrfgeinri
- we have never conereenutd them before
- released on a large casei
- a bigger danger from neqlmti permafrost

### Answers – Synonym Match

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

## Role Play

### Role A – Melting Permafrost

You think melting permafrost is the biggest threat to the world. Tell the others three reasons why. Tell them why their things aren't as big a threat. Also, tell the others which is the least threatening of these (and why): viruses, the Internet or overpopulation.

### Role B – Viruses

You think viruses are the biggest threat to the world. Tell the others three reasons why. Tell them why their things aren't as big a threat. Also, tell the others which is the least threatening of these (and why): melting permafrost, the Internet or overpopulation.

### Role C – The Internet

You think the Internet is the biggest threat to the world. Tell the others three reasons why. Tell them why their things aren't as big a threat. Also, tell the others which is the least threatening of these (and why): viruses, melting permafrost or overpopulation.

### Role D – Overpopulation

You think overpopulation is the biggest threat to the world. Tell the others three reasons why. Tell them why their things aren't as big a threat. Also, tell the others which is the least threatening of these (and why): viruses, the Internet or melting permafrost.

## Speaking – Global Threats

Rank these with your partner. Put the most dangerous at the top. Change partners often and share your rankings.

- |                      |                   |
|----------------------|-------------------|
| • Melting permafrost | • Climate change  |
| • Viruses            | • Water shortages |
| • The Internet       | • Overpopulation  |
| • Nuclear War        | • Migration       |

### Answers – True False

1	F	2	F	3	T	4	F	5	F	6	T	7	F	8	T
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Answers to Phrase Match and Spelling are in the text.