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# Scientists Call for Ban on 'Mirror Life' to Protect Global Health

## Description

A consortium of distinguished scientists is advocating for a profound deliberation on the potential hazards posed by life forms comprised of 'mirror-image molecules', citing the substantial risks these entities could present to global well-being.

Although these eerie organisms have not materialized yet, the authors emphasize the critical necessity of introspection before venturing into the realm of mirror images.

"Motivated by curiosity and potential applications, some scientists have initiated efforts to develop life forms exclusively utilizing mirror-image biological molecules," assert the 38 experts in a Science commentary.

"Such mirror organisms represent a radical departure from conventional life forms, and their creation demands meticulous scrutiny."

All known life originates from 'right-handed' nucleotides in our DNA and RNA, and 'left-handed' amino acids that combine to form proteins. This intrinsic characteristic, referred to as homochirality, is a fundamental aspect of our biosphere's chemical processes with no room for alternative configurations.

Furthermore, mirror-image variations of our amino acids and nucleotides do exist, prompting researchers to contemplate the feasibility of a novel life form based on these inverted molecules.

Although the allure of producing mirror-image molecules is substantial, scientists caution against the creation of mirror bacteria due to the potential replication challenges that could ensue. The incompatibility with 'natural' life forms raises concerns about the unchecked proliferation of mirror organisms.

While the prospects of synthetic biology are promising, the hazards associated with building mirror bacteria necessitate a comprehensive and regulated global discourse on the matter. It is crucial to navigate the intersection of scientific advancement and potential risks effectively.

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## Vocabulary List:

1. **Consortium** /kən'sɔ:rtiəm/ (noun): An association of two or more entities for a common purpose.
2. **Hazards** /'hæzərdz/ (noun): Potential sources of danger or risk.
3. **Deliberation** /dɪ,lɪbə'reɪʃən/ (noun): Careful consideration or discussion.
4. **Meticulous** /mə'tɪkjələs/ (adjective): Showing great attention to detail; very careful and precise.
5. **Homochirality** /,həʊmɒs'kaɪrəlɪti/ (noun): The property of a system where molecules are predominantly one chiral form.
6. **Proliferation** /prə,lɪfə'reɪʃən/ (noun): Rapid increase or spread.



## Comprehension Questions

### Multiple Choice

1. What are scientists advocating for in relation to life forms with mirror-image molecules?  
Option: Immediate creation  
Option: Profound deliberation  
Option: Global proliferation  
Option: Unchecked experimentation
2. What is the fundamental aspect of our biosphere's chemical processes mentioned in the text?  
Option: Homochirality  
Option: Homogeneity  
Option: Heterogeneity  
Option: Hypochloremia
3. Why do scientists caution against the creation of mirror bacteria?  
Option: Due to rapid replication  
Option: Incompatibility with natural life forms  
Option: Lack of funding  
Option: Ease of containment
4. What do mirror organisms represent according to the Science commentary?  
Option: Conventional life forms  
Option: Radical departure  
Option: Traditional structures  
Option: Experimental adaptations
5. What motivation is attributed to some scientists initiating efforts to develop mirror organisms?  
Option: Fear of the unknown  
Option: Desire for worldwide recognition  
Option: Curiosity and potential applications  
Option: Monetary gain
6. What is the critical necessity emphasized by the authors before venturing into the realm of mirror images?



- Option: Hasty decision-making
- Option: Intensive experimentation
- Option: Meticulous scrutiny
- Option: Rapid implementation

### True-False

- 7. All known life originates from left-handed nucleotides in DNA and RNA.
- 8. Mirror organisms have already materialized according to the consortium of scientists.
- 9. Creating mirror bacteria poses no challenges according to the text.
- 10. Mirror organisms are considered conventional life forms.
- 11. Mirror-image variations of amino acids and nucleotides do not exist.
- 12. Scientists advocate for unchecked proliferation of mirror organisms.

### Gap-Fill

- 16. The creation of mirror bacteria demands meticulous \_\_\_\_\_.
- 17. Scientists are cautious about the potential \_\_\_\_\_ of mirror organisms.

## Answer

**Multiple Choice:** 1. Profound deliberation 2. Homochirality 3. Incompatibility with natural life forms 4. Radical departure 5. Curiosity and potential applications 6. Meticulous scrutiny

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

**Gap-Fill:** 16. scrutiny 17. replication

## Vocabulary quizzes

**Multiple Choice ( Select the Correct answer for each question. )**



1. A consortium refers to:
  - Option: A group of individuals with shared interests
  - Option: A solo business enterprise
  - Option: A state government organization
  - Option: An independent research institute
2. Toxicity is a term used to describe:
  - Option: The medicinal benefits of a substance
  - Option: The harmful effects of a substance on living organisms
  - Option: The taste of a particular chemical compound
  - Option: The color of a poisonous gas
3. A chronic condition is one that is:
  - Option: Temporary and short-lived
  - Option: Fatal and incurable
  - Option: Severe but brief
  - Option: Persisting over a long period of time
4. Cognitive processes involve:
  - Option: Physical movements and reflexes
  - Option: Brain functions like thinking and memory
  - Option: Emotional responses and reactions
  - Option: Respiratory and circulatory activities
5. Enhancing means:
  - Option: Diminishing or reducing
  - Option: Improving or making better
  - Option: Maintaining at current levels
  - Option: Modifying to be different
6. Proliferation refers to:
  - Option: Decrease in population
  - Option: Rapid increase or growth
  - Option: Stabilization of numbers
  - Option: High mortality rate
7. Being meticulous involves:
  - Option: Careful attention to detail
  - Option: Hastily completing tasks
  - Option: Being reckless
  - Option: Lacking concern for accuracy



8. Correlations refer to:

- Option: Causal relationships
- Option: Unrelated factors
- Option: Negative outcomes
- Option: Statistical associations between variables

9. Neuroticism is characterized by:

- Option: Stability and calmness
- Option: Excessive worry and anxiety
- Option: Outgoing and sociable behavior
- Option: Confidence and assertiveness

10. Vascular pertains to:

- Option: Bones and muscles
- Option: Immune system
- Option: Blood vessels
- Option: Digestive system

**Gap-Fill ( Fill in the blanks with the correct word from the vocabulary list. )**

11. Hazards are potential sources of \_\_\_\_\_ to health or the environment.

12. The study of changes in gene expression caused by modification of the \_\_\_\_\_

rather than alteration of the genetic code itself is called epigenetics.

13. Smoking is a habit that has many \_\_\_\_\_ effects on health especially on the lungs and heart.

14. Being \_\_\_\_\_ in unhealthy eating habits can lead to obesity and other health issues.

15. The concept of \_\_\_\_\_ in molecules refers to their mirror-image symmetry.

16. Regular exercise has a \_\_\_\_\_ impact on overall health and well-being.

17. An \_\_\_\_\_ studies the patterns causes and effects of health and disease conditions in defined populations.



18. Taking the prescribed \_\_\_\_\_ is important to manage certain medical conditions.
19. To \_\_\_\_\_ the negative effects of stress individuals can practice relaxation techniques.
20. The \_\_\_\_\_ impact of small lifestyle choices can significantly affect long-term health outcomes.

**Matching Sentences ( Match each definition to the correct word from the vocabulary list. )**

21. The reckless actions of the driver led to severe repercussions for all involved.
22. Her meticulous attention to detail and conscientiousness made her a valuable team member.
23. Various psychological disorders can impact an individual's daily functioning and well-being.
24. Consuming foods rich in flavanols may have positive effects on heart health.
25. The alterations made to the original design improved the efficiency of the product.
26. The process of methylation plays a role in gene expression and regulation.
27. Regular exercise is beneficial for cardiovascular health and overall fitness.
28. Fruits and vegetables are rich sources of antioxidants which help protect cells from damage.
29. His dedication and hard work epitomized the values of the company.
30. The epidemiologist conducted a comprehensive study to determine the cause of the disease outbreak.

## Answer

**Multiple Choice:** 1. A group of individuals with shared interests 2. The harmful effects of a substance on living organisms 3. Persisting over a long period of time 4. Brain functions like thinking and memory 5. Improving or making better 6. Rapid increase or growth 7. Careful attention to detail 8. Statistical associations between variables 9. Excessive worry and anxiety 10. Blood vessels

**Gap-Fill:** 11. danger 12. epigenome 13. detrimental 14. indulgent 15. homochirality 16. substantial 17. epidemiologist 18. medication 19. counteract 20. cumulative

**Matching sentence:** 1. Repercussions



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2. Conscientiousness 3. Disorders 4. Flavanols 5. Alterations 6. Methylation 7. Cardiovascular 8. Antioxidants  
9. Epitomizing 10. Epidemiologist

## CATEGORY

1. Health - LEVEL5

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