**2025高考英语一轮复习外刊阅读与词汇专练**

**专题04 RNA破防了！我不是DNA的小弟！**

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**【精编·外刊阅读】**

**A primer on RNA, perhaps the most consequential molecule of all**

**（文章来源：Economist）**

**文中红色粗体为课标词，下面有专门的高频课标词训练和课标词梳理表格**

A close-up of a dna strand

Description automatically generatedFor years, students of cell **biology** were taught that RNA was merely a humble **assistant** to DNA and proteins. DNA was seen as the library of all knowledge and proteins as the constructors of an **organism**. RNA was viewed as a **messenger**（信使）, carrying DNA's plans to cell **workshops** and being part of the **workshop** fabric. Biologists now realize that RNA has a far wider **range** of jobs in cells than earlier understood. It seems **likely** that RNA even precedes DNA and proteins as the **original** molecule（分子） of life.

Thomas Cech's new book, "The Catalyst," describes how the view of RNA has changed. In the 1980s, Cech supported the idea that RNA molecules can act as enzymes（酶）, challenging the belief that only proteins could be catalysts. In 1989, he shared the Nobel chemistry prize for discovering "ribozymes（核酶）". Dr Cech’s team found an "autocatalytic（自催化的）" rearrangement of an RNA molecule. This molecule, meant to become part of a ribosome（核糖体）, cut out an **unnecessary** part. This discovery challenged the belief that enzymes are always proteins.

Similar discoveries by other labs **quickly** followed, **revealing** other types of ribozymes. RNA in ribosomes was discovered to be catalytic, not just structural. It is RNA, not the protein **component**, that adds amino（氨基） acids to a growing protein **chain**. This discovery **excited** scientists **seeking** life’s **origin**. RNA, which can both store information and catalyze（催化） **reactions**, may have been the earliest molecule of life. Early RNA-based organisms may have **later** **evolved** to use DNA for information **storage** and proteins for catalysis, with RNA **linking** these molecules.

Since Dr Cech’s discovery, many types of RNA have been found, **involved** in **gene** **regulation** and protecting cells from viral **infection**. About half of medicines **work** by **targeting** **germ** RNA while leaving human RNA unaffected, which is a promising starting point for new **drugs**. RNA can silence **disease**-causing **genetic** changes by pairing with and disabling RNA **messengers** from changed DNA **sections**. RNA messengers have been used to create covid **vaccines** and may be used against other diseases, including certain **cancers**.

**【原创 阅读理解】**

1. What was RNA traditionally viewed as in cell biology?

A. A primary molecule responsible for genetic inheritance

B. A secondary molecule assisting DNA and proteins

C. The main structural component of cells and tissues

D. An enzyme that catalyzes biochemical reactions

1. How can the word "catalysts" be interpreted in the context of this passage?

A. Things that slow down chemical reactions in cells

B. Proteins that support and maintain cell structures

C. Molecules that carry genetic information to cells

D. Substances that help speed up chemical reactions

1. Why is RNA important in the study of life's origin?

A. RNA's ability to act as both genetic material and an enzyme supports theories of early life

B. RNA's stability and versatility make it essential for understanding early life

C. RNA's simplicity compared to DNA and proteins suggests it was the first biological molecule

D. RNA's presence in early organisms underscores its evolutionary importance

1. What does the article imply about the future possibilities for RNA in medicine?

A. RNA will likely become the main focus of genetic research, overshadowing DNA

B. RNA-based therapies have the potential to revolutionize treatment for various diseases

C. RNA's role in cellular functions suggests it will replace proteins in many therapies

D. RNA applications are limited, but they show promise in specialized fields like oncology

**【原创 语法填空】**

For years, students of cell biology were taught that RNA was merely an assistant to DNA and proteins. DNA \_\_\_\_1\_\_\_\_ (consider) the library of all knowledge, and proteins were seen as the builders of an organism. RNA was viewed as a messenger, \_\_\_\_2\_\_\_\_ (carry) DNA's instructions to cell workshops. Biologists now realize that RNA performs a much \_\_\_\_3\_\_\_\_ (wide) range of jobs in cells.

Thomas Cech's book, "The Catalyst," highlights how perceptions of RNA have changed. In the 1980s, Cech proposed that RNA molecules can act as enzymes, challenging the belief that only proteins could be catalysts. In 1989, he won the Nobel Prize for discovering "ribozymes." His team identified \_\_\_\_4\_\_\_\_ "autocatalytic" RNA molecule \_\_\_\_5\_\_\_\_ removed an unnecessary part to become part of a ribosome.

Other labs quickly made similar \_\_\_\_6\_\_\_\_ (discovery), identifying more ribozymes. RNA in ribosomes was found to be catalytic, not just structural. It is RNA, not protein, \_\_\_\_7\_\_\_\_ adds amino acids to a growing protein chain. RNA, capable of storing information and catalyzing reactions, may have been the earliest molecule of life. Early RNA-based organisms might have evolved to use DNA for information storage and proteins for catalysis, \_\_\_\_8\_\_\_\_ RNA linking these molecules.

About half of medicines work by targeting germ RNA while leaving human RNA unaffected. RNA messengers \_\_\_\_9\_\_\_\_ (use) to create COVID-19 vaccines and might be used against other diseases, \_\_\_\_10\_\_\_\_ (include) cancers.

**【原创·课标高频词训练】**

1. It is \_\_\_\_\_\_\_\_\_\_ (necessary) to provide further proof when the evidence is already overwhelming.
2. Our current \_\_\_\_\_\_\_\_\_\_ (store) capabilities are insufficient for the volume of data we handle daily.
3. The government's new \_\_\_\_\_\_\_\_\_\_ (regulate) on emissions has sparked controversy among car manufacturers.
4. Over millions of years, animals \_\_\_\_\_\_\_\_\_\_ (evolve) specialized traits to survive in their habitats.
5. The campaign \_\_\_\_\_\_\_\_\_\_ (target) demographic includes young adults aged 18-25.
6. Scientists constantly \_\_\_\_\_\_\_\_\_\_ (seek) to understand the underlying causes of complex diseases.
7. The study \_\_\_\_\_\_\_\_\_\_ (reveal) significant differences between the two groups.
8. The temperature \_\_\_\_\_\_\_\_\_\_ (range) in this region can vary dramatically between day and night.
9. The \_\_\_\_\_\_\_\_\_\_ (origin) manuscript of the novel is preserved in the national library.
10. The committee is \_\_\_\_\_\_\_\_\_\_ (mere) advisory and has no decision-making powers.
11. Given the current circumstances, it is highly \_\_\_\_\_\_\_\_\_\_ (like) that the project will be delayed.
12. The investigation \_\_\_\_\_\_\_\_\_\_ (involve) multiple agencies working collaboratively.
13. Proper hygiene practices can significantly reduce the risk of \_\_\_\_\_\_\_\_\_\_ (infect).
14. The project presents many \_\_\_\_\_\_\_\_\_\_ (challenge) to the team, requiring innovative solutions.
15. The patient's \_\_\_\_\_\_\_\_\_\_ (react) to the medication was carefully monitored by the doctors.

**【梳理·外刊中的课标词】**

|  |  |  |  |
| --- | --- | --- | --- |
| **词汇** | **中文注释** | **词汇** | **中文注释** |
| assistant |  | workshop |  |
| vaccine |  | unnecessary |  |
| storage |  | regulation |  |
| quickly |  | organism |  |
| later |  | germ |  |
| genetic |  | gene |  |
| excited |  | evolve |  |
| biologist |  | target |  |
| seek |  | section |  |
| reveal |  | reaction |  |
| range |  | original |  |
| origin |  | merely |  |
| link |  | likely |  |
| involve |  | infection |  |
| humble |  | fabric |  |
| drug |  | disease |  |
| component |  | challenge |  |
| chain |  | cancer |  |
| biology |  |  |  |