**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

【答案】BDAB

【导语】这是一篇说明文，讲述了RNA在细胞生物学中的作用和地位发生的变化，特别是其在催化作用和早期生命研究中的重要性。

1. **细节理解题。**根据文章第一段的内容：“For years, students of cell biology were taught that RNA was merely a humble assistant to DNA and proteins.”可以得出答案。RNA 被传统认为是DNA和蛋白质的辅助分子。故选B。
2. **词义猜测题。**根据第二段中“RNA molecules can act as enzymes, challenging the belief that only proteins could be catalysts.”可知，催化剂是指帮助加速化学反应的物质。故选D。
3. **推理判断题。**根据第三段中“RNA, which can both store information and catalyze reactions, may have been the earliest molecule of life.”可知，RNA能同时储存信息和催化反应，这支持了早期生命的理论。故选A。
4. **推理判断题。**根据最后一段中“About half of medicines work by targeting germ RNA... RNA messengers have been used to create covid vaccines and may be used against other diseases, including certain cancers.”可知，RNA在医学上有潜力革新各种疾病的治疗方法。故选B。

**【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.

【答案】

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1. was considered | 2. carrying | 3. wider | 4. an | 5. that/which |
| 6. discoveries | 7. that | 8. with | 9. were used | 10. including |

【导语】本文是一篇说明文，主要介绍了 RNA 在细胞中的作用及其在生物学研究中的重要发现和应用。

1. **was considered** 考查动词时态和语态。句意：DNA被认为是所有知识的图书馆。根据句意，主语DNA和动词consider之间是被动关系，且叙述过去的事实，所以用一般过去时的被动语态。故填was considered。
2. **carrying** 考查非谓语动词。句意：RNA被视为传递DNA指令到细胞车间的信使。此处为现在分词短语作后置定语，表示RNA的功能。故填carrying。
3. **wider** 考查形容词比较级。句意：生物学家现在意识到，RNA在细胞中执行更广泛的工作。根据句意，RNA的功能范围相比以前更广泛，应用比较级。故填wider。
4. **an** 考查冠词。句意：他的团队识别出一个“自催化”RNA分子。autocatalytic的发音以元音音素开头，所以用不定冠词an。故填an。
5. **that/which** 考查关系代词。句意：自催化RNA分子移除了不必要的部分成为核糖体的一部分。此处为定语从句修饰先行词RNA molecule，关系代词在从句中作主语，故填that/which。
6. **discoveries** 考查名词复数。句意：其他实验室很快做出了类似的发现，识别出更多的核酶。根据句意，此处表示多项发现，用名词复数形式。故填discoveries。
7. **that** 考查强调句。句意：在蛋白质链上添加氨基酸的是RNA而不是蛋白质。此句是强调句结构，强调的是主语RNA。It is ... that ... 是强调句型。故填that。
8. **with** 考查介词。句意：早期的RNA基生物可能进化出使用DNA进行信息存储和使用蛋白质进行催化的能力，并且RNA将这些分子连接起来。根据句意和逻辑，此处用介词with表示伴随。故填with。
9. **were used** 考查动词时态和语态。句意：RNA信使被用来制作COVID-19疫苗。根据上下文时态和语义，用一般过去时的被动语态。故填were used。
10. **including** 考查非谓语动词。句意：RNA信使可能被用来对抗包括癌症在内的其他疾病。including作非谓语动词，表示包括。故填including。

**【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.

**【答案】**

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| 1. unnecessary | 2. storage | 3. regulation | 4. have evolved | 5. targeting |
| 6. seek/are seeking | 7. reveals | 8. range | 9. original | 10. merely |
| 11. likely | 12. involves | 13. infection/being infected | 14. challenges | 15. reaction |

**【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 |  |  |  |

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| --- | --- | --- | --- |
| **词汇** | **中文注释** | **词汇** | **中文注释** |
| assistant | n.助手 | workshop | n.工作坊 |
| vaccine | n.疫苗 | unnecessary | adj.不必要的 |
| storage | n.存储 | regulation | n.调控 |
| quickly | adv.快速地 | organism | n.有机体 |
| later | adv.后来 | germ | n.细菌 |
| genetic | adj.遗传的 | gene | n.基因 |
| excited | adj.兴奋的 | evolve | v.进化 |
| biologist | n.生物学家 | target | n.目标 |
| seek | v.寻找 | section | n.部分 |
| reveal | v.揭示 | reaction | n.反应 |
| range | n.范围 | original | adj.原始的 |
| origin | n.起源 | merely | adv.仅仅 |
| link | v.连接 | likely | adj.可能的 |
| involve | v.涉及 | infection | n.感染 |
| humble | adj.谦逊的 | fabric | n.结构 |
| drug | n.药物 | disease | n.疾病 |
| component | n.成分 | challenge | n.挑战 |
| chain | n.链 | cancer | n.癌症 |
| biology | n.生物学 |  |  |