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Crash Course Biology #34: Transcription: How mRNA Helped Save Lives

Name: _____ Date: _____

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1. The COVID-19 vaccine introduced a new kind of medicine called the _____ vaccine.
2. Traditional vaccines use a weakened or inactive version of a _____ to trigger an immune response.
3. mRNA vaccines provide cells with instructions to make a _____ that mimics part of a virus.
4. The molecule that carries genetic instructions from DNA to the ribosome is called _____.
5. DNA is stored in a special structure in eukaryotic cells known as the _____.
6. The process of copying DNA into RNA is called _____.
7. The enzyme responsible for synthesizing RNA from a DNA template is called _____.
8. In RNA, the base thymine (T) is replaced with _____.
9. The process where non-coding regions of mRNA are removed before translation is called _____.
10. A sequence of nucleotides at the beginning of a gene that signals where RNA polymerase should bind is called a _____.
11. The addition of a _____ and a _____ tail to mRNA helps stabilize the molecule before it leaves the nucleus.
12. The cellular structures responsible for reading mRNA and assembling proteins are called _____.
13. The flow of genetic information from DNA to RNA to proteins is known as the _____.
14. Alternative _____ allows one gene to produce multiple protein variants.
15. The scientist Francis Crick is known for formulating the concept of the _____, which explains the direction of genetic information flow.

Crash Course Biology #34: Transcription: How mRNA Helped Save Lives – KEY

1. The COVID-19 vaccine introduced a new kind of medicine called the **mRNA** vaccine.
2. Traditional vaccines use a weakened or inactive version of a **virus** to trigger an immune response.
3. mRNA vaccines provide cells with instructions to make a **protein** that mimics part of a virus.
4. The molecule that carries genetic instructions from DNA to the ribosome is called **messenger RNA (mRNA)**.
5. DNA is stored in a special structure in eukaryotic cells known as the **nucleus**.
6. The process of copying DNA into RNA is called **transcription**.
7. The enzyme responsible for synthesizing RNA from a DNA template is called **RNA polymerase**.
8. In RNA, the base thymine (T) is replaced with **uracil (U)**.
9. The process where non-coding regions of mRNA are removed before translation is called **splicing**.
10. A sequence of nucleotides at the beginning of a gene that signals where RNA polymerase should bind is called a **promoter**.
11. The addition of a **cap** and a **poly-A** tail to mRNA helps stabilize the molecule before it leaves the nucleus.
12. The cellular structures responsible for reading mRNA and assembling proteins are called **ribosomes**.
13. The flow of genetic information from DNA to RNA to proteins is known as the **Central Dogma**.
14. Alternative **splicing** allows one gene to produce multiple protein variants.
15. The scientist Francis Crick is known for formulating the concept of the **Central Dogma**, which explains the direction of genetic information flow.

15 Questions

Answer Key Included

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