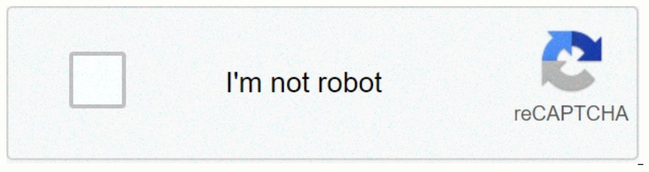

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Chapter 13 rna and protein synthesis chapter test b answer key

1. Period date of name Chapter 13 BatchCh worksheet. 13.1 Targets RNALesson Contrast of RNA and DNA. Please explain the transcript procedure. Summary Lesson The role of RNA RNA (ribonucleic acid) is a core acid, such as DNA. It consists of a long chain of steelotides. The base sequence of RNA directs protein production. In the end, cellular protein in phenotypical properties. The main differences between RNA and DNA are: Sugar in RNA is ribose instead of deoxyribose. RNA is generally one-stranded and not double-stranded as DNA. RNA contains uracil at the site of thyme. RNA can be understood as a copy of DNA for in-use. Most RNA molecules are involved in protein synthesis. The three main types of RNA are: Messenger RNA (mRNA) carries copies of the instructions for the synthesis of polypeptide from the core to the ribosomes in the cytoplasm. Ribosomic RNA (rRNA) is an important part of the two subosomes of ribosomes, cell structures where proteins are composed. Transmission of RNA (tRNA) transmits amino acids to the ribos and matches them with the codicant mRNA message. RNA synthesis Most RNA manufacturing work takes place during overwriting. In the transcript, DNA segments serve as templates for the production of complementary RNA molecules. In prokaryotics, RNA synthesis and protein synthesis in the cytoplasm are carried out. In eukaryotics, RNA is produced in a core cell and then moved into the cytoplasm to play a role in the production of proteins. The following focuses on transcription in eukaryotic cells. The RNA polymerase enzyme fits into THE DNA during transcription and separates the DNA strands. It then uses one strand of DNA as a template from which the composition of the steelotides in the complementary assembly of RNA. RNA polymerase relies only on carriers, regions of DNA that have specific base sequences. Carriers are signals to a DNA molecule that shows RNA polymerases exactly where to start RNA. Similar signals cause transcription to be interrupted when a new RNA molecule is completed. RNA can be edited before use. Portions that are cut and discarded are called introns. The remaining pieces, known as exons, are then cut together again to form the last mRNA.Role RNA 1. Complete the table to contrast the STRUCTURES OF DNA and RNA. Sugar Number of strands OF DNA RNA base one hour 2.2. Specify each type of RNA in the lines listed. a. Transfer of RNA b messenger RNA c. ribosomic RNA 2. RNA Synthesis For questions 4-10, complete each statement by writing the correct word or words. 3. The process of using DNA for the production of complementary RNA molecules is called transcript 4. The sequence transcripted in mRNA complements the sequence in the DNA template. 5. In eukaryotes, RNA is formed in a core cell and then travels to the cytoplasm. . 6. The polymerase RNA enzyme fits into THE DNA during transcription. 7. RNA polymerases are designated carriers that are the beginning of the signals for transcription. 8. Intros are parts of RNA which are cut and discarded. 9. exans are cut together to make the final mRNA. 13.2 Objectives of the lesson on the synthesis of ribooms and proteins Define the genetic code and explain how to read it. Enlauing the translation process. Describe the central dogma of molecular biology. Lesson Summary Genetic code Specific sequence of bases in DNA bears direction for the formation of polypeptide, chain amino acids. The types and order of amino acids in polypeptide determine protein properties. The sequence of bases in mRNA is a genetic code. Four bases, A, C, G, and U, they act like letters. 3. The code is read three letters at a time so that each word is three bases long and corresponds to one amino acid. Every three letter word in mRNA is known as codene. Some codens serve as start and stop signals for protein synthesis. Translation Ribosomi uses a sequence of codes in mRNA to assemble amino acids into polypeptide chains. The process of decoding the mRNA message into a protein is a translation. Messenger RNA is overwritten in a core dish and then enters the cytoplasm. 4. On the ribosome, the translation begins at the beginning of the code. Each codon attracts anticodone, a complementary sequence of bases on tRNA. 5. Each tRNA carries one type of amino acid. The match between the coden and the anticodone ensures the addition of the correct amino acid to the growth chain. 6. Amino acids are combined together, each in turn. Ribosome moves along mRNA, which exposes cod, which with attached amino acids still attract more tRNA. 7. The process is completed when the shutdown code is reached. The newly created polypeptide and the mRNA molecule are released from the ribosome.8. Molecular basis of heredity Molecular biology aims to explain living organisms by studying them at the molecular level, using molecules such as DNA and RNA. 3. 9. The central dogma of molecular biology is that information is transferred from DNA to RNA to proteins.10. Genetic expression is the way in which DNA, RNA and proteins are involved in the placing of genetic information into the action of living cells. The genetic code is generally the same in all organisms. Genetic code For answers to questions 1-7, you can answer the diagram. 1. What are the words on the outside of the circle?amino acid. 11. 2. What can you find by reading this diagram from inside navzho? You find what each coden and other things fit. 12. 3. For which amino acid is AAA codene? 13. 4. What is the coden for tryptophan? AUG 14. 5. For which amino acid is GGA codene? Glycine. 15. 6. What is a coden for alanine? GCA 16. 7. What are the three other co-ords for alanine? GCC, GCU, GCG. Translation Use diagram to answer questions 8-10. Phenylalane leucine methionine 8. What is anticodone for leucine? 9. What is a leucine coden? GAC 10. Indicate the amino acids in the order that would appear in the polypeptide where this mRNA is located. 11. What is the difference between transcription and translation?transcription is the synthesis of RNA molecules from DNA templates then the translation sequence of the base of mRNA is converted into a sequence of amino acid proteins.12. Complete the table to describe the steps in protein synthesisStep DescriptionObwalking of the fishmain binds to mRNA in the cytoplasm. amino acids in ribosomes. these amino acids to the growing chain. 4. The bonding assembly that holds the first tRNA molecule on its amino acids is broken. the polypeptide thetRNAthane is moved to the third binding position from which it exits the ribosome. the ribomoom is then moved to 3 coden. When the ribosom stops the co-ord, it releases both the newly created polypeptide and the polypeptide mRNA molecule. 13. Describe the role of the rRNA during translation. helps keep the ribosome protein in place and find the beginning of the mRNA message. Molecular basis of heredity For questions 14-18, write the letter of the correct answer on the line on the left. 14. Instructions for protein composition are found in genes A. . B. ribosomes. C. exons. D. introns. 15. The central dogma of molecular biology is that information is transferred from A. RNA to proteins to DNA. B. DNA to proteins up to RNA. C. Proteins to DNA to RNA. D. DNA for RNA to proteins. 16. The exception to the central dogma is A. infection of the bacteriofago virus. B. The ability of certain viruses to transmit information from RNA to DNA. C. expression of different genes at different stages of development. D. Translation of the coden into anticodone tRNA. 17. The way in which DNA, RNA and proteins are incorporated into the functioning of genetic information in living cells is called 17. A. translation. B. Transcript. C. genetic expression. D. viral transmission. 18. All organisms are mostly identical to the A. proteins they make on their ribooms. B. How their proteins catalyze chemical reactions. C. the size of their genes. D. Molecular biology of their genes. 13.3 Mutation lesson objectives 18. Define mutations and describe different types of mutations. 19. Describe the effects that mutations can have on genes.20. Lesson Summary Types of mutations Mutations are inherited changes in genetic information. There are two categories of mutations: gene mutations and chromosomal mutations. 21. Genetic mutations produce changes in a single gene. Point mutations include only one or some dish. Surrogates, inserts, and deletions are all types of point mutations. In the form of a replacement, one base is changed to another basis, which can only affect one amino acid and has no at all. In the insertion and removal of, one base is inserted or removed from the DNA sequence. Inserting and deleting are called frameshift mutations because they move the reading frame of a genetic message. Frameshift mutations can alter any amino acid that tracks the point of the mutation and can have dramatic effects on the organism. 5. Chromosomal mutations cause changes in the number or structure of chromosomes. They include deletion, duplication, inversions and translocation. Deleting involves the loss of all or part of the chromosome. Duplication produces an additional copy of all or part of the chromosome. The inversion reverses the direction of the parts of the chromosome. Translocation occurs when part of one chromosome is decomed and attached to another. The effects of Genetic material mutations can be altered by natural events or artificial drugs. Errors can be made during replication. Environmental conditions can increase the mutation. Mutagens are chemical or physical agents in the environment that cause mutations. The effects of mutations on genes vary greatly:Some mutations have little or no effect. Some mutations produce beneficial changes. An example is polyploidy in plants where the organism has additional sets of chromosomes. Polyploid plants are often larger and stronger than diploid plants. Mutations can also produce proteins with new or modified functions that can be beneficial to organisms in different or changing environments. Some mutations negatively disrupt genetic function or dramatically alter the structure of proteins. Genetic disorders, such as sickle cell disease, can cause. Effects of 10 mutations Cellular machines that repeat DNA insert the wrong baseA. most of the time. B. About half .C. approximately once in all millions of bases. D. about once in every 10 million bases. 6. 11. Small changes in the A gene. disappear quickly. B. gradually accumulates over time.C prevent the development of the next generation. D. does not affect future generations. 12. Possible mutagenic is A. anticodone. B. translocation. C. hemoglobin. D. Ultraviolet light. 13. What happens if cells are unable to repair the damage caused by the mutagen?A. The DNA sequence is permanently changed. B. DNA base sequence is not .C. The organism is not affected. D. The organism is temporarily affected. 14. Which of the following most accurately summarizes the effects of mutations on living beings?A. Most mutations are harmful.B, and some have little or no effect.C some of which may be harmful or beneficial.C. Most mutations are beneficial, some are harmful.D. About half of the mutations are beneficial and half are harmful. 15. Mutations are important for the development of a species because A. occur over time, which development requires.B. cut out and replace damaged or relentless genes.C. are a source of genetic speed up the speed of DNA transcription. 16. Cancer is a product of a mutation that causes A. uncontrolled cell growth.B. alters the structure of hemoglobin in the blood.C. brings stunted growth and severe pain.D. causes translocation in a pair of chromosomes. 17. Polyploidy is a condition in which A. piece of chromosome is decommisal and re-fits another chromosome.B. The organism has an additional set of chromosome.C. mutagen speeds the mutation rate.D. insect develops a resistance to a pesticide.13.4 Gene Regulation and ExpressionLesson ObjectivesFish gene regulation in prokaryotes. Explain how most eukaryotic genes are regulated. In multi-celled organisms, they refer to gene editing. SummaryProkaryotic Gene Regulation Prokaryotes do not need to translate all their genes at once. They can maintain energy and resources by regulating their activities, the 7th genes needed for cell function. In prokaryote DNA-connectiveproteins regulate genes by controlling transcription. Operon is a group of genes that are regulated together. An example is lacquer operon in E. coli: This group of three genes needs to be switched together before the bacterium can use lactose as food. When lactose is not present, a protein that binds DNA called lac repressor binds to a region called an operator that turns off lac operon. When lactose is connected to the represor, it causes the represor to fall off the operator and turn on the opera. Eukaryotic Gene Regulation Transcription Factors are proteins that bind DNA. They express genes in eukaryotis with a binding DNA sequence in regulatory regions. Genetic carriers have several binding sites for transcription factors, each of which may affect transcription. The complex genetic regime in eukaryotics allows for the specialization of cells. The process by which microRNA molecules (miRNA) stop mRNA molecules from transmitting their instructions for making proteins is RNA interference (RNAi). RNAi's technology promises to allow scientists to turn off gene expression from viruses and cancer cells, and can provide new ways to treat and possibly even cure the disease. Genetic control of the development Regulation of gene expression is particularly important in shaping the way the multi-celled organism develops. Genetic regulation helps cells to differ, become specialized in structure and function. Master controlgenes are like switches that trigger specific patterns of development and differentiation in cells and tissues. Homeotic genes are genes of the main control that regulate organs that develop in certain parts of the body. Homeobox genes share a similar 130-base DNA sequence called a homeobox. Code for transcription factors that activate other genes that are important in cell development and differentiation in regions of the body. Hox genes are a group of homeobox genes that tell the body's cells how they differ when the body grows. Environmental factors can also influence gene expression. Prokaryotic Gen Regulation 1. How do prokaryotis conserve energy? absorbs energy from the sun and nutrients from, soil. 2. How do dna-binding proteins in prokaryote regulate genes? main binding silicon hydrogen and bods 3. What is an opera? groups of genes regulated together. 4. What is in lac operon in E. coli? 8. when controlling protein expression in E, any 5. What is the function of genes in the lacquer of E. coli opera? 6. What turns off lac operon? repressors 7. How does the repressive protein turn off the lacquer operon? when they merge 8. How does lactose turn on lactaroni? repressor 9. Complete the table to describe the role of each regulatory region or molecule in the operation of the opera polish. Regulatory Region or Molecule Does It DoesRepressor protein protein that is repressoredOperator turns and offRNA polymerase it's chemical forture the RNALactose it feeds bacteriumEukaryotic Gene Regulation10 b.11. What's a tate box? What does a tata box do?12. What are transcription factors and what are they doing?13. Explain how genetic regulation makes it possible to specialise cells.14. What is microRNA and how is it related to mRNA?15. Explain how the RNA interference process works. Genetic control of development 16. With the development of the embryo, different sets of genes are regulated by AmRNA& lac repressors Boperoni and operators Factors transcription and repressors Dpromoters& operators 9.17. The process through which cells become specialized in structure and function is A. transcription. B. genetic expression. C. Distinction. D. RNA interference. 18. Homeotic genes are A. regulatory genes that are attached to operons in prokaryotics. B. Control genes that regulate organs that develop in certain parts of the body. C. Parts of the silencing complex that regulate the functioning of genes with RNA disorders. D. Base sequences that complement the sequences in microRNA. 19. What role do homeobox genes play in distinguishing cells? A. Code for transcription factors that activate other genes relevant to cell development and differentiation. B. Block a specific genetic expression. C. They cut double loops on microRND. D. Bind to a cluster of proteins to form a silencing complex that binds to a particular RNA and destroys. 20. In the case of fly, a group of homeobox genes that determines the identities of each segment of the fly's body is a group known as A. silencing complexes. C. Operators. B. beams. D. Hox genes. 21. Clusters of Hox genes can only be found in A. fly. B. only flies and frogs. C. Plants only. D. almost all animals. Make animals. Would