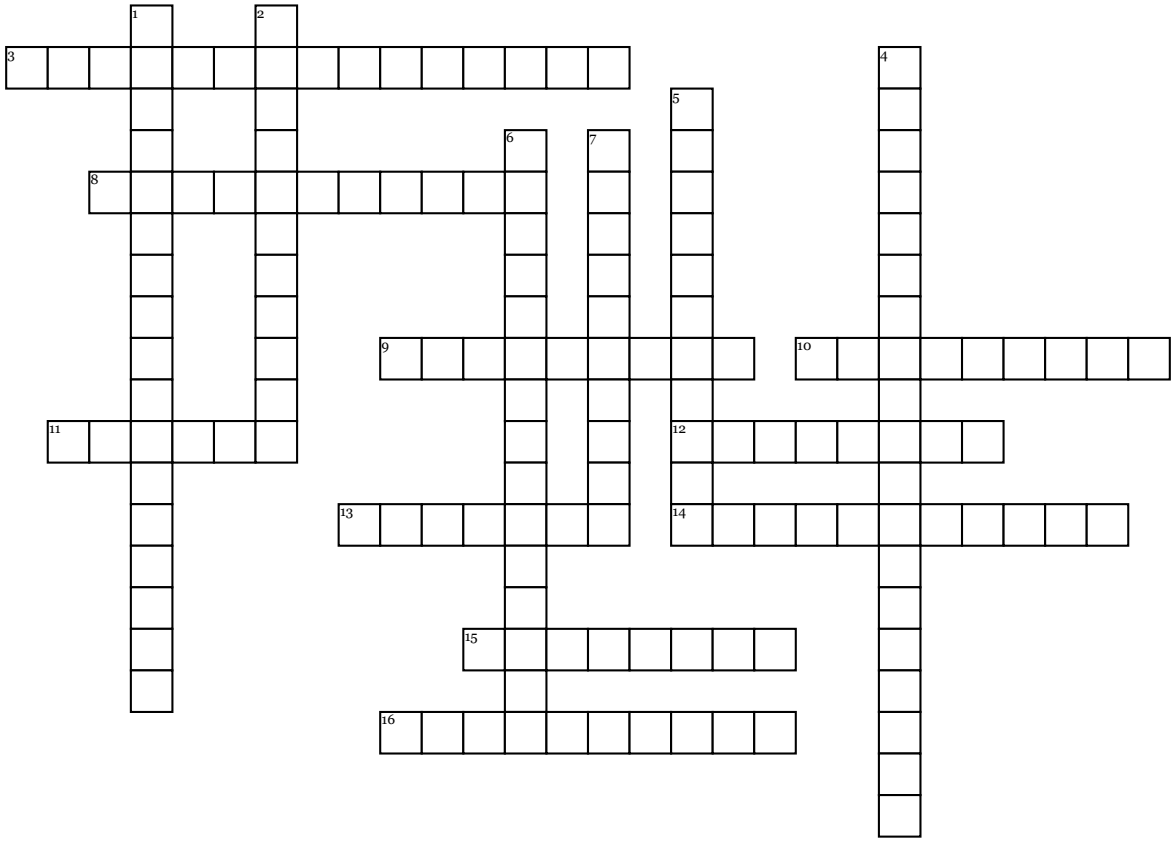
Name: _____ Date: _____ Period: _____

Gene Regulation Crossword Puzzle



Across

3. Chromosome material of different density from normal (usually greater), in which the activity of the genes is modified or suppressed.

8. _____ is the process of taking a single carbon and three hydrogens, known as a methyl group, and applying it to countless critical functions in your body such as: thinking, repairing DNA, turning on and off genes, fighting infections and getting rid of environmental toxins to name a few.

9. A DNA-binding transcription metabolite that positively modulates an allosteric Enzyme or regulates one or more genes by increasing the rate of transcription.

10. A compound found in living cells that plays a role in the degradation of defective and superfluous proteins. It is a single-chain polypeptide.

11. A unit made up of linked genes that is thought to regulate other genes responsible for protein synthesis.

12. In genetics, an _____ is a segment of DNA to which a transcription factor binds to regulate gene expression by repressing it. The protein that does this is called a repressor. ... The main _____ in the classically defined lac operon is located slightly downstream of the promoter.

13. Some _____'S function as spools for the thread-like DNA to wrap around. Under the microscope in its extended form, chromatin looks like beads on a string. The beads are called nucleosomes. Each nucleosome is made of DNA wrapped around eight _____ proteins that function like a spool and are called a _____ octamer.

14. Chromosome material that does not stain strongly except during cell division. It represents the major genes and is involved in transcription.

15. In genetics, a _____ is a region of DNA that initiates transcription of a particular gene. _____'s are located near the transcription start sites of genes, on the same strand and upstream on the DNA (towards the 5' region of the sense strand).

16. tool for inducing short-term silencing of protein coding genes. _____ is a synthetic RNA duplex designed to specifically target a particular mRNA for degradation.

Down

1. Synthesis of a coordinated group of enzymes, involved in a single synthetic (anabolic) pathway, is repressible if excess quantities of (usually) the end product of the pathway leads to cessation of transcription of the genes encoding the enzymes of the pathway.

2. _____ is a chemical reaction that is called ethanoylation in the IUPAC nomenclature. It describes a reaction that introduces an acetyl functional group into a chemical compound. The opposite chemical reaction is called deacetylation – it is the removal of the acetyl group.

4. In molecular biology, a _____ _____ (or sequence-specific DNA-binding factor) is a protein that controls the rate of transcription of genetic information from DNA to messenger RNA, by binding to a specific DNA sequence.

5. A _____ is a large and complex molecular machine found primarily within the splicing speckles of the cell nucleus of eukaryotic cells. The _____ is assembled from snRNAs and protein complexes. The _____ removes introns from a transcribed pre-mRNA, a type of primary transcript.

6. A gene system, often encoding a coordinated group of enzymes involved in a catabolic pathway, is inducible if an early metabolite in the pathway causes activation, usually by interaction with and inactivation of a repressor, of transcription of the genes encoding the enzymes.

7. a protein complex in cells containing proteases; it breaks down proteins that have been tagged by ubiquitin.