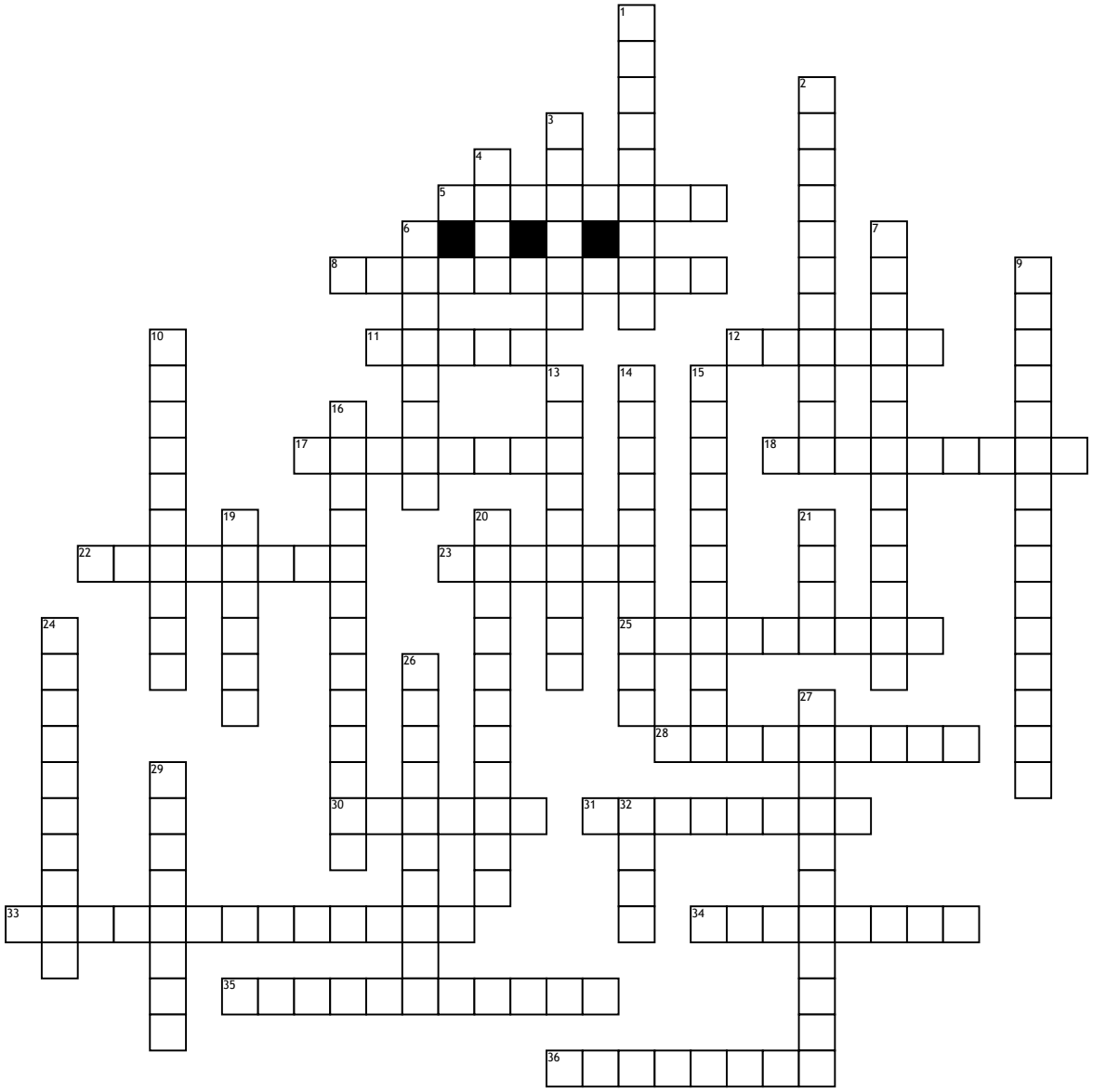
Name: _____ Date: _____

Keywords in Gene Regulation and Expression



Across

5. Motor protein that move directionally along a nucleic acid phosphodiester backbone, separating two annealed nucleic acid strands

8. The study of heritable phenotype changes that do not involve alterations in the DNA sequence

11. A sequence of three DNA or RNA nucleotides that corresponds with a specific amino acid or stop signal during protein synthesis

12. Any nucleotide sequence within a gene that is removed by RNA splicing during maturation of the final RNA product

17. a Sequence of DNA to which proteins bind that initiate transcription of a single RNA from the DNA downstream of it

18. Sequences of nucleotides in tRNA that are complementary to codons

22. Highly basic proteins found in eukaryotic cell nuclei that pack and order the DNA into structural units called nucleosomes

23. An enzyme that can catalyze the joining of two DNA strands

25. A protein that stimulates transcription

28. Activated or undergoing expression only in the presence of a particular molecule

30. A functioning unit of DNA containing a cluster of genes under the control of a single promoter

31. The DNA strand used by DNA polymerase or RNA polymerase to attach complementary bases during DNA replication or RNA transcription, respectively

33. A type of chromosomal abnormality in which a chromosome breaks and a portion of it reattaches to a different chromosome

34. A short (50–1500 bp) region of DNA that can be bound by proteins (activators) to increase the likelihood that transcription of a particular gene will occur

35. A complex of small nuclear RNAs (snRNA) and proteins that removes introns from a transcribed pre-mRNA

36. An alteration in the nucleotide sequence of the genome of an organism

Down

1. One half of a duplicated chromosome

2. The biological process of producing two identical replicas of DNA from one original DNA molecule

3. A short single-stranded nucleic acid utilized by all living organisms in the initiation of DNA synthesis

4. A sequence of nucleotides in DNA that encodes the synthesis of a gene product, either RNA or protein

6. RNA molecule that have the ability to catalyze a specific biochemical reaction

7. A process by which pieces of DNA are broken and combined to produce new combinations of alleles

9. A tightly packed form of DNA or condensed DNA

10. A DNA molecule with part or all of the genetic material of an organism.

13. A complex consisting of DNA and histones, which help package the DNA in a compact form

14. An enzyme that synthesizes long chains of polymers or nucleic acids

15. The process in which ribosomes synthesize proteins after the process transcription of DNA to RNA

16. The process by which the information in a strand of DNA is copied into a new molecule of RNA

19. A pairing between two nucleotides in RNA molecules that does not follow Watson-Crick base pair rules

20. A disc-shaped protein structure associated with duplicated chromatids in eukaryotic cells where the spindle fibers attach during cell division to pull sister chromatids apart.

21. A single-stranded molecule of RNA that corresponds to the genetic sequence of a gene and is read by a ribosome in the process of synthesizing a protein

24. The specialized DNA sequence of a chromosome that links a pair of sister chromatids

26. The fundamental subunit of chromatin

27. A reaction that introduces an acetyl functional group into a chemical compound

29. A macromolecular machine, found within all living cells, that performs protein synthesis

32. Any part of a gene that will encode a part of the final mature RNA produced by that gene