

I kept this quiz (they will not be returned). This provides answers and summary information.
Program (e.g. CBMG/MOCB/BEES/other): 24 CBMG, 7 MOCB, 1 ANSC, 1 BIOL

What other course have you had or are you taking now:

11 BCHM674 Nuclei Acids	6 CBMG688F Gene Expression
25 CBMG688D Cell Biol.	0 CBMG688N Bioinformatics
24 CBMG688E Signal Transduction	0 CBMG688O Systematics
9 CBMG688K Virology	10 MOCB640 Proteins
2 CBMG688M Microbial Genetics	

Would you prefer to communicate via a public web site or using blackboard?
Blackboard won the vote 14 to 13 with 6 abstentions (or "no preference" votes).

Checklist (just check if you're pretty sure you know something about this)

1 LCR locus control region	22 TBP TATA-binding protein (part of TFIID)
2 EJC exon junction complex	28 Zn finger zinc finger (DNA binding motif)
4 NMD nonsense-mediated decay	22 eIF4 euk. initiation factor 4 (cap-binding)
24 RISC RNA-induced silencing complex	14 U6 snRNA spliceosomal small nuclear RNA
10 HAT histone acetyl transferase	0 Cajal body subnuclear structure

1) Describe the difference between siRNA and miRNA.

21 answers were reasonably correct; about half of these indicated a clear understanding. small interfering RNAs are derived from dsRNA precursors while microRNAs are derived from specific precursors. Specific dicers and argonaut proteins are specialized for one or the other.

2) What is H3 K9 methylation and what role does it play in what process?

About half knew that H3 refers to histone H3. Only a few answers were complete. Methylation of histone H3 on lysine 9 is associated with repressive chromatin.

3) Explain DNA footprinting. Describe the method and explain when it would be used and what knowledge would be gained.

Most (29) had an answer. Most of these indicated that footprinting localized the site of protein binding, but only about 10 answers mentioned the method in sufficient detail to convey understanding.

End-labeled DNA is digested by DNase in the presence and absence of a protein. Protection of nucleotides from cleavage by the protein indicates the site of protein binding.

4) You have two recessive mutants in a diploid species: *small* and *pale*. These mutants are named according to their phenotypes. You cross them together and then intercross the F1 progeny. What ratio do you expect to see for the four possible phenotypes? 14 answers had 9:3:3:1

a) 9/16 wild-type, neither small nor pale.

b) 3/16 small but not pale.

c) 3/16 pale but not small.

d) 1/16 both small and pale.

5) You expect 1 cell per 10,000 survive the selection you impose, and you put 10,000 cells on the plate. What is the probability that you will get at least one surviving cell? Three got this right.

$1 - (9,999/10,000)^{10,000}$, which is closely approximated by $1 - e^{-1}$ (about 63%). This (e^{-1}) is the 0 term of the Poisson distribution.