

SAMPLE QUESTIONS FOR SEMESTER IV MSc. LIFE SCIENCES
SPECIALIZATION: BIOCHEMISTRY

PSLSCBMT401: Molecular Cell Biology

1. Binding of siRNA to the DNA does not lead to _____
 - a) Chromatin remodelling
 - b) Promoter unavailability
 - c) Transcriptional inhibition
 - d) Triple helix formation
2. Which of the following RNAs can induce gene silencing?
 - a) miRNA
 - b) snoRNA
 - c) ssRNA
 - d) ncRNA
3. Stem loop precursors are generally seen in which of the following?
 - a) siRNA
 - b) miRNA
 - c) piRNA
 - d) Both siRNA and miRNA
4. Dicer is _____
 - a) DNase-like enzyme
 - b) RNase-like enzyme
 - c) An endonuclease
 - d) An exonuclease
5. RNA silencing was first documented in animals by
 - a) Guo and Kemphues
 - b) Victor Ambros, Rosalind Lee and Rhonda Feinbaum
 - c) Carlo Cogoni and GuiseppeMacino
 - d) Craig Mello
6. The miRNAs are transcribed from non-protein encoding genes and are typically _____ nucleotides long.
 - a) 10 – 15
 - b) 12 – 15
 - c) 18 – 20
 - d) 20 – 25
7. DICER name was given by

- a) Hannon and colleagues
 - b) Bernstein et al.
 - c) Tuschl and colleagues
 - d) Napoli and Jorgensen
8. Argonaute protein family is
- a) DICER
 - b) RISC
 - c) miRNA
 - d) SLICER
9. siRNA are generated by _____
- a) Transcription
 - b) DNA damage
 - c) RNA damage
 - d) Enzymatic action
10. Which of the following pathways involve the Dicer for gene silencing?
- a) Chromatin modification
 - b) Structural gene triple helix formation
 - c) DNA polymerase binding
 - d) RNA polymerase binding
11. If the siRNA is a complete homolog of the target mRNA sequences what is the net result?
- a) Double helix formation
 - b) Translation inhibition
 - c) Chromatin modification
 - d) mRNA degradation
12. Inactive miRNA undergoes how many cleavages before incorporation into the RISC complex?
- a) 0
 - b) 1
 - c) 2
 - d) 3