Genome and Healthcare SBL720-Major-exam paper
09 April 2022, Saturday, Time: 8.15 AM to 10.15 AM
Location: LH603
Total time: 2 hours

Total Questions: 40, Total marks 40,
Please note : In MCQ, Fill in the blanks, and True false, each carry (+1) one marks for correct answers, (- 0.25 ) minus 0.25 marks for incorrect and zero for unanswered or unattempt.

1. What factor influences the possibility of a surgical cure for a particular case of cancer?
Answers
A. Tumor size
B. Simultaneous use of other treatments
C. Tumor stage
D. All of the above
E. A and C only

2. Which, if any, of the following statements is false?
A. p53 acts as a brake on cell growth but stimulates apoptotic pathways.
B. apoptosis occurs only after a death signal is received by one cell from another cell.
C. the death signal starts a pathway that culminates in the activation of a class of proteolytic enzymes called caspases.
D. caspases attack cellular proteins and release an endonuclease that cleaves the cellular NA into small fragment.

3. Radiation therapy can harm both cancerous and normal tissues.
Answers
True OR
False

4. In monoclonal antibody technology, tumor cells that can replicate endlessly are fused with mammalian cells that produce an antibody. The result of this cell fusion is a
A. hybridoma
B. myeloma
C. natural killer cell
D. Lymphoblast

5. Which of these factors increases the risk for lung cancer?
A. Saturated fat
B. Obesity
C. High dose ß-carotene supplements
D. Alcohol

6. What is a stem cell?
A. cell that can make copies of itself AND make more specialized types of cell
B. cell that helps to fight against infections
C. cell that is specialized
D. cell that can produce all the cell types of the body

7. Where can scientists obtain stem cells?
A. Only from an embryo
B. Only from tissues in the body
C. Only from the brain
D. From an embryo or tissues in the body

8. Embryonic stem cells can differentiate into which types of cell?
A. Only brain stem cells and specialized brain cells

B. All types of specialized cells in the body
C. Only cells that can produce insulin
D. Only cells that can produce artificial skin

9. A blastocyst is...
A. A very early stage embryo
B. A type of stem cell
C. Part of the blood system
D. A type of brain cell

10. What are the roles of stem cells in our bodies?
A. We are not sure what roles stem cells play in the body
B. They produce new specialized cells to replace cells that die or are used up
C. They fight against infections
D. They perform specialized roles in the body (e.g. produce insulin, transmit signals in the nervous system, ...

11. What are stem cell scientists investigating today?
A. When and how embryonic stem cells make decisions to produce more specialized cells
B. How stem cells work in the body
C. How stem cells might be used to treat disease
D. All of the above

12. Which type of mutations are found most commonly in affected oncogenes:
A. Missense
B. Nonsense
C. Frame shift
D. Silent

13. The majority of mutations affecting the coding region of a tumor are :
A. Deletions
B. Amplifications
C. Small insertions
D. Single base substitutions

14. The solid tumors of children compared with adult solid tumors have :
A. More gene alterations
B. Less gene alterations
C. Similar frequency of alterations
D. Similar frequency of alterations but radically different regions of involvement

15. Tumor suppressor genes, like TP63, require two hits, thus affecting both of the alleles to inactivate their function. What kind of mutations occur in these genes?
A. Gain of function
B. Loss of function
C. Both
D. None of the above

16. In human genome project, How was the human genome sequenced?

17. What are the advantages of Genomic Testing?

18. Describe the role of P53 in apoptosis.

19. What mutations in p53 are mostly found in mutation profiles of cancer patients?

20. What are targeted therapies for cancer?

21. compare advantages and disadvantages of new approaches of cancer therapies.

22. Define Replication Slippage.

23. Explain genomic instability in HUNTINGTON'S DISEASE.

24. Explain the mechanism how "p53" " maintains genome stability.

25. What are the outcomes of genetic disorders.

26. Describe the timeline and process for one drug FDA approval.

27. Describe Phenylketonuria.

28. Differentiate between Totipotency and pluripotency.

29. What are the Types of DNA alterations and their impact.

30. Define Nonsense mutations. Give examples of disease caused by this.

31. Differentiate between Ex-vivo and In-vivo therapy.

32. Explain cause for Chronic Myeloid Leukemia and potential treatments.

33. What are the advantages and disadvantages of embryonic stem cells and adult stem cells.

34. How Ethics play role in genetic testing and therapy.

35. What are the genetic approaches to treat disease.

36. Explain cancer type as classified by tissue of origin.

37. What is Angiogenesis?

38. Define A, B, C and D in Physical Diagnosis of Melanoma.

39. What is induced pluripotency.

40. What are the advantages and Drawbacks of Opiod Therapies for Cancer Pain.