TEST-10

Cancer: Genetic rearrangements in progenitor cells, oncogenes, tumor suppressor genes, Cancer and the cell cycle, virus-induced cancer, metastasis, interaction of cancer cells with normal cells, Apoptosis, therapeutic interventions of uncontrolled cell growth.

1. Proto-oncogenes may be activated due to?
   (a) all
   (b) insertion
   (c) translocation
   (d) amplification
   (e) NONE

2. P-APC protein was discovered through the study of?
   (a) retrovirus
   (b) E.coli
   (c) adenomatous polyposis coli
   (d) adenovirus
   (e) none

3. Reticuloendotheliosis virus has ------- as its host species?
   (a) mouse
   (b) chicken
   (c) rat
   (d) turkey
   (e) cat

4. Wilms tumor is caused due to the deficiency at chromosomal location?
   (a) 17q21
   (b) 11p13
   (c) 11q24
   (d) 13q14.3
   (e) 5p13.2

5. Oncogenes which encode proteins that bind GTP, much like the cellular G proteins which are important in regulating the level of cyclic AMP?
   (a) sis
   (b) v-src
   (c) yes
   (d) rel
   (e) raf

6. Tumor inducing viruses have a genome composed of?
   (a) PDGF
   (b) RNA
   (c) DNA
(d) Tumor suppressor genes
(e) Oncogenes

7. Among the RNA genome genes of retroviruses which gene will encodes the capsid protein of the virion?
(a) CDKs
(b) gag
(c) pol
(d) env
(e) all

8. Metastasis takes place in only------ type of tumors?
(a) suppersor cells
(b) Benign tumor
(c) malignant tumor
(d) Progenitor cells
(e) hybrid tumors

9. The most common type of cancer in males is ?
(a) brain cancer
(b) prostate gland cancer
(c) breast cancer
(d) lung cancer
(e) all

10. Non defective viruses which leads to induction of leukemia
(a) both1&2
(b) FeLV(feline leukemia virus)
(c) MMTV(mouse mammary tumor virus)
(d) Epstein -barr
(e) all

11. When the cells do not invade to the surrounding tissues then that type of tumor is know as?
(a) progenitor cells
(b) malignant
(c) benign
(d) oncogenic
(e) none

12. Which of the following reasons can put a break in cyclin/CDKs Complex formation during cell cycle?
(a) all
(b) low nutrients
(c) DNA damage
(d) interpreted chemical signals
(e) none

13. Ataxia telangiectasia syndrome is caused due to aberration in the chromosomal location?

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14. Two proteins which regulate and operate each checkpoints are?
(a) both 1&2
(b) cyclins
(c) cyclin-dependent kinases
(d) cyclin-dependent hydroxylases
(e) both1&3

15. P53 is a?
(a) dimer
(b) pentamer
(c) tetramer
(d) monomer
(e) all

16. When the cyclins are absent ------- will be inactive?
(a) DNA
(b) CDKs
(c) oncogenes
(d) proto oncogenes
(e) all

17. Unregulated cell division in cancerous cells is due to?
(a) abnormal chromosomal count
(b) cells donot respond to chemical signals
(c) have disorganized cytoskeleton
(d) intracellular abnormalities
(e) all

18. Epstein-Bars a human herpes virus associated with the disease?
(a) all
(b) mononucleosis
(c) nasopharyngeal carcinoma
(d) burkitt lymphoma
(e) none

19. Involvement of phMSH2 protein in human cancer was studied in?
(a) breast cancer
(b) hereditary nonpolyposis colorectal cancer(HNPCC)
(c) ADENOMATOUS POLYPOSIS
(d) FAD
(e) retinoblastoma
20. Bloom's syndrome is caused due to defect in the gene?
(a) ATM
(b) NF2
(c) NF1
(d) BLM
(e) VHL

21. Who first discussed metastasis as seed and soil theory?
(a) Snell&david
(b) Stephen Paget
(c) Frooz knoop
(d) Robert weinberg
(e) all

22. The coding sequence of c-onc (normal cellular oncogenes) and c-src(sarcoma oncogenes) differ in how many nucleotides?
(a) 31
(b) 24
(c) 12
(d) 18
(e) 10

23. Which of the following molecular activity was performed by P53 ?
(a) oligomerizes the required c-terminal regions
(b) activates transcription at promoters levels
(c) recognizes an interrupted palindromic 10bp motif
(d) binds to the damaged DNA
(e) all

24. The body resists metastasis by a variety of mechanisms through the actions of a class of proteins known as?
(a) carcinogen
(b) metastasis suppressors
(c) sarcoma
(d) carcinoma
(e) none

25. P-APC gene is helpful in controlling ------- in the intestine?
(a) translocation
(b) differentiation of cells in the epithelium
(c) differentiation of cells during cell division
(d) DNA transcription
(e) none

26. Cells with mutations in P-APC lose their ability to control ------- levels?
(a) FAD
(b) beta-catenin  
(c) CDKs levels  
(d) cyclins  
(e) P-APC  

27. DNA viruses which cause epithelial tumors are?  
(a) adenovirus  
(b) polyoma  
(c) papilloma virus  
(d) retrovirus  
(e) HPV  

28. raf oncogene of virus 3611 murine sarcoma virus of mouse function in?  
(a) Tyrosine-specific protein kinase  
(b) serine/threonine protein kinase  
(c) GTP-binding protein  
(d) transcription factor  
(e) all  

29. Spread of metastases may occur via?  
(a) both 1&2  
(b) blood  
(c) lymphatics  
(d) nerves  
(e) both 1&3  

30. Oncogenes were first discovered in the genome of?  
(a) Bacterial DNA  
(b) RNA viruses  
(c) DNA viruses  
(d) yeast cells  
(e) Bacterial RNA  

31. Which tumor suppressor gene will triggers apoptosis?  
(a) src  
(b) p53  
(c) PRB  
(d) v-rel  
(e) rel  

32. Regulation of transition between different phases of cell cycle is done at?  
(a) latent point  
(b) checkpoints  
(c) Transition point  
(d) regulatory point  
(e) none

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33. Normal cells can be converted to cancerous cells by treating the cells with?
(a) all
(b) mutagenic chemicals
(c) radiations
(d) viruses
(e) none

34. Most important cell-cycle checkpoints is?
(a) all
(b) TATA BOX
(c) START
(d) CKDs
(e) none

35. Rous sarcoma virus was first identified in?
(a) endothelial cells of mouse
(b) connective tissue of chickens
(c) epithelial cells of humans
(d) brain cells of rat
(e) connective tissue of humans

36. Deregulation of checkpoints in cancer cells is due to?
(a) all
(b) external injuries
(c) genetic defects
(d) hypertension
(e) none

37. Cyclin-dependent kinases (CDKs) will regulates the activities of other proteins by transferring?
(a) CH3
(b) phosphate
(c) Mg++
(d) Co++
(e) none

38. Chromosomal location of retinoblastoma RB gene is?
(a) 5q21
(b) 13q14.3
(c) 17p13.1
(d) 2q16
(e) 11pB

39. Programmed cell death is activated by?
(a) TP53
(b) BAX gene
(c) proto-oncogenes
(d) P-APC
(e) ALL
40. Which gene among them will cause cancer?
(a) env
(b) v-src
(c) pol
(d) gag
(e) all

41. White blood cell cancer associated with reciprocal translocations?
(a) CML
(b) Burkitt's lymphoma
(c) bladder cancer
(d) leukemia
(e) Brain cancer

42. Which of the following is a GTP-binding protein virus in rat?
(a) McDonough feline sarcoma virus
(b) kirsten murine sarcoma virus
(c) MH2virus
(d) Y73 sarcoma virus
(e) rous sarcoma virus

43. Which of the following statement is correct?
(a) p53 contain 325 amino-acids
(b) p53 plays a key role in cellular responses in cancerous cells
(c) p53 will activate p21 which phosphorylation activates the CDKs
(d) p53 is a dimer
(e) all

44. Dysfunctional move into S phase without repairing their damaged DNA leads to the formation of?
(a) progenitor cells
(b) cancerous cells
(c) nerve cells
(d) epithelial cells
(e) all

45. oncogene present in chicken which is tyrosine-specific protein kinase?
(a) rel
(b) yes
(c) abl
(d) src
(e) ros

46. Intestinal cancer occurs in individuals with inactivating mutation in --- genes?
(a) all
(b) p53
47. The transfection test used to identify mutation in oncogenes of human bladder cancer was described by?
(a) Alexander fleming
(b) franz knoop
(c) Peyton Rous
(d) Robert weinberg
(e) snell

48. Important locus that influence both RB and p53 tumor suppressor genes is?
(a) IN4A-ARF
(b) INK4A-ARF
(c) INC4A-ACP
(d) INK2A-AMP
(e) ALL

49. among the following which is a tumor suppressor protein?
(a) P-BRACAF
(b) P-RB
(c) phMSH2
(d) P-BRCA2
(e) ALL

50. How many proteins are present in p53 protein?
(a) 840
(b) 393
(c) 375
(d) 250
(e) 290

51. Anti-oncogenes which is involved in restraint of cell growth is called?
(a) repressor cells
(b) tumor suppresor genes
(c) proto-oncogenes
(d) malignant cells
(e) none

52. c-ras mutations are inherited to next generation through ?
(a) environmental factors
(b) germ line mutations
(c) somatic mutation
(d) spontanous mutation
(e) none
53. Which among the following is oncogenes which encode for proteins of transcription factors?
(a) v-myc
(b) v-jam
(c) v-fos
(d) v-erbA
(e) all

54. Aherent activation of------ pathway can contribute to the oncogenicity?
(a) anaerobic
(b) mitogenic
(c) carboxylic
(d) aerobic
(e) all

55. Which tumor suppressor gene is most frequently mutated in human cancers?
(a) RB12
(b) TP53
(c) RB84
(d) TP13
(e) ALL

56. Which chromosome is known as philadelphia chromosome?
(a) long arm of chromosome 12
(b) chromosome 5
(c) chromosome 22
(d) chromosome 3
(e) chromosome 9

57. Tumors formed due to activity of P-APC are called ?
(a) both 1&2
(b) polyps
(c) adenomas
(d) sarcoma
(e) both1&3

58. Name one prominent factor in the response that arrests the cell cycle which is activated by P53?
(a) TP53
(b) p21
(c) P-RB
(d) P-APC
(e) RB21

59. Chronic myelogenous leukemia(CML)is associated with an aberration in the chromosome no.
(a) 12
(b) 22
(c) 5
60. P53 was originally discovered in--------- cells?
   (a) all
   (b) SV40-transformed cells
   (c) epithelial cells
   (d) RB12-transformed cells
   (e) none

61. Among the following which oncogene is present in mouse?
   (a) yes
   (b) fes
   (c) abl
   (d) src
   (e) rel

62. p21 is synthesized due to the cell stress by inactivating---------?
   (a) DNA repair
   (b) cyclins/CDKs complex
   (c) protein complex
   (d) DNA transcription
   (e) all

63. START usually occurs during?
   (a) mid-S
   (b) mid-G1
   (c) end of S
   (d) mid-G2
   (e) end-G1

64. The most common form of a dominant negative mutant is one that forms ------- protein containing both mutant and wild type subunits in p53?
   (a) monomeric
   (b) homomeric
   (c) heteromeric
   (d) polymeric
   (e) none

65. START checkpoint control entry into ------- phase of cell cycle?
   (a) prophase
   (b) G1 phase
   (c) G2 phase
   (d) S phase
   (e) Interphase

66. The cellular homologue of viral oncogenes are called as?
67. Tumor T antigens have a variety of function in -------- type of cycle
(a) translation
(b) lytic
(c) lysogenic
(d) translocation
(e) reciprocation

68. Name the biologicals techniques involved in diagonalizing metastatic tumor?
(a) X-rays
(b) FISH
(c) DNA microarray
(d) karyotyping
(e) all

69. McDonough feline sarcoma virus is present in?
(a) mouse
(b) cat
(c) chicken
(d) rat
(e) all

70. Mutation in p53 will cause?
(a) all
(b) increases in its half-life
(c) decrease in its half-life
(d) no change in half-life
(e) none

71. The important of the connection between tumorigenesis and loss of apoptosis is also shown by the properties of the ----- oncogenes?
(a) RB
(b) bcl2
(c) bcl8
(d) p53
(e) all

72. LOSS OF -------- FUNCTION WAS CONNECTED TO THE GENOME WIDE INSTABILITY OBSERVED IN HNPCC TUMORS?
(a) P-RB
(b) hMSH2
(c) TP53
(d) P-APC
(e) P53

73. When tumor cells metastasize, the new tumor is called as?
(a) both 1&2
(b) secondary tumors
(c) metastatic tumor
(d) primary tumors
(e) all

74. RB is a tumor suppressor that controls?
(a) transcription
(b) replication
(c) cell-cycle
(d) DNA repair
(e) all

75. P-RB will stall the cell cycle in G1 phase through its negative interaction with ----- transcription factor?
(a) cyclins
(b) E2F
(c) G2C
(d) CDKs
(e) all

76. START is regulated by ----- type of cyclins?
(a) B-type
(b) L-type
(c) D-type
(d) C-type
(e) Q-type

77. Which cancer type was explained using Knudson's 2 hit hypothesis?
(a) bladder cancer
(b) retinoblastoma
(c) burkitt's lymphoma
(d) CML
(e) all

78. Neurofibromatosis type1 is caused due to aberration in the chromosomal location?
(a) 15q26.1
(b) 17q11.2
(c) 22q12.2
(d) 13q14.3
(e) 3p25

79. genes present in RNA genome of retrovirus is?
80. Fuginami sarcoma virus of chicken was encoded by oncogenes?
(a) yes
(b) fps
(c) fos
(d) fms
(e) src

81. Which oncogene was identified as the transforming function of the avian reticuloendotheliosis virus?
(a) v-onc
(b) v-rel
(c) v-src
(d) ras
(e) fos

82. Gardner-rasheed felive sarcoma virus of cat encoded by ongene?
(a) ros
(b) fgs
(c) fps
(d) fos
(e) rel

83. Name the intracellular adhesion protein molecule which is absent in cancer cells used in binding cells together?
(a) all
(b) beta-catenin
(c) Cadherins
(d) mutases
(e) none

84. Which of the following statement is correct from the following?
(a) damaged DNA are rectified in the G1 phase in cancer cells
(b) cancer cells develop when cyclin/CDK complex are formed
(c) cancer cells develop when cyclin/CDK complex do not form
(d) DNA replication is restricted in cancerous cells
(e) all

85. VHL gene defect will leads to?
(a) Von Hippel-lindau disease
(b) Bloom's syndrome
(c) Ataxia telangiectasia

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86. Among the following which cancer type is inherited as rare autosomal dominant condition?
(a) all
(b) familial adenomas polyposis (FAP)
(c) colorectal cancer
(d) phenyl ketonuria
(e) none

87. WHICH OF THE FOLLOWING IS INCORRECT?
(a) cyclin/CDKs complex is formed in cancerous cells
(b) cancer cells have irregular cell division
(c) in cancer cells START checkpoint is dysfunctional
(d) CDKs may be mutated in cancerous cells
(e) none

88. In which class of genes do dominant gain of function mutation cause cancers?
(a) progenitor cells
(b) oncogenes
(c) tumor suppressor genes
(d) proto oncogenes
(e) all

89. env gene of RNA gene of retrovirus will encode for?
(a) protein kinase
(b) reverse transcription
(c) capsid protein of virion
(d) protein of viral envelope
(e) none

90. Which viral class will inactivate tumor suppressor oncogenes?
(a) adenovirus
(b) polyoma
(c) HPV
(d) retrovirus
(e) all

91. The first tumor inducing virus was discovered by?
(a) Alexander Fleming
(b) franz knoop
(c) Peyton Rous
(d) Robert weinberg
(e) david&sneel

92. Which of the following virus will cause myeloblastic leukemia?
(a) avian erythroblastosis
(b) abelson leukemia  
(c) fujinami sarcoma  
(d) avian myeloblastosis  
(e) all

93. Catalytically active CDKs are regulated by the activity?  
(a) transferring water molecules  
(b) transferring phosphate group  
(c) by transferring carbonate group  
(d) by transferring carboxyl group  
(e) all

94. Which of the following are the distinct domains of p53?  
(a) ALL  
(b) N-terminal transcription activation domain(TAP)  
(c) a-central DNA-binding core domain(DBD)  
(d) C-terminal homo-oligomerization domain(OP)  
(e) none

95. In c-ras oncogenes mutations involve amino acids changes in one of three positions.Identify the positions  
(a) 15,30,46  
(b) 12,59,61  
(c) 10,55,60  
(d) 8,25,65  
(e) 11,37,63

96. Activation of------ identifies the pathway that is involved with maintaining genome stability?  
(a) P21  
(b) GADD45  
(c) GADD30  
(d) P53  
(e) ALL

97. Agents that cause transformation of normal cells into cancerous cells are called?  
(a) metastasis  
(b) mutagens  
(c) oncogenes  
(d) carcinogens  
(e) none

98. p53 IS ENCODED BY A TUMOR SUPPRESSOR GENE?  
(a) yes  
(b) APC  
(c) TP53  
(d) rel  
(e) src
99. When cells detach from a tumor and invade to the surrounding tissues, then tumor is said to be:
(a) proto oncogenes
(b) Benign tumor
(c) malignant tumor
(d) metastasis
(e) tumor suppressor genes

100. Prostate cancer is caused due to mutation in gene?
(a) BRCA1
(b) HPC1
(c) TP53
(d) P21
(e) BAX