

Cancer & Cloning

1. Small circular, extrachromosomal DNA segments are known as _____.
2. A hollow tube, formed by protein subunits, on the surface of a bacterial cell is called a _____.
3. _____ are small segments of DNA capable of moving from one location to another in a genome.
4. Unequal _____ can rapidly expand the number of copies of genes.
5. Mutations can only be passed onto subsequent generations when they occur in _____.
6. Tumors arising from cells in connective tissue, bone, or muscle are known as _____.
7. Carcinomas tumor arise in _____ tissue such as skin.
8. The changes involving only one or a few of the nucleotides in the sequence of DNA are called _____.
9. Chromosomal _____ involve the relocation of large segments of chromosomes or the duplication of segments of chromosome.
10. _____ are agents thought to cause cancer.
11. Genetic change through mutation and recombination provides the genetic variation necessary for _____, the process by which one organism gradually evolves into another.
12. The agents such as radiation and chemicals that cause changes in the DNA base sequence are called _____.
13. The process by which DNA isolated from one cell is introduced into another cell is called _____.
14. Genes that can be mutated and thus produce tumor forming genes are referred to as _____.
15. Genes that encode for proteins that prevent cyclins from binding to Cdk's are called _____.
16. Smoking one cigarette has been calculated to reduce human life expectance by _____ minutes.
17. If a cancer cell breaks loose it can spread to other parts of the body and begin secondary tumors. This is called _____.
18. If a cell is _____, then it can form any body cell, even an adult animal.

19. A change in the content of the genetic message is called
- A. transposition
 - B. mutation
 - C. germ line translocation
 - D. cross-over
 - E. transfection
20. Spontaneous errors in DNA in which the wrong nucleotide is inserted into the new strand are referred to as
- A. a point mutation
 - B. a translocational error
 - C. transcriptional error
 - D. a frameshift mutation
 - E. a zygotic mutation
21. In both bacteria and eukaryotes, individual genes may move from one place to another in the DNA by a process called
- A. transcription
 - B. translation
 - C. transfection
 - D. transference
 - E. transposition
22. Mutations that occur in these types of cells are not passed on to the next generation.
- A. egg cells
 - B. sperm cells
 - C. germ-line cells
 - D. somatic cells
23. When a segment of one chromosome becomes part of another chromosome, this is called a
- A. conformation
 - B. frameshift
 - C. translocation
 - D. deletion
 - E. inversion
24. If an individual cell starts dividing in an uncontrolled manner, the growth that results is called
- A. an infection
 - B. a tranfection
 - C. a tumor
 - D. frameshift growth tumor
 - E. germ-line tumor

25. Small, circular auxiliary DNA molecules of bacteria which are commonly used in genetic engineering technology are referred to as
- A. transposons
 - B. germ-line DNA molecules
 - C. plasmids
 - D. conformational DNA molecules
 - E. translational DNA molecules
26. Mutations that consist of a change in one or a few nucleotides of a DNA sequence are called
- A. cancer-causing mutations
 - B. chromosomal rearrangements
 - C. double-strand breaks
 - D. point mutations
 - E. somatic mutations
27. Chromosomal changes which involve gene-orientation, but do not usually result in gene expression changes are called
- A. deletions
 - B. point mutations
 - C. frame shift mutations
 - D. inversions
 - E. transfections
28. One of the most significant causes of mutation involves transposons, which cause
- A. insertional inactivation
 - B. inversion
 - C. deletion
 - D. transfection
 - E. plasmid transfer
29. If a mutation occurs in a somatic cell, it passes to
- A. germ-line cells
 - B. the gametes
 - C. all descendents of that cell
 - D. the zygote
 - E. only the neighboring cells
30. A tumor is a ball of cells that starts from a normal cell which
- A. continuously increase in size
 - B. has lost normal suppression of cell division
 - C. has lost cell cycle controls
 - D. b and c are correct
 - E. a, b, and c are correct

31. Carcinoma occurs in
- A. any kind of somatic cells
 - B. chicken tissues only
 - C. connective tissue such as bone
 - D. epithelial tissue such as skin
 - E. germ-line tissue
32. Sarcoma occurs only in
- A. any kind of somatic cells
 - B. chicken tissues only
 - C. connective tissue such as bone
 - D. epithelial tissue such as skin
 - E. germ-line tissue
33. Cells that leave a tumor and spread throughout the body, forming new tumors at distant sites, are called
- A. malignancies
 - B. metastases
 - C. melotic mishaps
 - D. germ-line cells
 - E. gametes
34. Normal genes that have gone awry and now cause cancer are the
- A. DNA viruses
 - B. growth-promoter genes
 - C. oncogenes
 - D. retroviruses
 - E. tumor viruses
35. Small auxiliary circles of DNA that are able to enter and leave specific places on the main bacterial chromosomes are called
- A. chromatids
 - B. cytoplasmic genes
 - C. plasmids
 - D. transfer DNA
 - E. transposons
36. Small fragments of a chromosome that migrate from one position to another at random are called
- A. chromatids
 - B. cytoplasmic genes
 - C. plasmids
 - D. transfer genes
 - E. transposons

37. Commonly, the amount of bacterial DNA found in plasmids is
- A. variable
 - B. about 0.01%
 - C. about 0.1%
 - D. about 0.5%
 - E. about 5%
38. Mismatched pairs of nucleotides may occur in synapsed pairs of chromosomes; the cell's error-correcting machinery may correct the mismatch, but change the sequence of a gene. This is called
- A. correctional misalignment
 - B. gene conversion
 - C. reciprocal recombination
 - D. conjugation
 - E. unequal crossing over
39. Crossing over is a form of recombination that occurs in
- A. bacterial conjugation
 - B. eukaryotic transposition
 - C. mutation
 - D. prophase I of meiosis
 - E. prophase II of meiosis
40. An individual organism that has gained or lost a single chromosome of the normal complement is said to be
- A. aneuploid
 - B. transposed
 - C. polyploid
 - D. recombined
 - E. monosomic
41. In bacteria genes may be transferred through a pilus which acts like a bridge in a process called as
- A. transfection
 - B. inversion
 - C. conjugation
 - D. recombination
 - E. transformation
42. When a sequence present in more than one copy on a chromosome pairs out of register, similar to a shirt buttoned wrong by one button, this is referred to as
- A. triplet expansion
 - B. slipped mispairing
 - C. base substitution

- D. insertional inactivation
- E. translocation

43. A condition called _____ exists when an entire chromosome set is duplicated.
- A. polyploidy
 - B. translocation
 - C. triplet expansion
 - D. aneuploidy
 - E. excision addition
44. The only DNA repair system that is able to handle doubled-strand breaks in DNA is
- A. photorepair system
 - B. mismatch repair system
 - C. excision repair system
 - D. post-replication repair system
 - E. reciprocal repair system
45. The nonspecific DNA repair system that responds to distortions in the double helix caused by damaged bases is the
- A. photorepair system
 - B. mismatch repair system
 - C. excision repair system
 - D. post-replication repair system
 - E. reciprocal repair system
46. _____ is the alteration of one homologue by the cell's error-detection and repair system to make it resemble the other homologue.
- A. Reciprocal recombination
 - B. Gene conversion
 - C. Unequal crossing over
 - D. Recombinational excision
 - E. Insertional inactivation
47. A cancer treatment aimed at the "receiving the signal to divide process" of the cell cycle is
- A. the use of farnesyl transferase
 - B. the use of the human immune system by using monoclonal antibodies
 - C. the use of the tumor suppressor protein p53
 - D. the use of antisense RNA
 - E. the use of the Ras gene to amplify the signal of the gene product
48. The recruitment and production of new blood vessel to a growing tumor site is called
- A. metastasis
 - B. gene intervention
 - C. therapeutic intervention
 - D. angiogenesis
 - E. tumorigenesis

49. If a gene has been methylated,
- A.it has been involved in metastatic cancer of some somatic tissue
 - B.it has been treated with monoclonal antibodies
 - C.the polymerase proteins cannot recognize it and thus the gene is not read and therefore not expressed
 - D.it can be read with the antisense mRNA
 - E.it can be used in gene therapy of metastatic cancer
50. Embryonic stem cells are located
- A.inside the blastocyst
 - B.outside the blastocyst
 - C.attached to the placenta
 - D.inside the unfertilized egg cell
 - E.inside specific tissues found in the somatic tissues of adults
51. Match each of the following.
- | | |
|---|------------------------|
| _____ A. A jumping gene disrupts the sequence of a gene into which it is inserted. | 1. double-strand break |
| _____ B. A change in a small number of nucleotides, one or two or a few. | 2. frame shift |
| _____ C. Bacteria have no mechanism for repairing such mutations. | 3. point mutation |
| _____ D. Removal of one or two nucleotides from a 3-nucleotide coding segment causes errors in all the rest of the message. | 4. somatic mutation |
| _____ E. Mutation in a body cell rather than in a reproductive cell. | 5. transposition |

Answer Key

No. on Test	Correct Answer
1	plasmids
2	pilus
3	Transposons
4	crossover
5	germ-line or gamete
6	sarcomas
7	epithelial
8	point mutation
9	rearrangement
10	carcinogens
11	evolution
12	mutagens
13	transfection
14	proto-oncogene
15	tumor-suppressor genes
16	10.7
17	metastasis
18	pluripotent
19	B
20	A
21	E
22	D
23	C
24	C
25	C
26	D
27	D
28	A
29	C
30	B
31	D
32	C
33	B
34	C

35	C
36	E
37	E
38	B
39	D
40	A
41	C
42	B
43	A
44	D
45	C
46	B
47	B
48	D
49	C
50	A
51	1-E, 2-C, 3-A, 4-B, 5-D