

molecular- mid

Wareed 2018

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الطبيب الجراحة
لجنة

1)the enzyme cofactor that is used PCR reaction is :

- a)Mg+2
- b)Ca+2
- c)Li+1
- d)Na+1
- e)Al+3

answer :a

2)the microRNA that induce cell differentiation and inhibit proliferation :

- a)miR-145
- b)miR-200
- c)miR-156
- d)none
- e)all of the above

answer :a

3)the best source of embryonic stem cells is :

- a)unused fertilized egg from IVF procedure
- b)human body
- c) umbilical cord
- d)bone marrow
- e)all of the above

answer:a

4)the structure that does not contain DNA is:

- a)telomeres
- b)centromere
- c) kinetochre
- d)chromatin
- e)origin of replication

answer:c

5) the point the links a pair of sister cromatids :

- a)telomeres
- b)centromere
- c) kinetochre
- d)chromatin
- e)origin of replication

answer :b

6)which of the following pairs of structures has the same amount of DNA :

- a)an unreplicated chromosome and a cromatid
- b) a replicated chromosome and a sister cromatid
- c) a replicated chromosome and a bivalent
- d) an unreplicated chromosome and a bivalent
- e)all of the above

answer :a

7) one of the following is correct about induced stem cells :

- a) they are somatic cells that have been reprogrammed back into an embryonic-like pluripotent state**
- b) they are unipotent**
- c) they are naturally occurring in the human body**
- d) they are made of reprogrammed multipotent cells**
- e) none of the above**

answer: a

8) one of the following is incorrect about DNA binding proteins :

- a) they bind through covalent bonds**
- b) bind with the major groove of DNA**
- c) DNA-binding proteins include transcription factors**
- d) some of them bind to single stranded DNA**

answer : a

9) one of the following is correct about helix turn helix DNA motif:

- a) α_3 and α_2 are held at about 90 degrees to each other by turn of 4 amino acids**
- b) it is not a DNA binding motif**
- c) it binds to the minor groove of DNA**
- d) none of the above**
- e) all of the above are correct**

answer: a

10)dNTPs are added to the growing DNA strand during :

- a)elongation phase**
- b)denaturation**
- c)annealing**
- d)none of the above**
- e)all of the above**

answer:a

11)which type of PCR quantitates the rate at which new DNA is synthesized :

- a) real time PCR**
- b)comventional PCR**

answer :a

12) the telomere sequence in humans :

- a)TTAGGG**
- b)TTTAAA**
- c)AATCCC**
- d)UUAGCC**
- e)GGGTTA**

answer :a

13)which histones are associated with the linker DNA of a nucleosome:

- a)H3**
- b)H4**
- c)H5**
- d)H1**
- e)H2A and H2B**

answer:d

14) a condition that results when one of the X chromosomes is missing or partially missing:

- a)turner syndrome**
- b)klinefelter syndrome**
- c)down syndrome**
- d)edwards syndrome**
- e)patau syndrome**

answer:a

15) DNA ligase function in DNA replication :

- a)forms phosphodiester bonds between OH3' of okazaki fragment and phosphate 5 ' of the next lagging strand**
- b) adds RNA primers to the template strands**
- c) creates the replication fork**
- d) matches complementary nucleotides to the templates**

answer :a

16) the enzyme that is responsible of removing RNA primers :

- a)RNase**
- b)ligase**
- c)DNA primase**
- d) DNA polymerase**
- e)DNA helicase**

answer:a

17)one of the following is incorrect about Z DNA :

- a)the major groove is narrow but very deep**
- b)it is left handed**
- c)it is a double helix**
- d)the diameter is 18 angstrom**

answer:a

18)one of the followig is true about guanidinium chloride :

It removes water from DNA and silica

19)the holes between DNA bases , choose the wrong statement:

- a)when DNA twists the distance between sugar and phosphate becomes shorter**
- b)the twisting of the two strands around one another forms a double helix with a minor groove**
- c) the twisting of the two strands around one another forms a double helix with a major groove**
- d)the distance beteen sugars is about double the thickness of the nitrogen bases**
- e)each base pair is twisted about 36 to the next base pair**

answer:a

20)the name of the DNA repair system in bacteria (E.coli) in which dual incisions are made in the damaged part of the double helix :

- a)nucleotide excision repair**
- b) base excision repair**
- c) mismatch repair**
- d)homologous recombination**
- e)non-homologous end joining**

answer:a

21) which enzyme is responsible for removing of supercoils ahead of the replication fork in DNA replication :

- a)topoisomerases**
- b)ligase**
- c)DNA primase**
- d) DNA polymerase**
- e) RNase**

answer:a

22) the leucine zipper motif, choose the wrong statement :

- a)two helices dimerize through hydrophobic interactions to form a coiled coil**
- b)two monomers associate through the antiparallel beta3 sheets to form a dimer**
- c)function as dimers to regulate gene transcription**
- d)is an a-helix made up of 30-40 amino acids**
- e)contains a leucine every 7 amino acids**

answer:b

23)which of the following has telomeres :

- a) human chromosomes**
- b)plasmid**
- c)bacterial chromosome**
- d)none of the above**
- e)all of the above**

answer:a

24)which of the following does not play part in DNA stability:

- a)electrostatic interactions between phosphite groups and different cations**
- b)hydrophobic interactions between nitrogen bases**
- c)the absence of the 3'- hydroxyl group in DNA**
- d)hydrogen bonds between DNA backbone and surrounding water**
- e) hydrogen bonds between purines and pyrimidines**

answer:c

25)the complex of DNA and protein found in the eukaryotic nucleus which packages chromosomes :

- a)chromatin**
- b)nucleotides**
- c)genes**
- d)nitrogen bases**

answer:a

26)with regard to their chromosomes , what is a major difference between prokaryotes and eukaryotes :

- a)eukaryotes are diploid while prokaryotes are haploid**
- b)prokaryotes have DNA located in their cytoplasm , while all the DNA in eukaryotic cells is located inside a membrane bound nucleus**
- c)eukaryotes have linear chromosomes , while most prokaryotes contain a single circular chromosome**
- d)prokaryotes compact their DNA to a high degree while eukaryotes maintain the chromosomes in an uncompact state**

answer:c

27)which of the following would be a valuable application of a kayotype:

- a)microscopic analysis could allow identification of unusual cellular structures
- b)an individual could be matched to a forensic sample based on identical karyotypes
- c)a specific gene which causes a genetic disorder could be identified
- d)genetic disorders caused by chromosomal rearrangements could be diagnosed
- e)all of the above

answer :d

28)what change occurs in chromosome structure between G1 and G2 phases of interphase :

- a)by G2 , they have become more tightly condensed
- b)they begin to be more actively transcribed in G2 than G1
- c)chromosomes in G2 contain two linear pieces of DNA while those in G1 have only one
- d) chromosomes in G2 have a centromere which was not present in G1

answer:c

29)where do the spindle fibers connect to the chromosomes :

- a)to the centromere
- b)to the kinetochore
- c)to the centriole
- d)to the centrosomes

answer :b

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