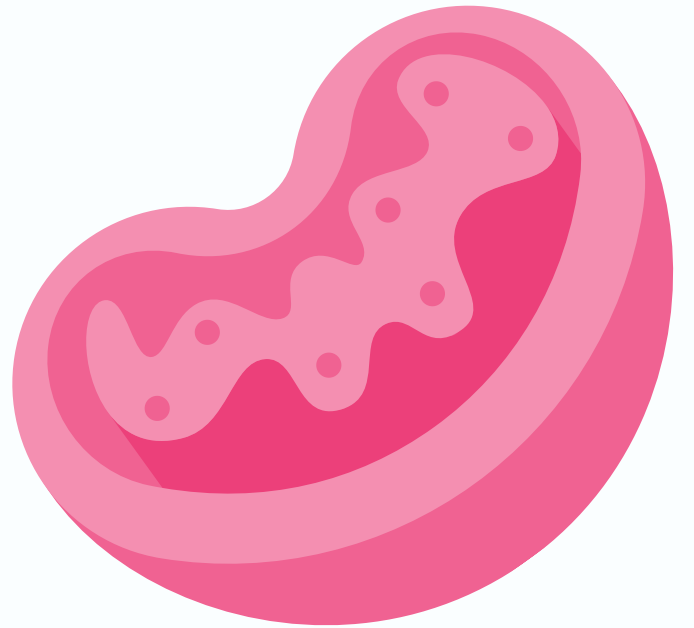


MOLECULAR BIO

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دفعه أثر



LECTURE 7

1. One of the following is not a DNA sequence:

- a. Promoter
- b. Operator
- c. Suppressor
- d. CAP binding site

ANSWER: C

2. The presence of one of the following is not associated with the activation of lac operon:

- a. Allolactose
- b. cAMP
- c. cAMP- CAP complex
- d. Inducer
- e. none of the above

ANSWER: E

3. Regarding trp operon, one of the following is not associated with its inhibition:

- a. presence of tryptophan
- b. presence of the co- repressor
- c. binding the operator
- d. binding the promoter
- e. none of the above

ANSWER: D

4. One of the following is not a regulatory protein:

- a. Repressor
- b. Activator
- c. Modulator
- d. TFs
- e. Enhancers

ANSWER: E

LECTURE 7

5. As per chromatin remodeling, one of the following is not associated with the inactive form:

- a. DNase I hypersensitivity site inactivation
- b. De-acetylation
- c. Methylation
- d. Unwind DNA

ANSWER: D

6. Consider the following events of stages in post transcriptional regulation:

- 1. dsDNA is cleaved by Dicer
- 2. RISC- siRNA complex formation
- 3. Formation of siRNA
- 4. Complementary mRNA binding
- 5. mRNA cleavage
- 6. RNA degradation

The correct order will be:

- 1, 3, 2, 5, 4, 6.
- 1, 3, 2, 4, 5, 6
- 3, 2, 1, 4, 5, 6
- 3, 2, 1, 5, 4, 6
- 2, 4, 3, 6, 1, 5.

ANSWER: B

7. One of the following is the correct order of stages in protein degradation by ubiquitin:

- a. Ubiquitin activation, Ubiquitin conjugation, Proteasomal degradation
- b. Ubiquitin conjugation, Ubiquitin activation, Proteasomal degradation
- c. Proteasomal degradation, Ubiquitin activation, Ubiquitin conjugation
- d. Proteasomal degradation, Ubiquitin conjugation, Ubiquitin activation

ANSWER: A

LECTURE 7

8. RNA processing and degradation can regulate some genes by various mechanisms. One of the following is not of them:

- a. 7- methyl guanosine removal
- b. 5' cap removal
- c. Lengthening the poly A tail
- d. Degradation of 5' UTR and 3' UTR
- e. none of the above

ANSWER: C

LECTURE 8

1. Frame shift mutation is a possible mutation in genetic materials. One of the following will not yield such a mutation but would change the amino acid sequence:

- A) Transversion
- B) Transition
- C) Deletion of 27 base pairs
- D) Deletion of 19 base pairs

ANSWER:

2. In the absence of light, thymine dimers are repaired/ removed by:

- A) BER
- B) NER
- C) MMR
- D) photoreactivation

:ANSWER

3. One of the following DNA repair mechanisms is used in large DNA samples:

- A) BER
- B) NER
- C) MMR
- D) none of the above

:ANSWER

LECTURE 8

4. In NER mechanism, the following is responsible for releasing the excised oligomer:

- A) UvrA in the presence of ATP
- B) UvrB in the presence of ATP
- C) UvrC in the presence of ATP
- D) UvrD in the presence of ATP

ANSWER: D

5. In MMR mechanism, the segment from the cleavage site to the mismatch is removed by exonuclease. One of the following is needed for this process to occur:

- A) Helicase I and SSBP
- B) Helicase I and RBP
- C) Helicase II and SSBP
- D) Helicase II and RBP

ANSWER: C

6. The inverse order of the enzymes involved in BER is:

- A) DNA glycosylase, an AP endonuclease, a DNA polymerase and a DNA ligase.
- B) DNA glycosylase, a DNA polymerase, an AP endonuclease and a DNA ligase.
- C) DNA ligase, a DNA polymerase, an AP endonuclease and a DNA glycosylase.
- D) DNA ligase, an AP endonuclease, a DNA polymerase and a DNA glycosylase.

ANSWER: C

LECTURE 8

7. Damaged or inappropriate bases are removed from its sugar and replaced by one of the following mechanisms:

- A) BER
- B) NER
- C) MMR
- D) none of the above

ANSWER: A

LECTURE 9

1. One of the following signaling molecules acts on target cells distant from their site of synthesis:

- A) Cytokines
- B) Growth factors
- C) APCs
- D) Testosterone

ANSWER: D

2. One of the following is an extracellular receptor ligand:

- A) Thyroid hormone
- B) Testosterone
- C) Vitamin A derivative
- D) Catecholamines

ANSWER: D

3. One of the following does not resemble the active status of GPCRs:

- A) When GPCR is bound to GTP
- B) When α , β and γ subunits are not bound together
- C) When β and γ subunits are forming a complex
- D) When GPCR is bound to GDP

(ANSWER: D)

LECTURE 9

4. One of the following is incorrect regarding GPCR:

- A) It has exterior, transmembrane and cytosol domains.
- B) It has a transmembrane domain formed of seven alpha helices.
- C) One of its ligands is adrenaline.
- D) Its α subunit has a GTPase activity.
- E) None of the above is incorrect

(ANSWER: E)

5. All of the following are correct regarding RTK, except:

- A) Its mechanism of signal transduction relies on the phosphorylation
- B) Typical ligands include many polypeptide GFs and hormones
- C) It needs to form a dimer that has to be stabilized by a ligand
- D) Source of phosphate group is ATP

ANSWER: C

6. One of the following statements about ion- channel receptor is incorrect:

- A) It is a single transmembrane ion channel
- B) Its ligands are chemical messengers not ions
- C) An example of substances allowed through it is calcium
- D) Reversibility is assured by pumping ions out by separate channels

ANSWER: A

7. Protein kinases are activated by various signals. The incorrect one is:

- A) Increased levels of calcium
- B) Increased levels of DAG
- C) Increased levels of cAMP
- D) Increased levels of phosphodiesterases

ANSWER: D

LECTURE 10

1. Integrins and Cadherins play major role in the following alteration for malignant cancer cells:

- A) Ability to escape apoptosis
- B) Induction and sustainment of angiogenesis
- C) Metastasis and invasiveness
- D) Uncontrolled proliferation

ANSWER: C

2. One of the following is not a cancer cell characteristic:

- A) Either abnormally larger or smaller than normal cells
- B) Nuclear size is much larger than that of normal cells
- C) Unlike normal cells, it cannot grow in a suspension
- D) Cancer cells are less differentiated than normal cells

ANSWER: C

3. IGF- 1R activation leads to:

- A) Initiating apoptosis
- B) Initiating necrosis
- C) Cell survival
- D) Resisting growth inhibition

ANSWER: C

4. The virus responsible for Kaposi's sarcoma is:

- A) HPV
- B) HHV8
- C) HSV
- D) HCV

ANSWER: B

5. The RAS family of genes has a major role in:

- A) cell signaling pathways that control cell growth and cell death.
- B) amplifications of oncogenes.
- C) breast and ovarian cancers.
- D) cell cycle, recognition of DNA damage and its repair and protein degradation

ANSWER: A

LECTURE 10

6. One of the following is incorrect regarding P53:

- A) It is a tumor suppressor gene that is made up of 393 amino acids
- B) It is known as the guardian of the genome
- C) It is the most mutated gene in the human cancer especially in the colon
- D) It is important for cell growth and development

ANSWER: D

7. The virus responsible for head, neck and cervical cancer is:

- A) HPV
- B) HHV8
- C) HSV
- D) HCV

ANSWER: A

8. Regarding HBOC, one of the following is incorrect:

- A) Only about 30% of breast cancers associated with BRCA mutations are diagnosed before age 30, so most women with a BRCA mutation could consider surgery after 30.
- B) 55%–72% of women who inherit a harmful BRCA1 variant and 45%–69% of women who inherit a harmful BRCA2 variant will develop breast cancer by 70–80 years of age.
- C) 39%–44% of women who inherit a harmful BRCA1 variant and 11%–17% of women who inherit a harmful BRCA2 variant will develop ovarian cancer by 70–80 years of age.
- D) Genetic testing looks for mutations in the BRCA1 and BRCA2 genes through a blood or saliva test and standard gene sequencing can find most BRCA mutations.

ANSWER: A

LECTURE 11

1. This type of genetic testing is used to confirm or rule out a known or suspected genetic disorder in a person with disease symptoms:

- A) Diagnostic testing
- B) Predictive testing
- C) Carrier testing
- D) Parental genetic testing

Answer: A

2. This type of genetic testing is used to identify individuals who have a gene mutation for a disorder inherited:

- A) Diagnostic testing
- B) Predictive testing
- C) Carrier testing
- D) Parental genetic testing

Answer: C

3. Amniocentesis is not used in:

- A) Advanced maternal age
- B) History of chromosomal disorder
- C) Parent with chromosomal abnormality
- D) Father carrier of X- linked disorder

Answer: D

4. One of the following is not associated with cancers occurring in somatic cells:

- A) May be inherited
- B) Have late- onset
- C) Unilateral
- D) Single tumors mostly

ANSWER: A

LECTURE 11

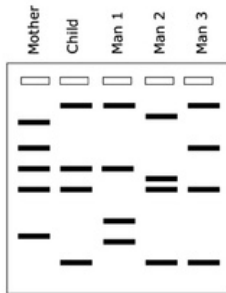
5. Chain terminator nucleotides that are used in Sanger sequencing are also referred to as:

- A) dNTPs
- B) ddNTPs
- C) Primers
- D) Oligonucleotides

ANSWER: B

6. According to the following paternity test, the father of the child will be:

- A) Man 1
- B) Man 2
- C) Man 3
- D) None of them



ANSWER: C

7. This blotting technique is used to detect DNA:

- A) Southern blot
- B) Northern blot
- C) Western blot
- D) Eastern blot

Answer: A

8. This blotting technique is used to detect proteins:

- A) Southern blot
- B) Northern blot
- C) Western blot
- D) Eastern blot

Answer: C

9. This blotting technique uses antibodies as probes:

- A) Southern blot
- B) Northern blot
- C) Western blot
- D) Eastern blot

Answer: C

LECTURE 12

1. This type of stem cells is able to generate all the cells and tissues that make up an embryo:

- A) Totipotent
- B) Pluripotent
- C) Multipotent
- D) Unipotent

Answer: A

2. This type of stem cells is able to generate all the cells and tissues but never an organism:

- A) Totipotent
- B) Pluripotent
- C) Multipotent
- D) Unipotent

Answer: B

3. Hematopoietic stem cells are considered:

- A) Totipotent
- B) Pluripotent
- C) Multipotent
- D) Unipotent

Answer: C

4. In the presence of niche signals, adult stem cells will:

- A) Differentiate
- B) Divide
- C) Do nothing
- D) A+ B

ANSWER: Be

LECTURE 12

5. Adult stem cells varies from embryonic stem cells by being:

- A) Mostly totipotent or pluripotent
- B) Easily cultured
- C) Less likely to cause immune rejection
- D) Large in numbers

ANSWER: C

LAB 4/5/6

1. Which of the following is the primary purpose of the Polymerase Chain Reaction (PCR) technique? A) DNA amplification

- B) DNA sequencing
- C) Protein synthesis
- D) Gene editing

Answer: A

2. The main role of KCl in the standard PCR buffer solution is:

- A) For dissolution of nucleic acids
- B) To promote specificity of hybridization
- C) For stabilizing of complex between primers and matrix and increasing the exit of special products of PCR
- D) For frequent unfreezing- freezing at the temperature -20 Celsius

Answer: B

3. The optimum polymerization temperature of Taq is:

- A) 70- 75 (72) Celsius
- B) 70- 80 (72) Celsius
- C) 34- 72 Celsius
- D) 94 Celsius

Answer: B

LAB 4/5/6

4. When working with RNA, one of the following precautions is incorrect:

- A) Do not touch a surface after putting the gloves to avoid reintroduction of RNase to decontaminated material.
- B) Designate a special area for RNA work only.
- C) Treat surface or benches and glassware with commercially available RNase inactivating agents.
- D) No special precautions have to be made

ANSWER: D

5. The linear phase of PCR resembles:

- A) The exact doubling of the products
- B) Reaction components are being consumed and PCR products are starting to degrade
- C) The reaction has stopped and degradation of PCR products might happen
- D) None of the above

ANSWER: B

6. One of the following is incorrect regarding CYPB Green method:

- A) It is inexpensive and easy to use.
- B) No probe is required.
- C) It is highly specific.
- D) Overestimation is possible.

ANSWER: C

7. What distinguishes AmpliTaq Gold DNA polymerase from conventional TaqMan probe is:

- A) 5' endonuclease activity
- B) 5' exonuclease activity
- C) 3' endonuclease activity
- D) 3' exonuclease activity

Answer: B

LAB 4/5/6

8. When a high energy dye is in close proximity of a low energy dye, there will be a transfer of energy from high to low. This concept is known as:

- A) FRET
- B) RFLP
- C) RT-PCR
- D) SYPR green

Answer: A

9. Short segments of single stranded DNA that forms a hairpin in its free form. This method of fluorescence detection is known as:

- A) CYPR green
- B) Molecular Beacon
- C) TaqMan Probe
- D) Scorpion Probe

Answer: B

10. Bifunctional molecule in which a primer is covalently linked to the probe. This method of fluorescence detection is known as:

- A) CYPR green
- B) Molecular Beacon
- C) TaqMan Probe
- D) Scorpion Probe

Answer: D

11. DNA sequences in which the 5' to 3' base pair sequence is identical on both strands. It is a definition of:

- A) Molecular scissors
- B) Palindromes
- C) Recognition site
- D) Restriction enzymes

Answer: B

LAB 4/5/6

12. In EcoRI, R refers to:

- A) Genus
- B) Species
- C) Strain
- D) Order isolated

Answer: C

13. Staggered cuts by restriction enzymes are also known as:

- A) Blunt ends
- B) Sticky ends
- C) Cut sites
- D) Cleavage sites

Answer: B

14. All of the following are correct regarding Type II restriction enzyme except:

- A) It has separate endonuclease and methylase activity
- B) It has 2 identical subunits
- C) It requires Mg and ATP
- D) An example is EcoRI

Answer: C

15. Bacterial DNA is protected from restriction enzymes by a flag made of:

- A) ATP
- B) Mg
- C) Methyl
- D) Ca

Answer: C

LAB 4/5/6

16. Both _____ and _____ restriction enzymes have the same recognition sequence. However, the first has the same cleavage site but the latter does not.

- A) Isoschizomers and nonschizomers
- B) Isoschizomers and neoschizomers
- C) Nonschizomers and isoschizomers
- D) Neoschizomers and isoschizomers

(Answer: B)

17. A difference in homologous DNA sequences that can be detected by the presence of fragments of different lengths after digestion of the DNA samples, is known as:

- A) FRET
- B) RFLP
- C) RT-PCR
- D) SYPR green

Answer: B

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