بسم الله الرحمـٰن الرحيم

(وَفَوْقَ كُلِّ ذِي عِلْمٍ عَلِيمٌ)

Cytology & Molecular Biology | MID

Past Papers

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Past papers 2023

Q1 :What is true about ubiqutins?

A-they attach to molecules inside ER

B-they label proteins for degradation

C-large proteins

D-they are involved in proteasome

Answer :B

Q2 :If desmin is defected, most cells affected are?

A-neuronal cells

B-muscle cells

Answer :B

Q3:Which of the following receptors mediate the interaction between ECM and cytoskeleton?

Ans: integrins

Q4:Which is true about IFs:

A-they stabilize nuclear structure

B-they need ATP for binding

C-they are highly dynamic

D-they are not associated with actin filaments and microtubules

Answer :A

Q5:Taxol is anti-cancer drug because:

Ans: it stabilizes microtubules

Q6 :Human epidermolysis bullosa is a result of:

Ans: affected keratin

Q7: Dynein and kynesin function in:

Ans: moving vesicles and RNA along microtubules

Q8: In JAK/STAT system, after phosphorylation of STAT by JAK what will happen?

A-it provides binding sites for downstream proteins
B-the interaction between JAK and STAT will be stronger
C-STAT translocate to the nucleus
D-STAT kinase domain will be activated

ANS: C

Q9: What feature is present in Golgi specific proteins?

A-high number of disulfide bonds
B-KDEL sequence in C-terminus
C-membrane proteins
D-luminal proteins

ANS: C

Q10: Cofilin protein:

A-binds G proteins to each other
B-breaks G proteins from each other
C-branch G proteins in actin filaments

ANS: B

Q11: Karyopherins’ function is:

Ans: transporting nuclear proteins

Q12: Angiogenesis means:

Ans: formation of new blood vessels

Q13: narrowing of the blood vessels in defected elastin because of:

Ans: over proliferation of smooth muscle

Q14: Which membrane has the highest protein to lipids ratio?

A-plasma membrane
B-outer mitochondrial membrane
C-inner mitochondrial membrane

ANS:C

Q15: Gasdermin is involved in:

A-pyroapoptosis
B-ferroptosis

ANS: A

Q16: Which protein is regulated via GTP:

A-rab
B-raf

ANS: A

Q17: Which protein is responsible for targeting vesicles:

A-rab
B-ras
C-ran

ANS: A

Q18: Which of the following is not true about restriction point?

A-prevent cell division
B-enters G0 phase
C-cell undergoes apoptosis
D-it is present in G1 phase

ANS: C

Q19: Which of the following junctions prevent mixing between apical and basolateral proteins?

A-tight junctions
B-adherens junction

ANS: A

Q20: Which of the following junctions allows intracellular signals to move between cells?

Ans: gap junctions

Q21: Which of the following pathway activates antiapoptotic proteins and inhibits proapoptotic proteins?

A-Ras/Raf/MEK pathway
B-PI3 kinase pathway

ANS: B

Q22: The formation of apoptosome result in:

A-activation of caspase9
B-inhibition of antiapoptic regulatory

ANS: A

Q23: After centrifuge of cell compenents, what is the order of the organelles (from heaviest to lightest)?

A-nucleus, mitochondria, lysosomes,ribosomes, disaccharides
B-nucleus,mitochondria,ribosomes,lysosomes,disaccharide

ANS: A

Q24: Disulfide isomerase is found in?

A-ER
B-Golgi apparatus
C-peroxisomes

ANS: A

Q25: Cancer cells lose the contact inhibition, what does it mean?

Ans: they will continue proliferation even if they contact each other

Q26: Plasminogen (lipid soluble molecule) where is it synthesis ?

A. Mitochondria
B. Peroxisomes
C. ER
D. Golgi

ANS: B

Q27: Which one of the following isn’t correct regarding P53:

1) it is a transcription factor.
2) it’s degraded when phosphorylated.
3)it’s degraded by HPV/E6.
4)DNA damage activates it.

ANS: 2

Q28: One of the is lysosomal storage disease:

1)Lactic acidosis
2) I-cell disease

ANS: 2

Q29: Function of Oxa translocase is:

1)transporting of mitochondrial proteins from cytosol to matrix.
2)transporting of protein encoded by mitochondrial genome to inner mitochondrial membrane

ANS: 2

Q30: MERRF disease is caused by:

Mutation of mitochondrial tRNA genes

Q31: Function of translocon Answer:

Transporting proteins from the cytosol into the ER lumen

Q32: For nucleation of actin filament:

A) presence of F-actin polymerase
B)polar form of G actin monomer
C) forming of trimer of G actin

ANS: C

Q33: Peroxisomes originated from:

A-ER
B-Golgi apparatus

ANS: A

Q34: One of these sites it’s protein has to enter ER then Golgi apparatus, what is it?

Q35: After dimerization of tyrosine kinase, what is the next step?

Autophosphrylation

Q36: What is the limiting step in synthesis of fibrils from tropcollagen?

A-propeptide cleavage
B-excertion of tropocollage

ANS: A

Q37: Which of the following describes the position of glycocalyx?

Extracellular side of plasma membrane

Q38: Defective dystrophin leads to muscle dystrophy because of

Answer: a defect in the binding of actin filaments to the transmembrane proteins

Q39: Emirin links lamins to inner nuclear membrane

Q40: Function of the nucleolus:

assembly of ribosomes

First, we will start with (23) past Qs

then there will be (14) test bank Qs

(all Qs are by default past unless specified to be test bank)

Q1 :Which of the following lipids is found concentrated in lipid rafts in animal cell plasma membrane?

A- Cholesterol.

B- Phosphatidylcholine.

C- Phosphatidylserine.

D- Phosphatidylethanolamine.

E- Phosphatidylinositol.

Answer : A

Q2：Which of the following is not a model organism for laboratory studies?

A- Rats

B- Drosophila melanogaster

C- Homo sapiens

D- Escherichia coil

E- Caenorhabditis elegans

Answer : C

Q3: What kind of membrane protein penetrates the hydrophobic part of the lipid bilayer?

A- Integral protein.

B- Lipid-anchored protein.

C- Peripheral proteins.

D- Phosphatidylcholine.

E- Galactocerebroside.

Answer: A

Q4: They are more gelated and highly ordered than the surrounding more fluid and disordered regions in membranes. They contain higher concentrations of sphingolipids and cholesterol and certain proteins become concentrated within them. What are they?

A- lipid domains

B- dense bilayers

C- lipid islands

D- collections

E- lipid rafts

Answer : E

Q5 :What kind of membrane protein is found entirely outside the bilayer on either the extracellular or cytoplasmic surface? These proteins are covalently linked to a membrane lipid situated within the bilayer.

A) lipid-anchored protein

B) integral protein

C) peripheral proteins

D) transmembrane

E) carbohydrate-anchored protein

Answer : A

Q6:Which of the following does represent the most likely secretory pathway for a protein after it has been completely synthesized?

A. SER → Golgi → secretory vesicle → environment

B. cytoplasm → RER → Golgi → secretory vesicle → environment

C. RER → Golgi → SER → cytoplasm → environment

D. RER → secretory vesicle → Golgi → environment

E. RER → Golgi → secretory vesicle → environment

Answer : E

Q7 :What does appear to be the purpose of chaperones?

A. They recognize and bind to unfolded or misfolded DNAs and help them attain their native structure

B. They transport secretory proteins into secretory vesicles

C. They recognize and bind to unfolded or misfolded proteins and help them attain their native structure

D. They recognize and bind to unfolded or misfolded RNAs and help them attain their native structure.

E. They recognize and bind unfolded or misfolded carbohydrates and help them lose their native shape.

Answer : C

Q8 : Type II single-domain transmembrane proteins have their N-termini at the _____side when they are attached to the ER membrane.

A) ER lumen
B) Extracellular
C) Cytoplasmic
D) Golgi lumen
E) No enough information to decide

Answer : C

Q9 : What are the building blocks of a phosphoglycerides, namely phosphatidic acid?

A) glycerol + 3 fatty acids

B) glycerol + 1 phosphate group + 2 fatty acid chains

C) glycerol +1 phosphate group

D) glycerol + 2 phosphate groups +1 fatty acid chains

E) glycerol + 1 phosphate group + 3 fatty

acid chains

Answer : B

Q10 :With what structure is the outer membrane of the nuclear envelope continuous?

A. RER

B. SER

C. Golgi complex

D. the spindle

E. the plasma membrane

Answer : A

Q11 : What components below are selected for transport by vesicles originating in the Golgi complex?

A) Lysosomal proteins

B) Proteins required to target the vesicle to an acceptor membrane

C) Secretory proteins

D) Proteins required to dock the vesicle to an acceptor membrane

E) All of the options are correct.

Answer : E

Q12 : Where are the multiple units of quaternary proteins assembled?

A. ER lumen
B. Mitochondria
C. Cis-Golgi
D. Trans-Golgi network
E. ERGIC

Answer : A

Q13 : N-glycosylation _____while O-glycosylation _____in the Golgi apparatus.

A. starts; starts
B. starts; continues
C. continues; starts
D. continues; continues
E. None of the above is correct

Answer : C

Q14 : On which of the following intracellular locations does clathrin organize a coat and form secretory vesicles?

A. endoplasmic network O

B. trans-Golgi complex

C. lysosomes

D. regulated secretory vesicles

E. inner membrane of mitochondria

Answer : B

Q15 : What is probably the single, most important distinction between prokaryotes and eukaryotes?

A- The existence of the Golgi complex.

B- The separation of the genetic material from the surrounding cytoplasm.

C- The existence of ribosomes.

D- The centrioles.

E- The lysosomes and peroxisomes.

Answer : B

Q16: LDL extracellular membrane receptors usually have the following path in receptor-mediated endocytosis:

A) Outer plasma membrane side → inner side of clathrin-coated vesicle → inner side of late endosome → inner side of recycling endosome → back to plasma membrane

B) Outer plasma membrane side → outer side of clathrin-coated vesicle → inner side of early endosome → inner side of recycling endosome → back to plasma membrane

C) Outer plasma membrane side → inner side of clathrin-coated vesicle → outer side of late endosome → inner side of recycling endosome → back to plasma membrane

D) Outer plasma membrane side → inner side of clathrin-coated vesicle → inner side of early endosome → inner side of recycling endosome → back to plasma membrane

E) Outer plasma membrane side → outer side of clathrin-coated vesicle → inner side of late endosome → inner side of lysosome

Answer : D

Q17 : What effect does the binding of the SRP to the growing polypeptide chain and the ribosome have on protein synthesis?

A) Protein synthesis ceases temporarily.

B) The complex is translocated to the ER membrane.

C) Protein synthesis accelerates.

D) The ribosome dissociates.

E) Protein synthesis is terminated.

Answer : B

Q18 : Once an organelle to be destroyed, like a mitochondrion, has been surrounded with a double membrane, what is the name of the structure that has been produced?

A) bacteriophage

B) autophagosome

C) phagosome

D) phagolysosome

E) macrophage

Answer : B

Q19 : What is the molecular tag of lysosomal enzymes?

A) Glucose -6-p

B) RGD

C) Mannose-6-P

D) Glucose-N-acetyl-P

E) KDEL

Answer : C

Q20 : Which of the following enzymes are typically found in lysosomes?

A) ligases

B) oxidoreductases

C) transferases

D) hydrolytic enzymes (acid hydrolases)

E) catalase

Answer : C

Q21 : What are the functional categories of SNAREs?

A. V_ SNARES, t_ SNARES

B. V_ SNARES, g _ SNARES

C. V_ SNARES, er_ SNARES

D. Er_ SNARES, g_ SNARES

E. None of the above

Answer : A

Q22 : When a protein fails to attain its native structure in the ER lumen, a protein portion is attached to it to get destroyed in the cytoplasm. What is the name of this portion?

A. Ubiquitin

B. transferrin

C. opsonin

D. chaperonin

E. complexin

Answer : A

Q23 : The process of membrane fusion and subsequent content secretion is called _____and is sometimes triggered by the influx of _____.

A. Exocytosis, K+ ions

B. Exocytosis, Ca2+ ions

C. Endocytosis, Ca2+ ions

D. Endocytosis, K+ ions

E. Secretion, K+ ions

Answer : B

Test bank Qs

Test bank Q

Q24) In cell fractionation various components of cells including its organelles can be isolated in different layers depending upon_____?

A) Their physical properties like size

B) Their physical properties like Weight

C) Their physical properties like Charge

D) Their physical properties like Color

E) Both A and B is Correct

Answer : E

Test bank Q

Q25) What is Glycocalyx?

A) Oligosaccharide part of Glycolipids and Glycoproteins

B) Glycoproteins and Glycolipids

C) Mucopolysaccharides attached to cell wall

D) None of These

Answer : A

Test bank Q

Q26) Which of the following correctly classifies the location of sphingomyelin and inositol in the plasma membrane?

A) Sphingomyelin (inner leaflet), Inositol (outer leaflet)

B) Sphingomyelin (outer leaflet), Inositol (inner leaflet)

C) Sphingomyelin (outer leaflet), Inositol (outer leaflet)

D) Sphingomyelin (inner leaflet), Inositol (inner leaflet)

Answer : B

Test bank Q

Q27) Which of the following is NOT true of lipid rafts?

A) They are less fluid than the surrounding membrane

B) Do not assist in transporting materials inside the cell

C) They contain a higher concentration of cholesterol than the surrounding membrane

D) contain proteins anchored in a unique way

E) play a role in signaling within the cell

Answer : B

Test bank Q

Q28) Which statement is NOT true regarding membrane proteins?

A) They can have a single transmembrane domain.

B) They can associate with nucleic acids.

C) They can have multiple transmembrane domains.

D) They can be associated with fatty acids.

E) They can be peripheral membrane proteins through electrostatic interactions.

Answer : B

Test bank Q

Q29) The glycocalyx is a layer of sugar molecules that covers the surface of cells and plays an important role in various cellular functions. Is it true that the glycocalyx plays a significant role in the lungs by contributing to protection against pollutants and enhancing cellular interactions?

A) TRUE

B) FALSE

Answer : A

Test bank Q

Q30) Which the following is mismatch :

A) proteins ——— diffuse laterally through the membrane

B) lipid rafts ——— specific lipid composition

C) peripheral membrane protein ———- helical parts

D) peripheral membrane proteins ——— Non covalent bond

E) GPI ———— play a role in anchoring

Answer : C

Test bank Q

Q31) Which of the following statements about the endoplasmic reticulum (ER) is NOT true?

A) The rough ER is primarily involved in lipid metabolism.

B) The transitional ER is responsible for the exit of vesicles to the Golgi apparatus.

C) The smooth ER does not have ribosomes on its outer surface.

D) The rough ER plays a key role in protein processing.

Answer : A

Test bank Q

Q32) What role does the internal transmembrane sequence play in the insertion of membrane proteins?

A) It initiates the synthesis of the polypeptide chain.

B) It determines the direction of insertion and orientation of the protein ends.

C) It facilitates the exit of the protein from the Golgi apparatus.

D) It prevents the translocon from recognizing the polypeptide chain

Answer : B

Test bank Q

Q33) Proteins and lipids are transported directly from the ER to the Golgi without passing through the ER-Golgi intermediate compartment (ERGIC).

A) TRUE

B) FALSE

Answer : B

Test bank Q

Q34) Which of the following is NOT true about the smooth ER ?

A) The smooth ER is the primary site for the synthesis of membrane glycerophospholipids.

B) Sphingophospholipids like ceramides and glycolipids are synthesized in the smooth ER.

C) The smooth ER is abundant in cells that produce steroids, such as in the testis and ovary.

D) The smooth ER plays no role in the metabolism of lipidsoluble compounds in the liver.

Answer : D

Test bank Q

Q35) Which of the following processes does NOT occur to proteins once they are inside the endoplasmic reticulum ER?

A) Formation of disulfide bonds by protein disulfide isomerase

B) Glycosylation of the proteins

C) Translation of the polypeptide chain

D) Folding of the proteins with the help of chaperones

Answer : D

Test bank Q

Q36) a vesicle that reaches its targeted membrane but cant attach to it is most likely defective in:

A) RAP

B) MYOSIN

C) MLPH

D) T-SNARE

E) none of the above

Answer : D

Test bank Q

Q37) what happens to a protein that leaked out of a lysosome:

A) will transcript DNA

B) renature

C) nothing

D) will lose some of its functions

E) will attach to lipid

Answer : D

First we will start with (15) past Qs

then there will be (7) test bank Qs

(all Qs will be by default past unless it is written to be test bank)

Q1：Which of the following organelles has the ability to oxidize very-long-chain fatty acids?

A. Golgi complex.
B. Smooth endoplasmic reticulum.
C. Lysosomes.
D. Peroxisomes.
E. Late endosomes.

Answer : D

Q2 : Which of the following organelles has the ability to break down Hydrogen peroxide?

A. Mitochondria.
B. Smooth endoplasmic reticulum.
C. Peroxisomes.
D. Lysosomes.
E. Late endosomes.

Answer : c

Q3 :What is not correct about peroxisomes acids?

A) Can synthesize some of their proteins

B) Contain the enzyme catalase

C) involved in toxins detoxification

D) Are site of oxidative catabolism

E) involved in metabolism of long chain fatty acids

Answer : A

Q4 :A transport receptor that moves molecules from the nucleus to the cytoplasm is called:

A) exportin

B) receptin

C) exhalin

D) importin

E) transportin

Answer : A

Q5 : What is not correct about mitochondrion?

A)Is self replicative

B) Can synthesize all of its proteins

C) Its outer membrane contains porins

D) Electron transport chain is located in its inner membrane

E) Inner membrane has 3:1 protein to lipid ratio

Answer : B

Q6 : A transport receptor that moves molecules from the nucleus to the cytoplasm is called:

A) exportin

B) receptin

C) exhalin

D) importin

E) transportin

Answer : A

Q7 : The thin filamentous meshwork within the nucleus that is bound by integral membrane proteins of the innersurface of the nuclear envelope in animal cells is called the:

A) Nuclear lamina

B) Basement lamina

C) Nuclear limulus

D) Nucleon

E) Basal lamina

Answer : A

Q8 : What advantage do the cristae confer on the mitochondria?

A. They allow the mitochondria to shrink.

B. They greatly increase the surface area for aerobic respiration machinery.

C. They confer resiliency on the cells.

D. They allow swelling of mitochondria.

E. They activate the matrix.

Answer : B

Q9 : The number of mitochondria in our cells:

A. Small and differ from one cell to another.

B. Large and differ from one cell to another.

C. The same number in all cells.

D. It depends on function of the cell.

Answer : D

Q10: The inner boundary membrane is particularly rich in which of the following?

A. protons

B. proteins responsible for the import of mitochondrial proteins

C. Krebs cycle enzymes

D. enzymes of the glycolytic pathway

E. glycosaminoglycans

Answer : B

Q11: Peroxisomal enzymes _____.

- A. Produce hydrogen peroxide
- B. Break down hydrogen peroxide
- C. Include catalase
- D. A and B

A. E. A, B and C

Answer : E

Q12 : Which genetic disorder is associated with dysfunction of peroxisomes?

A. Prkinson's disease

B. Down's syndrome

C. Premature aging phenotype

D. Zellwager syndrome

E. Bubble boy syndrome

Answer : D

Q13. Human mitochondrial DNA encodes for:

A. 2 rRNAs

B. 5 rRNAs

C. 1 rRNAs

D. 3 rRNAs

E. 4 rRNAs

Answer: A

Q14 : What is the name of the protein that make up the nuclear lamina and of what protein superfamily are they a member?

A. Actin, microfilaments

B. Lamins, intermediate filaments

C. Lamins, laminins

D. Keratin, laminins

E. Keratin, intermediate filaments

Answer : B

Q15 : porins are present in:

A. outer membrane

B. inner membrane

C. intermembrane space

D. both inner and outer membrane

E. matrix

Answer : A

Test bank Qs

Test bank Q

Q16 : choose the incorrect statement:

A. Edosymbiont theory is mainly related to mitochondria
B. All mitochondrial protein are synthesized in inner membrane
C. Mitochondrial DNA can encode tRNA and rRNA
D. Outer mitochondrial membrane is mostly made of proteins
E. 2 or more are incorrect

Answer :E

Test bank Q

Q17 : choose the correct statement:

A. Mitochondria can't fuse and divide
B. Inner mitochondrial membrane is permeable
C. (NES)/(NLS) are important sequences in mitochondrial transport
D. Mitochondrial synthesized proteins can be inserted in the inner membrane
E. All are incorrect

Answer :D

Test bank Q

Q18 : where can Phosphatidylserine be synthesized and it is a derivative of what molecule:

A. Mitochondria, phosphatidylethanolamine
B. Nucleus, Phosphatidylserine
C. Nucleus, phosphatidylethanolamine
D. Mitochondria, Phosphatidylcholine
E. Lysosomes, Phosphatidylcholine

Answer :A

Test bank Q

Q19 : what best describes Cardiolipin:

A. It is a sphingolipid
B. The unusual phospholipid, cardiolipin, which contains four fatty acid chains
C. synthesized in the in ER
D. it is a molecule that can't be found in the body and it has many effects
E. 2 or more are correct

Answer :B

Test bank Q

Q20 : choose the correct statement:

A. Converting pyruvate to Acetyl CoA is reversible.
B. a defective in aconitase enzyme can cause encephalomyopathy.
C. Peroxisomes can divide but can fuse.
D. Internal peroxisomal proteins are made in cytosol.
E. Peroxisomes can synthesize cardiolipin and Blie duct.

Answer :D

Test bank Q

Q21 : choose the incorrect pair:

A. XALD: Defective transport of very long-chain fatty acid
B. MERRF: caused by a mutation in one of the mitochondrial transfer RNA genes
C. Zellweger syndrome: is a peroxisomal disease
D. LHON: blindness because of degeneration of the optic nerve.
E. Luft's disease: hypermetabolism and hypothermia

Answer :E

Test bank Q

Q22 : choose the incorrect statement:

A. The nuclear lamina is made of a fibrous meshwork of lamins.
B. Outer mitochondrial membrane is permeable to small molecules.
C. Emerin and LBR can bind lamin to inner membrane.
D. Prenylation and LINC complex are both associate lamins with outer nuclear membrane.
E. lamin polypeptides form dimers with the central α-helical regions.

Answer :D

Q1: Which of the following proteins are abundant in the extracellular matrix:

a) Tubulin
b) Myosin
c) Actin
d) Collagen
e) More than one answer

Answer: D

Q2: Which of the following proteins is a transmembrane protein responsible for anchoring the extracellular matrix :

a) Integrins
b) Laminin
c) Fibronectin
d) Collagen type IV
e) Collagen type VII

Answer: A

Q3: Which of the following is the primary structural component of the basal lamina?

a) Type IV collagen
b) Entactin
c) Laminin
d) Integrins
e) Fibronectin

Answer: A

Q4: What is not a function of extracellular matrix of animal cells?

a) Cell adhesion
b) Cell division
c) Cell motility
d) Cell differentiation
e) DNA replication

Answer: E

Q5: Which of the following is true regarding Focal adhesions?

A. Transmit information to the cell interior that may lead to changes in cell adhesion, proliferation or survival

B. Contain integrins that develop transient interactions with the extracellular matrix

C. Have been implicated in cell locomotion

D. Collect information about the chemical properties of the extracellular environment

E. All of these are correct

Answer: E

Q6: Which of the following mediate the interactions between the leukocytes and blood vessel endothelial cells?

A. Selectins
B. Immunoglobulin super family proteins
C. Focal adhesion
D. Calmodulins
E. Cadherins

Answer: A

Q7: The ECM components attached to cell membrane by?

A. protein
B. phospholipid
C. glycoprotein
D. Glycolipid
E. Could be more than one answer

Answer: A

Q8: What is the importance of integrin receptor molecules?

A. Cell substratum interaction
B. Cell signaling pathway
C. Act as enzymes
D. A and B
E. A and B and C

Answer: D

Q9: What is the difference between (selectin and cadherins)?

A. Selectin are formed between different types of cells but the cadherins between same the types of cells

B. Selectin formed between same cells but cadherins between different cells

C. No difference between them

D. It depends on the location of the cells

E. Selectins have stable cell junctions while cadherins don’t

Answer: A

Q10: What is the type of bond that connects between 2 similar polypeptide of fibronectin?

A. covalent
B. disulfide
C. polar covalent
D. ionic
E. No connection

Answer: B

Q11: What kind of molecule does not pass through a gap junction?

A. ions

B. cAMP

C. inositol phosphates

D. Ribosomes

E. cGMP

Answer: D

Q12: Attachment of an integrin to its ligand can induce which of the following responses within a cell?

A. Changes in cytoplasmic pH

B. Changes in cytoplasmic C2+ ion concentration

C. Protein phosphorylation

D. Gene expression

E. All of these are correct.

Answer: E

Q13: Each connexon in a gap junction is constructed of how many connexin subunits?

A. 2
B. 4
C. 6
D. 8
E. 10

Answer: C

Q14: Most protein kinases transfer phosphate groups to which amino acid(s)?

A. glutamate
B. threonine
C. serine
D. tryptophan
E. 2 and 3

Answer: E

Q15: Sometimes an enzyme is activated by a receptor and brings about the cellular response by generating a second messenger. Such an enzyme Is called a(n):

a) Activator

b) Effector

c) Affecter

d) Refractor

e) Generator

Answer: B

Q16: No matter how the signal initiated by the binding of an extracellular ligand is, what is the outcome of that signal?

a) A protein in the middle of an intracellular signaling pathway is activated.

b) A protein at the top of an intracellular signaling pathway is activated.

c) A protein at the top of an extracellular signaling pathway is activated.

d) A protein at the top of an intracellular signaling pathway is deactivated.

e) A protein at the bottom of an intracellular signaling pathway is activated.

Answer: B

Q17: What role do activated steroid receptors play in the cell?

a) Activation of inactive enzymes
b) Inactivation of active enzymes
c) ligand-regulated transcription factors
d) Opening of specific ion channels
e) Activation of cytoplasmic proteins

Answer: C

Q18: Which of the following are not natural ligands that bind to G-protein coupled receptors?

a) hormones

b) neurotransmitters

c) chemoattractants

d) opium derivatives

e) steroid hormones

We didn't fully take all the options, just know E is definetly wrong,

Answer: E

Q19: Place the events below in the correct order.

1) G protein binds to activated receptor forming a receptor-G protein complex
2) Release of GDP by the G protein
3) Change in conformation of the cytoplasmic loops of the receptor
4) Binding of GTP by the G protein
5) Increase in the affinity of the receptor for a G protein on the cytoplasmic surface of the membrane.
6) Binding of a hormone or neurotransmitter to a G-protein coupled receptor
7) Conformational shift in the 'a' subunit of the G protein

a) 6 – 3 – 5 – 1 – 2 – 4 – 7
b) 3 – 6 – 5 – 1 – 7 – 2 – 4
c) 6 – 3 – 5 – 1 – 7 – 2 – 4
d) 6 – 7 – 3 – 5 – 1 – 2 – 4
e) 6 – 3 – 5 – 1 – 7 – 4 – 2

Answer: C

Q20: Place the following events in the proper order.

1) Activation of one or more cellular signaling proteins.

2) Dissociation of Gα from the G protein complex.

3) Production of a second messenger, like cAMP.

4) Replacement of GDP by GTP on the Gα after interaction with an activated GPCR.

5) Conformational change in the Gα subunit causing a decreased affinity for the G βγ-subunit.

6) G α-subunit with its attached GTP activates an effector like adenylyl cyclase.

a) 4 – 5 – 2 – 6 – 3 – 1

b) 5 – 4 – 2 – 6 – 3 – 1

c) 4 – 6 – 2 – 5 – 3 – 1

d) 4 – 5 – 2 – 3 – 1 – 6

e) 1 – 5 – 2 – 4 – 3 – 6

Answer: A

Q21: How is signaling by an activated Gα subunit terminated?

a) The bound GTP is hydrolyzed to GMP.

b) The bound GDP is hydrolyzed to GTP.

c) The bound GTP is hydrolyzed to GDP.

d) The bound GDP is phosphorylated to GTP.

e) The Gα subunit releases GDP and binds GTP.

Answer: C

Q22: are enzymes that phosphorylate specific tyrosine residues on protein substrates.

a) Protein tyrosinases
b) Protein-tyrosine kinases
c) Tyrosine pronases
d) Proteokinases
e) Tyrokinases

Answer: B

Q23: Which of the following features would be a requirement for a receptor that exhibits ligand-mediated dimerization?

a) The ligand has only one binding site for receptors.

b) The ligand has two binding sites for receptors.

c) The receptor must have a phenylalanine residue in a specific location.

d) The receptor must have a molecular weight of 50,000 daltons.

e) Ligand binding causes a conformational shift that reveals a binding site for another receptor.

Answer: B

Q24: Once the kinase domain of receptor protein-tyrosine kinase has been activated, what does the activated receptor protein-tyrosine kinase do?

a) The receptor subunits denature.

b) Each receptor subunit phosphorylates its partner on tyrosine residues found in regions adjacent to the kinase domain.

c) Each receptor subunit phosphorylates itself on tyrosine residues found in regions adjacent to the kinase domain .

d) The receptor subunits dephosphorylate each other.

e) The receptor subunits refold into a more effective conformation.

Answer: B

Q25:Which enzyme is inhibited by CAMP:

A.Glycogen phosphorylase kinase
b. Protein kinase A (PKA)
c. Glycogen synthase
d. Glycogen phosphorylase kinase
e. Glycogen phosphorylase

Answer: c

Q26:Protein kinase A, Except:

a. inhibits glycogen synthase
b. is activated by CAMP
c. activates glycogen phosphorylase kinase
d. phosphorylates glycogen synthase
e. activates glycogen synthesis & breakdow

Answer: e

Q27:Which of the following mediate the interactions between leukocytes and blood vessel endothelial cells?

A- Selectins.
B- Focal adhesion.
C- Immunoglobulin super family proteins.
D- Cadherins.
E- Calmodul

Answer: A+C

Q28:Which answer shows the correct order of the flow of information during cell signaling

A)Cellular response, change in gene expression, signal transduction, receptor- ligand binding

B)Receptor-ligand binding, cellular response, signal transduction, change in gene expression

C) Signal transduction, cellular response, change in gene expression, receptor- ligand binding

D) Change in gene expression, signal transduction, receptor-ligand binding, cellular response

E) Receptor-ligand binding, signal transduction, cellular response, change in gene expression

Answer: E

Q29:Selectins mediate interactions between which of the following?

A) leukocytes and blood vessel endothelial cells
B) muscle cells and ECM
C) nerve cells and other nerve cells
D) intestinal epithelial cells with neighboring cells E) skin cells in different skin layers

Answer: A

Q30:What integral membrane protein family made of two membrane-spanning chains (alpha and beta) is involved in attaching cells to their extracellular microenvironment?

A) myosins
B) glycophorins
C) integrins
D) laminins
E) fibronectins

Answer: C

Q31:Which components are responsible for Ca+2 production?

A. Endoplasmic reticulum
B. Ribosomes
C. Mitochondria
D. Endoplasmic reticulum and mitochondria
E. A+b

Answer: A

Q32:When cell move signals to its surface the signaling is:

A. Autocrine
B. Paracrine
C. Endocrine
D. Exocrine
E. None of the above

Answer: A

Q33: If experimentally linked α/β heterodimer integrin subunits are separated, what happens?

A. The molecules bind their ligand tightly

B. The molecules are unable to bind a ligand.

C. The molecules are cleaved.

D. The molecules denature their ligand.

E. The molecules are denatured and degraded.

Answer: B

Q34: What is the largest protein superfamily encoded by animal genomes?knowledge improvement

a) G-protein coupled receptors

b) RTKs

c) steroid receptors

d) tubulin superfamily

e) ligand-gated channels

Answer: A

Q35: How do cells in the body of a multicellular organism usually communicate with each other?

a) intracellular messenger molecules

b) direct connection by cells through long projections

c) extracellular messenger molecules

d) electrical signals between cells

e) ion transport between cells

Answer: C

Q36: What kinds of responses are not initiated when signals traveling down signaling pathways reach their target proteins?

a) A change in gene expression

b) A change in ion permeability

c) Cessation of DNA synthesis and degradation of DNA

d) The death of the cell

e) An alteration of the activity of metabolic enzymes

Answer: C

Q37: Why do cells flatten out as they contact a surface?

A. They lose water.

B. They extrude cytoplasm.

C. They send out projections that make increasingly stable attachments.

D. Their membranes stiffen.

E. They make focal assignations.

Answer: C

First we will start with (13) past Qs

then there will be (14) test bank Qs

(all Qs will be by default past unless it is written to be test bank)

- Note: There are no past paper questions on the topic of "cell cycle" and "Cancer" except the first slides (023 Dopamine past), so you should solve test bank questions to assess your understanding.

Q1 : What group of enzymes phosphorylates most of the carbons on inositol?

A)Phospholipases

b) Phosphoinositide kinases

c) Phosphorylases

d) Phosphodiesterases

e) phosphatases

Answer : b

Q2 : How is signaling by an activated Gαsubunit terminated?

A. The GTP bound to the protein is broken down into GMP.
B. The GDP bound to the protein is broken down into GTP.
C. The GTP bound to the protein is broken down into GDP.
D. The GDP bound to the protein is converted to GTP by adding a phosphate group
E. .The Gαsubunit releases GDP and binds to GTP.

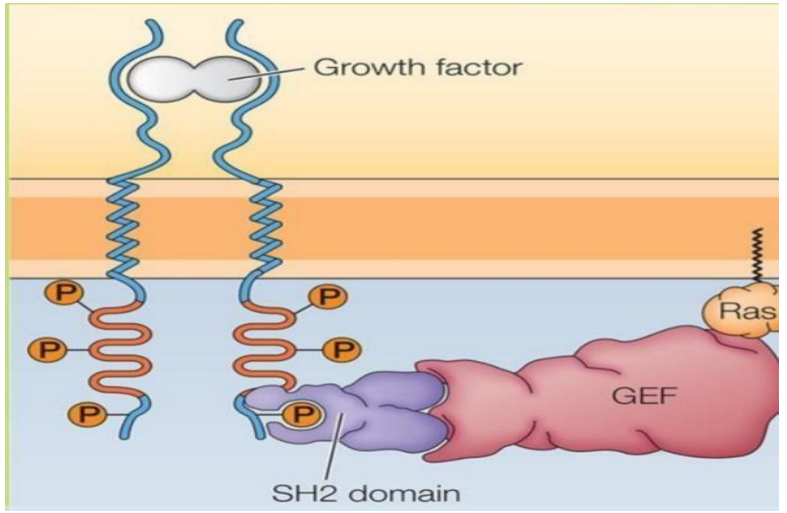
Answer : C

Q3:SH2 domain is found in:

- A) Ras protein
- B) RTK- linked adaptor proteins
- C) Sos
- D) RTK
- E) GBCR

Answer : B

Q 4: What is the function of GEF particle?



A. Inhibit RAS-GTP complex
B. stimulate the exchanging (GDP To GTP) on Ras
C. Synthesis of heme group
D. A+C
E. All of the above

Note: This question is derived from the idea of another question that was presented in a different format.

Answer : B

Q5 : Most protein kinases transfer phosphate groups to which amino acid(s)?

1) glutamate
2) threonine
3) serine
4) Tryptophan

a) 1 b) 2 c) 3 d) 4 e) 2 and 3

Answer : e

Q6 : What is the largest protein superfamily encoded by animal genomes?

- A) G-protein coupled receptors
- b) RTKs
- c) steroid receptors
- d) tubulin superfamily
- e) ligand-gated channels

Answer : A

Q7 :Place the following events in the proper order.

a) 4 –5 –2 –6 –3 –1

b) 5 –4 –2 –6 –3 –1

c) 4 –6 –2 –5 –3 –1

d) 4 –5 –2 –3 –1 –6

Step	Event
1	Activation of one or more cellular signaling proteins.
2	Dissociation of Gα from the G protein complex.
3	Production of a second messenger, like cAMP.
4	Replacement of GDP by GTP on the Gα after interaction with an activated GPCR.
5	Conformational change in the Gα subunit causing a decreased affinity for the Gβγ subunit.
6	Gα-subunit with its attached GTP activates an effector like adenylyl cyclase.

Answer : A

Q8:Cytochrome c, cytoplasmic factors and procaspase 9form

- A-executioner caspases
- B- executioner procaspases
- C- initiator caspase 8
- D- apoptosomes
- E-A&B

Answer : D

Q 9: Which of the following is correct about apoptosis ?

- A- the extrinsic pathway of apoptosis is initiated by DNA damage
- B- diabetes type 2 is linked to elevated apoptosis
- C- phosphatidylserine is moved to the outer leaflet of the PM to attract Macrophages
- D- apoptosis isn't needed in the embryonic development
- E- none of the above

Answer : D

Q10:What is the name of an extracellular messenger protein that is named for its ability to kill tumor cells and also serves as an apoptotic stimulus?

- a) tumor angiogenesis factor
- b) tumor death factor
- c) tumor necrosis factor
- d) necromancer factor
- e) tumorigenic factor

Answer : D

Q11:What process is responsible for organelle turnover in the cell and carries out the regulated destruction of the cell's own organelles for the purpose of recycling the components of which they are made?

- A. Autolysis
- B. Autophagolysosome
- C. Apoptosis
- D. Autophagy
- E. Autonomy

Answer : D

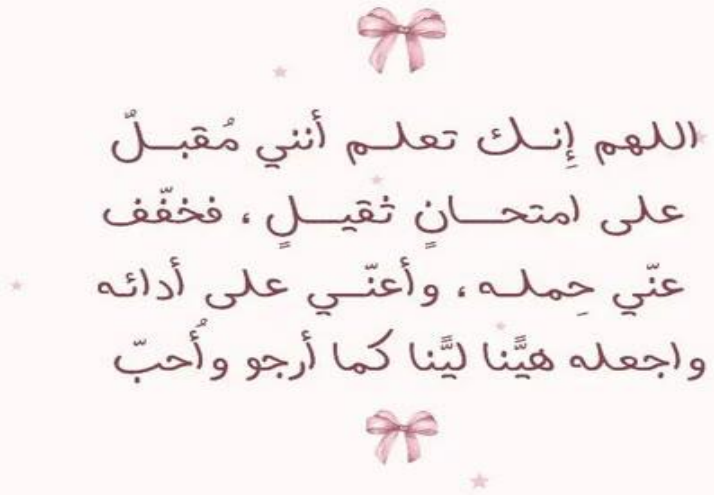
Q12: The molecule which marks the cell for destruction macrophages is:

- a) phosphatidylcholine
- b) phosphatidylserine
- c) phosphatidylethanolamine
- d) phosphatidylinositol
- E)c+d

Answer : b

Additional Resources:

رسالة من الفريق العلمي:



For any feedback, scan the code or click on it.

Corrections from previous versions:

Versions	Slide # and Place of Error	Before Correction	After Correction
V0 → V1			
V1 → V2			