私立臺北醫學院 89 學年度第 2 學期 期中/期末 考試 命(試)題紙

系級	科目	授課教師	考試日期	學號	姓名
藥二	生物化學	汪榕芳	90年6月20日第 節		

※①請注意本試題共 4 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。
②每張試題卷務必填寫(學號)、(姓名)。

藥二 15%

1. 請寫出反應式說明 serine 如何轉變成 glycine。(5%)

2. 請說明 creatine phosphate 的重要性。(5%)

3. 請解釋 Lesch-Nyhan syndrome。(5%)

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One molecule glucose is metabolized via glycolysis, TCA cycle and electron transport chain to generate 32 ATPs.

(1) List the steps at which NADH is produced.

(2) List the steps which are regulated by Fructose 2,6-bisphosphate.

(3) Distinguish the action mechanism of glucokinase and hexokinase catalyzing the production glucose 6-phosphate.

(4) Calculate the ATP yielded by metabolizing one molecule of glucose 1-phosphate into lactate in anaerobic condition.

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藥二	生化	施純明	90年6月20日第 節		

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單選題 (2 points each) 施純明 老師

( ) Which sequence is used in the initiation step of translation ? (1) replication origin (2) promoter (3) Shine-Dalgarno sequence (4) enhancer.

( ) Which sequence is essential for the initiation step of transcription ? (1) replication origin (2) promoter (3) Shine-Dalgarno sequence (4) enhancer.

( ) Identify the incorrect statement about DNA replication (1) semiconservative (2) semidiscontinuous (3) primer needed (4) elongation from 3' to 5'.

( ) Primer is degraded by _____ in E. coli. (1) primase (2) polymerase I (3) polymerase II (3) polymerase III

( ) The replication model of mitochondria is (1) rolling circle (2) D-looping (3) θ structure (4) conserved mechanism

( ) Which one is incorrect statement? (1) topoisomerase I ans III are Type I topoisomerase (2) camptothecin is an anticancer drug acting through inhibiting topoisomerase activity (3) type I topoisomerases catalyze double strand breakage and rejoining. (4) type II topoisomerase is also called DNA gyrase in E. coli

( ) In eukaryotes, mRNA is synthesized by RNA polymerase (1) I (2) II (3) III (4) all correct above.

( ) Which one is the major component of ribosome ? (1) mRNA (2) rRNA (3) tRNA (4) all correct above

( ) In the adaptor hypothesis of protein synthesis, the adaptor is (1) mRNA (2) rRNA (3) tRNA (4) all correct above.

( ) In E. coli, σ (sigma) factor is an important initiation factor for (1) DNA replication (2) RNA transcription (3) protein translation (4) it is not a initiation factor.

( ) Peptide bond formation is catalyzed by peptidyl transferase and is formed at (1) P site (2) A site (3) E site (4) all correct above.

( ) Which one is incorrect about termination of transcription? (1) Stem-loop always causes termination (2) inverted repeat needed for sequence-dependent termination (3)ρ factor is an ATP-dependent helicase (4) ρ factor recognizes and binds to C-rich regions in the RNA transcript.

( ) Which one is incorrect statement? (1) Post-translation modification is existed in eukaryotic cells only. (2) Transcription coupled translation is exhibited in prokaryote only (3) Eukaryotic cells are polycistronic (4) Enhancer acts through a looping mechanism.

( ) Which one is GC-rich? (1) stem loop termination during transcription (2) promoter (3) oriC (4) SD sequence

( ) Attenuation is one of the methods to regulated the expression of trp operon in E. coli. Which statement is incorrect? (A)The leader mRNA contains multiple codon of Trp amino acid. (B)The sequence-dependent transcription termination is an important feature for regulation. (C)Leader mRNA expressed only when tryptophan concentration is low. (D)Ribosome apparatus will pause on Trp codon when tryptophan concentration is low.

( ) In positive control of lac operon, the "co-inducer" is (A)lactose (B)glucose (C)cAMP (D)CAP

( ) Which enzyme activity does not exhibit by reverse transcriptase ?
(1) RNA dependent RNA polymerase
(2) RNA dependent DNA polymerase
(3) DNA dependent DNA polymerase
(4) RNase H

( ) The common polymerase used in polymerase chain reaction is (1) *Tag* polymerase (2) polymerase I (3) polymerase II (4) polymerase III

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藥二	生物化學	林銘玲	90年6月20日第___節		

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藥二 30%

1. ( ) 請問以下那一個酵素是調控膽固醇合成與否主要的蛋白酵素(a)HMG-CoA synthase (b)Citrate synthase (c)Acetyl-CoA carboxylase (d)Desmolase (e) HMG-CoA reductase
2. ( ) 脂肪酸合成時必需利用的能量為下列哪個分子(a)ATP (b)NADH (c) NADPH (d)GTP (e) FADH2
3. ( ) Aspirin 可以抑制下列那一個酵素以達到預防心血管疾病的效果(a)TG lipase (b) Lipooxygenase (c) Acetyl-CoA carboxylase (d) Cyclooxygenase (e) Carnitine transferase
4. ( ) 脂肪酸要由 Cytosol 進入 Mitochondria 須藉由下列哪一個物質的幫忙(a) Acetyl-CoA carboxylase (b) Acyl-carrier-protein (c) carnitine transferase (d) Fatty acid synthase
5. ( ) 請問以下列那一個物質會造成血小板凝集(a) aspirin (b) thromboxane A2 (c) Prostglandin E1 (d) cAMP
6. ( ) 請問 Ketone bodies 是在那一個 Tissue 合成(a) Liver (b) Kidney (c) Adipocyte (d) Brain
7. ( ) 臨床上 Tay-Sach disease 是下列哪一個物質的代謝不正常而累積在腦部造成 (a) spingomyeline (b) phosphotidylserine (c) ganglioside M1 (d) ganglioside M2
8. ( )下列那一物質不是來自 cholesterol 的轉變(a) bile salt (b) LDL (c) steroid hormone (d) vitamine D (e) 以上皆是
9. ( ) 在 phospholipid 合成時需要的能量形式為(a) ATP (b) GTP (c) CTP (d) NADPH (e) NADH
10. ( ) 請問在 hormone 調控 triacylgylcerol 分解的過程中 cAMP 主要是活化了(a) adenyl cyclase (b) protein kinase (c) TG lipase (d) acetyl-CoA carboxylase (e)lipooxygenase
11. ( ) 請問造成 ALS (amyotrophic lateral sclerosis)肌萎縮側索硬化症其中一個可能因素是下列哪一個基因突變引起(a) ganglioside M2 gene (b) cytochrome oxidase gene (c) super oxide dismutase gene (d) ob gene (e)以上皆非
12. ( ) 請問幫忙 fatty acyl-CoA 進入 mitochondria outermembrane 的 protein 是哪一個(a) carnitine (b) carrier protein (c) cartine acyltransferase I (d) cartine acyltransferase II (e) citrate shuttle
13. ( ) 一個 18 個 C 的飽和脂肪酸分解後可以產生多少的 ATP 分子 (a) 112 (b) 129 (c) 146 (d)153 (e)以上皆非
14. ( ) 請問下列哪一個分子不屬於 ketone bodies (a) acetone (b) acetyl-CoA (c) acetoacetate (d) β-hydroxybutrate (e) 以上皆非
15. ( ) 請問 ob gene 所製造出來可以調控食慾的是(a) HMG-CoA reductase (b) leptine (c) HMG-CoA lyase (d) lipase (e) phospholipase A2