Vitamin, minerals metabolism, Enzyme & Biological oxidation

By R.S. RATNU

Q.1 Fe metabolism Complete (minerals metabolism)

Q.2 wilson's disease (Cu deficiency)

Q.3 Biological oxidations / ETS (ETC)

Q.4 oxidative phosphorylations

Q.5 Uncouplers (Inhibition of oxidative phosphorylation)

Q.6 Malate Aspartate shuttle

Q.7 Classification of Enzymes (class with examples)

Q.8 Enzyme Inhibition

Q.9 Suicide inhibition

Q.10 Allosteric Regulation and allosteric inhibition

Q.11 Diagnostic importance of Enzyme.

Q.12 Iso enzyme

Q.13 Vitamin A, D, B_{12} Complete

Q.14 Vitamin A (Waldis visual cycle)

Q.15 Function of vitamin E, K, C, B_1, B_6, folic Acid

Q.16 Interrelation between folic Acid and vitamin B_{12} (Folate trap)

AMAN BHAT — Biochemistry

UNIT - II

Physiological Biochemistry

1. fatty acid absorbtion ☆☆☆
2. Albumin plasma protein ☆☆☆
3. Acute-phase protein] ⟶ important (UC)
4. C-Reactive protein]
5. Immunoglobulins ☆☆☆
6. multiple myeloma ⟶ Bence-Jonse protein.
7. Abnormal Haemoglobins ☆☆☆
8. Biosynthesis of Heme — most importants
9. porphyrias ☆☆☆
10. degradation of Heme into Bile pigments ☆☆☆
11. jaundice
12. Biological oxidation ⇒ most important
    ↓ complete

ARJUN BHATI UNIT - 3 Biochemistry

metabolism

① carbohydrate metabolism -

1. enlycolysis & TCA cycles
2. Rapaport - Leubering cycle ****
3. Gluconeogenesis
4. Anaplerosis and Anaplerotic Reaction
5. Glycogen Storage disease **** most important
6. HMP shunt **** most important
7. disorder of galatose metabolism ***

② lipid metabolism

(1) Fatty acid oxidation *** *
(2) Ketone Bodies ***
(3) metabolic disorders of cerebrosides *****
(4) cholesterol metabolism ******* most important
(5) lipoprotein and disorders of lipoprotein *****
(6) metabolism of HDL ***
(7) fatty liver *******
(8) lipotropic factor ***
(9) obesity ***
(10) Atherosclerosis ****
(11) Alcohol metabolism ****

③ mineral metabolism

(1) Cu - metabolism complete **** } Most important
(2) Fe - metabolism complete ****
(3) W - metabolism - Wilson disease ****

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Biochemistry

UNIT - II

Biochemistry

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① metabolism of amino acid

(1) Transamination & Deamination ***
(2) metabolism of ammonia (mainly toxicity of Ammonia) ***
(3) Urea cycle ****** most important
(4) glycin metabolism
(5) phenylalanine and tyrosine metabolism
(6) Degradation of tyrosine
(7) Disorders of tyrosine metabolism
(8) one-carbon metabolism **** most important
(9) maple syrup urine disease ***

② metabolism of nucleotide

(1) Salvage pathway for purines ****
(2) Disorder of purine metabolism — ****
Most important

24/06/17 Biochemistry By: R.L. RATNU

A. Nucleotide metabolism :-
1. Salvage Pathway of Purine Nucleotide
2. Degradation of Purine Nucleotide
   - Gout
   - Lesch - Nyhan syndrome

B. Mineral metabolism
1. Ca^{++}
2. Fe^{++}
3. Wilson's disease

organ function Test
- LFT (Liver function Test)
- RFT (Renal function Test)
- TFT (Thyroid function Test)

Acid Base Balance
1. Maintenance of Blood pH
2. Disorder of Acid Base Balance
   - metabolic Acidosis
   - metabolic Alkalosis
   - Respiratory "
   - " Acidosis
3. Anion Gap

F. Nutritional.
1. BMR.
2. Dietary fiber
3. Kwashiorkor & Marasmus.

Molecular Biology
1. Replication
2. Telomerase
3. Recombination
4. DNA damage & Repair
5. Xeroderma Pigmentosum
6. Transcription
7. Post transcriptional modification
8. Translation
9. Protein Bio synthesis
10. Inhibition of Protein Synthesis

Dr. Bhatia Medical Institute

ESTD. 1996

Date 01 / 04 / 2017.

Metabolism

By R.S. RATNU

3. Protein metabolism :-

1. Transamination
2. Metabolism of Ammonia
3. Urea cycle
4. PKU
5. Alkaptonuria
6. Cone Croban metabolism
7. metabolism of Branches chain Amino acid

4. Metabolism of Nucleic Acid

Section 1 Biochemistry [illegible]

Chemical constituents of life

1. mutarotation & Tautomerization
2. osazone formation
3. Inversion of sucrose ☆☆☆
4. Polysaccaride complete ☆☆☆☆☆
5. Biomedical, Biological uses of glucose ☆☆☆☆☆
6. Essential fatty acid & phospholipids * * * *
7. cholesterol complete * * * * * *
8. structure of protein (mainly secondary structure) * * * * *
9. Denaturation of protein
10. Biologically important peptides * * * *
11. DNA — structure / → double Helix / → organization & structure of tRNA
12. classification of enzyme
13. factor effecting Enzyme activity
14. Enzyme Inhibition
15. co-Enzymes & ISOEnzymes
16. Regulation of Enzyme activity
17. theropatic uses of Enzyme
18. Dignostic importance of enzyme
19. vitamin A complete
20. vitamin D complete
21. vitamin C function
22. vitamin B_9 complete
23. vitamin B_{12} complete
24. Interrelatation Between B_9 & B_{12} follate trap machanism
25. vitamin E acts as antioxident justify this ?
26. wernicke - korakoff syndrome
27. pellagra disease

(12–27: complete Most important — 100 %)

BIOCHEM.

Ch. 9 Albumin, Haptoglobin, Ceruloplasmin, CRP, Str. of Ig, Multiple Myeloma, Bld. Clot,

10 Cooperative effects, Bohr effect, Mech. of Bohr effect, Sickle cell Anemia, Thalassemia, Biosynthesis of Hb Porphyria

19 Classification of hormones, cAMP

20 LFT, Van den Bergh Rxn, Transaminases or Aminotransferases, Alkaline phosphatase, Glutamyl transpeptidase, Galactose tolerance, Serum albumen, KFT, Clearance Tests, Creatine & urea

21 H_2O Turnover & balance, Electrolyte balance, Regulation of electrolyte balance, Dehydration, A-B Balance, Fig 21.6, 21.7, 21.8, Disorders, Anion gap

22 Protein misfolding & diseases, Prion diseases, Amyloidosis

23 BMR, fiber in nutrition, Essential F.A, Bal* diet, Kwashiorkar, Marasmus

24 DNA Rep, Telomers & Telomerase, Recombⁿ Damage & Repair

25 Transcription, (Euk.); Post-Transcriptional Modfⁿ, Fig. 25.9, 25.10, Inhibitors, Rev Trans, Translation, Genetic Code, Wobble Hypo, Protein biosyn, Fig 25.16, 25.17, Inhibitors, Types of Chaperones. Post Translⁿ Modfⁿ of Proteins

26 Lac operon, Gene exp. in euk., Gene Reg in euk,

27 Restriction endon., DNA ligase, Plasmid, Bacteriophage, cosmids, Art Chromosome vectors, Southern blotting, Northern blo., Dot blo, Western bl., DNA chips, PCR, App of PCR, Fig. 27.20 VNTR, Microsat., Insulin & diabetes, Transgenic animals

28 Mapping, Gene Th., SCD, In Vivo, Suicide GT, Ex vivo

Gene Rep. Therapy, Fig 29.5

(31) Mech of Detox, Role of H_2O_2, Salient features,

(32) Cyto oxygenase - a suicide enz, Bio activ's of prostag., Fig. 32.3, Fig. 32.4

(34) Genera^n of ROS, free radicals & Dis., Antioxidant enzyme system, Nutrient antiox, Metabolic antiox,

(36) Fig 36.6 Hypoglycemia, Classf^n of DM, GTT, Glycated Hb

(37) — H SN —

(38) — HSN —

- Post translational modification
- Protein Targeting
- Lac operon / Tryptophan operon / Gene expression & Regulation

6. Recombinant DNA and biotechnology
   1. Molecular tools of genetic engineering
   2. Vectors
   3. Southern Blotting
   4. PCR.
   5. DNA Vaccines.
   6. DNA fingerprinting — RFLP, VNTR, SNPs, Mini-satellite
   7. Transgenic Animals

11. Gene therapy
- Xenobiotics
- Prostaglandins (synthesis & Action)
- Antioxidants
- Insulin, Glucose Homeostasis and Diabetis mellitus.

M. Molecular Basis of Cancer
- Tumour markers
- N. Biosensors
- Electrophoresis
- ELISA
- Hybridoma Technology.

SN

(1) Mutarotation (2) mucopolysaccharides
(3) Essential fatty acid (4) phosphalipids
(5) Secondary structure of protein
(6) DNA (7) tRNA (8) Enzyme Inhibition
(9) Isoenzyme (10) Co-enzyme
(11) Diagnostic Importance of Enzyme
(12) Vit- C (13) Vit- B_1 (14) Vit- B_6
(15) Vit- B_{12} (16) Immunoglobulins (17) Jaundice
(18) ETC (19) Uncouplers (20) HMP Shunt
(21) Gluconeogenesis (22) β-oxidation (23) Ketone body
(24) Lipoproteins (25) Fatty liver (26) Obsity
(27) Alcohol Metabolism (28) Urea cycle
(29) Phenylalanine and tyrosine metabolism
(30) Polyamines (31) Salvage Pathway (32) Cu^{+2}
(33) POMC (34) LFT (35) KFT
(36) Blood Buffers (37) Prion Disease (38) BMR
(39) PEM (40) Telomere (41) DNA repair mechanisms
(42) Genetic Code (43) Operon Concept
(44) Recombinant DNA Technology
(45) Southern blotting (46) PCR (47) Hybridoma Technology
(48) VNTR (49) Human genome project
(50) Xenobiotics (51) Eicosanoides (52) free radical/Antioxident
(53) Regulation of blood glucose level
(54) Tumor markers (55) Chromatography
(56) ELISA (57) RIA (58) Folate Trap