TEMATICA PENTRU CONCURS
Poziția 30, Șef lucrari

Biofarmacie și farmacocinetică

1 Farmacocinetica: Absorbţia, distribuţia, metabolizarea şi excreţia substanţelor medicamentoase
2 Monitorizarea terapiei medicamentoase
3 Factori fiziologici care influenţează parametrii farmacocinetici
4 Biodisponibilitatea medicamentelor

BIBLIOGRAFIE

1. Iuliana Popovici, Dumitru Lupuleasa – Tehnologie farmaceutică, vol.I, ediţia a IV a, Ed.Polirom, 2017;
2. Im-Sook Song - Drug Metabolism/Transport and Pharmacokinetics 2021, MDPI, Basel, ISBN 978-3-0365-2458-0, printed edition of the Special Issue Published in Pharmaceutics

Biochemistry

1. Introduction to biochemistry. The biochemical composition of the human body.
2. Water, acids, bases and buffers.
3. Nucleotide .Nucleic acids -structure and functions
4. Amino acids. General structure of amino acids (clasification of amino acids, acid -base properties).
5. Structure of proteins (primary ,secondary, tertiary, quaternary structure, description, examples).
6. Proteins: Three-Dimensional Structure. Globular and fibrous proteins
7. Fibrous proteins.(Keratine , Collagen -structure and functions)
8. Protein functions. Mioglobin. Hemoglobin. Hemoglobinopathies
9. Enzymes. General Properties of Enzymes Structure. Classification.
10.Enzyme. Factors affecting reaction velocity. Michaelis Menten equation.
11. Enzymes. Enzymes. Inhibition,regulation of enzyme activity
12. Regulation of enzyme activity.Implications of enzymes in medical pathology
13. Vitamins. Classification. Fat-soluble vitamins.
14. Water-soluble vitamins
15.Introduction to Metabolism -stages, cell components and functions metabolic pathways, metabolic flux.
16. Citric acid cycle (reactions, regulation) The respiratory chain. Oxidative phosphorylation

17. Carbohydrates. Generalities. Properties. Glycolysis (transport of glucose into cells, reactions of glycolysis, hormonal regulation of glycolysis, clinical notes). Gluconeogenesis. Maintenance of blood glucose level.
18. The pentosophosphate pathway. Metabolism of monosaccharides and disaccharides.(fructose, galactose, lactose metabolism)
19. Glycogen metabolism. Structure and function of glycogen. Degradation and synthesis of glycogen(regulation of glycogen synthesis and degradation). Glycogen storage diseases. Glycosaminoglycans. Glycoproteins(structure, synthesis).
20. Lipids classification, structure, properties. Metabolism of fatty acid and triglycerides(fatty acid synthesis,fatty acid oxidation,reciprocal regulation of fatty acid synthesis and degradation,ketone bodies synthesis and degradation).
21. Metabolism of phospholipids and cholesterol(HMG CoA reductase and its regulation, conversion to bile acids and salts).
22. Lipoproteins (components and function, transport and metabolism, clinical correlations.)
23. Proteins metabolism. Urea cycle. Metabolism of ammonia (conversion of ammonia to urea,sources of ammonia, causes and treatment of hyperammonemia).
24. Biosynthesis and degradation of nonessential amino acids (sources of carbon skeleton,synthesized from essential aminoacids, catabolic pathways of aminoacids,aminoacids derivates.)
25. Conversion of Amino Acids to Specialized Products.
26. Heme metabolism(heme synthesis,degradations of heme,type of porphyrias,and jundice)
27. Nucleotide metabolism (nucleotide structure, purine synthesis, pyrimidine synthesis, degradation of purines and pyrimidine, purine salvage).
28. Hormones (generalities, classification). Steroid hormones (major types of adrenal steroids,synthetic pathway of adrenal steroids from cholesterol,ovarian and testicular synthesis of steroid hormones).

BIBLIOGRAFIE

1. Lippincott Illustrated Reviews: Biochemistry 7-th edition 2020, ISBN-13: 978-1496344496, ISBN-10: 1496344499
2. Lehninger Principles of Biochemistry Seventh Edition| ©2017, David L. Nelson; Michael M. Cox ISBN:9781464187957 E-BOOK
3. Concise Biochemistry Fundamental Principles-Aditya Arya, PhD -Second Edition Paperback (380)pages ISBN 000-0-0000-0000-0 Copyright © 2017, New Delhi, India
4. Concise Biochemistry MCQs, Aditya Arya, PhD, Narendra Kumar Sharma, PhD 1st EditionISBN 000-0-0000-0000-0Copyright © 2017. New Delhi, India
6. Fundamentals of Biochemistry Life at the molecular. Copyright, 2016 by Donald Voet, Judith G. Voet, Charlotte W. Pratt ISBN 978-1-118-91840-1.

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