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18/sci03/001

Biochemistry

BCH 202

1.) Vitamins can be broadly classified into 2 main categories based on their solubility

A. Fat soluble vitamins

B. Water soluble vitamins

Biochemical importance include helping regulate cell growth, reproduction and digestion

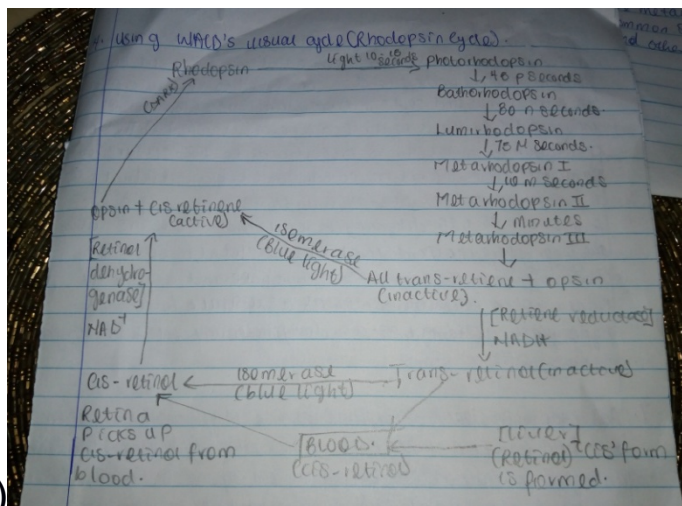
2.) Thymine- TDP is the coenzyme that is connected with the energy releasing reaction in carbohydrates metabolism; the enzyme dehydrogenase catalyses (oxidative decarboxylation) the irreversible conversion of pyruvate to acetyl co-A

Riboflavin- FMN is the coenzyme that participates in many redox reaction responsive for energy production

3.)

Base	Nucleoside	Nucleotide	Abbreviation	Nucleic acid
Purine				
Adenine	Adenosine Deoxyadenosine	Adenylate Deoxyadenylate	Amp Damp	RNA DNA
Guanine	Guanosine Deoxyguanosine	Guanylate Deoxyguanylate	Gmp Dgmp	RNA DNA
Pyrimidines				
Cytosine	Cytidine Deoxycytid	Cytidylate Deoxycytid	Cmp Dcmp	RNA DNA

	ine	ylate		
Thymine	Deoxythymine	Deoxythymidylate	Dtmp	DNA
Uracil	Uridine	Uridylate	Ump	RNA



4.)

5.) When a person shifts from a bright light to a dim light rhodopsin stored are depleted and vision is impaired. However within a few minutes known as dark adaptation time rhodopsin is resynthesised and vision is impaired. Dark adaptation time is increased in vitamin A deficient individuals.

6.) Vitamin D is the unnamed vitamin and is absorbed in the small intestine for which bile is essential; vitaminD enters the circulation bound to plasma -alpha globulin and is distributed through the body

7.) Acid hydrolysis cleaves susceptible Purine N- glycosyl bond in both DNA and RNA , when RNA is boiled in dilute acid adenine and guanine are released leaving an apurin acid which maybe further hydrolysis to a mixture of pyrimidine nucleotides. The pyrimidine are more resistant to acid hydrolysis Alkali hydrolysis of RNA produces a mixture of 2 and 3 prime nucleotides of cyclic mono phosphate intermediate

8.) The double helix structure was proposed by James Watson and Franck's crick in 1953 and it can be compensated to a twisted ladder; the two strands are anti parallel; the width is

20degreeA; each strand of DNA has a hydrophilic deoxyribose phosphate backbone; each turn of the helix is 34 degrees A; the two polynucleotide chains are of identical but complementary to each other due to base pairing

9.)

	RNA	DNA
Sugar moiety	Ribose	Deoxyribose
Nitrogenous bases	Adenine guanine cytosine and uracil	Adenine guanine thymine and cytosine
Pairing	Adenine pairs with uracil	Adenine pairs with thymine
Number of strand	One	Two
Reaction with alkali	Hydrolyses	No effect

10.) Functions

- a. Nucleotides are activated precursors of DNA and RNA
- b. Nucleotides of adenine acts as carrier of methyl group in the form of S-adenosyl methionine
- c. ATP is a universal currency of energy in biological system
- d. Gtp is involved in protein synthesis as source of energy
- e. Adenine nucleotides are components of 3 major enzymes NAD⁺, FAD⁺, CoA
- f. Nucleotides are metabolic regulators e.g C-AMP and cGMP