Competitive Exams: Revision Terminology Part 7

Fluorescence microscopy – absorb UV & emit visible light. (Fluorochromes)

Staining technique not used for living cells.

Normal skin interference contrast microscopy – for mitosis

Polarization microscope – highly ordered structure e. g. spindle fibres

In electronic microscope wavelength is much shorter than visible light.

High Voltage Electronic microscope – available for TEM – study virus in natural moist condition Resolving power of e microscope = 100 times more than light microscope

Janus green – mitochondria

Fast green – cytoplasm/cellulose

Fuelgen nuclear reaction – acid hydrolysis remove purine at level of purine – dioxyribose glycosidic bond of DNA – unmasking aldehyde group of de-oxyribose, free aldehyde group act as schiff's reagent

Autoradiography technique – path of carbon in photosynthesis.

Chromatography by Michel Ts wett (Russian botanist) .

Study DNA metabolism – tritiated thymine is used.

Autoradiography amount of DNA, RAN & protein known at a time

Rennet tablets from engineering remain coagulate milk protein – casein

Enzyme – prosthetic group = cofactor/coenzyme vitamins enzyme – pH = 6.0 - 7.5

Pepsin – pH = 2.0

Trypsin – pH = 8.8

Enzymes are thermo labile – So dry seeds can endure higher temp then germinating seeds.

Enzyme in living cell in inactive form = Zymogen/proenzyme

Pepsinogen $\xrightarrow{\text{Stomach}(H+)}$ pepsin

Self-catalysis = autocatalysis

Enterokinase: trypsinogen $\xrightarrow{\text{enterokinase}}$ Trypsin

Lactice acid dehydrogenase (LDH) = 5 isoenzymes.

Number of active sites of enzyme affect turnover number

3D shape of molecule –

(1) Spatial sit – tertiary structure Match shape of groove

(2) Bonding fit – present of active site in grooves

Induced fit theory – Koshland (enzyme e active site are more flexible)

Lock & key theory – Fischer

Change in arrangement of polypeptide chain within protein = Denaturation

Michaels constant km $\Rightarrow \frac{\text{Vmax}}{2}$

Initial velocity $V_o = \frac{\text{Vmax}\,(s)}{\text{km} + (s)}$

Carbonic anhydrase = fastest acting enzyme (low Ki, low enzyme inhibition so more active)

Prosthetic group + apoenzyme = Holoenzyme

(non-protein) (Protein)

Enzyme bromeclaim = pineapple

Catalytic efficiency = K cat (turnover no.) /Km. (michalies const)

Evolve O_2 from tissue = peroxidase

Histidine decarboxylase = lyase (split) ⇾ fumarase, Aldolase

Sulpha drug inhibit synthesis of folic acid in bacteria

Cyanide kill organism by inhibiting Cytochrome oxidase

Thomas tech – group I r RNA of tetrahymena thermophile could splice itself without help of any protein i.e.. RNA can act as Catalyst (enzyme) . 1982

1983 – Sydney altman & Norman pace – M/RNA port alone of E coli RNAase enzyme is sufficient for Catalysis, protein is needed for stabilization

1992 – Harry Noller – protein synthesis formation of peptide bond is catalyzed by 235 r RNA & not by protein peptidyl transferase

Calvin Melwin – in cyclotron strongly irritated CO_2 & H_2 end products were HCOOH, Succinic acid & Oxalic acid

Presence of abundant free O_2 on earth today is not conductive to origin of life.

Coacervates - due to Zwitterionic nature, proteins formed colloidal hydrophilic Complexes

Homologous organ – Same origin & difference function – forelimbs of vertebrates, leg in insects, teeth of man, thorn of Bougainvillea & tendril of possiflora

Analogous organ - difference origin but same function – wing of bird, lead of plant & cladode of Ruscus.