Examrace

Competitive Exams: Revision Terminology Part 22

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One pyruvic acid oxidize → one ATP, four NADH, two CO_2.

One pyruvic acid oxidize Krebs cycle = two pyruvic acid cycle.

ETS by KCN or CO:

CN form complex with cyt a_3 – no e^- so no proton gradient & no ATP produced

Glycolysis – 4 ATP formed, 2 ATP used, 2 ATP net gainer

By direct phosphorylation = gain of 4 ATP in respiration

10 NADH (2 Glycolysis & 8 Krebs cycle) = 30 ATP

2 $FADH_2$ in Krebs cycle = 4 ATP

So, Total 38 ATP

In eukaryotes two ATP expended in transport of two NADH so net gain = 36 ATP.

PPP – pentose phosphate pathway – cytoplasm – 5 – c sugar – 36 ATP = Waeburg Dickms Lipmann pathway.

Glyoxylate cycle in seeds, possess tissue rich in fat & converted to carbohydrates enzyme Present in glyoxysomes.

Compensation ⇒ CO_2 released in respiration = CO_2 fixed in photosynthesis

180 gm of glucose → 264 gm Co_2 (complete oxidation)

180 gm of glucose → 92 gm C_2H_5OH (partial oxidation)

180 gm of glucose → 88 gm Co_2 (anaerobic respiration)

1 pyruvic acid oxidize → 15 ATP.

Hg used in anaerobic respiration – not react with CO_2 .

X – Ketoglutaric acid = 1st dicarboxylic acid = both de hydrogenation & decarboxylation

ETS – on inner member of mitochondria

Fruits & seeds at low temperature – reduce rate of respiration

If leaf in sugar solution – respiration rate VNC.

Dinitrophenol – inhibit ATP synthesis

Oligomycin – inhibit oxidative phosphorylation

Anaerobic $\xrightarrow{\text{Pasture Effect}}$ aerobic

↑ in resp of ripening fruit – Climacteric factor

19 glucose molecules are required to produce 38 ATP under anaerobic conditions by yeast cell

TCA = amphibole pathway

TCA catabolism of fat, carbohydrate

TCA anabolism of intermediates to synthesis macromolecules.

E. Coli – DNA polymerase I, II, III (I, II repair, and III replication)

Eukaryotes – DNA polymerase $\alpha, \beta, \gamma, \delta, \epsilon$

Prokaryotes – only one origin of replication, UGA – tryptophan (yeast + mitochondria) , all RAN single RAN polymerase

mRAN is simultaneously translated during transcription gene are continuous & collinear

mRAN – polycistronic

Eukaryotes – several origin of replication, UGA = stop signal, all RAN by polymerase, mRAN is processed & then transported genes of exon + intron. mRAN = monocistronic

Helicase – unwinds helix, topoisomerase – breaks DNA (e. g. DNA gyrase)

Short stretch of RAN = Primer formed on DNA template by enzyme Primase (stepping stone)

Lading strand 5 feet → 3 feet – continuous

Lagging strand 3 feet → 5 feet (but oka zaki fragment 5 feet → 3 feet) - semi discontinuous replication

Exonuclease – engineering degrade nucleic acid from ends, if 3 feet → 5 feet removed of 3 feet end (Called proof reading crediting)

Endonuclease – engineering degrade nucleic acid from between.

Frequency of wrong base – 3: 10,00, 000 in DNA replication reduced to 1: 1 billion.

If 5 feet – 3 feet Exonuclease activity remove DNA damaged portion by external source

Single recessive gene – phenylketonuria, goitourous, Cretinism, albinism, alkaptonuria conidia exposed to X-rays increment change of mutation.

Garrod – one mutant gene – one metabolic block concept

Primitive code (Archetyped code) – 16 anticoden providing only is A. A.

Wobble Hypothesis – 3rd base is not imp – allows economy of no. of tRAN molecules.

Weissman – human leucocyte interferon gene (1 F N - α)

Most imp. Control over gene example occurs by control over transcription by regulatory genes.

Genes, which are inactive, have a tendency to bind to methyl Group.

DNA in Bacteria: Eukaryote = 1: 1000 [protein CAP (catabolic activator pathway) facilities felting of RAN polymerase & DNA to ↑ rate of transcription]

Antibiotic puromycin > Translation

Antibiotic actinomycin $D >$ RaN synthesis in pro + eukaryote

RUBISCO– 16% of chloroplast protein, most abundant protein on earth stoma of chloroplast molecular weight = 557000

To protect own DNA from own restriction synthesis by bacteria only engineering bacteria adds CH_3 group = modification

Exons are expressing

Introns removed off.

Peptide bond is catalyzed by 23 rRAN catalyze.

Peptidyl transfers rectangle do not consume high energy phosphate bard + bond, energy of the charged tRAN is converted into peptide bond

Fluorescence – isolated chlorophyll in pure form emits red color.

Cartonsome – Shield pigment protects the chlorophyll from photo oxidation

1 quanta some = 200 – 240 chlorophyll molecules.

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