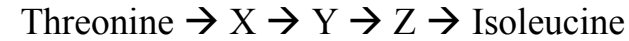


- A metabolic pathway is _____
- An enzyme is _____
- Activation energy is _____
- An enzyme inhibitor is _____
- Competitive inhibitors bind to _____
- Non-competitive inhibitors bind to _____
- End product inhibition is when the 'end product' of a metabolic pathway inhibits the _____



The diagram illustrates a metabolic pathway controlled by end product inhibition. Explain what the arrows represent.

_____ and how isoleucine controls the pathway.

Calculate the rate of reaction of the enzyme below. Show your working.

Time / seconds	Volume of oxygen / ml
0	0
60	240
120	480

Re-order the bullet points to explain cell respiration

- Pyruvate is decarboxylated, oxidised and attached to coenzyme A.
- Glucose is converted to pyruvate in glycolysis
- Glucose is phosphorylated to make it less stable
- The link reaction converts pyruvate to acetyl coenzyme A.
- In the Krebs cycle the acetyl group is oxidised and NAD is reduced, forming CO₂
- Electron carriers in the inner membrane transfer electrons and pump protons to the intermembrane space.
- Oxygen binds to free protons (H⁺ ions) forming water
- Energy released from the oxidation reactions is carried to mitochondria inner membranes by NADH (&FADH)
- Glycolysis provides a small gain of ATP & doesn't require oxygen.

Draw a sketch graph which show how an enzyme controlled reaction rate increase as the substrate concentration increases..

Add lines showing rate of the same reaction after the addition of a competitive & a non-competitive inhibitor.

Chemiosmosis is the flow of protons from _____ to _____

Proton flow through the enzyme which makes ATP, called _____

A concentration gradient of H⁺ ions is maintained by proton pumps which _____ and by the reaction of oxygen which _____

Photosynthesis is composed of 2 sets of reactions _____ and _____

Photolysis is the splitting of _____ and it occurs in the _____ found in the thylakoid membrane.

Light dependent reactions make _____ (reduced NADP) and _____ which are needed for light independent reactions.

The stroma of the chloroplast is the _____ and this is where the _____ reactions occur.

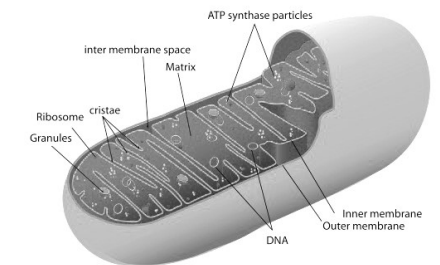
RuBP is the molecule which binds to _____ catalysed by the enzyme _____.

What happens to each of these chemicals in light independent reactions?

Glycerate-3-phosphate

Triose phosphate

Annotate the mitochondrion to show how it is adapted to its function



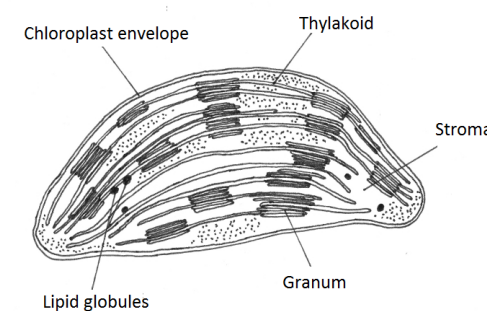
Describe the carboxylation of RuBP

What is Calvin's lollipop apparatus?

Compare & contrast light dependent & independent reactions

Light dependent	Light independent

Annotate the chloroplast to show how it is adapted for photosynthesis.



Describe the use of electron tomography

Why is it better than electron microscope imaging?

