

Biochemistry & Cell Transport



Macromolecules

The number of hydrogens on each carbon is what makes a lipid saturated or unsaturated

Truth or **Lie**

Every amino acid has the same general structure that includes a hydroxyl group

Truth or **Lie**

Glucose results from the hydrolysis of long chains of a polymer called glycogen

Truth or **Lie**



Enzymes

Enzymes make chemical reactions happen by raising activation energy of a reaction

Truth or **Lie**

Molecules that bind to the active site to prevent a substrate from binding are called competitive inhibitors

Truth or **Lie**

Enzymes change their shape to fit the shapes of incoming substrates to catalyze reactions

Truth or **Lie**



Cell Transport

A hypotonic solution has a larger concentration of solvent than inside the cell

Truth or **Lie**

Molecules that move into cells using passive transport would be large molecules, bacteria, and hormones

Truth or **Lie**

Water moves along a different concentration gradient than ions like Na⁺, Cl⁻, or K⁺

Truth or **Lie**



Cell Membranes

Cholesterol helps prevent polar molecules from crossing the cell membrane

Truth or **Lie**

The interior of the cell membrane is a zone of non-polar fatty acid chains

Truth or **Lie**

The most current model of the cell membrane has a phospholipid bilayer with a mosaic of proteins

Truth or **Lie**



Cell Respiration & Photosynthesis Review



Anaerobic Respiration

Pyruvate can be reduced to reform NAD⁺ to keep the reactions in glycolysis going

Truth or **Lie**

Glucose gains a -PO₄ group to help commit the molecule to the processes of glycolysis and lock it in the cell

Truth or **Lie**

In glycolysis the production of ATP happens through Oxidative Phosphorylation

Truth or **Lie**



Aerobic Respiration

Molecules absolutely required for the Krebs' Cycle are NAD⁺, pyruvate, and FADH₂

Truth or **Lie**

During the ETC the movement of electrons causes the creation of ATP through Oxidative Phosphorylation

Truth or **Lie**

Krebs' Cycle reactions all take place in the matrix of the mitochondrion

Truth or **Lie**



Light Reactions

The Z-Scheme shows the amounts of energy that electrons receive from the photosystems

Truth or **Lie**

The final resting place of electrons during the light reactions is in water molecules at the end of the Z-Scheme

Truth or **Lie**

Cyclic electron flow happens only to the electrons leaving Photosystem I

Truth or **Lie**



Calvin Cycle

RuBisCo is the only enzyme that can add carbon dioxide into the Calvin Cycle

Truth or **Lie**

CO₂ molecules are attached to RuBP molecules to produce 3PG molecules at the beginning of the Calvin Cycle

Truth or **Lie**

The molecules needed to run the Calvin Cycle are NADPH, ADP, and CO₂

Truth or **Lie**



HOMEOSTASIS



Osmoregulation

The lining of the descending Loop of Henle is lined with cells with aquaporins in their cell membranes

Truth or Lie

Glucose would be reabsorbed into the bloodstream in the distal tubule of the nephron

Truth or Lie

Fluid is forced out of the circulatory system and collected by Bowman's Capsule

Truth or Lie



Nervous Sys

If not enough Na^+ enters the axon an action potential will fail to fire along the axon

Truth or Lie

During hyperpolarization Na^+ is moved out of the axon and K^+ is brought into the axon

Truth or Lie

At resting membrane potential there is more K^+ outside the cell than inside the cell

Truth or Lie



Endocrine Sys

Oxytocin is a hormone that works mostly by a positive feedback system during birth

Truth or Lie

In mammals the pituitary gland is involved in the regulation of metabolic rate

Truth or Lie

The hormone released to cause the catabolism of glycogen is glucagon

Truth or Lie



Thermoregulation

Endotherms have more mitochondria in their cells than ectotherms

Truth or Lie

Surface Area to Volume ratios mean that it is better to be a smaller creature if you are an ectotherm

Truth or Lie

Being an ectotherm means your population, life expectancy, and number of offspring can increase

Truth or Lie



Genetics Review

Nucleic Acids

Nucleotide chains are joined by linkages called Phosphodiester Bonds

Truth or Lie

DNA is a molecule that can be described as complementary and antiparallel with 5' and 3' ends in opposite directions

Truth or Lie

The RNA double helix is formed by hydrogen bonding between purines and pyrimidines

Truth or Lie



DNA Replication

The enzyme DNA Polymerase III makes new a new complementary DNA in the 5' to 3' direction

Truth or Lie

Okazaki fragments are formed from the copying action needed on the Lagging Strand which is made towards the replication fork

Truth or Lie

SSBPs are molecules that prevent hydrogen bonds from forming between base pairs

Truth or Lie



Transcription

In eukaryotes small non-coding sequences of mRNA called introns are removed after transcription

Truth or Lie

Transcription is a process that makes 5'-3' mRNA, rRNA, and tRNA in the nucleus of prokaryotic cells

Truth or Lie

Promoters and terminators are copied by RNA Polymerase into mRNA sequences

Truth or Lie



Ribos
tRNA
aci

Deleti
result
usua
ca

Tra
amin
co