BIOL 1001 Midterm 3 PAL Review

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What Does Each Metabolic Pathway do, and What is Metabolism?

Anabolic

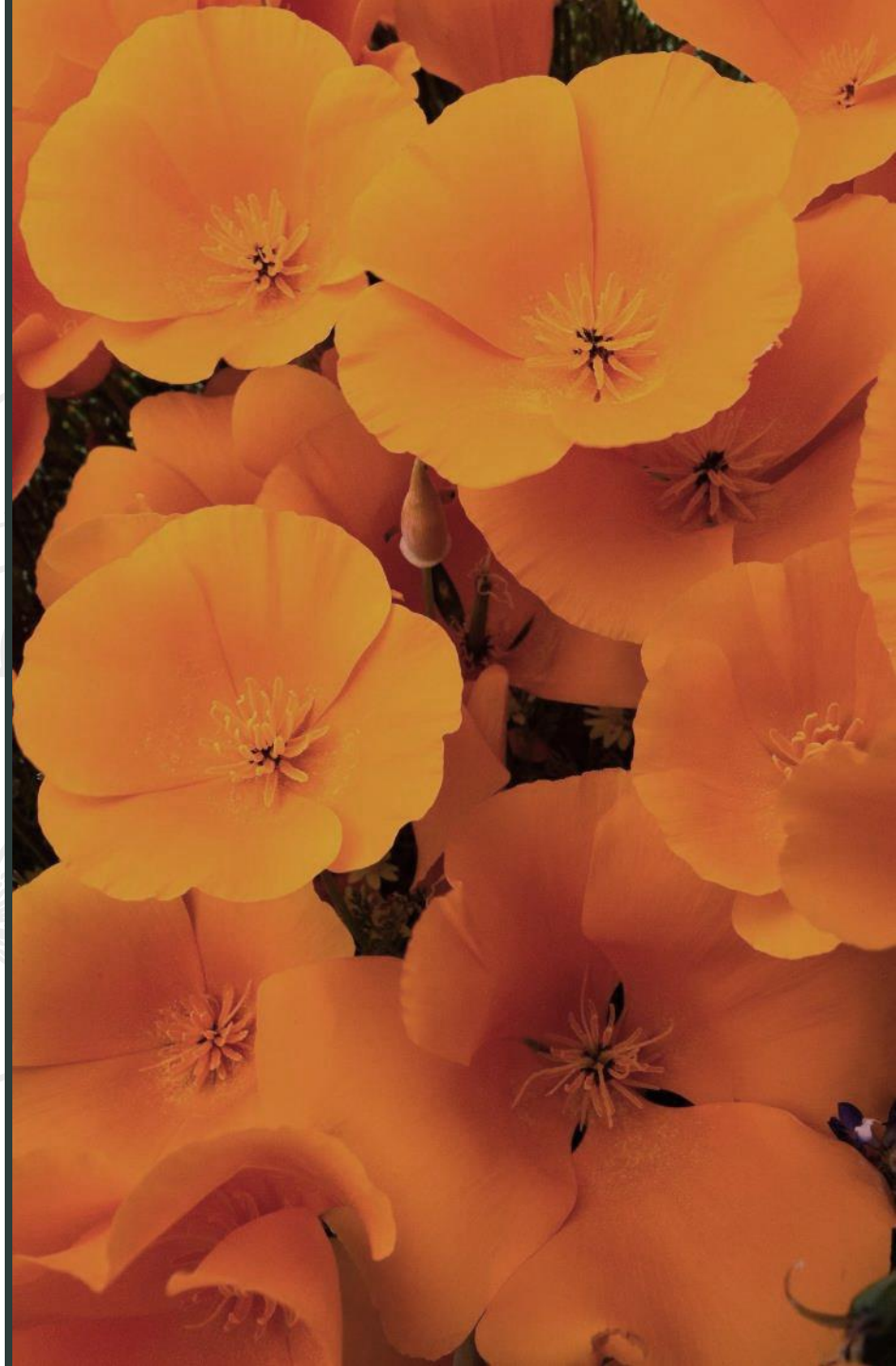
Catabolic

What is ATP, What Does it Provide to Living Organisms, and How?

Describe the Differences Between the Following

Exergonic

Endergonic



Order the Stages of Cellular Respiration and Briefly Describe What Happens at Each

- Glycolysis
- Oxidative Phosphorylation
- Citric Acid Cycle
- Pyruvate Oxidation

What is NAD+ and why is it Important?

(What Metabolic Processes is it Used for?)

Match the Metabolic Process to its Starting Material

Glycolysis

Oxidation of Pyruvate

Citric Acid Cycle

Oxidative Phosphorylation

Pyruvate

NADH & Succinate

Acetyl CoA

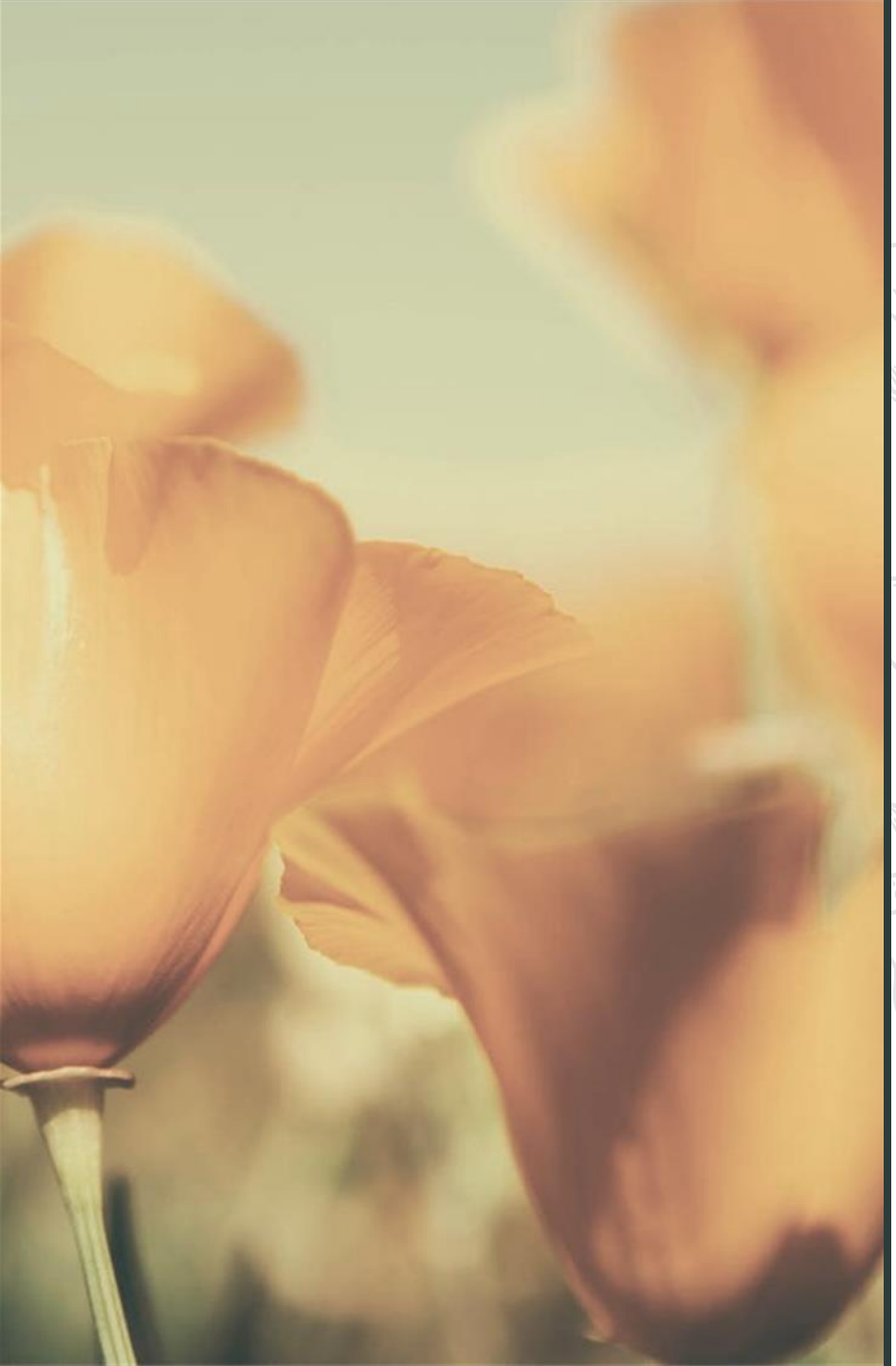
Glucose

Match the Metabolic Process to its Net Products

Glycolysis	Acetyl CoA, NADH, CO_2
Oxidation of Pyruvate	Multiple ATP & H+, Water
Citric Acid Cycle	2ATP, 6NADH, $2FADH_2$, $4CO_2$ & Oxaloacetate
Oxidative Phosphorylation	2 Pyruvate, 2ATP, 2NADH, 2 Water

Match the Metabolic Process to its Location in the Cell

Glycolysis	Mitochondrial Inner Membrane
Oxidation of Pyruvate	Mitochondria
Citric Acid Cycle	Mitochondrial Outer Membrane
Oxidative Phosphorylation	Cytoplasm



Briefly Describe the Following

- Substrate Level Phosphorylation
- Oxidative Phosphorylation

What Complex of the Electron Transport Chain is Directly Linked to the Krebs Cycle and What Happens at This Complex?

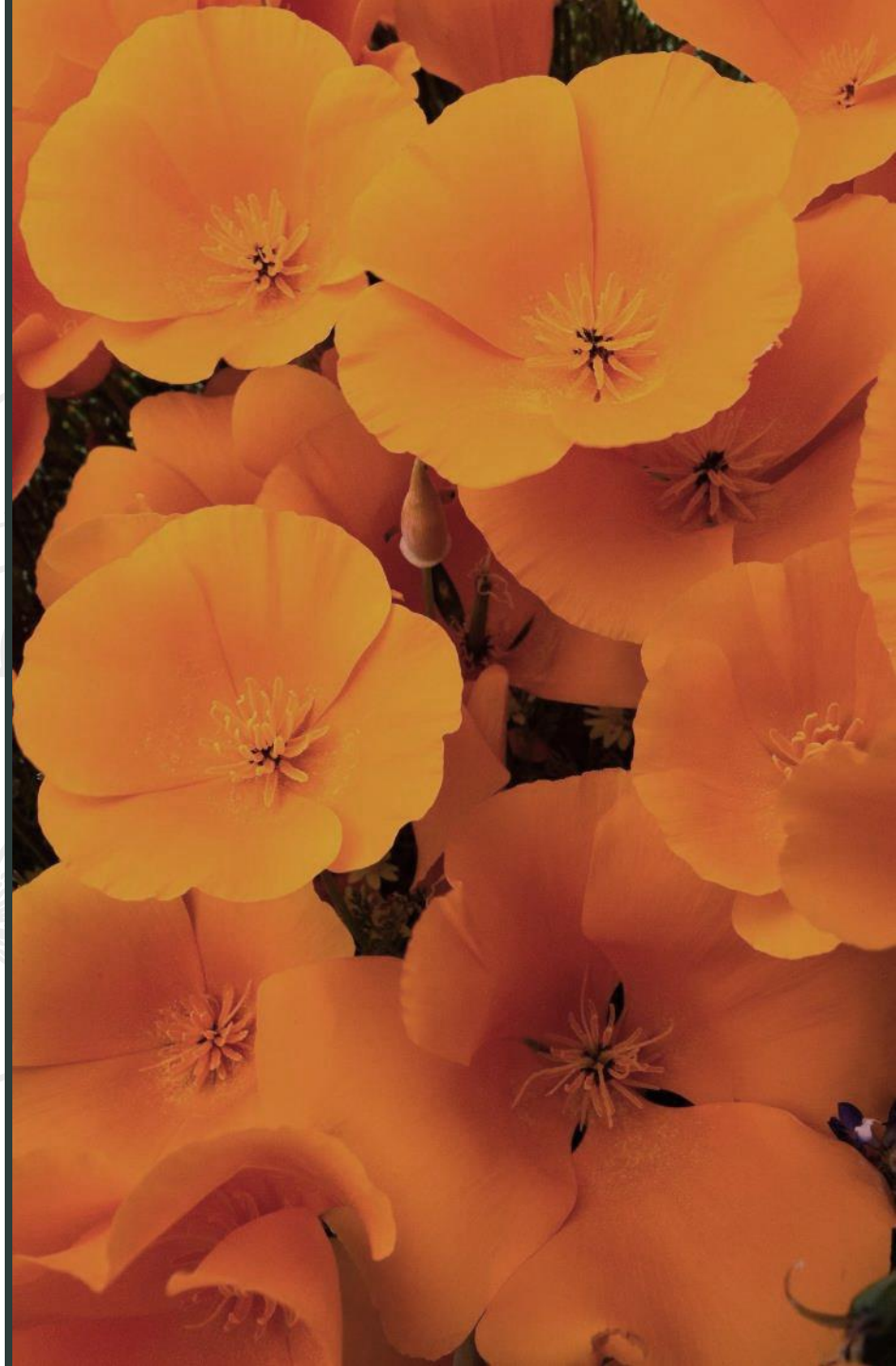
The Electron Transport Chain

Coenzyme Q

Cytochrome C

Primary Electron Acceptor

Differences and Similarities between the Complexes



Order These Areas of the Mitochondria With Respect to Protons in the Electron Transport Chain

- Mitochondrial Matrix
- Stator
- Stator
- Intermembrane Space
- Rotor

Anaerobic Respiration

What organisms can do it?

Electron Acceptor?

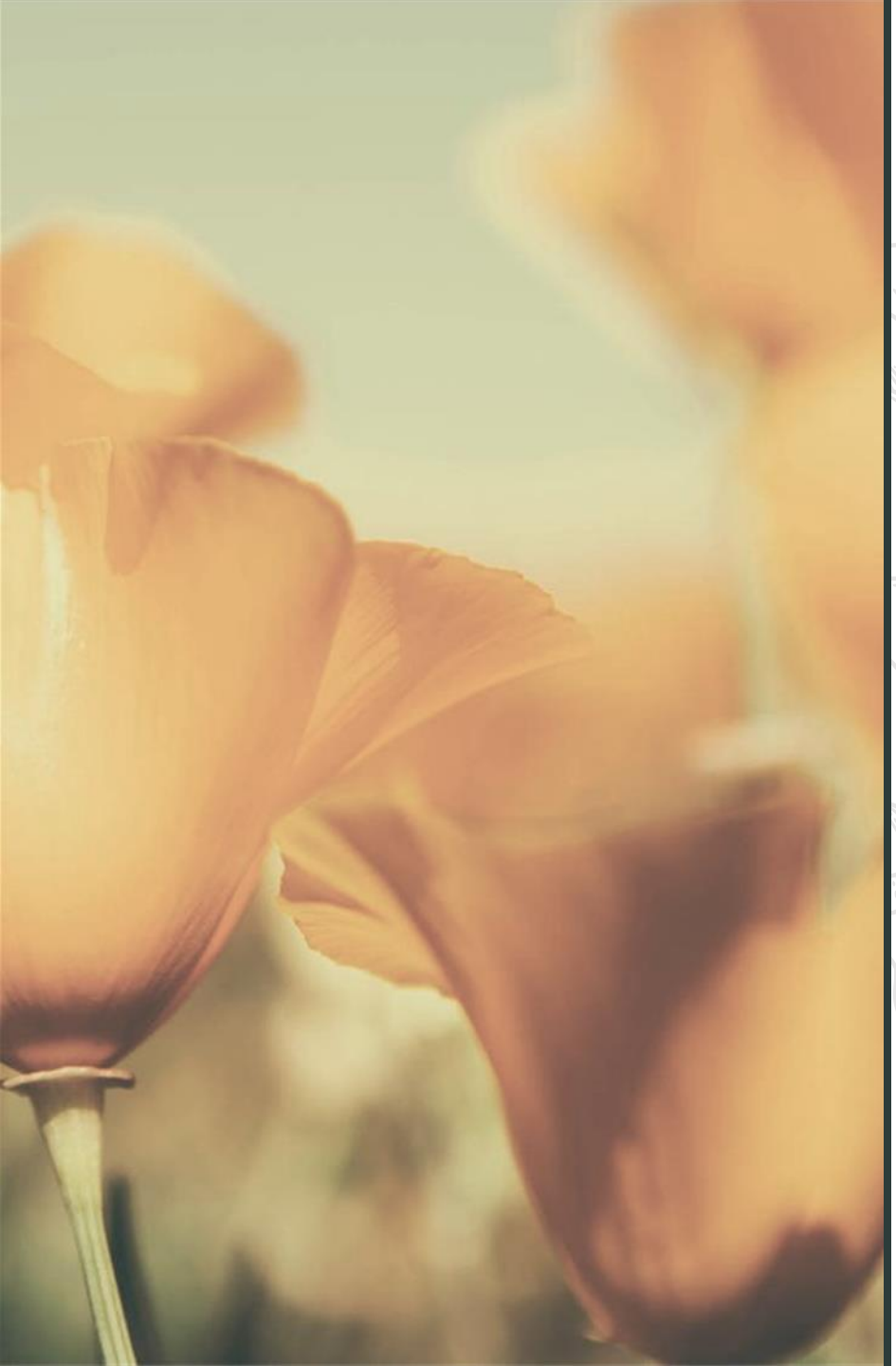
Biproduct?

What are the Similarities and Differences Between the Following?

Alcohol Fermentation

Lactic Acid Fermentation

Why do we Ferment With Exercise?



Glycolysis

- Why is it evolutionarily significant?
  - What organisms glycolisize?

Exercise Physiology

- What are the thick and thin filaments made from?
- How does a relaxed muscle appear in comparison to a contracted muscle?
- How do muscles contract?
- How much ATP do muscles store at a time?
- What is metabolic flexibility?
- What is the lactate threshold?
- What is glycogen?

Phosphocreatine System

- Energy Source?
- Catalyst?
- Products?
- Phosphocreatine Shuttle? (Where is it, what is involved in it, etc.)

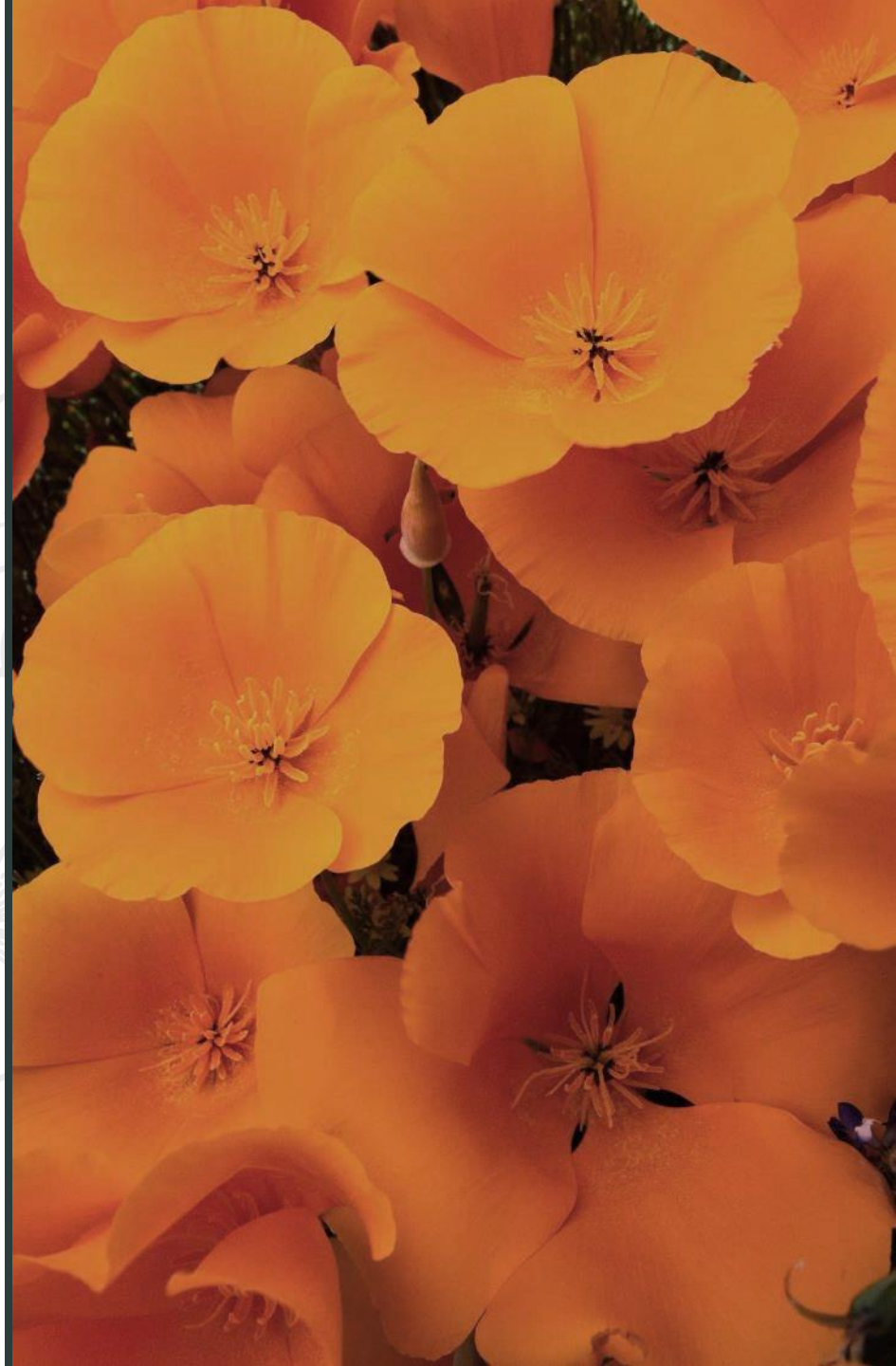
Which is Faster? Which Produces More Energy?

Aerobic Glucose Metabolism

Anaerobic Glucose Metabolism

True Or False?

Proteins and fats can enter the metabolic pathways



Match the Type of Feeder to its Definition

Heterotroph	Make organic molecules themselves
Autotroph	Use light for energy
Chemotroph	Use chemical energy sources
Phototroph	Must consume organic molecules

Where are Chloroplasts Found in Plants? How did They Originate?

Photosynthesis

- Light Reactions

Where does it happen?

What is used in the process?

What are the products?

Brief explanation of the steps

- Dark Reactions

Where does it happen?

What is used in the process?

What are the products?

Brief explanation of the steps

Cell Communication

Quorum Sensing

Yeast Mating

Cell Junctions

Cell-Cell Recognition

Paracrine Signaling

Synaptic Signaling

Endocrine Signaling

Order and Describe the 3 Stages of Cell Signaling

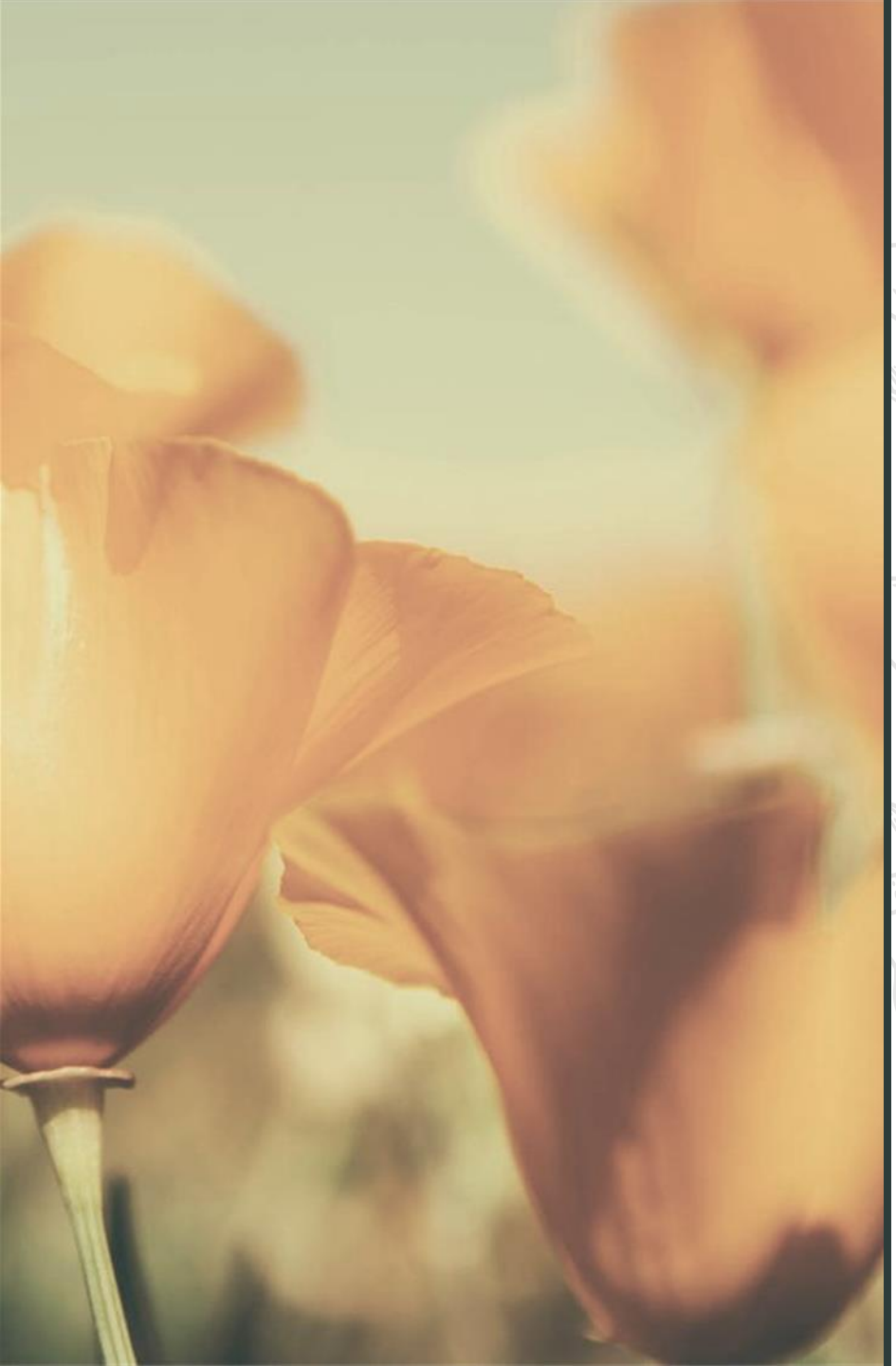
- Transduction
- Reception
- Response

Surface Receptor Proteins

- G-Protein Coupled Receptor
- Receptor Tyrosine Kinases
- Ion Channel Receptors
- What about Intracellular Receptors?

What is a Second Messenger?

(Can you think of an example?)



Cannabinoids

- How many are there and where are they found?
- What type of receptor are they?
- What active ingredient binds to each kind?

What is Apoptosis?

Cytoskeleton

- What organisms have one?
- What are the main components?

Microtubules

- What are they made of?
- What do they do?

Microfilaments

- What are they made of?
- What do they do?

Intermediate Filaments

- What are they made of?
- What do they do?

Good Luck on Thursday Everybody!

You've got this! Email me for any questions and I will do my best to get back to you before the test (: