

36) **What is the structure and function of ATP?** 1. Glycolysis: Location-Cytoplasm and takes 6 carbon glucose and breaks into (2) 3carbon Pyruvate. O₂ is not Required! Net gain of **2 ATP**

- **In the mitochondria Pyruvate is converted into Acetyl CoA!**

2. THE Citric ACID CYCLE: Acetyl COA is transferred into **NADH and FADH₂!!!**(electron delivered to ETC)

3. Oxidative phosphorylation: (ETC, Protein Gradient, ATP synthesis)=

- ETC needs to pump protons from matrix and into intermembrane space. Thus ETC Lowers the concentration of proton in the matrix and increases concentration in the intermembrane creating **THE PROTON GRADIENT!**

37) **What are some real-life scenarios that would lead to insulin release from the pancreas?**

- Type 1 DM=No insulin
- Type 2: desensitized receptors.

38) **How does insulin help reduce blood glucose levels? How does Glut4 aid in this process?**

Transports from cell to blood stream, stored as vesicles; 1. Vw/Glut4 in cytoplasm; 2. moves to cell membrane 3. Vesicles fuse w cell membrane surface where it enables Glucose to enter cell!

INSULIN: to store the surplus for rainy day. **Insulin Stimulates** Glycogenesis (making glycogen); Fatty acid synthesis, triglyceride syntheses. **Suppresses:** Glycogenolysis (glycogen breakdown), Beta oxidation of fatty acids, Gluconeogenesis (making new glucose), Triglyceride breakdown (lipolysis) and Ketone body production!

39) **What are some real-life scenarios that would lead to glucagon release from the pancreas?**

- **BS dropped, Running a Marathon!**

40) **How does glucagon help increase blood glucose levels?** Signals Hunger state! Releasing the energy we stored when we had extra.

Glycogen: storage form of glucose. By stimulating Glycogenolysis (glycogen breakdown), Beta oxidation of fatty acids, Gluconeogenesis (making new glucose), Triglyceride breakdown (lipolysis) and Ketone body production! **Suppresses:** Glycogenesis (making glycogen); Fatty acid synthesis, triglyceride syntheses

41) **What are the three pathways of aerobic metabolism? Where in the cell does each pathway take place?**

- 1. Glycolysis (cytoplasm) 6 carbon glucose breaks down to (2) 3 carbon pyruvate **ENDING 2 ATP!** 2. Citric acid cycle-NADH, FADH (Mitochondrial matrix) 3. Oxidation Phosphorylation (ETC the proton gradient ATP synthesis) (mitochondrial inner membrane)