

Review 10

Cell parts at the electron microscope level

- **Mitochondria--make energy available for cellular work**
- **Intracellular membranes**
 - **endoplasmic reticulum--increase surface area over which membrane-bounded reactions can occur**
 - * **smooth e.r.--lipid metabolism; membrane formation**
 - * **rough e.r.--protein synthesis: retained in vesicles within the cytoplasm (e.g. lysosomes, peroxisomes) or exported from cell (e.g. digestive enzymes)**
 - **golgi bodies--package various things for storage within cell (e.g. lysosomes) or transport out of cell (e.g. digestive enzymes)**

**Study and know diagrams on pp 28 & 29 of lecture notes
Fill out and use tables on pp 30 & 31 of lecture notes**

Enzymes, con't

1. **Almost all are proteins.**
2. **Speed up chemical reactions.**
3. **Not altered by reactions they mediate.**
4. **Specific for the types of reactions they mediate.**
5. **Activity affected by physical surroundings.**
6. **Some enzymes require co-factors to be fully functional.**
 - ions (e.g. Ca^{2+} Mg^{2+})**
 - coenzymes (e.g. NAD^+ FAD Coenzyme A)**
7. **Named for function, with suffix -ase.**

Energy

Stored in covalent bonds of molecules

Know how to calculate how much energy is in a molecule!--see Appendix D of lab manual

calories; kilocalories = Calories (nutritional calories)

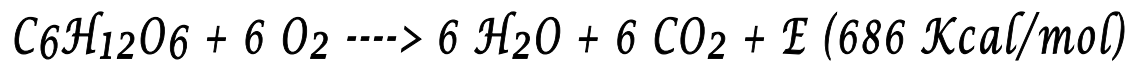
mol is 6.022×10^{23} of something (molecules, ions, atoms, silver dollars, etc.)--see Appendix C of lab manual

If result of reaction is *less* energy in products than reactants, then energy is *released* = EXERGONIC REACTION

If result of reaction is *more* energy in products than reactants, then energy is *consumed* = ENDERGONIC REACTION

Review 10, con't

e.g.: breakdown of glucose



ENDERGONIC OR EXERGONIC?
