Front	Back
The ER membrane encloses a single compartment called the _____.	ER lumen
Define: Cisternae	Fluid-filled tubules
What is the function of the of the rough ER?	Involved in protein synthesis and sorting
What is the function of the smooth ER?	Detoxification, carbohydrate metabolism, calcium balance, synthesis and modification of lipids
What is an amphipathic molecule?	Has both a polar and non-polar region (ex/ phospholids)
Name 5 factors promoting protein folding and stability.	1. Hydrogen bonding 2. Ionic bonds 3. Hydrophobic effects 4. Van der Waals forces 5. Disulfide bridges
What are the three functions of the Golgi apparatus?	Secretion, processing, and protein sorting

Front	Back
Name a of function of the Lysosome.	Contain acid hydrolases that perform hydrolysis Break down proteins, carbohydrates, nucleic acids, and lipids. Autophagy

Front	Back
This is usually an inorganic ion that temporarily binds to an enzyme. What is it?	A cofactor
What are the 4 categories of secondary metabolites?	Phenolics, Alkaloids, Terpenoids, Polyketides
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Front	Back
What are the 3 phases of the Calvin cycle?	1. Carbon fixation 2. Reduction and carbohydrate production 3. Regeneration of RuBP

Front	Back
What is Direct intercellular signaling?	Cell junctions allow signaling molecules to pass from one cell to another.
What is Contact-dependent signaling?	Some molecules are bound to the surface of cells and serve as signals to cells coming in contact with them.
What is Autocrine signaling?	Cells secrete signaling molecules that bind to their own cell surface or neighboring cells of the same type.
What is Paracrine signaling?	Signal does not affect cell secreting the signal but does influence cells in close proximity (synaptic signaling).
What is Endocrine signaling?	Signals (hormones) travel long distances and are usually longer lasting.
What are the 3 stages of cell signaling?	1. Receptor activation 2. Signal transduction 3. Cellular response
Name 3 cell surface receptors.	1. Enzyme-linked receptors 2. G-protein coupled receptors (GPCR) 3. Ligand-gated ion channel
What is unique to proteins that stay in the ER?	They have ER retention signals

Front	Back
What is a protein with a carbohydrate attached to it called?	Glycoproteins
What is the molecular machine for protein degradation called?	Proteasome
How did Friedreich Meischer contribute to biology? (Bonus: Year?)	Isolated a phosphate containing acid from the nucleus (1869)
How did Griffith contribute to biology?	Discovered the "transforming principle". Molecules are capable of altering bacteria.
How did Hershey-Chase contribute to biology? (Bonus: Year?)	They labelled certain parts of virus to determine area of replication (DNA). (1952)
How did Edwin Chargaff contribute to biology? (Bonus: Year?)	He discovered the Adenine/Thymine, Cytosine/Guanine nucleotides. (1930/40s)
How did Franklin & Wilkins contribute to biology? (Bonus: Year?)	They showed by x-ray diffraction that DNA was a linear molecule. (1940-53)
How did Francis & Crick contribute to biology? (Bonus: Year?)	They discovered that DNA was a double helix. (1953)

Front	Back
What type of bond is found between sugar sub-units of DNA?	Phosphodiester bonds
By which method of replication does our DNA undergo?	Semiconservative replication
How did Meselsohn & Stahl contribute to biology?	They proved that DNA replicates conservatively by using the heavy nitrogen.
What is the name of the enzyme that alleviates coiling during DNA replication?	DNA topoisomerase
What is the function of telomerase?	Prevents chromosome shortening by adding many copies of repeated DNA to eliminate the 3' overhang
Cells that have lost the capacity to divide are known as what?	Senescent cells
How did Beadle & Tatum contribute to biology?	They developed the " One gene - one enzyme" hypothesis
How did Walter Gilbert contribute to biology? (Bonus: Year?)	Discovered that exons code for particular protein regions and functions. Developed the "Evolution by exon shuffling" hypothesis. (1980s)

Front	Back
What are snRNP's? And what does it stand for?	Small Nuclear RNA and set of Proteins. They are proteins that collectively are known as a spliceosome and remove introns.
What is the peptidyl transferase activity? And what performs it?	The enzymatic activity that forms the peptide bonds. It is carried out by rRNA
What are the steps in translation?	1. "Activation" of tRNAs 2. "Initiation" of the translation process 3. "Elongation" 4. "Termination"
What are the 3 sites on a ribosome? What do they stand for?	A site (aminoacyl tRNA) P site (polypeptide) E site (exit)
What are consititive genes?	Genes that are constantly transcribed
How did Jacob & Monod contribute to biology? (Bonus: Year?)	They discovered the regulation of genes using the lac operon. (1961)
What are the 3 features found in most promoters?	1. Transcriptional start site 2. TATA box 3. Response elements
What is a Mediator? And what does it do?	It is composed several proteins. It wraps around GTFs and RNA polymerase and controls the rate at which RNA polymerase can begin transcription

Front	Back
What is the Preinitiation complex? And where is it found?	It is assembled GTFs and RNA polymerase and is found at the TATA box.
Name 3 ways to control RNA polymerase.	1. Activators/repressors bind to GTFs, improve or prevent function of TFIID 2. Activators/repressors bind to mediator 3. The way by which the chromatin is packed (open/closed conformation)