Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per. \_\_\_\_\_\_

**Cell Drawing and Organelle Chart**

Correctly label all cell parts indicated by leader lines in the cell drawing. Then select different colors for each structure and use them to color the coding circles and the corresponding structures in the illustration.



Complete the following table to fully describe the various cell parts.

|  |  |  |
| --- | --- | --- |
| **Cell Structure** | **Location** | **Function** |
| **Plasma (cell) membrane** | Outside of cell | “Gatekeeper” – Controls what enters and leaves the cell through the membrane or through protein gates or channels |
| **Villi/**  **Microvilli** | Plasma membrane | Finger-like extensions of the cell membrane that increase the surface area and increases the absorption rate. Found in cells lining the kidneys and small intestines. |
| **Cilia** | Attached to plasma membrane | Hairs attached to the plasma membrane that moves substances across the surface of cells. |
| **Nucleus** | In cytoplasm | Contains DNA (genes) – Instructions for all the proteins in the body. Controls cell reproduction (division) (mitosis). |
| **Chromatin/**  **Chromo-somes** | In nucleus | Chromatin – long, stringy DNA – this form is present most of the time  Chromosomes – coiled up, rod-shaped  DNA – only present during mitosis |
| **Centrioles** | In cytoplasm | During cell division, they form long arms (spindle fibers) that pull one set ofchromosomes into each side of the dividing cells |
| **Nucleolus** | In nucleus | Builds ribosomes (out of rRNA) which leave the nucleus through the nuclear pores to the cytoplasm. |
| **Ribosomes** | Free-floating in cytoplasm or attached to rough ER | Structures made of ribosomal RNA (rRNA) that arrange and attach amino acids in the correct sequence to form proteins. |
| **Rough ER** | In cytoplasm | Has ribosomes attached. Folds and refolds proteins from the ribosomes. Builds cell membranes out of proteins and lipids. |
| **Golgi apparatus**  **(complex, bodies)** | In cytoplasm | Modifies, sorts, and packages proteins from rough ER. Packaged in vesicles, which transport them throughout the cell or to the cell membrane to be excreted. Makes lysosomes. Common in pancreas and cells with mucus linings. |
| **Vesicles** | In cytoplasm | Membrane-bound capsules, which transport substances throughout the cell or into or out of the cell. |
| **Smooth ER** | In cytoplasm | Builds and breaks down cholesterol and lipids. Detoxifies drugs and pesticides. |
| **Mitochondria** | In cytoplasm | Takes food (glucose) + O2 🡪 energy which is stored in the bonds of ATP |
| **Lysosomes** | In cytoplasm | Sacs of digestive enzymes or “floating stomachs.”  Digest worn-out cell parts, foreign substances, and large food particles.  ”Suicide sacs” – when cells die these burst open and digest it. |
| **Peroxisomes** | In cytoplasm | Detoxifies alcohol and formaldehyde by-products. Change free radicals into H2O2 into O2 and H2O |
| **Vacuoles** | In cytoplasm | Organelles used to store food, wastes, etc. |
| **Inclusions** | In cytoplasm | Chemical substances that are not always present and have no known function. |