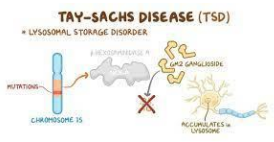
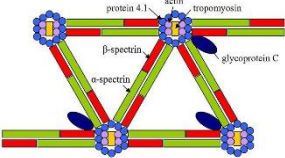
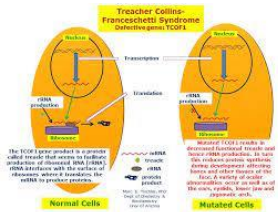
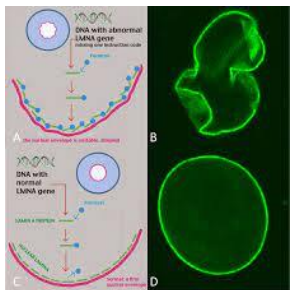


Disease	Organelle affected	Normal function	Abnormal function
1. Myotonia Congenita	Cell/plasma membrane	Regulates what enters or leaves the cell The border between the interior and exterior of a cell controls the passage of various molecules – including sugars, amino acids, ions, and water – into and out of the cell.	Causes an unusually exaggerated response to stimulation (hyperexcitability). Equal difficulty relaxing certain muscles after contracting them (myotonia), muscle stiffness (rigidity), and associated symptoms
2. Anticholinergic Syndrome (toxidrome)	Smooth Endoplasmic Reticulum	Detoxifies	Smooth ER increases tolerance to substances; at a point, it can no longer detoxify.
3. Chronic Obstructive Pulmonary Disorder (COPD)	Cilia	Helps with movement or movement of material. Small hair-like protuberances on the outside of eukaryotic cells. They are primarily responsible for locomotion on the cell itself or fluids on the cell surface.	Mucus buildup and cilia are not able to move properly.
4. Tay-Sachs 	Lysosomes	Contains enzymes that help clean up the cell by breaking down unwanted material A vesicle that contains hydrolytic enzymes that can break down many	Impairs the function of a lysosomal enzyme and involves the buildup of GM2 ganglioside; this condition is sometimes referred to as a lysosomal

		kinds of biomolecules.	storage disorder or a GM2-gangliosidosis.
5. Achondrogenesis	Golgi Apparatus	Packages products for export out of the cell. Gathers simple molecules and combines them to make more complex molecules. It then takes those big molecules, packages them in vesicles, and either stores them for later use or sends them out of the cell. It is also the organelle that builds the lysosomes.	Malfunction of the Golgi apparatus in chondrocytes likely underlies the problems with bone formation in achondrogenesis type 1A. Achondrogenesis type 1B is the most severe of a spectrum of skeletal disorders caused by mutations in the SLC26A2 gene.
6. Infertility	Flagella	Aids the cell in movement. Long, whip-like filamentous protein structures found in bacteria, archaea, and eukaryotes, though they are typically used to propel a cell through liquid.	Flagella cannot move as well as they could if they were “normal.”
7. Hereditary Elliptocytosis	Cytoskeleton 	Gives the cell structure, shape, and support It is a network of protein fibers supporting cell shape and anchoring organelles within the cell.	α-spectrin mutations result in an inability of α-spectrin to interact properly with β-spectrin to form a heterodimer. Weakness in the cytoskeleton of the cell.

8. Decreased Cytochrome C Oxidase/Myopathy	Mitochondria	Converts glucose to ATP (usable form of energy).	Inability to convert glucose to ATP.
9. Leaf chlorosis	chloroplast	When sunlight is present, it combines carbon dioxide and water into glucose and oxygen for use by the plant in cell respiration.	Altered pigmentation and structural change of chloroplasts. The influence of the virus on the structures and functions of chloroplast usually leads to disturbances in photosynthetic activity.
10. CWDB disorder	Cell wall	Give the cell structure and support	Damage to the cell wall disturbs the state of cell electrolytes, which can activate death pathways (apoptosis or programmed cell death). Regulated cell death and lysis in bacteria play an important role in certain developmental processes, such as competence and biofilm development.
11. Treacher Collins	Ribosomes 	Site of protein synthesis Link amino acids together in the order designated by the mRNA to create proteins. Can be found floating free in the cytoplasm or attached to the	Treacher-Collins Syndrome is caused by mutations in genes that code for proteins required for the assembly and function of polymerases. These proteins, known as TCOF1, POLR1C, and POLR1D, are

		endoplasmic reticulum.	responsible for transcribing genes that make up cell organelles called ribosomes. Ribosomes are critical to all cells.
12. Progeria	Nuclear Envelope 	Regulates what enters or leaves the nucleus Double-layered membrane that encloses and protects the contents of the nucleus during most of the cell's lifecycle	Nuclear envelope is unstable, dimpled. Production of an abnormal version of the lamin A protein. The altered protein makes the nuclear envelope unstable and progressively damages the nucleus, making cells more likely to die prematurely.

Suggested accommodations:

ESL students: Provide a list of cell organelle vocabulary in Spanish and English

IEP students: Give students the name of the disease and organelle. Have them research what the organelle looks like, what it does for the cell, and what is happening to the organelle in this disease or disorder.

Cells Vocab.			
centrosome	Cellular organelle consisting of two centrioles	centrosoma	Organelo celular formado por dos centriolos.

chromosome	Rod-like structure that condenses from chromatin in a cell's nucleus during mitosis	cromosoma	Estructura en forma de varilla que se condensa a partir de la cromatina en el núcleo de una célula durante la mitosis.
cytoplasm	the contents of a cell excluding the nucleus and the cell membrane	citoplasma	el contenido de una célula excluyendo el núcleo y la membrana celular
cytoskeleton	Cell skeleton	citoesqueleto	esqueleto celular
endoplasmic reticulum	Organelle composed of a system of connected membranous tubules and vesicles along which protein is synthesized	retículo endoplásmico	Organelo compuesto por un sistema de túbulos membranosos y vesículas conectados a lo largo del cual se sintetizan proteínas.
lysosome	Organelle that contains digestive enzymes	lisosoma	Organelo que contiene enzimas digestivas.

golgi apparatus	An organelle that prepares cellular products for secretion	aparato de Golgi	Un orgánulo que prepara los productos celulares para la secreción.
cell membrane	The selectively permeable outer boundary of a cell consisting of a phospholipids bi-layer embedded with proteins plasma membrane or cytoplasmic membrane	membrana celular	El límite exterior selectivamente permeable de una célula que consiste en una doble capa de fosfolípidos incrustada con proteínas en la membrana plasmática o la membrana citoplasmática.
mitochondrion	Organelle housing enzymes that catalyze reactions of aerobic respiration	mitocondria	Organelo que alberga enzimas que catalizan reacciones de la respiración aeróbica.
vesicle	An organelle used for storage and transport of materials	vesícula	Un orgánulo utilizado para el almacenamiento y transporte de materiales.
nucleolus	Organelle that produces	nucleolo	Organelo que produce

	ribosome's. (little nucleus)		ribosomas. (pequeño núcleo)
nucleus	Control center of the cell containing genetic information (the Brains)	núcleo	Centro de control de la célula que contiene información genética (el Cerebro)
organelle	A double membrane structure found inside the cell membrane that has a specific function	organelo	Una estructura de doble membrana que se encuentra dentro de la membrana celular y que tiene una función específica.
ribosome	2 part organelle responsible for the making of proteins	ribosoma	Organelo de 2 partes responsable de la producción de proteínas.