Organelle	Function	What Happens When It Fails	Disease Example
Lysosome		Waste builds up inside the cell and becomes toxic.	Tay-Sachs disease: A genetic disorder where the lysosomes cannot break down certain fats (lipids). These fats accumulate in brain cells, leading to damage.
Mitochondria		The cell doesn't get enough energy to function properly.	Leigh syndrome and other mitochondrial diseases: Cause muscle weakness, fatigue, heart and brain issues.
Nucleus		DNA may mutate or be read incorrectly, which can lead to uncontrolled cell growth or cell death.	Cancer and Progeria: Caused by DNA mutations or damage to the nuclear envelope.
Endoplasmic Reticulum (ER)		Misfolded proteins can build up and harm the cell.	Cystic Fibrosis: Faulty protein folding causes thick mucus in lungs and digestive system.
Golgi Apparatus		Proteins may not reach their destination or get stuck.	I-cell disease: Enzymes fail to reach the lysosomes.
Cell Membrane		The balance inside the cell (homeostasis) is lost.	Duchenne Muscular Dystrophy: Missing protein affects muscle cell membranes.
Vacuole		Waste may build up or the cell may lose water balance.	Storage disorders similar to lysosomal diseases in humans.

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