



Figure 28 This lysosome is pouring enzymes into a vesicle that contains food particles. The digested food molecules are released into the cytoplasm for use by the cell.

Packages of Destruction

What causes most of the cells of a caterpillar to dissolve into ooze inside a cocoon? What causes the tail of a tadpole to shrink and then disappear? Lysosomes, that's what!

Lysosomes are special vesicles in animal cells that contain enzymes. When a cell engulfs a particle and encloses it in a vesicle, lysosomes bump into these vesicles and pour enzymes into them. This is illustrated in **Figure 28**. The particles in the vesicles are digested by the enzymes.

Lysosomes destroy worn-out or damaged organelles. They also get rid of waste materials and protect the cell from foreign invaders.

Sometimes lysosome membranes break, and the enzymes spill into the cytoplasm, killing the cell. This is what must happen for a tadpole to become a frog. Lysosomes cause the cells in a tadpole's tail to die and dissolve as the tadpole becomes a frog. Lysosomes played a similar role in your development! Before you were born, lysosomes caused the destruction of cells that formed the webbing between your fingers. Lysosome destruction of cells may also be one of the factors that contribute to the aging process in humans.

Organelles and Their Functions



Nucleus
contains the cell's DNA and is the control center of the cell



Chloroplasts
make food using the energy of sunlight



Ribosomes
the site where amino acids are hooked together to make proteins



Golgi complex
processes and transports materials out of the cell



Endoplasmic reticulum
makes lipids, breaks down drugs and other substances, packages up proteins for release from the cell



Vacuole
stores water and other materials



Mitochondria
break down food molecules to make ATP



Lysosomes
digest food particles, wastes, cell parts, and foreign invaders