

Cellular Structures and Functions

There is an intricate network of membrane-bounded organelles in eukaryotic cells, each with a specific function. Organelles keep related biochemicals and structures close together to help them function more efficiently. This handout outlines the major animal cell organelles, their location, and function(s).

NUCLEUS: package for DNA and other controlling factors. Produces mRNA and ribosomes for protein synthesis. Can be considered “brain” of cell.

RIBOSOME: site of protein synthesis

CENTRIOLES: paired structures near nucleus involved in division.

ROUGH ER: structure coming off nucleus that is studded with ribosomes where proteins are synthesized.

SMOOTH ER: fatty acid synthesis and processing

GOLGI APPARATUS: flat, stacked series of membranes where proteins and carbohydrates are processed and packaged.

MITOCHONDRIA: commonly considered the “powerhouse” of the cell. Site of most of glucose breakdown and ATP generation.

LYSOSOME: site of protein degradation. Important to maintenance of cellular health