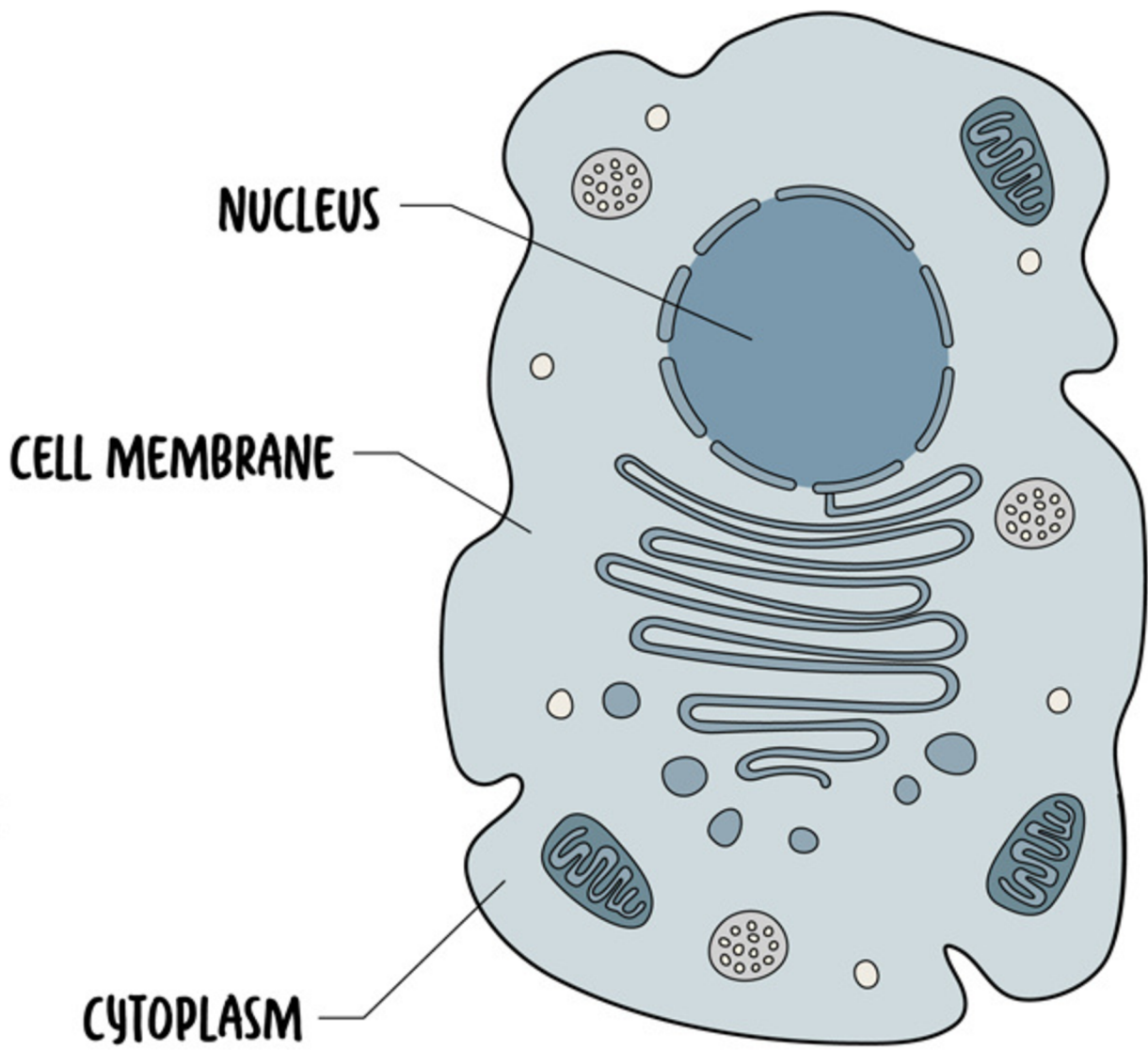


STRUCTURE AND COMPOSITION

MAINTAINING CELLULAR FUNCTION AND INTEGRITY
HOSTS NUMEROUS BIOCHEMICAL PROCESSES

CYTOPLASM CONSISTS OF THE
CYTOSOL, ORGANELLES AND VARIOUS INCLUSIONS

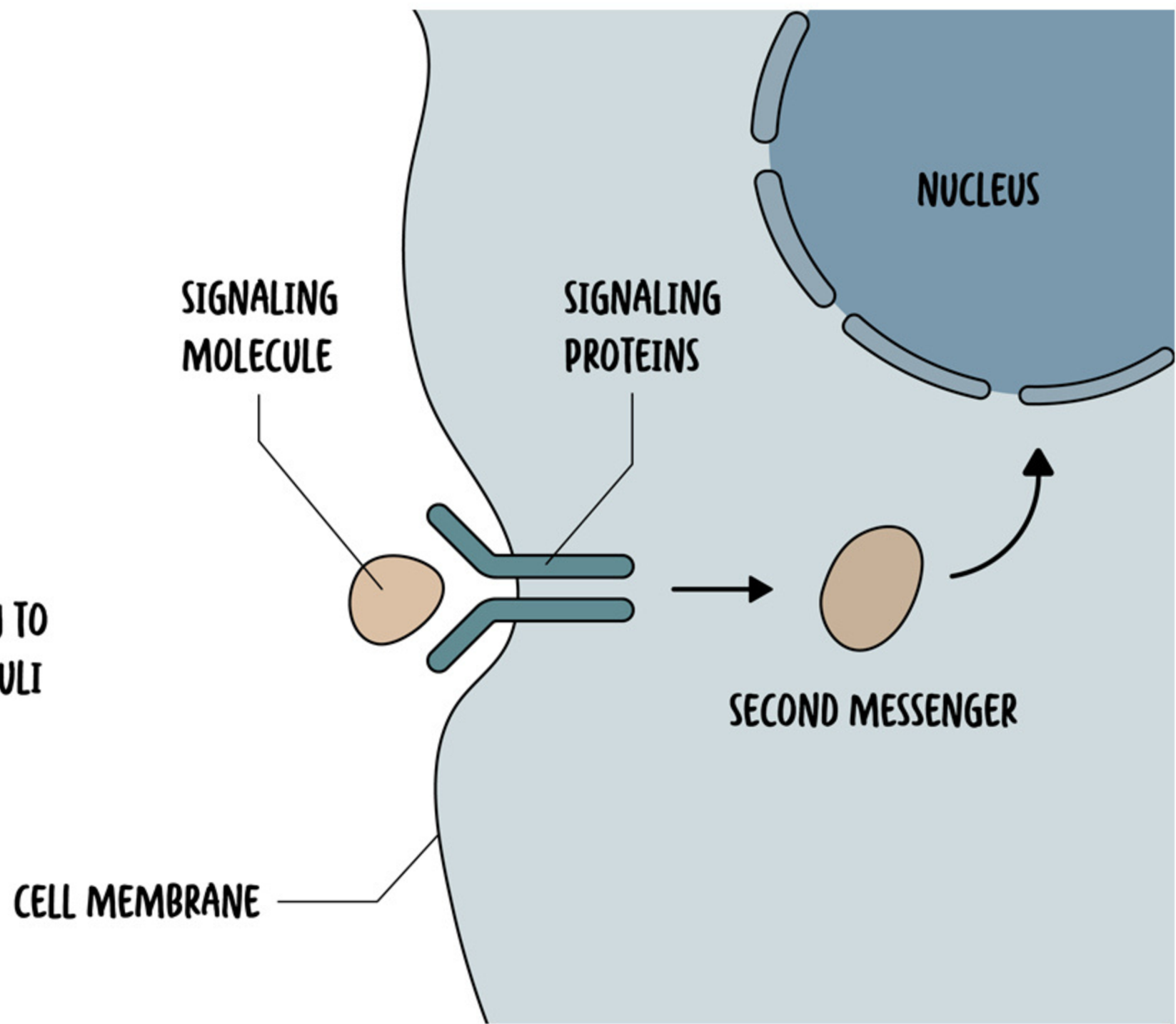


FUNCTIONS

SIGNAL TRANSDUCTION

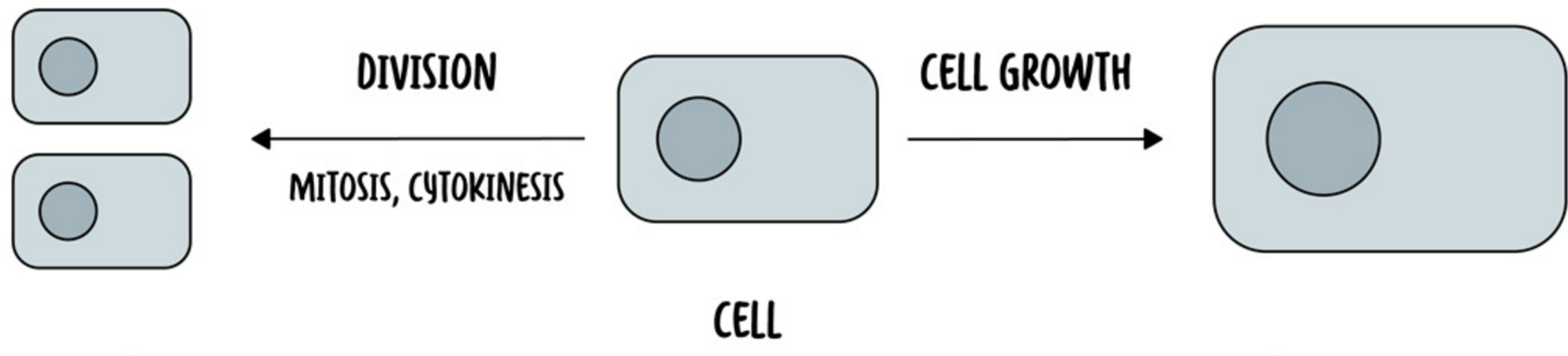
CELLULAR SIGNALING:

CELL RESPONDS APPROPRIATELY TO
EXTERNAL AND INTERNAL STIMULI



FUNCTIONS

CELLULAR GROWTH AND DIVISION



CYTOPLASM
UNDERGOES REORGANIZATION TO
FACILITATE THE DIVISION AND DISTRIBUTION
OF CYTOPLASMIC CONTENT TO DAUGHTER CELLS

CYTOPLASM
PROVIDING THE NECESSARY ENVIRONMENT
FOR BIOSYNTHETIC PROCESSES

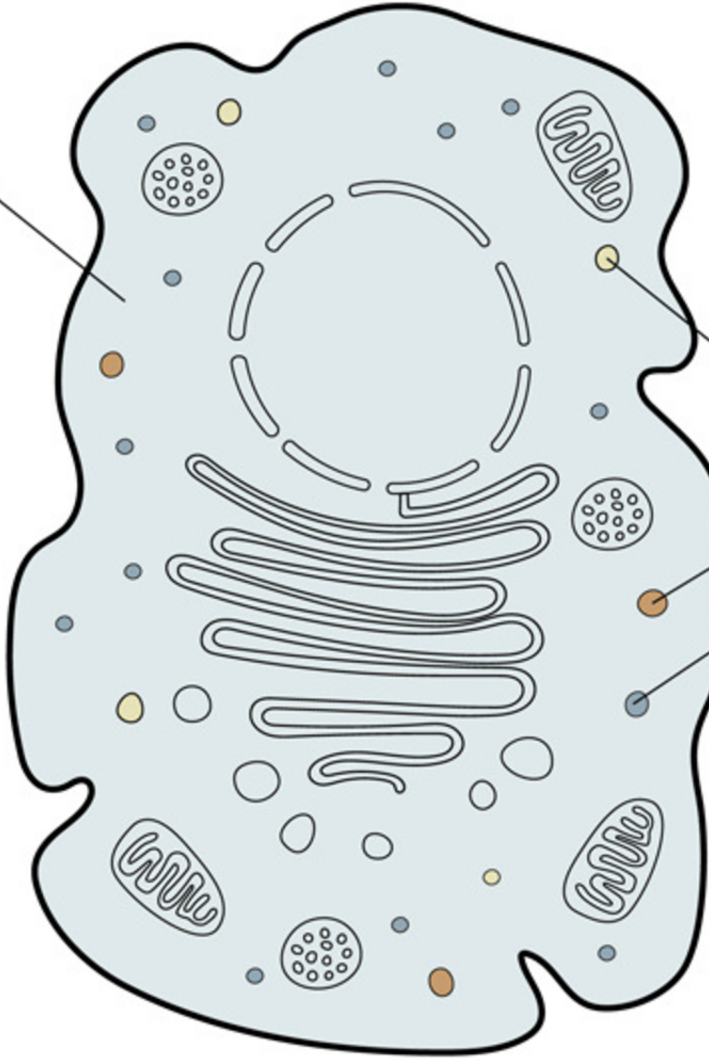
Armando H. Faigl

CYTOSOL

VISCOUS, AQUEOUS SOLUTION

CONTAINS
IONS, SMALL MOLECULES, AND LARGE
WATER-SOLUBLE MOLECULES (PROTEINS)

SERVES AS THE MEDIUM FOR
METABOLIC REACTIONS, DIFFUSION
OF MOLECULES THROUGHOUT THE CELL



CYTOPLASMIC INCLUSIONS

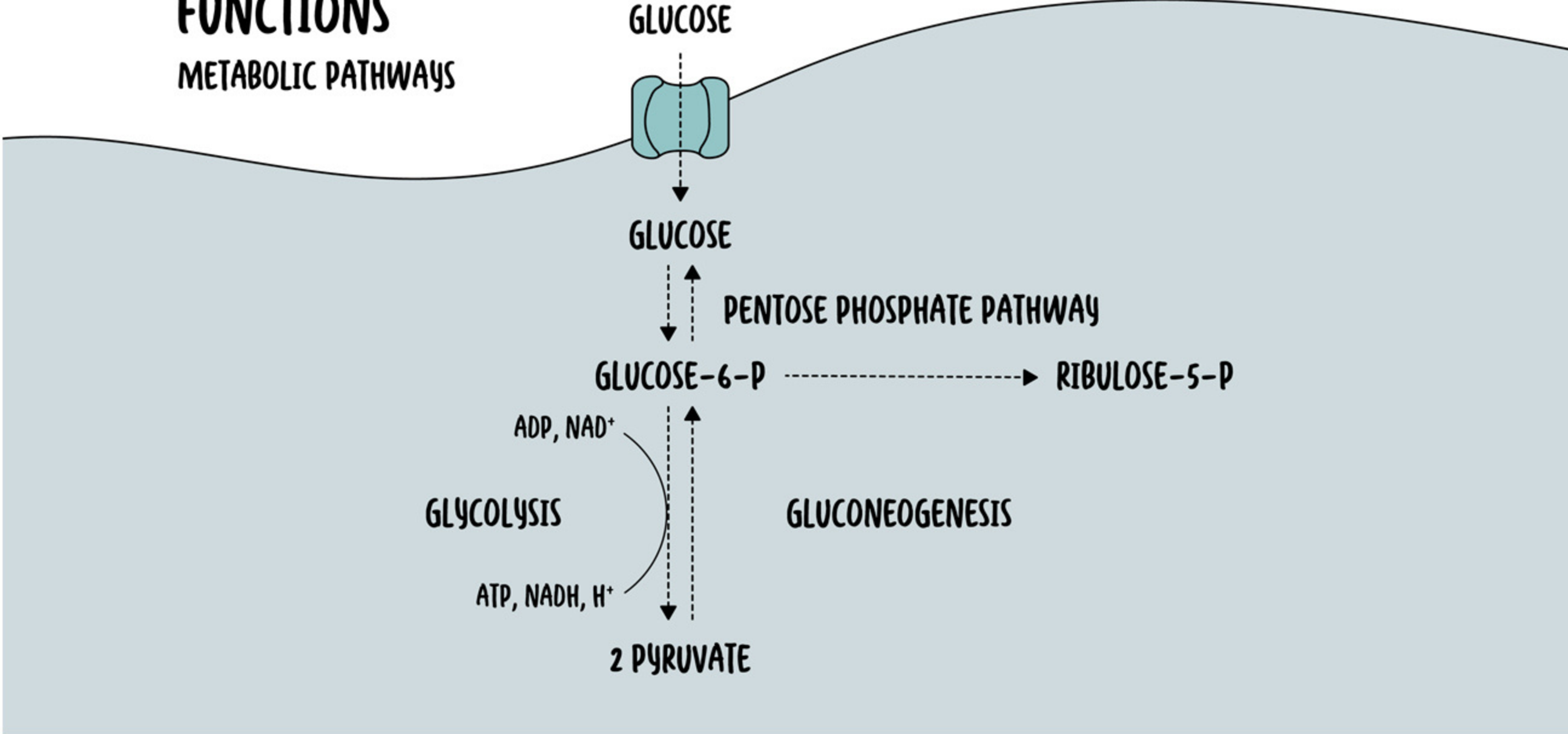
NON-MEMBRANOUS STRUCTURES

INCLUDE
LIPID DROPLETS,
GLYCOGEN GRANULES,
AND PIGMENTS

SERVES AS STORAGE SITES FOR
NUTRIENTS (GLYCOGEN AND LIPIDS)
AND OTHER SUBSTANCES

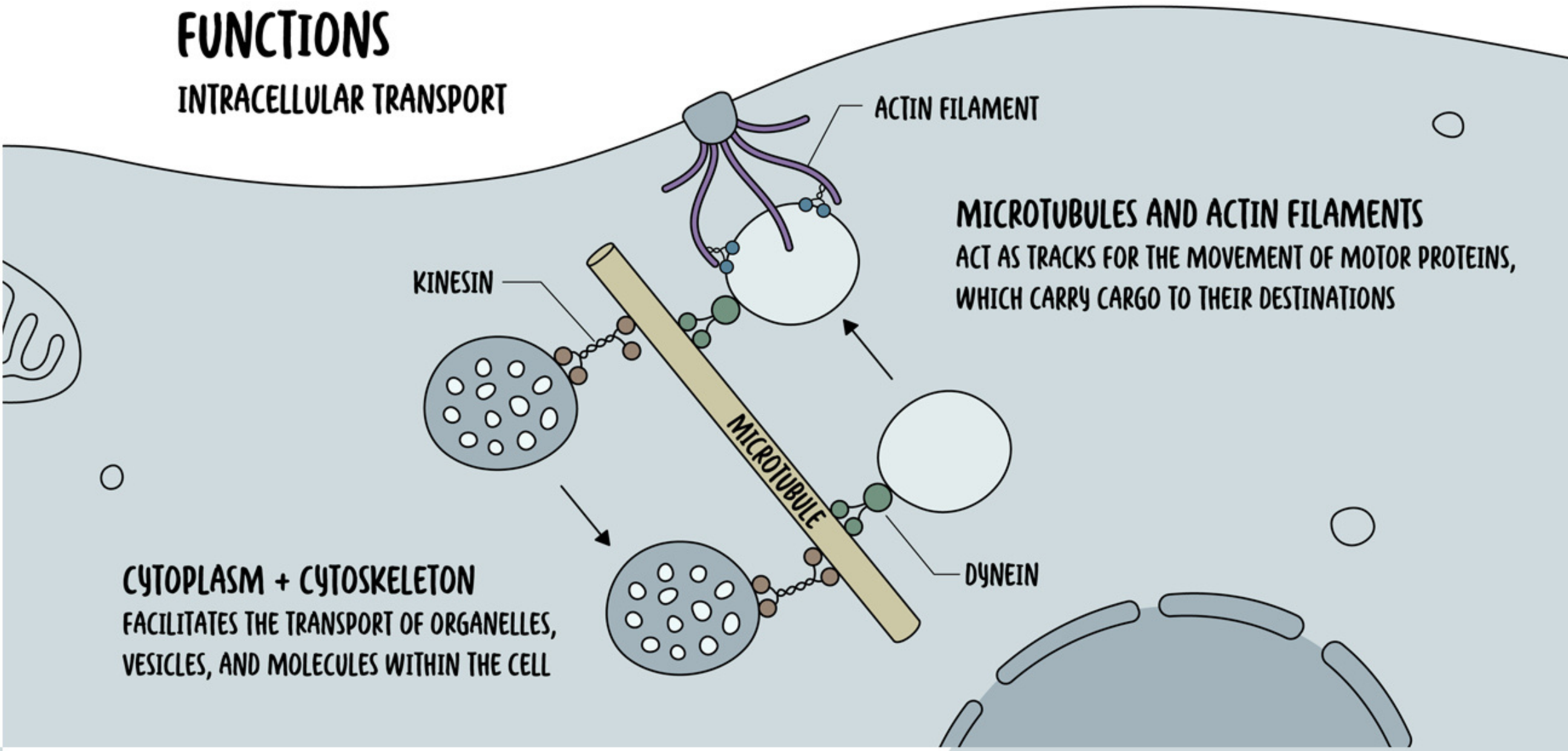
FUNCTIONS

METABOLIC PATHWAYS



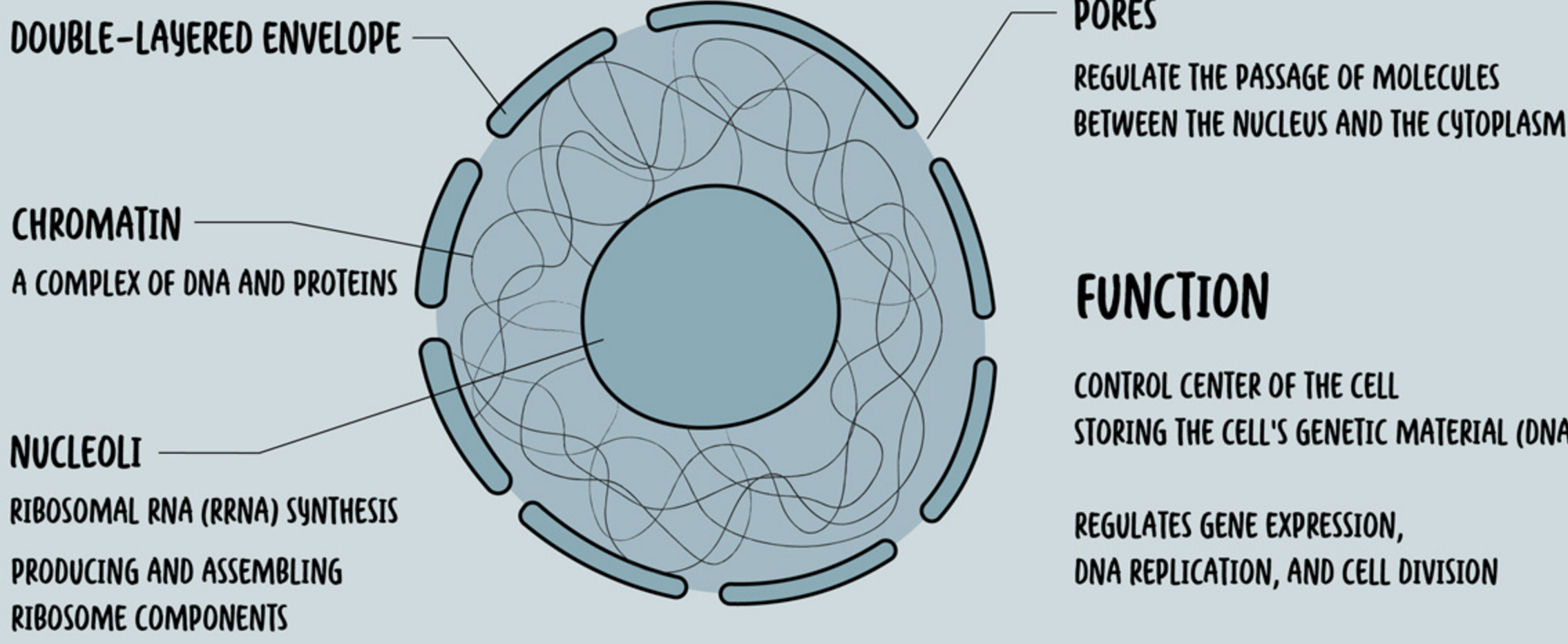
FUNCTIONS

INTRACELLULAR TRANSPORT



NUCLEUS

LARGE, MEMBRANE-BOUND ORGANELLE



FUNCTION

CONTROL CENTER OF THE CELL
STORING THE CELL'S GENETIC MATERIAL (DNA)

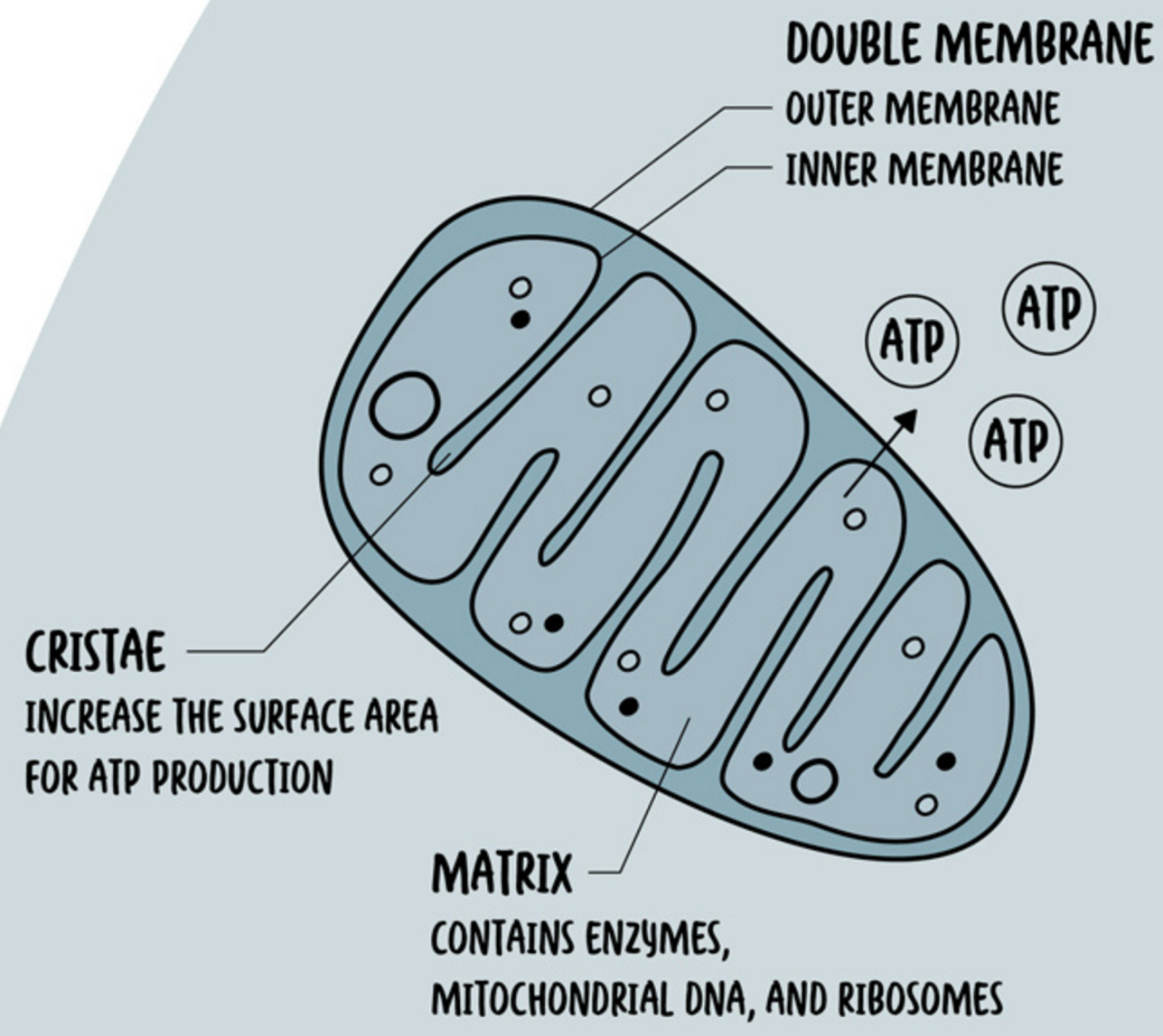
REGULATES GENE EXPRESSION,
DNA REPLICATION, AND CELL DIVISION

MITOCHONDRIA

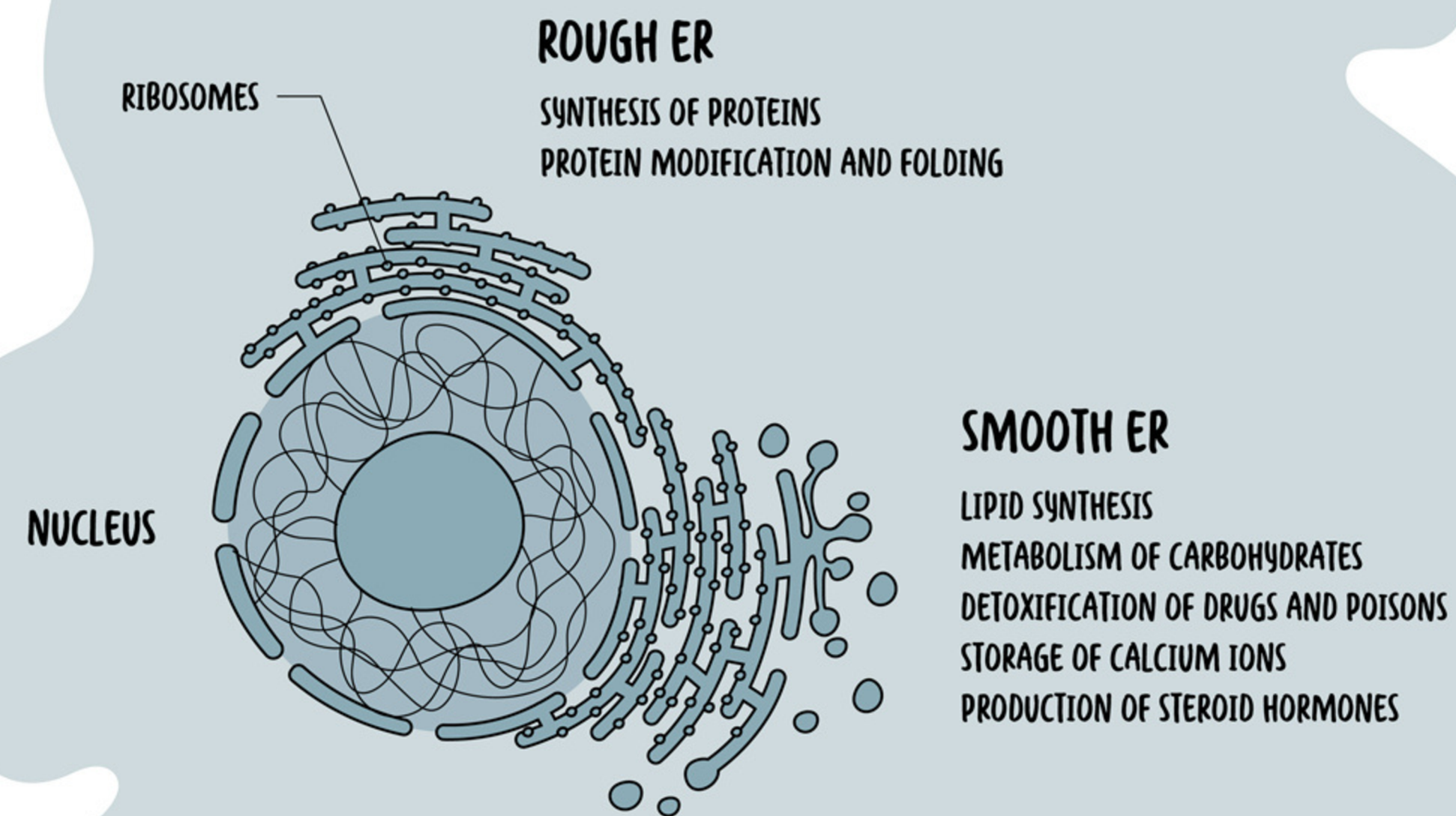
FUNCTION

POWERHOUSES OF THE CELL – GENERATING ATP
(OXIDATIVE PHOSPHORYLATION)

REGULATING THE CELL CYCLE,
CELL GROWTH, AND APOPTOSIS



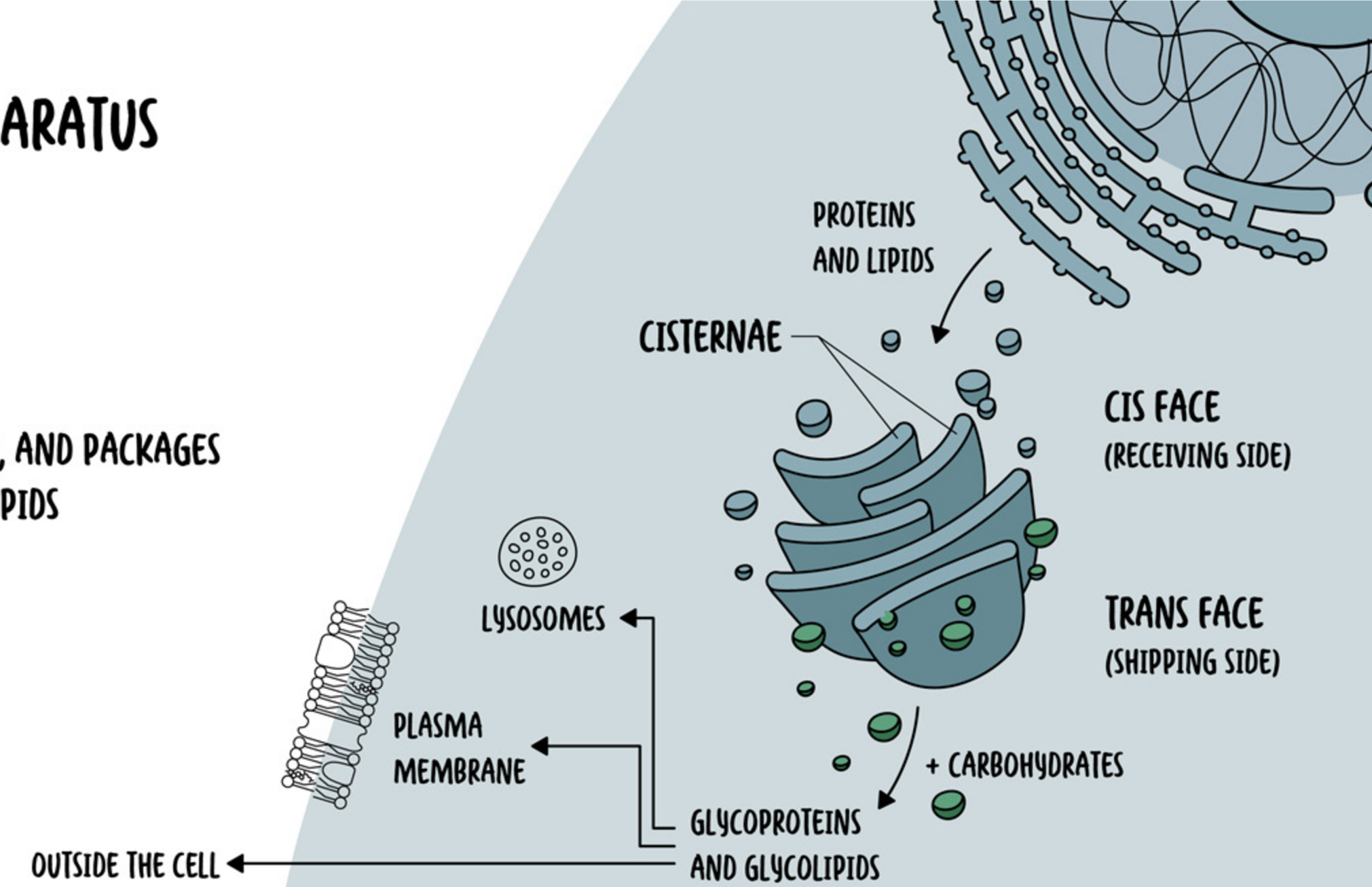
ENDOPLASMIC RETICULUM (ER)



GOLGI APPARATUS

FUNCTION

MODIFIES, SORTS, AND PACKAGES
PROTEINS AND LIPIDS

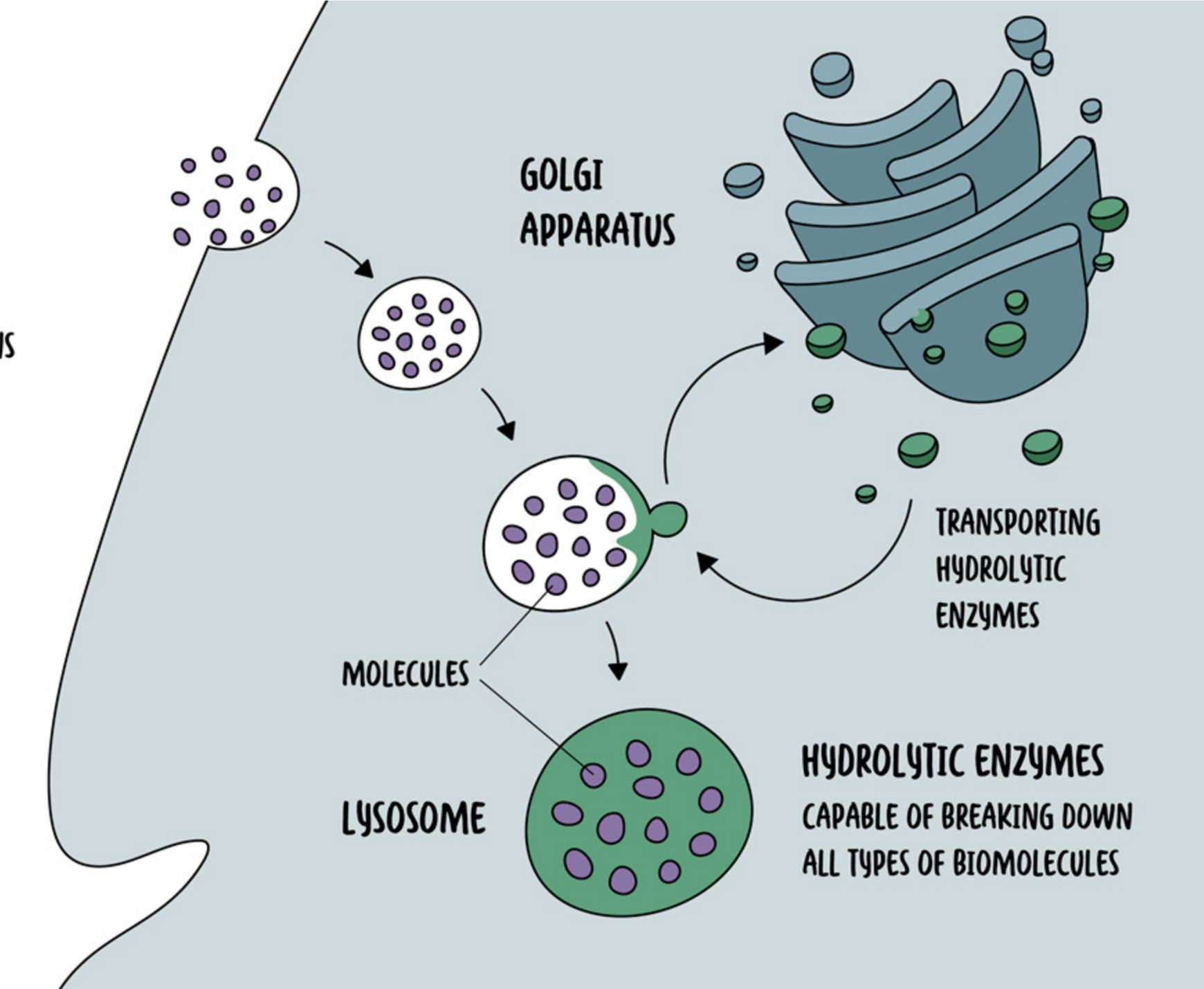


LYSOSOMES

CELL'S WASTE DISPOSAL SYSTEM
DIGESTING UNWANTED MATERIALS
DAMAGED ORGANELLES, AND PATHOGENS

INVOLVED IN

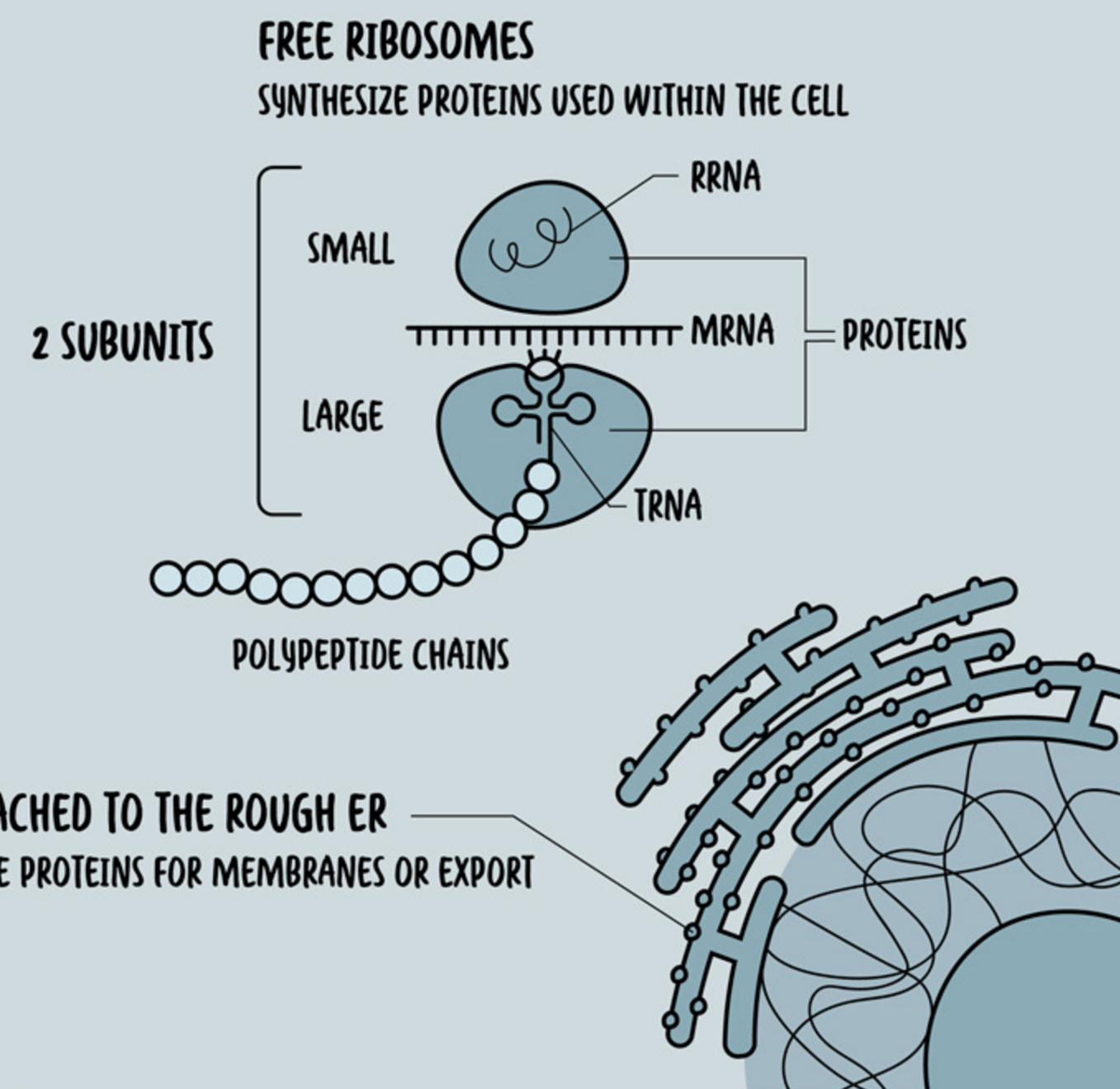
APOPTOSIS
PLASMA MEMBRANE REPAIR
CELL SIGNALING



RIBOSOMES

FUNCTION

PROTEIN SYNTHESIS

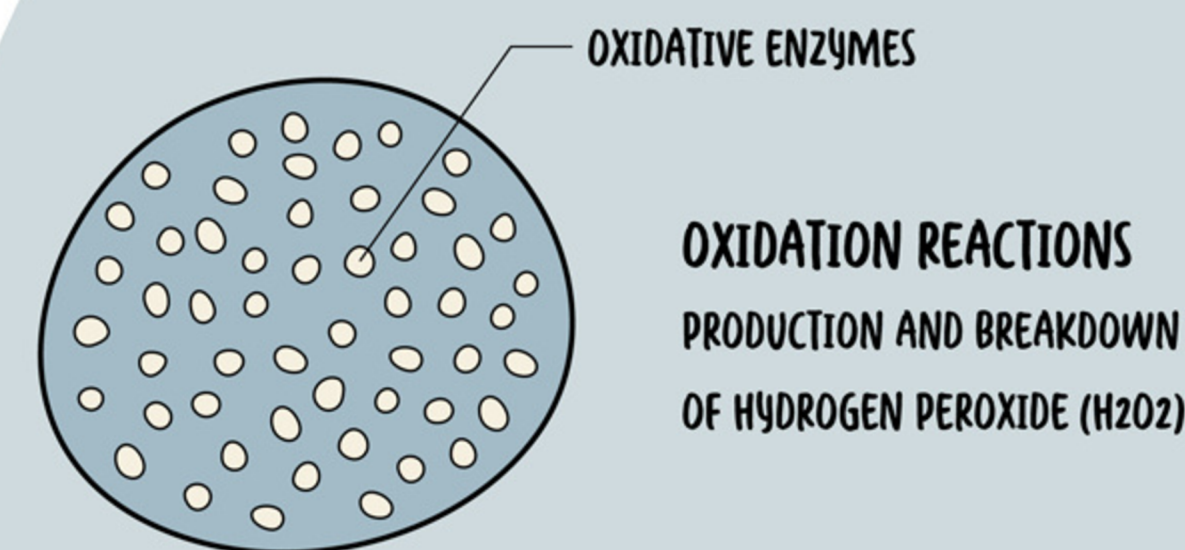


PEROXISOMES

SMALL, MEMBRANE-BOUND ORGANELLES

FUNCTION

LIPID METABOLISM
INCLUDING VERY-LONG-CHAIN FATTY ACIDS
DETOXIFICATION OF HARMFUL SUBSTANCES



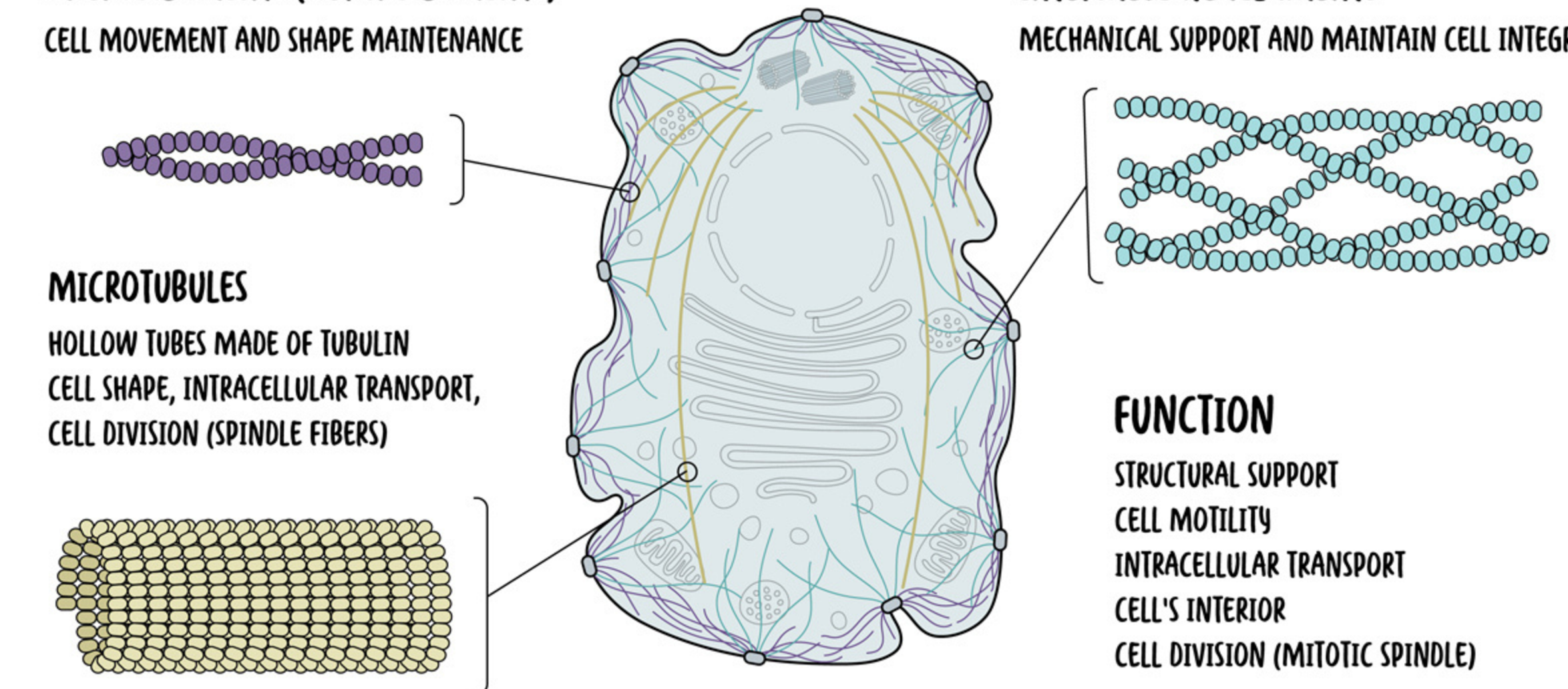
CYTOSKELETON

MICROFILAMENTS (ACTIN FILAMENTS)
CELL MOVEMENT AND SHAPE MAINTENANCE

INTERMEDIATE FILAMENTS
MECHANICAL SUPPORT AND MAINTAIN CELL INTEGRITY

MICROTUBULES
HOLLOW TUBES MADE OF TUBULIN
CELL SHAPE, INTRACELLULAR TRANSPORT,
CELL DIVISION (SPINDLE FIBERS)

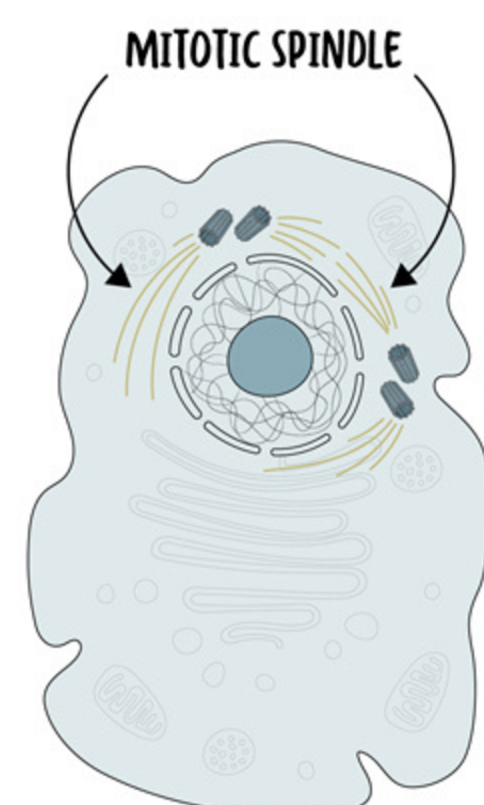
FUNCTION
STRUCTURAL SUPPORT
CELL MOTILITY
INTRACELLULAR TRANSPORT
CELL'S INTERIOR
CELL DIVISION (MITOTIC SPINDLE)



CENTROSOMES AND CENTRIOLES

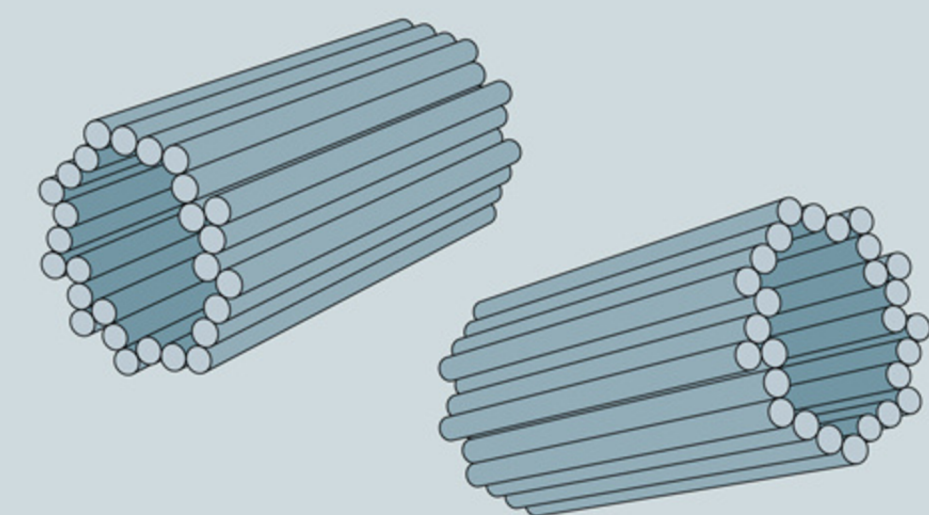
FUNCTION

ORGANIZE MICROTUBULES, CELL DIVISION



TWO CENTRIOLES

RING OF 9 MICROTUBULE TRIPLETS



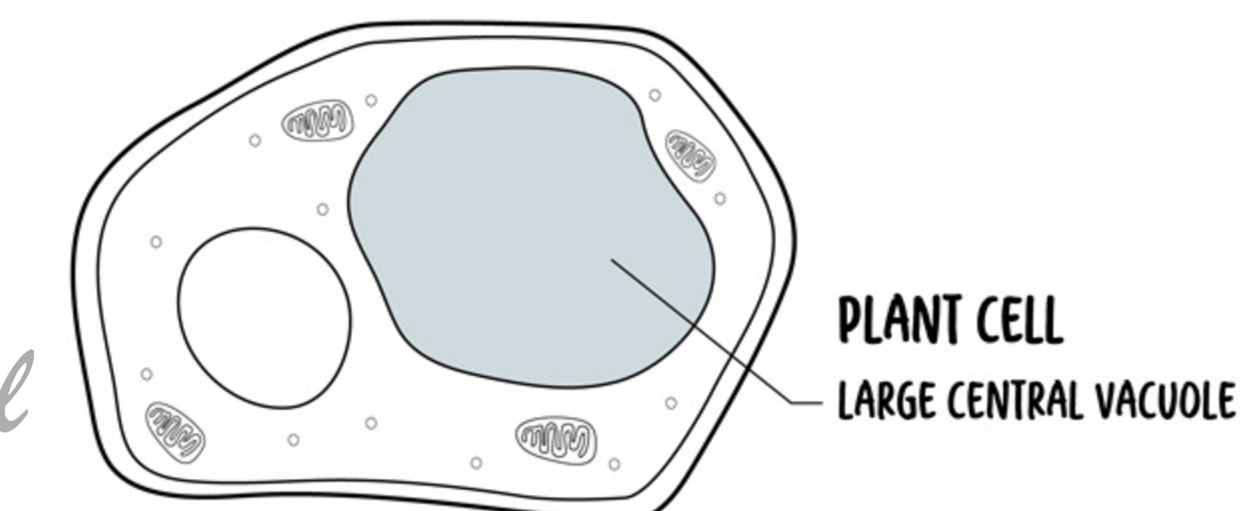
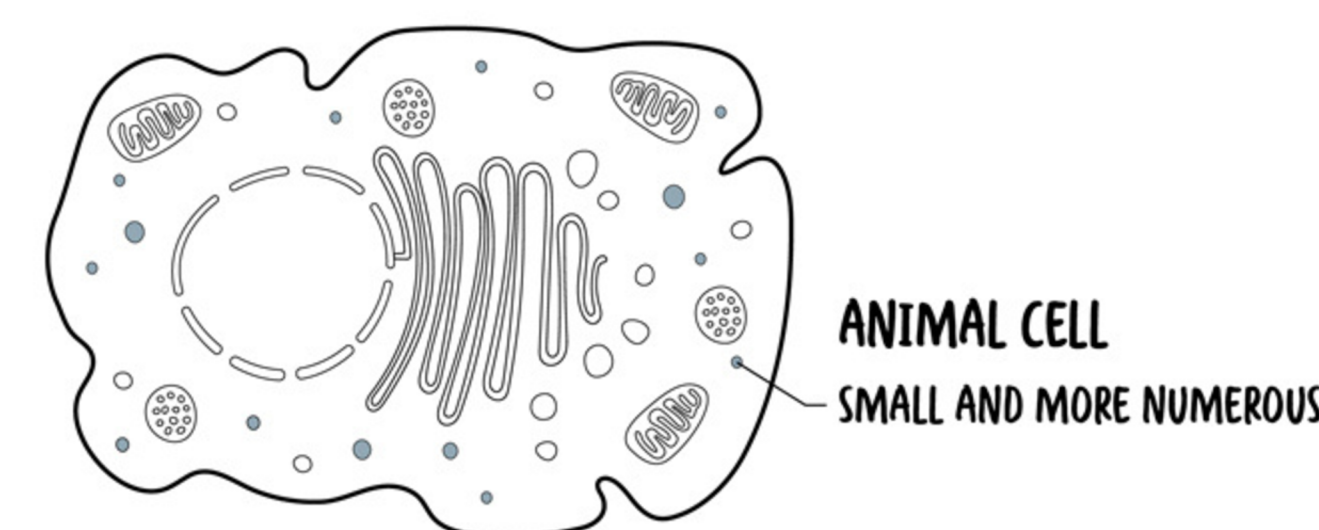
NUCLEUS

VACUOLES

FUNCTION

STORAGE (OF NUTRIENTS, WASTE PRODUCTS)
MAINTENANCE OF TURGOR PRESSURE IN PLANT CELLS,
INTRACELLULAR DIGESTION

ISOLATING HARMFUL MATERIALS



Armando H. Faigl