

PHOSPHORYLATION QUESTIONS

PHOSPHORYLATION QUESTIONS



1ST QUESTION

PHOSPHORYLATION QUESTIONS

QUESTION

IN WHICH METABOLIC
PATHWAYS DOES ATP
PHOSPHORYLATION
OCCUR?

QUESTION

PHOSPHORYLATION QUESTIONS



2ND QUESTION

PHOSPHORYLATION QUESTIONS

QUESTION

WHERE WITHIN THE
CELL DOES ATP
PHOSPHORYLATION
OCCUR?

QUESTION

PHOSPHORYLATION QUESTIONS



1ST QUESTION

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QUESTION

IN WHICH METABOLIC
PATHWAYS DOES ATP
PHOSPHORYLATION
OCCUR?

QUESTION

**ATP
PHOSPHORYLATION
OCCURS DURING
PHOTOSYNTHESIS**

PHOSPHORYLATION QUESTIONS



2ND QUESTION

PHOSPHORYLATION QUESTIONS

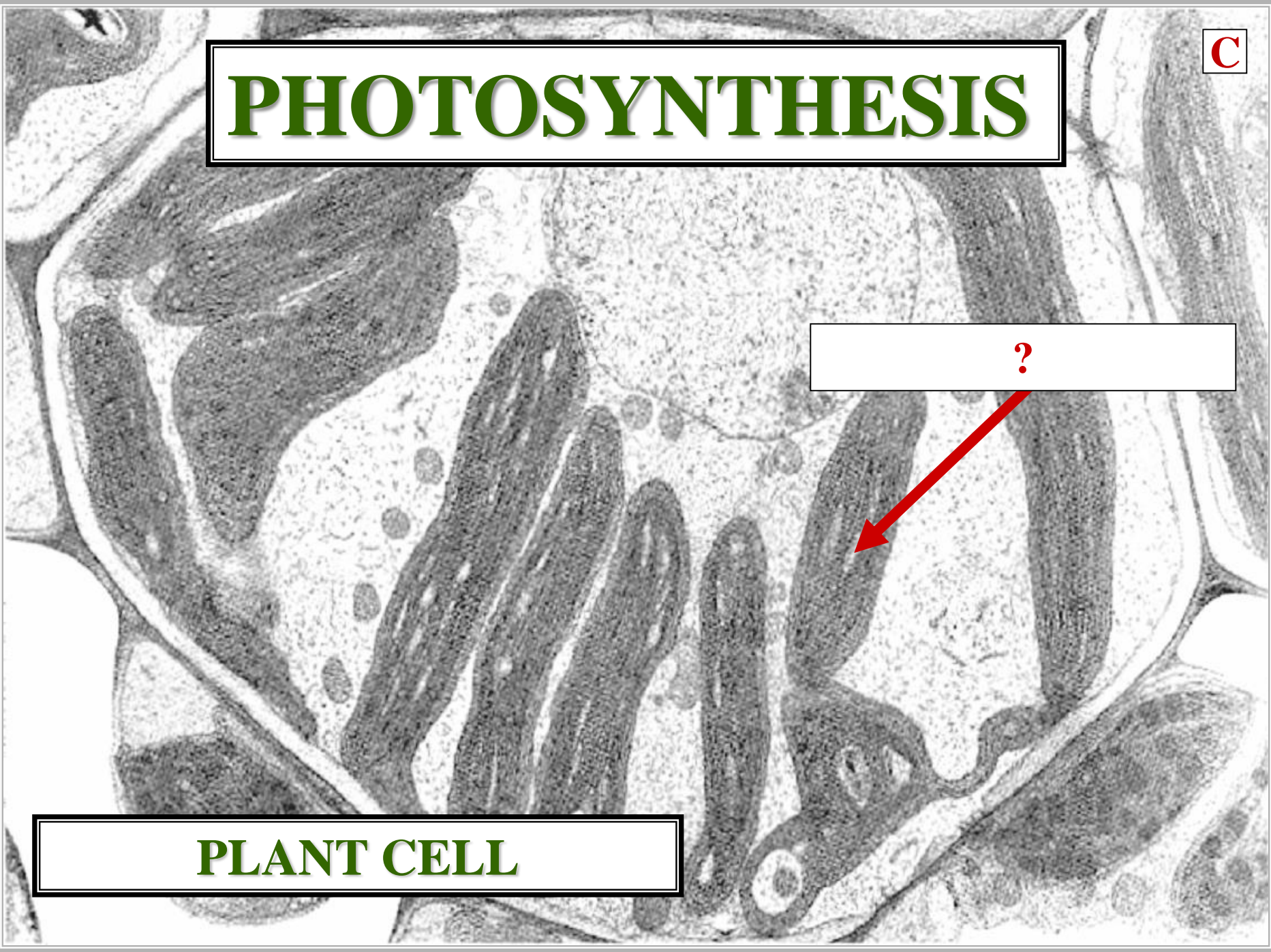
QUESTION



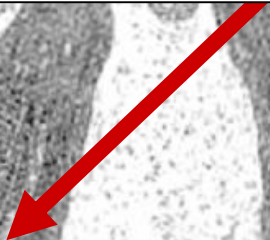
WHERE WITHIN THE
CELL DOES ATP
PHOTOSYNTHESIS
PHOSPHORYLATION
OCCUR?

QUESTION

PHOTOSYNTHESIS



?



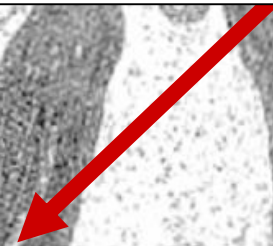
PLANT CELL

PHOTOSYNTHESIS

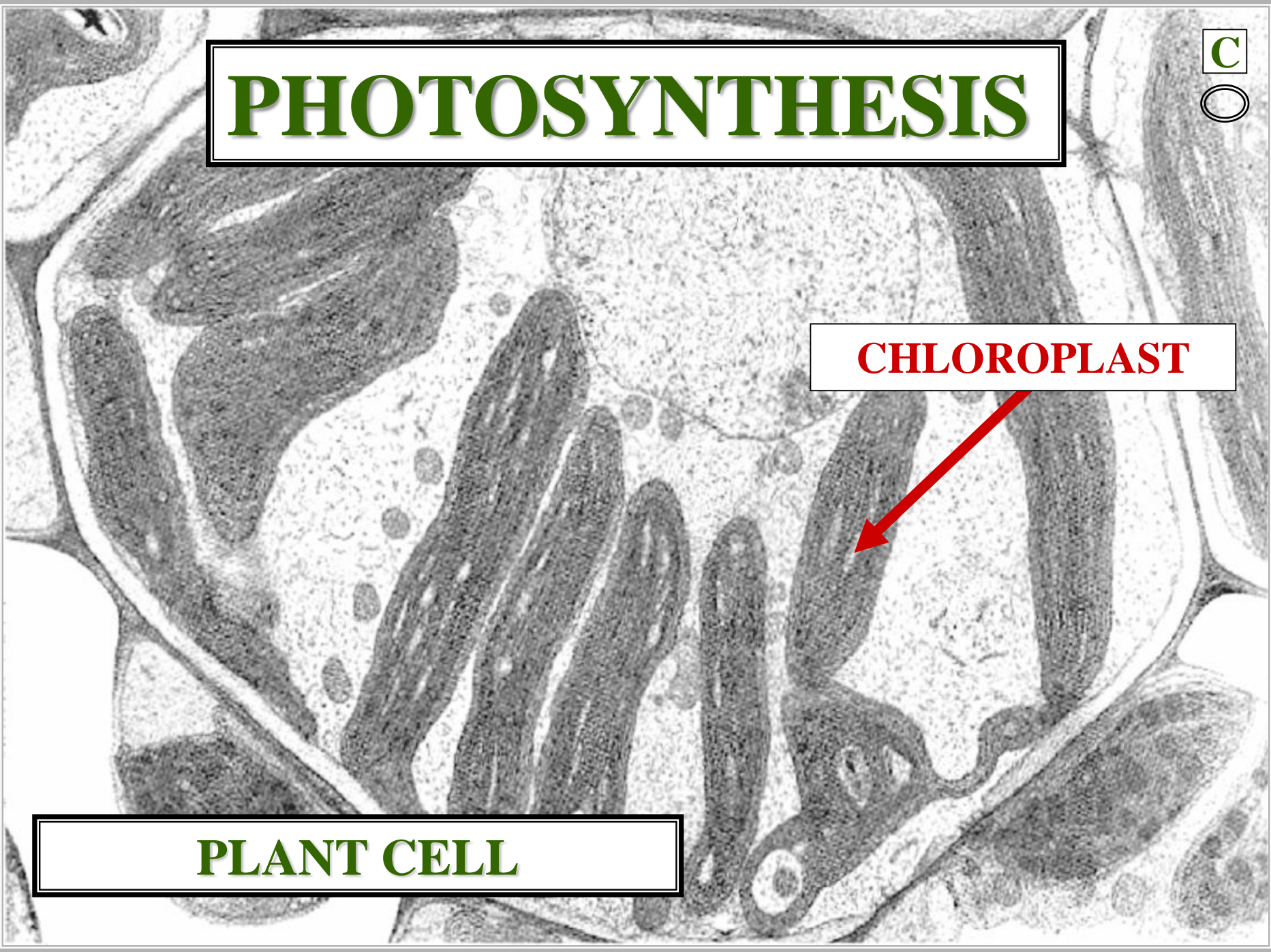
C



CHLOROPLAST



PLANT CELL

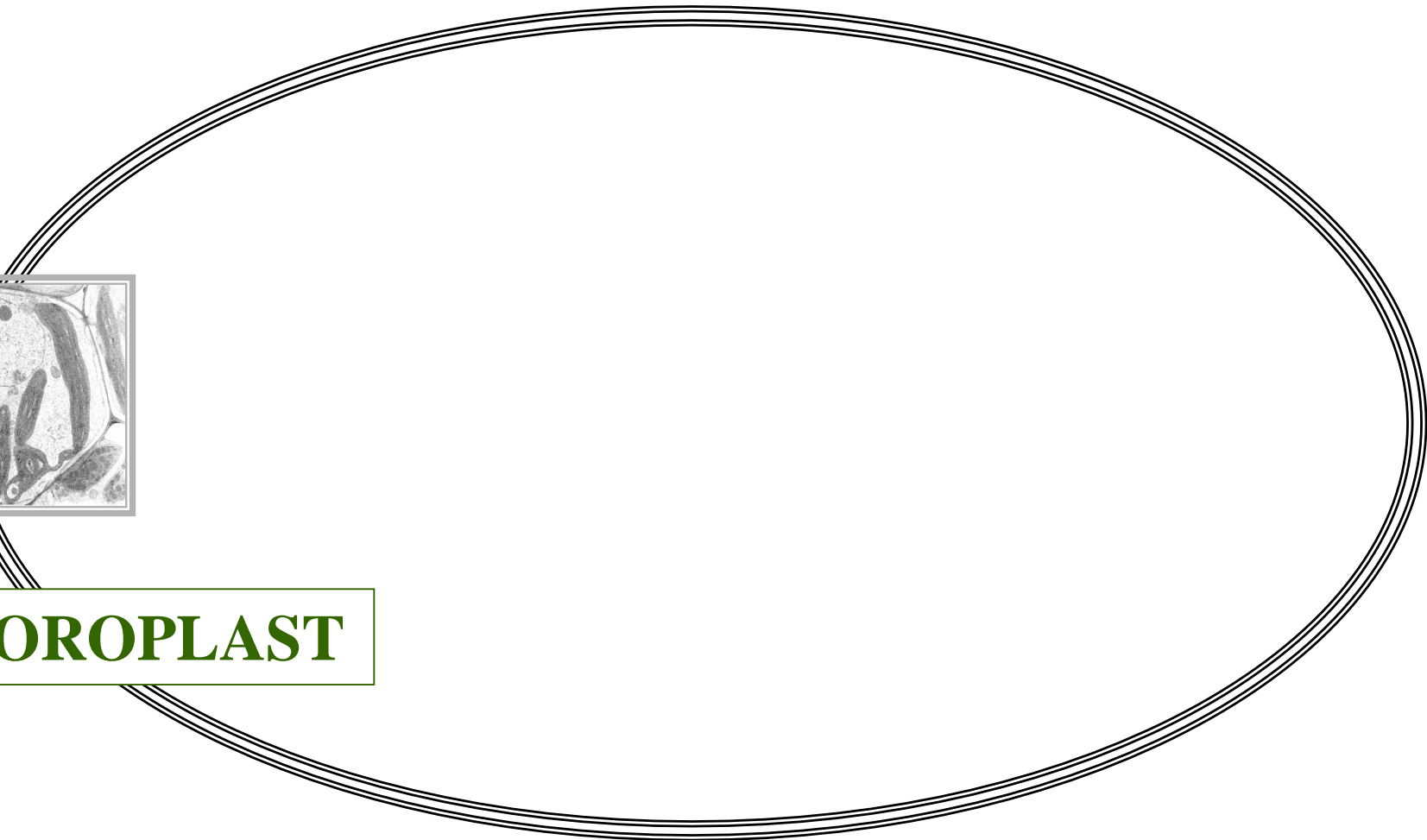


PHOTOSYNTHESIS

LT



CHLOROPLAST

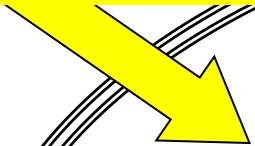


PHOTOSYNTHESIS

LR



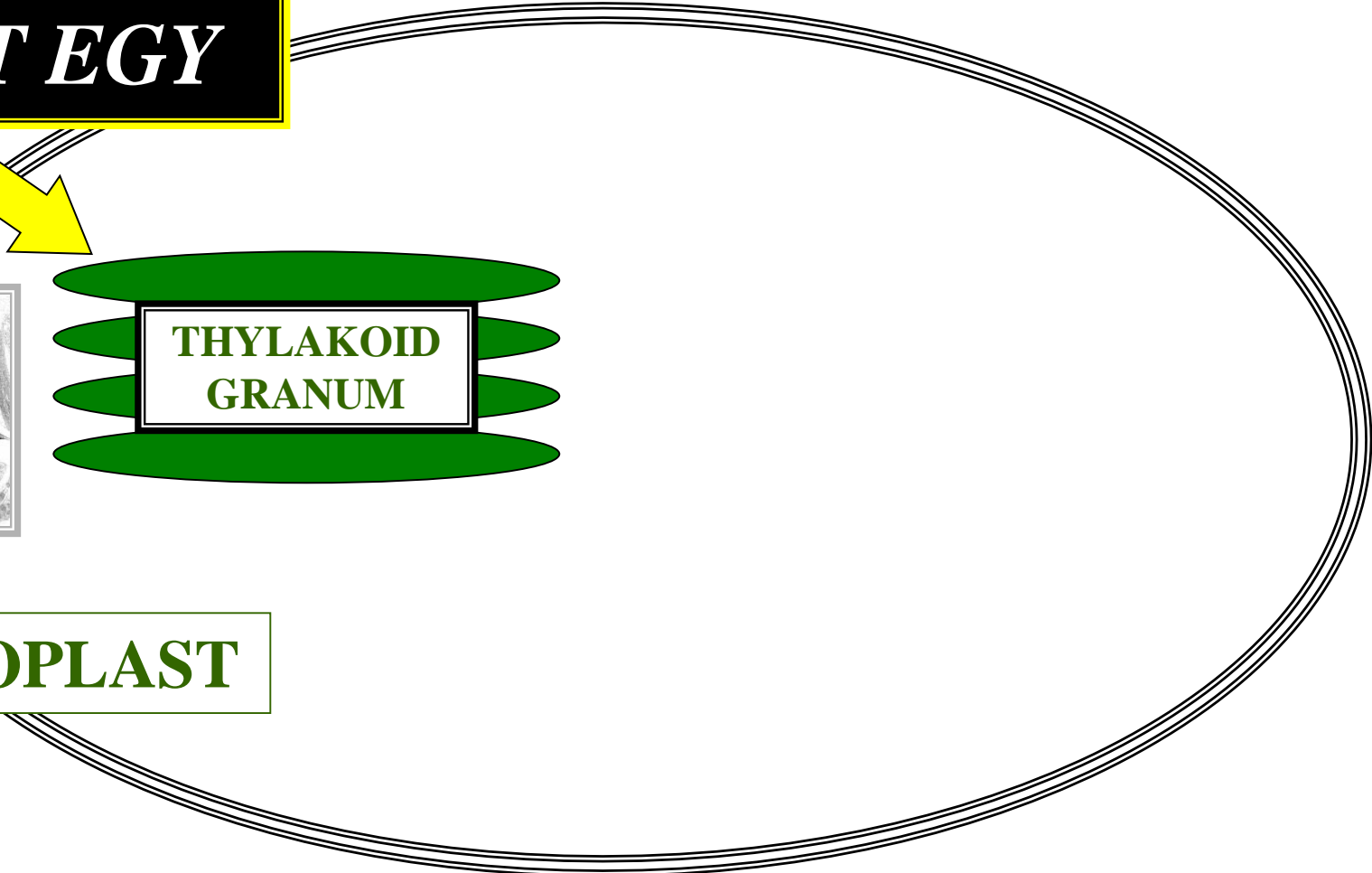
LIGHT ENERGY



**THYLAKOID
GRANUM**



CHLOROPLAST



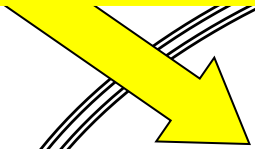
PHOTOSYNTHESIS



C

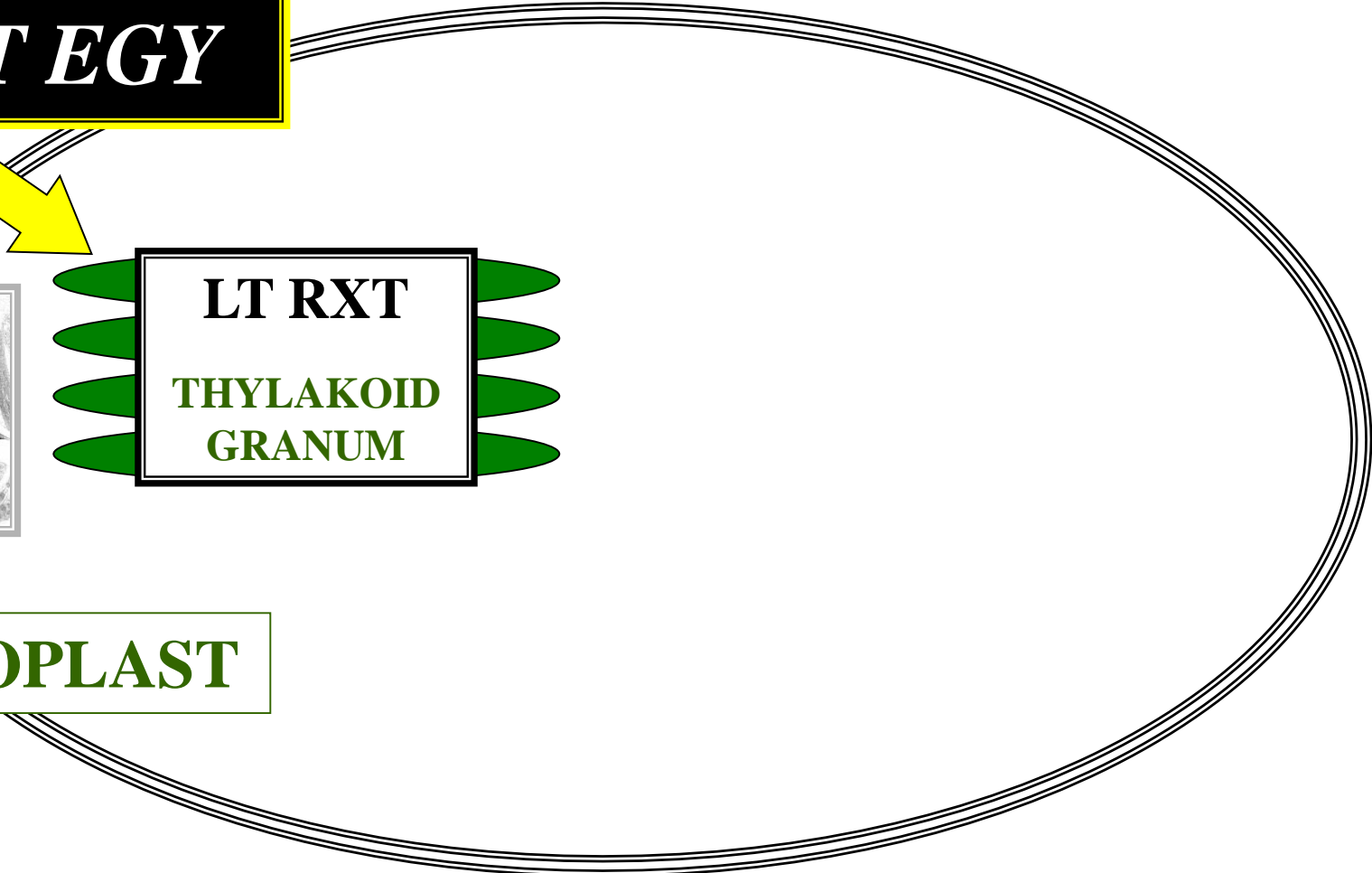


LIGHT ENERGY



**THYLAKOID
GRANUM**

CHLOROPLAST



PHOTOSYNTHESIS

P+



WATER

LIGHT ENERGY

E-

PHOTOLYSIS

LT RXT

THYLAKOID
GRANUM

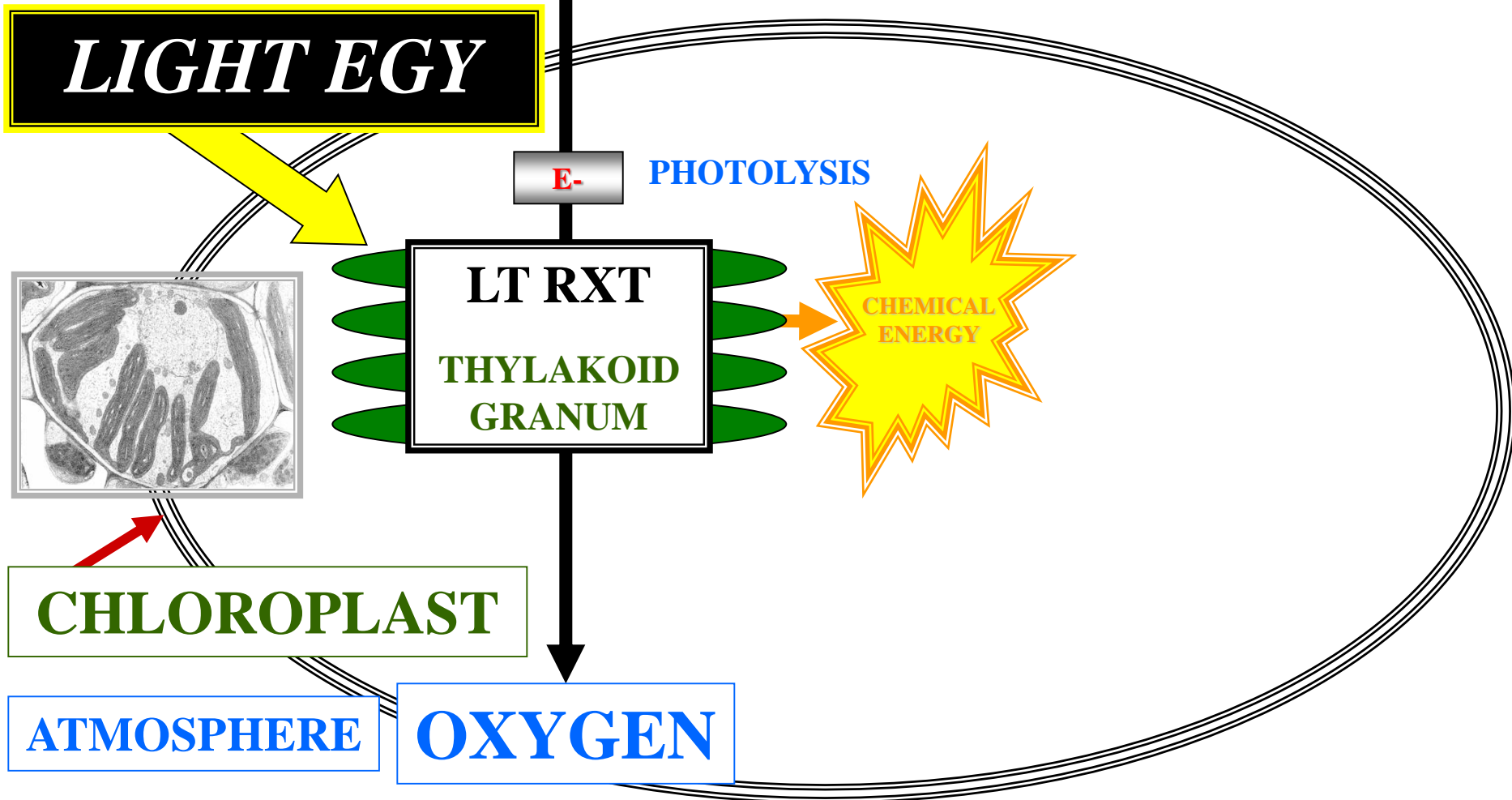
CHEMICAL
ENERGY



CHLOROPLAST

ATMOSPHERE

OXYGEN



PHOTOSYNTHESIS

CI



WATER

LIGHT ENERGY

E-

PHOTOLYSIS

LT RXT

THYLAKOID
GRANUM

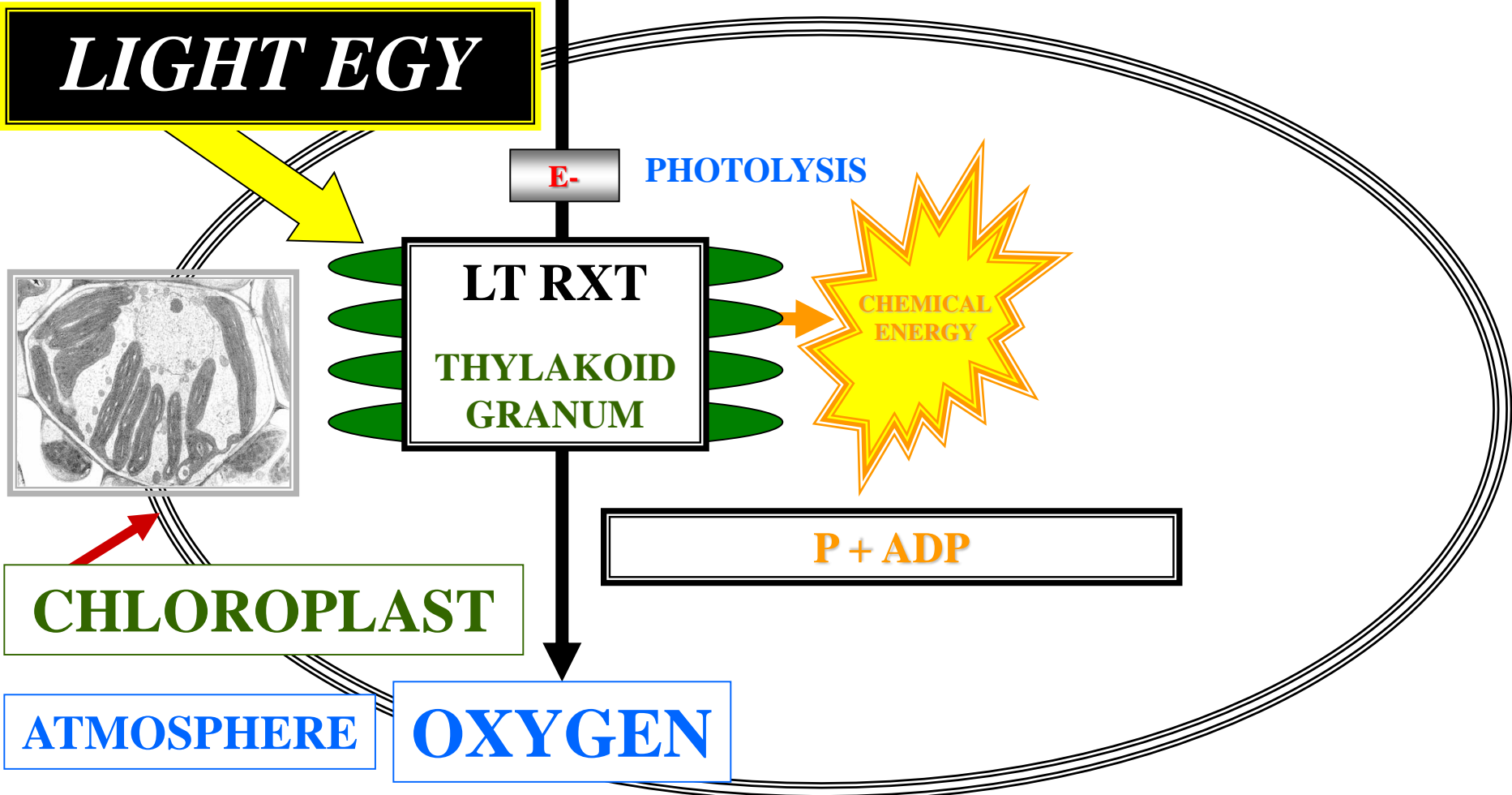
CHEMICAL
ENERGY

P + ADP

CHLOROPLAST

ATMOSPHERE

OXYGEN



PHOTOSYNTHESIS

AT



WATER

LIGHT ENERGY

E-

PHOTOLYSIS

LT RXT

THYLAKOID
GRANUM

CHEMICAL
ENERGY

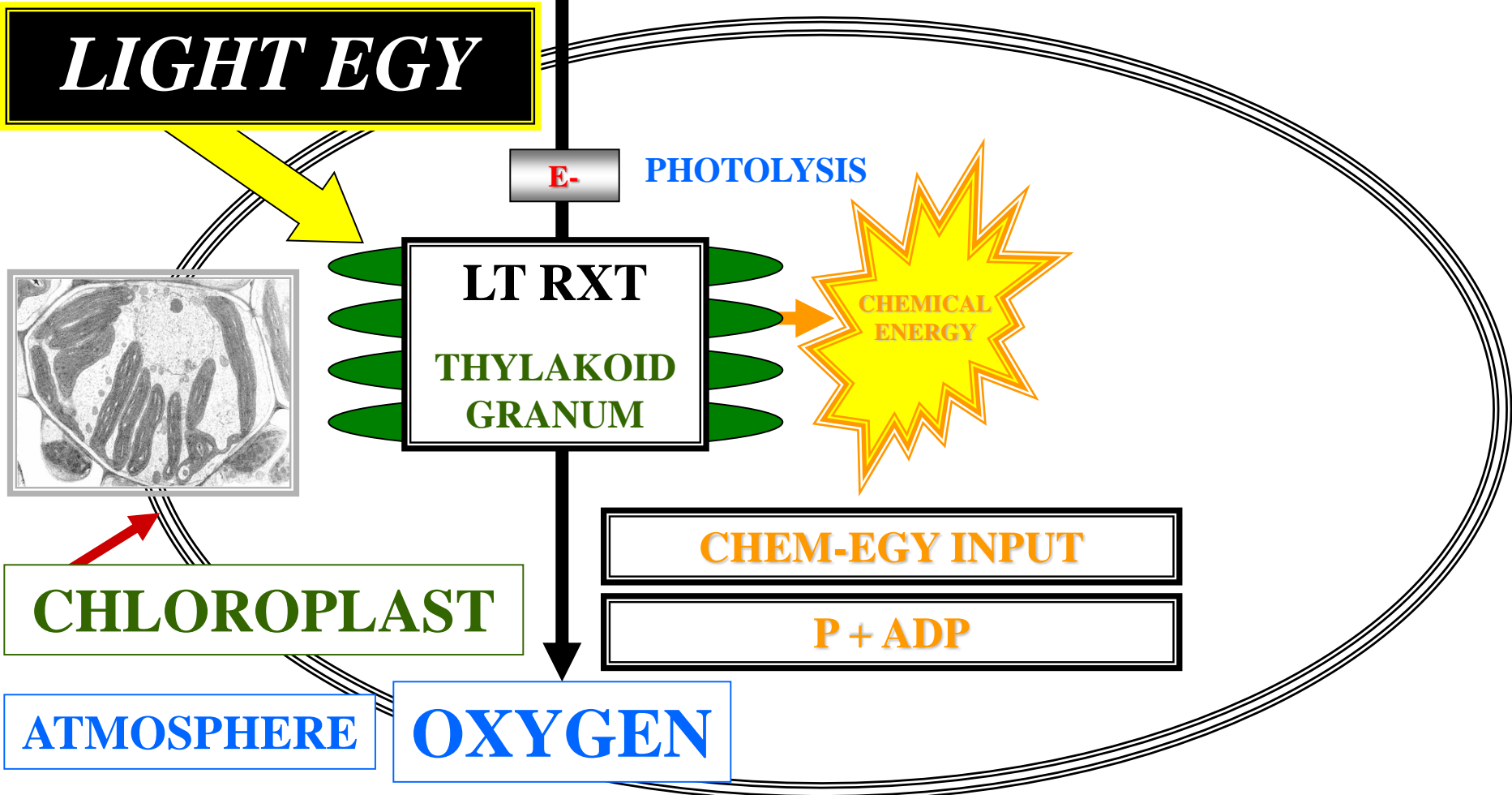
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P + ADP

CHLOROPLAST

ATMOSPHERE

OXYGEN



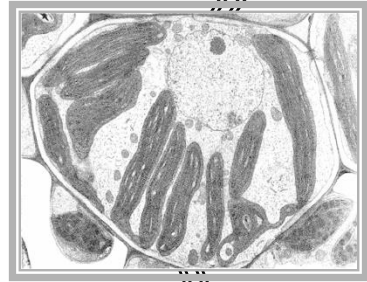
PHOTOSYNTHESIS

P



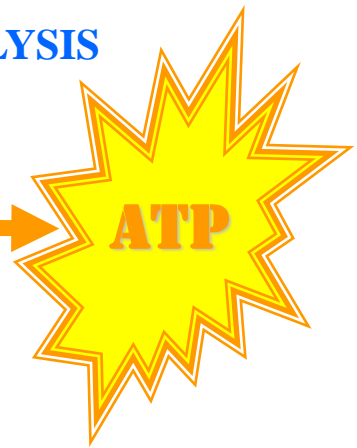
WATER

LIGHT ENERGY



E- PHOTOLYSIS

LT RXT
THYLAKOID
GRANUM



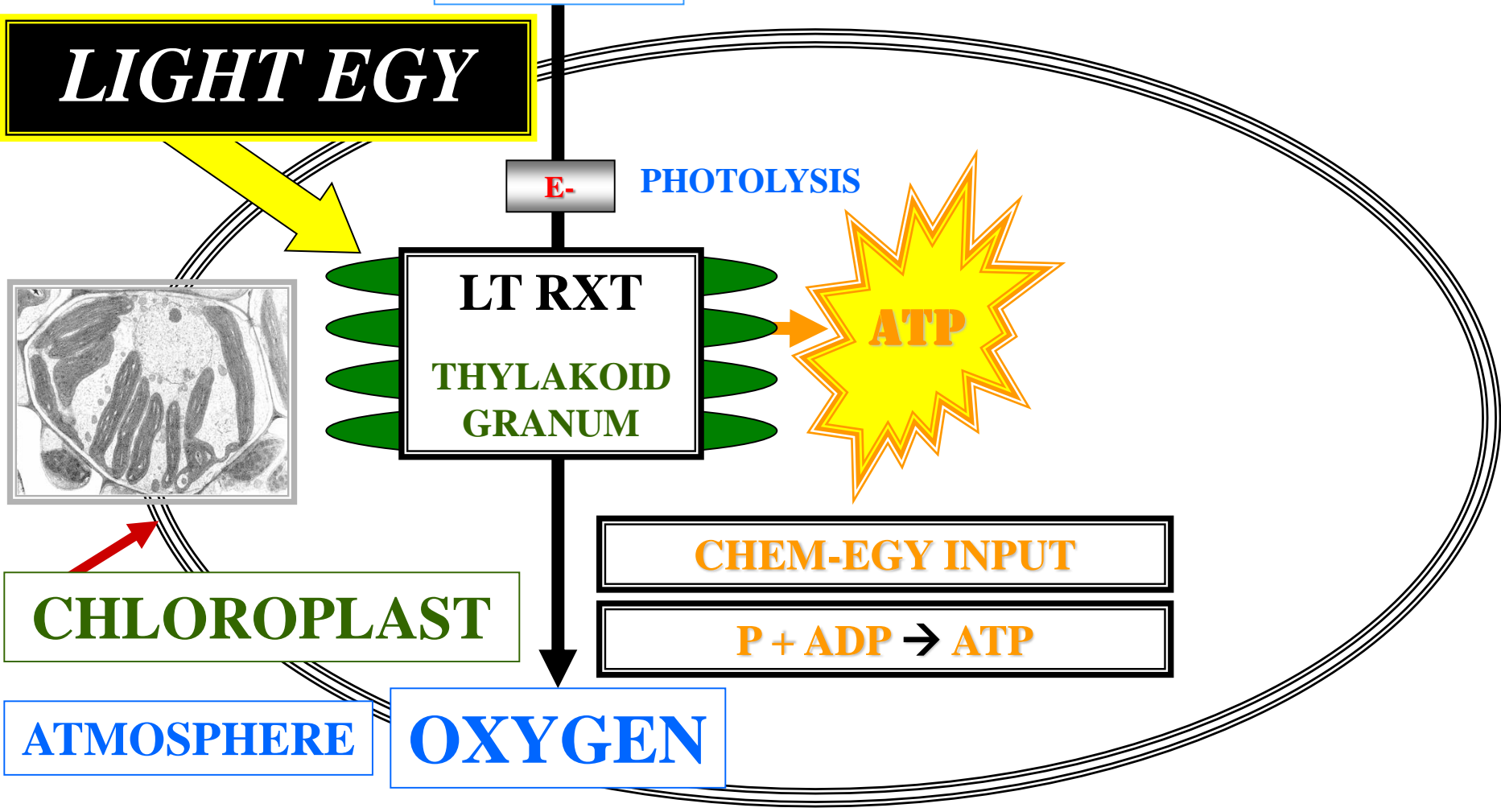
CHEM-ENERGY INPUT

$P + ADP \rightarrow ATP$

CHLOROPLAST

ATMOSPHERE

OXYGEN



PHOTOSYNTHESIS

DR



WATER

LIGHT ENERGY

E-

PHOTOLYSIS

LT RXT

THYLAKOID
GRANUM

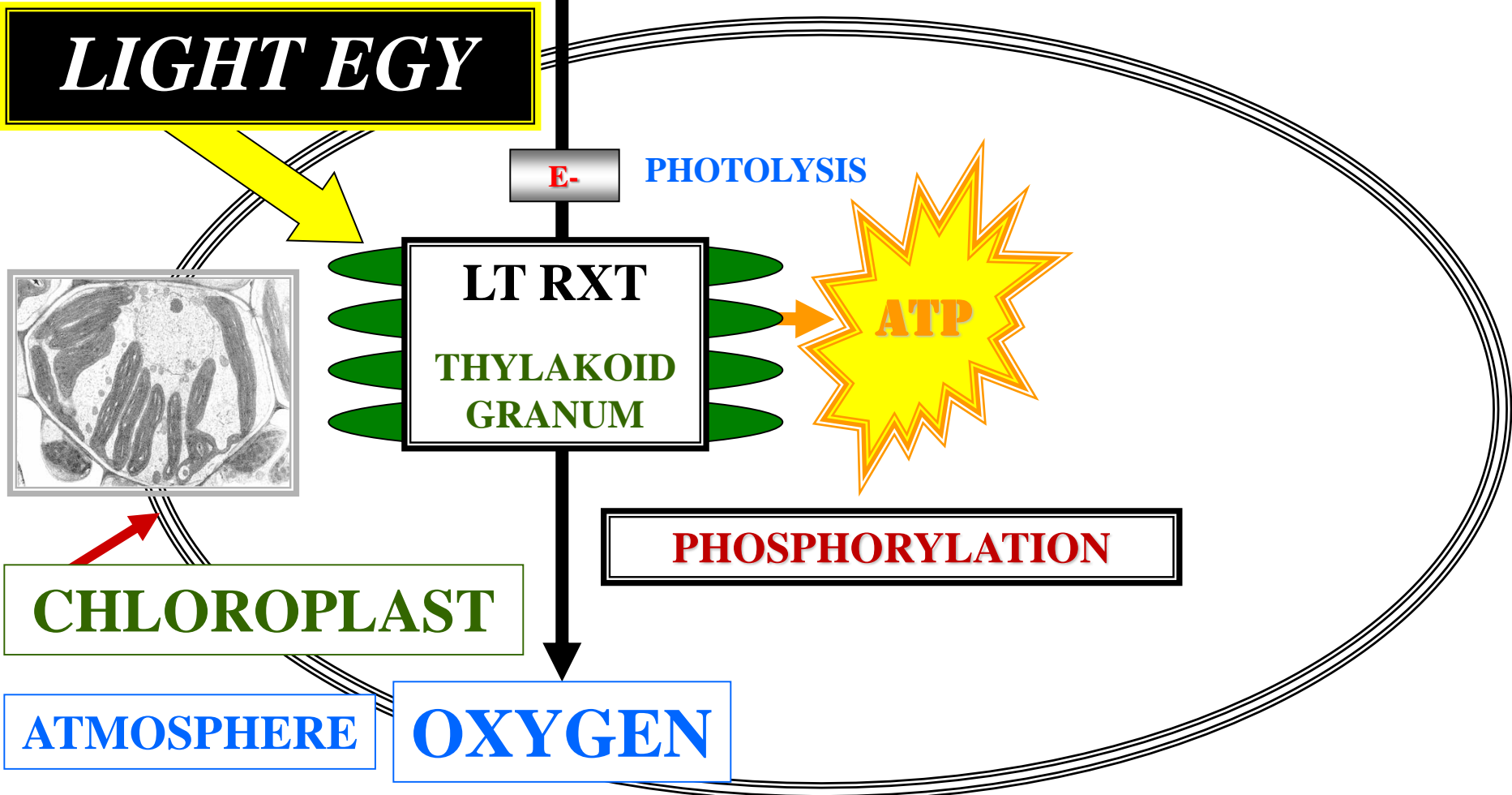
ATP

PHOSPHORYLATION

CHLOROPLAST

ATMOSPHERE

OXYGEN



PHOTOSYNTHESIS

C



WATER

LIGHT ENERGY

E-

PHOTOLYSIS

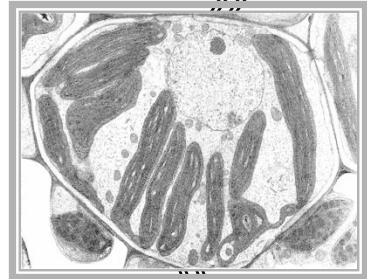
LT RXT

THYLAKOID
GRANUM

DK RXT

STROMA

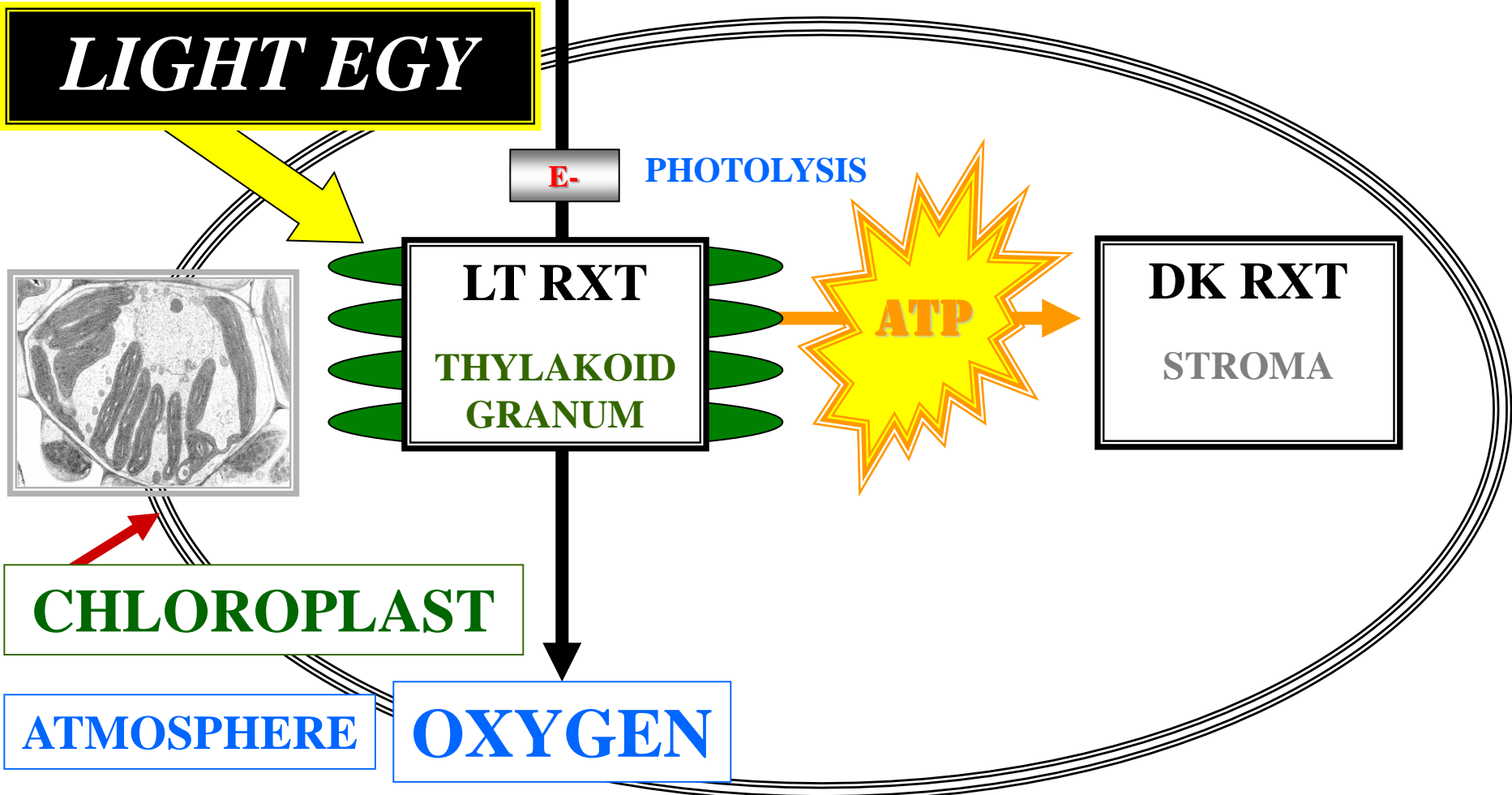
ATP



CHLOROPLAST

ATMOSPHERE

OXYGEN



PHOTOSYNTHESIS

G



WATER

CO₂

LIGHT ENERGY

ATMOSPHERE

E-

PHOTOLYSIS



LT RXT

THYLAKOID
GRANUM

CHEMICAL
ENERGY

DK RXT

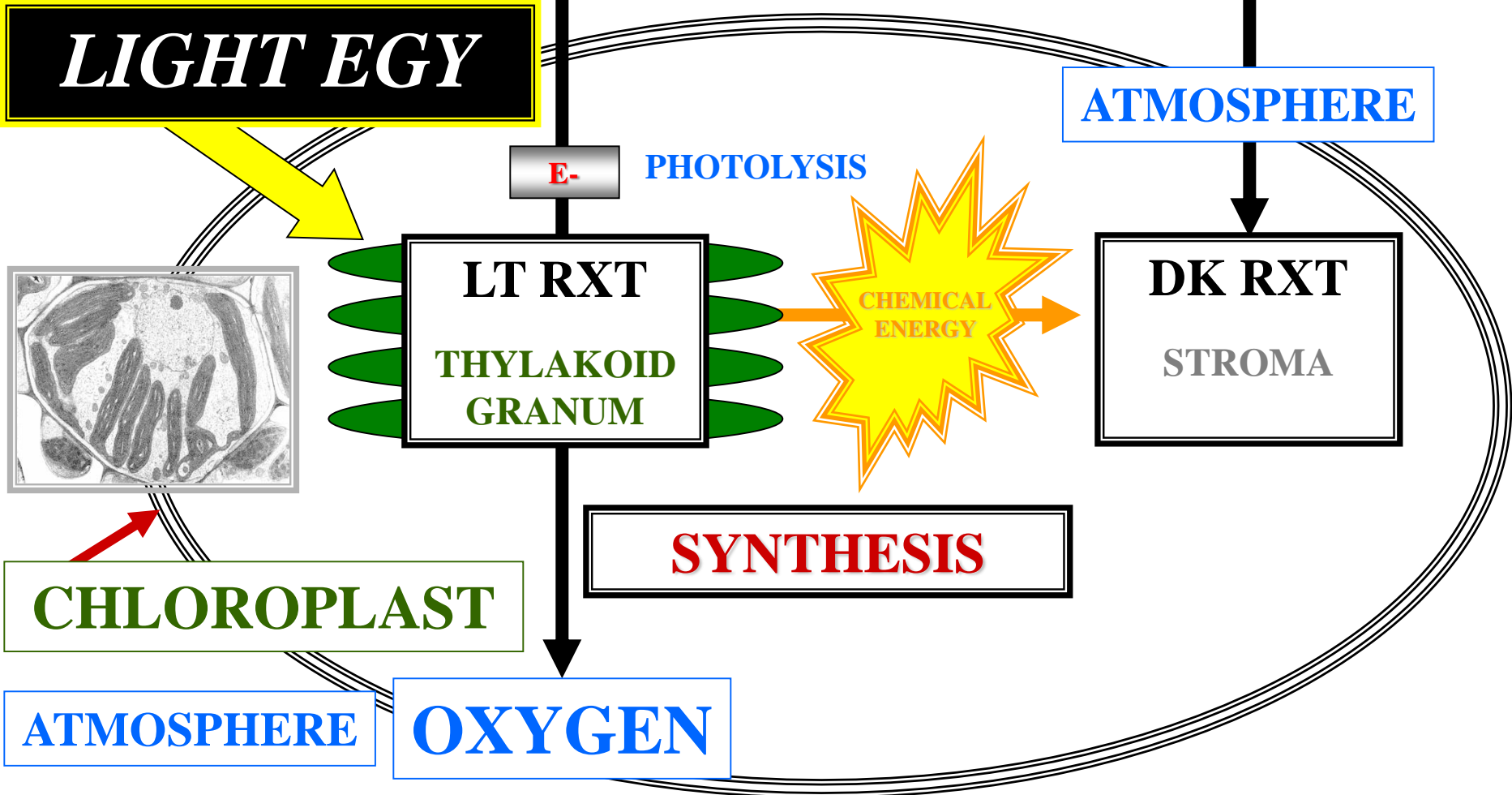
STROMA

CHLOROPLAST

SYNTHESIS

ATMOSPHERE

OXYGEN

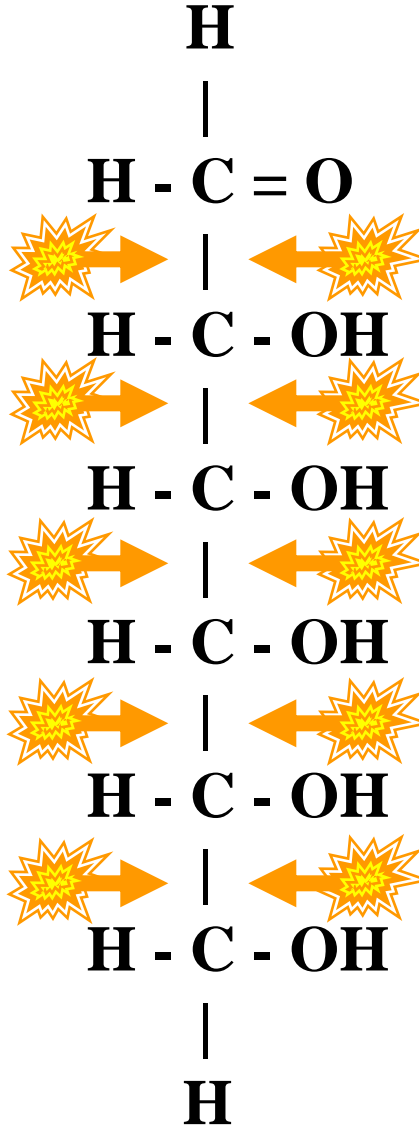


GLUCOSE

ENTERS
METABOLISM

CHEMICAL
ENERGY

ENTERS
METABOLISM



ENTERS
METABOLISM

CHEMICAL
ENERGY

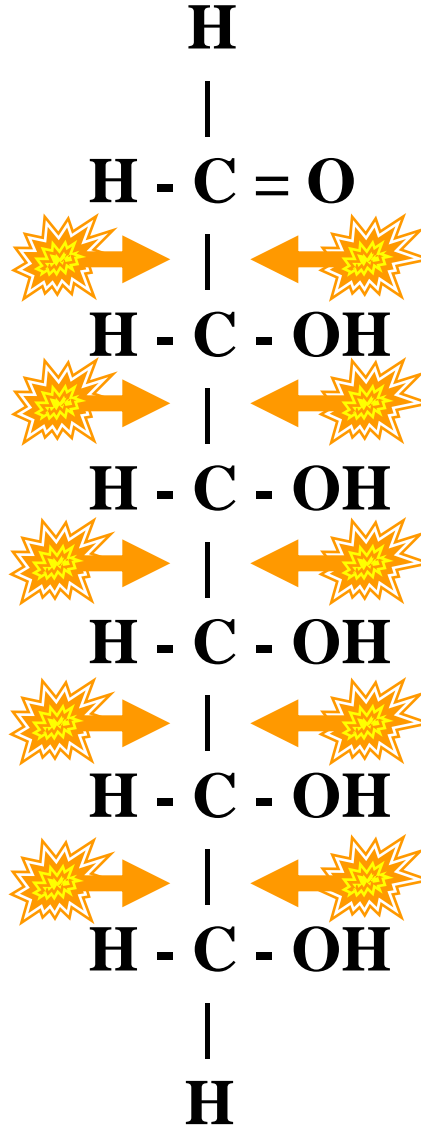
ENTERS
METABOLISM

GLUCOSE

CELL
RESPIRATION

CHEMICAL
ENERGY

CELL
RESPIRATION



CELL
RESPIRATION

CHEMICAL
ENERGY

CELL
RESPIRATION

PHOSPHORYLATION QUESTIONS



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**ATP
PHOSPHORYLATION
OCCURS DURING
RESPIRATION**

PHOSPHORYLATION QUESTIONS



2ND QUESTION

PHOSPHORYLATION QUESTIONS

QUESTION

WHERE WITHIN THE
CELL DOES ATP
RESPIRATION
PHOSPHORYLATION
OCCUR?

QUESTION

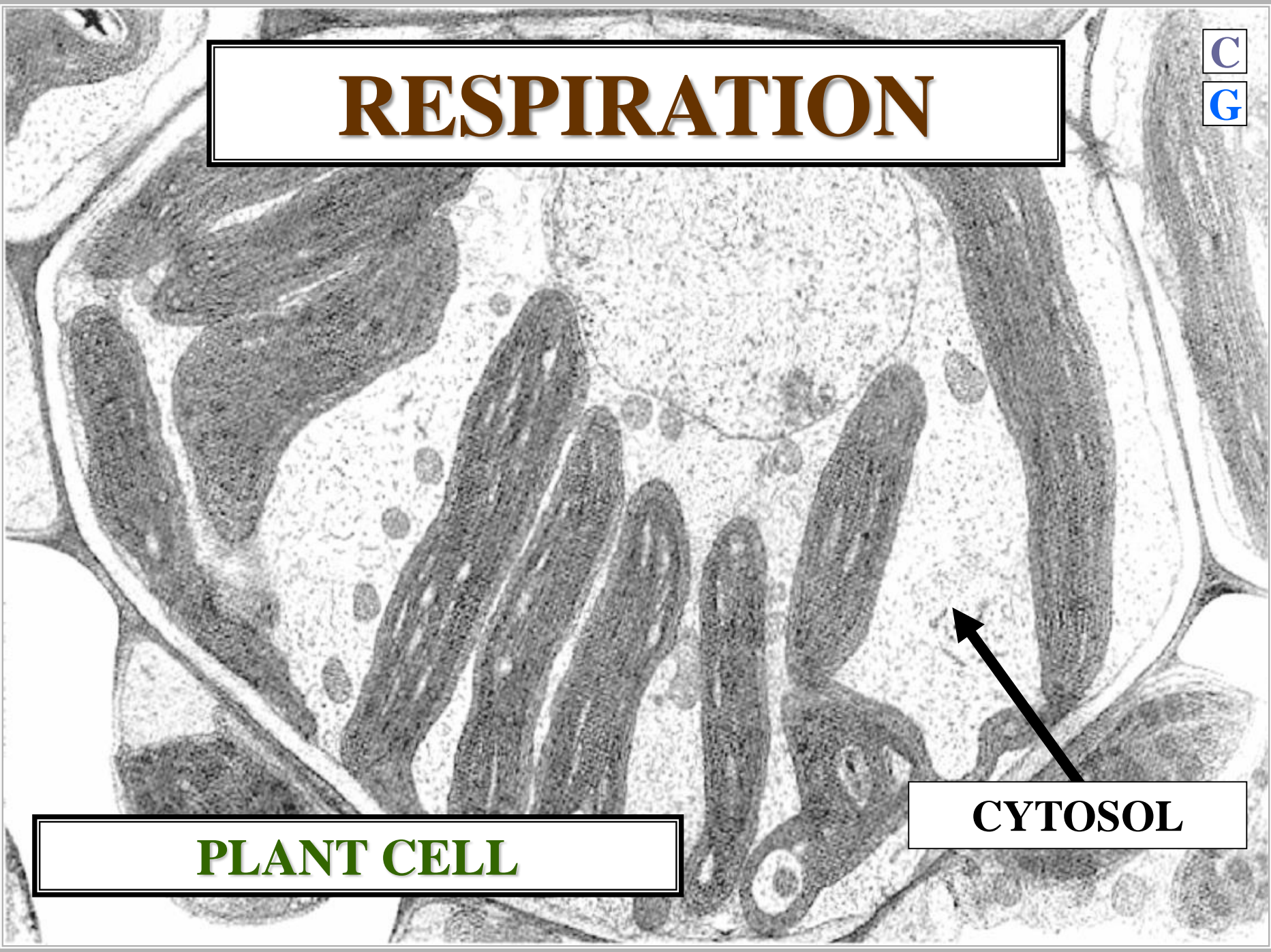


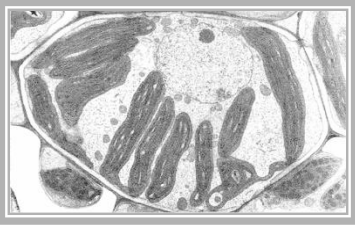
RESPIRATION

C
G

PLANT CELL

CYTOSOL

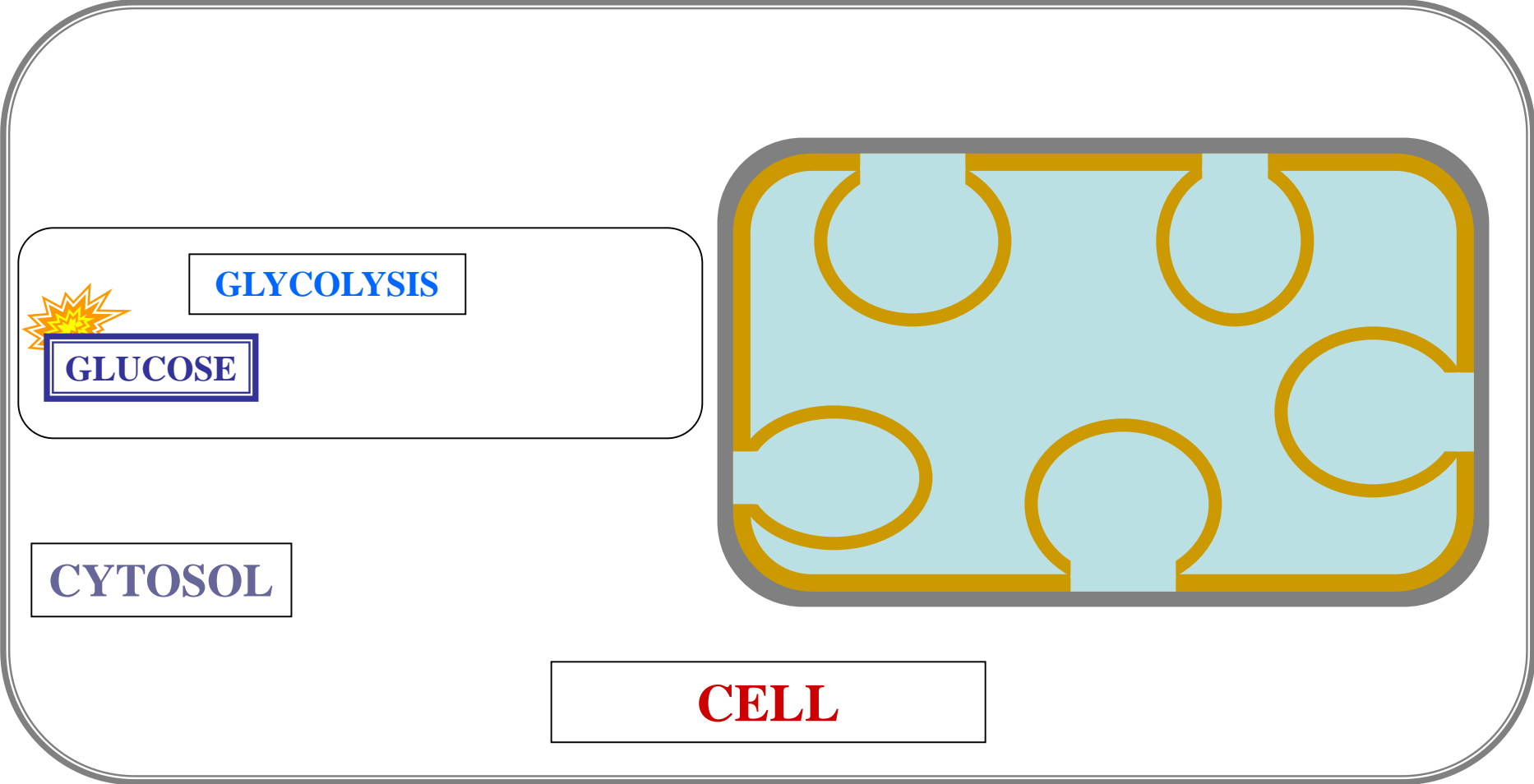




RESPIRATION



CR

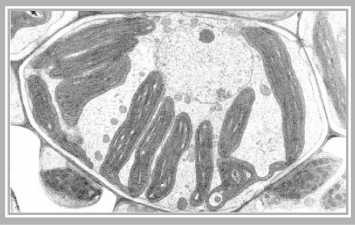


GLYCOLYSIS

GLUCOSE

CYTOSOL

CELL



RESPIRATION



P+

2 NADH

GLYCOLYSIS

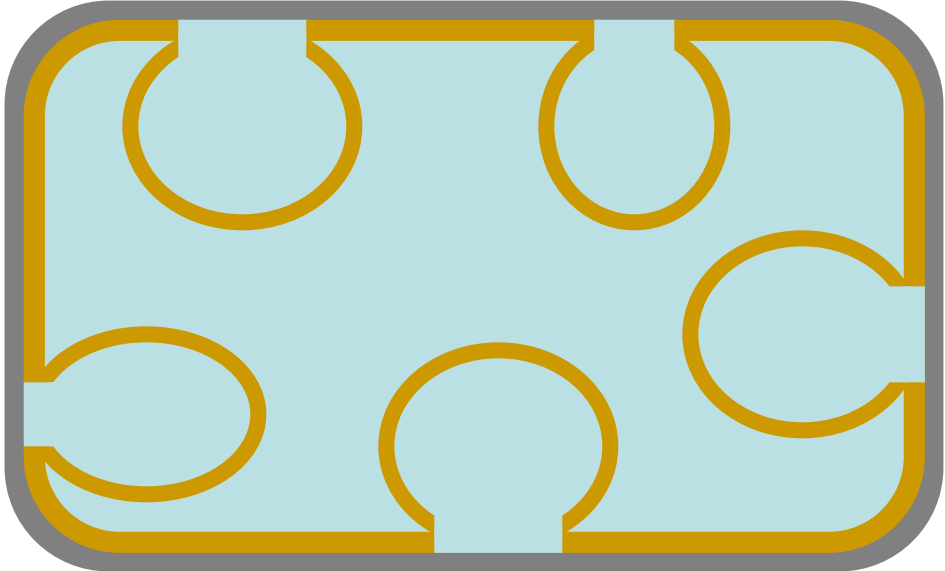
GLUCOSE

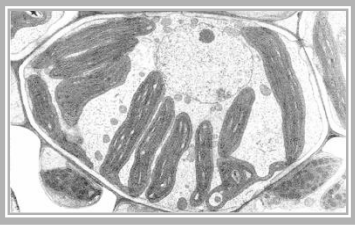
2 PYRUVATE

CYTOSOL

CHEM-EGY RELEASED

CELL





RESPIRATION



CI

2 NADH

GLYCOLYSIS

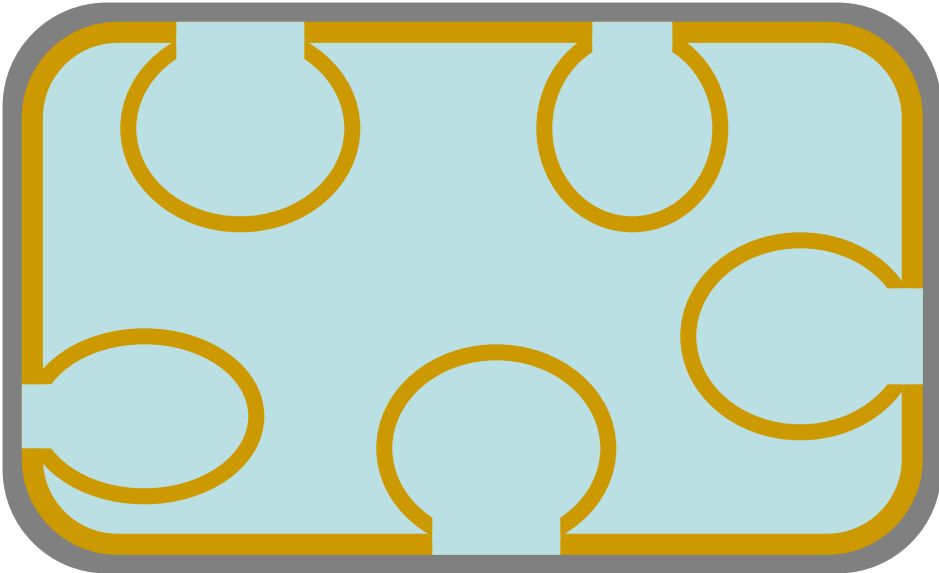
GLUCOSE

2 PYRUVATE

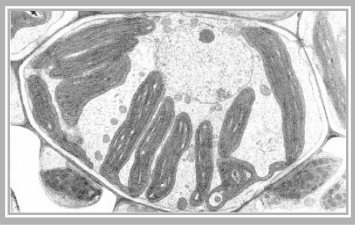
CYTOSOL

CHEM-EGY RELEASED

P + ADP



CELL



RESPIRATION



AT

2 NADH

GLYCOLYSIS

GLUCOSE

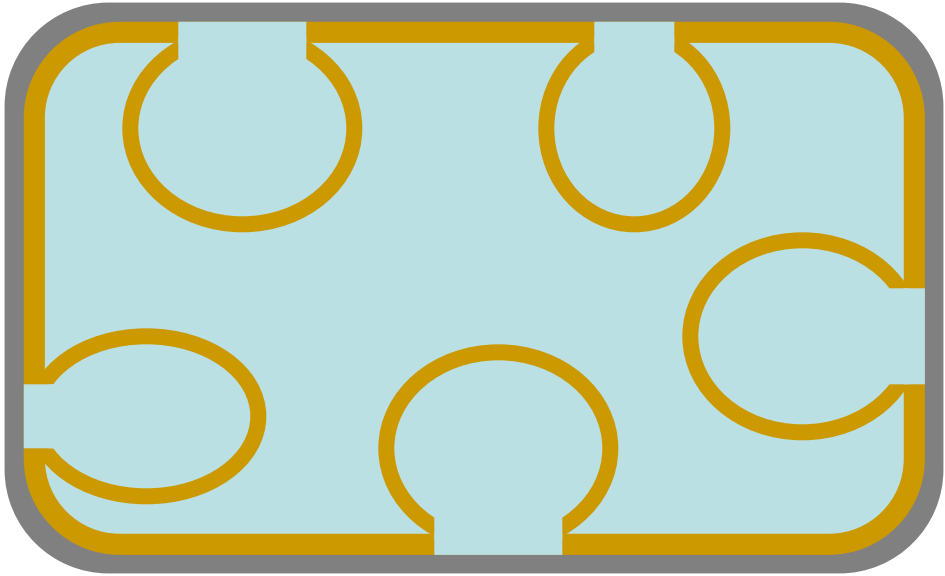
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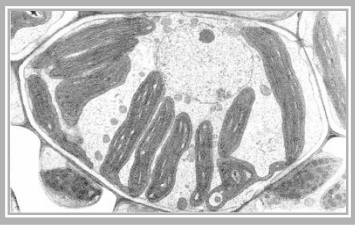
CYTOSOL

CHEM-EGY INPUT

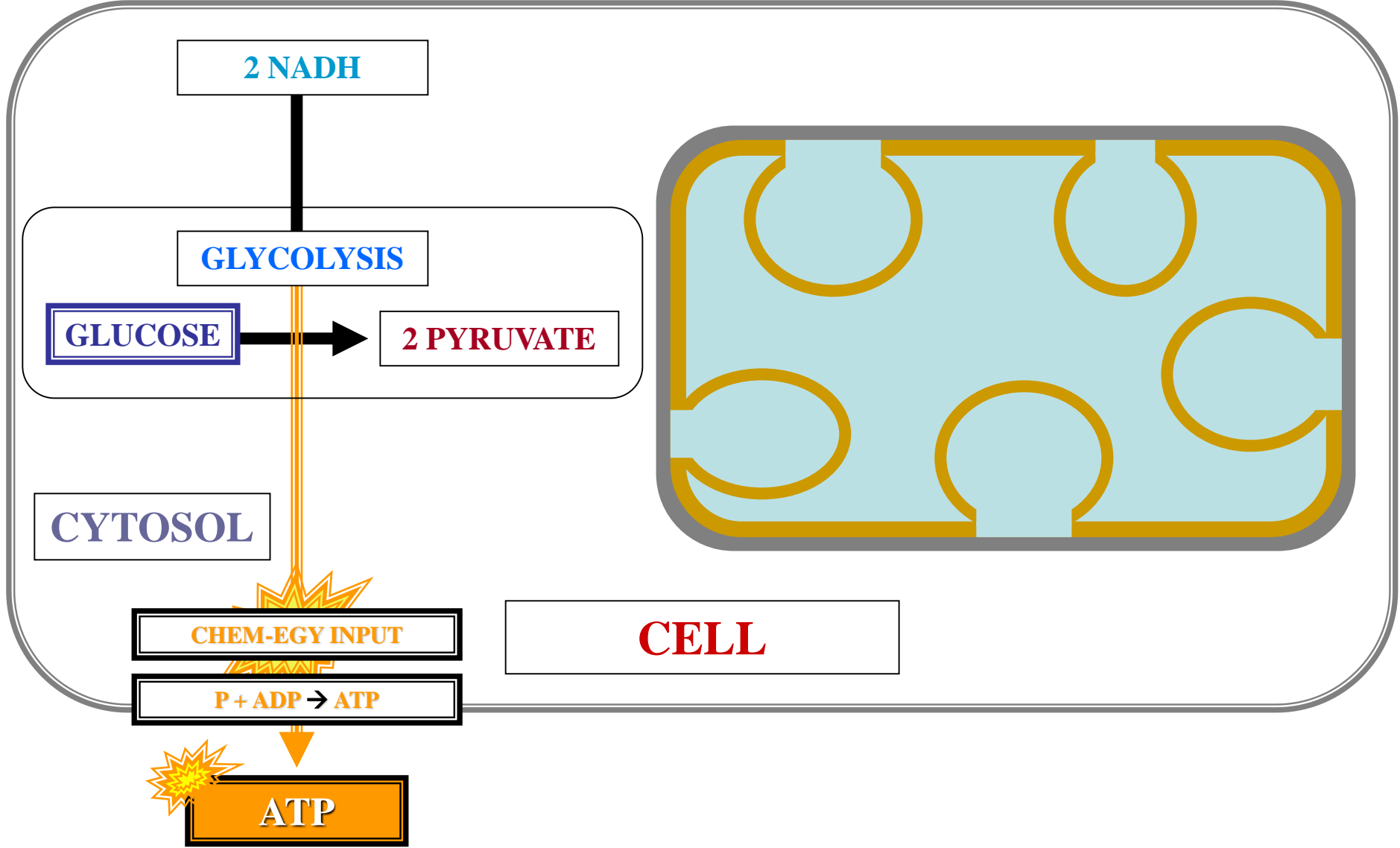
P + ADP

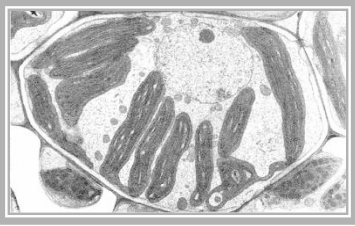
CELL



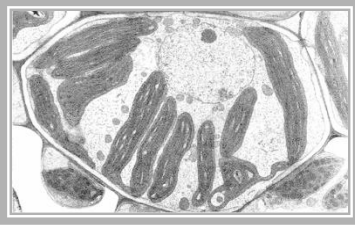


RESPIRATION





RESPIRATION



2 NADH

GLYCOLYSIS

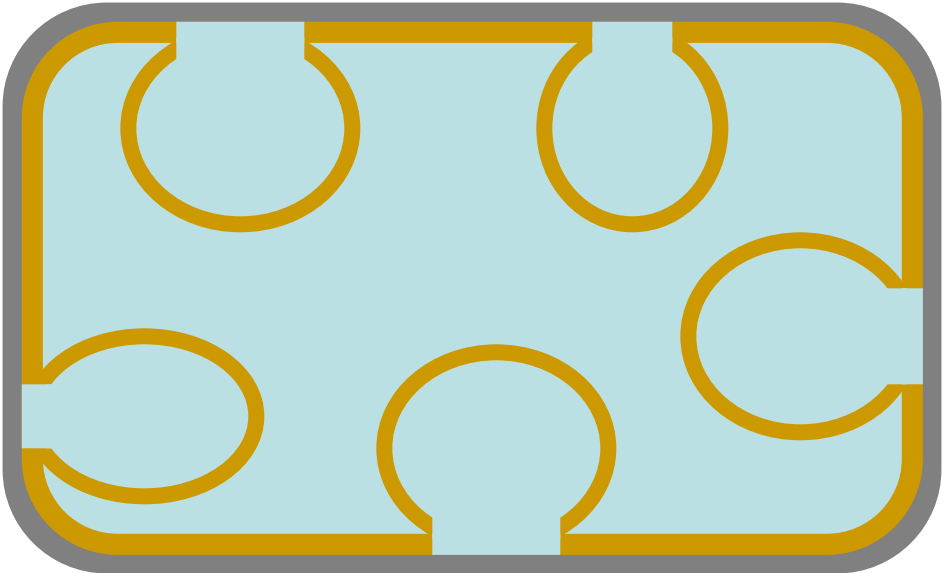
GLUCOSE

2 PYRUVATE

CYTOSOL

PHOSPHORYLATION

ATP



CELL

PHOSPHORYLATION QUESTIONS



2ND QUESTION

PHOSPHORYLATION QUESTIONS

QUESTION



WHERE WITHIN THE
CELL DOES ATP
RESPIRATION
PHOSPHORYLATION
OCCUR?

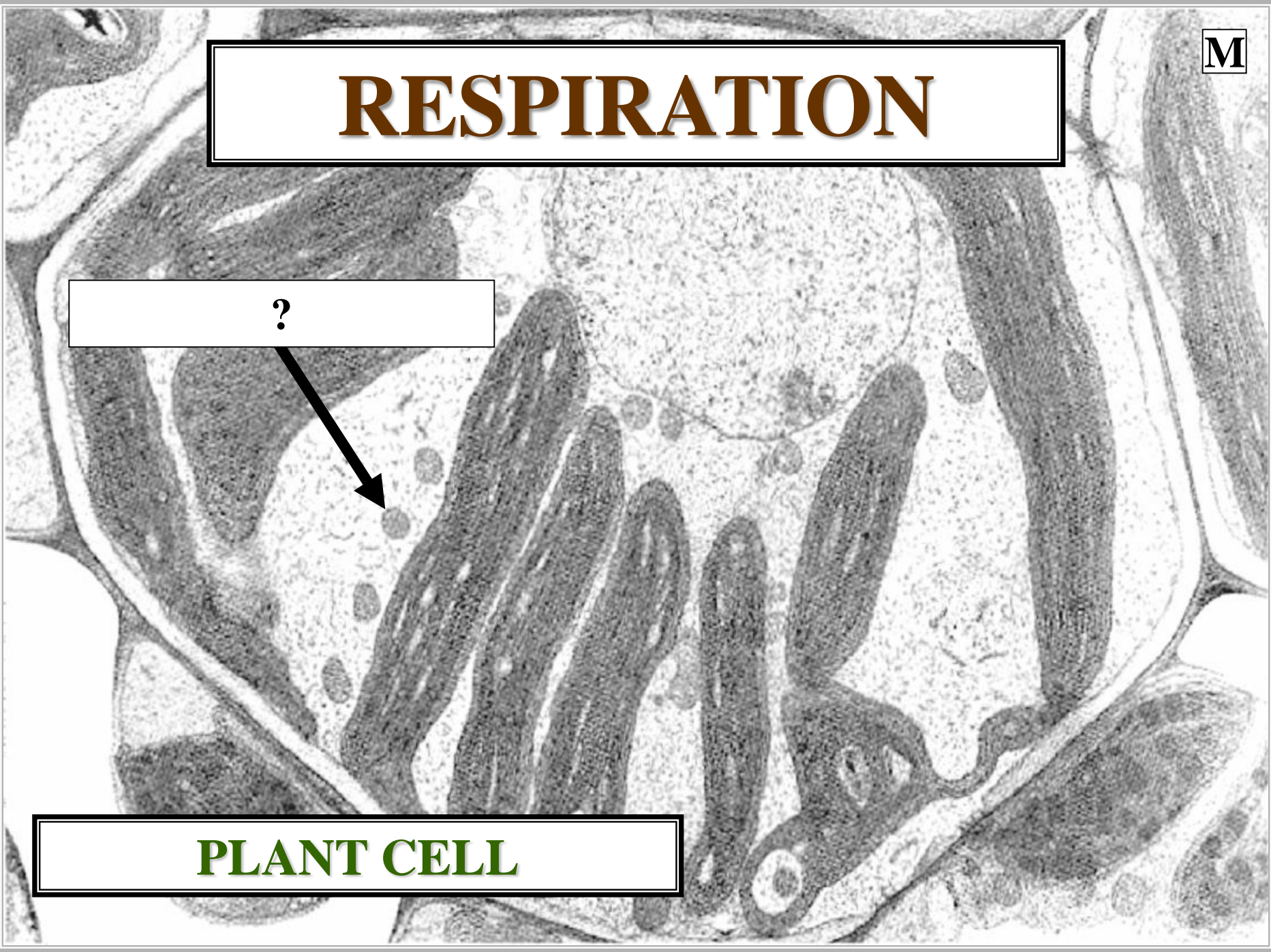
QUESTION

RESPIRATION

?



PLANT CELL

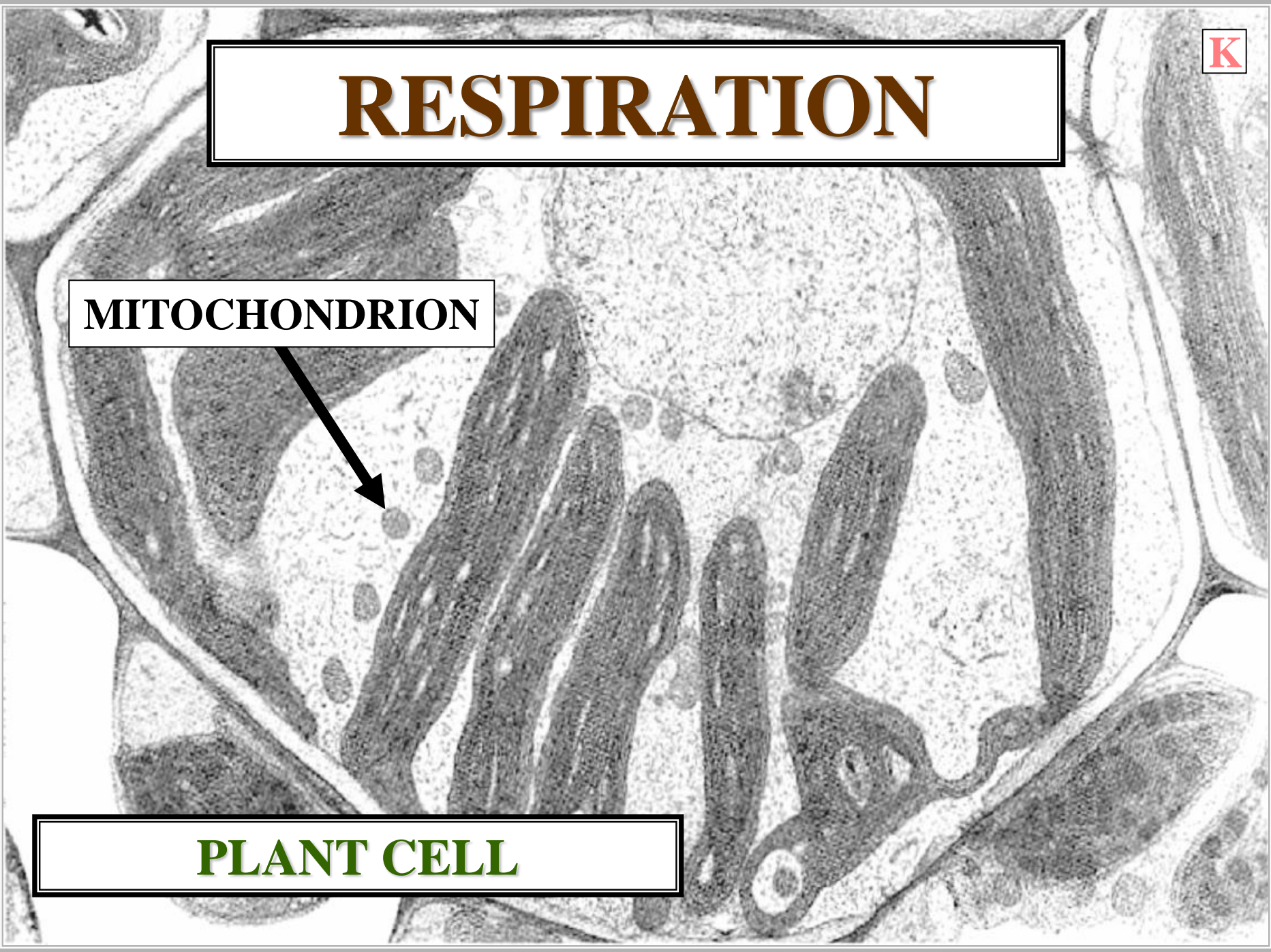


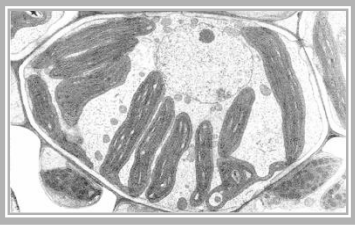
RESPIRATION

MITOCHONDRION



PLANT CELL

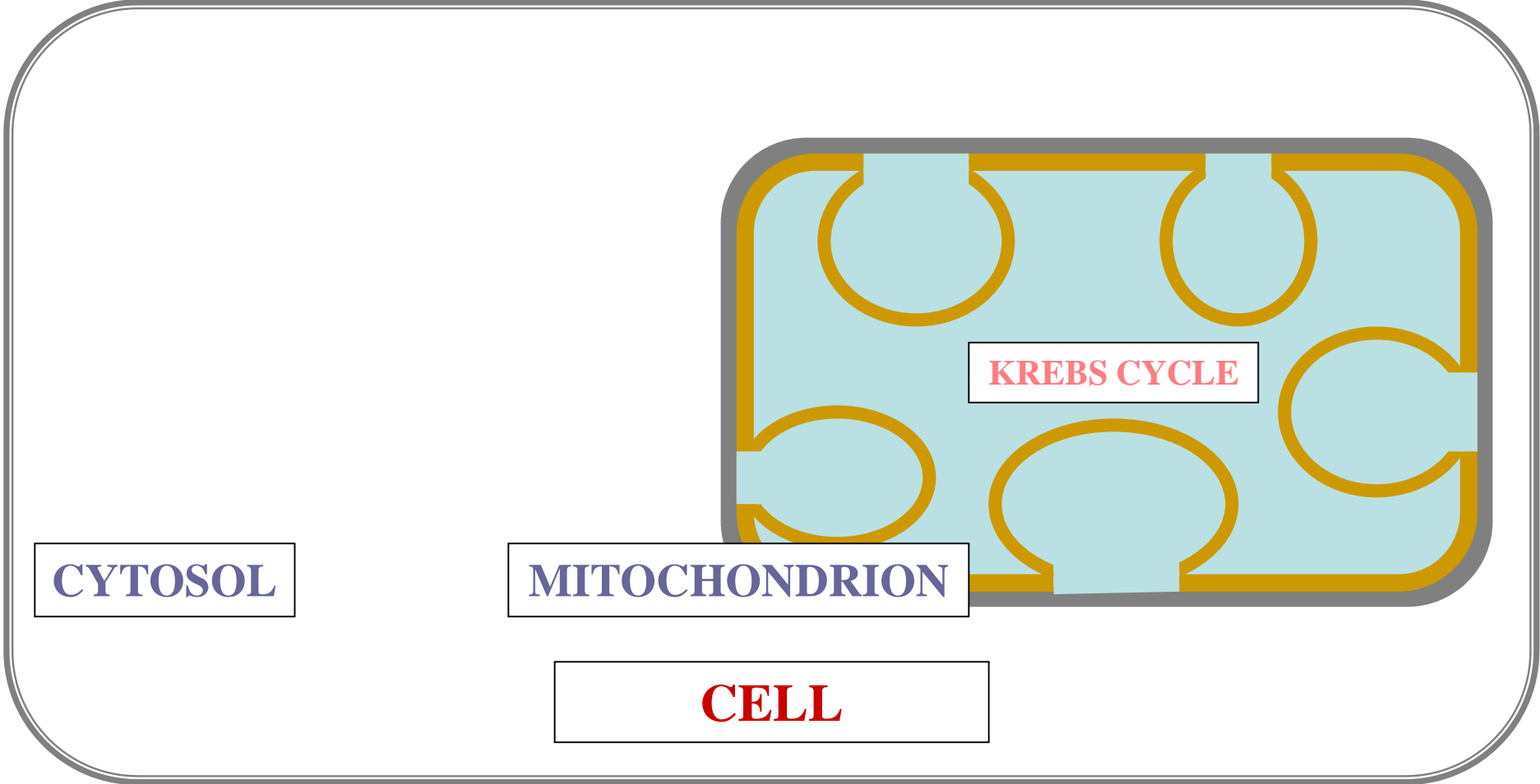


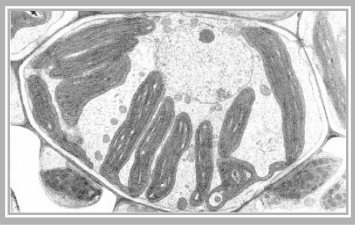


RESPIRATION



CR

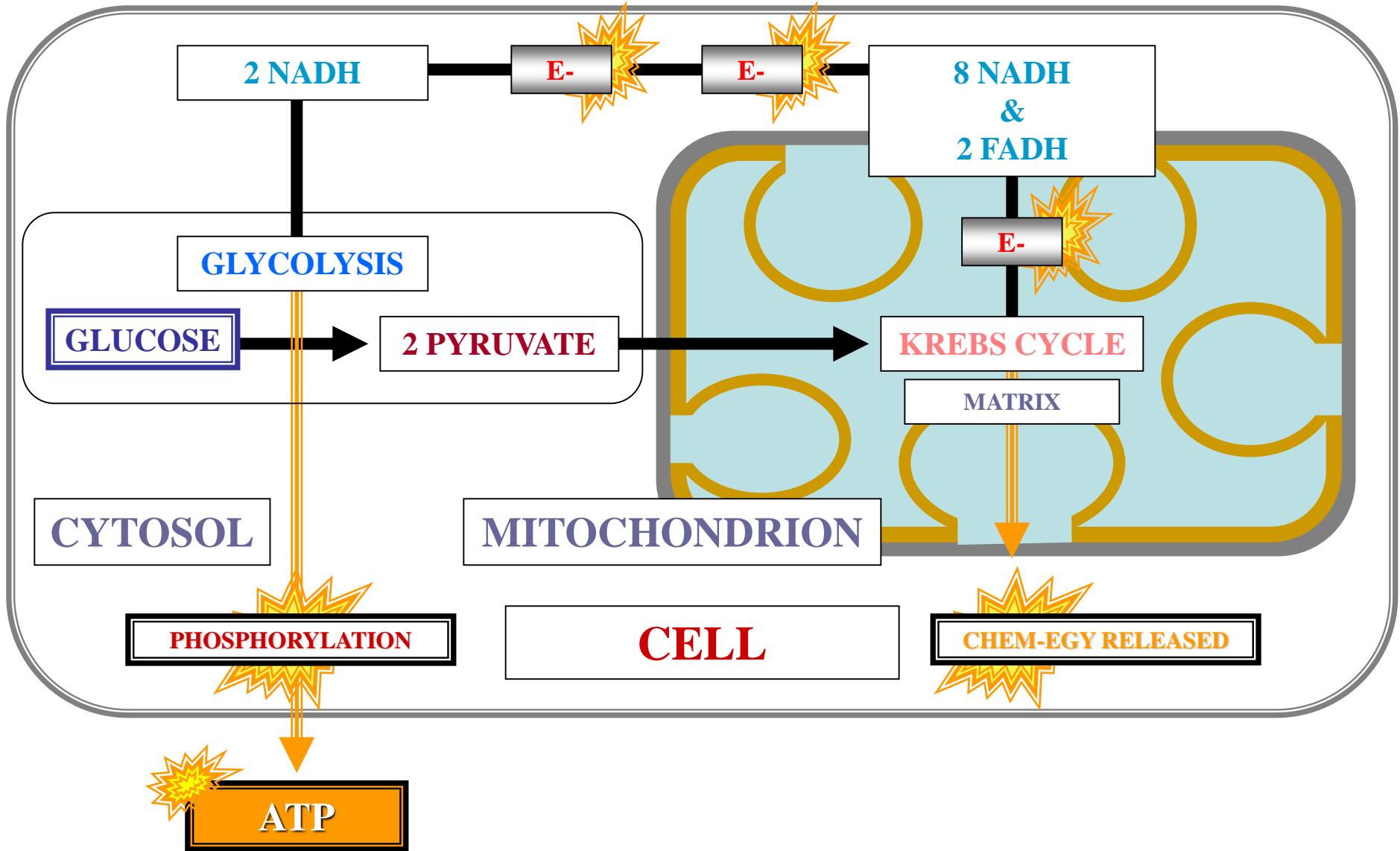


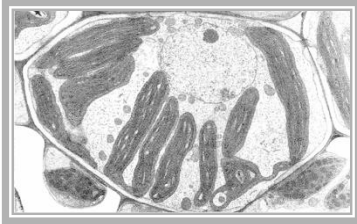


RESPIRATION

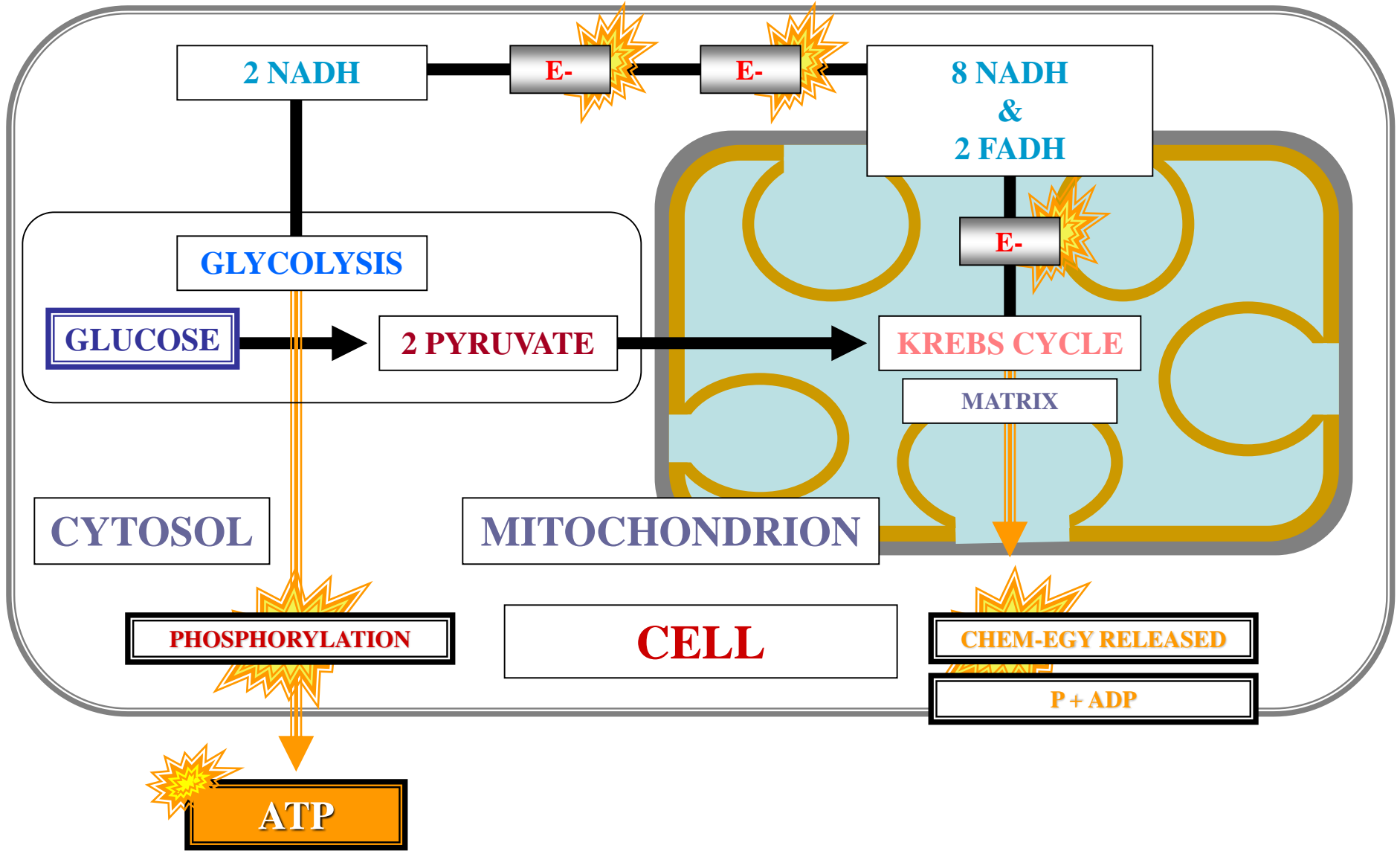
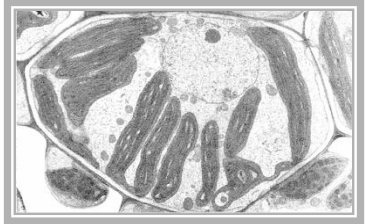


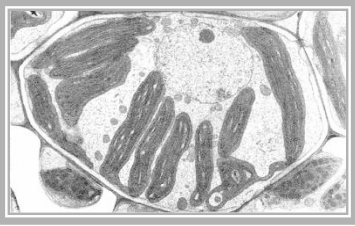
P+





RESPIRATION

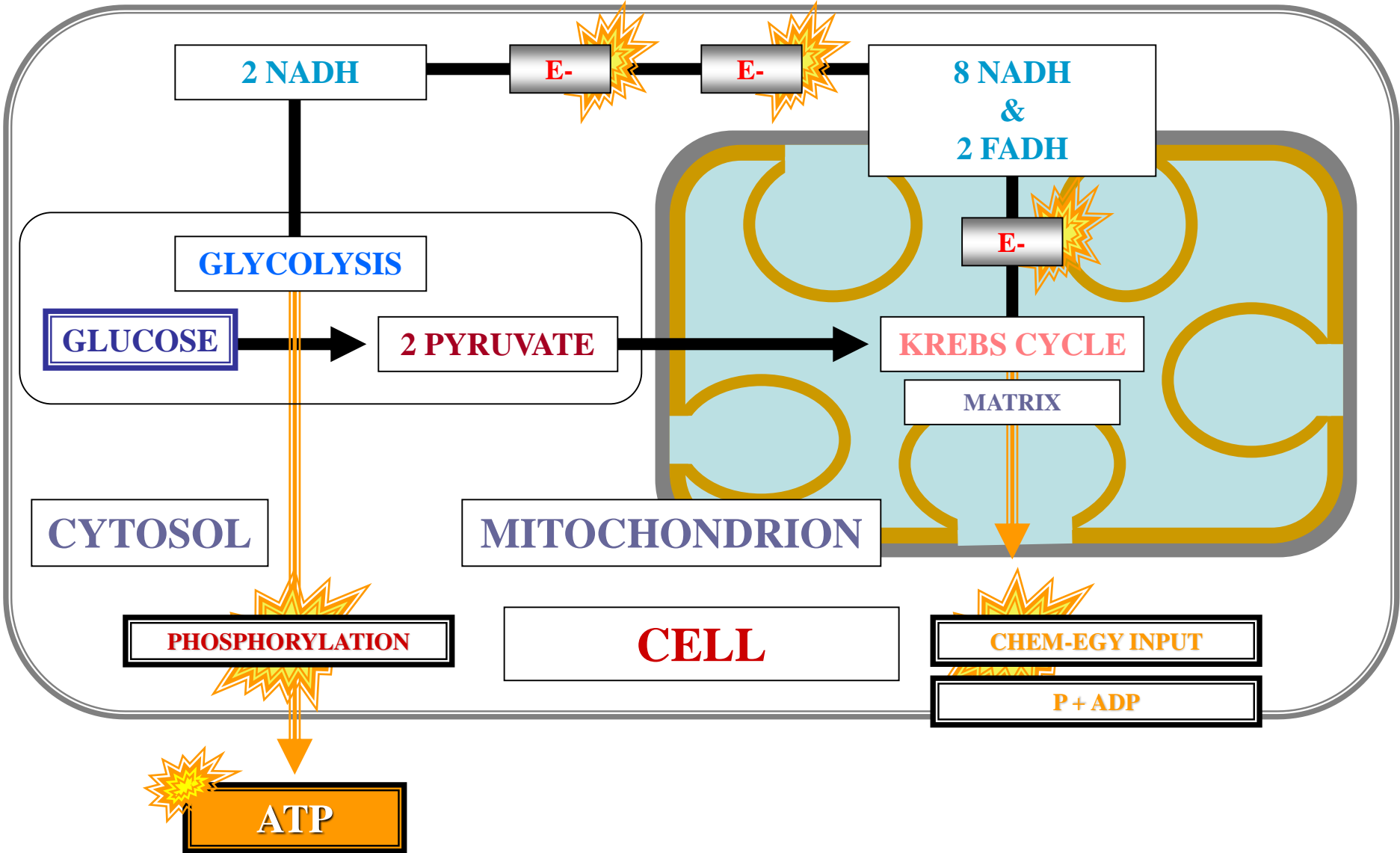


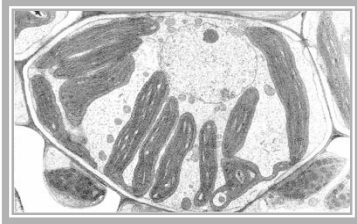


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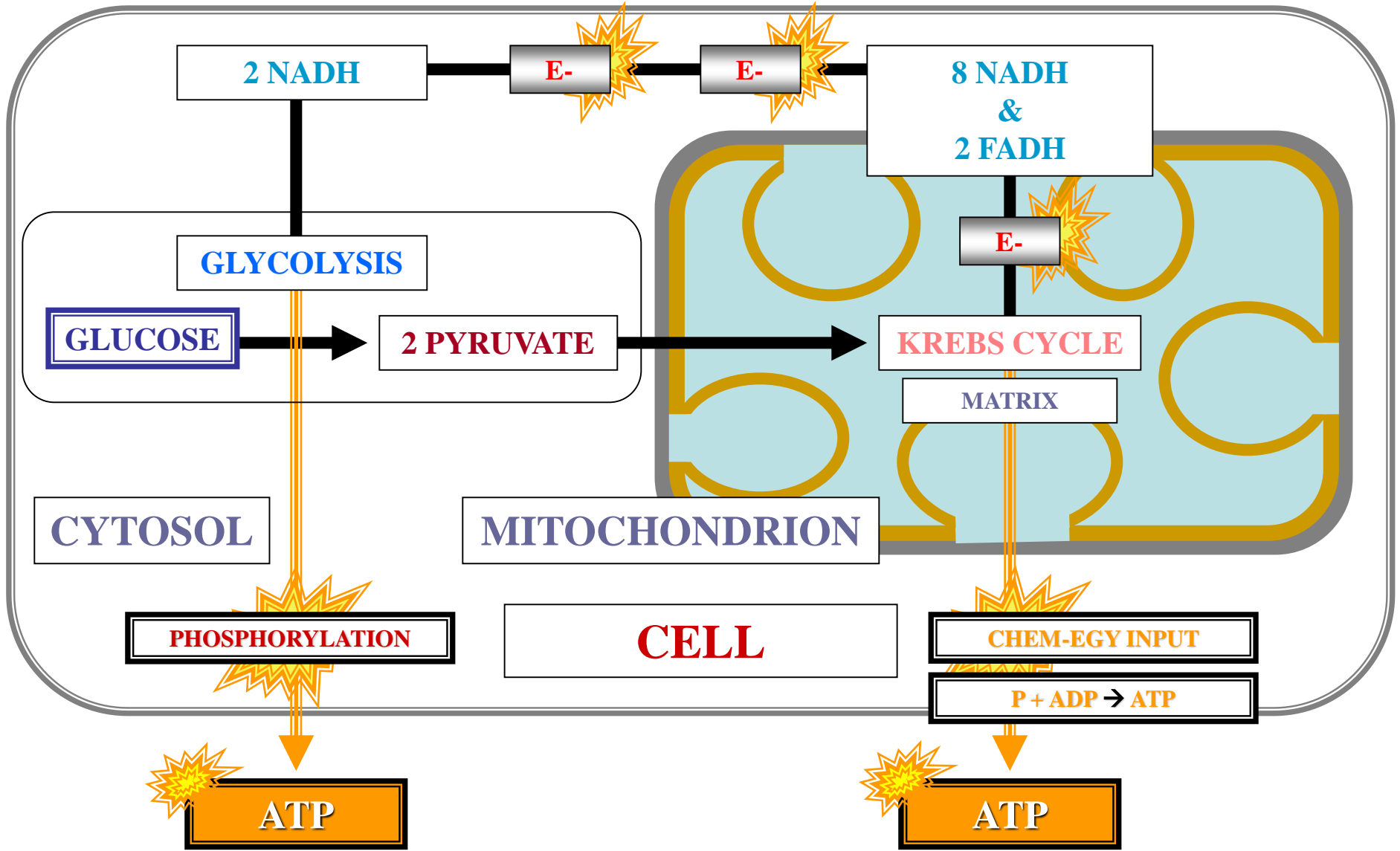
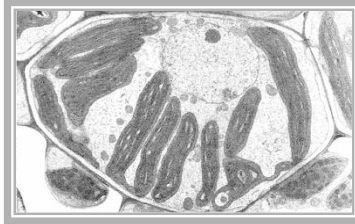


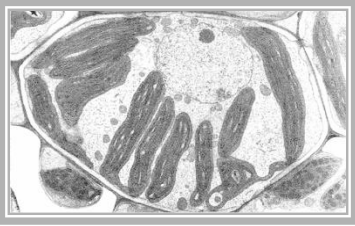
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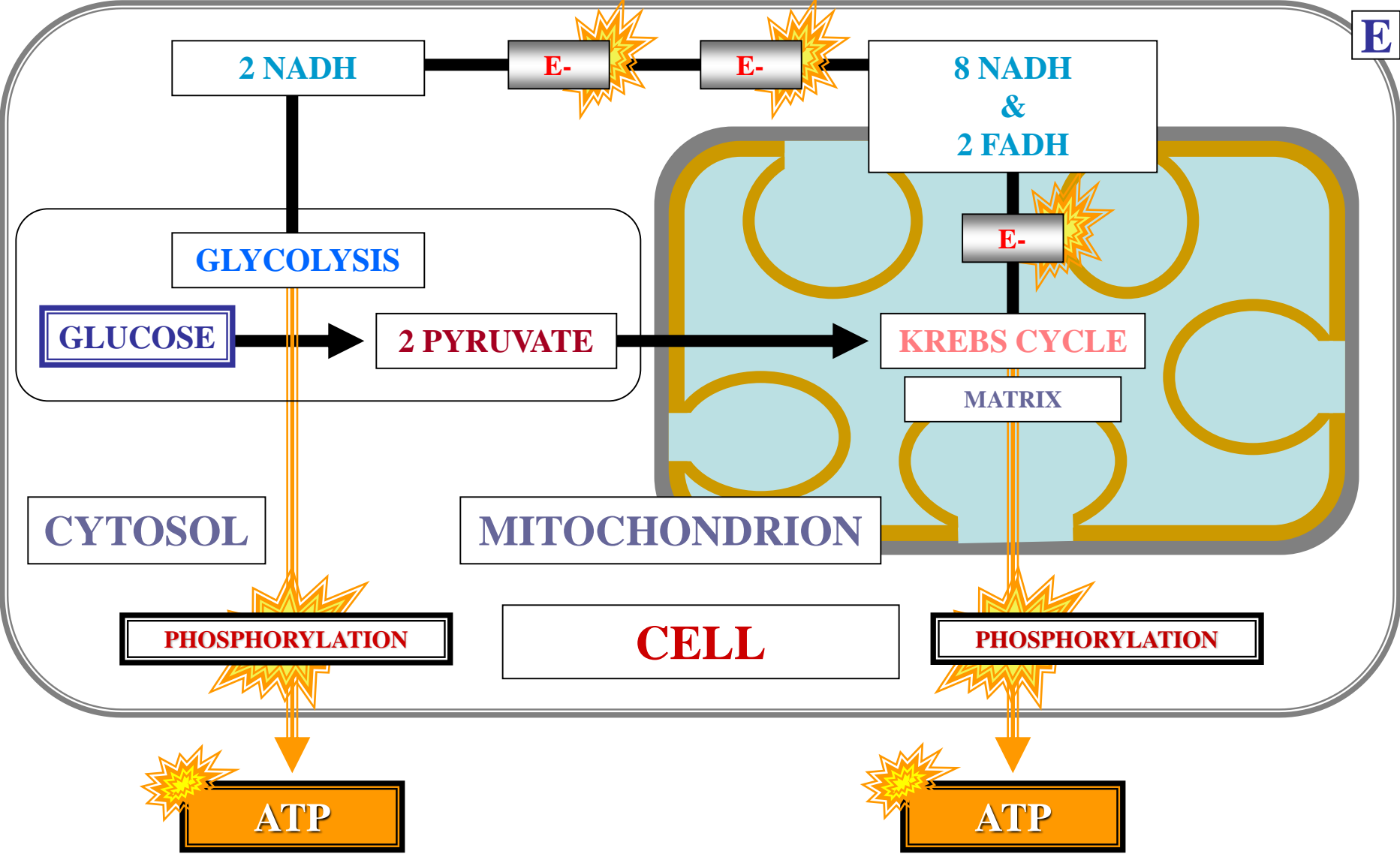
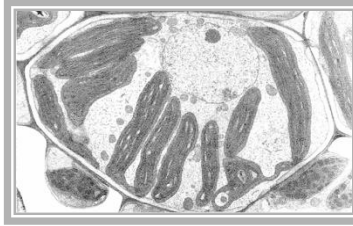


RESPIRATION





RESPIRATION

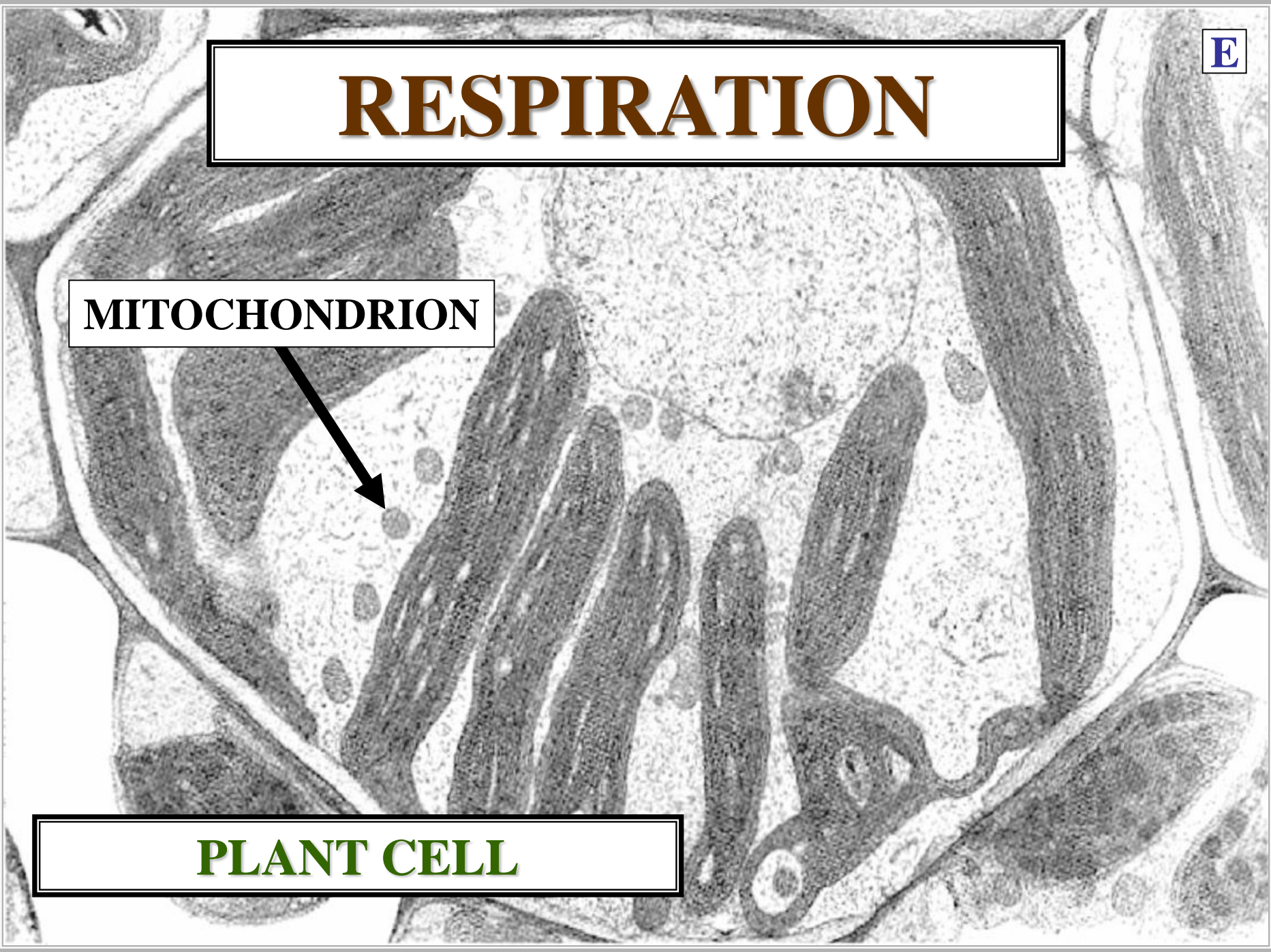


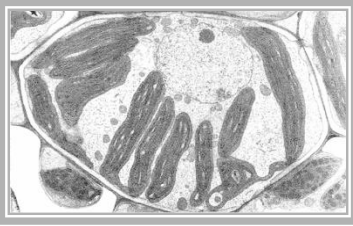
RESPIRATION

MITOCHONDRION

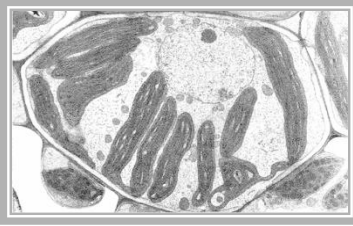


PLANT CELL

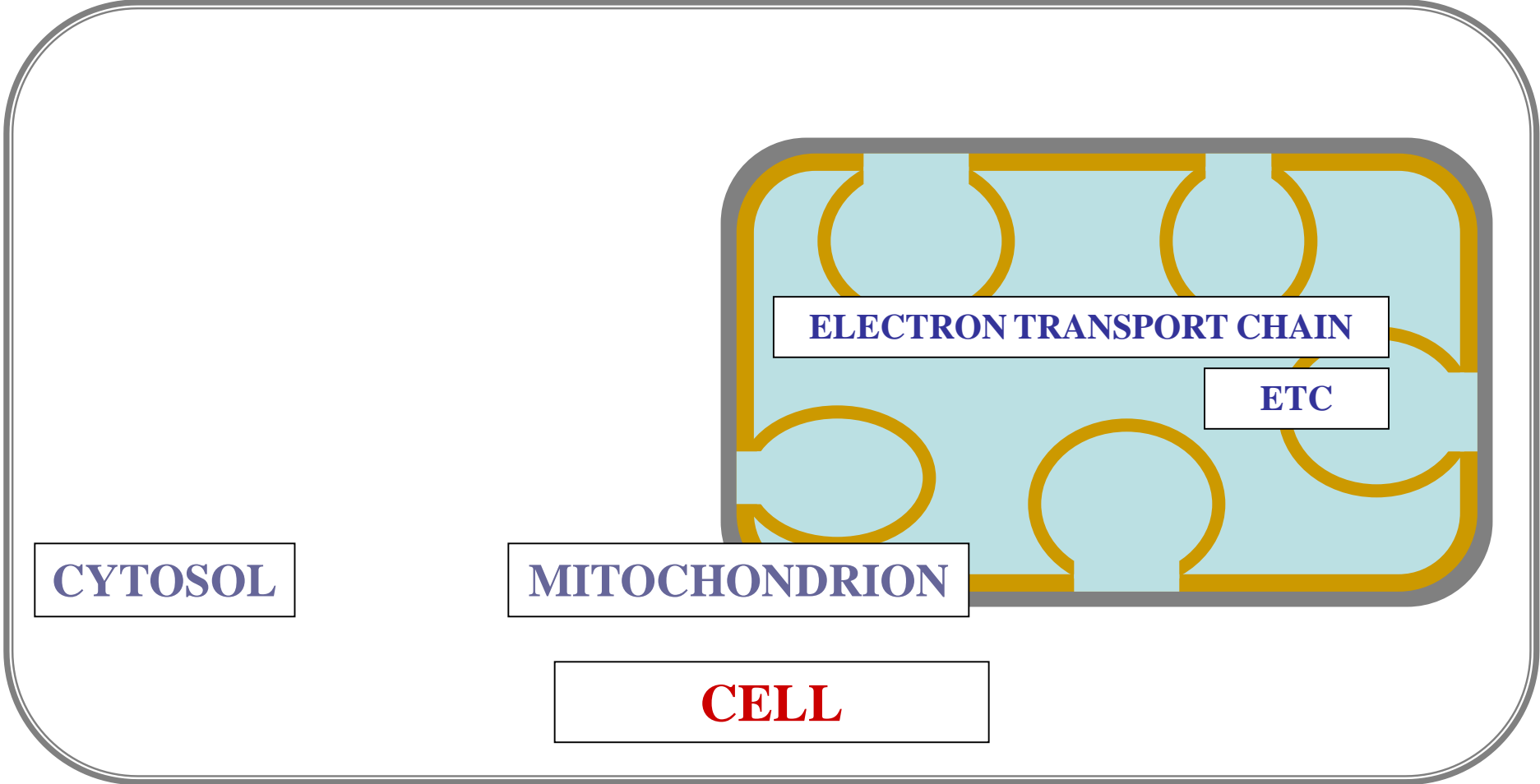




RESPIRATION



CR



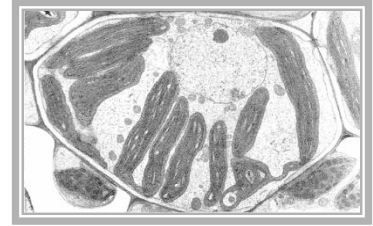
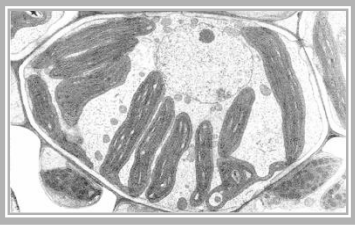
CYTOSOL

MITOCHONDRION

CELL

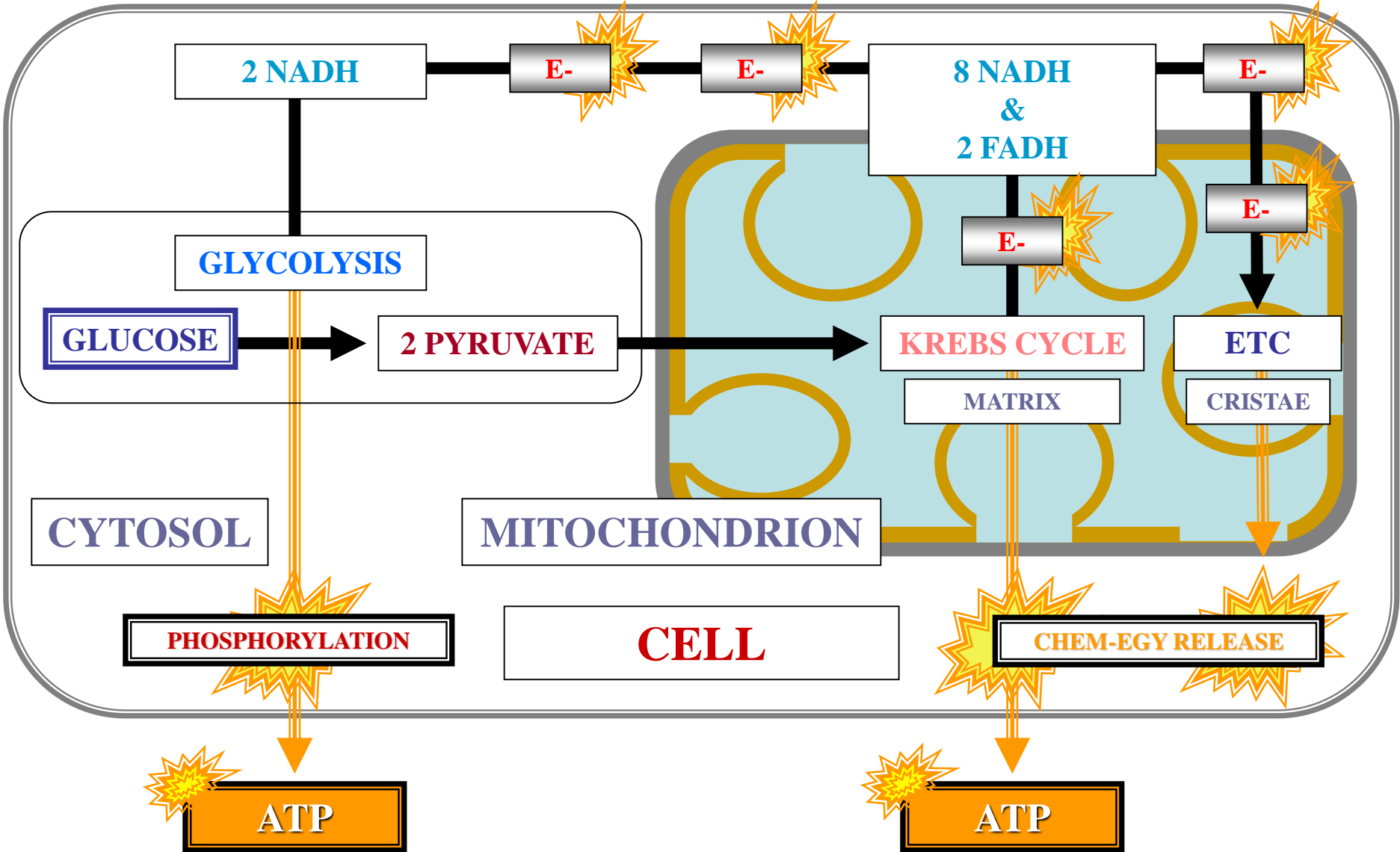
ELECTRON TRANSPORT CHAIN

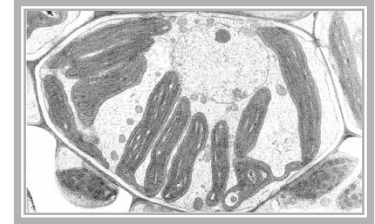
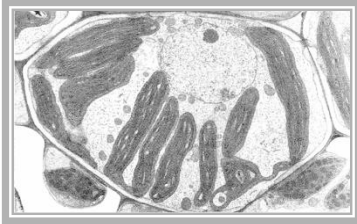
ETC



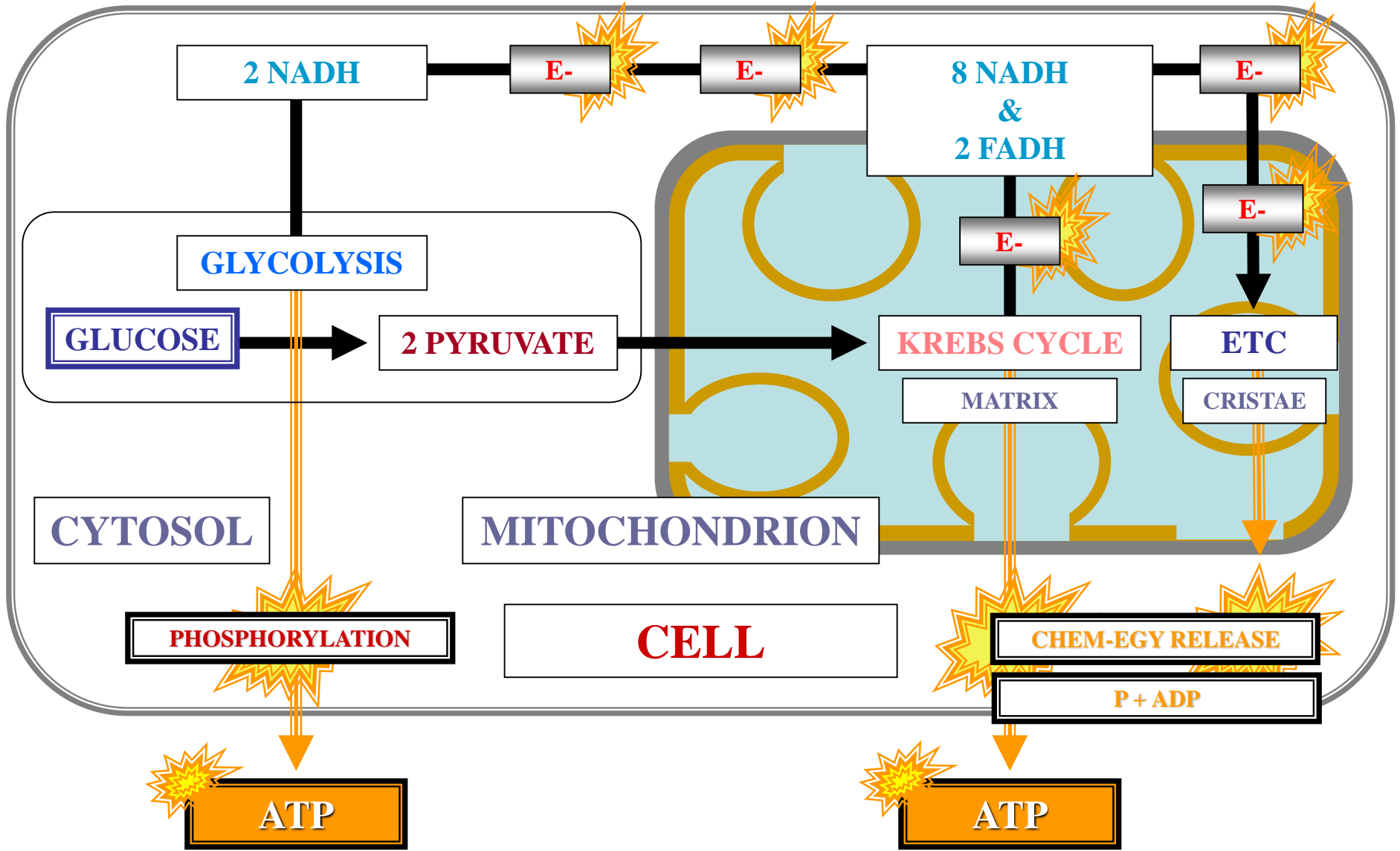
P+

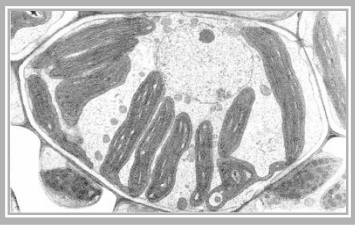
RESPIRATION





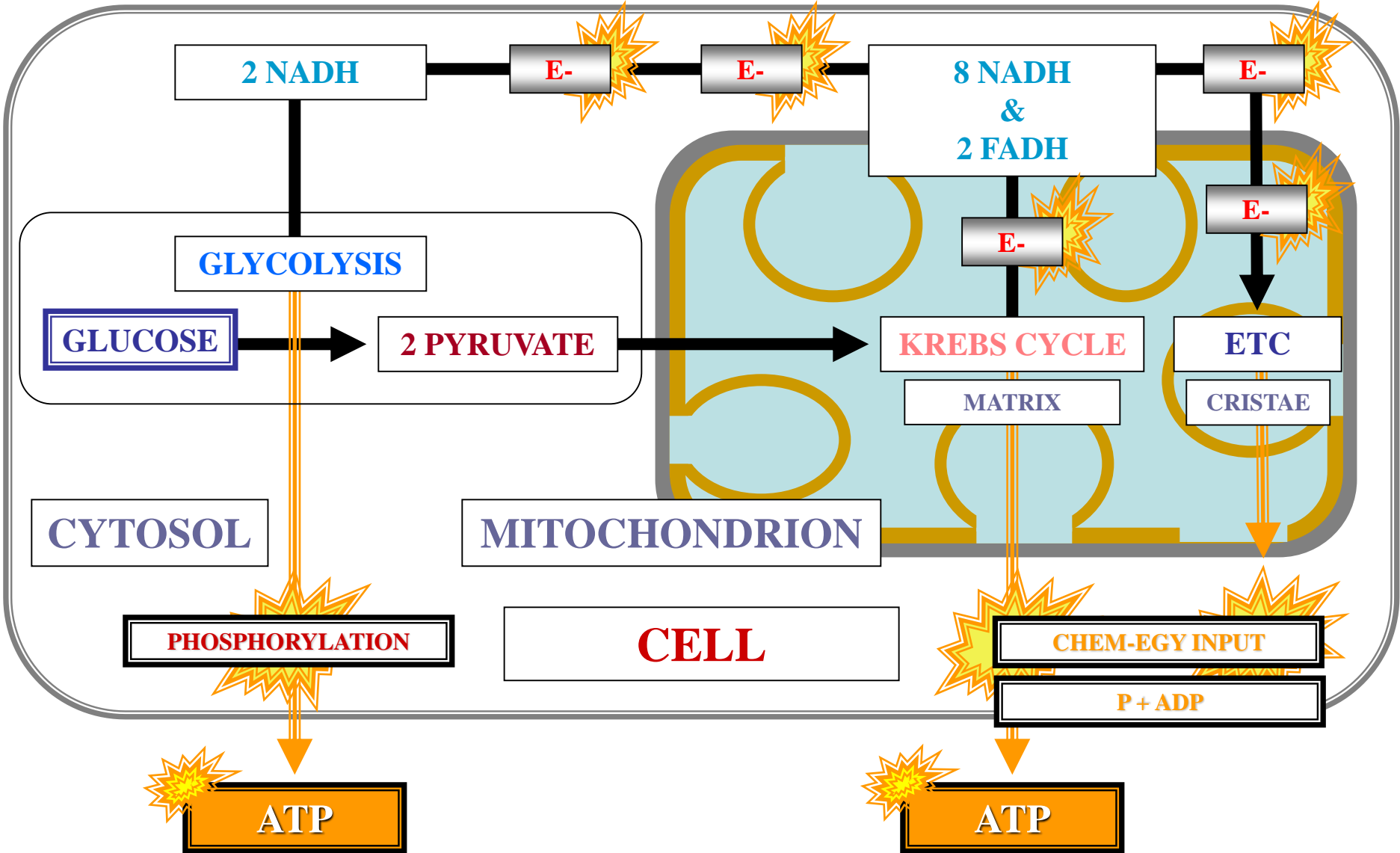
RESPIRATION

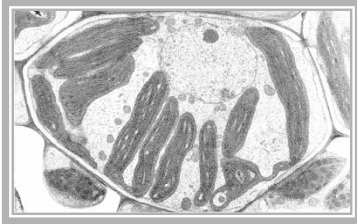




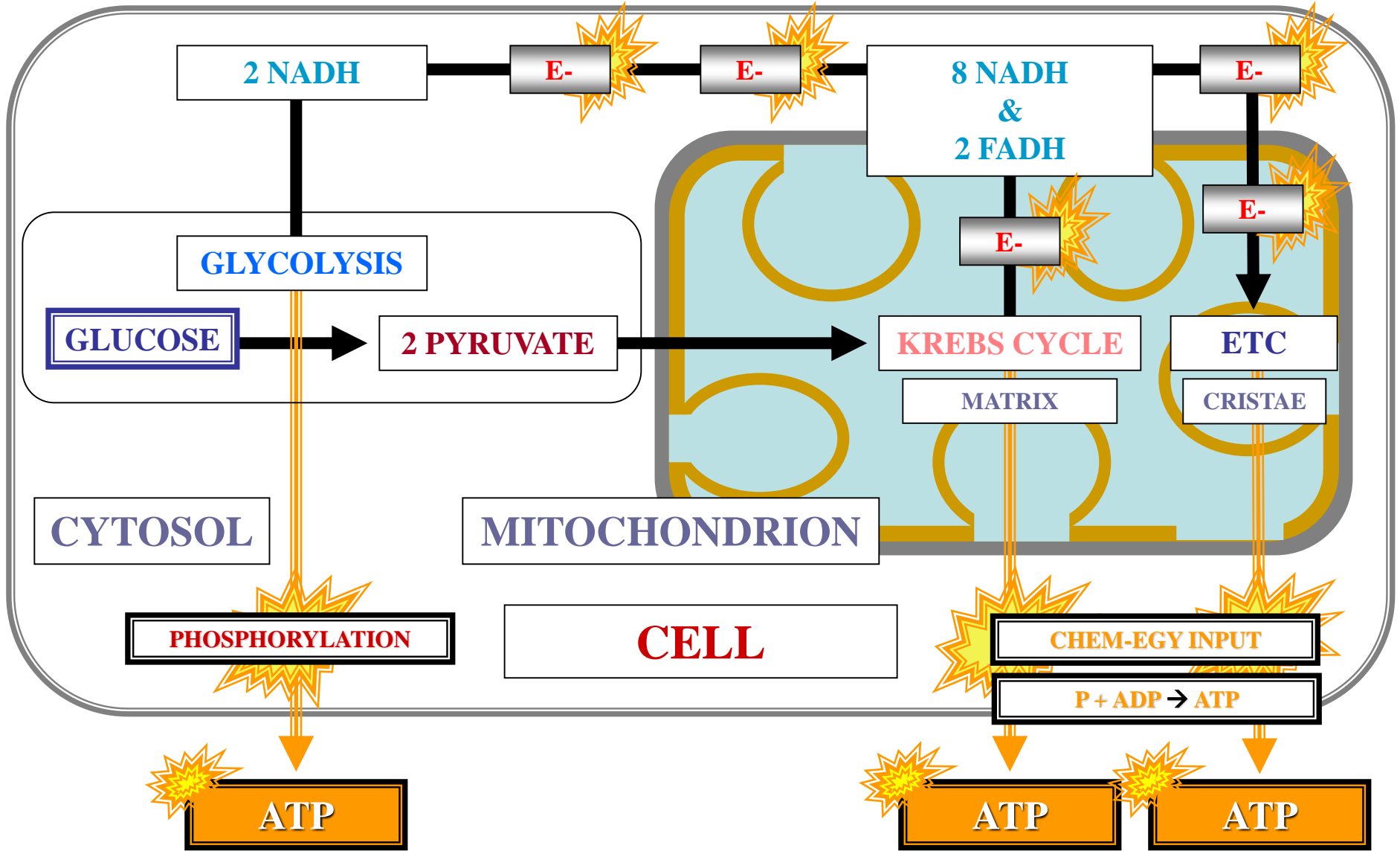
AT

RESPIRATION



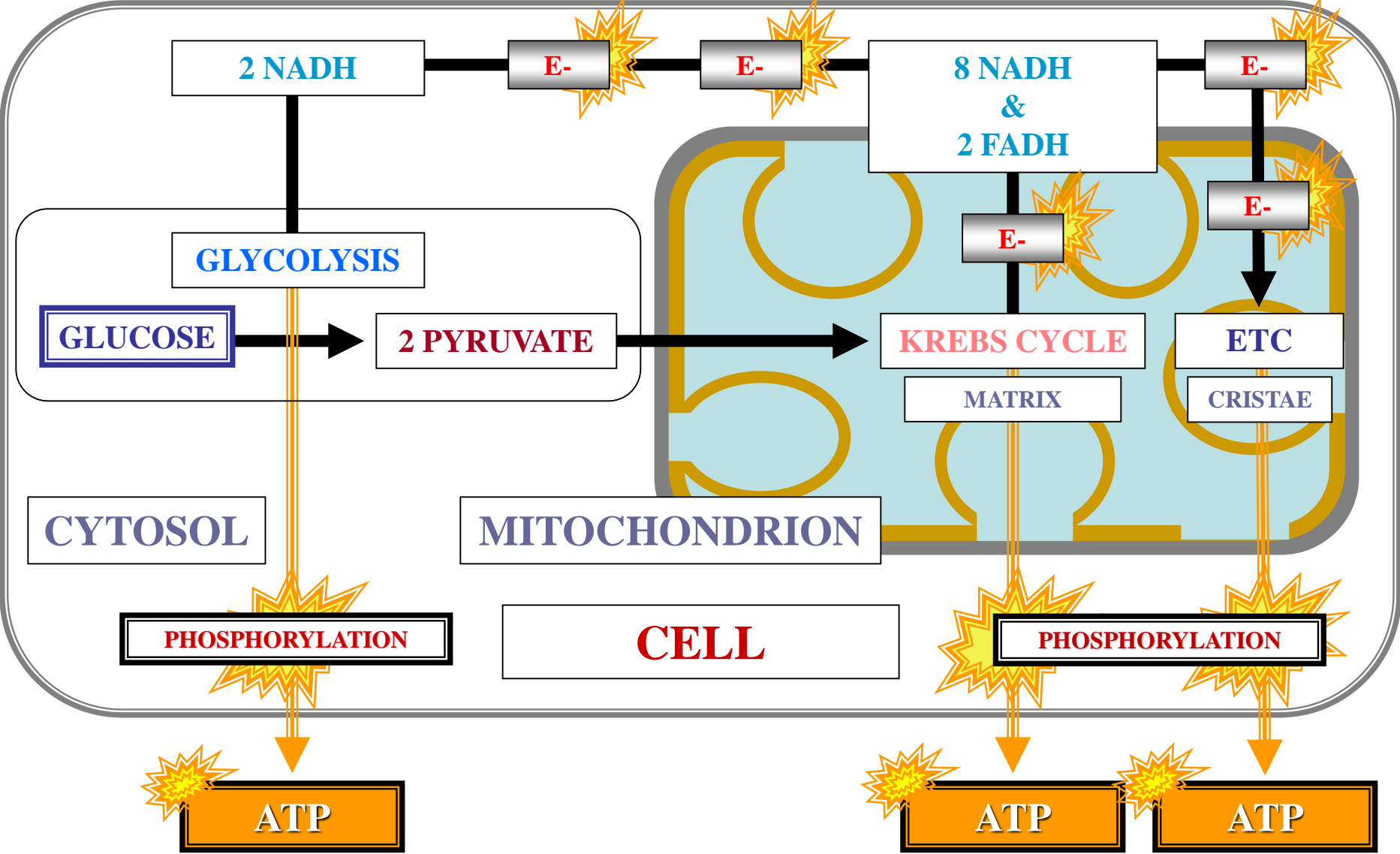


RESPIRATION





RESPIRATION





ATP

PHOSPHORYLATION

ESSENTIAL

CELL METABOLISM

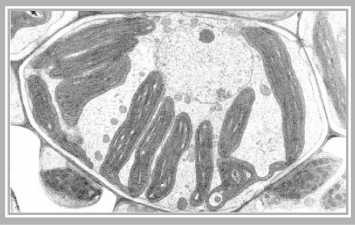
QUESTION

**WHY IS ATP
PHOSPHORYLATION**

ESSENTIAL

TO CELL METABOLISM?

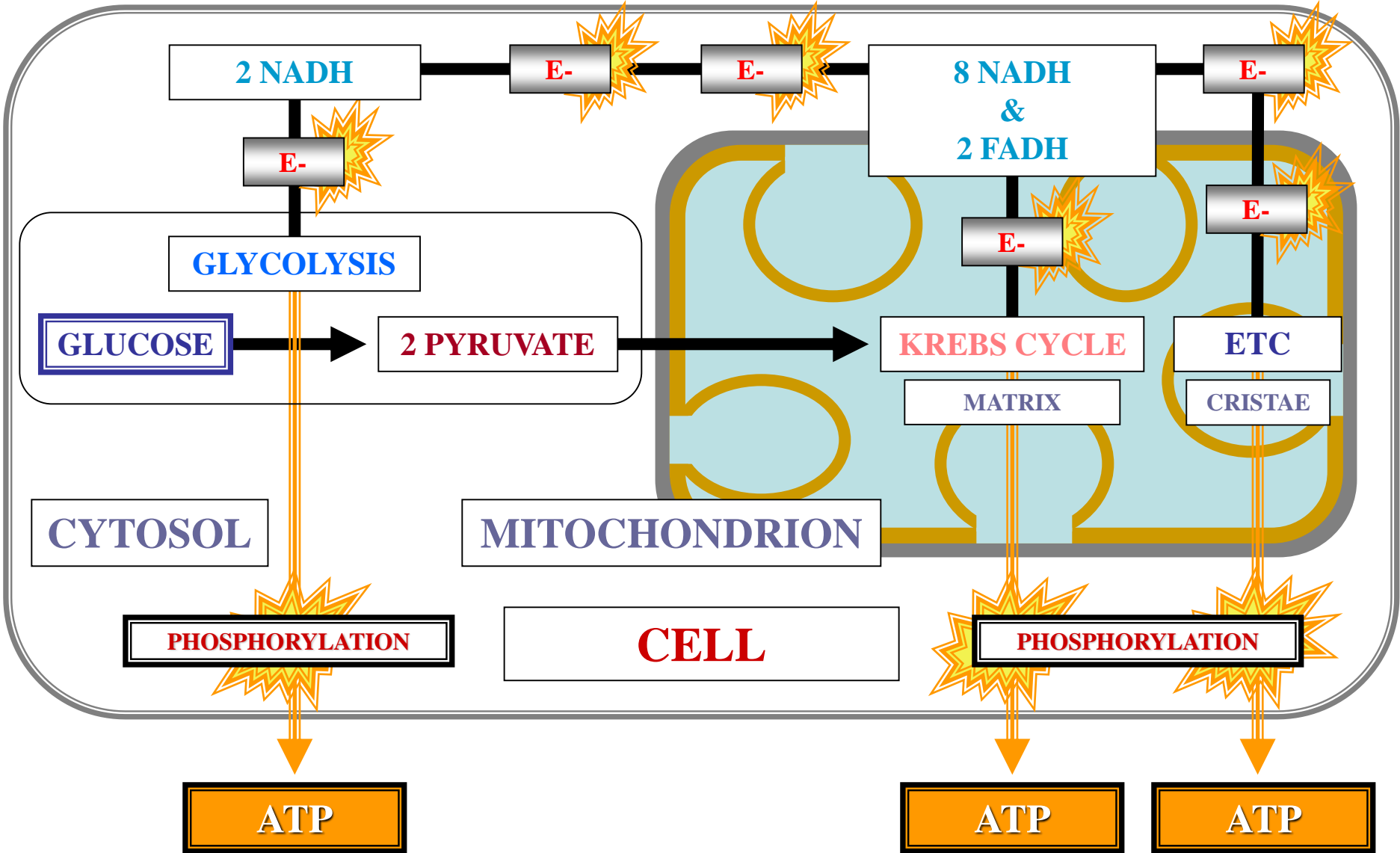
QUESTION



RESPIRATION



AT



CELL METABOLISM

C



ATP



BIOCHEMICAL REACTION

CELL METABOLISM



**CHEMICAL
ENERGY**



**ATP DELIVERS CHEM-EGY
TO
BIOCHEMICAL REACTIONS**

CELL METABOLISM



**CHEMICAL
ENERGY**



**ATP DELIVERS CHEM-EGY
TO ENDERGONIC
BIOCHEMICAL REACTIONS**

CELL METABOLISM



**CHEMICAL
ENERGY**

CMP-A + CMP-B → CMP-C

**ATP DELIVERS CHEM-EGY
TO DRIVE ENDERGONIC
BIOCHEMICAL REACTIONS
TO A PRODUCT**



***EFFICIENT
CELL
METABOLISM***

An electron micrograph showing a cross-section of a cell. The image displays various organelles, including a large nucleus with a prominent nucleolus, rough endoplasmic reticulum, and several mitochondria with visible cristae. A red letter 'E' in a white box is located in the upper right corner, with a red arrow pointing downwards to a specific structure within the cytoplasm.

E
↓

***ORGANIZATION
INCREASES***

An electron micrograph showing a cross-section of a cell. The cell contains various organelles, including a large nucleus with a prominent nucleolus, several mitochondria with visible internal folds (cristae), and a network of endoplasmic reticulum. The text "ENTROPY DECREASES" is overlaid in a large, bold, red, italicized font across the center of the image.

***ENTROPY
DECREASES***

HOMEOSTASIS



QUESTION

**WHY IS ATP
PHOSPHORYLATION**

ESSENTIAL

TO CELL METABOLISM?

QUESTION



ANSWER

ATP

PHOSPHORYLATION

MAINTAINS

HOMEOSTASIS

ANSWER

END
LECTURE
MATERIAL
1ST EXAM

CHAPTER 06

CYTOLOGY

CYTOLOGY

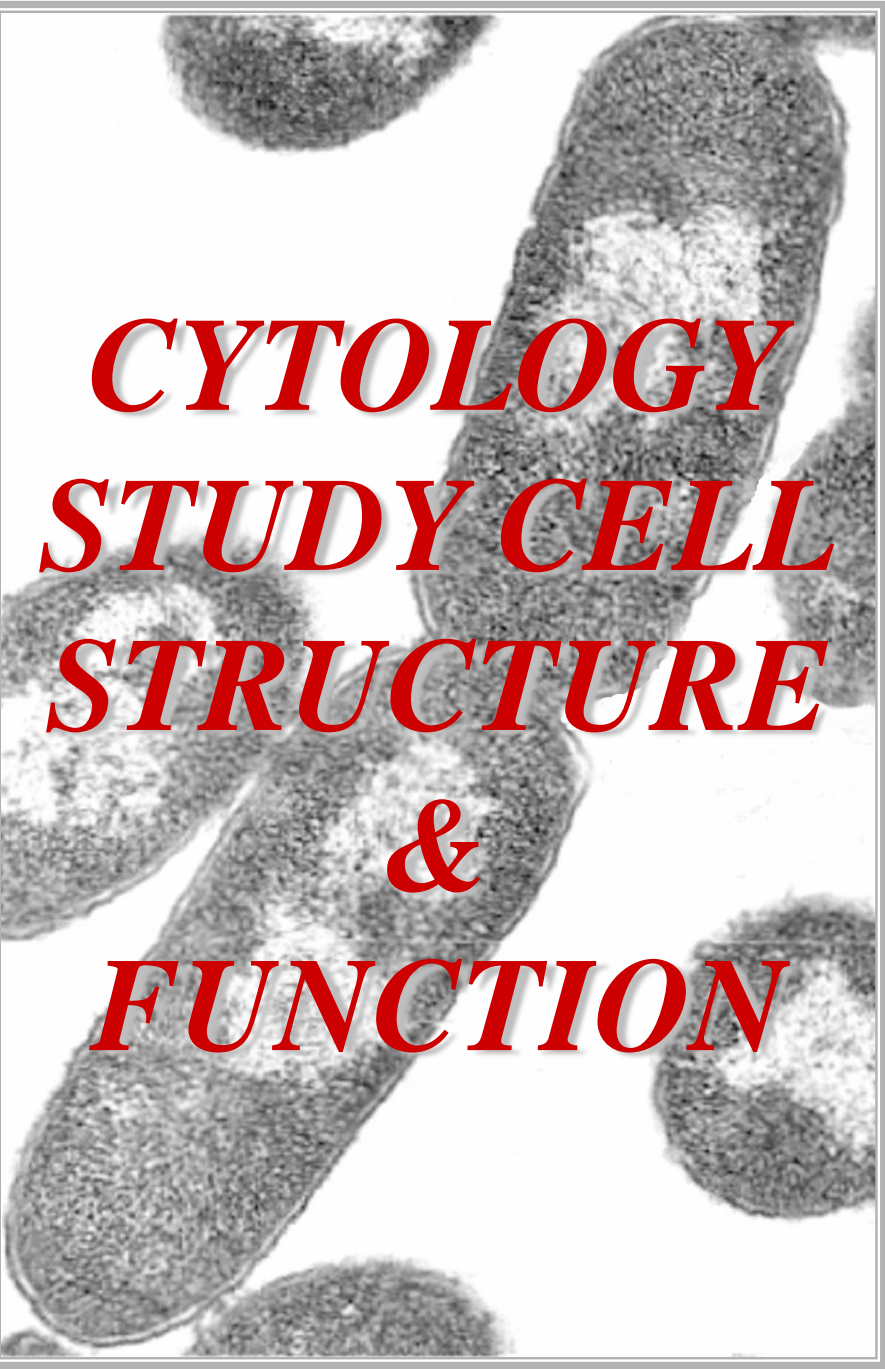
CYTOLOGY



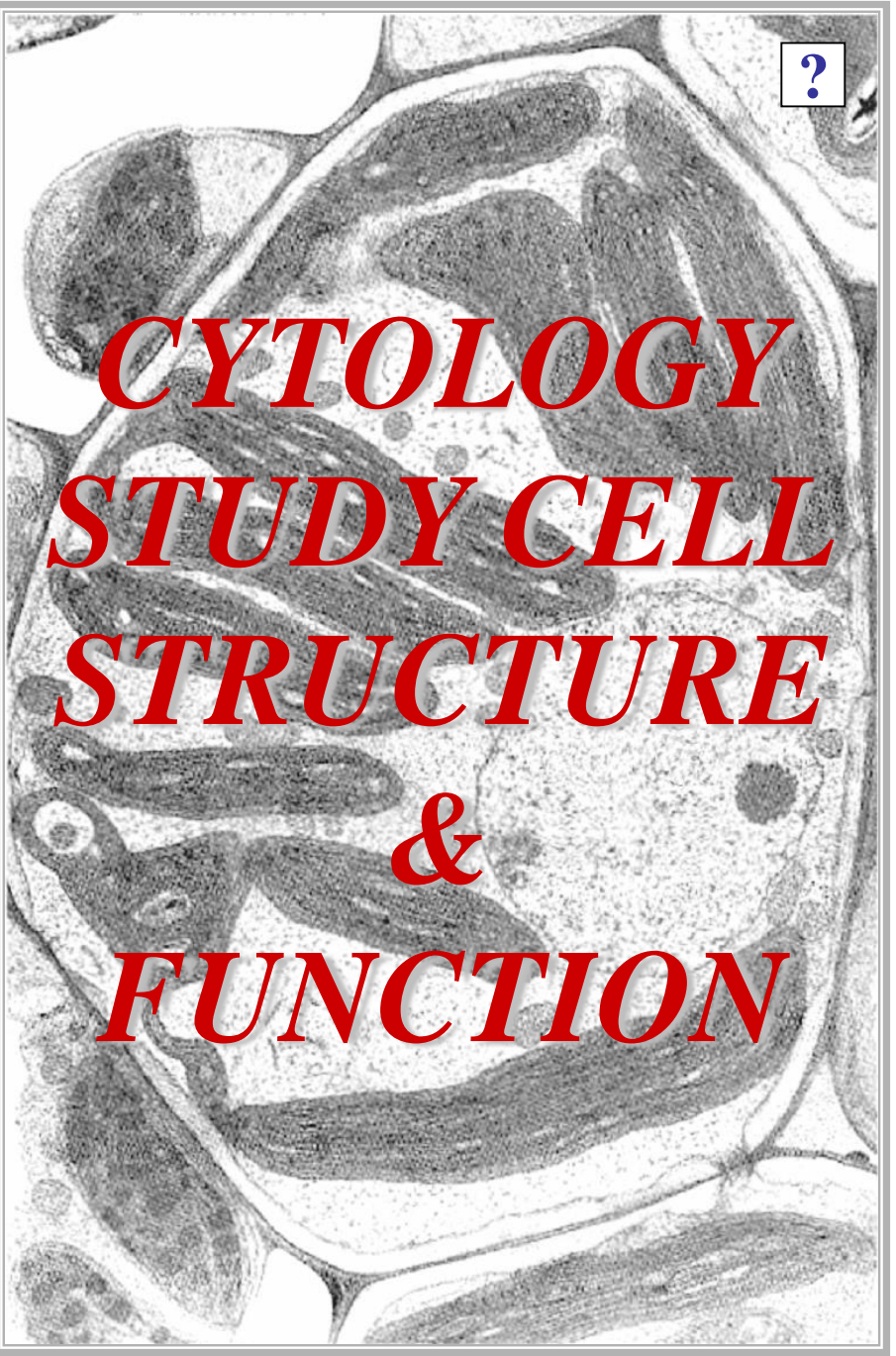
CYTOLOGY

STUDY CELL STRUCTURE & FUNCTION

CYTOLOGY

An electron micrograph showing several rod-shaped bacteria. The central bacterium is the most prominent, showing a thick, textured outer layer (cell wall) and a granular interior (cytoplasm). Other smaller, similar structures are visible in the background.

CYTOLOGY
STUDY CELL
STRUCTURE
&
FUNCTION

A detailed electron micrograph of a plant cell. The cell is roughly rectangular with a thick, clear cell wall. Inside, there is a large, dark, oval-shaped nucleus with a prominent nucleolus. The cytoplasm is filled with various organelles, including stacks of membranes (likely chloroplasts or endoplasmic reticulum) and smaller vesicles. A small blue question mark icon is located in the top right corner of the image.

CYTOLOGY
STUDY CELL
STRUCTURE
&
FUNCTION

QUESTION

**WHO WAS THE FIRST
SCIENTIST TO OBSERVE
A CELL?**

QUESTION



ANSWER

ROBERT HOOKE

ANSWER



**FIRST
CYTOLOGIST
1665**

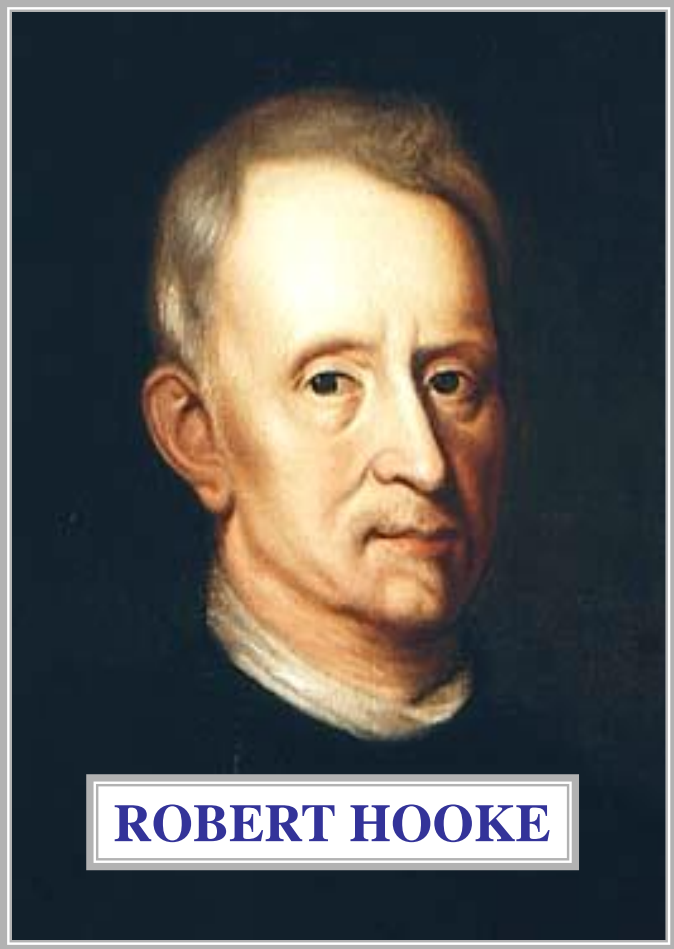


ROBERT HOOKE

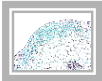
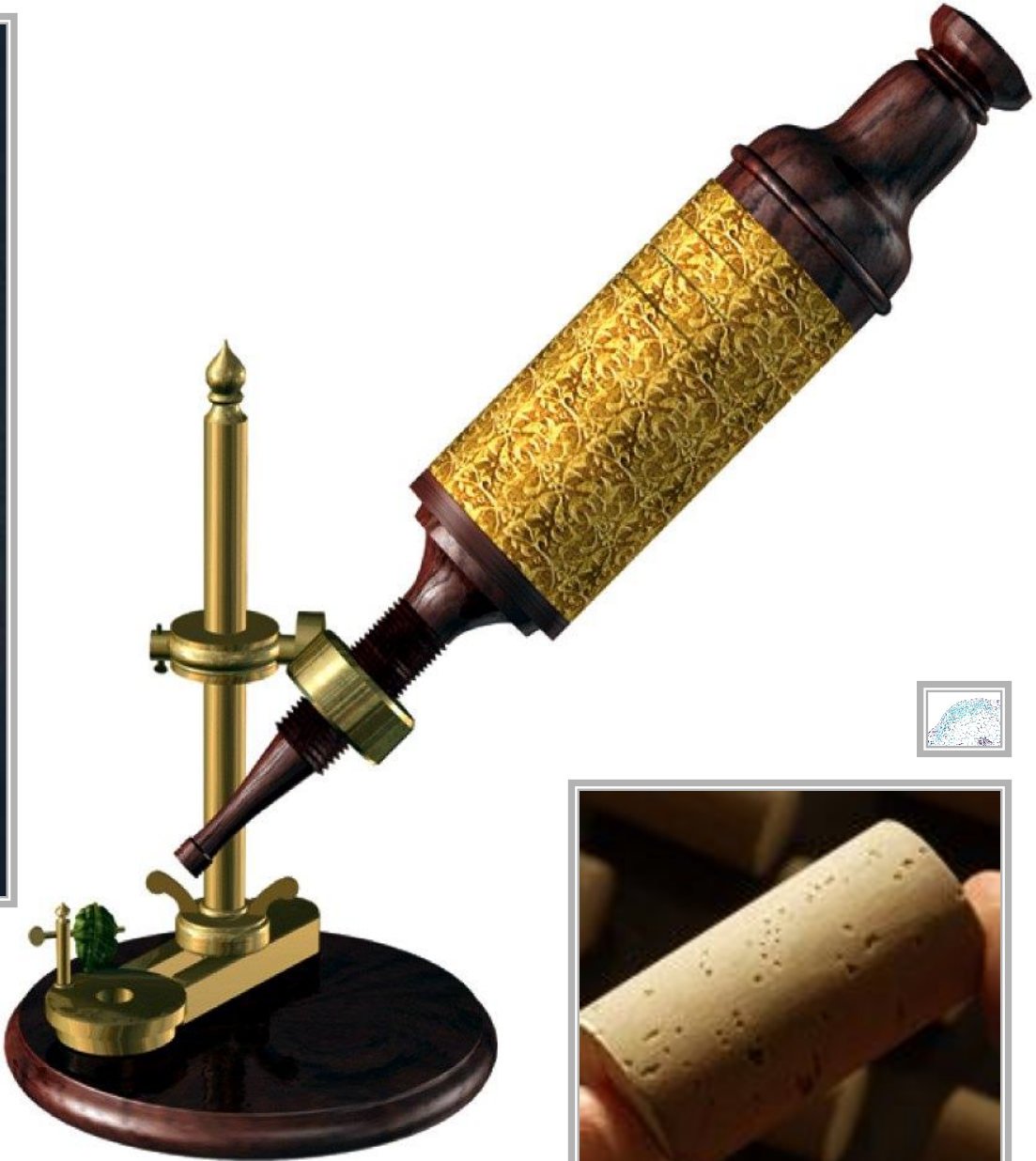


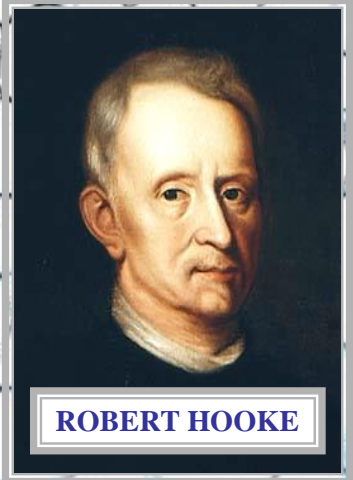
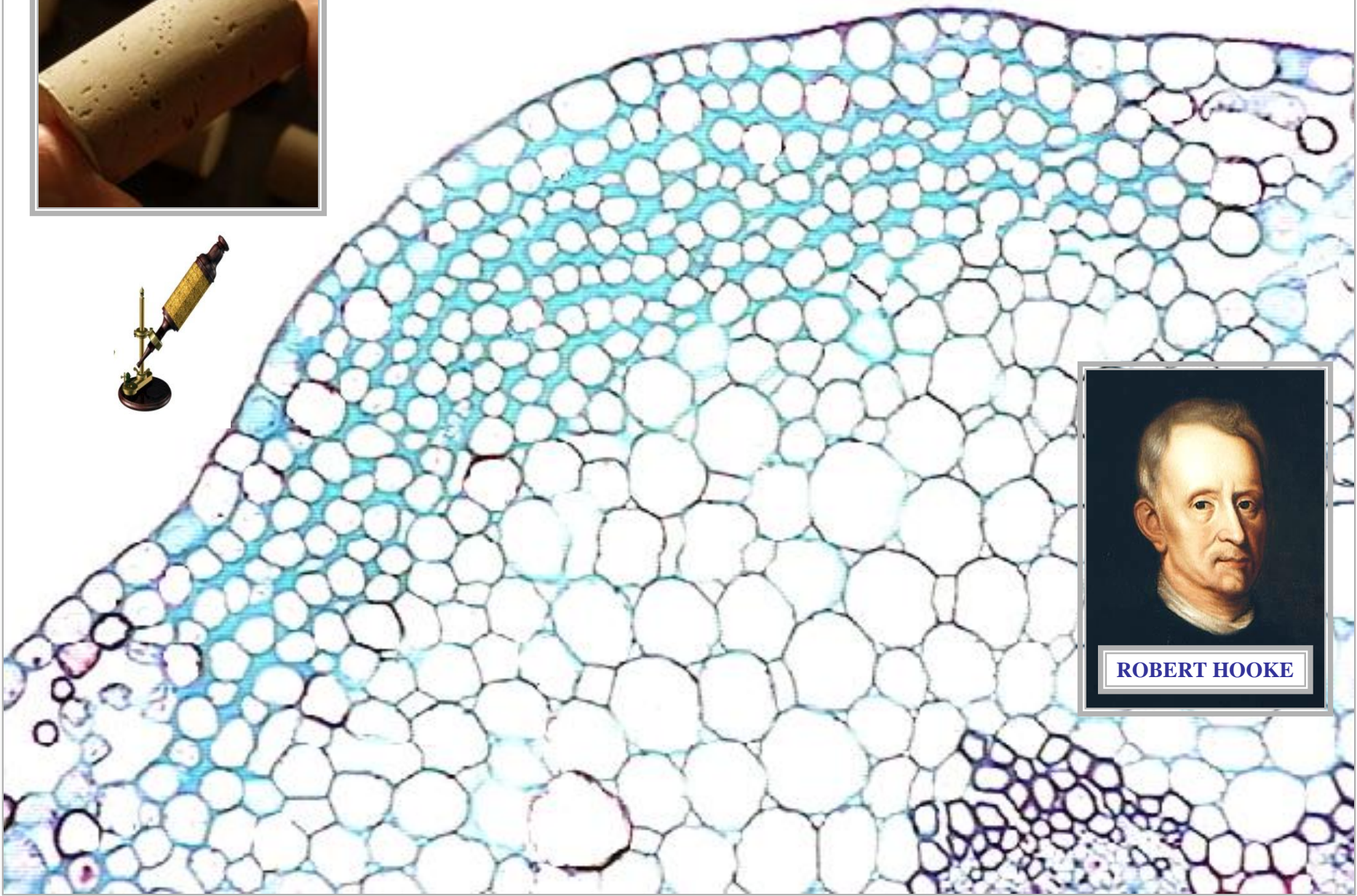
**FIRST
CYTOLOGIST
1665**





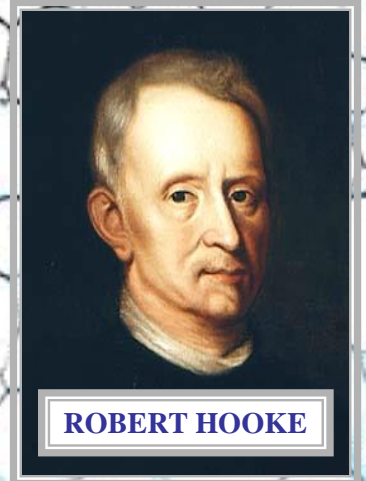
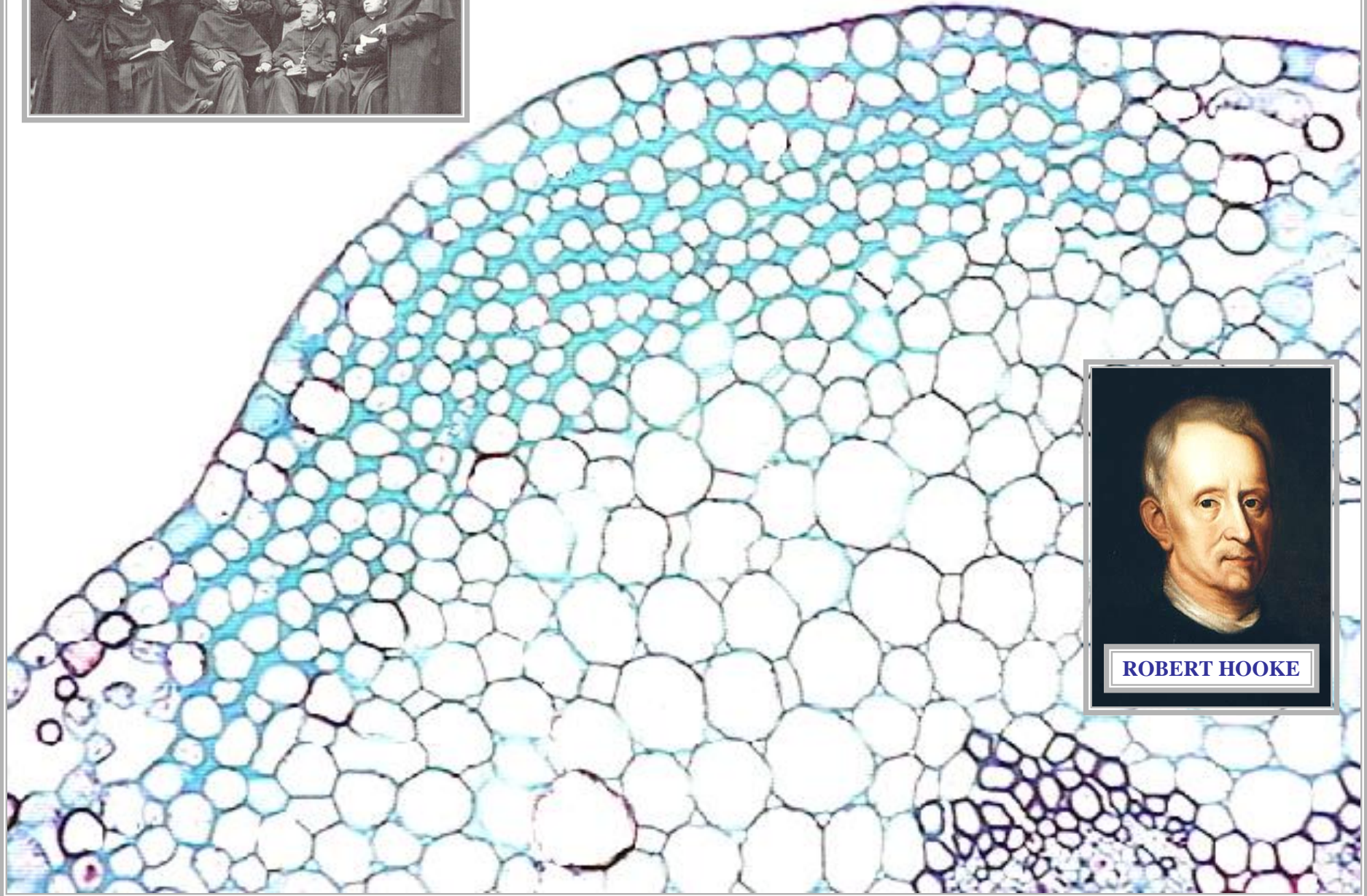
ROBERT HOOKE





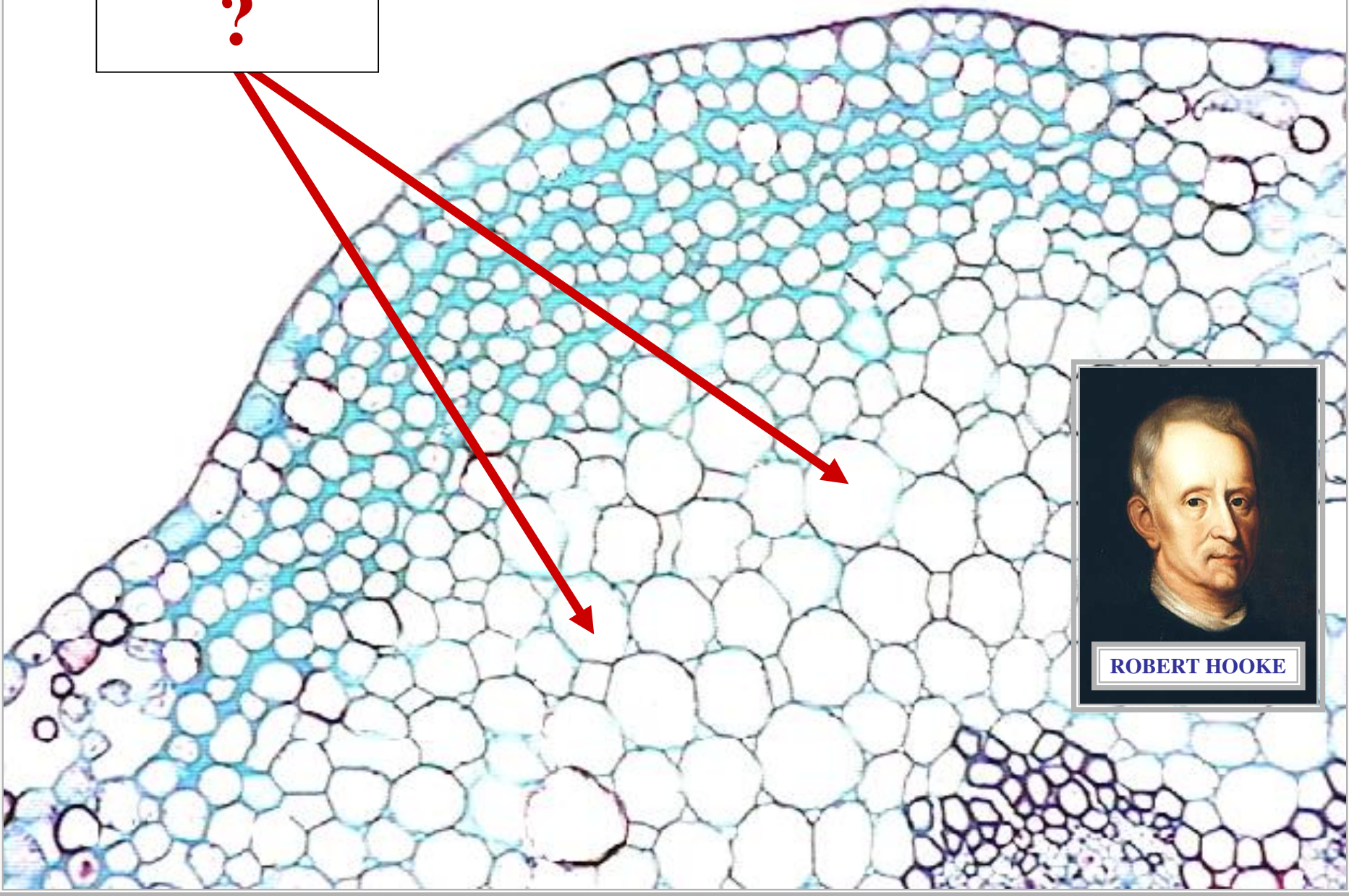
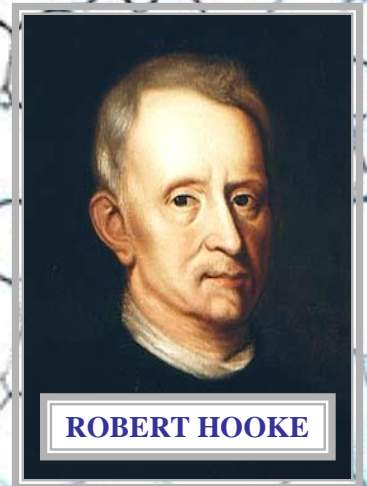
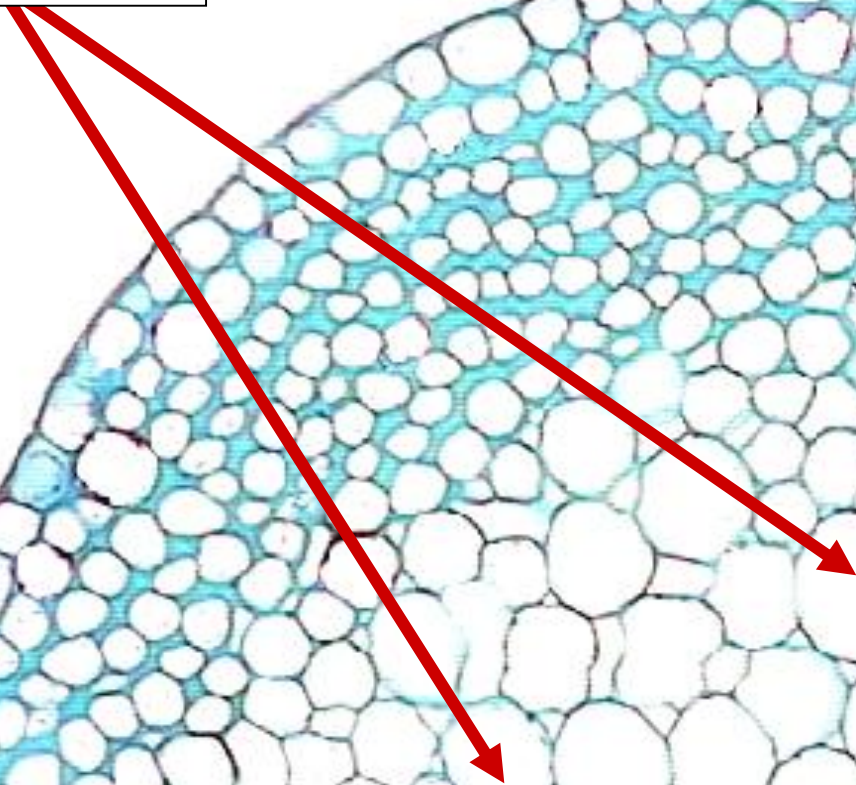
ROBERT HOOKE

?

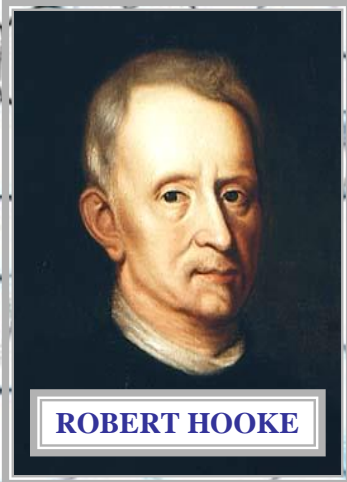
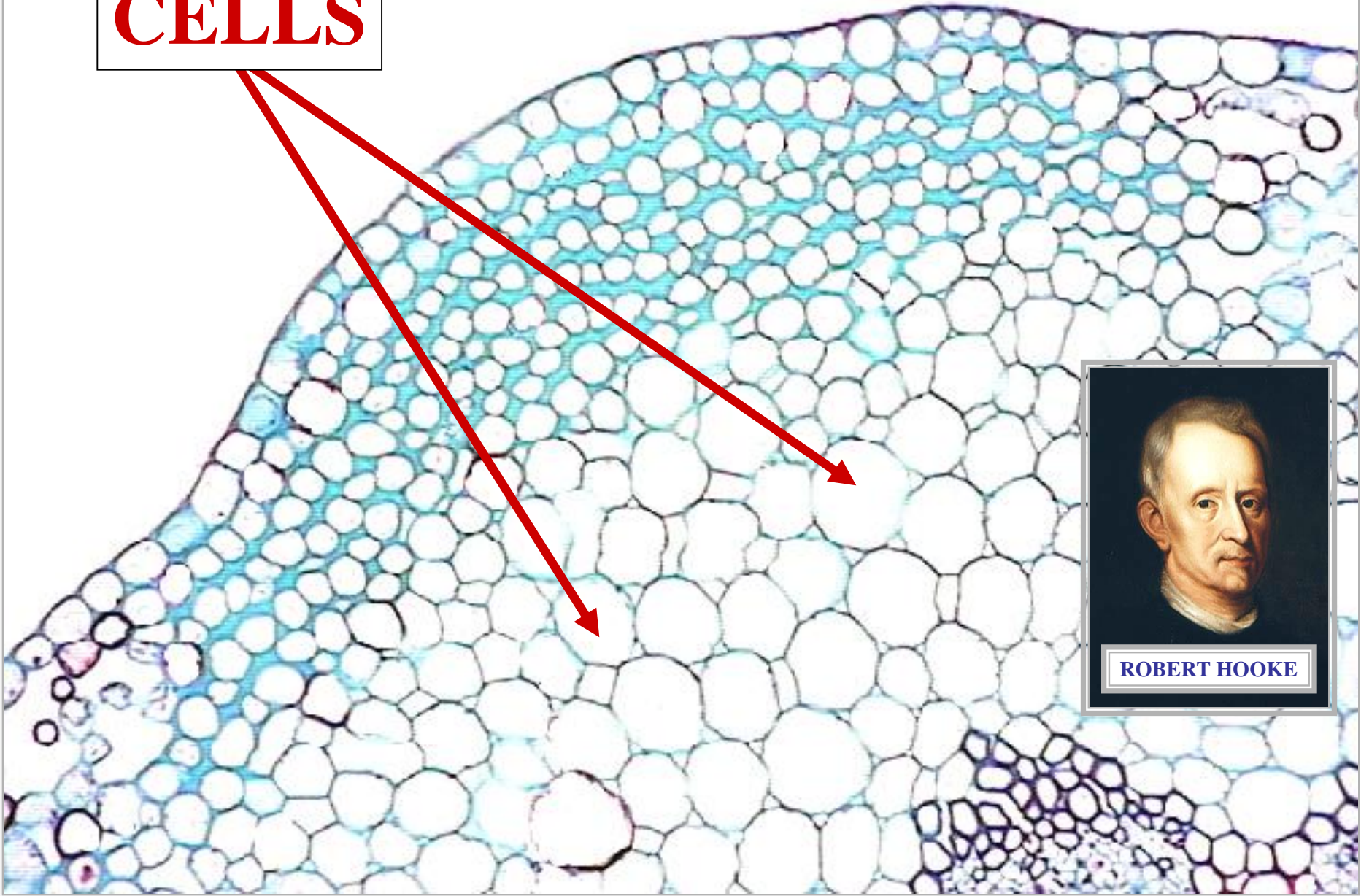
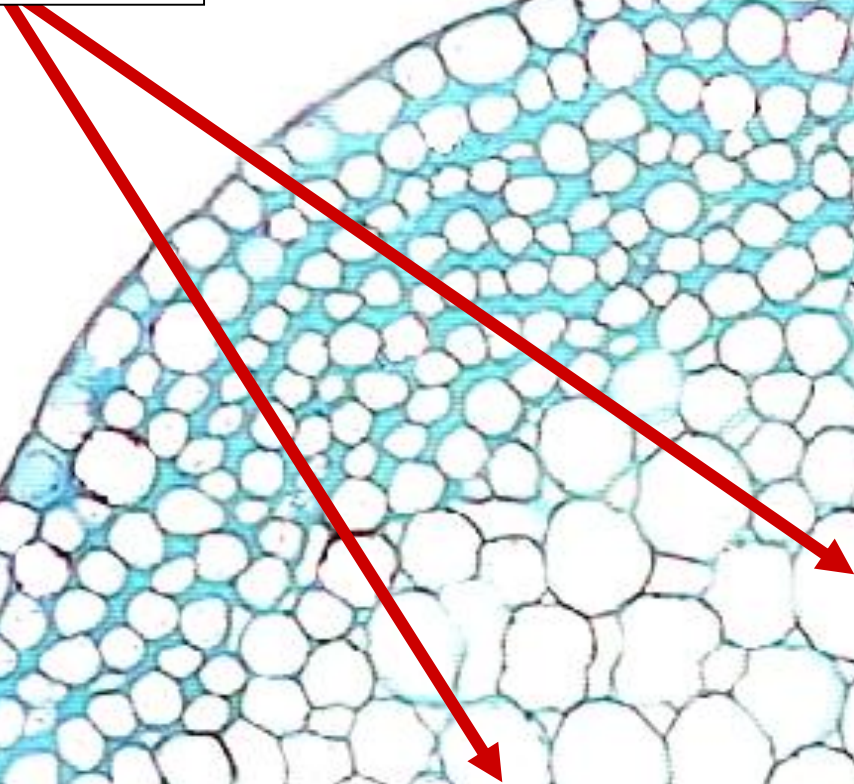


ROBERT HOOKE

?



CELLS



ROBERT HOOKE



CELL THEORY

1839 CELL THEORY 1839



SCHLEIDEN
BOTANIST



SCHWANN
ZOOLOGIST

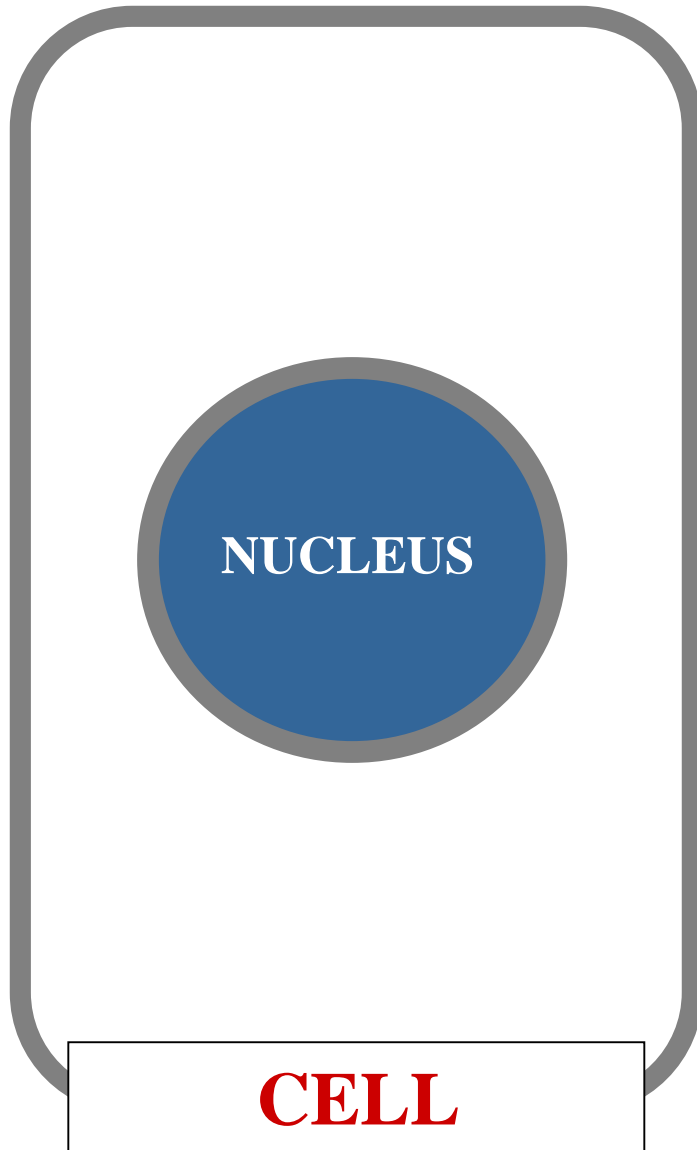
CELL THEORY COMPONENTS



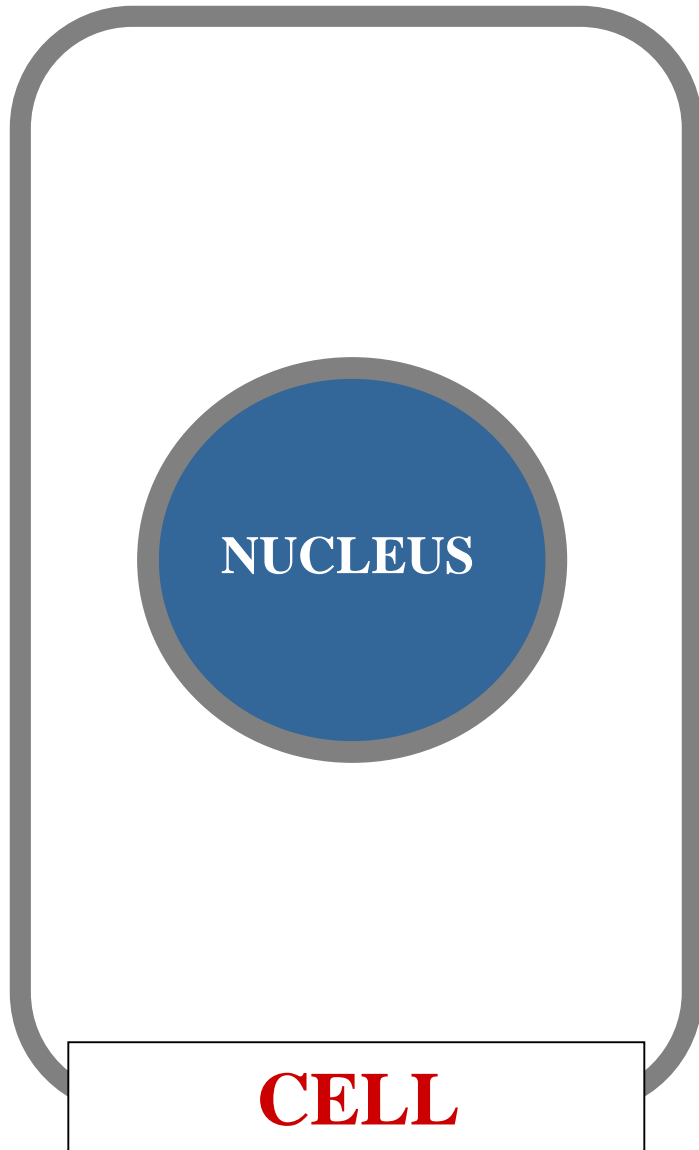
CELL THEORY

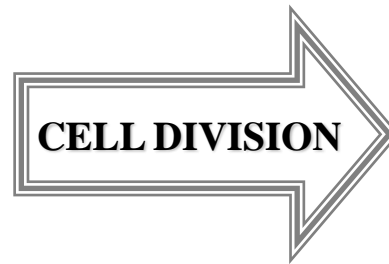
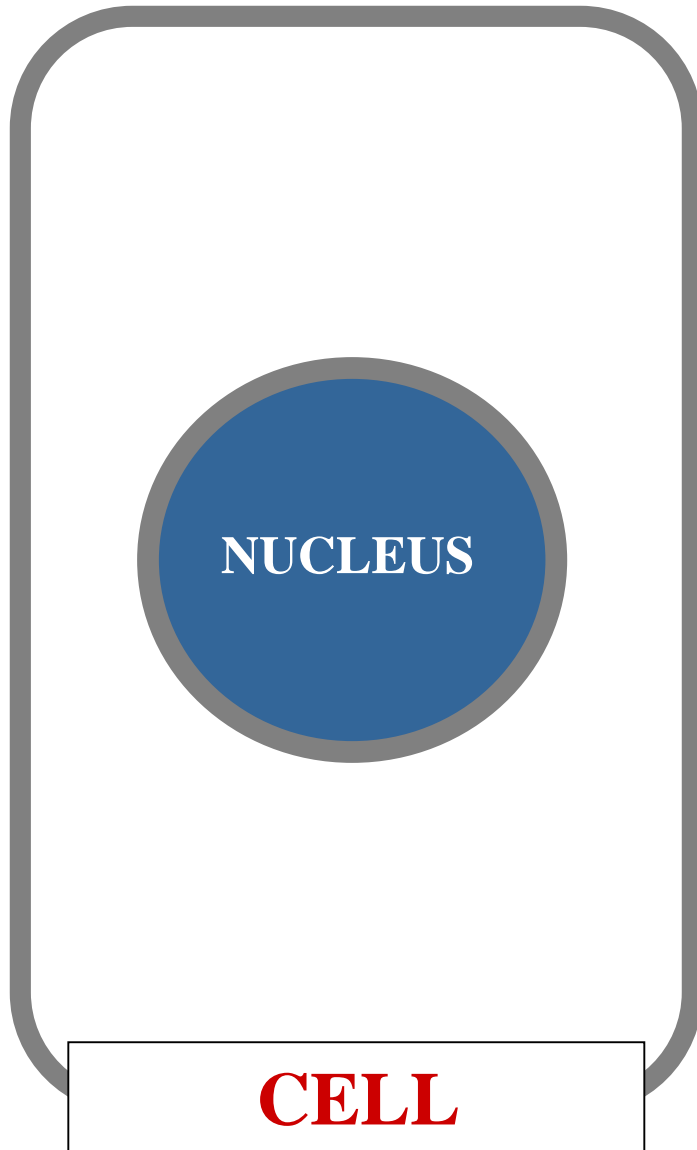
1ST

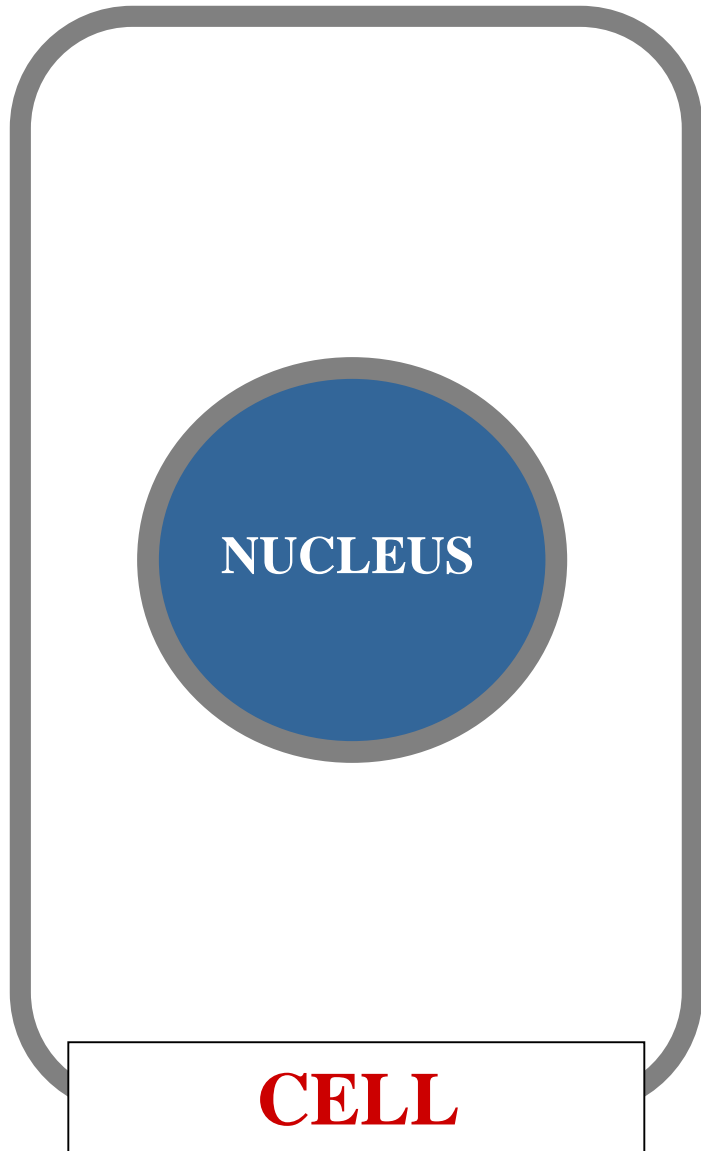
COMPONENT



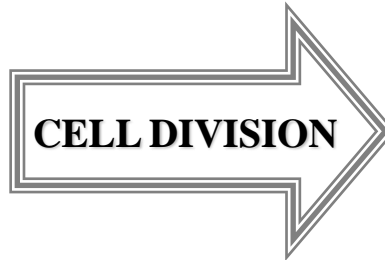
**CELLS
ARISE FROM
CELLS**



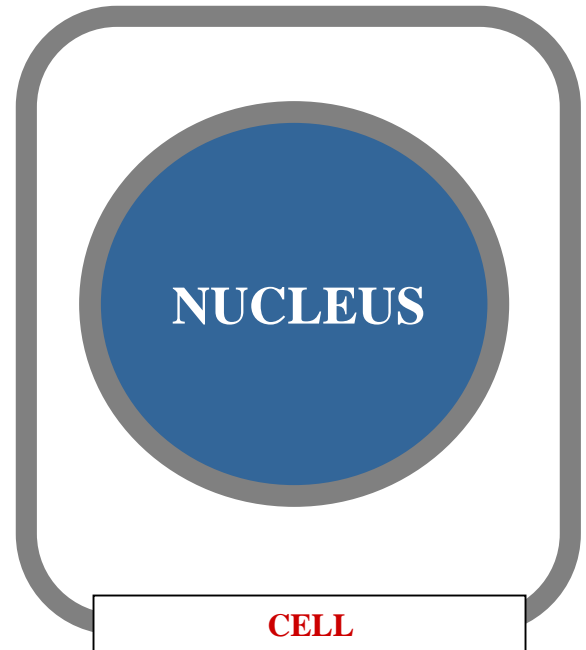
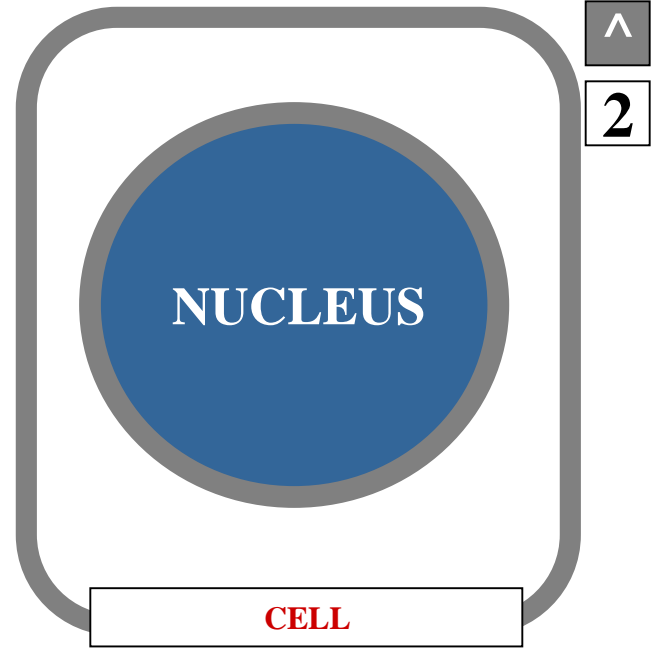




**CELLS
ARISE FROM
CELLS**



**CELLS
ARISE FROM
CELLS**

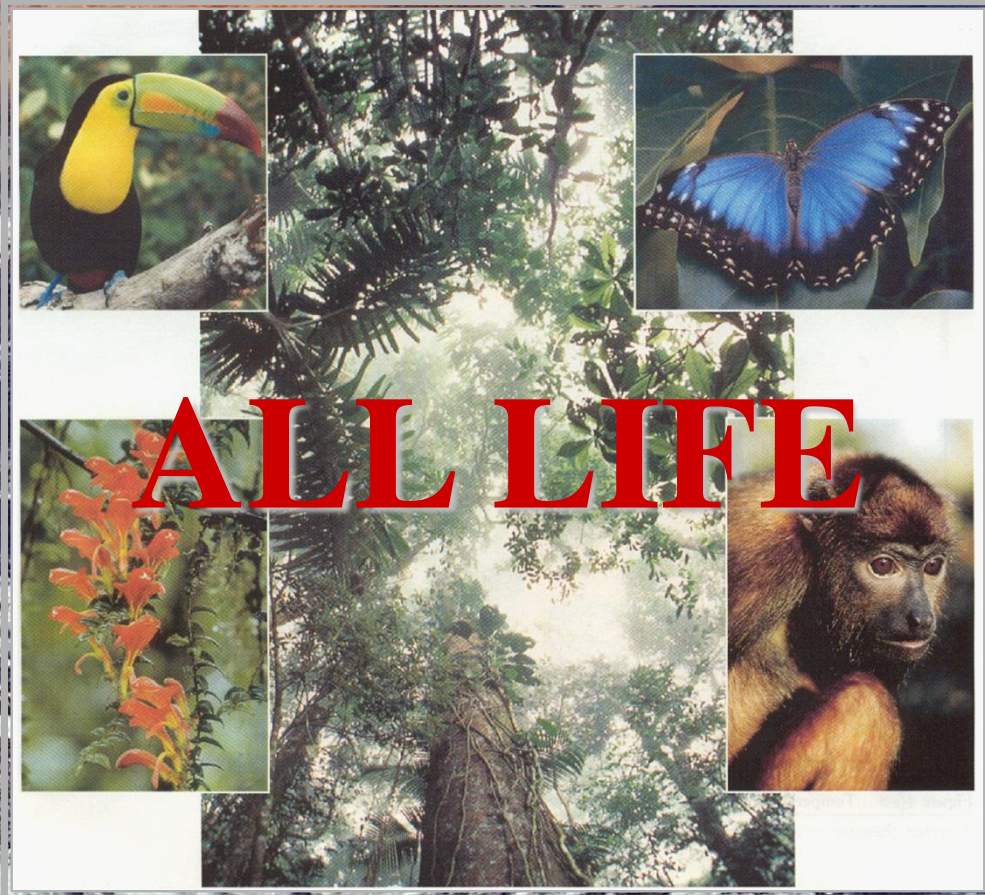




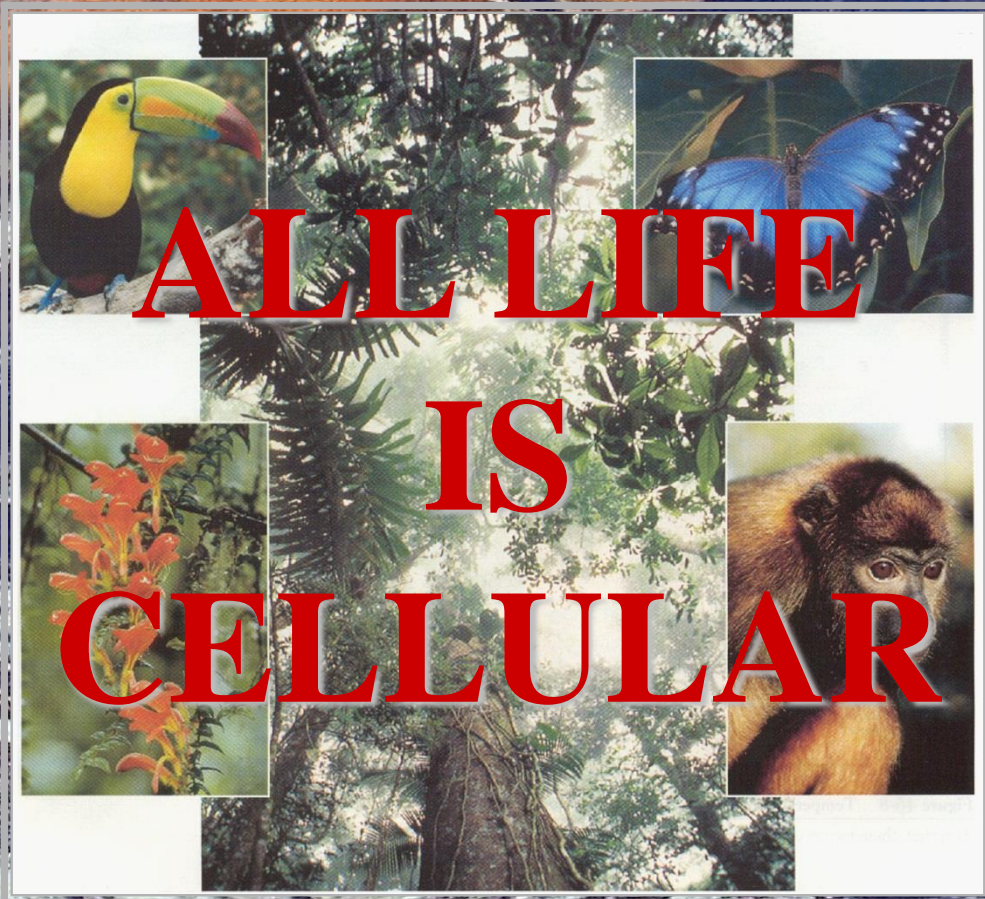
CELL THEORY

2ND

COMPONENT



EARTH



EARTH

CELL THEORY



SCHLEIDEN
BOTANIST



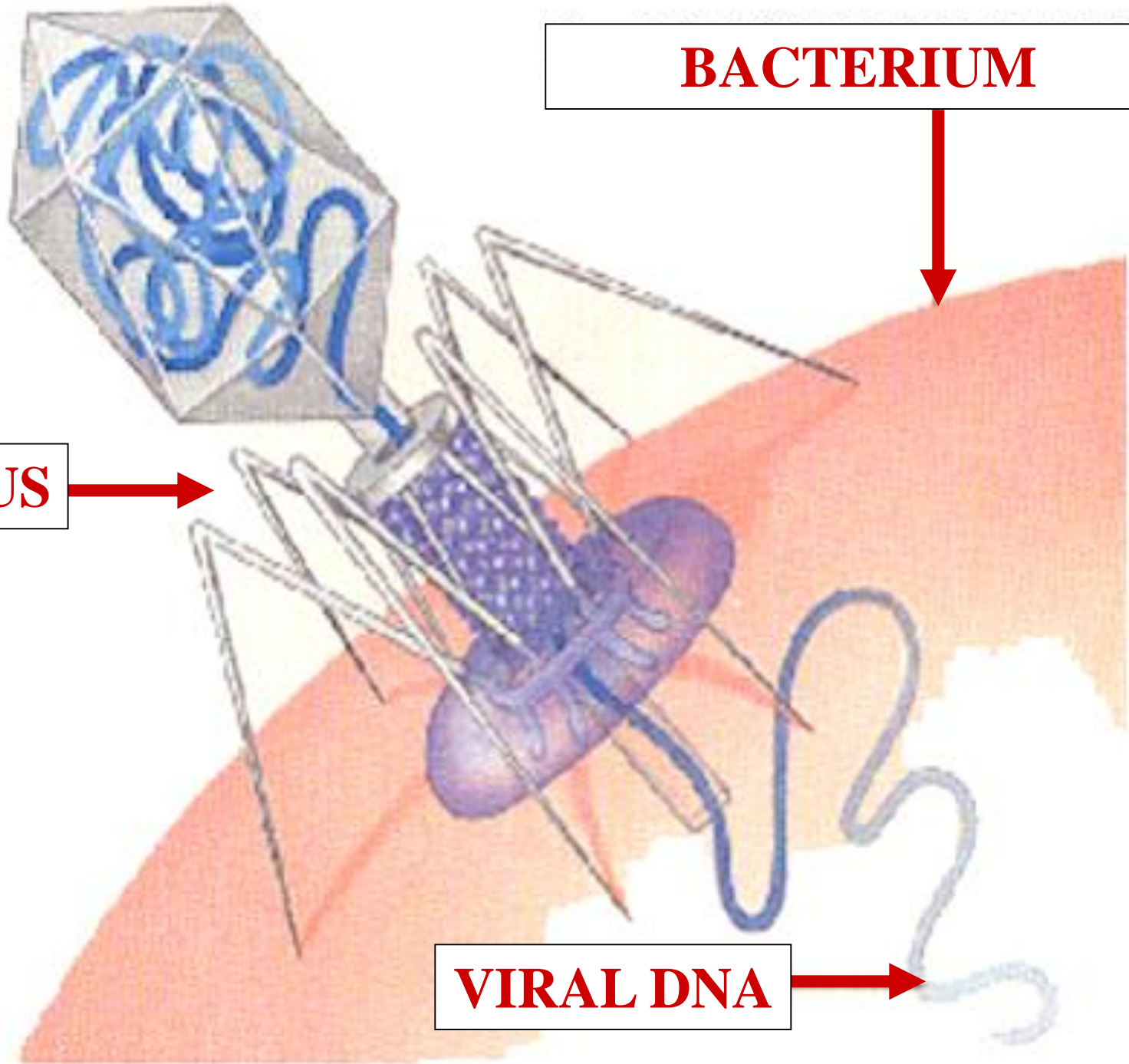
SCHWANN
ZOOLOGIST

?

BACTERIUM

VIRUS

VIRAL DNA





QUESTION

IS A VIRUS

CELLULAR

OR

NON-CELLULAR?

QUESTION

?

BACTERIUM

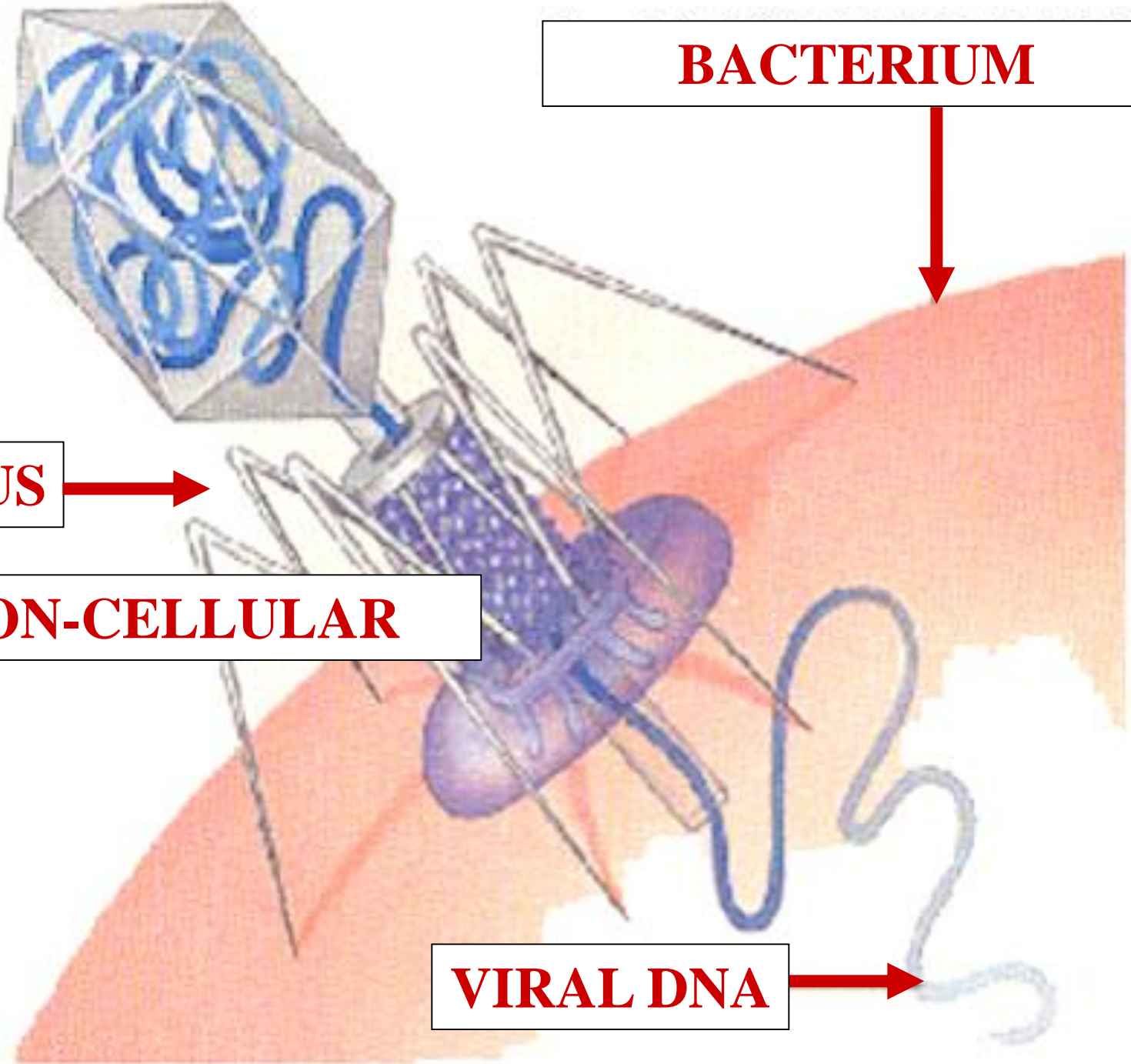


VIRUS



NON-CELLULAR

VIRAL DNA





QUESTION
IS A VIRUS
LIVING
OR
NON-LIVING?
QUESTION

BACTERIUM

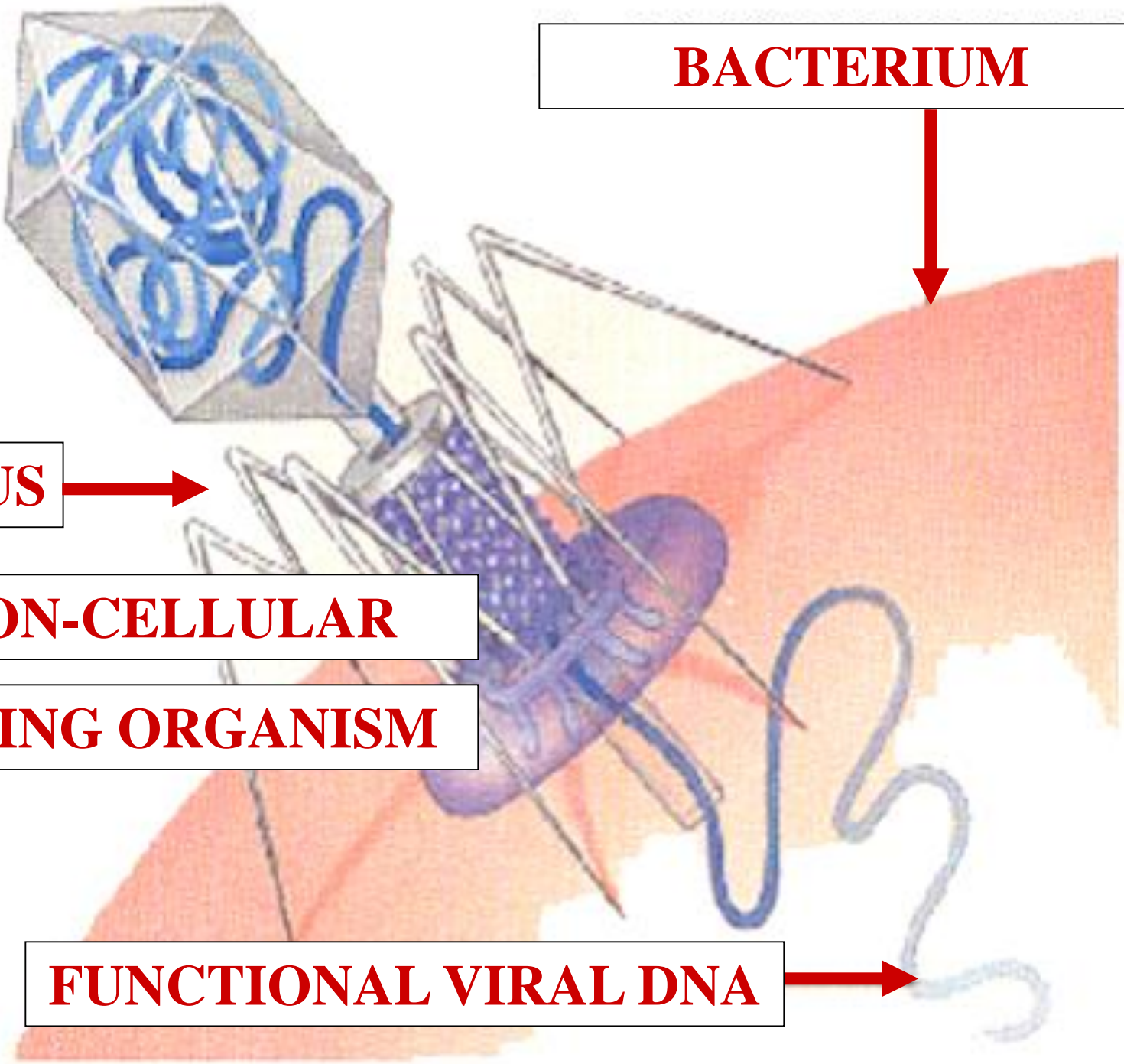


VIRUS

NON-CELLULAR

LIVING ORGANISM

FUNCTIONAL VIRAL DNA





CELL THEORY

ALL LIFE IS

CELLULAR

EXCEPTION

!!!VIRUSES!!!



GENERAL CELL TYPES