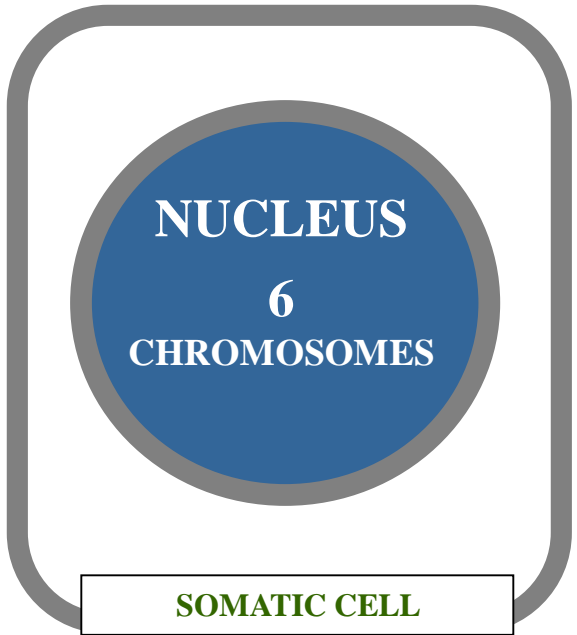
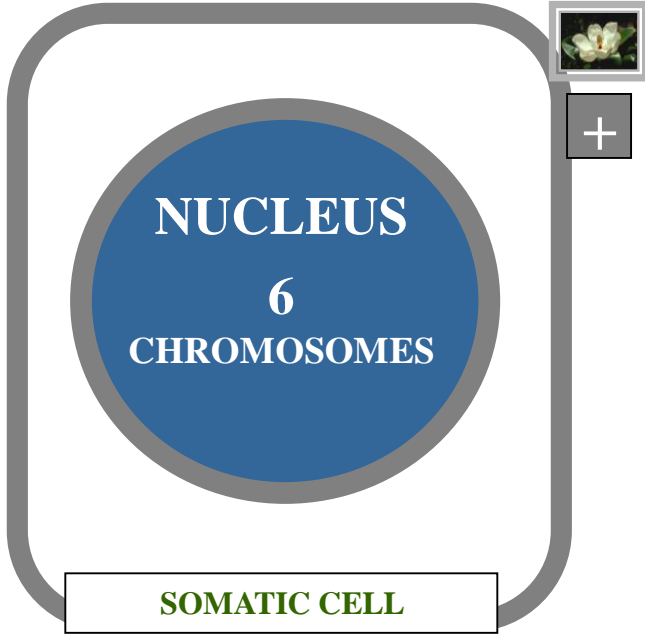
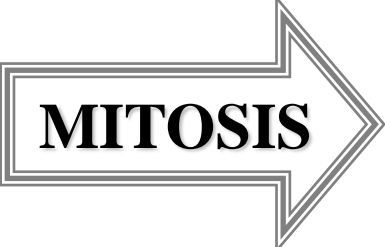
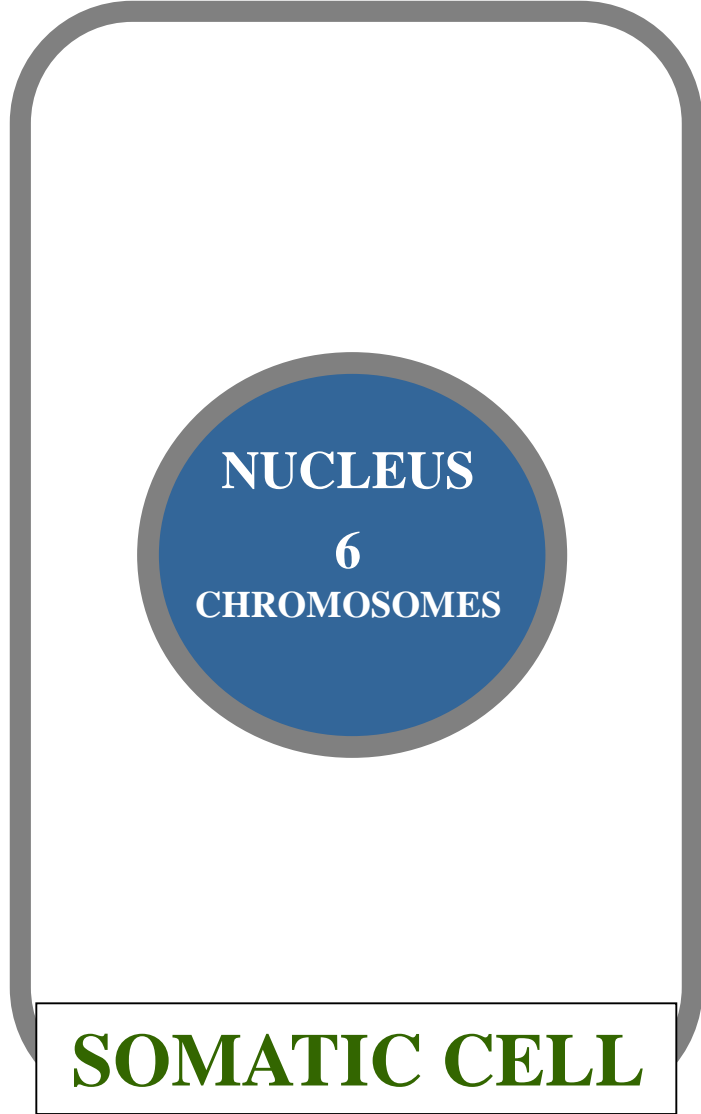


# TRUE PLT SOMATIC CELL



**SOMATIC CELL**



**DERIVES**

**GROWTH**

**&**

**MAINTENANCE**

**CELLS**





**SOMATIC CELL  
DO NOT DERIVE  
SEXUAL  
REPRODUCTIVE  
CELLS**



**SOMATIC CELL  
DO NOT DERIVE  
GAMETES  
OR  
SPORES**





# TRUE PLANT SOMATIC CELL CYCLE SPECIFICS

# WILD ONION

+

MC

*ALLIUM* ROOT



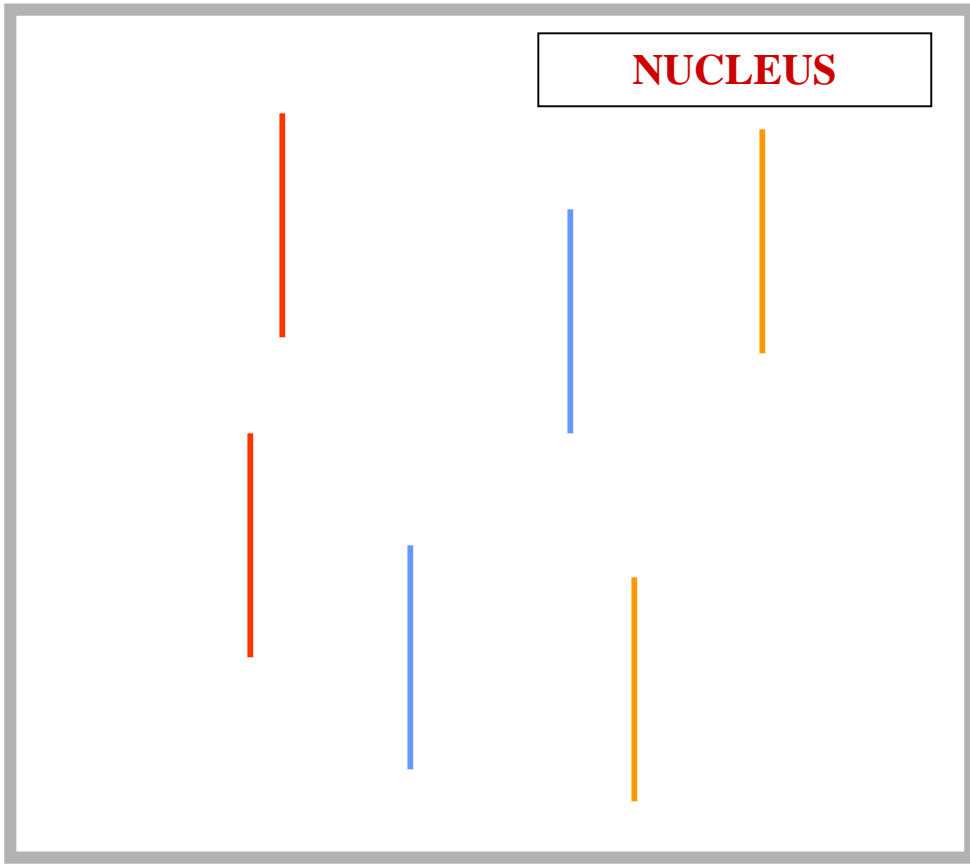


# SOMATIC MOTHER CELL



CYTOSOL

CYTOSOL



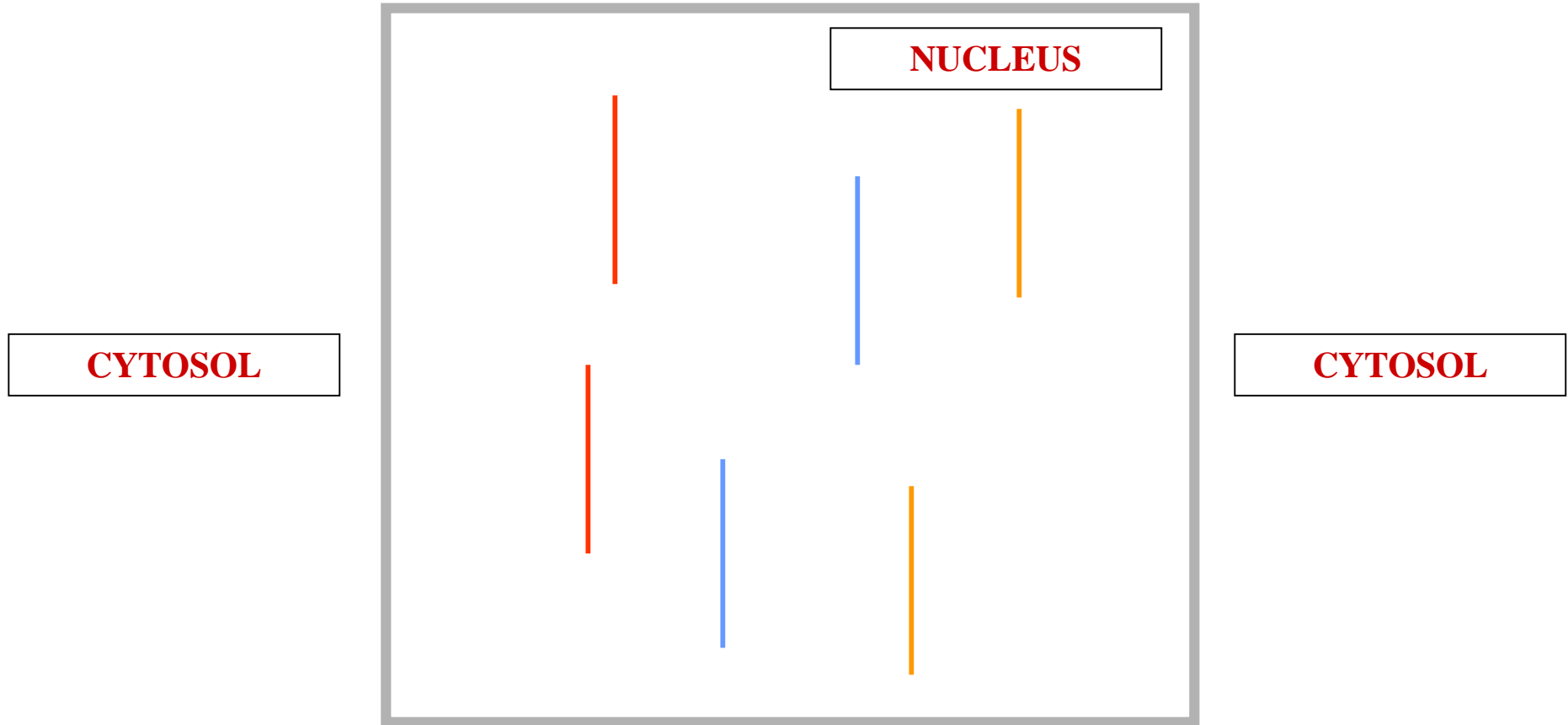
*ALLIUM* ROOT CELL



# INTERPHASE STAGE

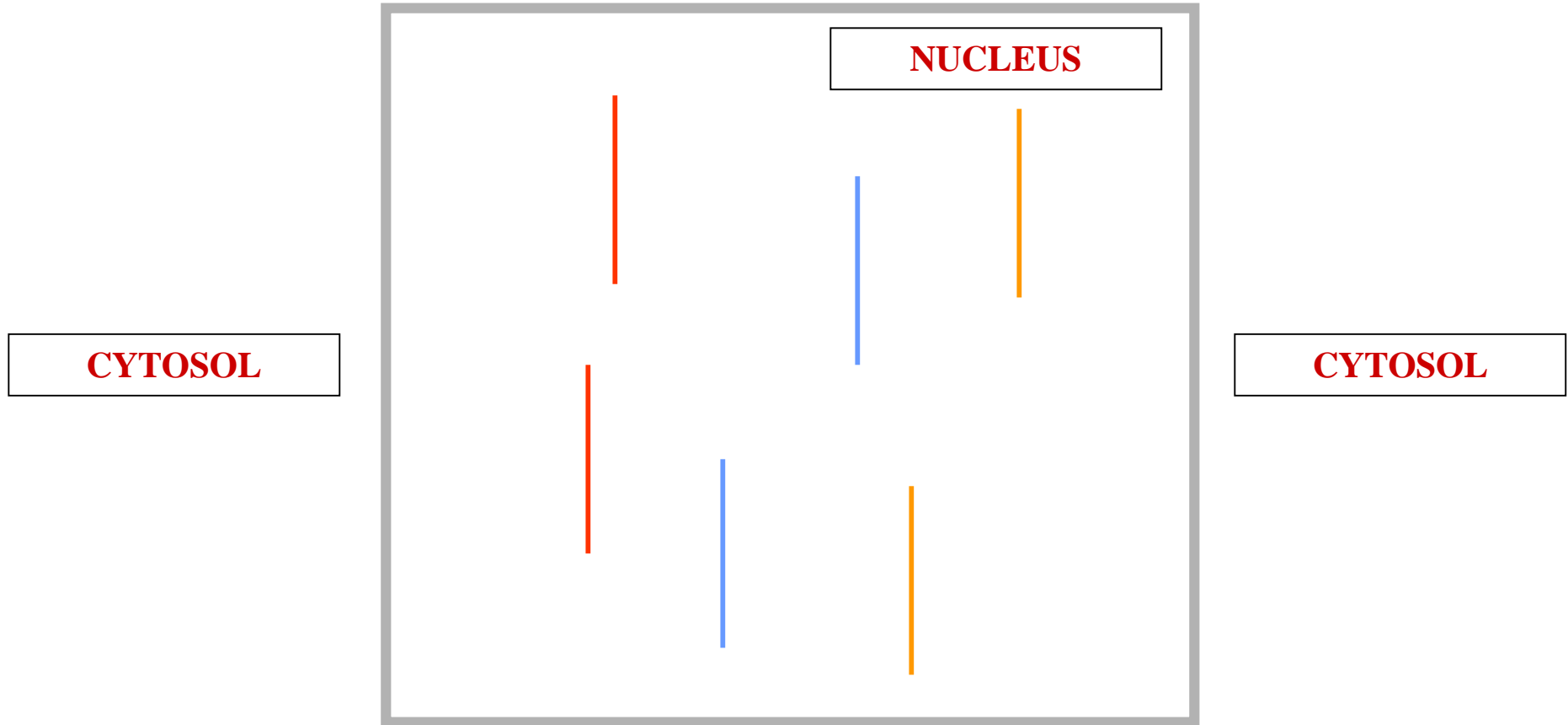


# SOMATIC MOTHER CELL



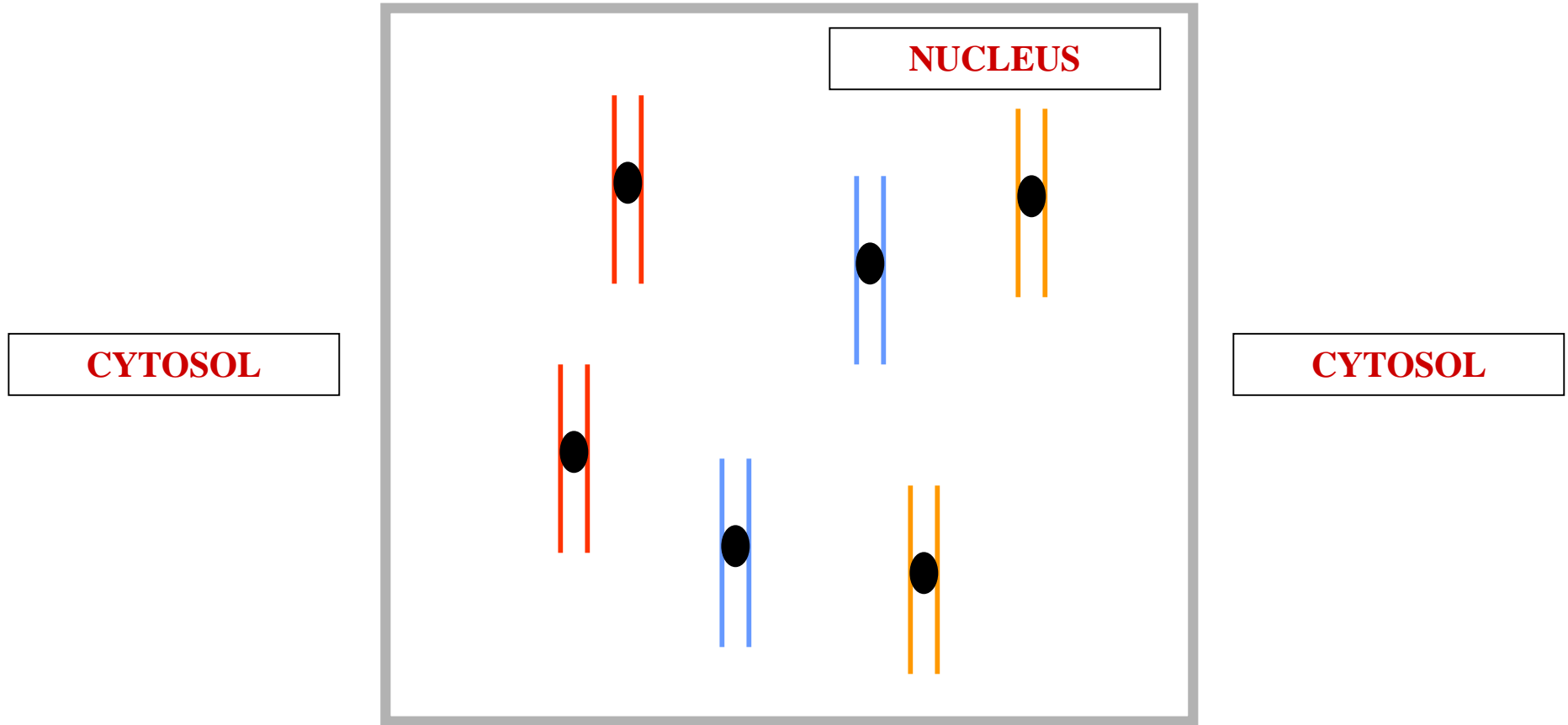
**6 CHROMOSOMES**

# SOMATIC MOTHER CELL



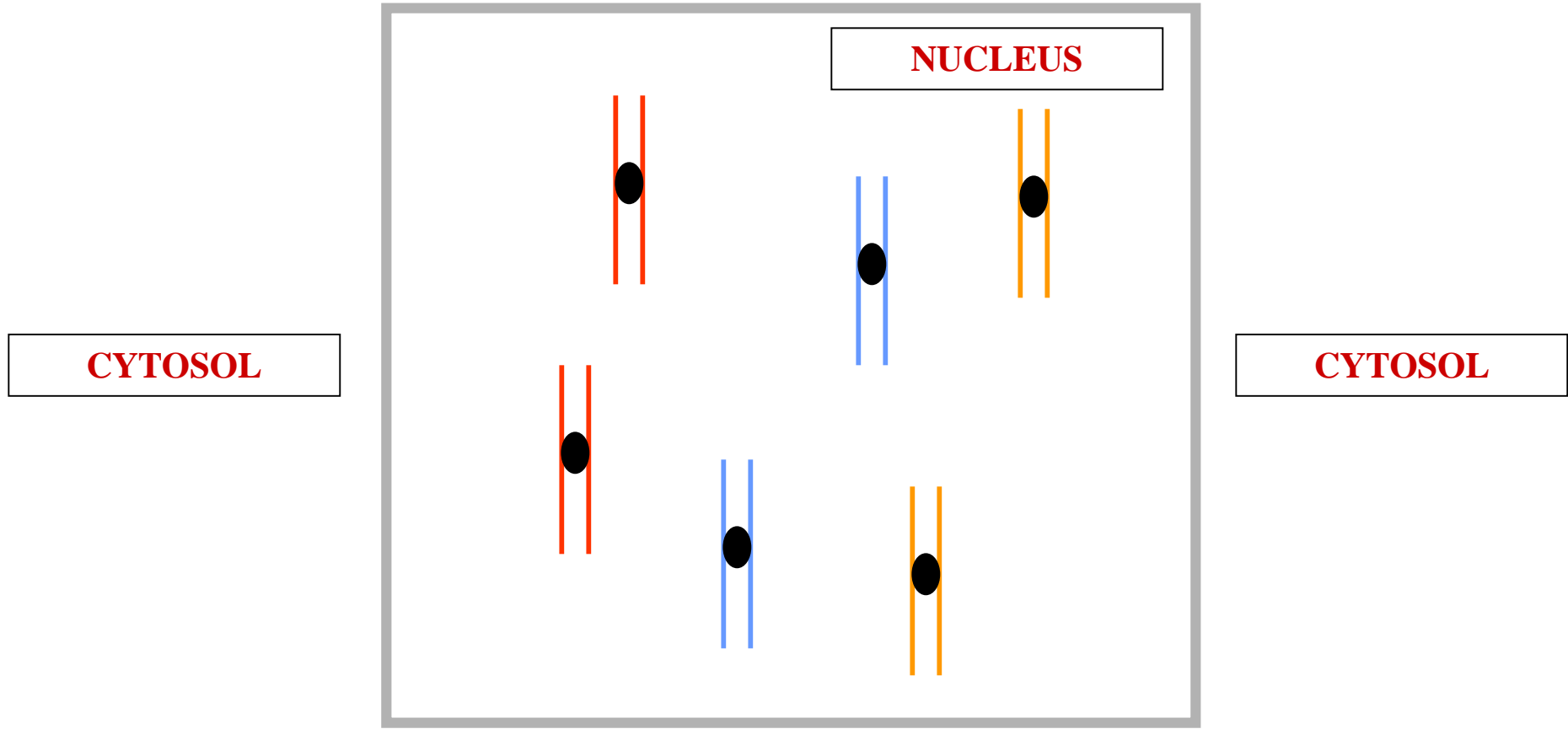
**CHROMOSOMES REPLICATE**

# INTERPHASE



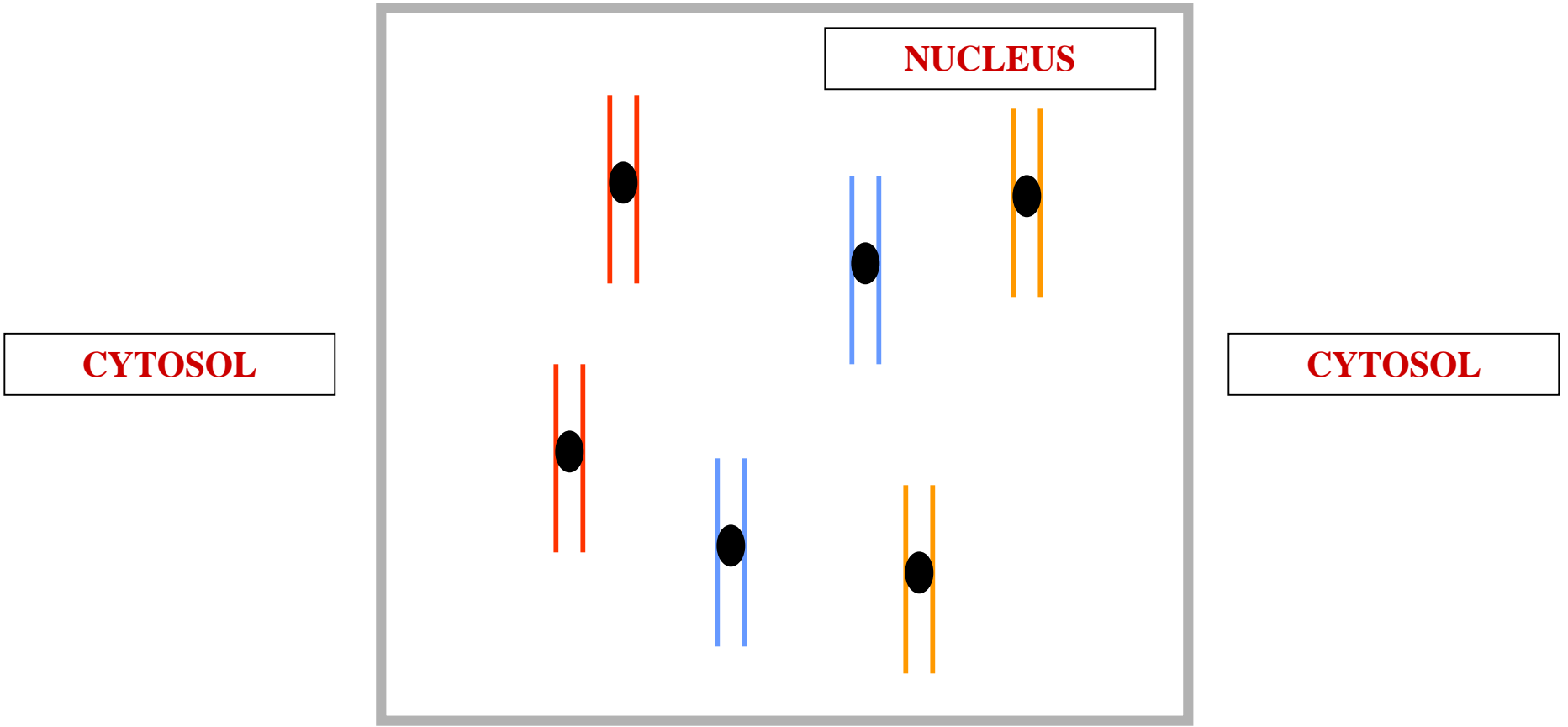
# CHROMOSOMES REPLICATE

# INTERPHASE



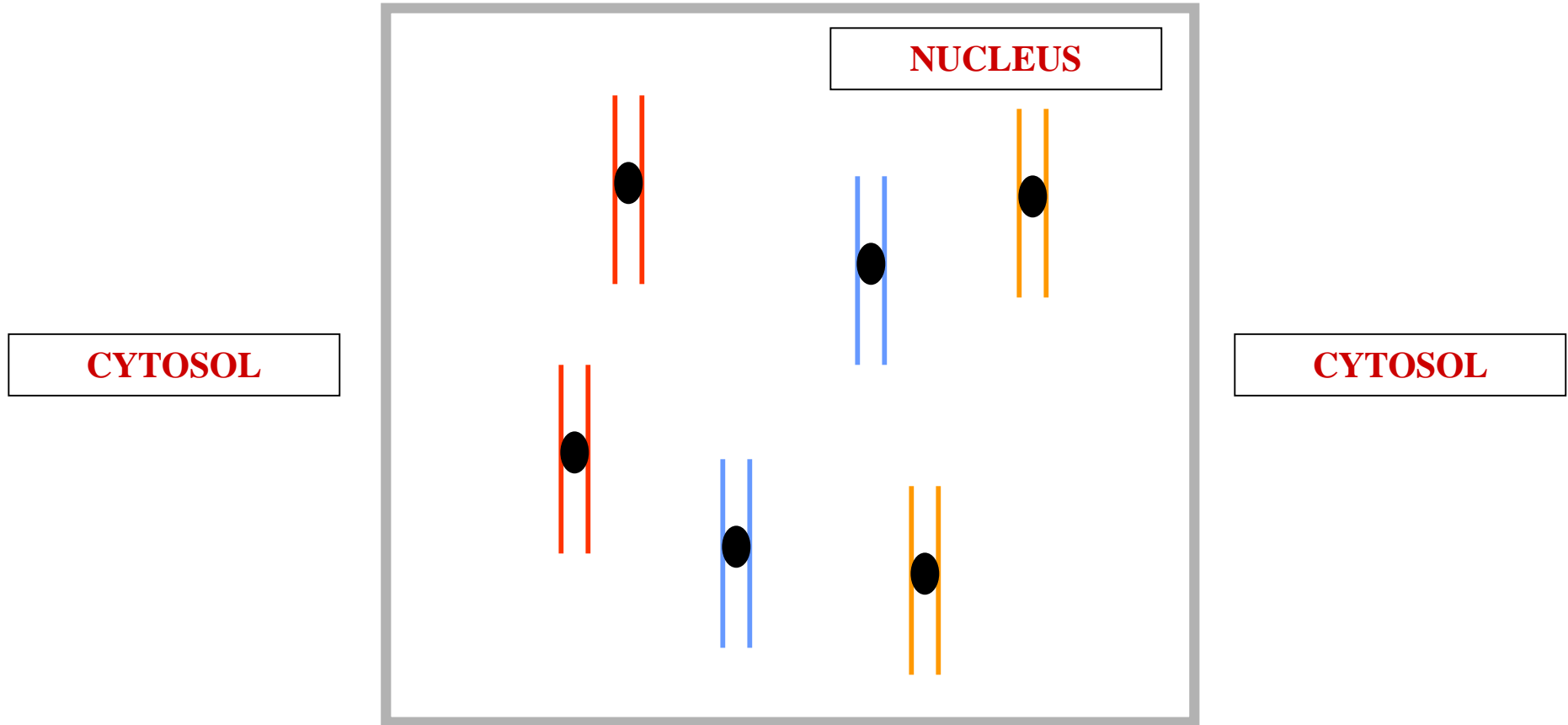
# TWO CHROMATIDS

# INTERPHASE



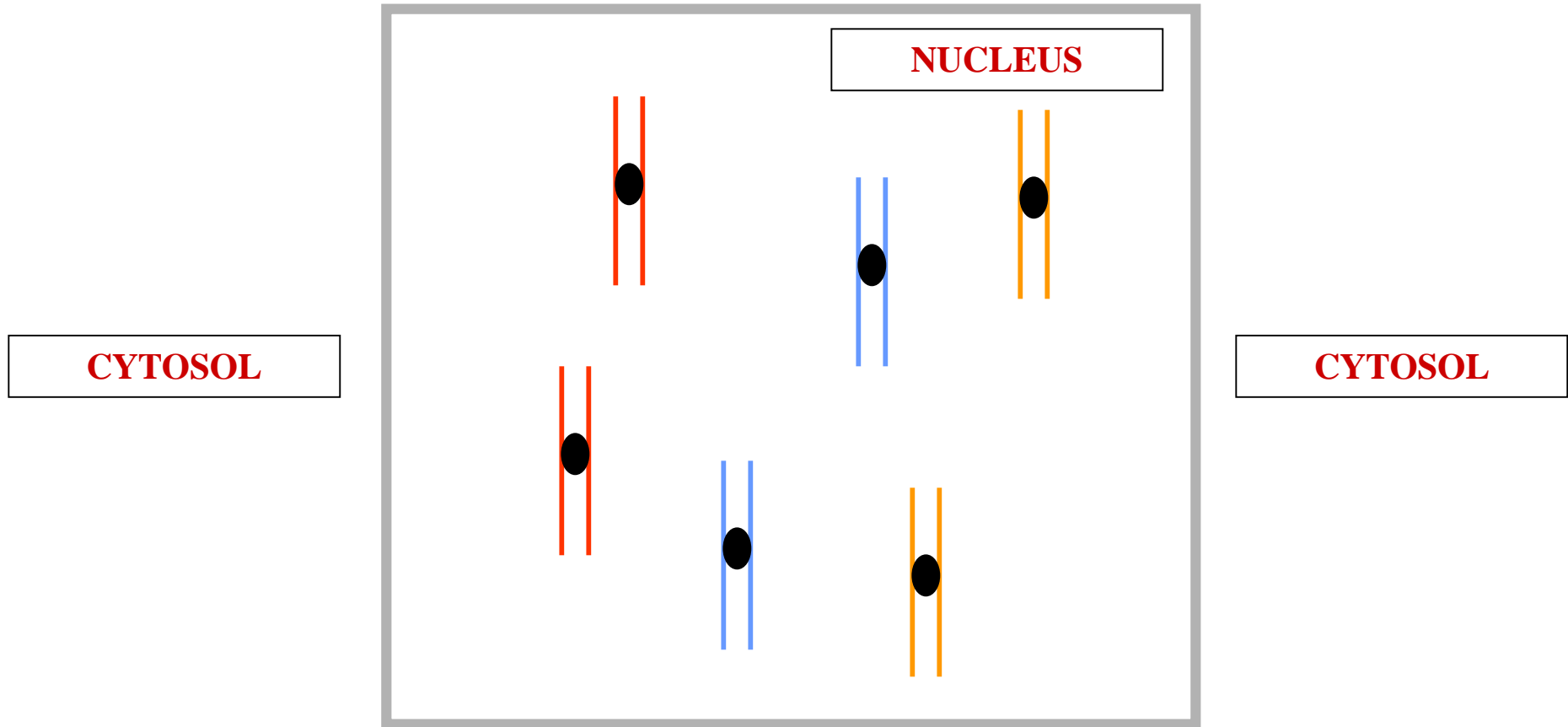
## DNA CONTENT DOUBLED

# INTERPHASE



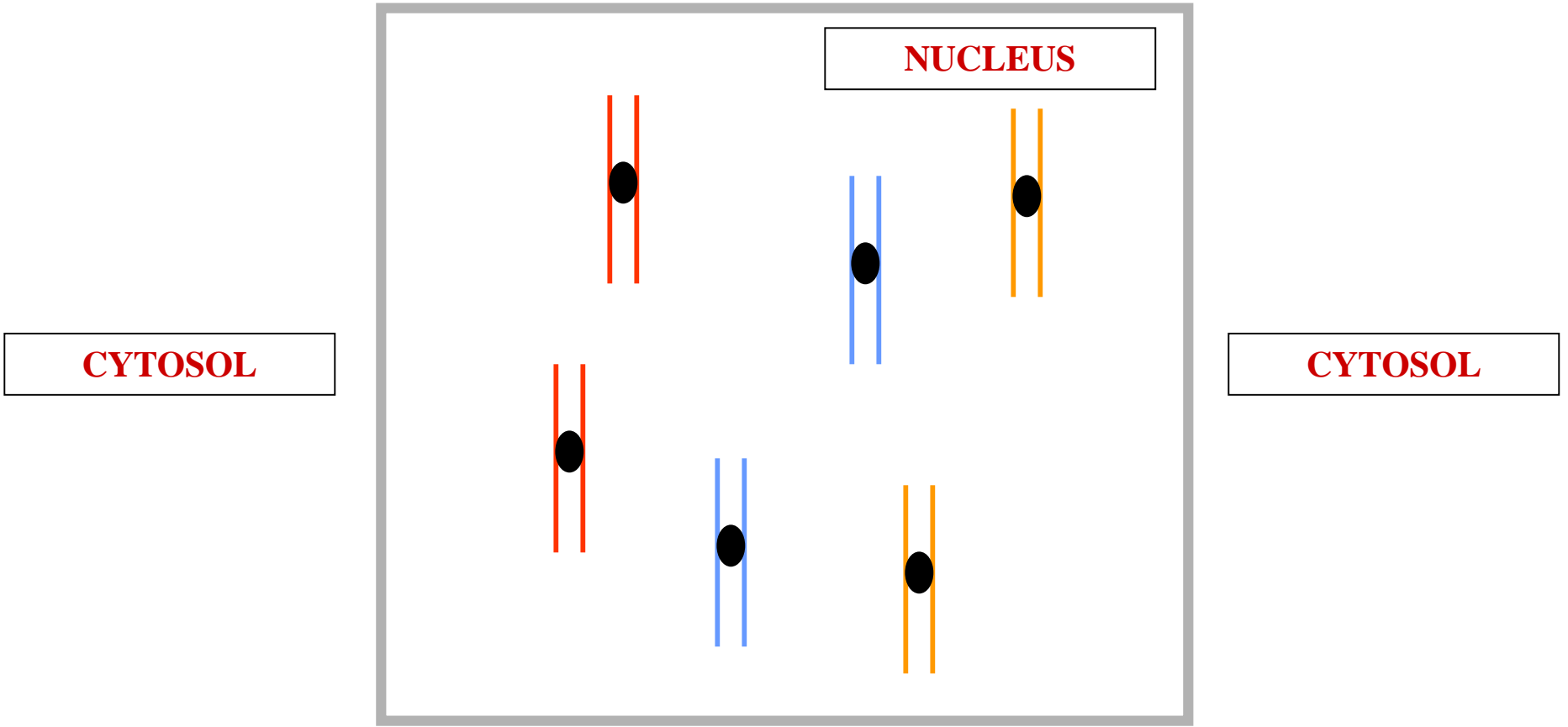
**6 CHROMOSOMES**

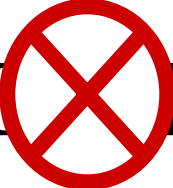
# INTERPHASE



**12 REPLICATED CHROMOSOMES**

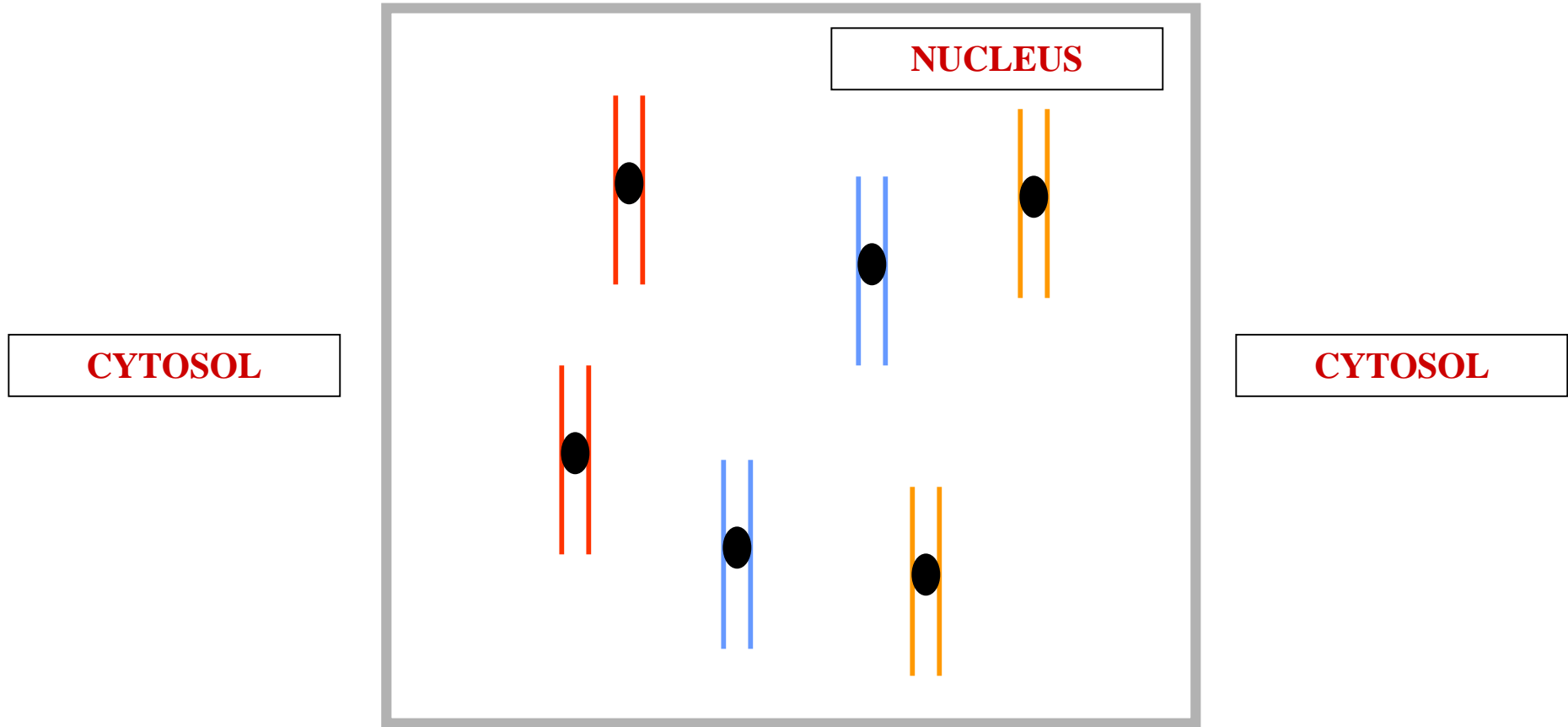
# INTERPHASE



12 REPLICATED  CHROMOSOMES

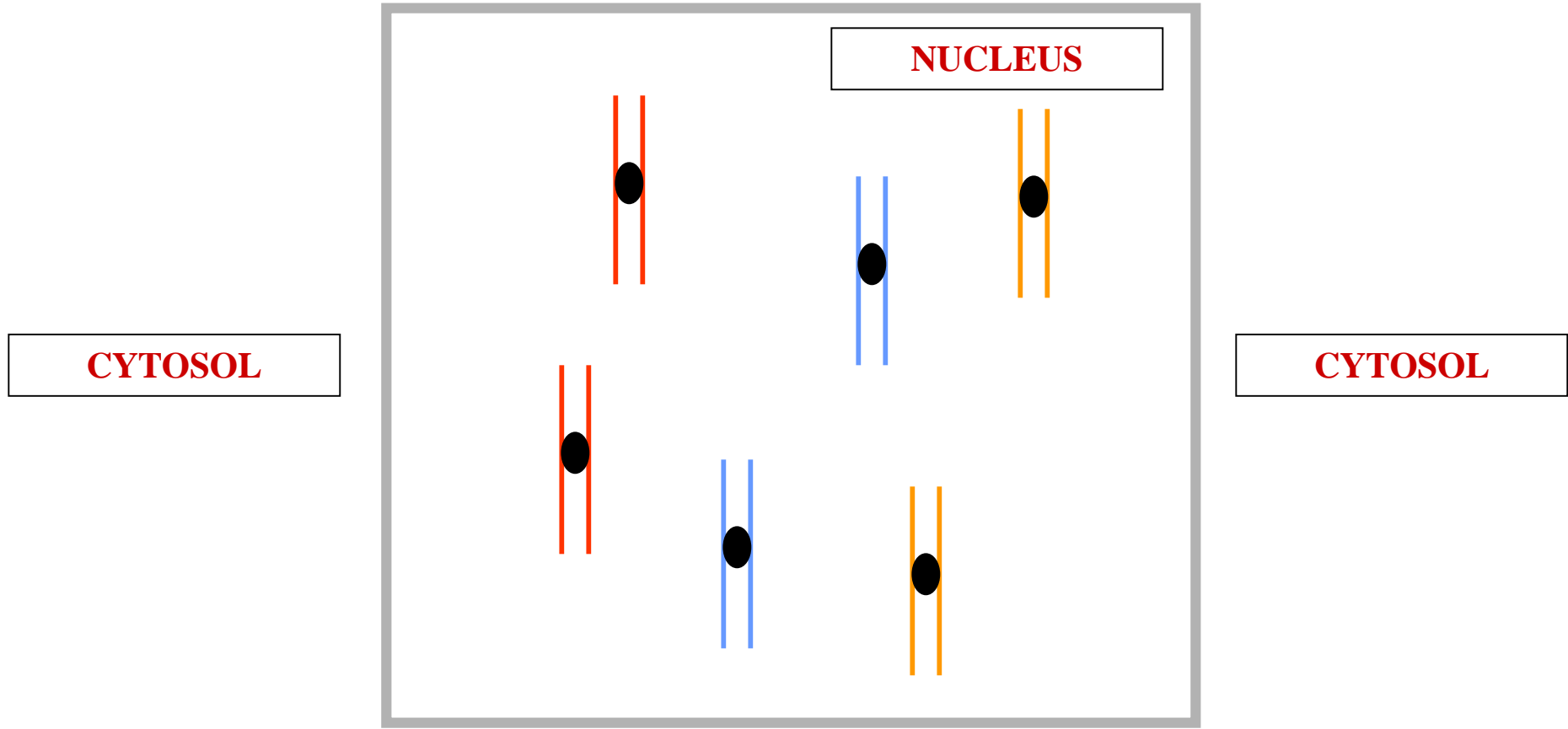


# INTERPHASE



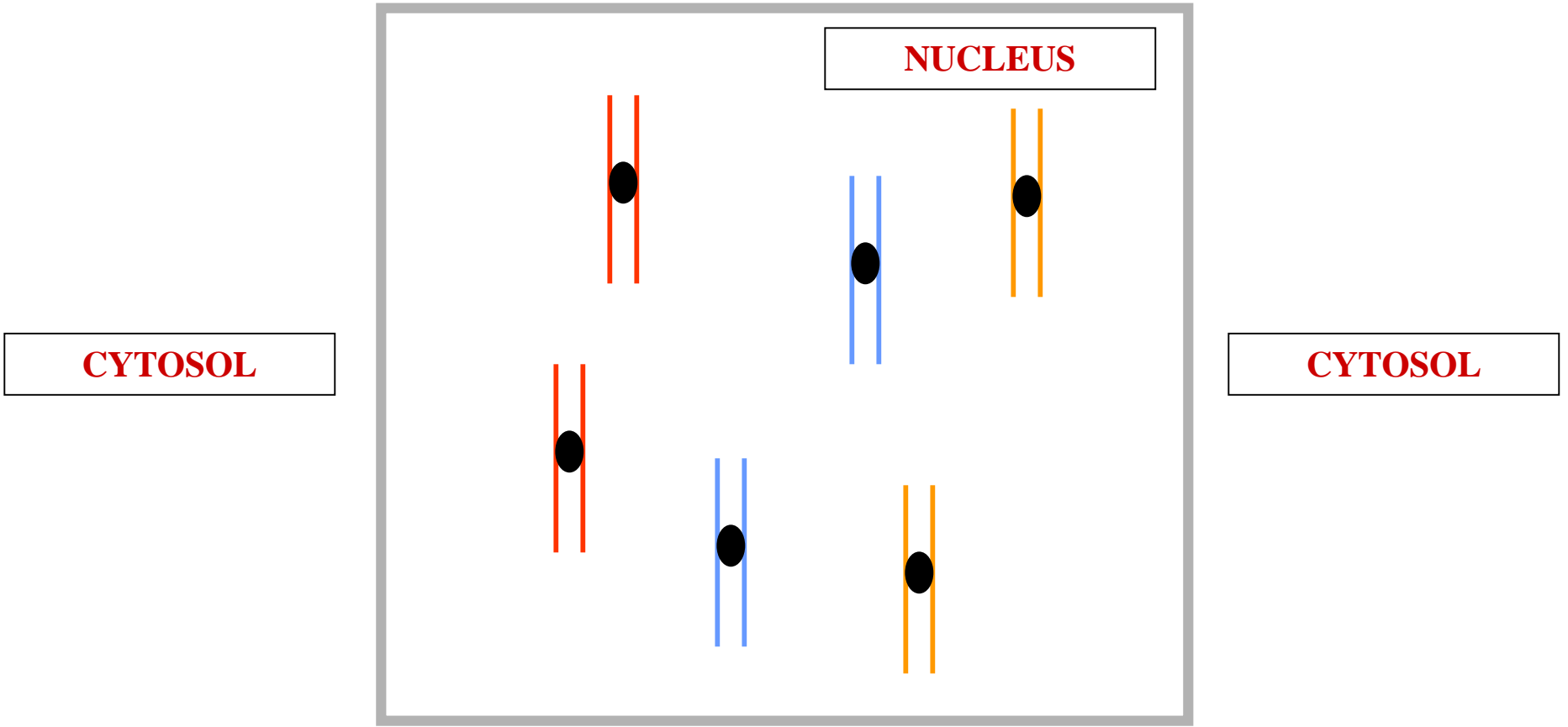
## 6 REPLICATED CHROMOSOMES

# INTERPHASE



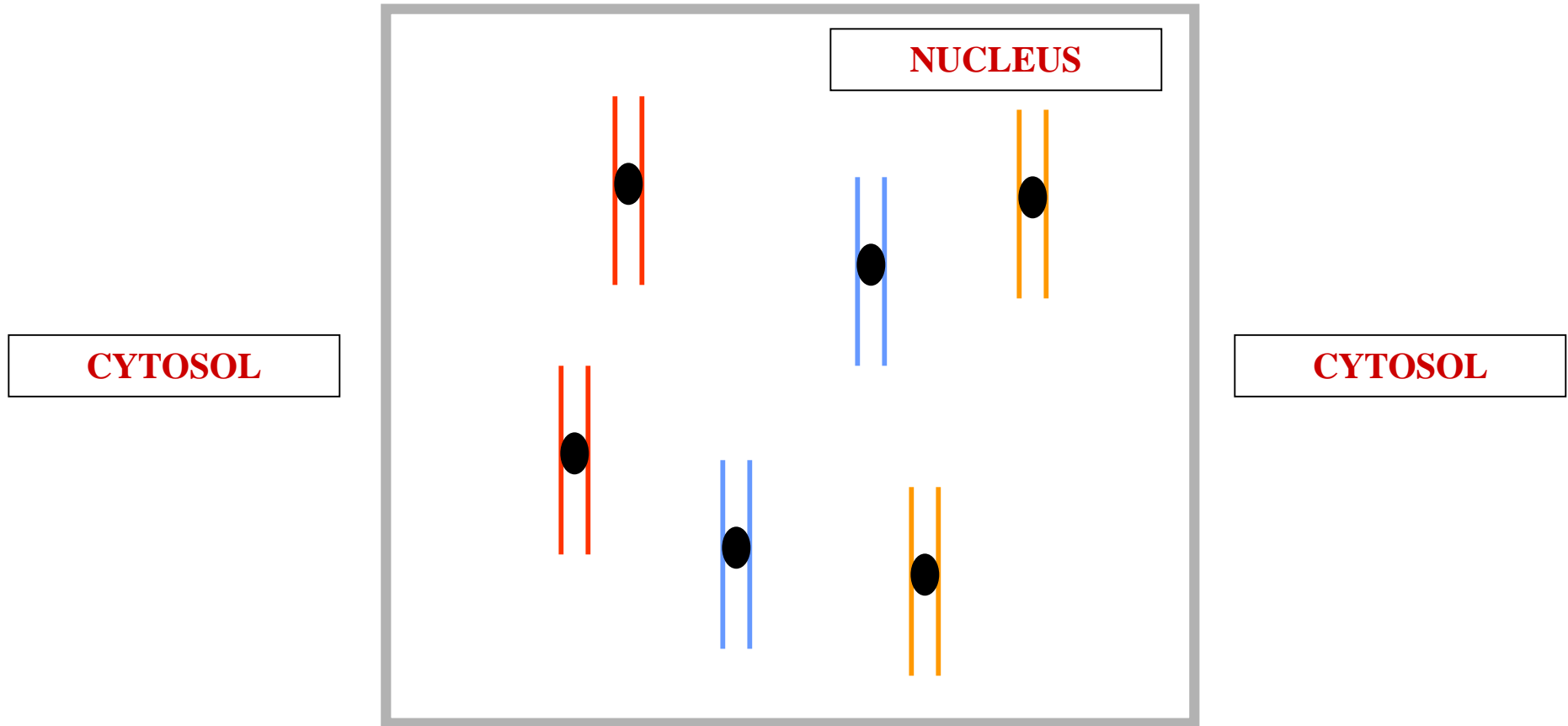
# TWO CHROMATIDS

# INTERPHASE



## DNA CONTENT DOUBLED

# INTERPHASE



**6 CHROMOSOMES**

**INTERPHASE**



**SOMATIC PLANT CELL**

***ALLIUM* ROOT**

# INTERPHASE



NUCLEOLUS  
PRESENT  
---  
RED REGION WITHIN  
NUCLEUS

**SOMATIC PLANT CELL**

***ALLIUM* ROOT**



# **KARYOKINESIS**

## **STAGE**



# **KARYOKINESIS**

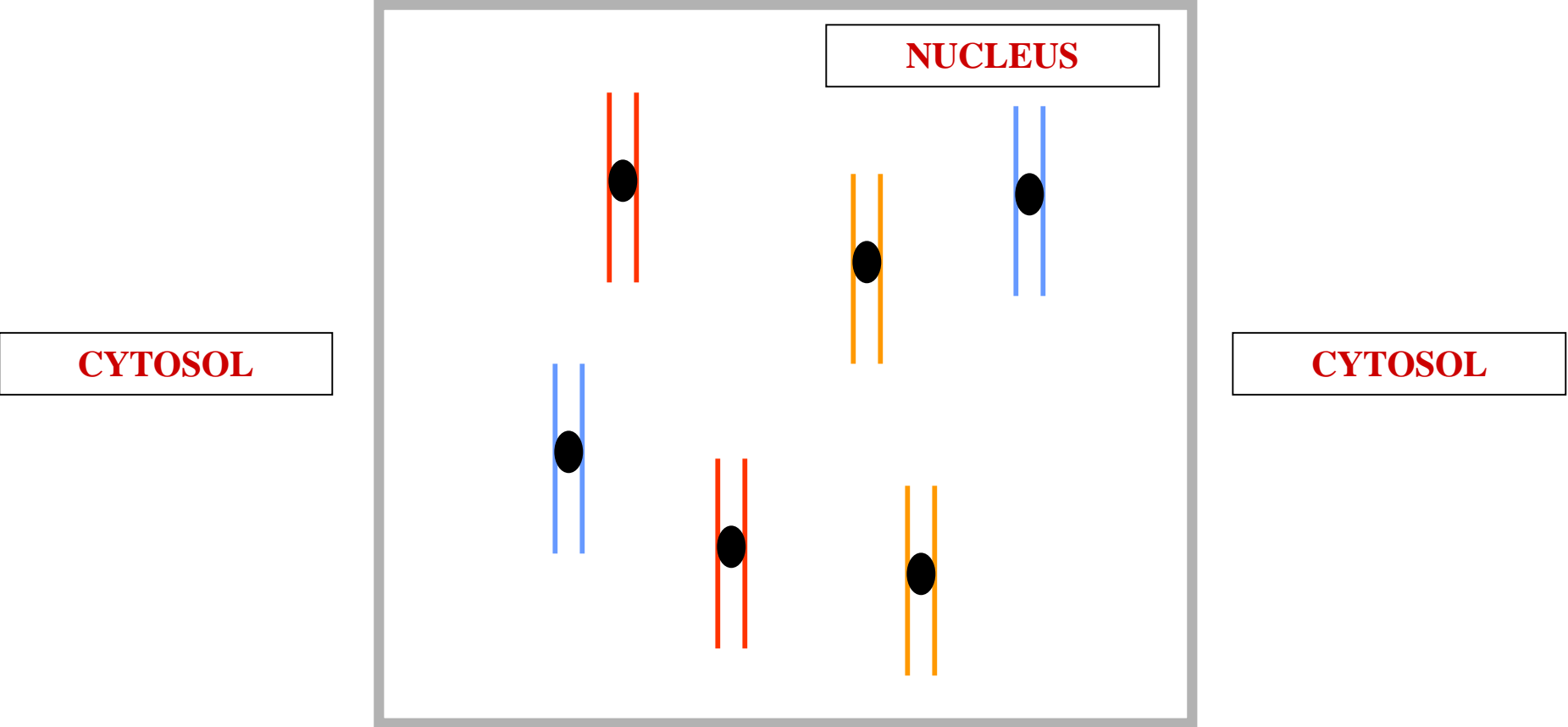
# **MITOSIS**

# **SPECIFICS**



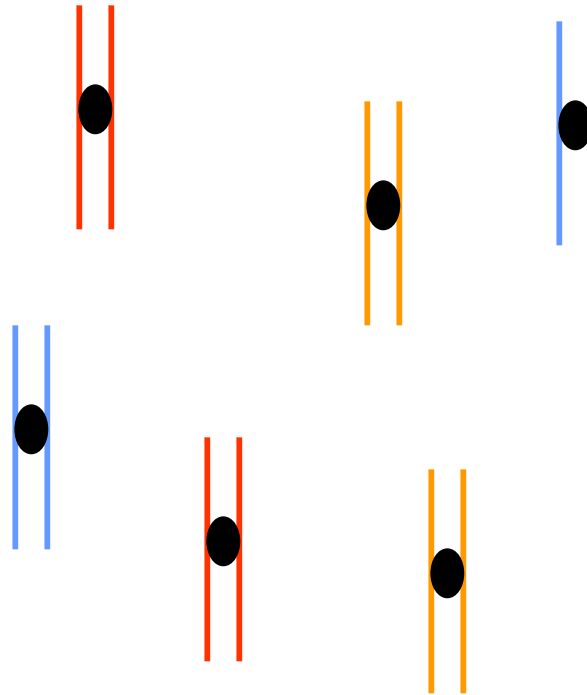
**PROPHASE**

# PROPHASE



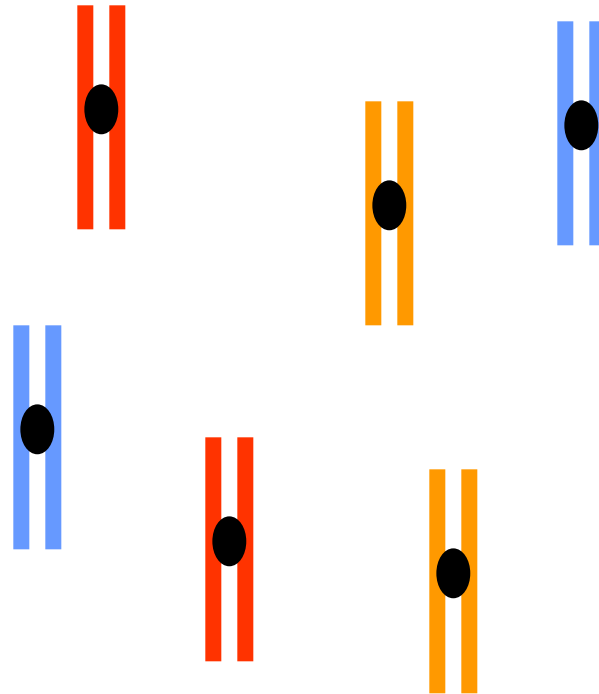
**6 CHROMOSOMES**

# PROPHASE

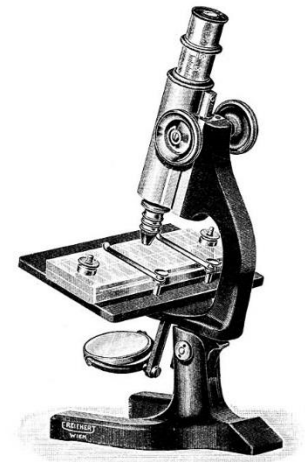


**NUCLEAR  
MEMBRANE  
DISSIPATES**

# PROPHASE



**CHROMOSOMES  
CONDENSE**

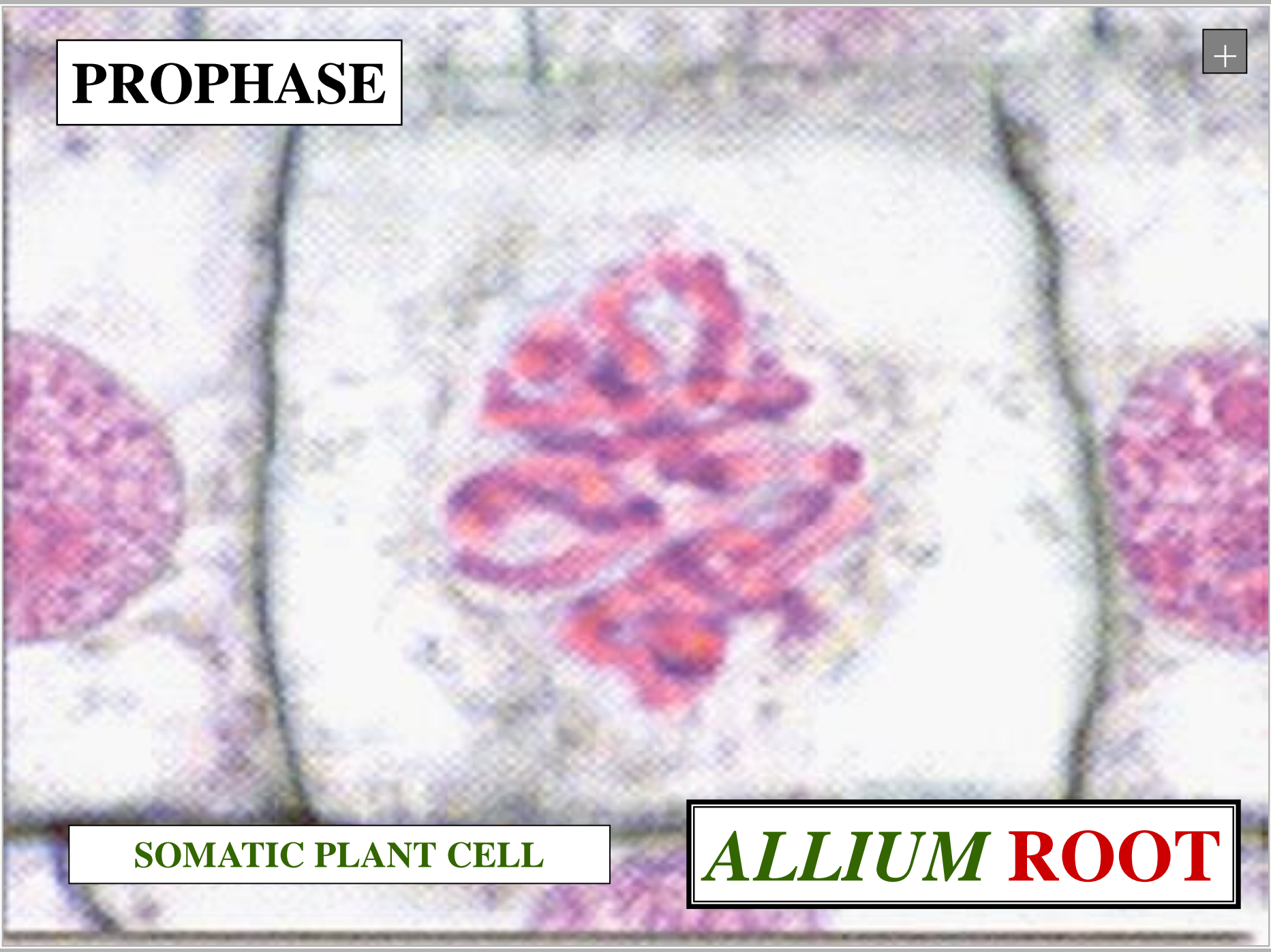


**PROPHASE**



**SOMATIC PLANT CELL**

***ALLIUM* ROOT**



# PROPHASE

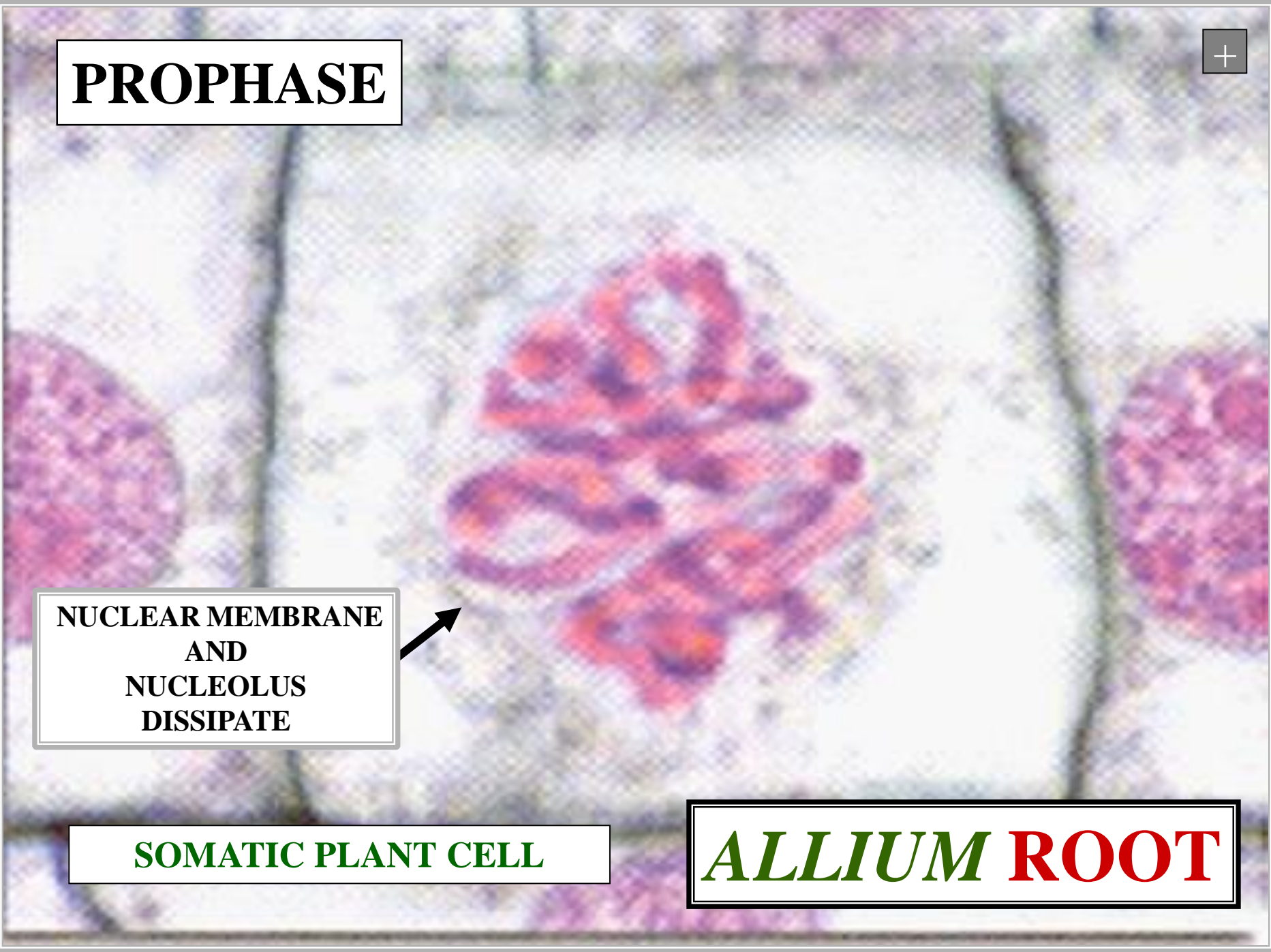


NUCLEAR MEMBRANE  
AND  
NUCLEOLUS  
DISSIPATE



SOMATIC PLANT CELL

*ALLIUM* ROOT



# PROPHASE



CHROMOSOMES  
CONDENSE

A black arrow pointing from the text box to the condensed chromosomes in the cell.

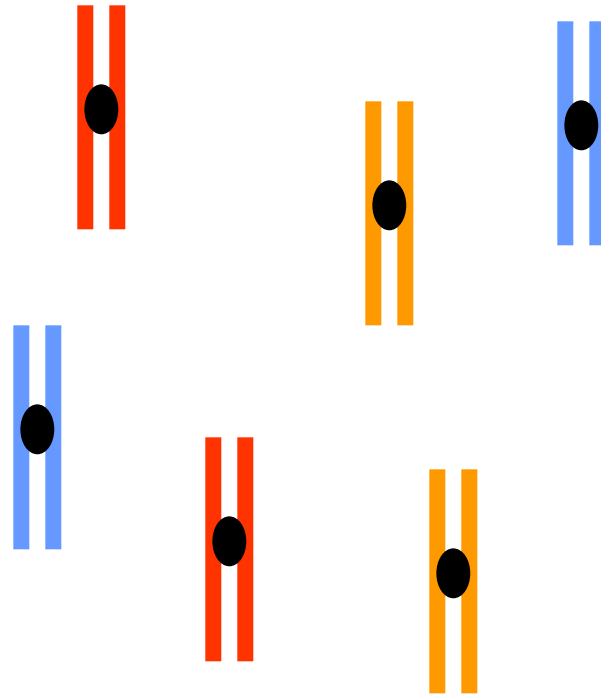
SOMATIC PLANT CELL

*ALLIUM* ROOT

# **METAPHASE**



# METAPHASE

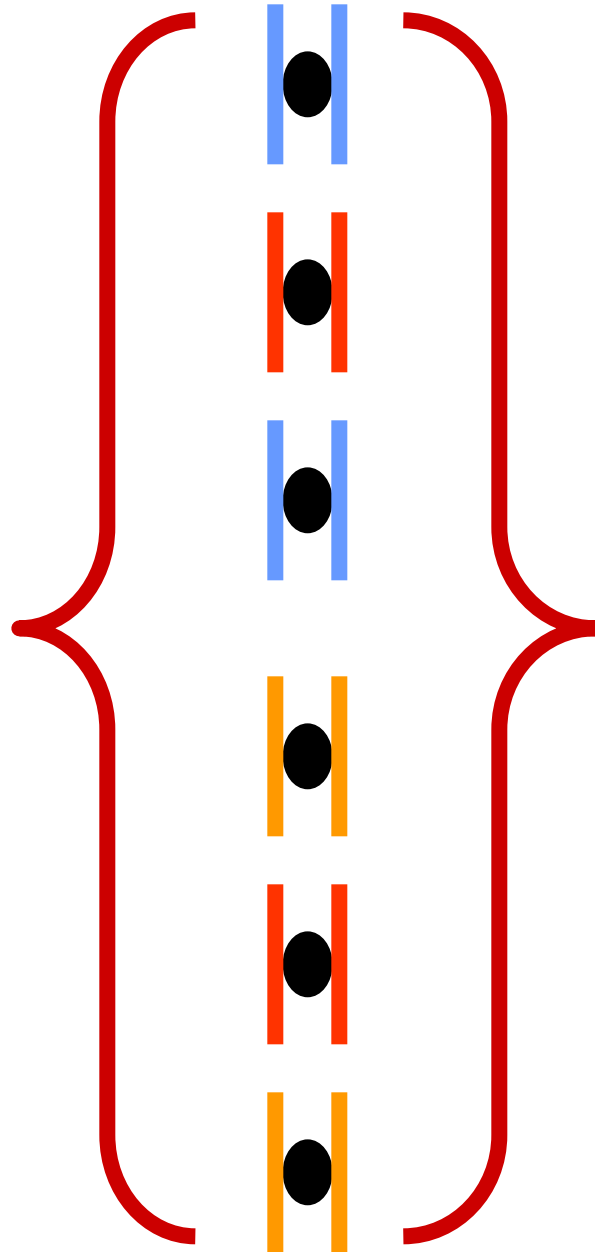


# METAPHASE



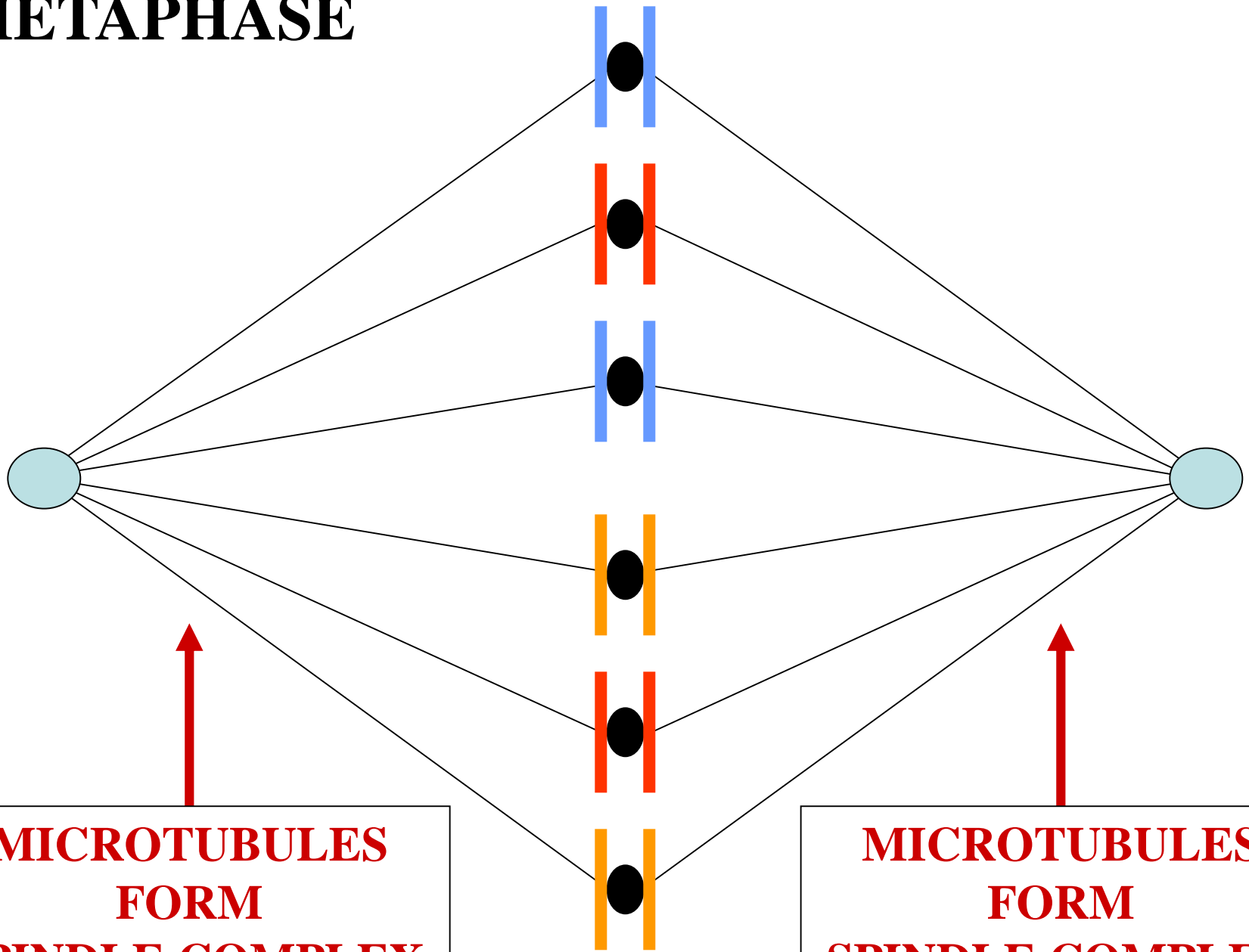
# METAPHASE

**EQUATORIAL  
PLANE**



**EQUATORIAL  
PLANE**

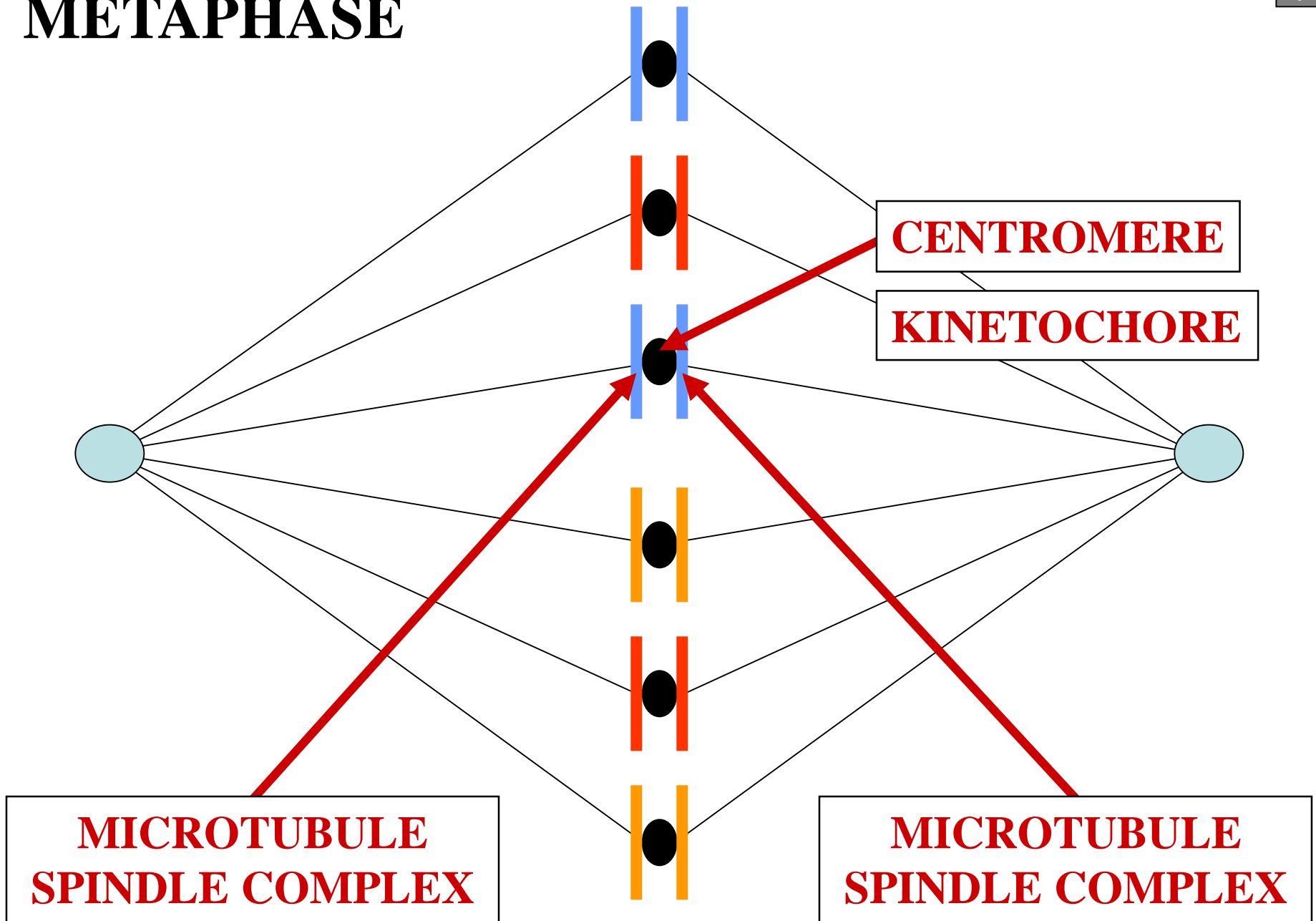
# METAPHASE

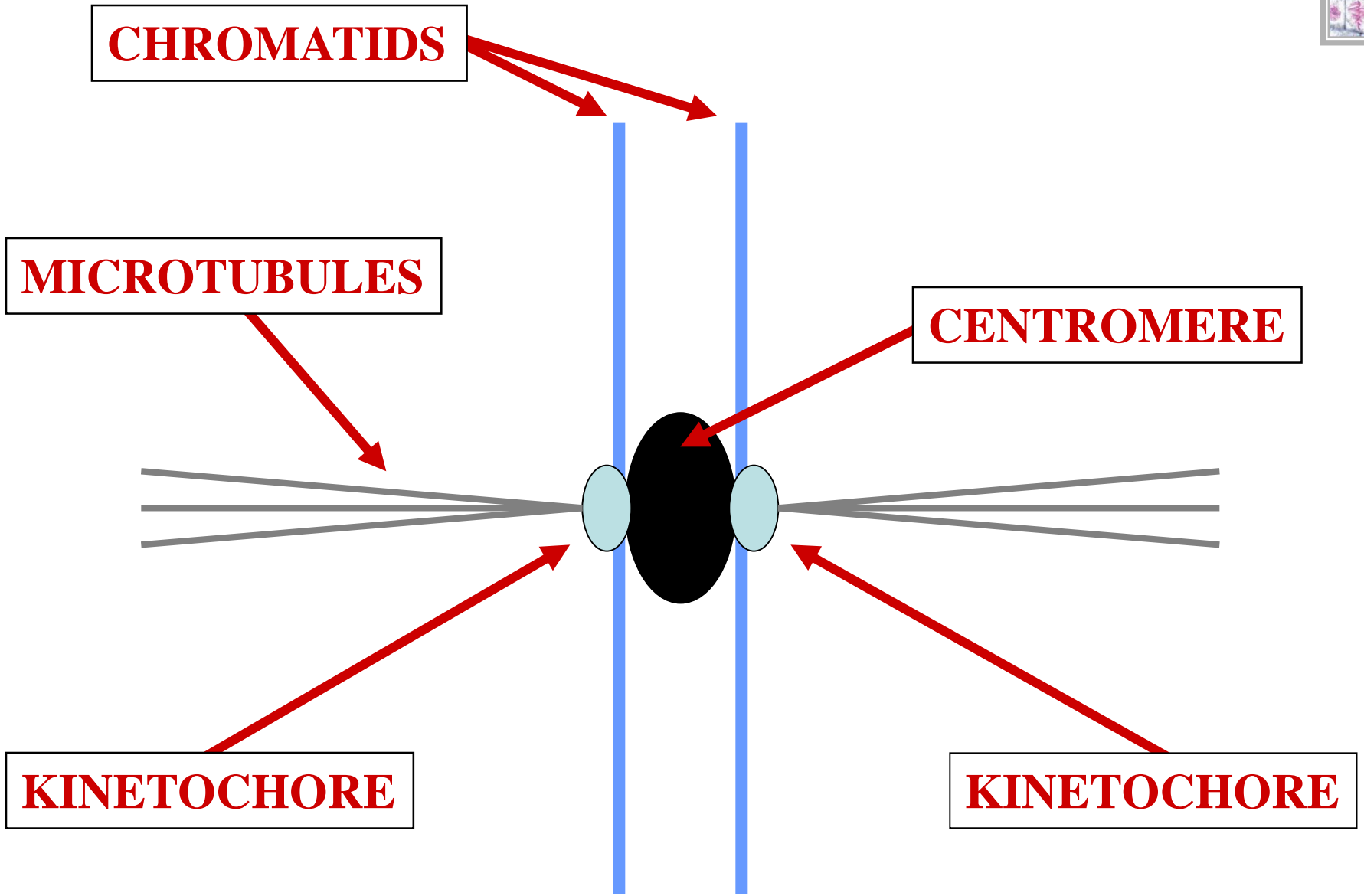


**MICROTUBULES  
FORM  
SPINDLE COMPLEX**

**MICROTUBULES  
FORM  
SPINDLE COMPLEX**

# METAPHASE





**METAPHASE**



**SOMATIC PLANT CELL**

***ALLIUM* ROOT**

# METAPHASE

CHROMOSOMES  
ALIGN  
EQUATORIAL PLANE



SOMATIC PLANT CELL

*ALLIUM* ROOT



# METAPHASE



MICROTUBULE  
SPINDLE COMPLEX  
FORMS

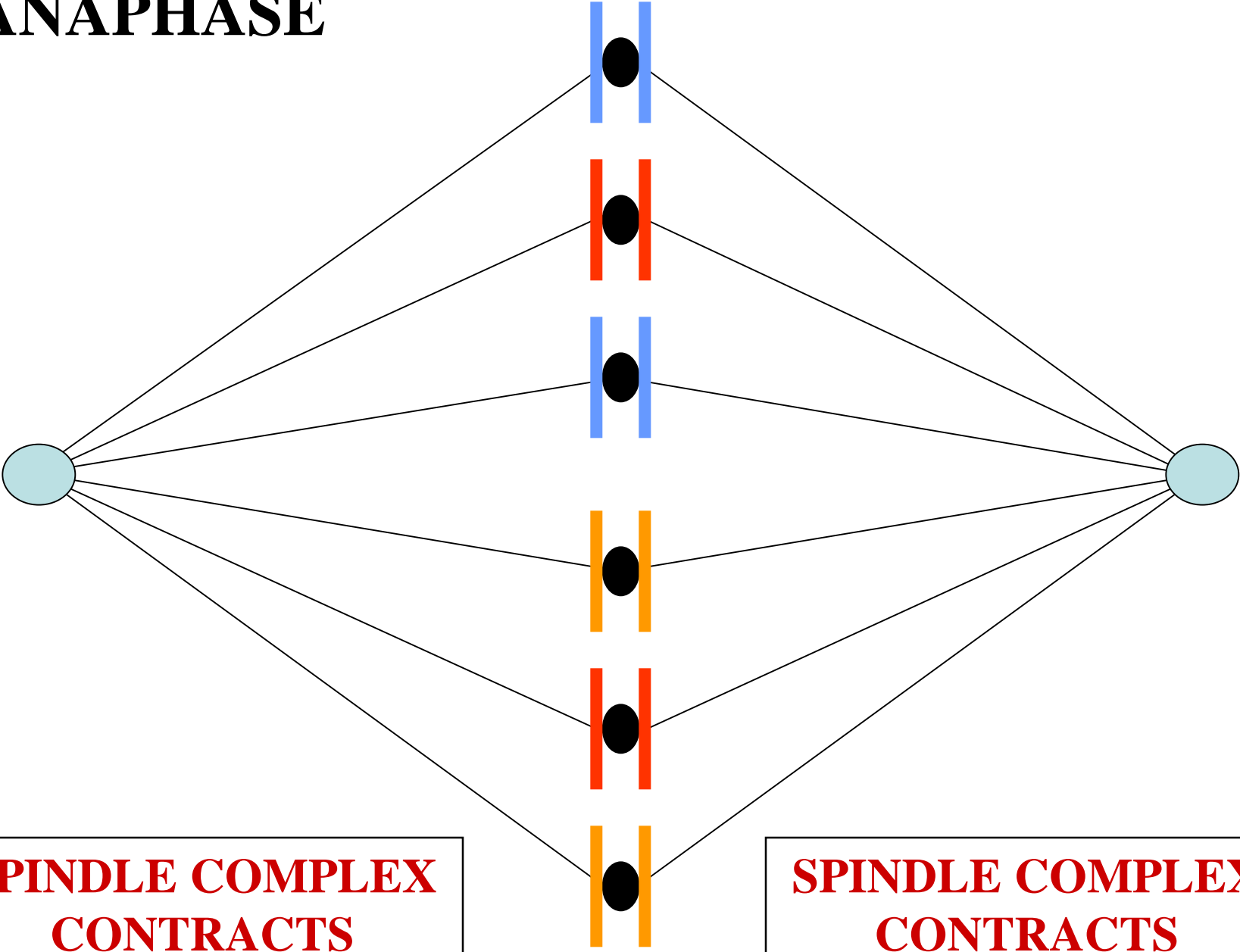
A black arrow pointing from the text box to the central spindle complex in the cell.

SOMATIC PLANT CELL

*ALLIUM* ROOT

# ANAPHASE

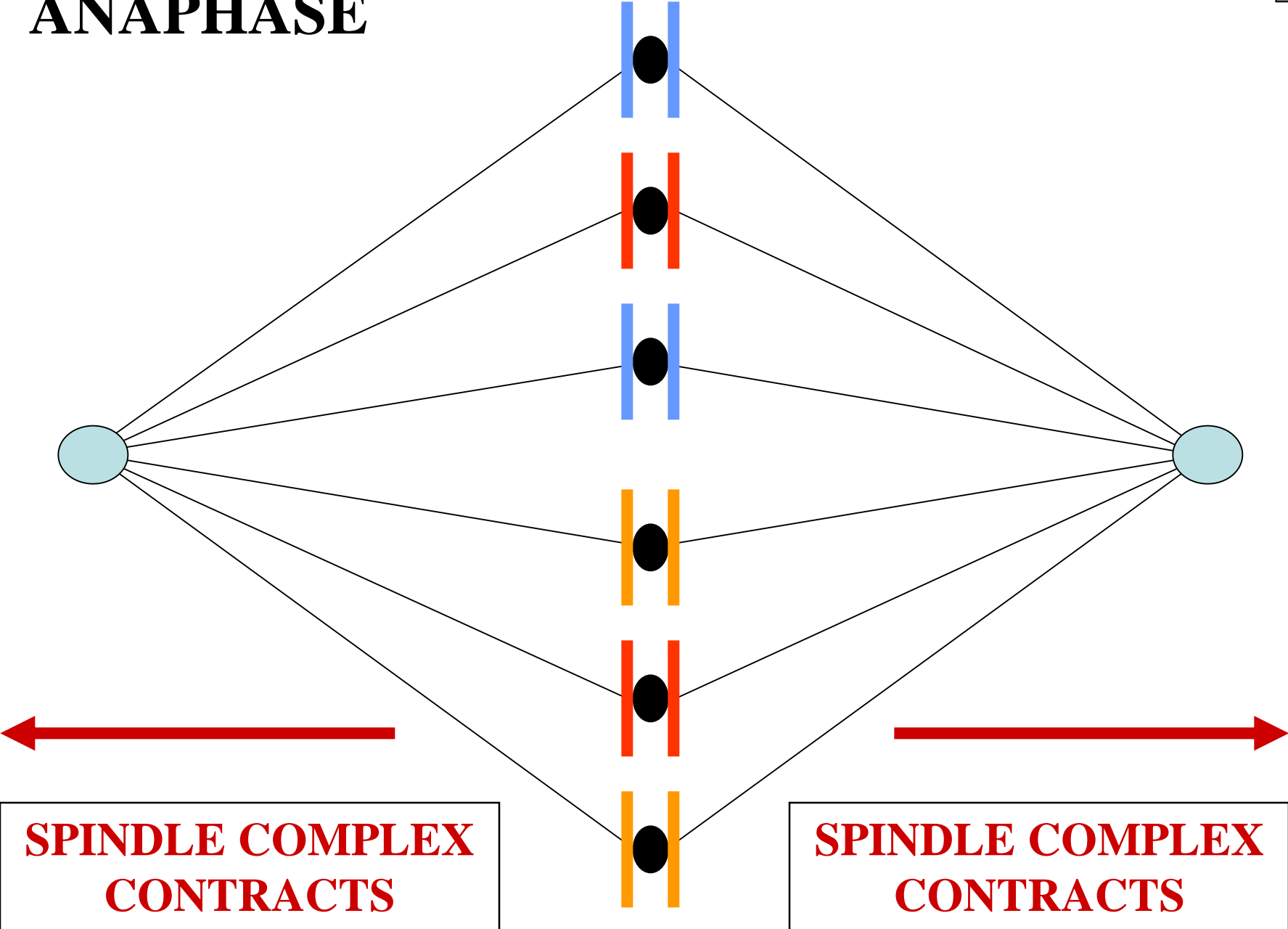
# ANAPHASE



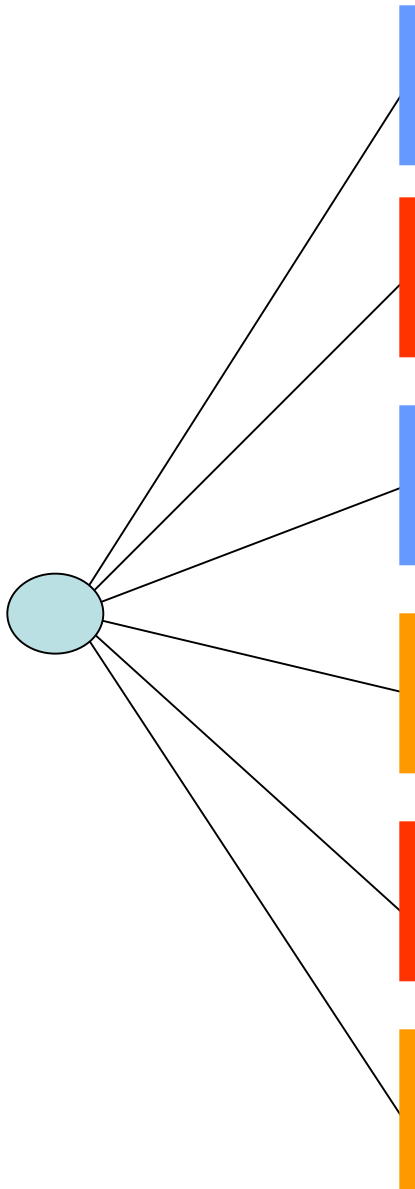
**SPINDLE COMPLEX  
CONTRACTS**

**SPINDLE COMPLEX  
CONTRACTS**

# ANAPHASE

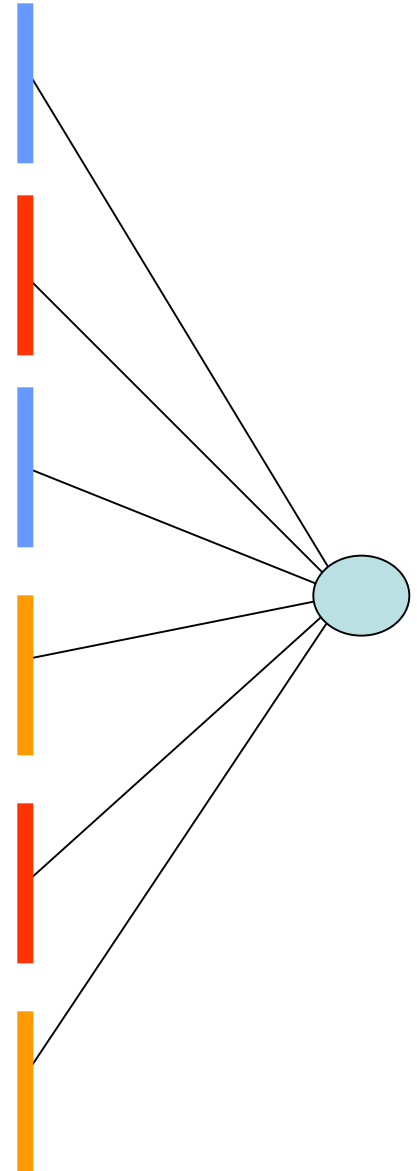


# ANAPHASE

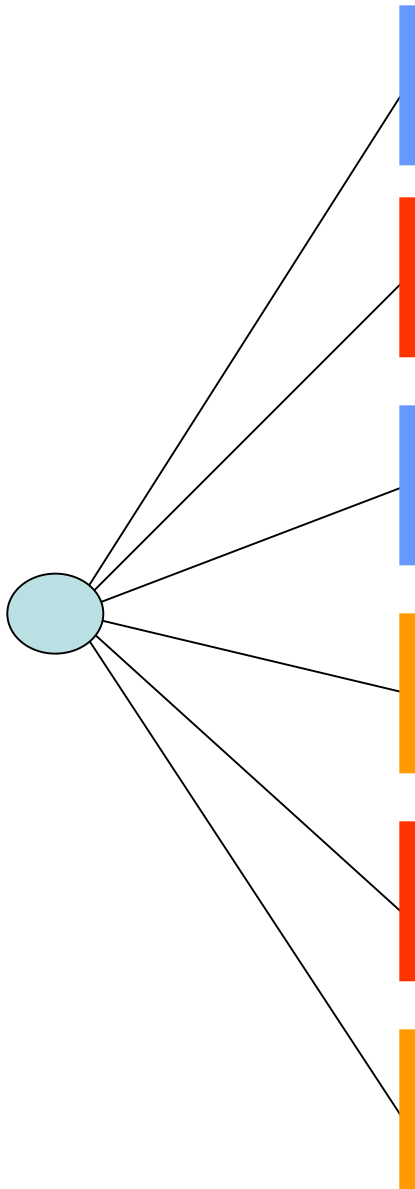


?

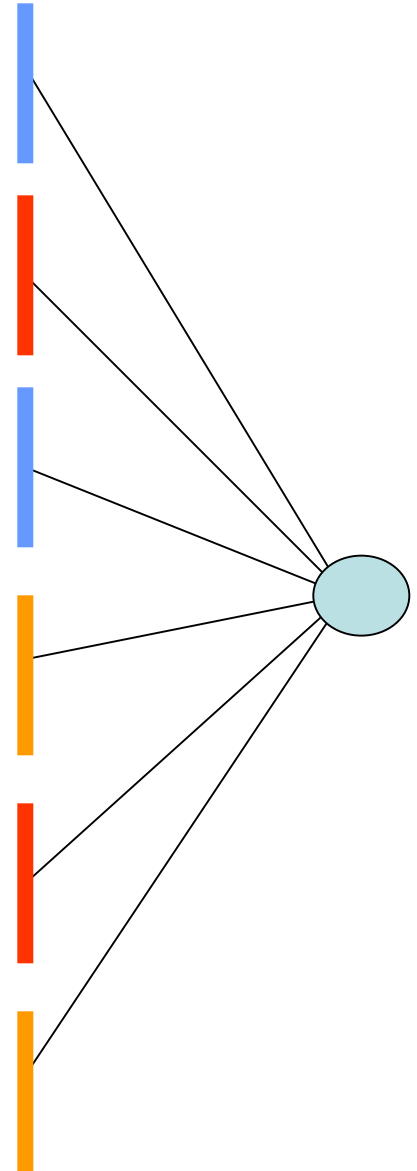
**BREAKDOWN**



# ANAPHASE

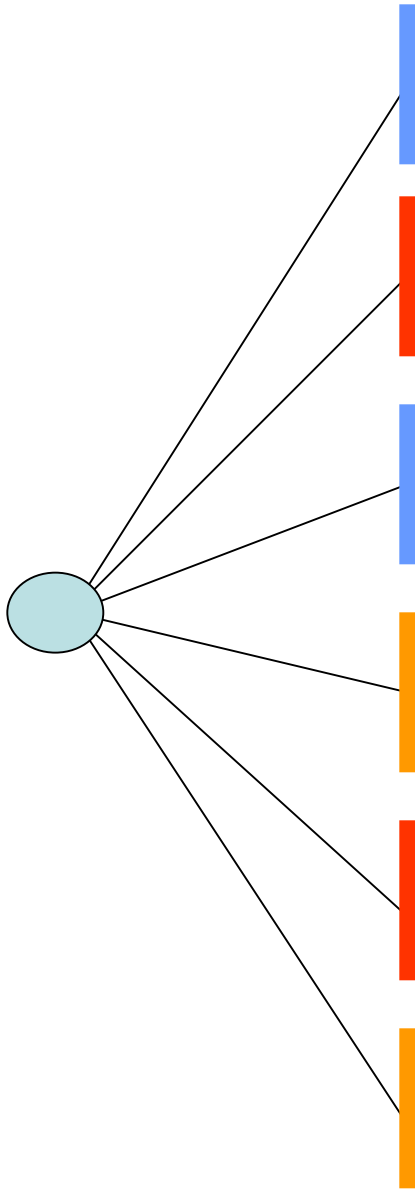


**CHROMOSOME  
CENTROMERES  
BREAKDOWN**

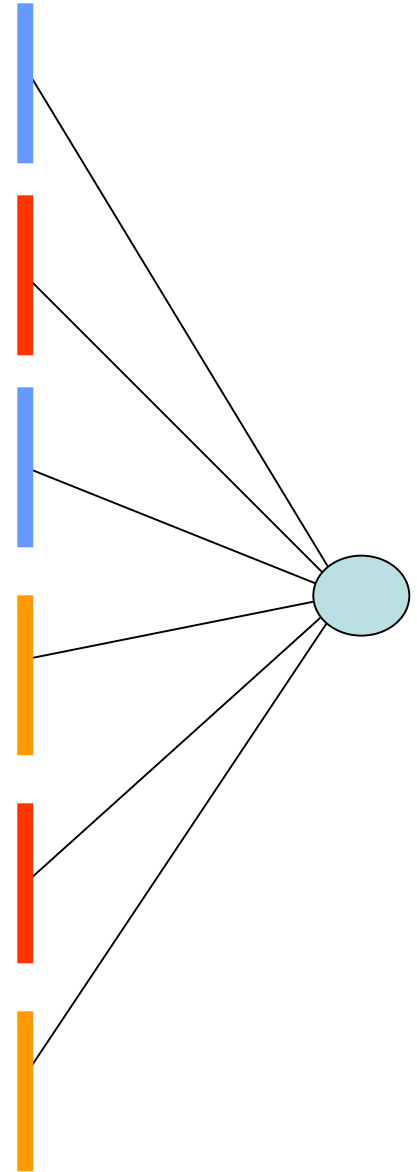


# ANAPHASE

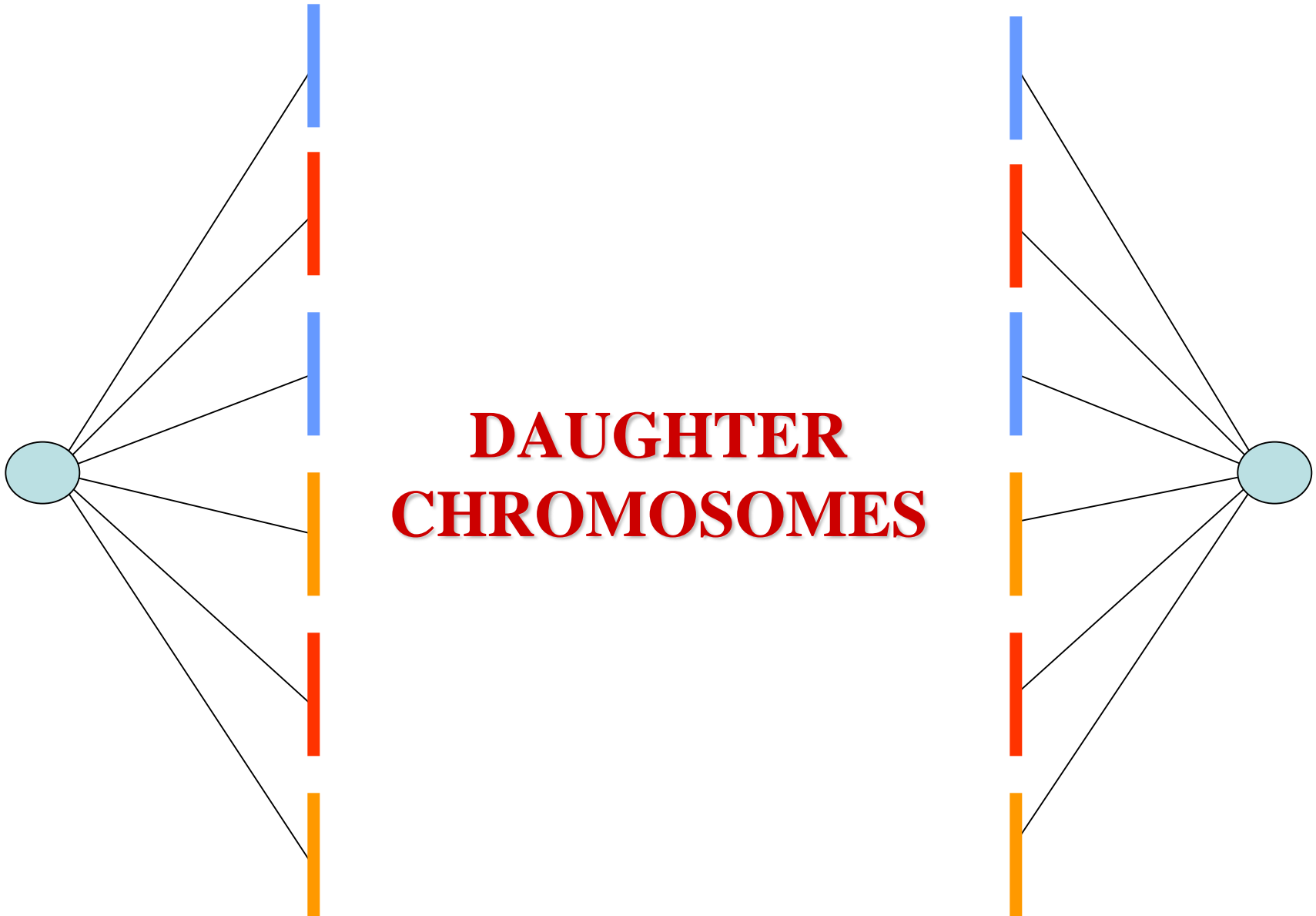
D



**CHROMOSOME  
CHROMATIDS  
SEPARATE**

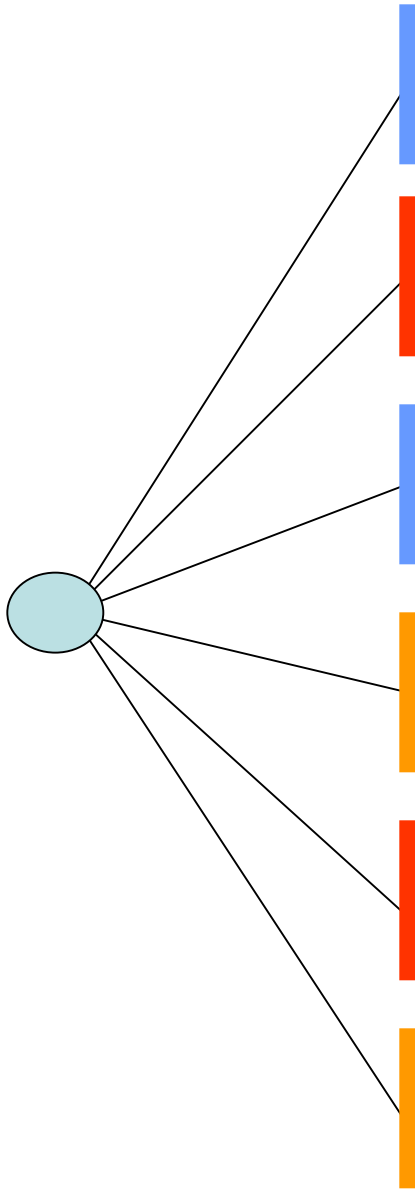


# ANAPHASE

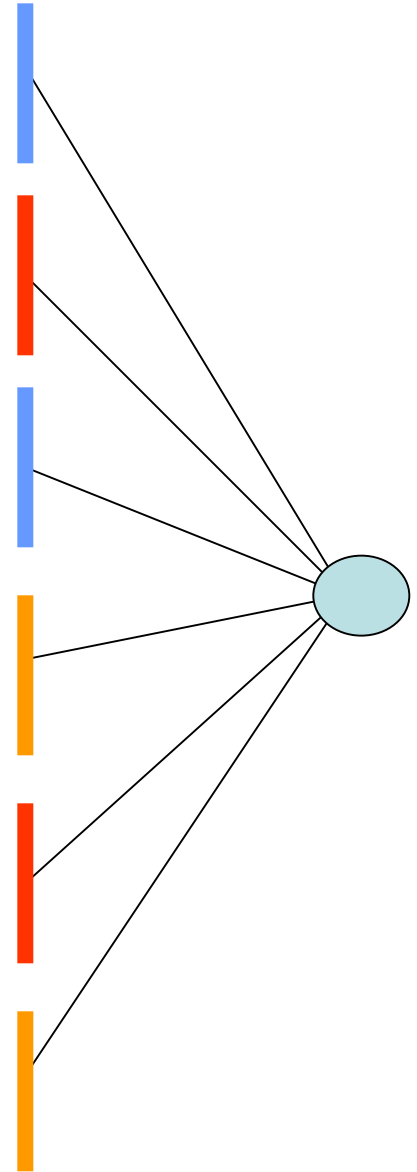




# ANAPHASE



**DAUGHTER  
CHROMOSOMES  
OPPOSITE  
POLES**

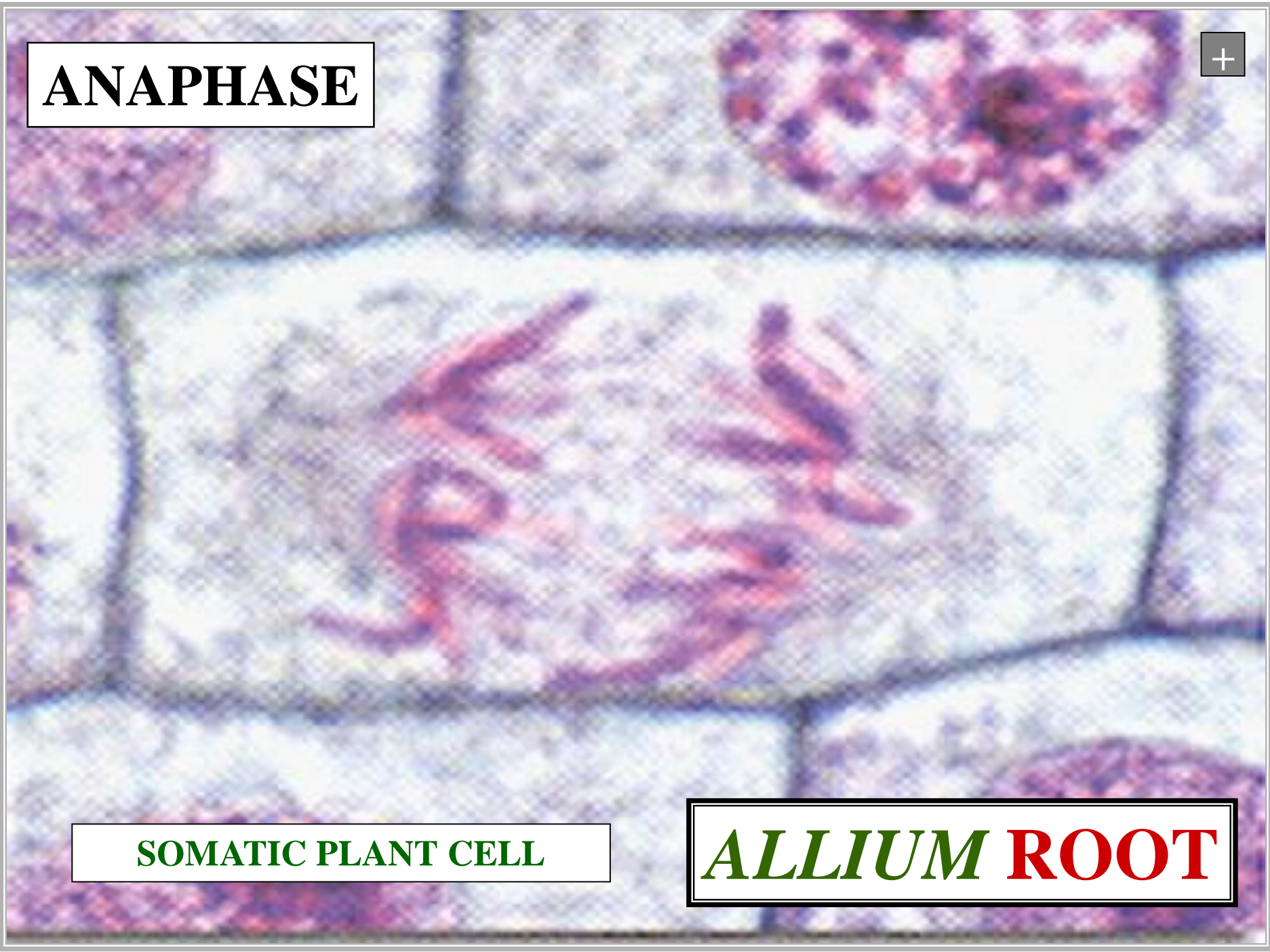


**ANAPHASE**



**SOMATIC PLANT CELL**

***ALLIUM* ROOT**



# ANAPHASE

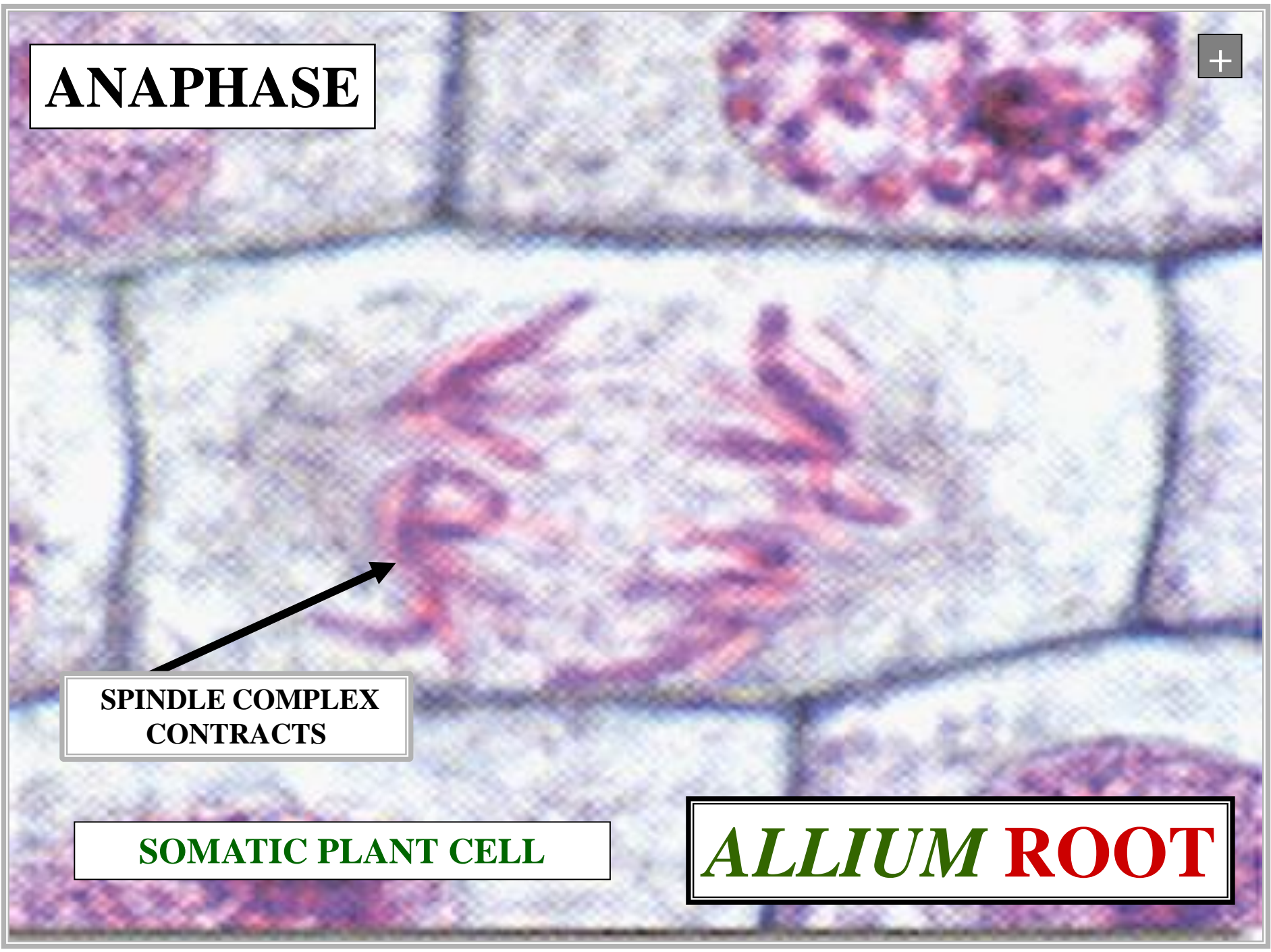


SPINDLE COMPLEX  
CONTRACTS



SOMATIC PLANT CELL

*ALLIUM* ROOT



# ANAPHASE



CENTROMERES  
BREAKDOWN

SOMATIC PLANT CELL

*ALLIUM* ROOT

# ANAPHASE



CHROMATIDS  
SEPARATE

SOMATIC PLANT CELL

*ALLIUM* ROOT

# ANAPHASE



CHROMATIDS  
BECOME  
CHROMOSOMES

SOMATIC PLANT CELL

*ALLIUM* ROOT

# ANAPHASE

A light micrograph of a somatic plant cell from an Allium root tip. The cell is rectangular with a thick cell wall. Inside, chromosomes are visible as dark purple structures, moving from the center towards opposite poles of the cell. An arrow points from a text box to the chromosomes.

CHROMOSOMES  
MOVE  
OPPOSITE POLES

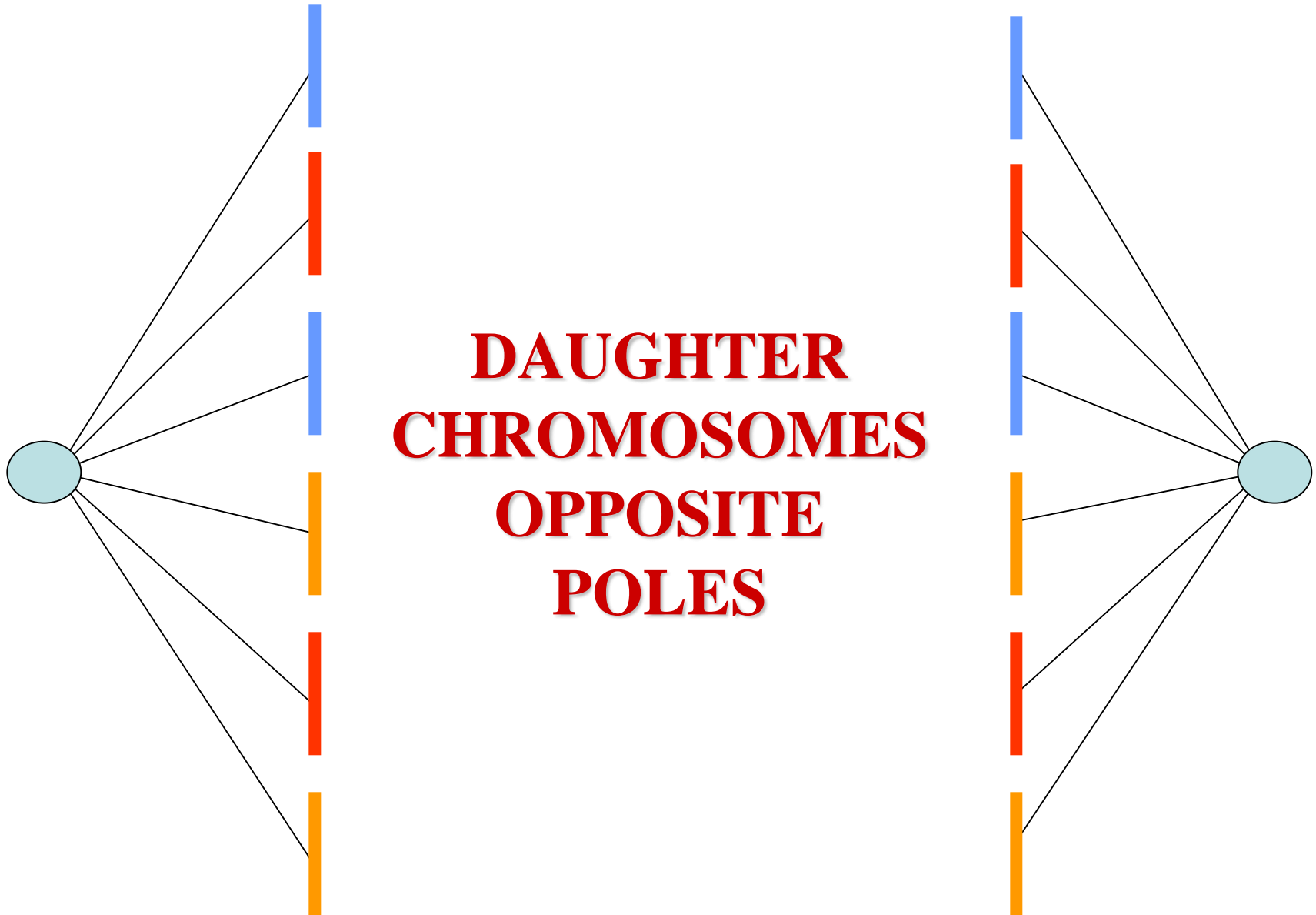
SOMATIC PLANT CELL

*ALLIUM* ROOT

**TELOPHASE**



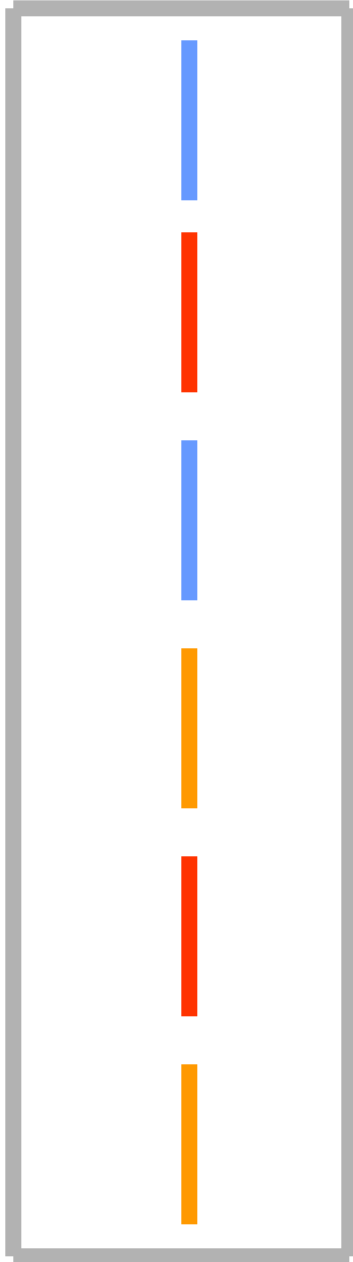
# TELOPHASE



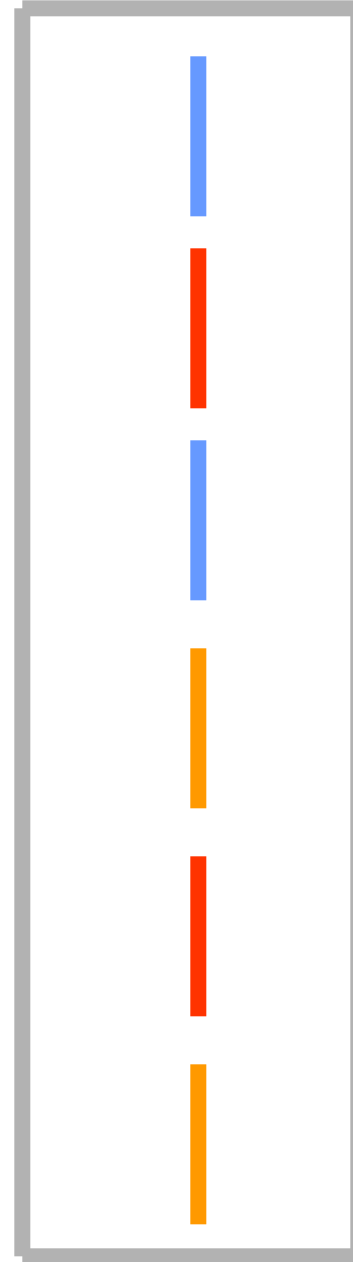
# TELOPHASE

**SPINDLE  
COMPLEX  
DISSIPATES**

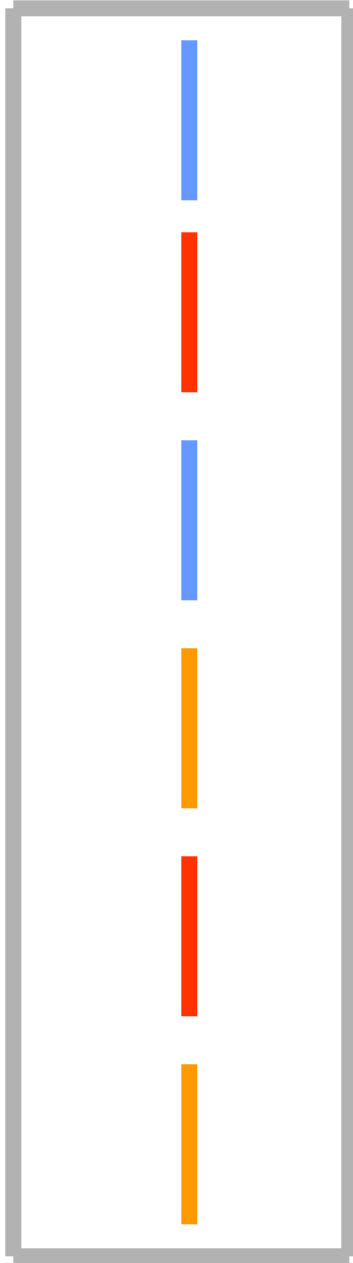
# TELOPHASE



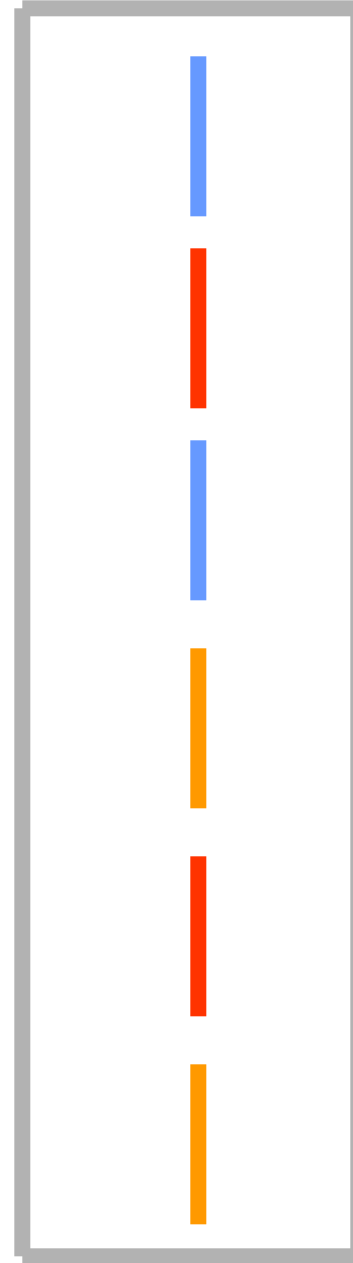
**NUCLEAR  
MEMBRANE  
FORMS**



# TELOPHASE



**TWO  
DAUGHTER  
NUCLEI**

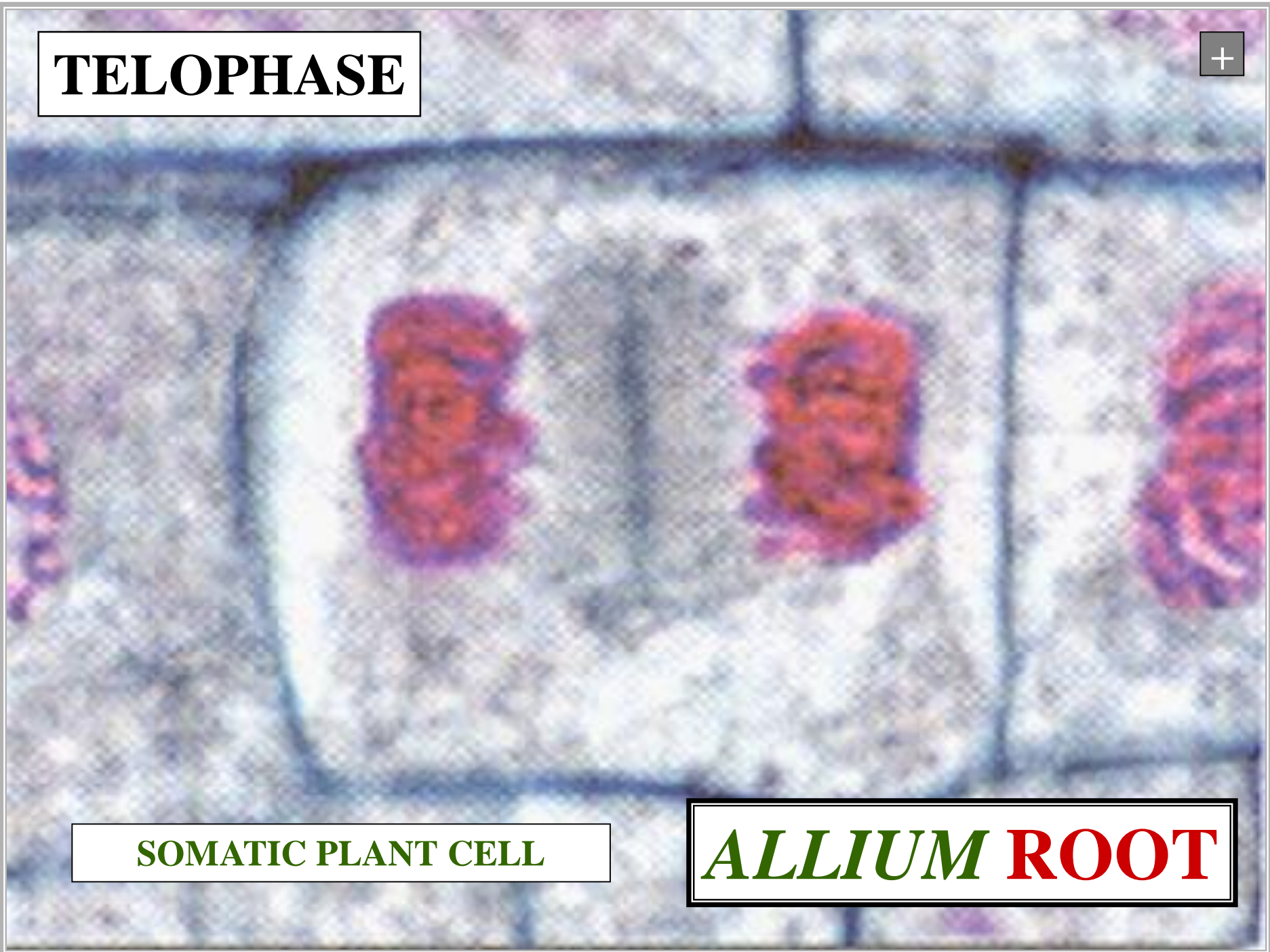


# TELOPHASE

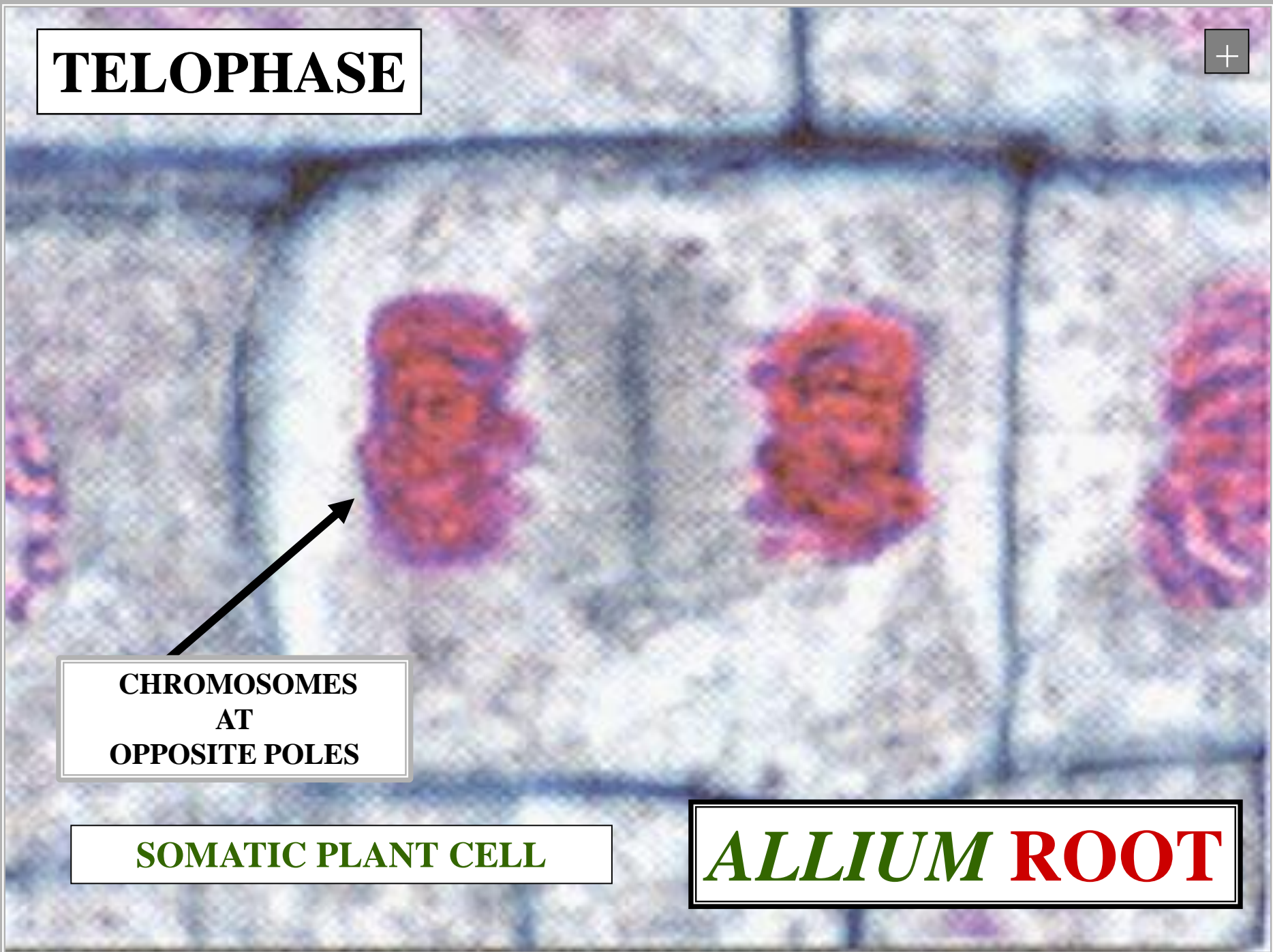


SOMATIC PLANT CELL

*ALLIUM* ROOT



# TELOPHASE



CHROMOSOMES  
AT  
OPPOSITE POLES

SOMATIC PLANT CELL

*ALLIUM* ROOT

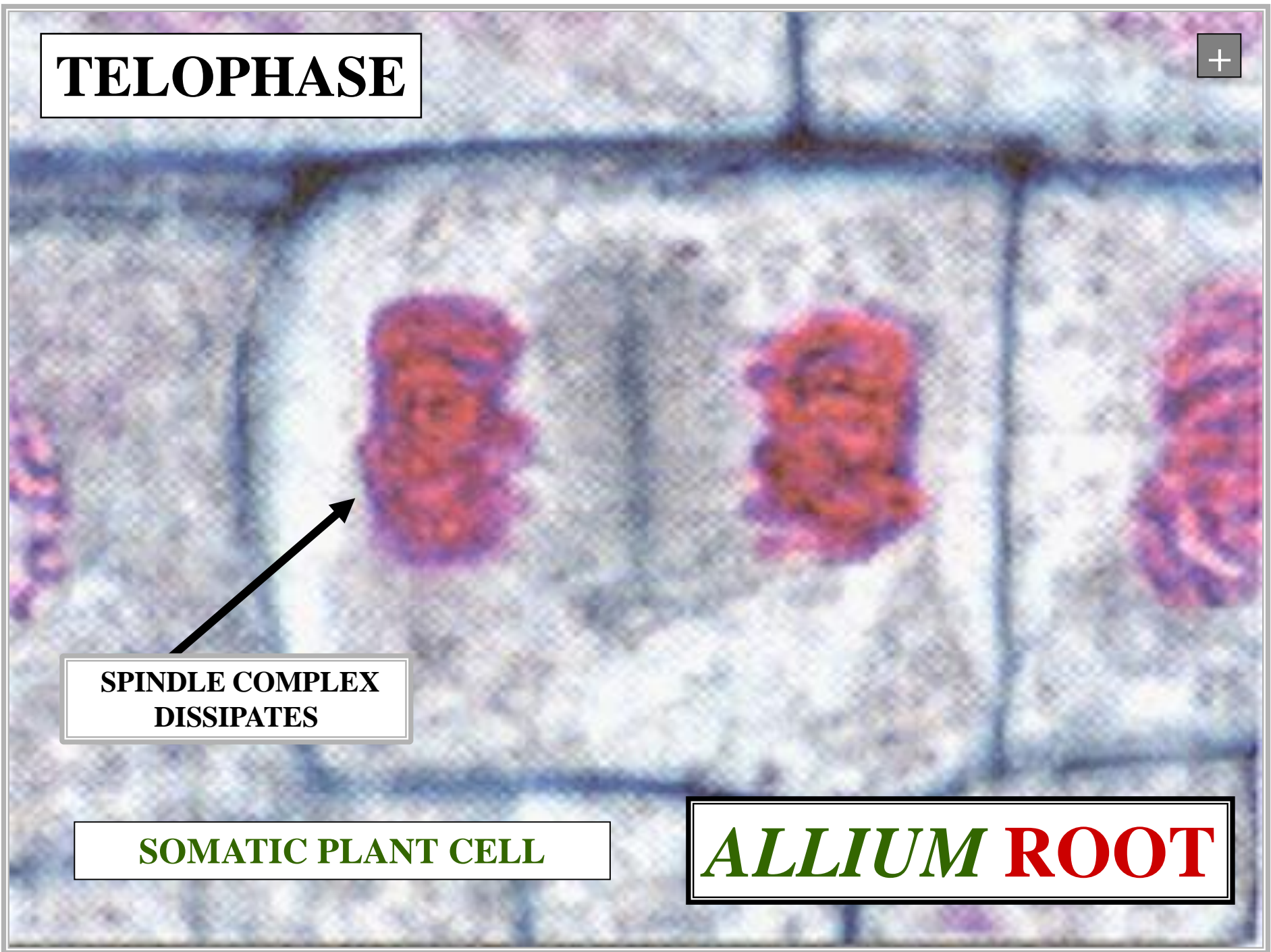
# TELOPHASE



SPINDLE COMPLEX  
DISSIPATES

SOMATIC PLANT CELL

*ALLIUM* ROOT



# TELOPHASE



NUCLEAR  
MEMBRANE  
FORM ABOUT  
CHROMOSOMES

SOMATIC PLANT CELL

*ALLIUM* ROOT

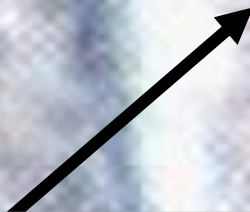


# TELOPHASE

CELL PLATE



DAUGHTER NUCLEI



DAUGHTER NUCLEI



SOMATIC PLANT CELL

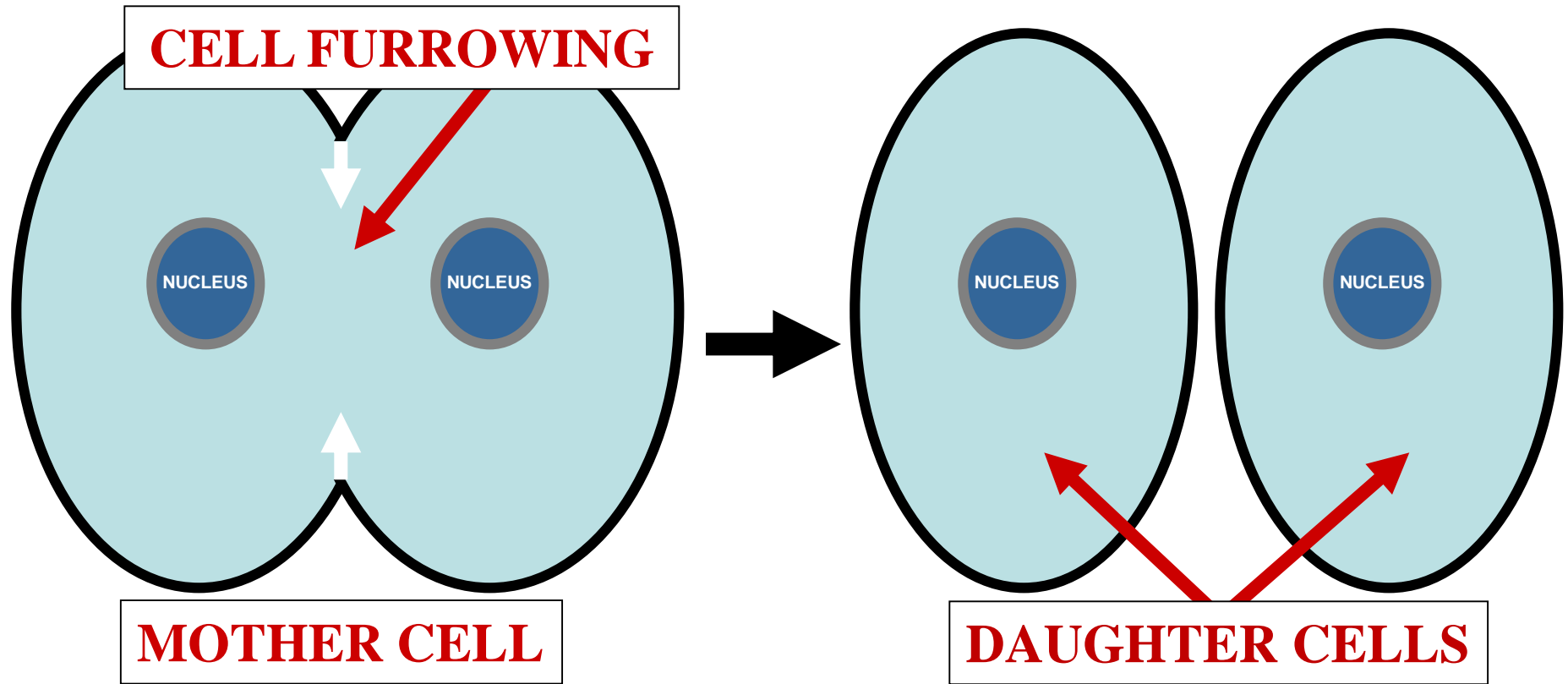
*ALLIUM* ROOT





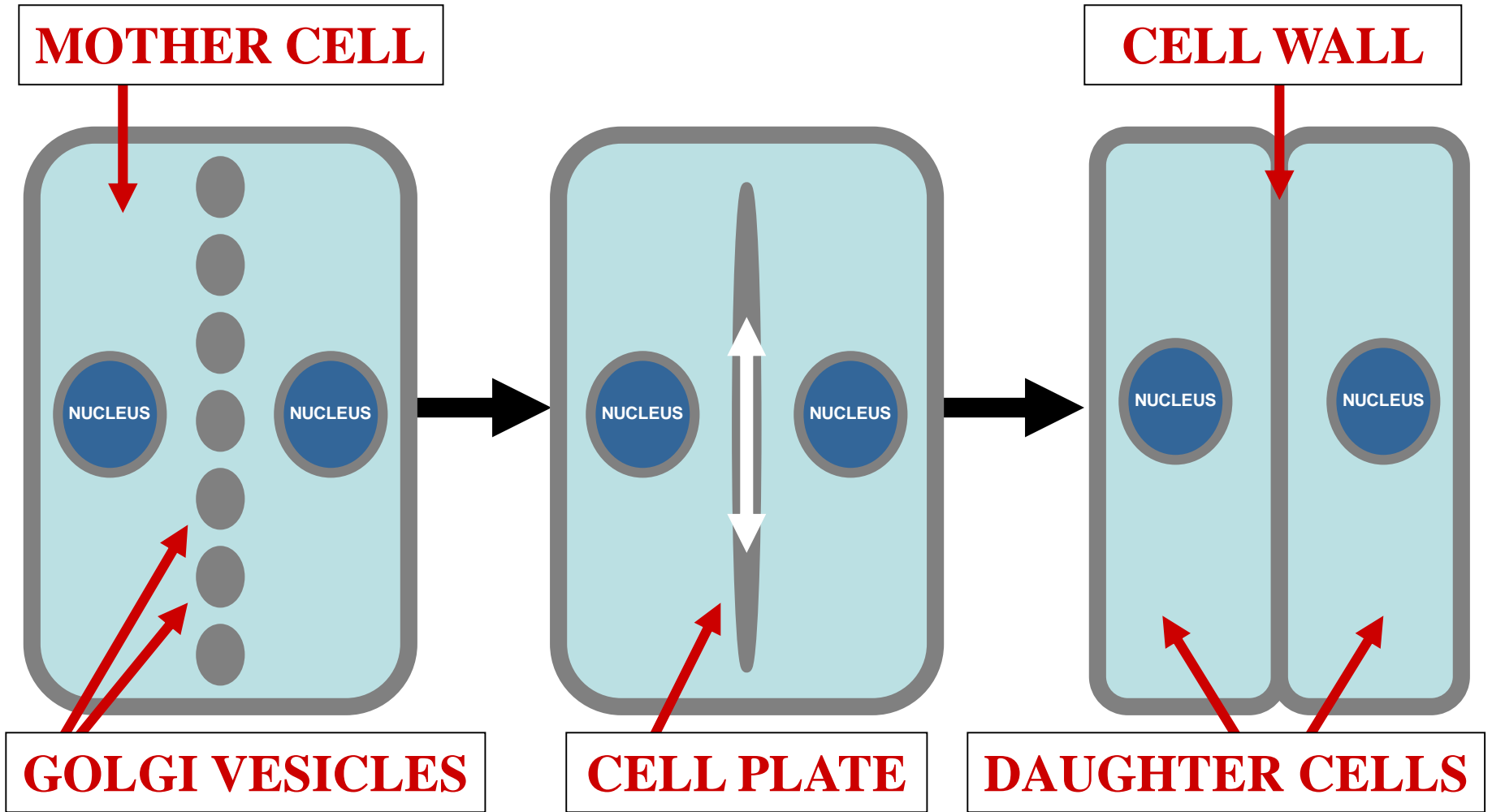
# CYTOKINESIS STAGE

# CYTOKINESIS FURROWING



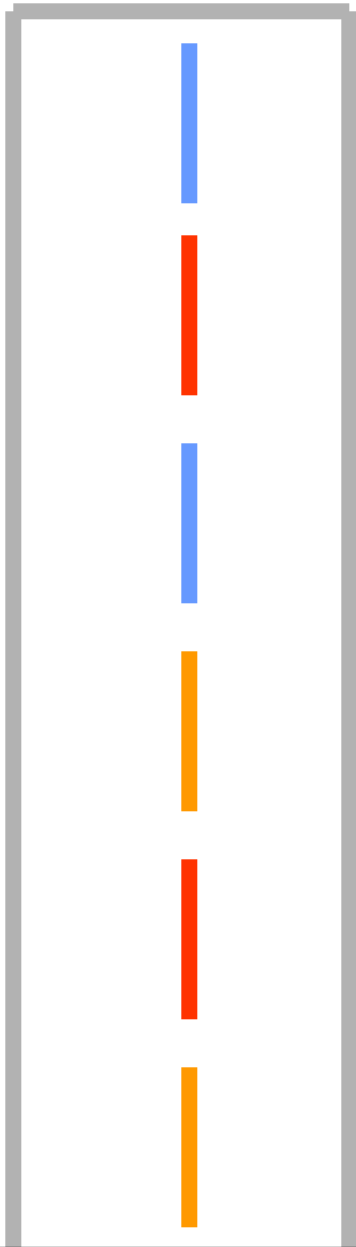
# CYTOKINESIS FURROWING

# CYTOKINESIS CELL PLATE

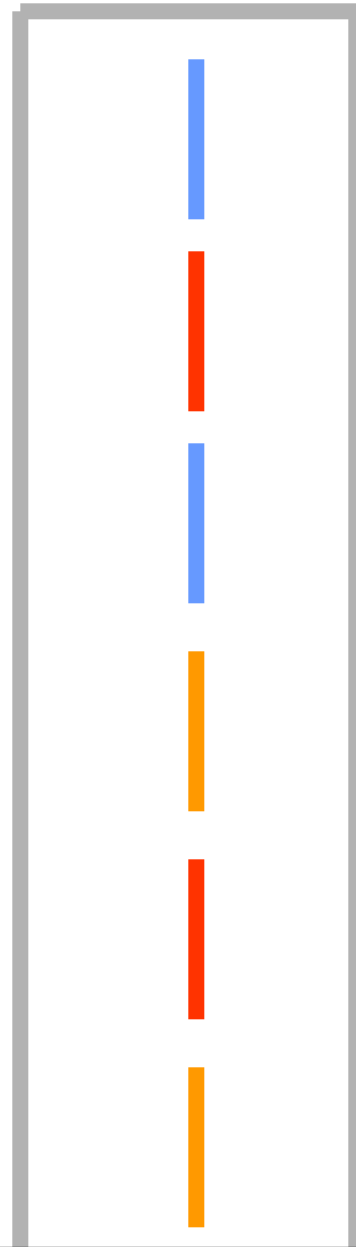




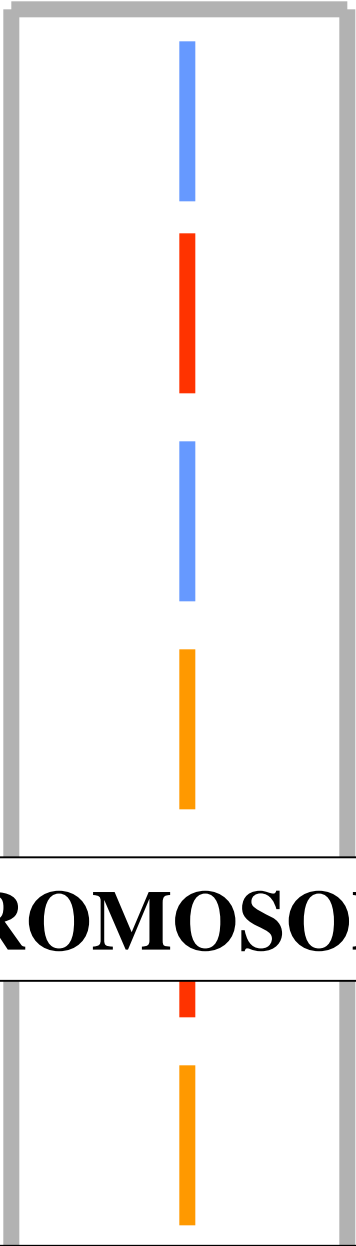
**TRUE PLANT  
SOMATIC  
CYCLE CELL  
OUTCOME**



**DAUGHTER CELL**

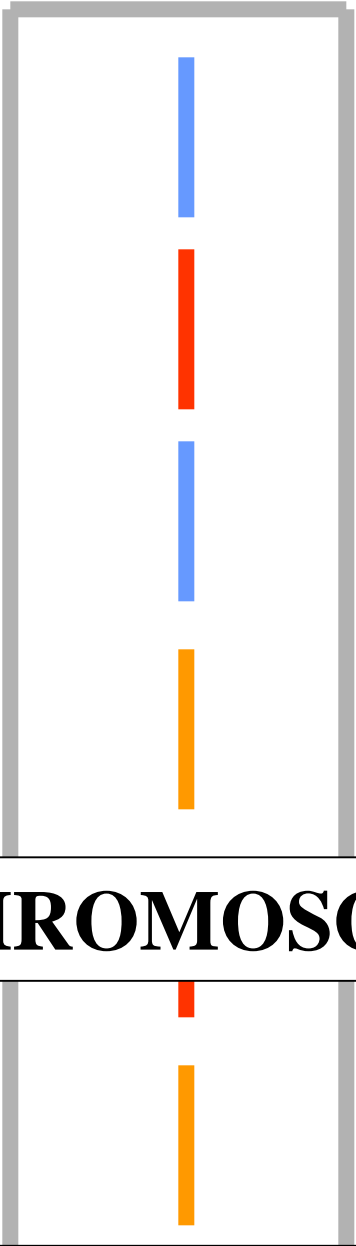


**DAUGHTER CELL**



**6 CHROMOSOMES**

**DAUGHTER CELL**



**6 CHROMOSOMES**

**DAUGHTER CELL**



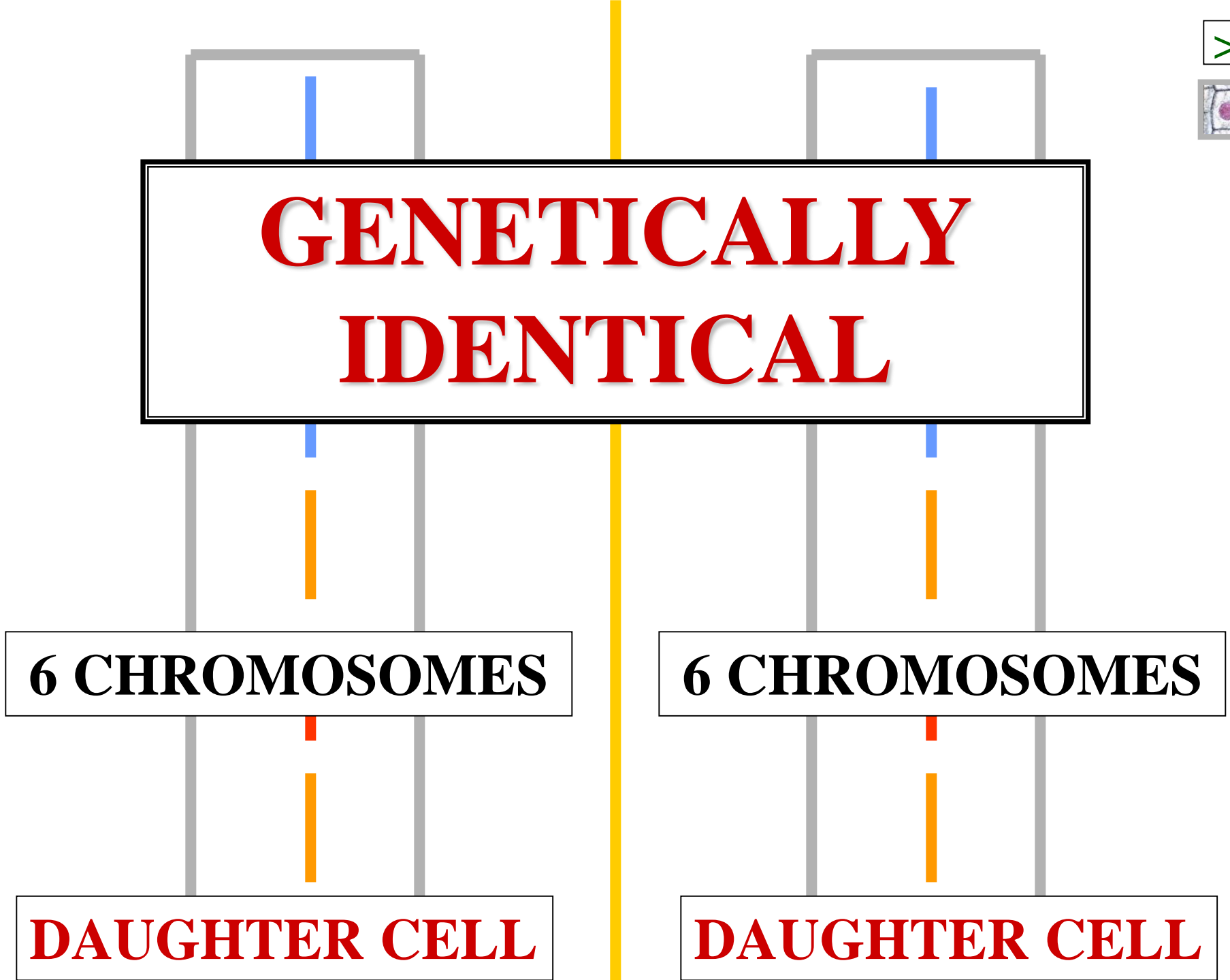
# GENETICALLY IDENTICAL

**6 CHROMOSOMES**

**6 CHROMOSOMES**

**DAUGHTER CELL**

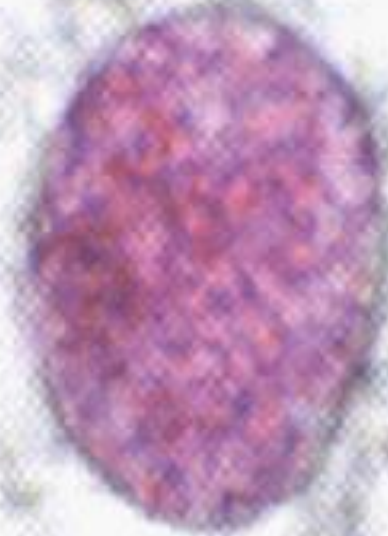
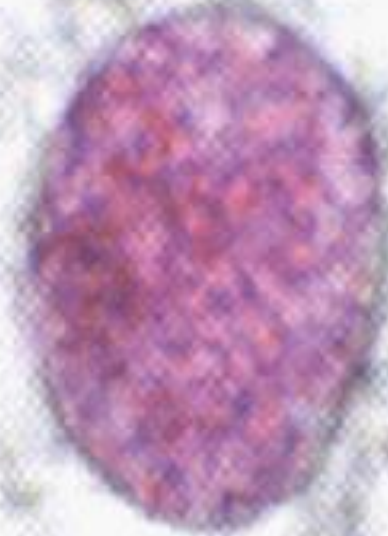
**DAUGHTER CELL**







# GENETICALLY IDENTICAL



*ALLIUM* ROOT

*ALLIUM* ROOT

DAUGHTER CELLS

DAUGHTER CELLS

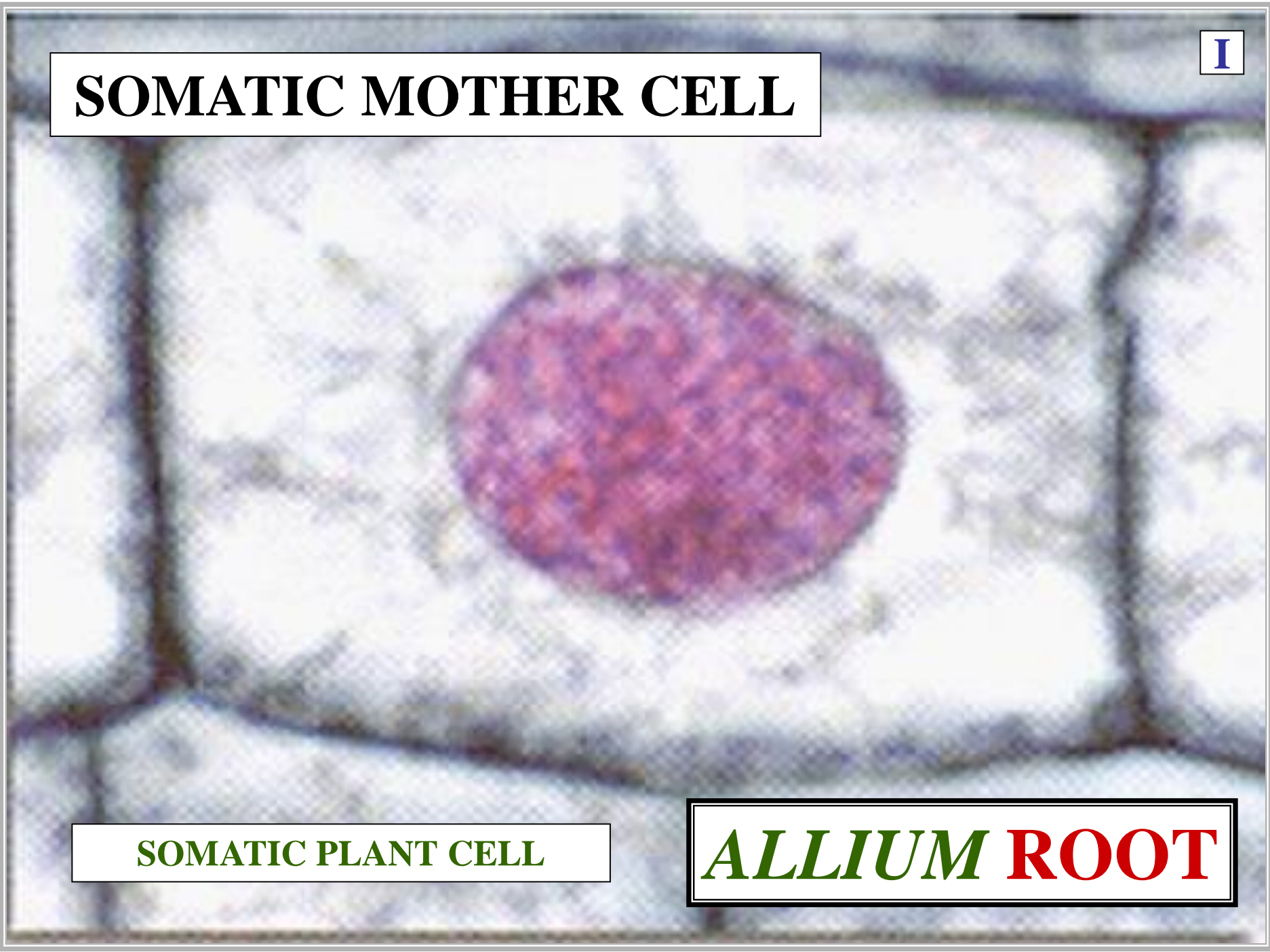


**TRUE PLANT  
SOMATIC  
CYCLE CELL  
SUMMARY**

# SOMATIC MOTHER CELL

SOMATIC PLANT CELL

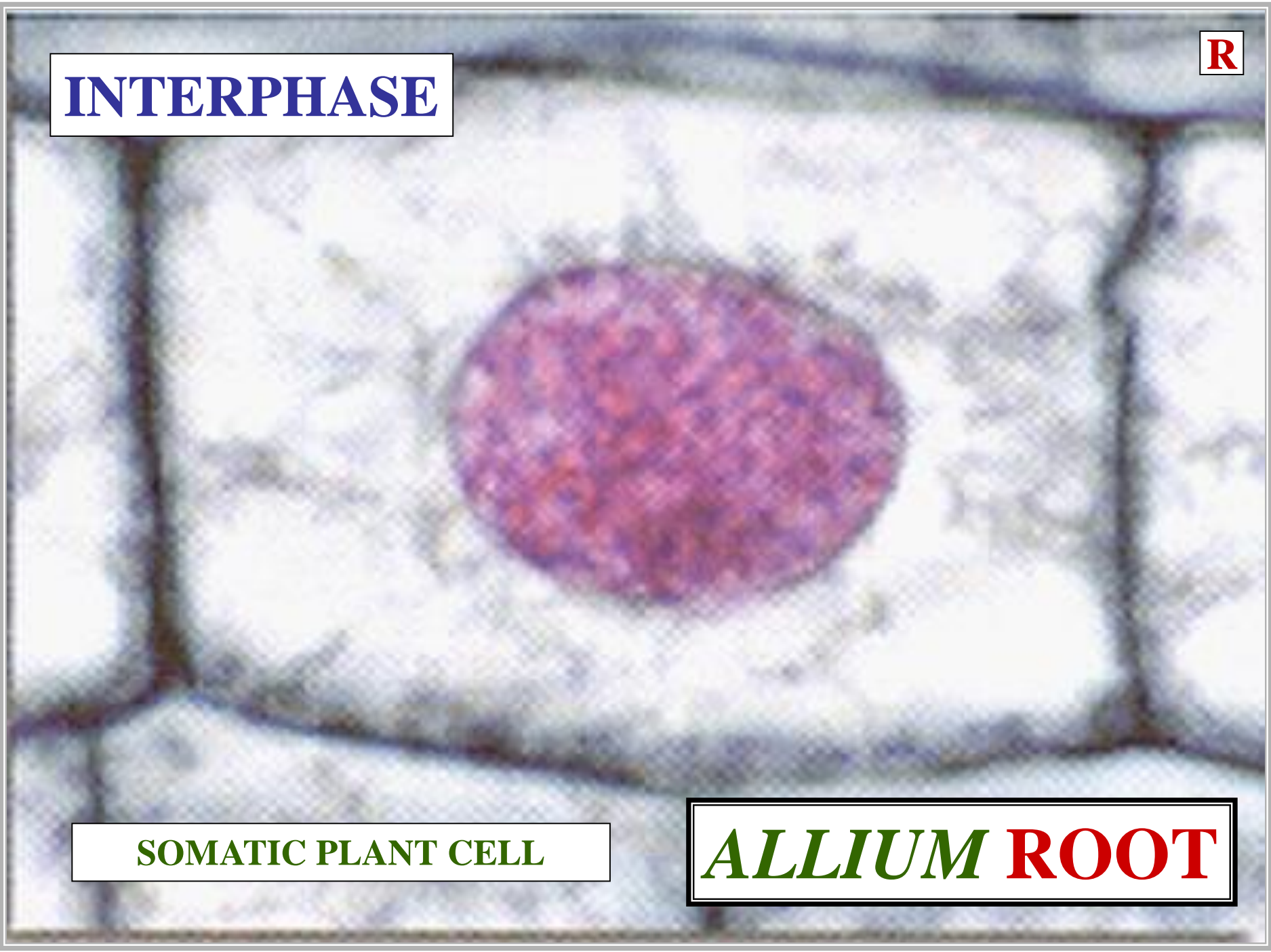
*ALLIUM* ROOT



**INTERPHASE**

**SOMATIC PLANT CELL**

***ALLIUM* ROOT**



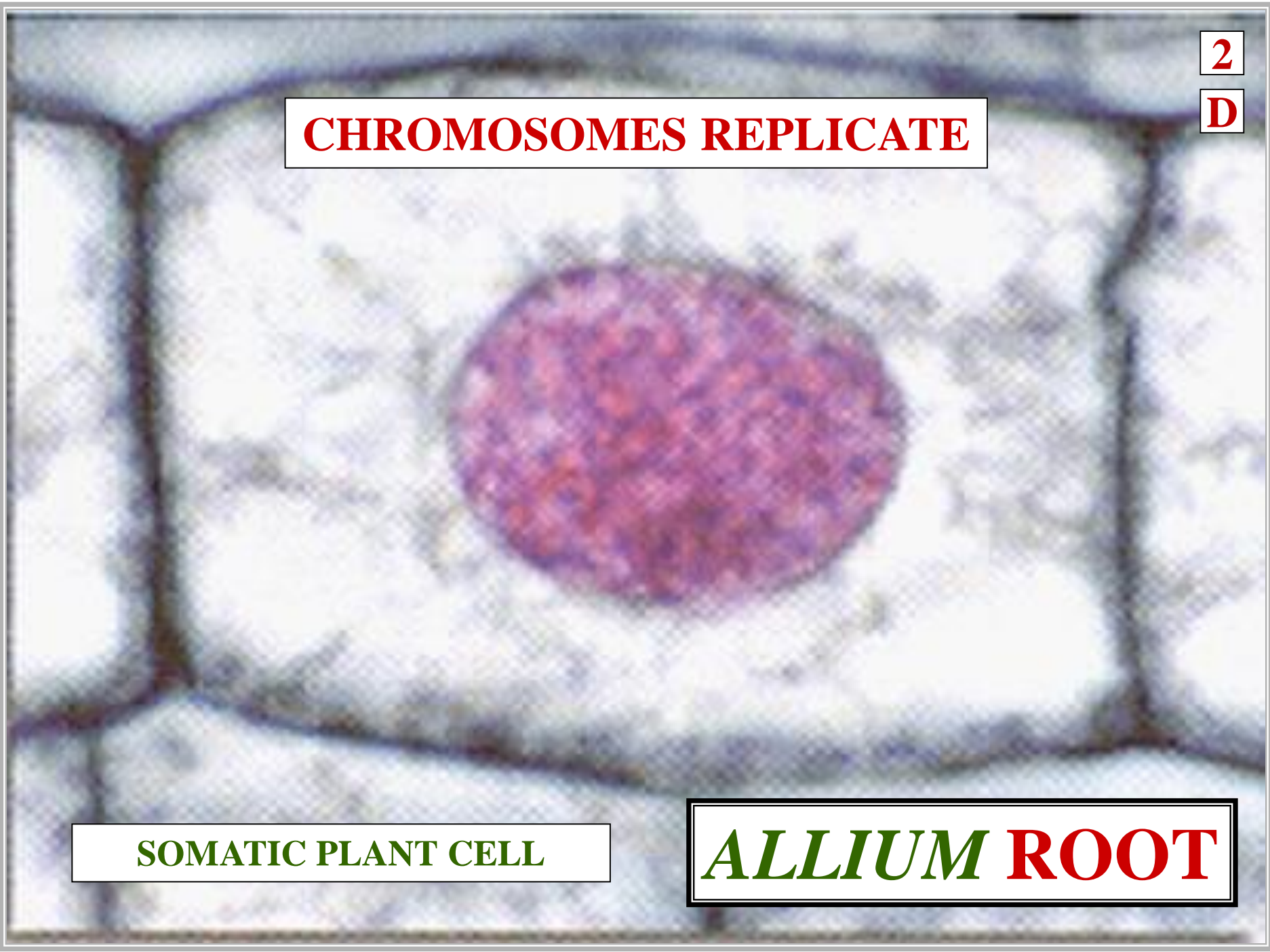
2

D

**CHROMOSOMES REPLICATE**

**SOMATIC PLANT CELL**

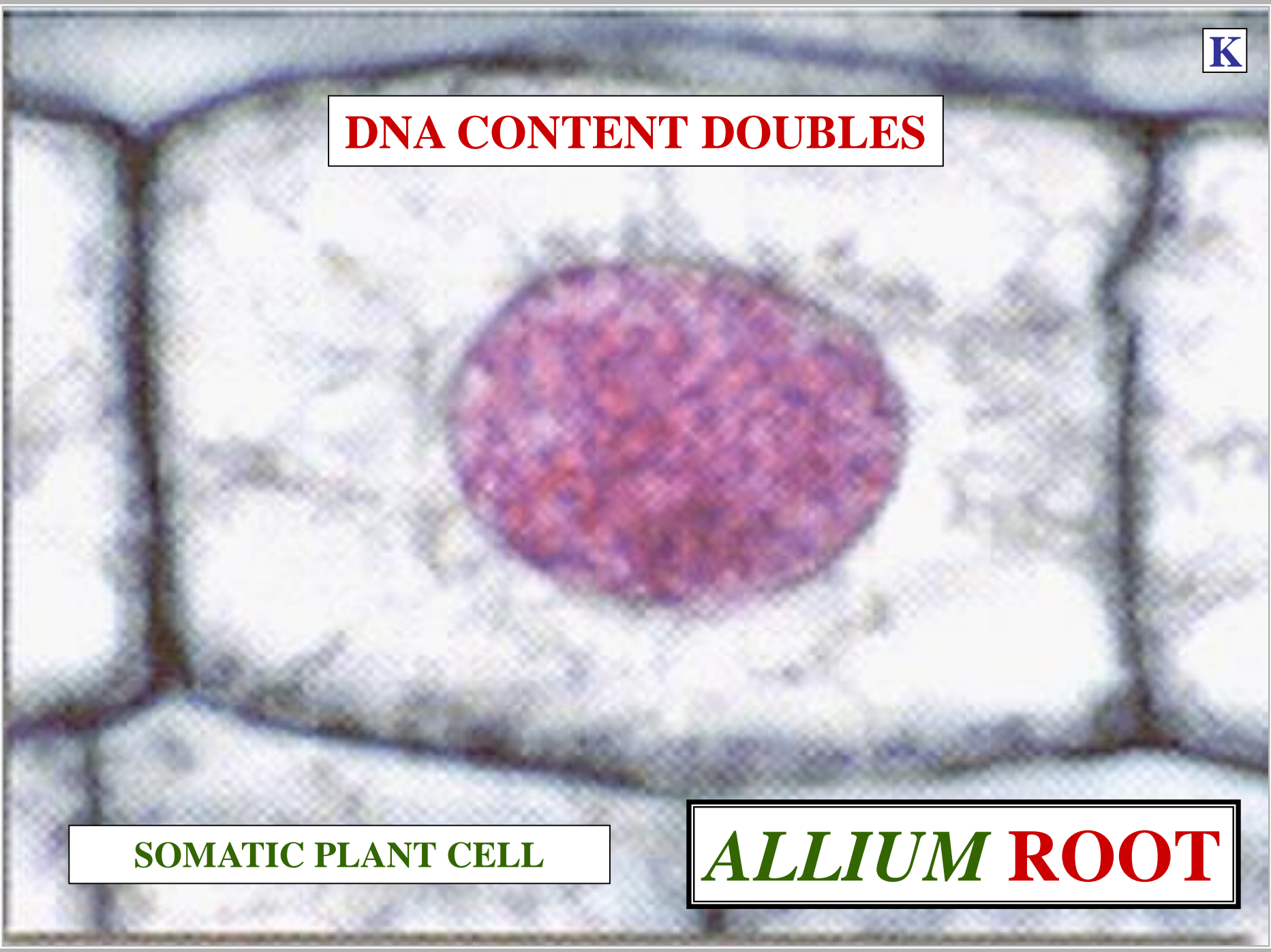
***ALLIUM* ROOT**



**DNA CONTENT DOUBLES**

**SOMATIC PLANT CELL**

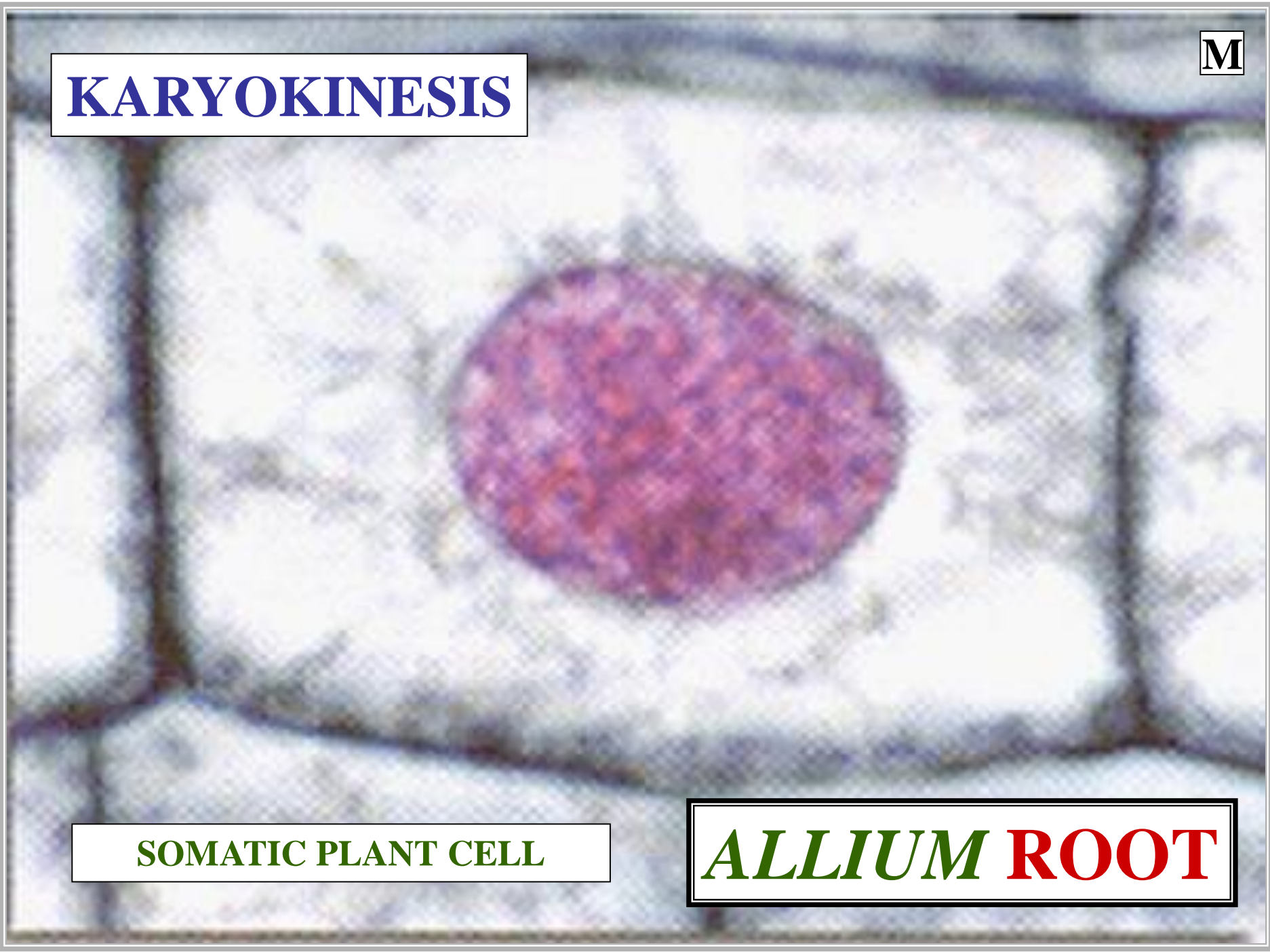
***ALLIUM* ROOT**



# KARYOKINESIS

SOMATIC PLANT CELL

*ALLIUM* ROOT

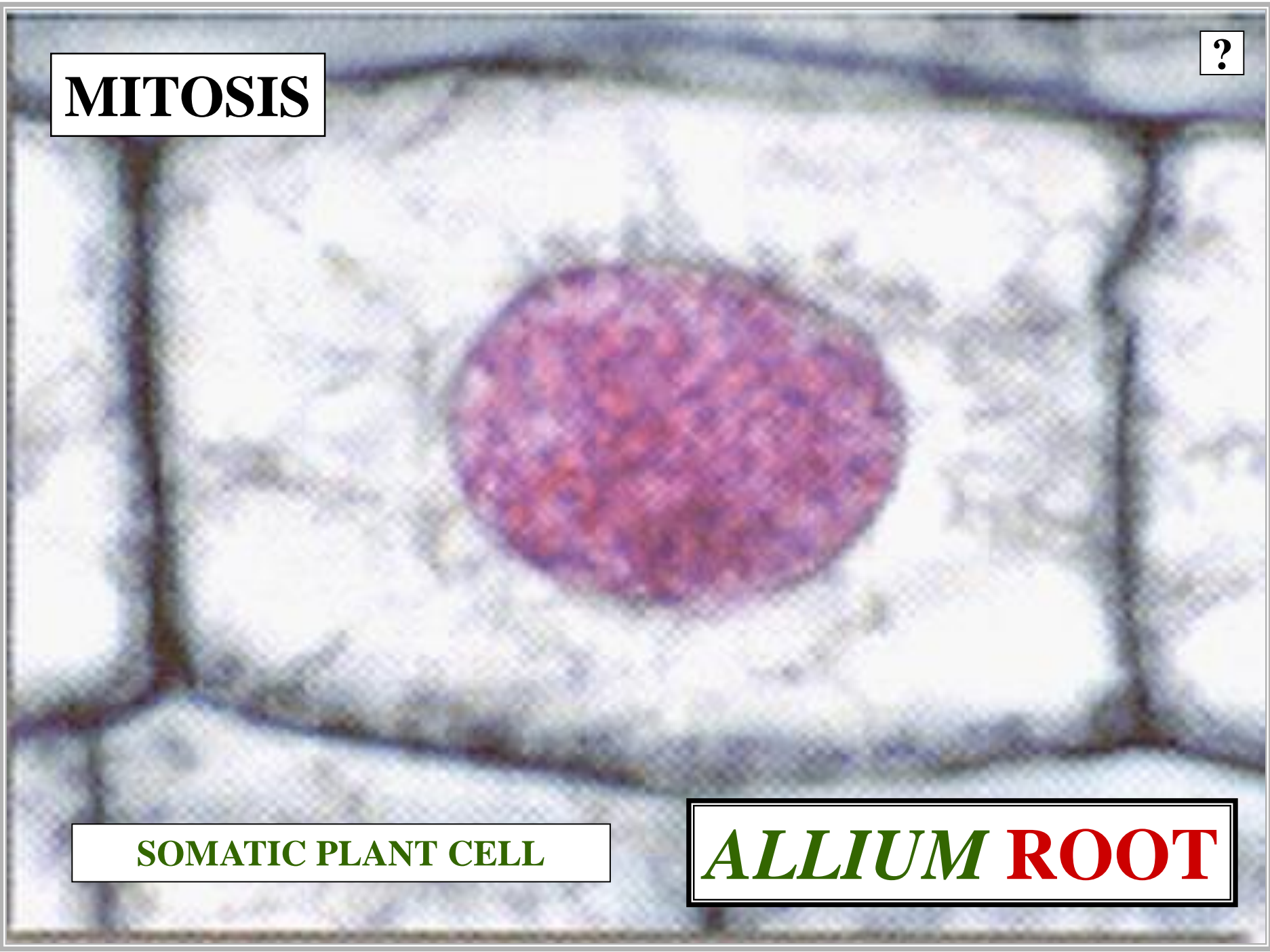


# MITOSIS

?

SOMATIC PLANT CELL

*ALLIUM* ROOT

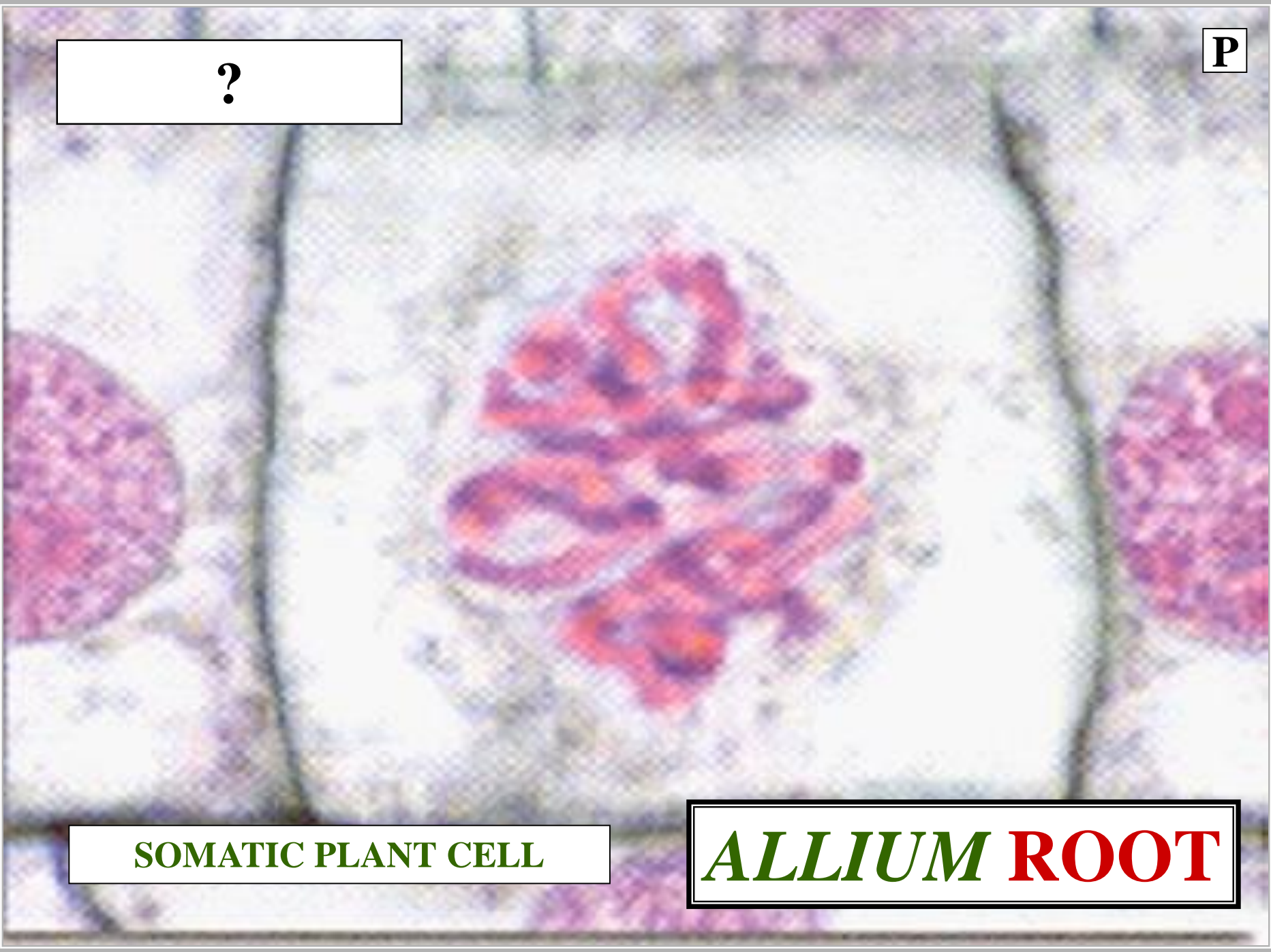




?

SOMATIC PLANT CELL

*ALLIUM* ROOT

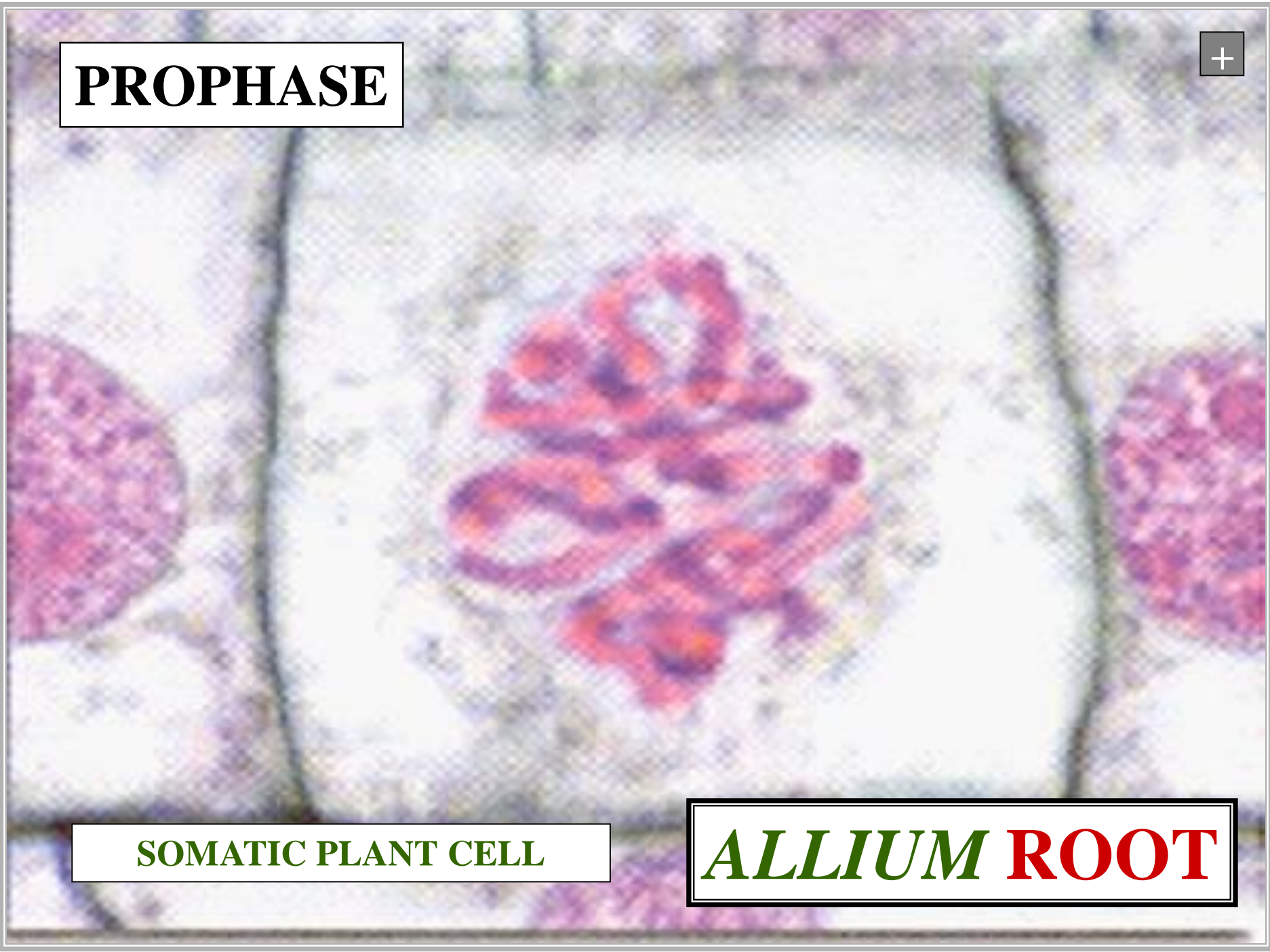


**PROPHASE**



**SOMATIC PLANT CELL**


***ALLIUM* ROOT**



# PROPHASE

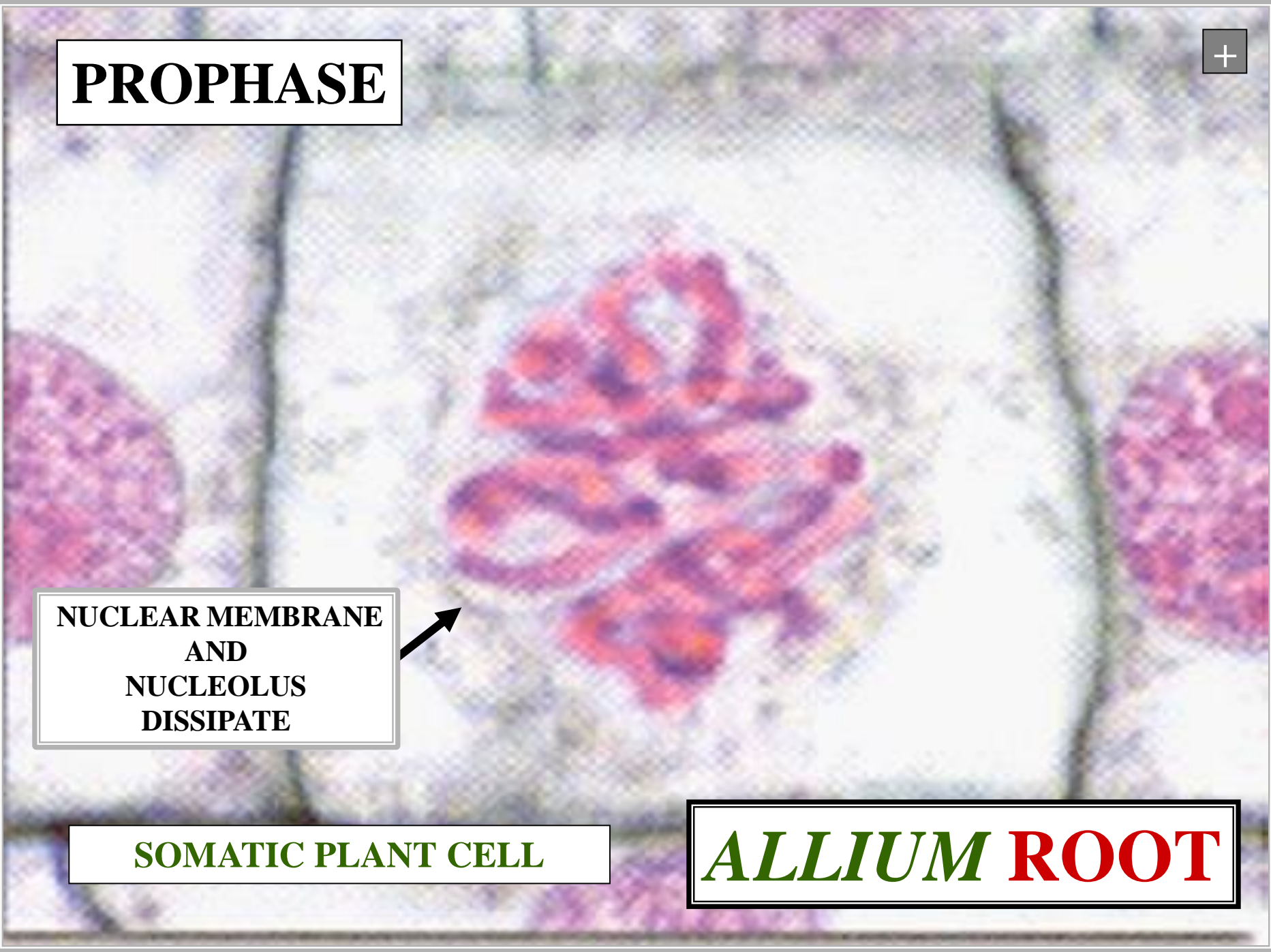


NUCLEAR MEMBRANE  
AND  
NUCLEOLUS  
DISSIPATE



SOMATIC PLANT CELL

*ALLIUM* ROOT



?

# PROPHASE

CHROMOSOMES  
CONDENSE

A light micrograph of a somatic plant cell from an Allium root. The cell is roughly rectangular with a thick cell wall. In the center, a nucleus is visible where several chromosomes are condensing. The chromosomes appear as thick, purple-stained structures. The surrounding cytoplasm is light-colored and granular. The cell wall is clearly defined by dark lines.

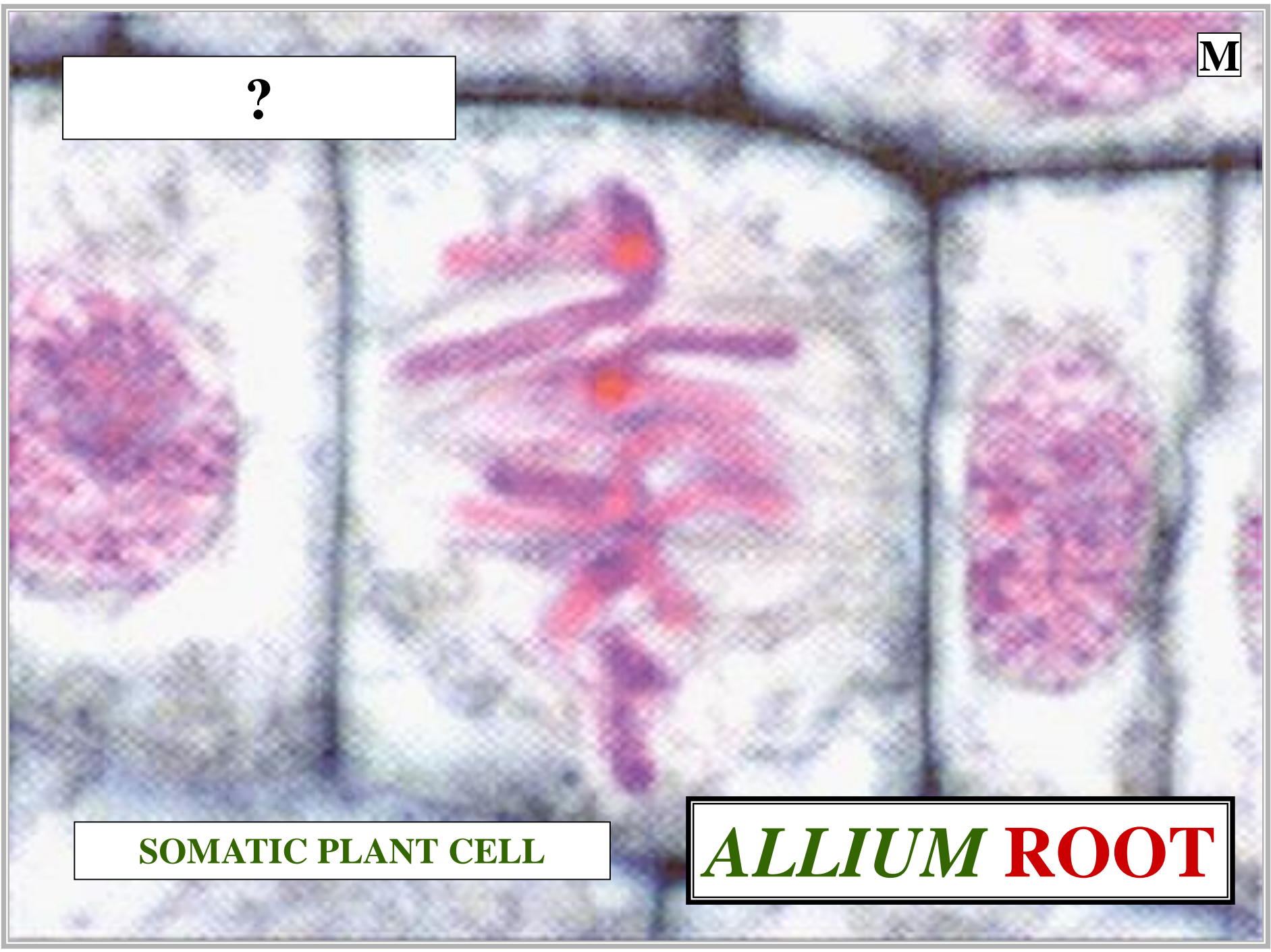
SOMATIC PLANT CELL

*ALLIUM* ROOT

?

SOMATIC PLANT CELL

*ALLIUM* ROOT



**METAPHASE**



**SOMATIC PLANT CELL**

***ALLIUM* ROOT**

# METAPHASE



CHROMOSOMES  
ALIGN  
EQUATORIAL PLANE



SOMATIC PLANT CELL

*ALLIUM* ROOT

?

# METAPHASE

MICROTUBULE  
SPINDLE COMPLEX  
FORMS



SOMATIC PLANT CELL

*ALLIUM* ROOT

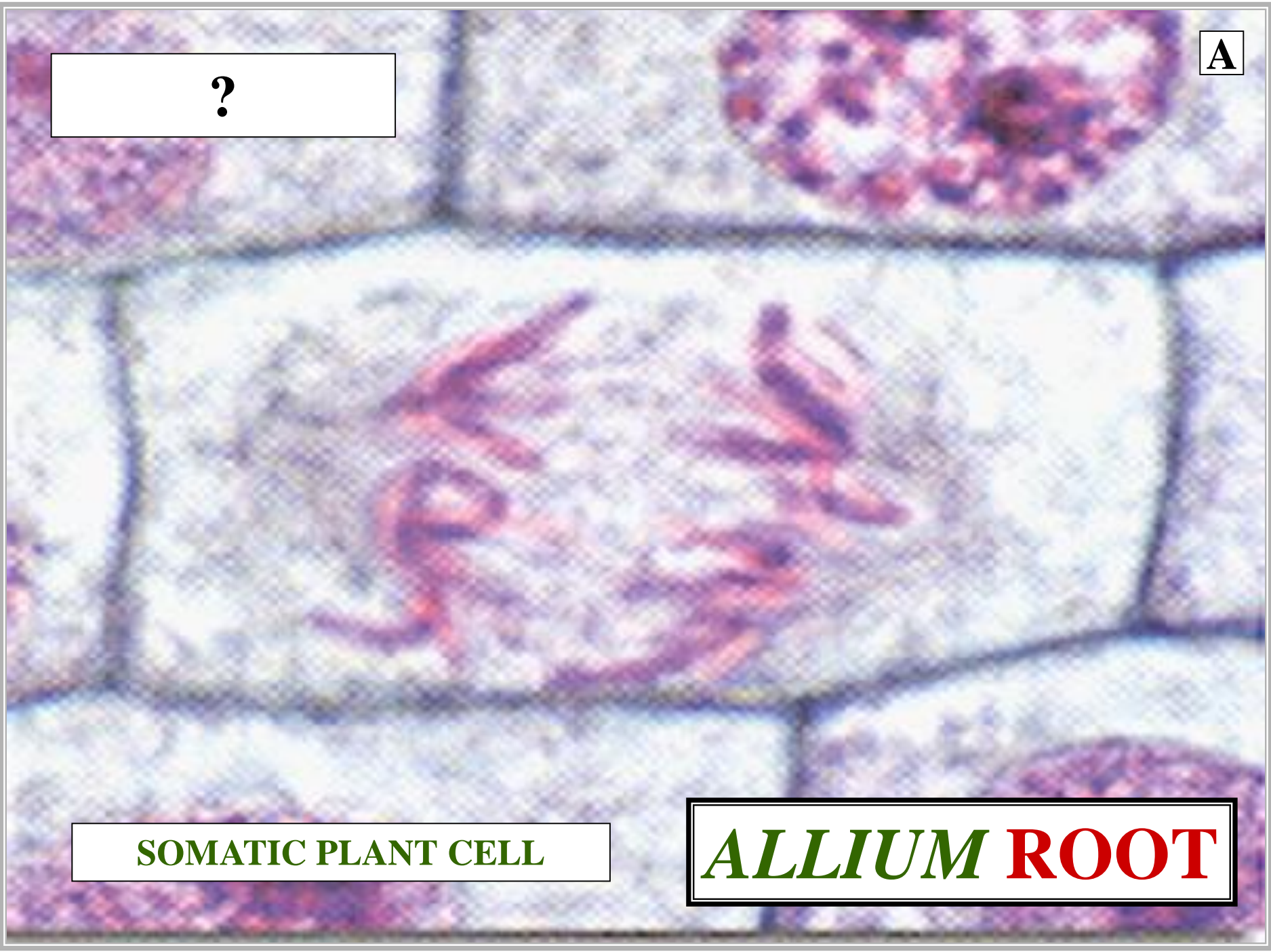


A

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SOMATIC PLANT CELL

*ALLIUM* ROOT



**ANAPHASE**



**SOMATIC PLANT CELL**

***ALLIUM* ROOT**

# ANAPHASE

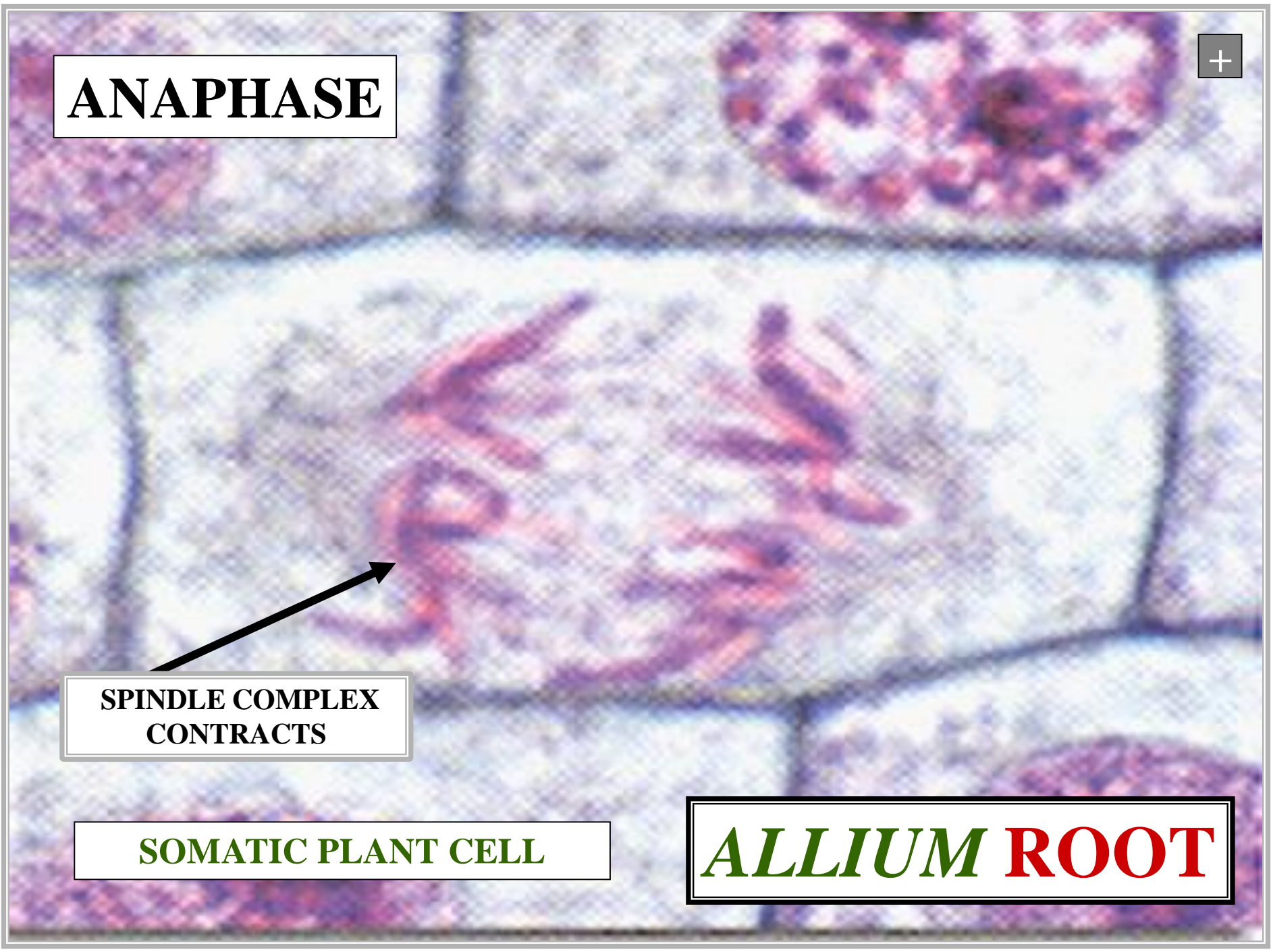


SPINDLE COMPLEX  
CONTRACTS



SOMATIC PLANT CELL

*ALLIUM* ROOT



# ANAPHASE



CENTROMERES  
BREAKDOWN

SOMATIC PLANT CELL

*ALLIUM* ROOT

# ANAPHASE



CHROMATIDS  
SEPARATE

SOMATIC PLANT CELL

*ALLIUM* ROOT

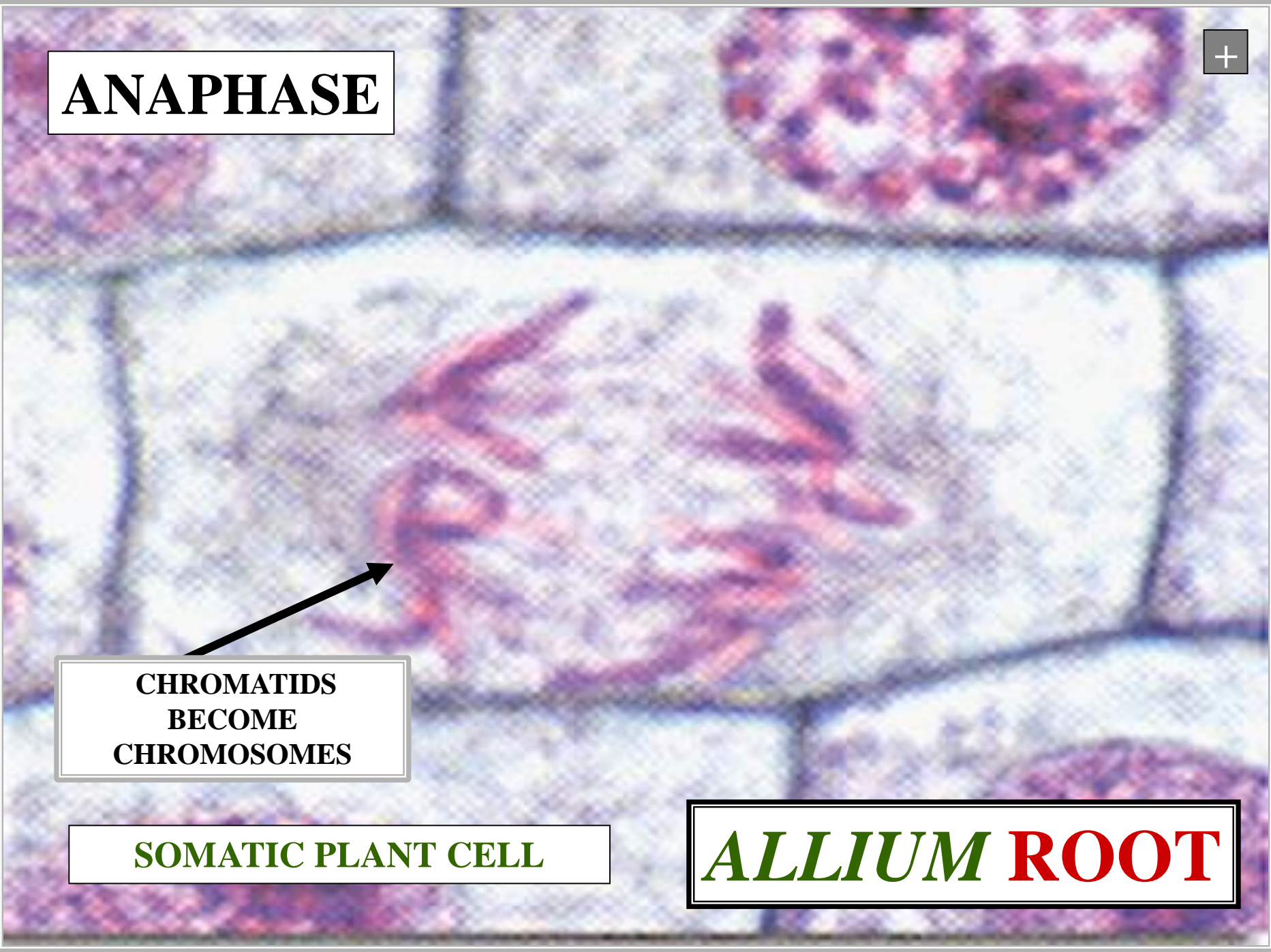
# ANAPHASE



CHROMATIDS  
BECOME  
CHROMOSOMES

SOMATIC PLANT CELL

*ALLIUM* ROOT



# ANAPHASE

?



CHROMOSOMES  
MOVE  
OPPOSITE POLES

The image shows a micrograph of a somatic plant cell in anaphase. The cell is roughly rectangular with a thick cell wall. Inside, numerous red-stained chromosomes are visible, moving towards opposite poles of the cell. A black arrow points from the text box below to the chromosomes. In the top right corner, there is a small grey box containing a question mark.

SOMATIC PLANT CELL

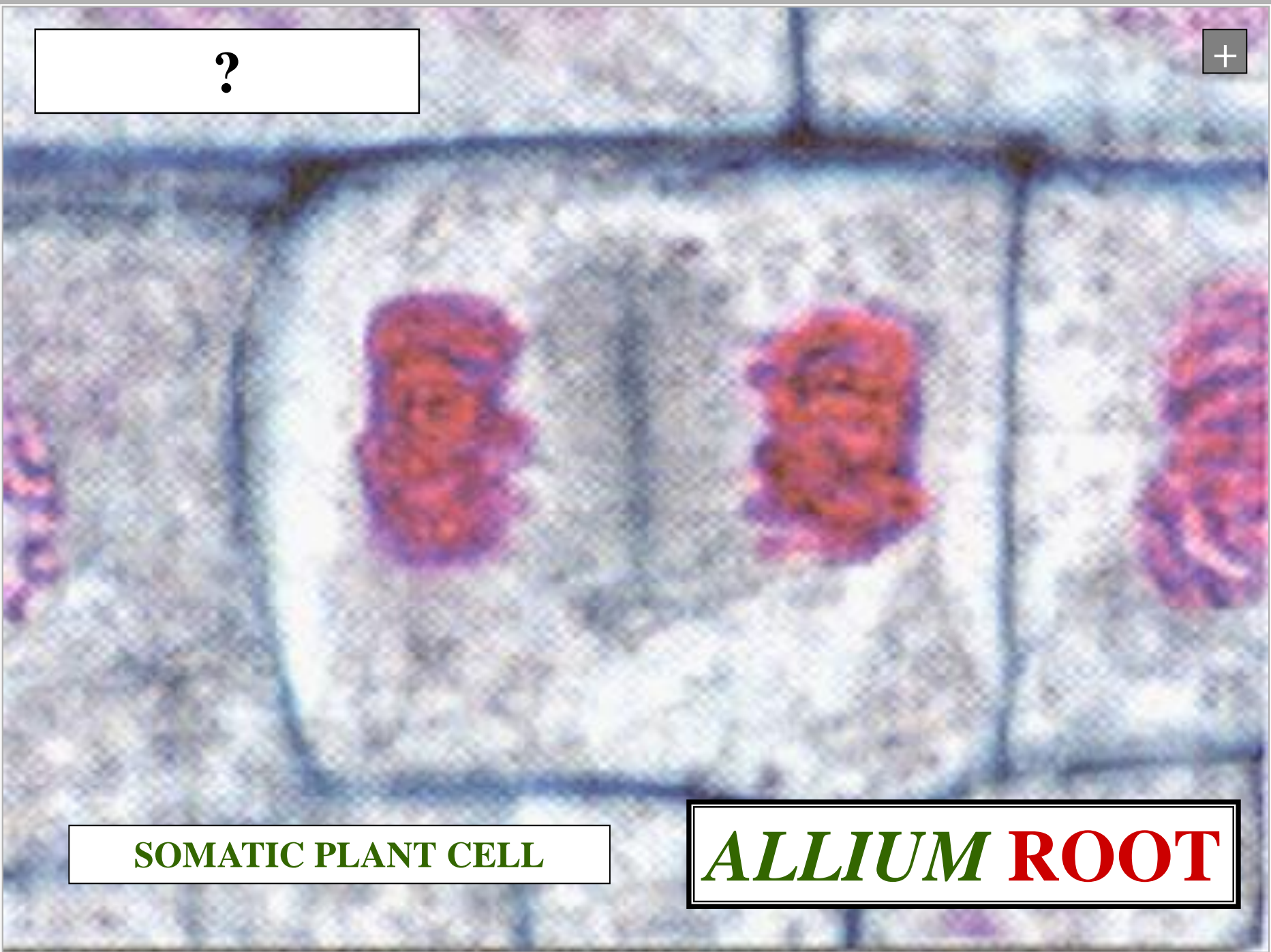
*ALLIUM* ROOT

?



**SOMATIC PLANT CELL**

***ALLIUM* ROOT**



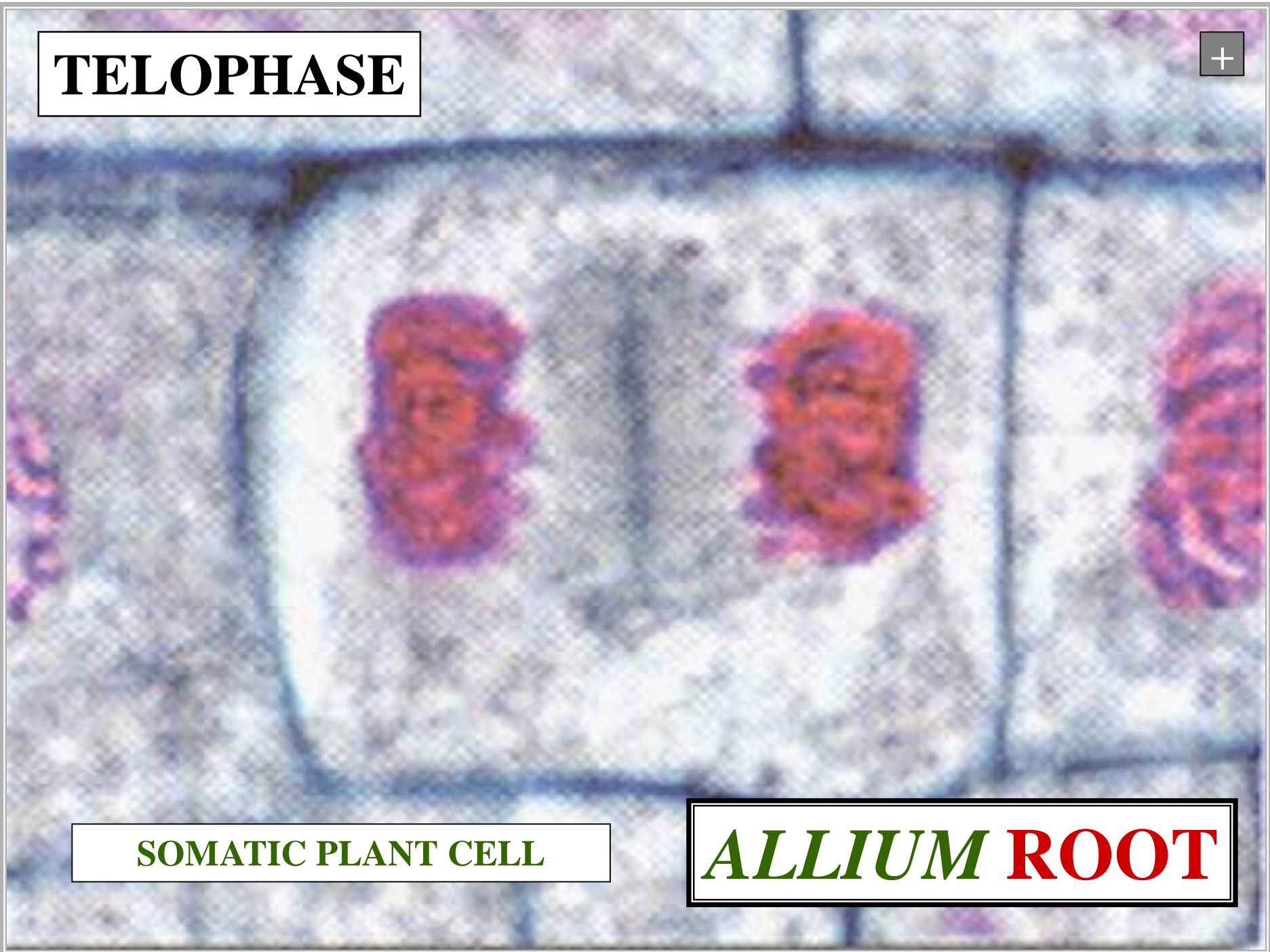


# TELOPHASE

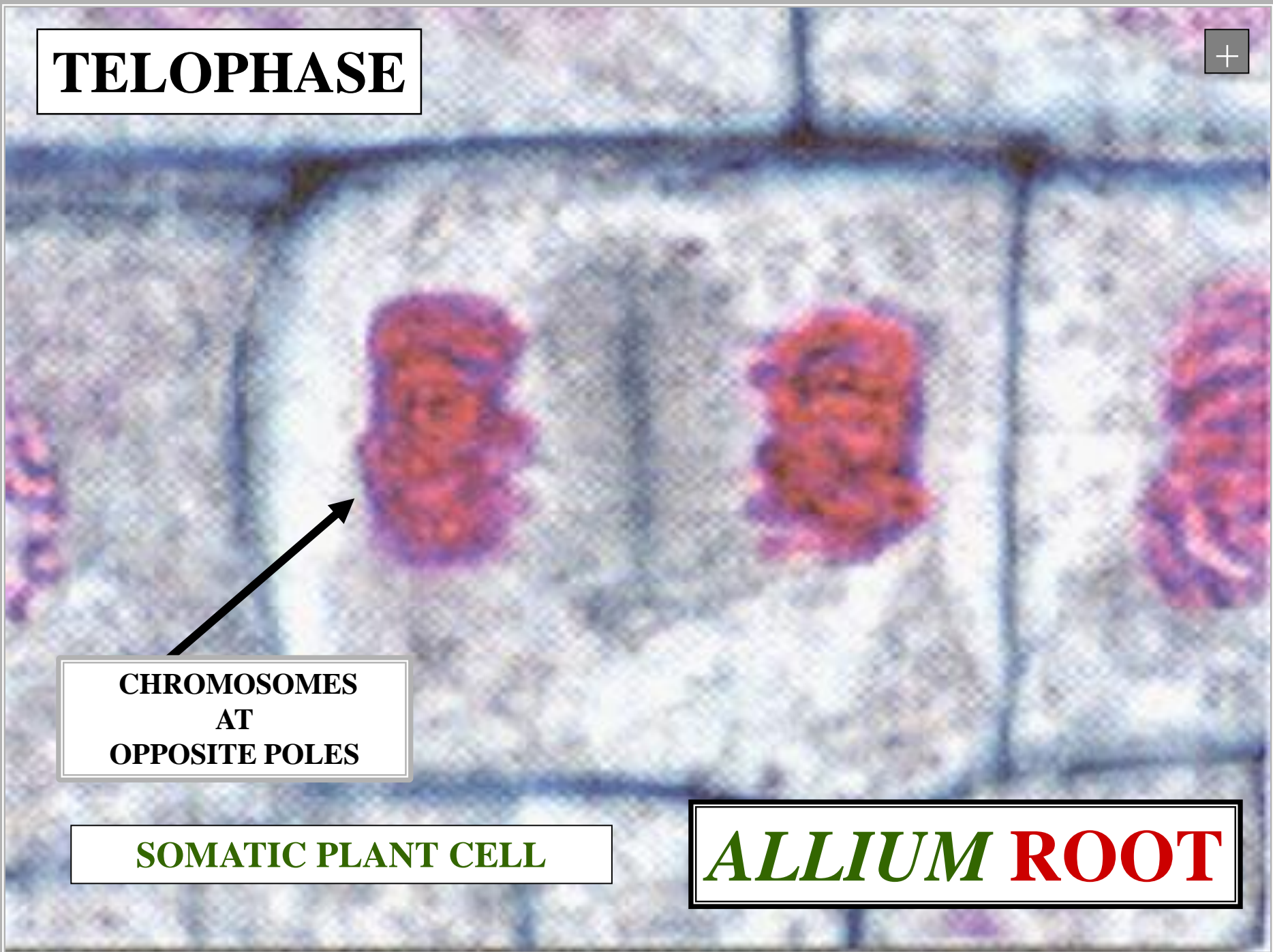


SOMATIC PLANT CELL

*ALLIUM* ROOT



# TELOPHASE

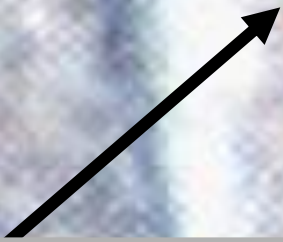


CHROMOSOMES  
AT  
OPPOSITE POLES

SOMATIC PLANT CELL

*ALLIUM* ROOT

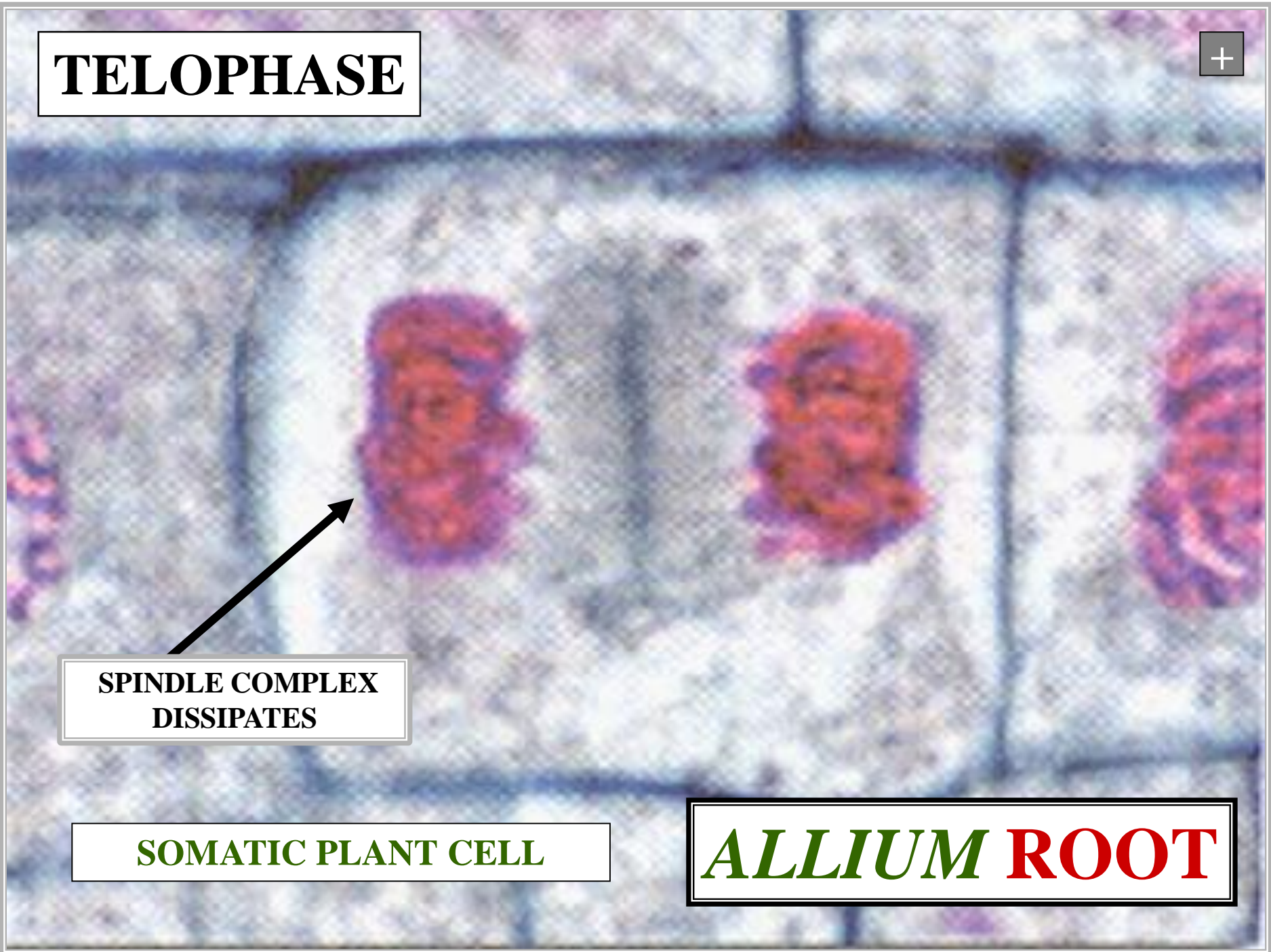
# TELOPHASE



SPINDLE COMPLEX  
DISSIPATES

SOMATIC PLANT CELL

*ALLIUM* ROOT



# TELOPHASE



NUCLEAR  
MEMBRANE  
FORM ABOUT  
CHROMOSOMES

SOMATIC PLANT CELL

*ALLIUM* ROOT