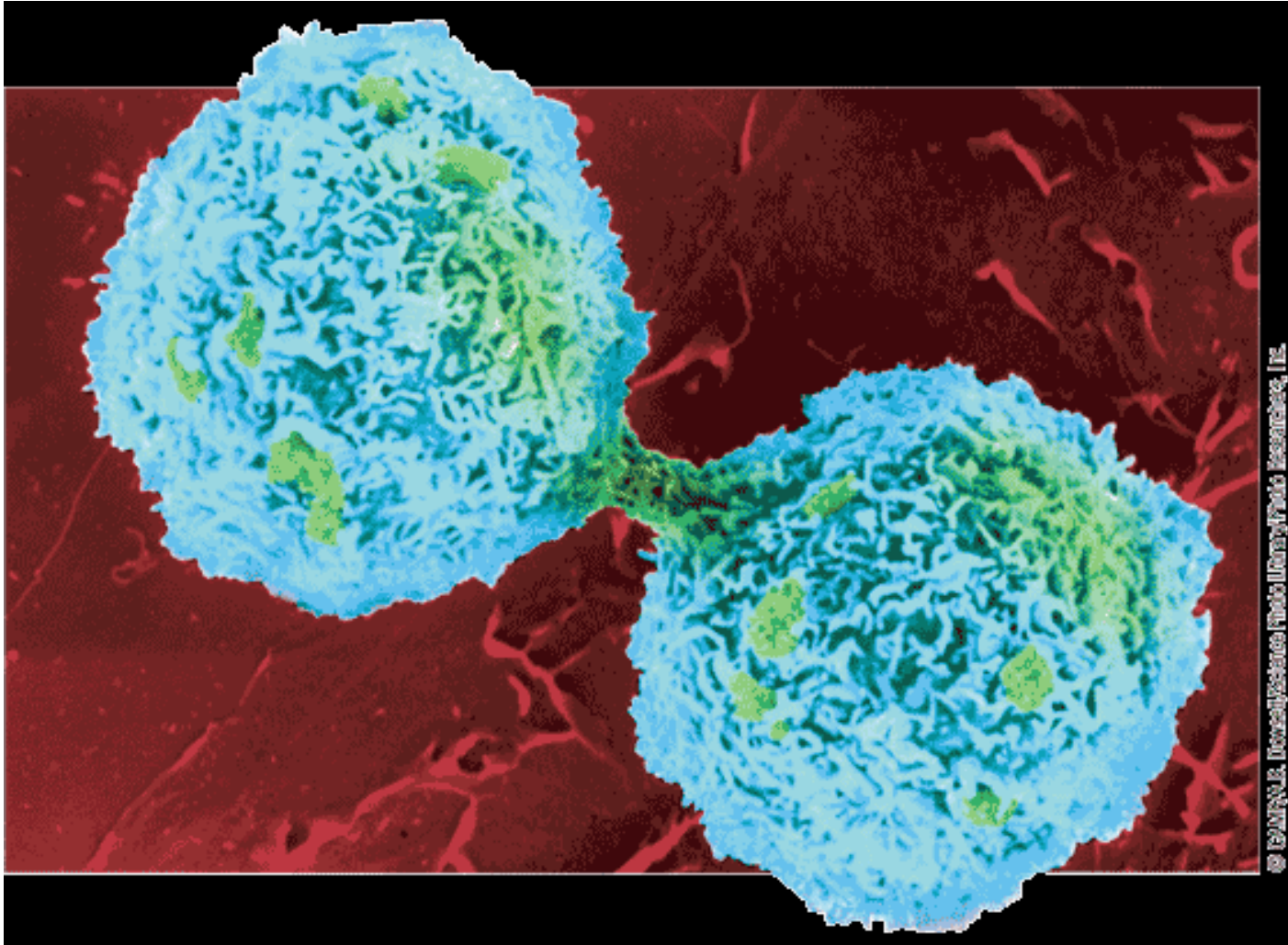


10-1 CELL GROWTH



CELL GROWTH AND DIVISION

In **multicellular organisms**, cell division makes new cells:

- to replace old or damaged ones.
- so organisms can grow.

In **single-celled organisms**, cell division is used for:

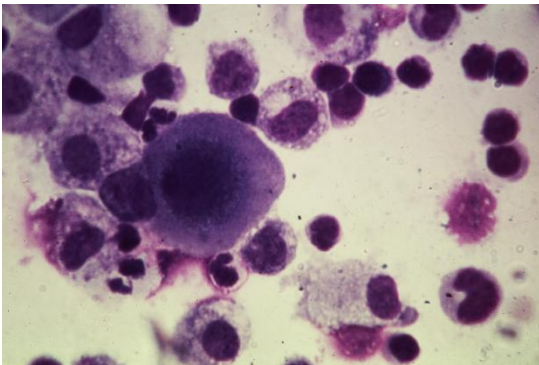
- reproduction.

CELL GROWTH AND DIVISION

There are **two main reasons** why cells divide instead of growing forever:

1) The larger a cell is, the more demands the cell places on its DNA and organelles.

2) If a cell gets too big, it is harder for it to move enough nutrients and wastes through the cell membrane.



THE CELL CYCLE: ASEXUAL REPRODUCTION

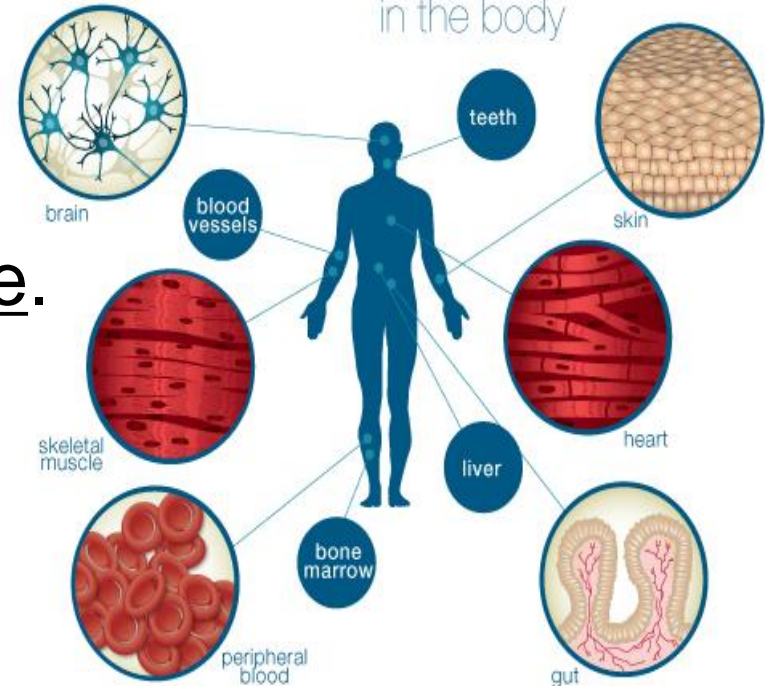
Somatic Cells = body cells

•reproduce *asexually*

- make 2 copies of their DNA.
- split themselves in two.

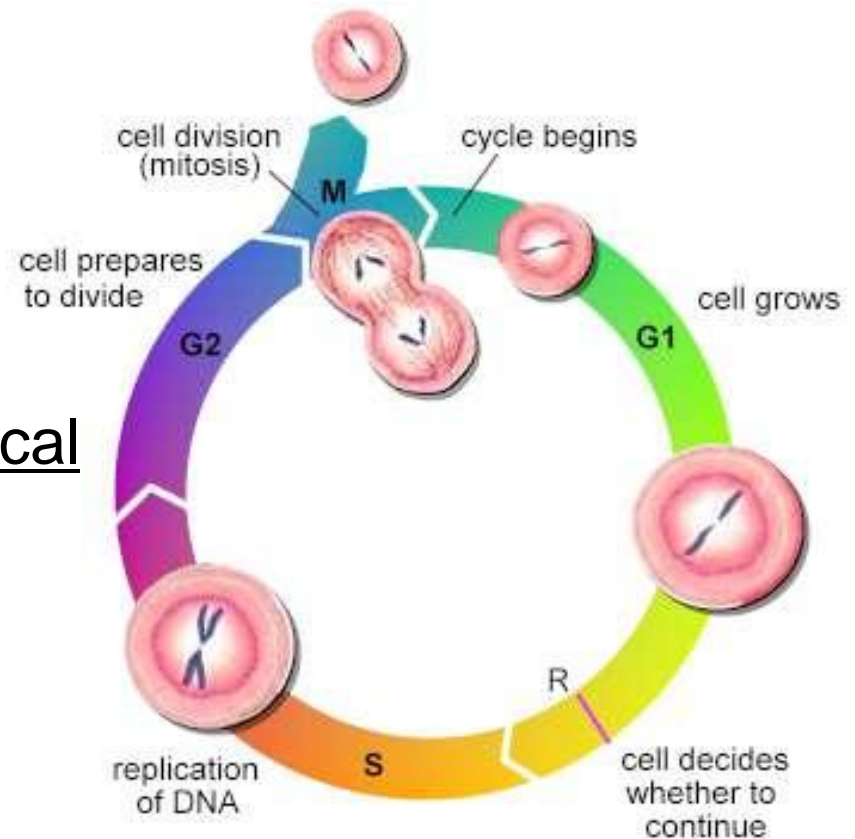
The cell growth and division process is called the Cell Cycle.

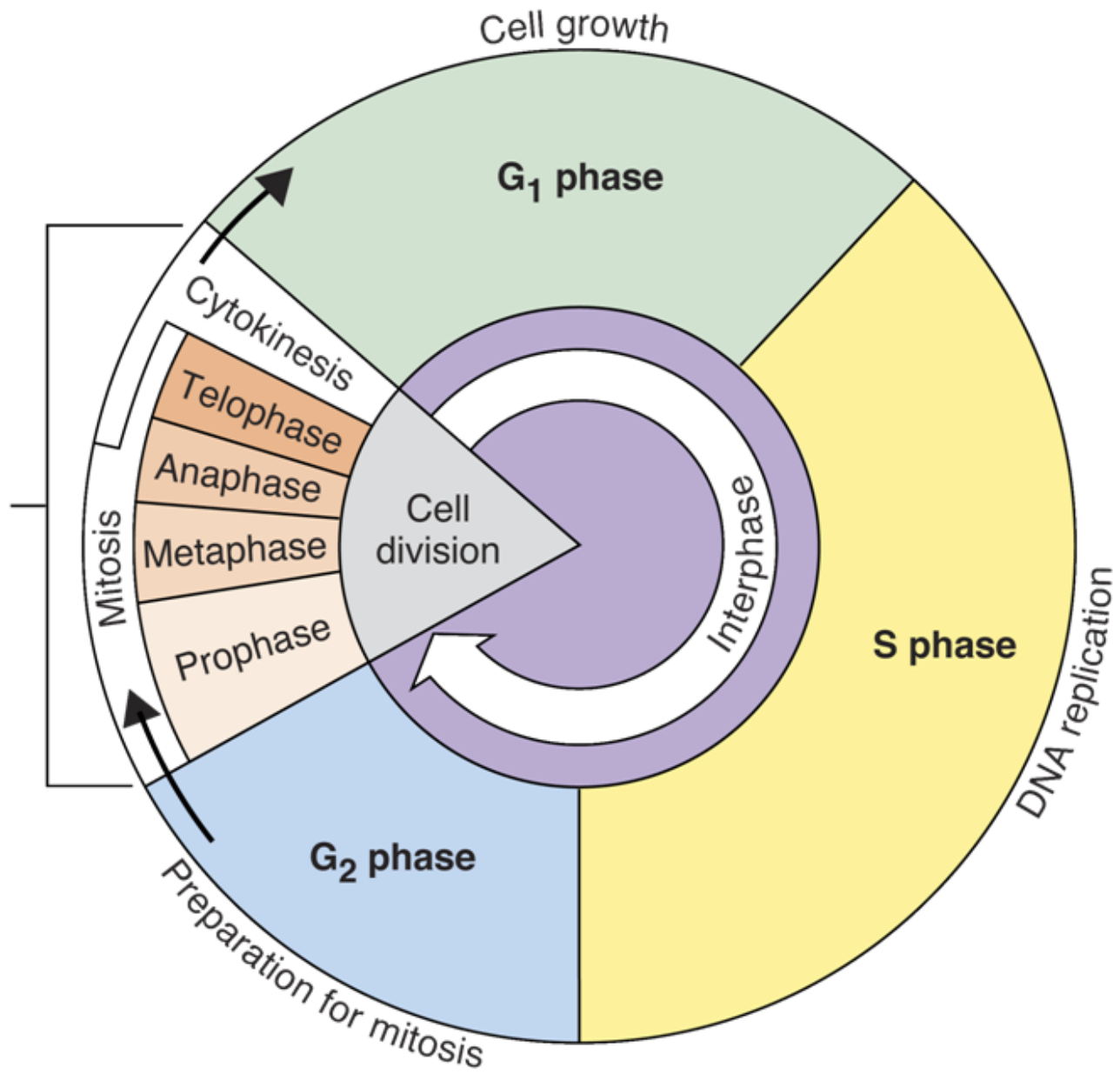
Locations of **Somatic Stem Cells** in the body



THE CELL CYCLE

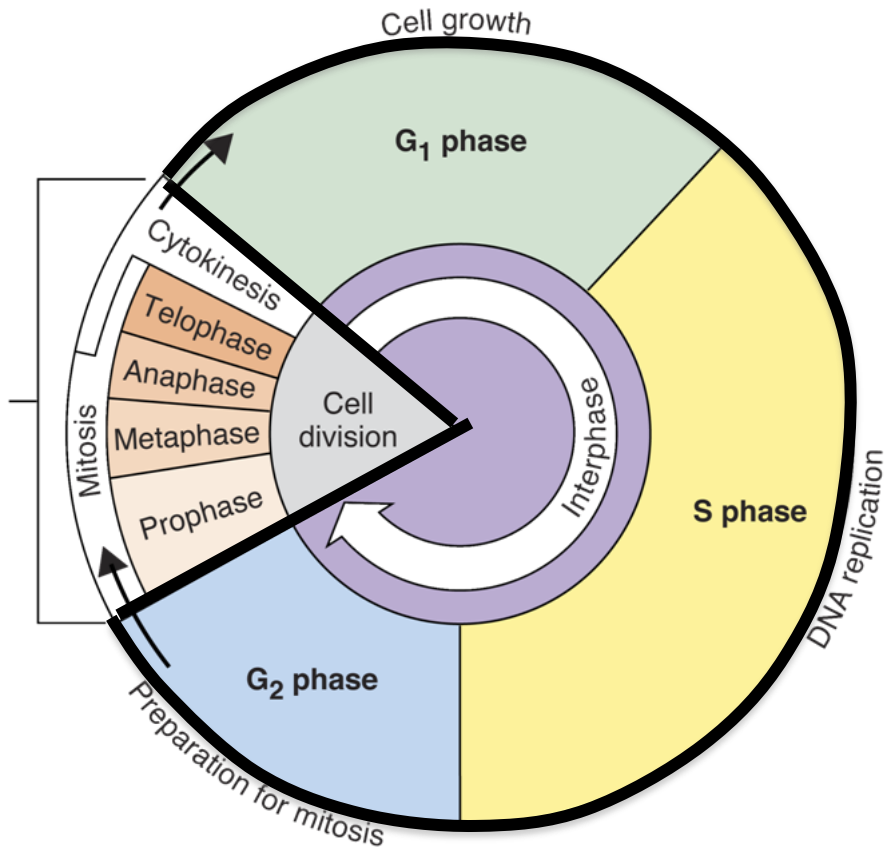
- The cell cycle shows the life of a cell.
- During the cell cycle:
 - a cell **grows**
 - **prepares** for division
 - **divides** to form two identical daughter cells.





THE CELL CYCLE

- Interphase has 3 phases:



1. **G₁**: cells *grow*

1. **S**: A copy of DNA is *synthesized* and replicated

1. **G₂**: the cells *prepare* for division by making organelles and molecules needed for Mitosis.

MITOSIS

After ***Interphase***, the cell is ready to divide and goes through Mitosis.

Mitosis is divided into 4 stages:

1. Prophase
2. Metaphase
3. Anaphase
4. Telophase

Cytokinesis: division of the cytoplasm.

