

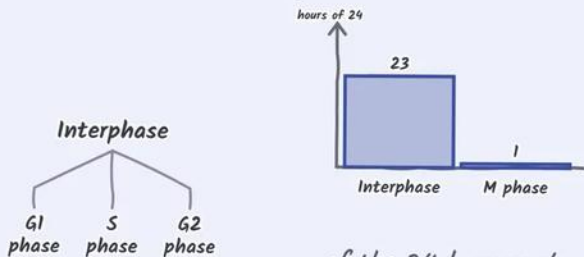
Cell Cycle and Cell Division

one cell becomes two, through a fixed sequence of growth and split



The cell cycle, the big picture *

- the series of events a cell passes through from one division to the next
- ending in the production of two daughter cells
- a human cell dividing in culture runs the whole cycle in about 24 hours
- the cycle splits into two broad spans: **interphase** (preparation) and **M phase** (the actual division)
- interphase alone takes up roughly 95 percent of the cycle's total time
- a snapshot of any dividing tissue mostly shows cells that are NOT visibly dividing



interphase itself splits into three sub-phases, run in this fixed order before M phase ever starts

of the 24-hour cycle, interphase takes up about 23 hours and M phase only about 1: most of the cycle is preparation, not visible division

Interphase, phase by phase

G1 (Gap 1)

cell grows, makes RNA and protein; DNA is still the normal, unreplicated amount

S (Synthesis)

DNA replicates; each chromosome ends this phase as two identical sister chromatids

G2 (Gap 2)

- ☒ Prophase
- ☒ Metaphase
- ☒ Anaphase
- ☒ Telophase

the four stages of mitosis that G2 is preparing the cell for, top to bottom in the order they run further growth and protein synthesis, preparing directly for M phase

