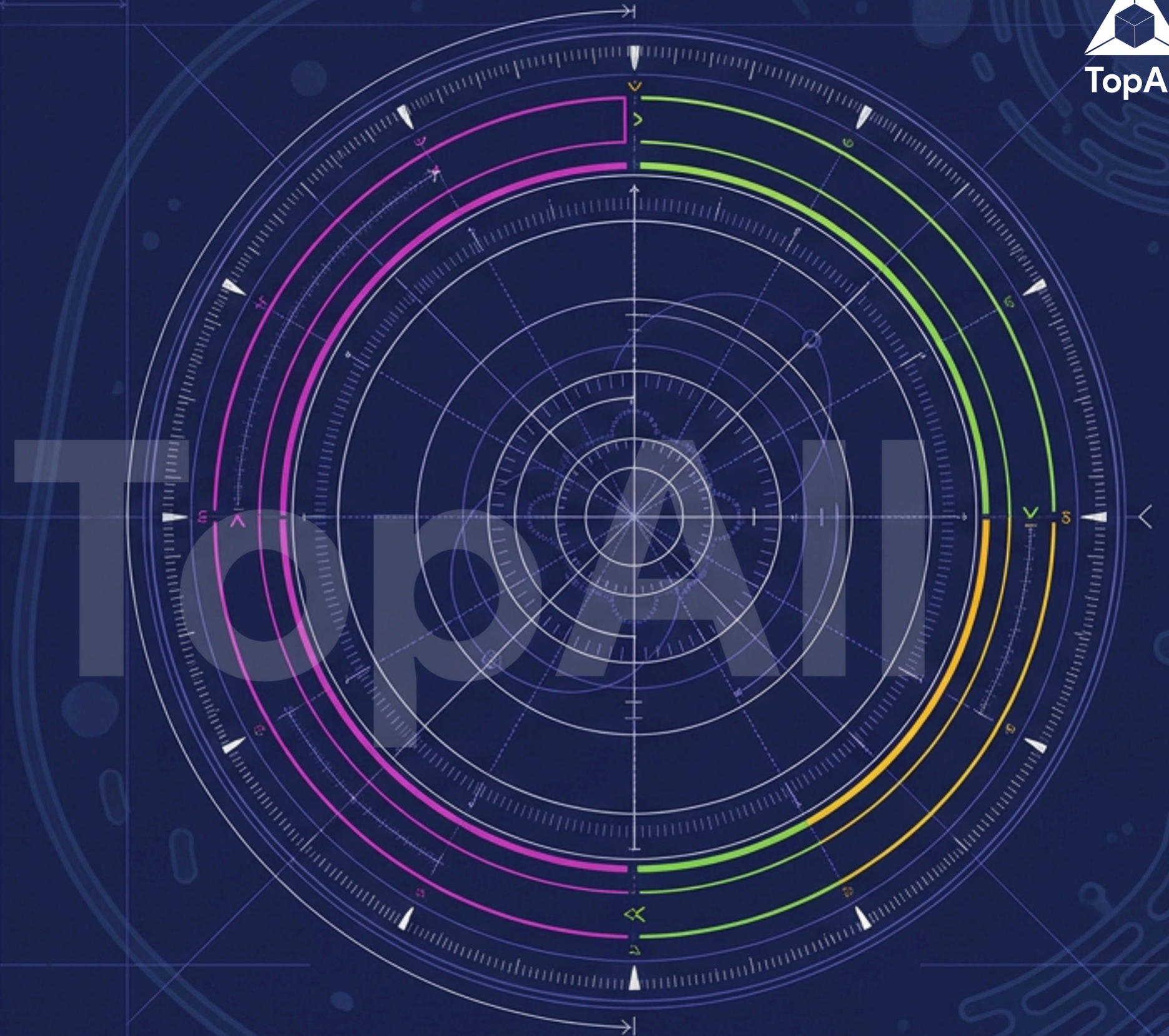


The Timetable of Cell Division

Decoding the precise, microscopic clockwork that allows a single cell to build an organism of millions.

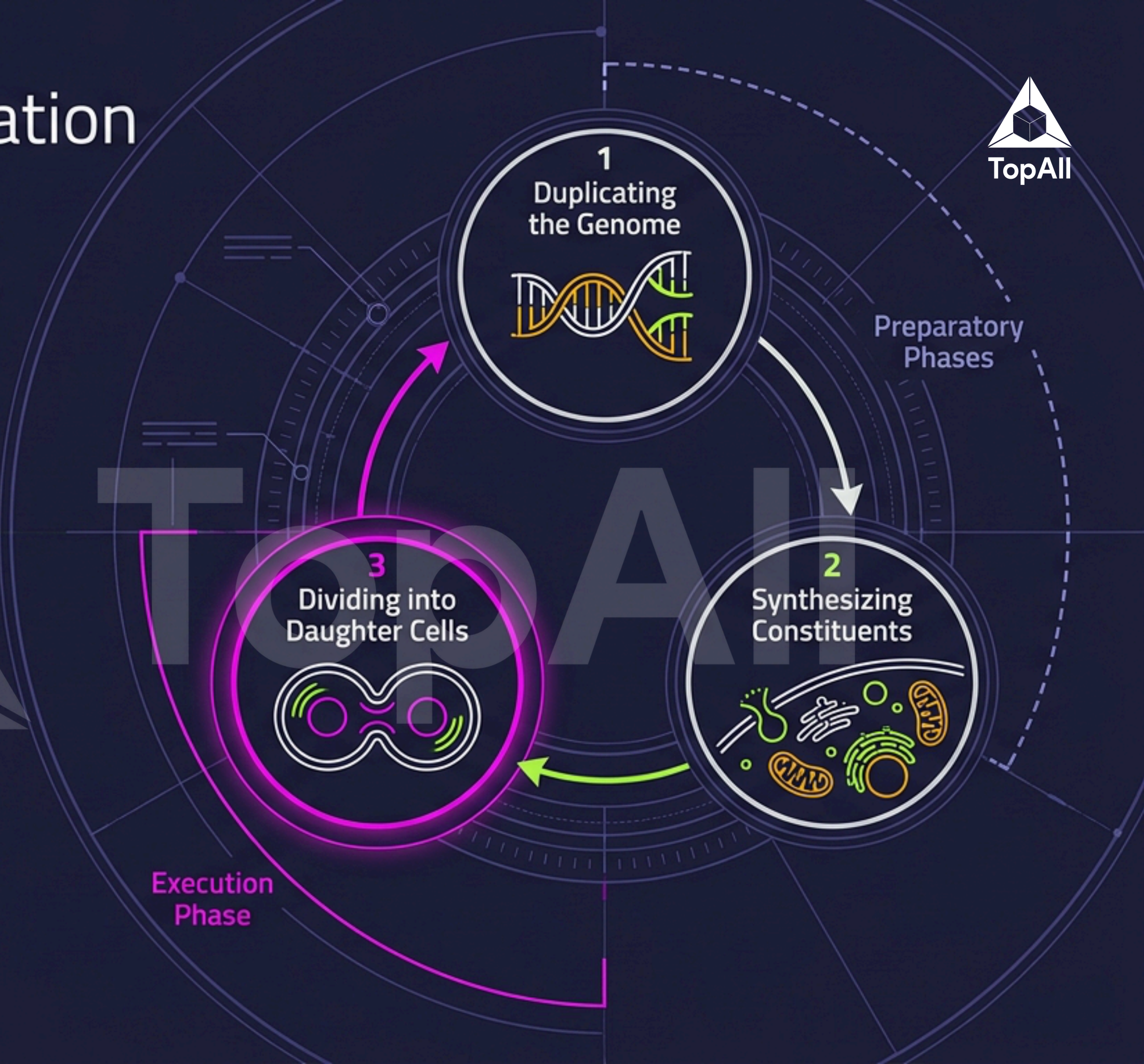


The Engine of Proliferation



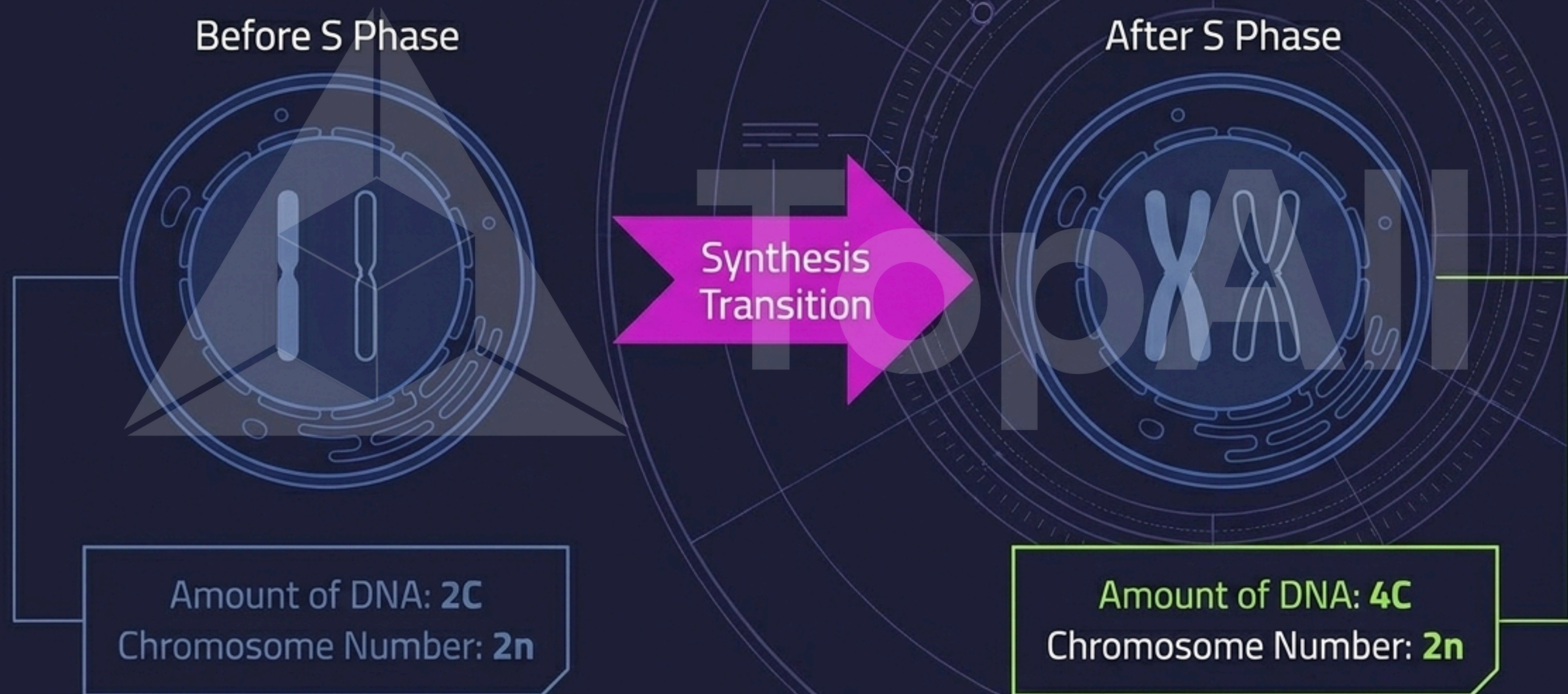
The sequence of events by which a cell **duplicates its genome**, synthesizes its constituents, and **divides**.

Exponential Architecture: These cycles of growth and division allow a single cell to form a structure consisting of millions of cells.



The 2C vs. 2n Paradox: Genome Duplication (S Phase)

During the **Synthesis** (S) phase, DNA replicates but the number of chromosomes remains exactly the same. In animal cells, the centriole also duplicates in the cytoplasm.





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Key Highlights

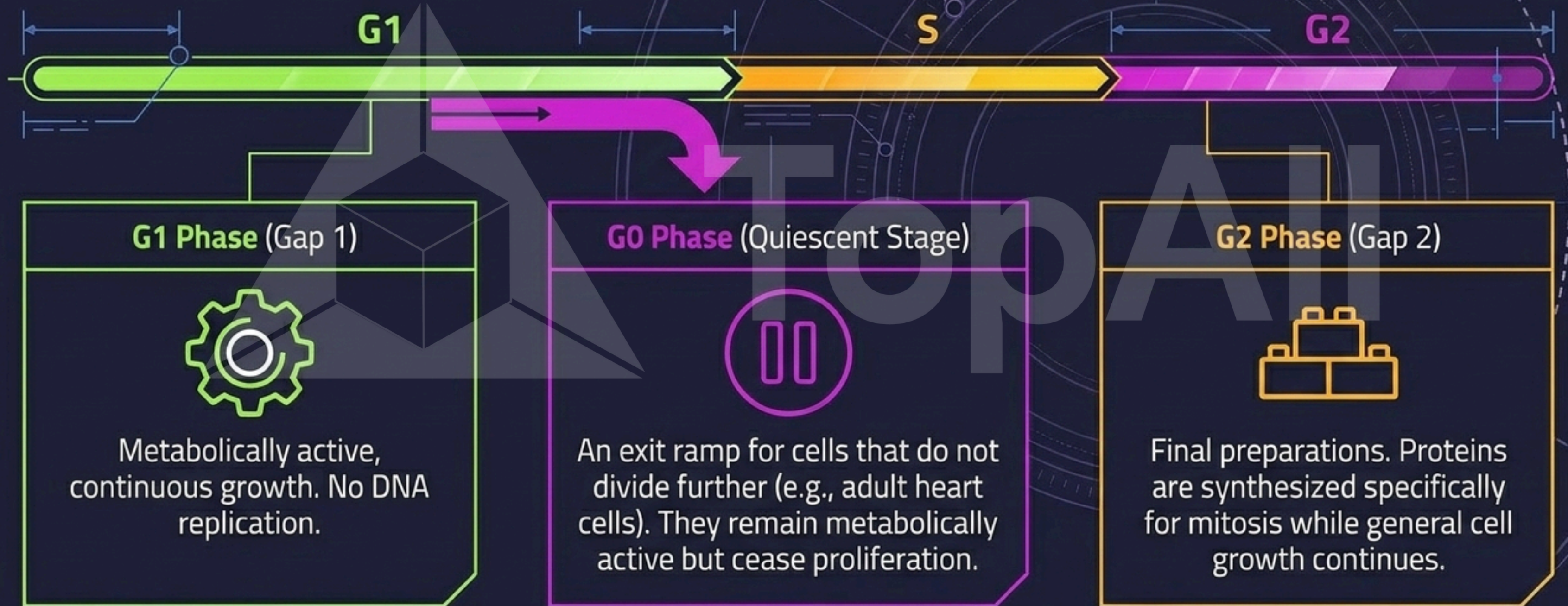
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The Marathon of Growth: Synthesizing Constituents

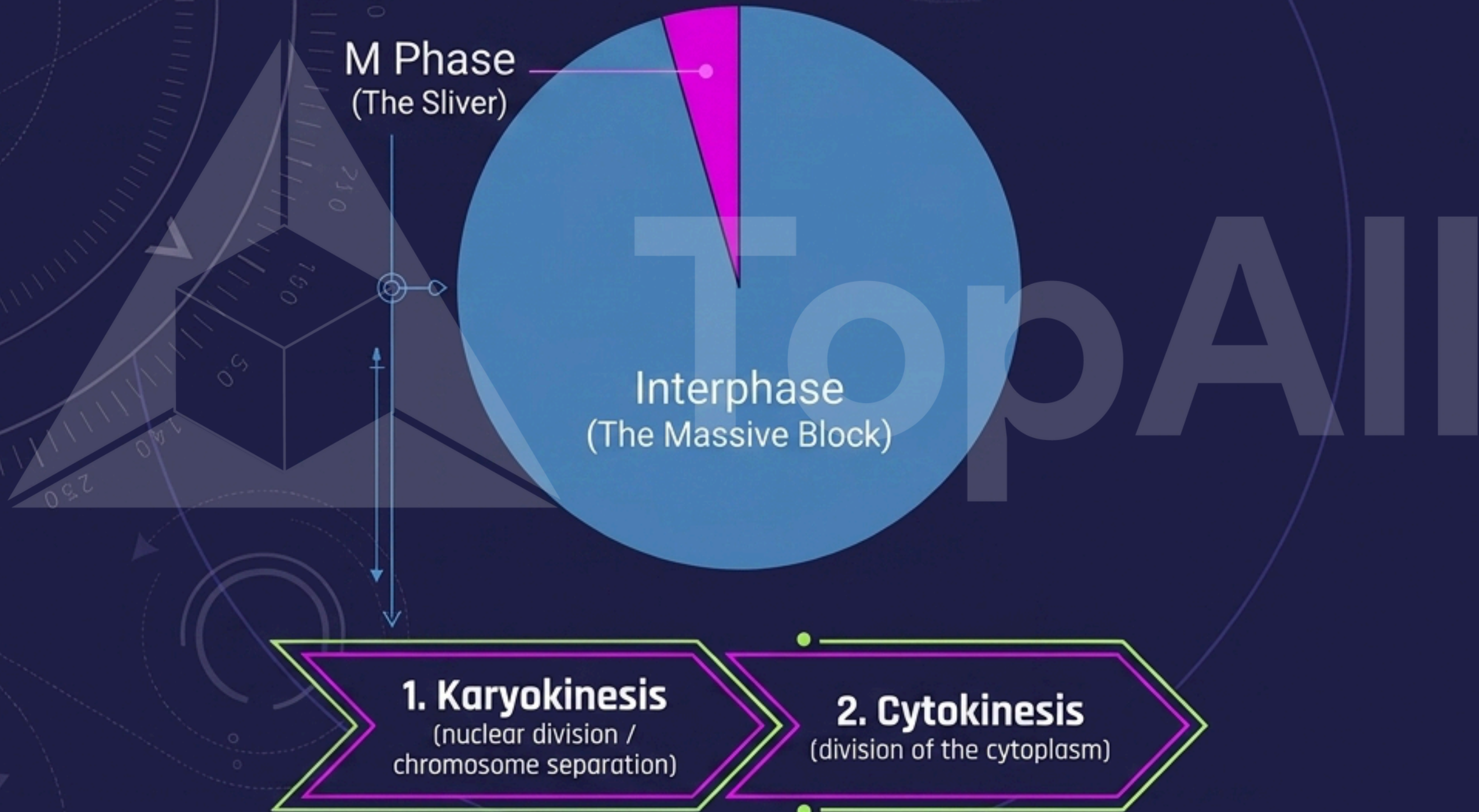


While DNA synthesis is a discrete event, cytoplasmic growth is a continuous marathon throughout the cycle.



The 95/5 Split: Formation of Daughter Cells

The M Phase (Mitosis) is the most dramatic period of the cell cycle, an equational division where the replicated chromosomes are finally distributed.



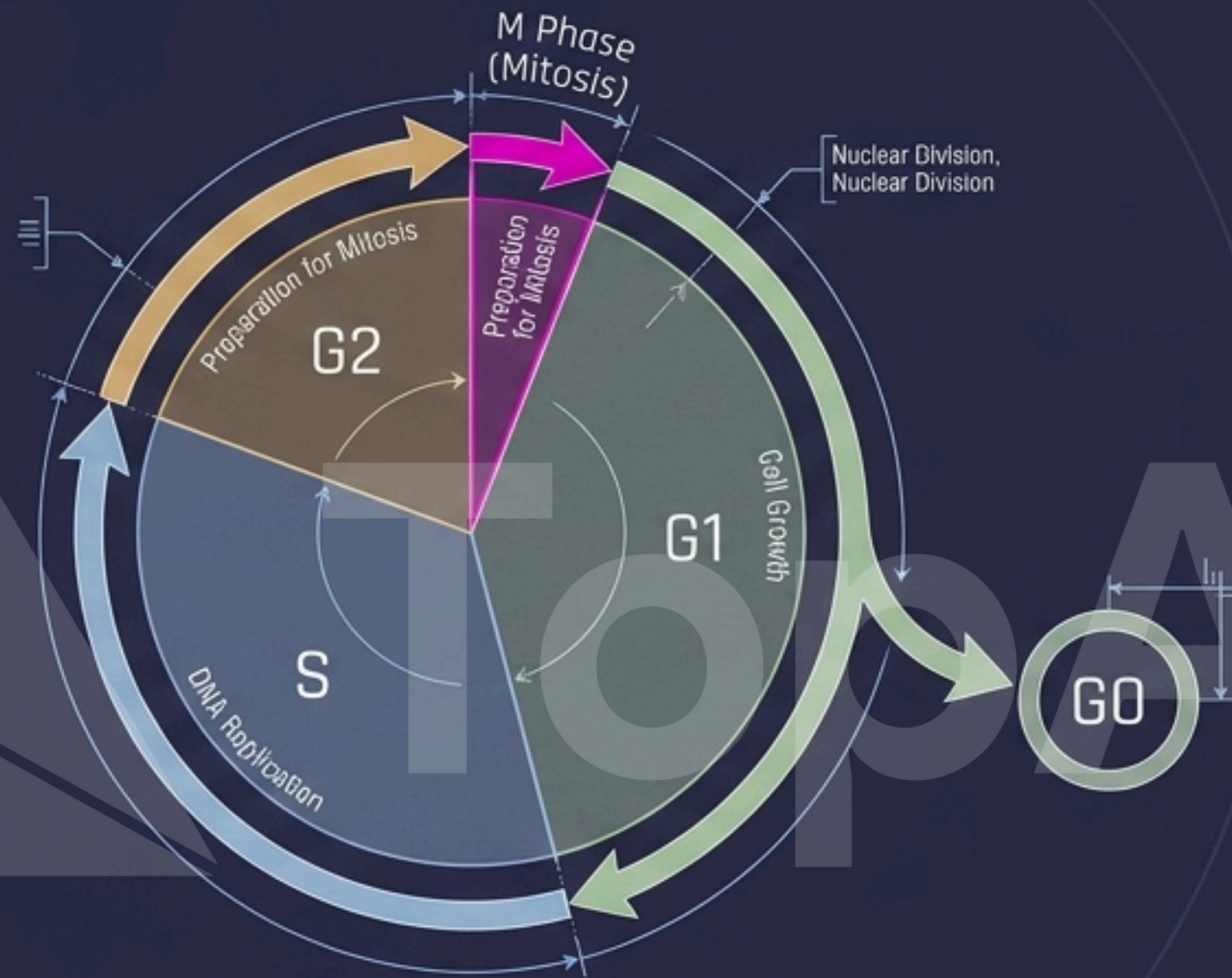
Why Perfect Coordination is Critical

Cell division, DNA replication, and cell growth are strictly under genetic control to ensure intact progeny.



The Biological Clockwork, Decoded

Synthesis: The cell cycle is a masterclass in preparation over execution.



Over 95% of a cell's life is spent in precise, relentless preparation to ensure a single hour of flawless division.



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