

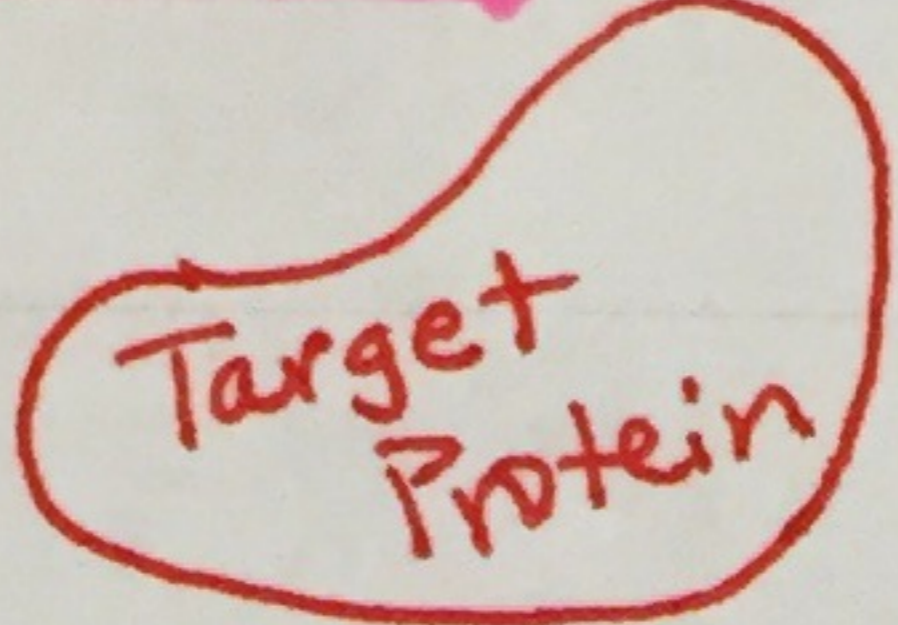
Cyclins Control Progression through the Cell Cycle

Each of the phases of the cell cycle involves many important tasks. A group of proteins called **cyclins** is used to ensure that tasks are performed at the correct time and that the cell only moves on to the next state of the cycle when it is appropriate.

HOW CYCLINS WORK:

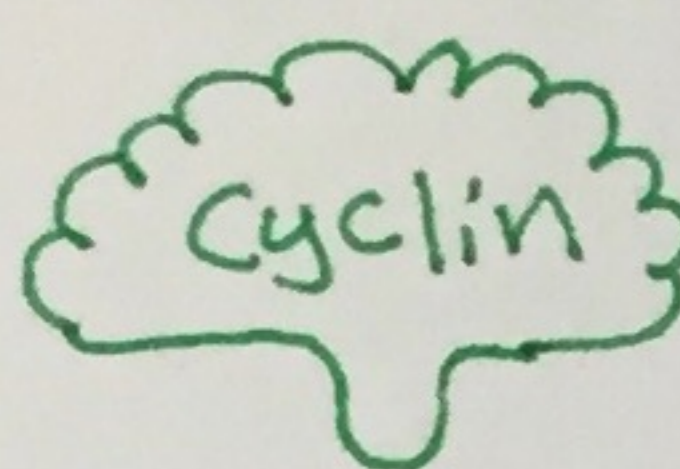
There are four types of cyclins (A, B, ~~C~~ and D) that each activate a different set of target proteins.

Inactive Target Protein



— Does a job that moves the cell through the cell cycle.

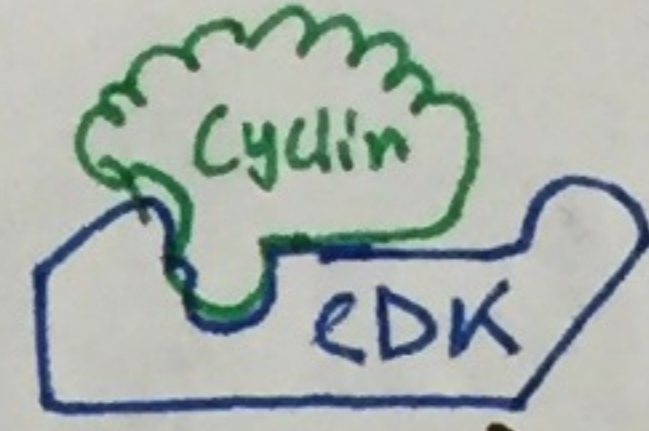
Inactive Cyclin



protein that varies (cycles) in concentration throughout the cell cycle

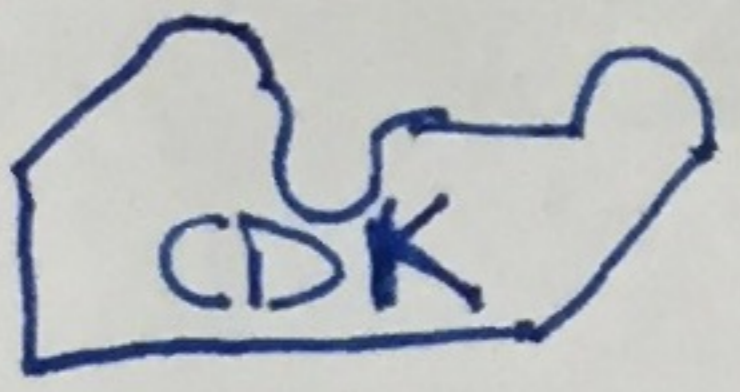
Bind together

Active Cyclin Dependent Kinase Complex



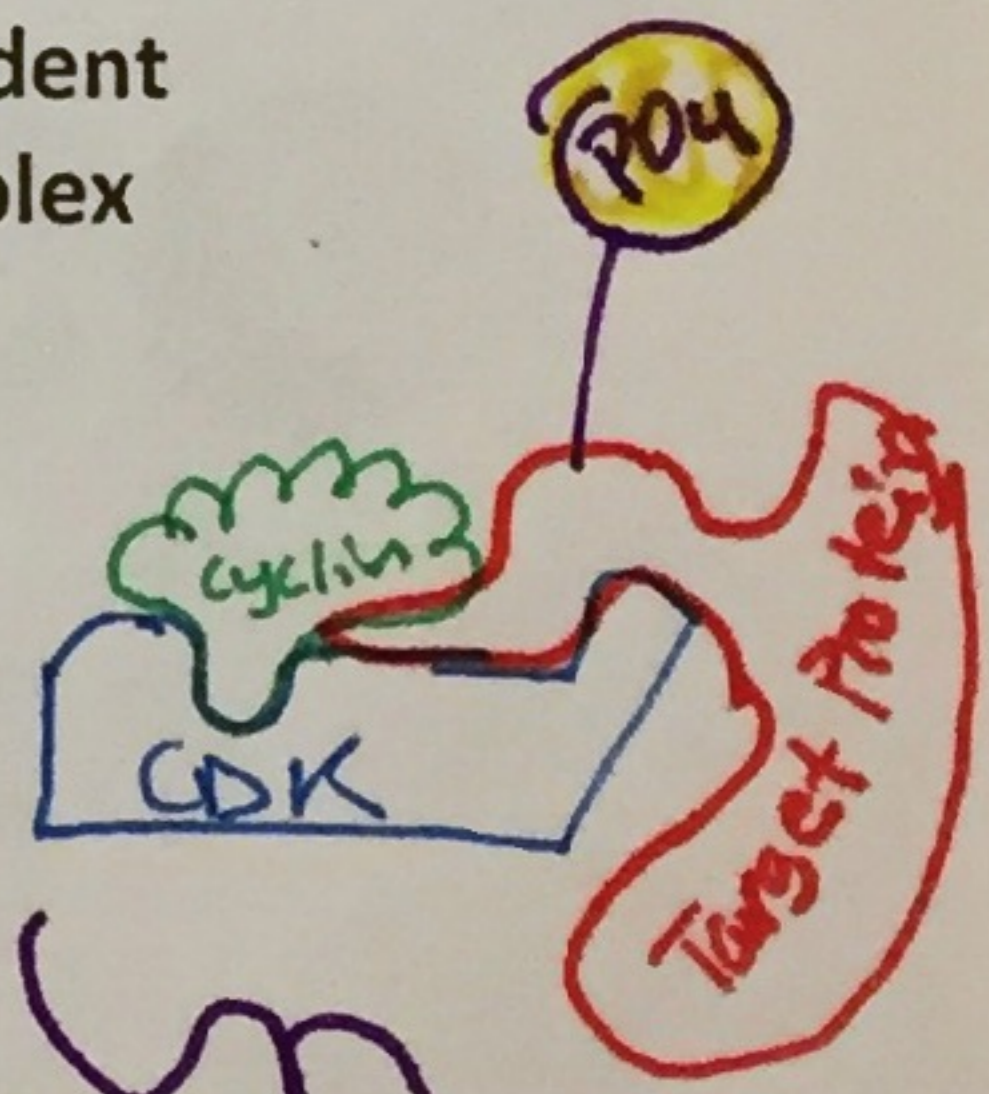
Active Cyclin Dependent Kinase Complex

Kinase: enzyme that transfers/attaches a phosphate to a protein.



Inactive Cyclin Dependent Kinase

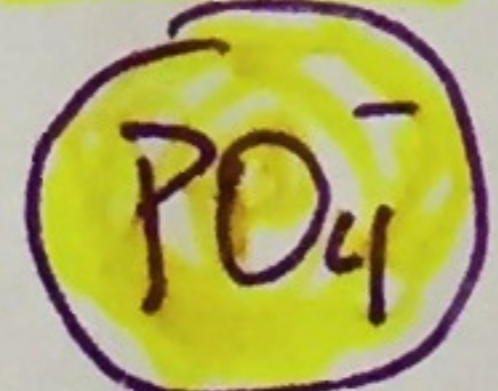
— can now phosphorylate a target protein



Known as Maturation Promoting Factor (MPF)

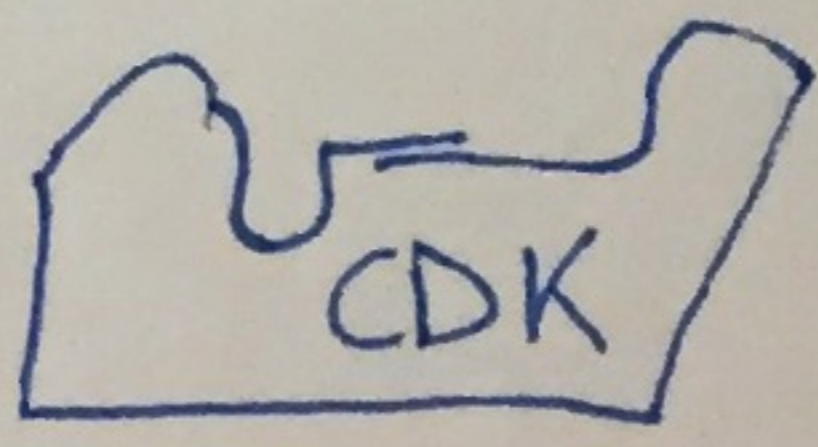
Will phosphorylate (add a phosphate) a target protein, when activated by a cyclin.

Inorganic Phosphate (PO₄⁻)



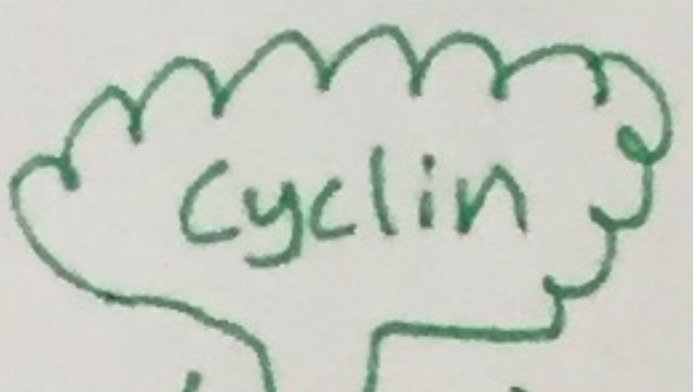
Molecule with a lot of chemical potential energy

Cyclin Dependent Kinase



Is recycled

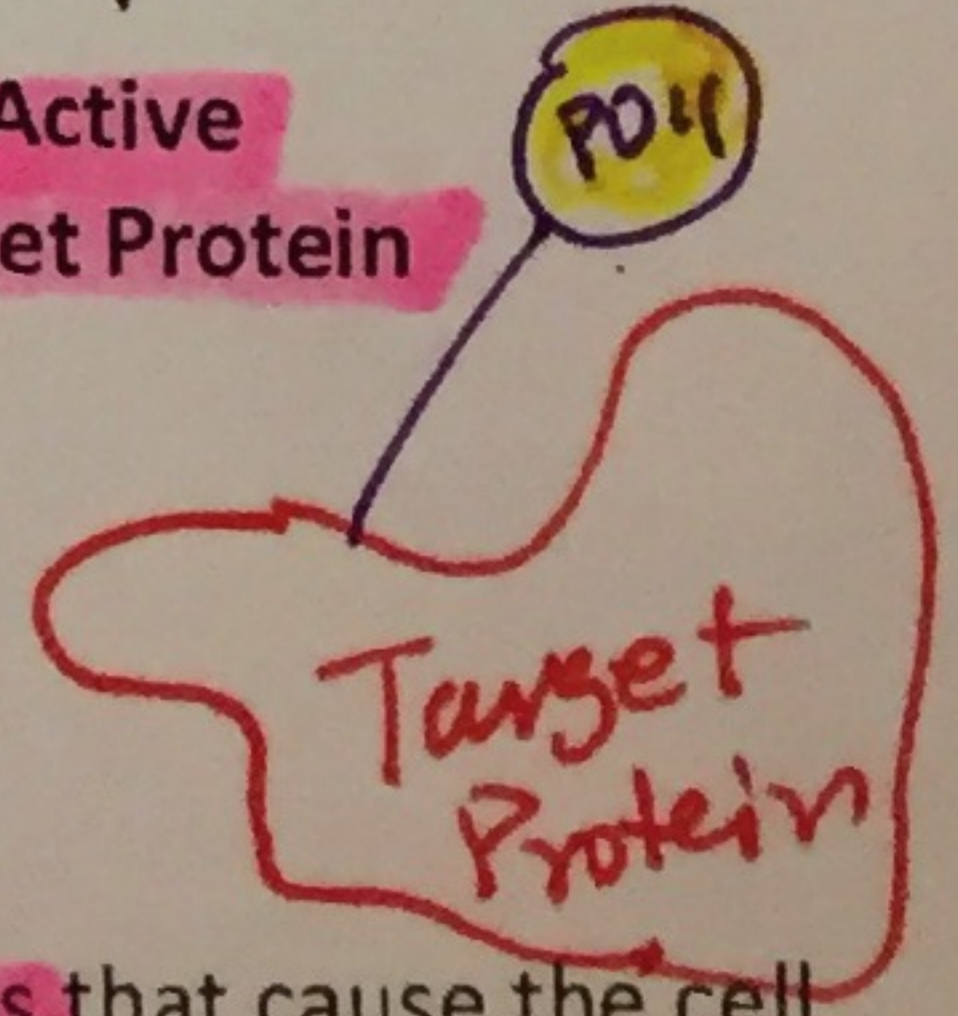
Cyclin



Amino Acids

Is degraded

Active Target Protein



Can go do jobs that cause the cell to move through the cell cycle