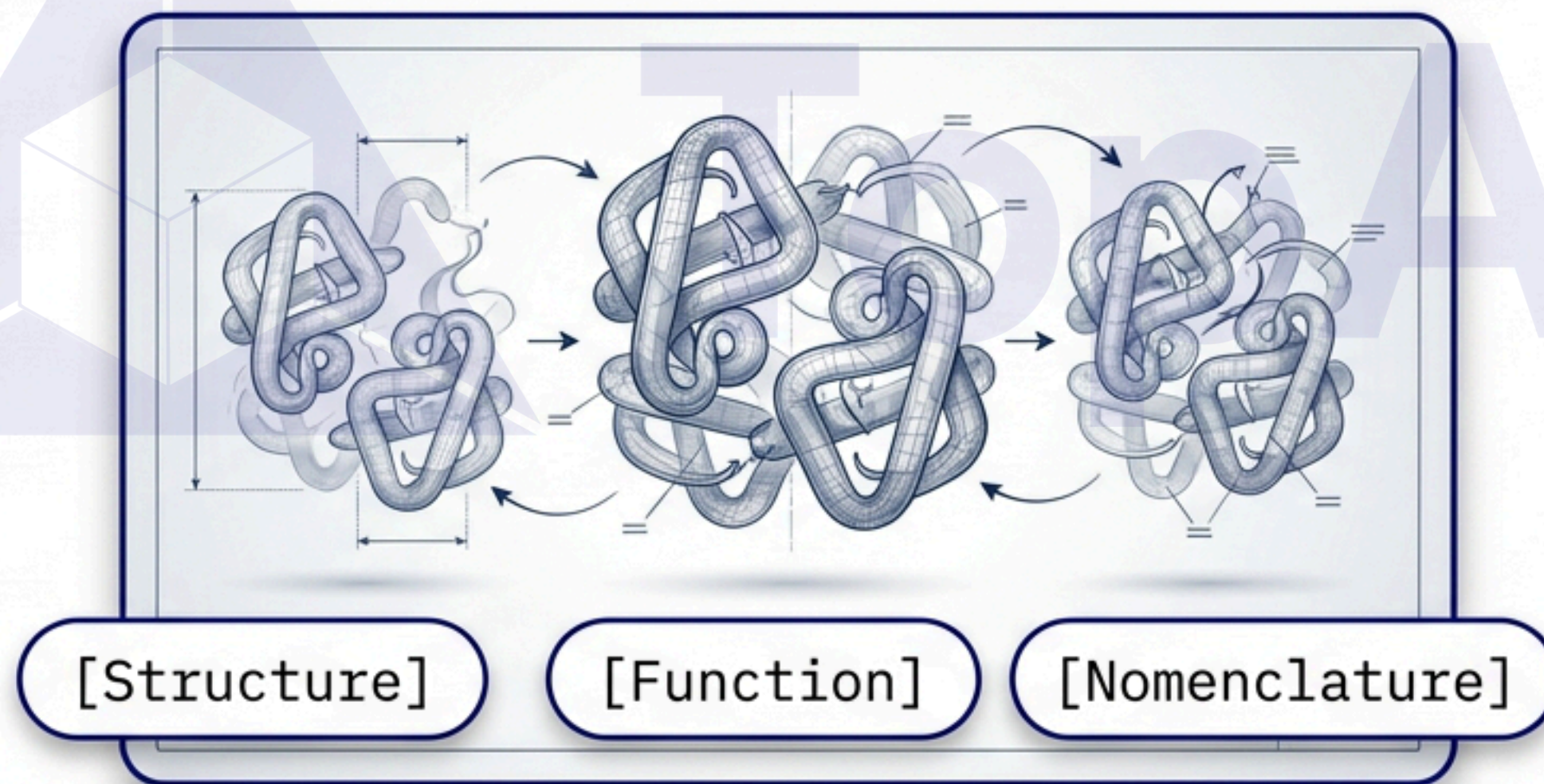


10.3 Enzymes

The biocatalysts driving the molecular logic of life.

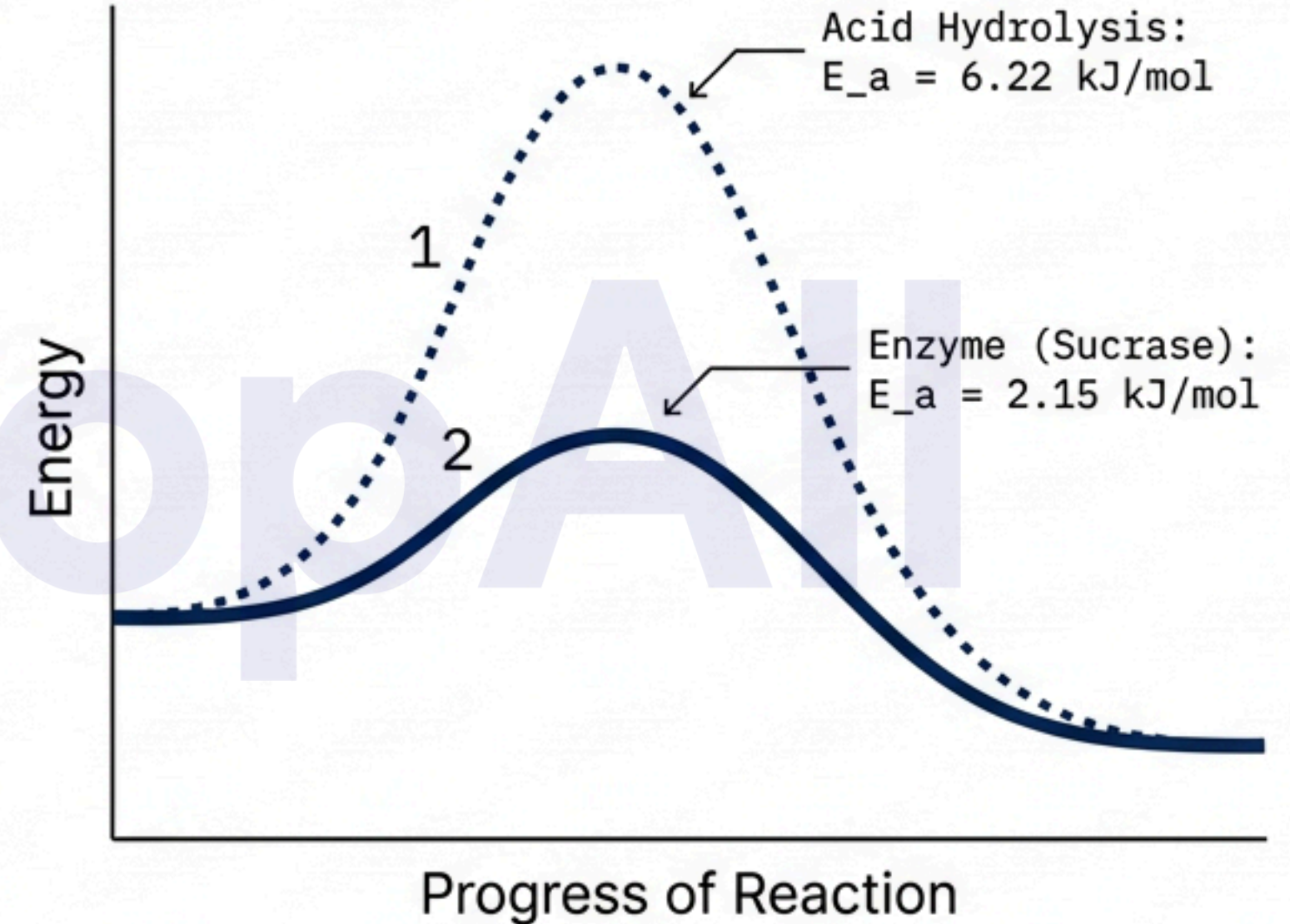


Enzymes as Biocatalysts

Mild Conditions

Life requires a sequence of chemical reactions to occur rapidly.

Enzymes make this possible under the mild conditions of the human body by significantly reducing the required activation energy.



Enzymes dramatically lower the energy barrier to reaction.



**You've Learned the Theory.
Let's Test Them Now.**

$$E=mc^2$$



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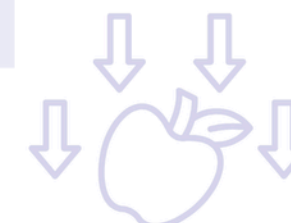
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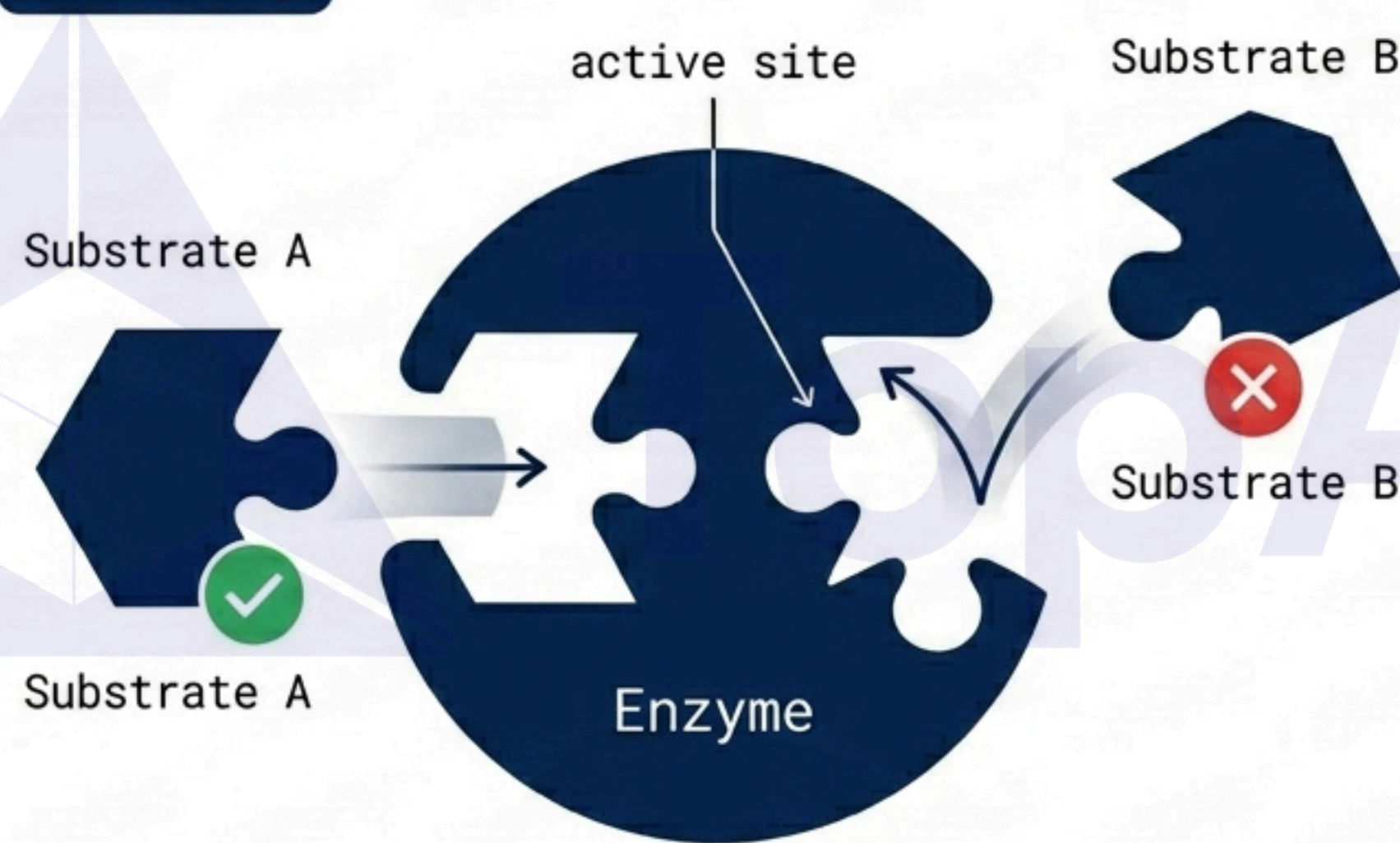


Specificity for Substrate and Reaction

Substrate Specificity

An enzyme only targets one specific compound.

Lock & Key



Reaction Specificity

An enzyme only catalyzes one specific type of chemical change.

Naming of Enzymes

Universal Suffix = -ase

Based on Compound

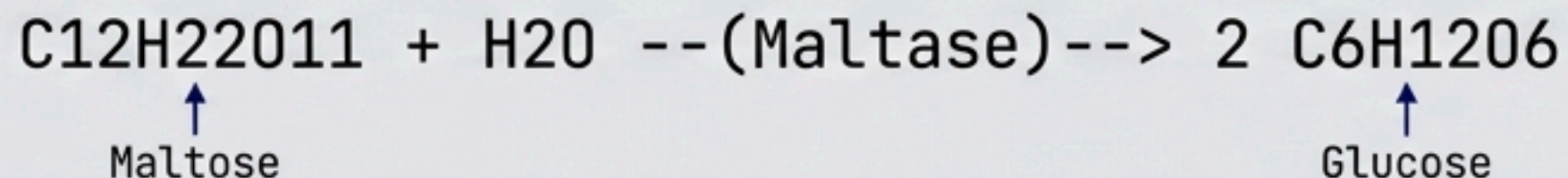
Named after the specific substrate they act upon.

Maltose → Maltase

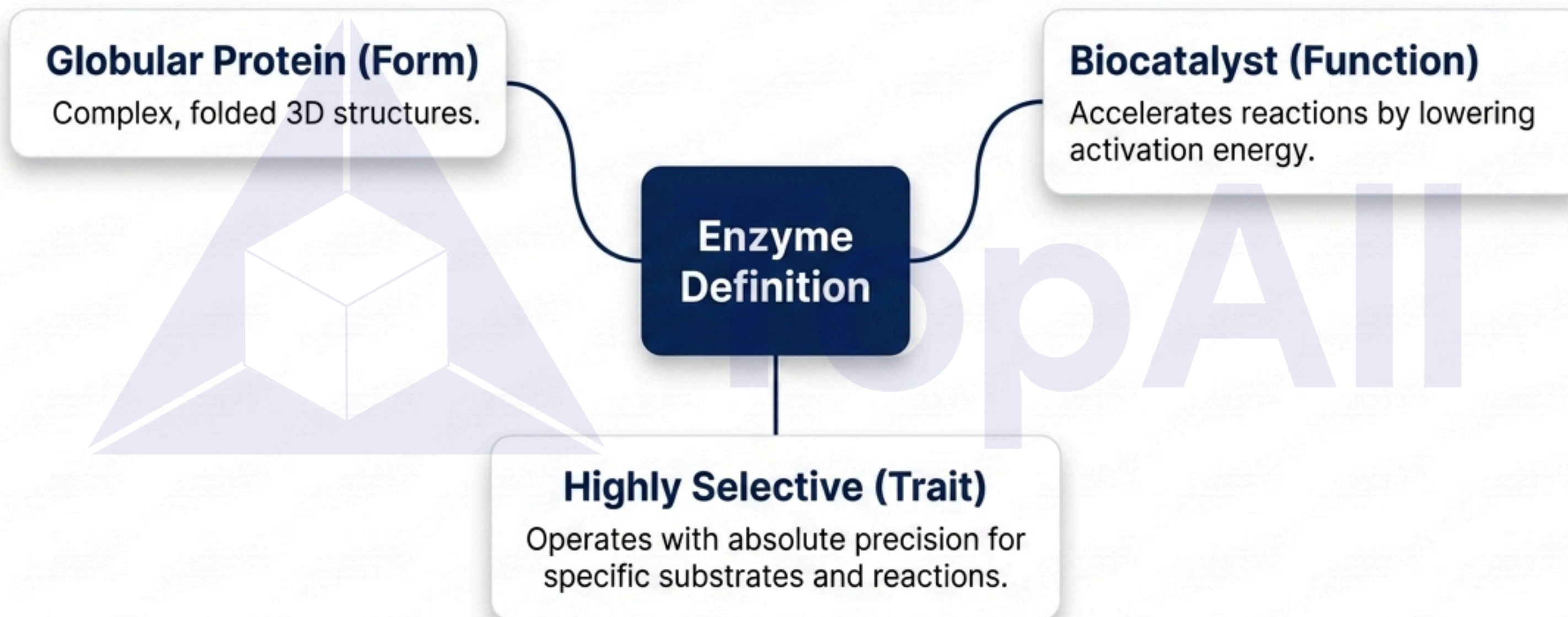
Based on Reaction Type

Named after the specific chemical change they catalyze.

Oxidation + Reduction → Oxidoreductase



The Essential Blueprint of an Enzyme



Almost all enzymes are globular proteins that act as highly specific biological catalysts, enabling the molecular logic of life under extremely mild conditions.



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