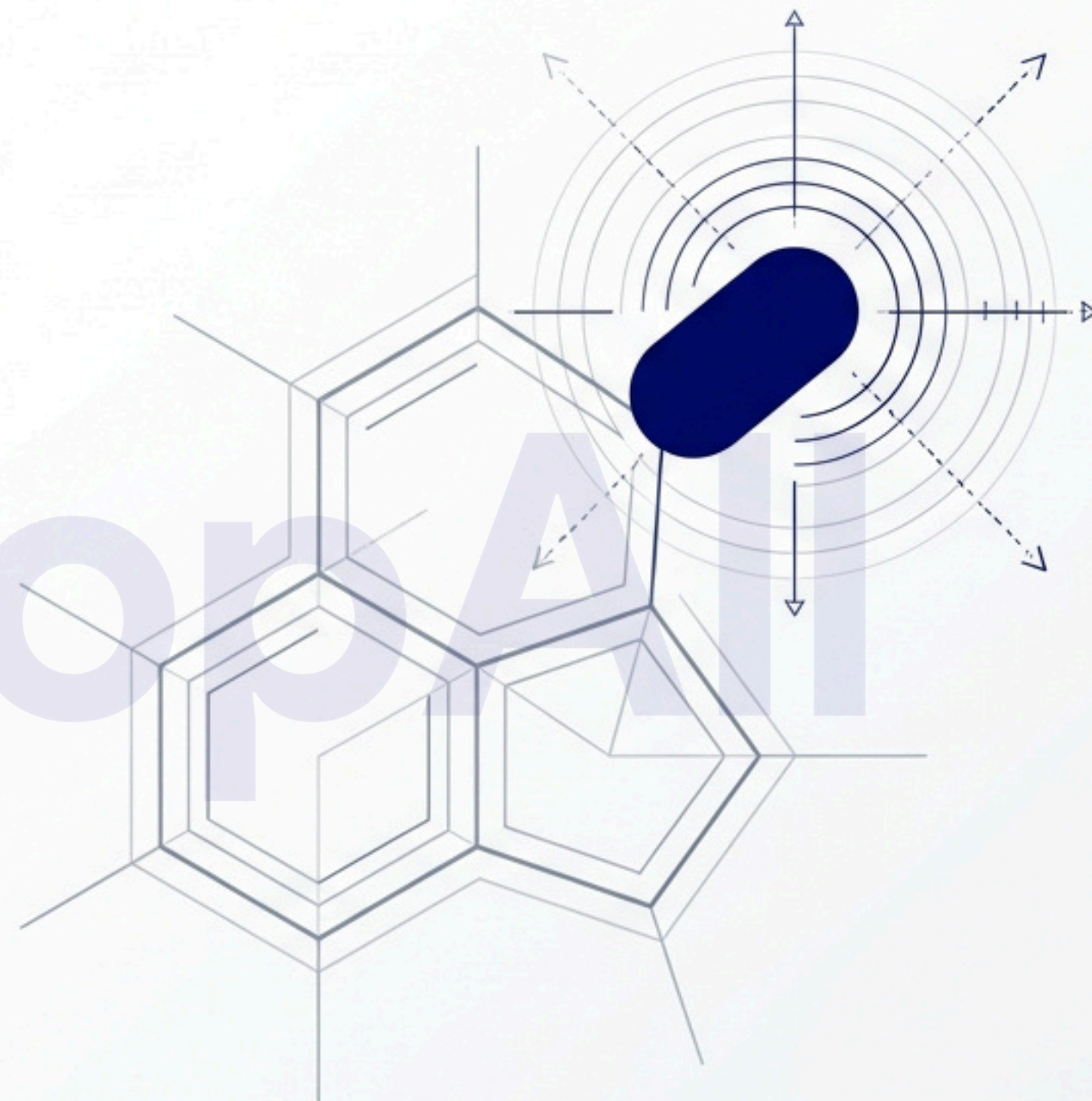




ORGANIC CHEMISTRY 8.4.1

Functional Groups

The active modules that dictate molecular reactivity.

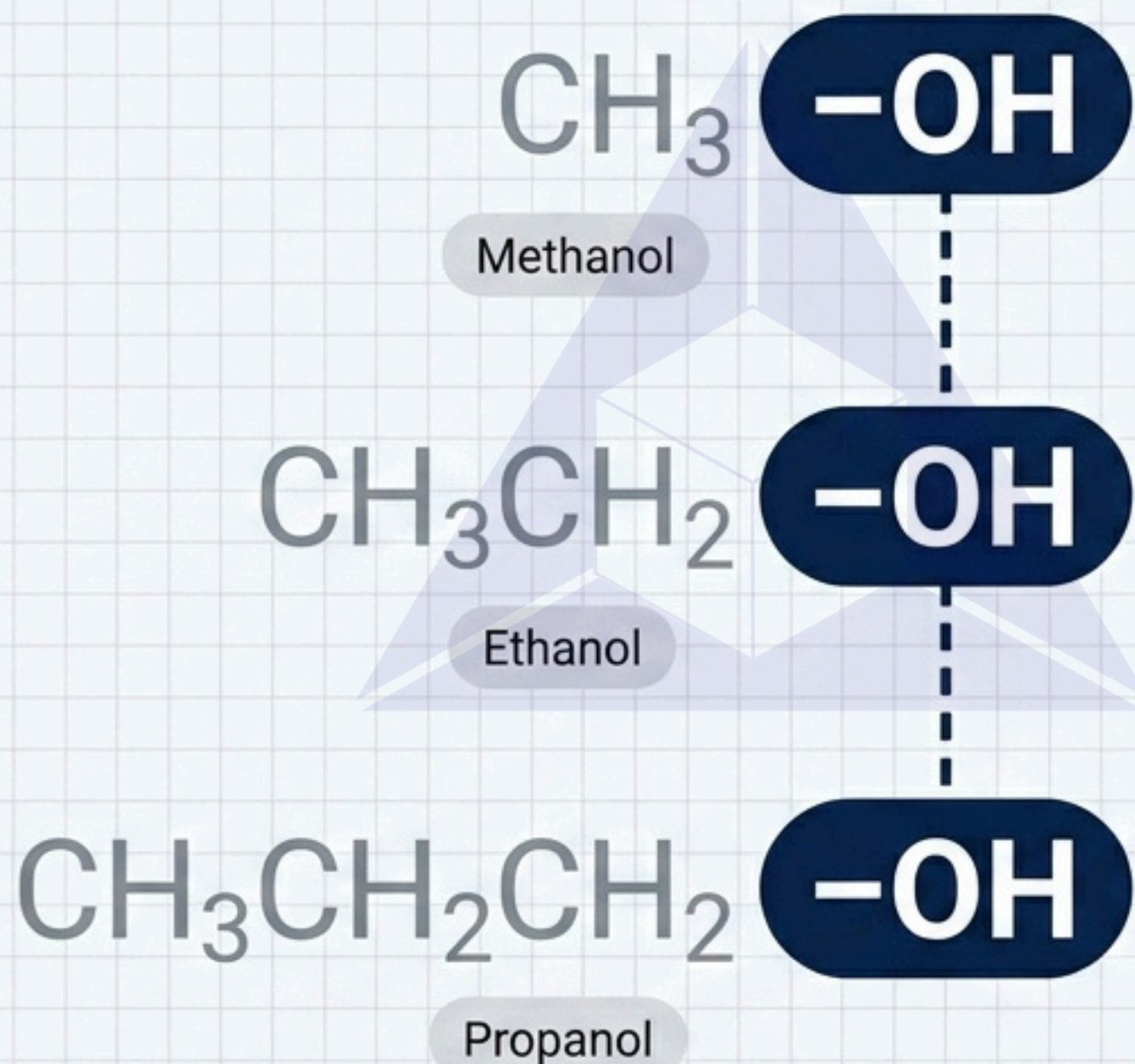


The Anatomy of an Organic Molecule

A functional group is defined as an atom or a group of atoms joined in a specific manner which is responsible for the characteristic chemical properties of the organic compound.



Driving Chemical Properties



The Constant

Despite the varying size of the carbon backbone, the presence of the -OH group ensures all these molecules undergo similar, characteristic chemical reactions. The group overrides the chain.



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Core Functional Groups (Table 8.4 Reference)

-OH

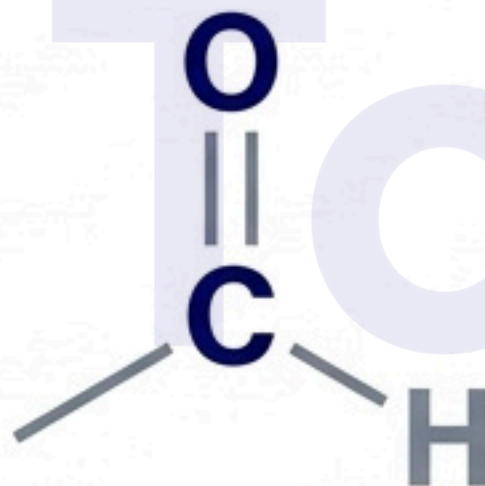
Hydroxyl group



Class of Compound:
Alcohols

-CHO

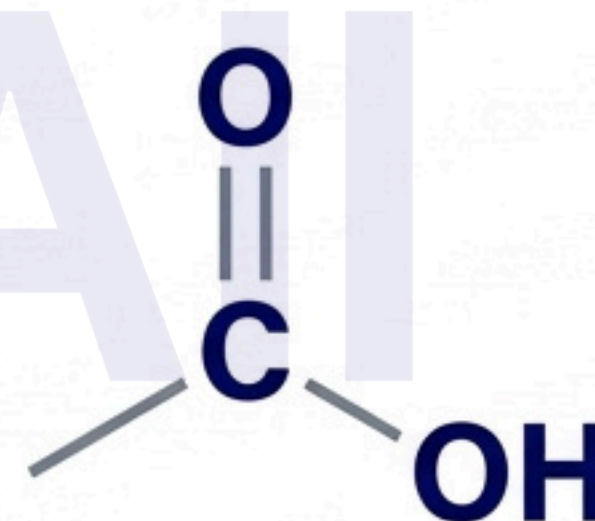
Aldehyde group



Class of Compound:
Aldehydes

-COOH

Carboxyl group



Class of Compound:
Carboxylic acids

Key Takeaways



The Chemical Engine

A functional group is the specific atom or group of atoms responsible for a molecule's characteristic chemical properties.



Chain Agnostic

The chemical reactions dictated by a functional group remain largely the same, regardless of the length or complexity of the attached carbon chain.



Basis of Families

Functional groups allow us to classify millions of organic compounds into specific families or homologous series (e.g., all compounds with an -OH group are alcohols).



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