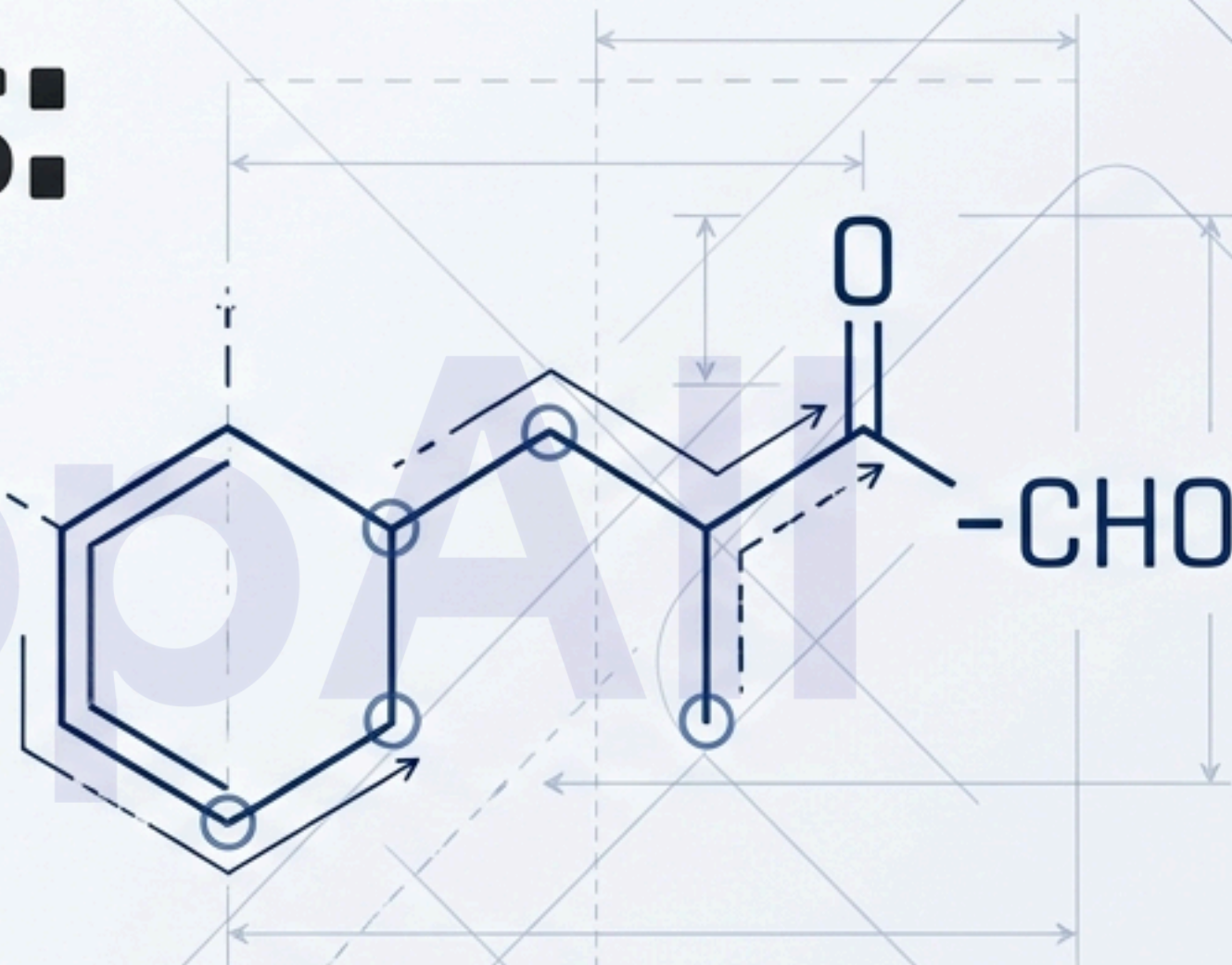


UNIT 10 • BIOMOLECULES

Monosaccharides: Classification by Carbon Count & Functional Group



The Modular Language of Monosaccharides

Functional Group Prefix

"Aldo-" (contains an aldehyde)
or
"Keto-" (contains a ketone)

Carbon Count Root

"Tri-" (3)
"Tetr-" (4)
"Pent-" (5)
"Hex-" (6)
"Hept-" (7)

The Suffix

-ose indicates a carbohydrate (sugar)

Monosaccharide Classification Matrix

	Aldehyde	Ketone
3 (Triose)	Aldotriose	Ketotriose
4 (Tetrose)	Aldotetrose	Ketotetrose
5 (Pentose)	Aldopentose	Ketopentose
6 (Hexose)	Aldohexose	Ketohexose
7 (Heptose)	Aldoheptose	Ketoheptose



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High-Impact Diagnostic Slide

Glucose

-CHO at C1

- 6 Carbons
- Aldehyde Group

Aldo- + **hexose** → Aldohehexose

Fructose

>C=O at C2

- 6 Carbons
- Ketone Group

Keto- + **hexose** → Kethexose

Watch for this...

Stating that Glucose is simply a hexose is structurally incomplete for nomenclature.

Naming strictly requires BOTH the carbon count and the aldo-/keto- prefix combined into a single coordinate word.

Never just Hexose. Always specify the full intersection: Aldohexose or Ketohexose.



Key Takeaways

- Monosaccharides are classified on a two-axis grid: their functional group (Aldose vs. Ketose) and their total carbon atoms (Triose to Heptose).
- Proper IUPAC-aligned carbohydrate naming merges these traits into one descriptive term (e.g., an aldehyde with 5 carbons is an aldopentose).



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