

Lipids



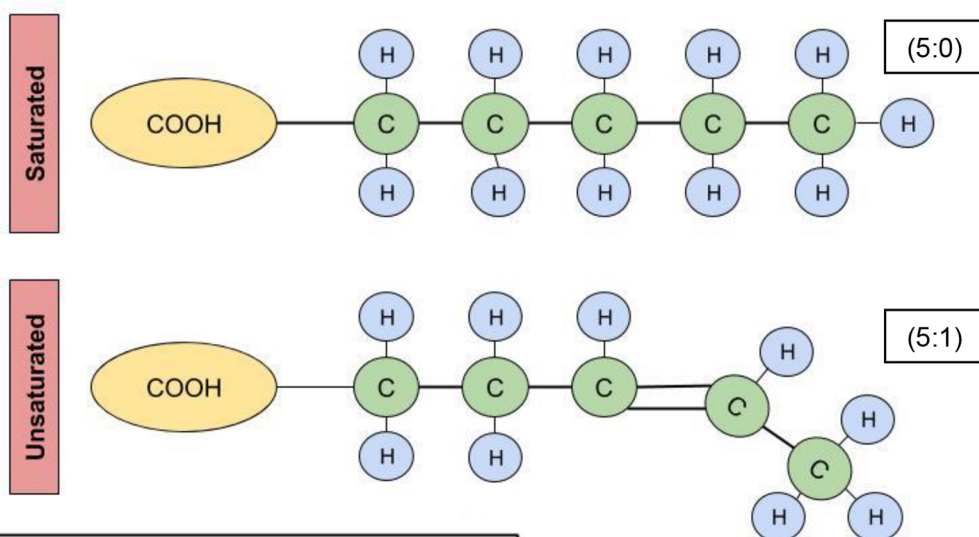
Primary Function: **Energy storage, membrane structure, signaling.**
 Monomers: Glycerol and fatty acid (FA)

Key point: glycerol and FAs are linked by an **ester bond**

Naming convention: (# of Carbons : # of double bonds)

Fatty Acid Structure

Polar head and non-polar tail



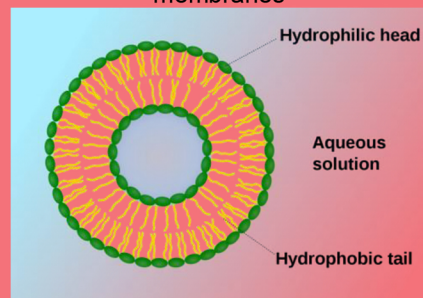
Note: FA's can be monounsaturated or polyunsaturated depending on the number of double bonds.

Impact of fatty acid structure on physical properties:

	Melting Point	Structure at Room Temperature
Long Chain (more Carbon)	Higher	Solid
Short Chain (fewer Carbon)	Lower	Liquid
Saturated	Higher	Solid
Unsaturated	Lower	Liquid

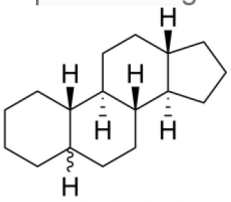
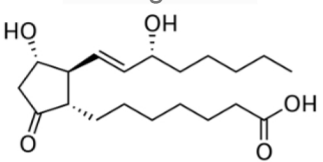
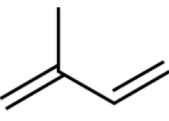
Vocab: Amphipathic

Molecules with both polar and non-polar components, allowing for different environmental interactions.
 Ex. Phospholipids form bilayer membranes



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Summary of Biologically Important Lipids

Lipid Type	Structure	Function	Example
Phospholipid	Glycerol + 2 FA + Phosphate	Plasma membrane structure	Phosphatidylcholine
Triglyceride	Glycerol + 3 FA	Energy Storage	Tristearin
Steroid	<p>3 hexane rings + 1 pentane ring</p>  <p>Edgar181 / Public domain</p>	Hormone synthesis and membrane fluidity	<p>★ Cholesterol</p> <p>Regulates membrane fluidity: More fluid at low temperatures More solid at high temperatures</p>
Eicosanoid	Modified 20 Carbon polyunsaturated FA	Signaling, primarily to trigger inflammatory response	<p>Prostaglandins</p>  <p>Calvero. / Public domain</p>
Terpene	<p>Isoprene units (C₅H₈)</p>  <p>Fvasconcellos 15:48, 14 November 2007 (UTC) / Public domain</p>	Synthesis of sex hormones	Terpenoids