


Bio 115 Cells & Evolution of Life

The Basics of Life

Lipids

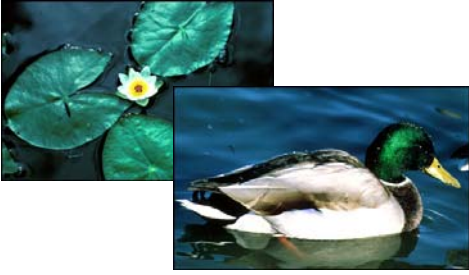


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What is a lipid?



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Three main types of lipid

- Fats (triacylglycerols)
- Phospholipids
- Sterols

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Structure of a lipid molecule

Lipid molecules consist of *two main parts*:

- polar group or hydrophilic component
- non-polar group or hydrophobic component

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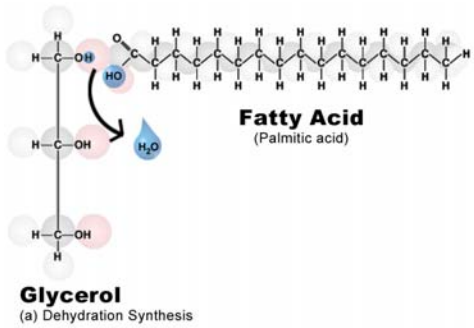
Fatty acid molecules

Fatty acid chains are produced by continually adding two carbon units to the precursor, acetyl-CoA, until the chain reaches a predetermined length

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Fatty acid molecules



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Storage lipids

Ester linkage

Fat molecule (triacylglycerol)

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Storage lipids

- butter, lard

Space Filling Model of Saturated Fat

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Storage lipids

Space Filling Model of Unsaturated Fat

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Phospholipids

(a) Structural formula

(b) Space-filling model

(c) Phospholipid symbol

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Sterols

Testosterone

Estrogen

Cholesterol

Sterol backbone

Cholesterol is the precursor molecule from which many other steroids are produced

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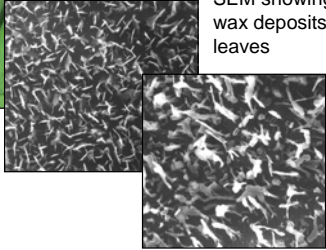
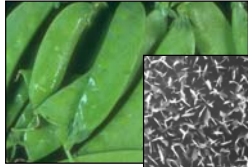
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Other lipids

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Cutin, waxes and suberin



SEM showing surface wax deposits on pea leaves

Photos courtesy of Dr. Sanford Eigenbrode,
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