insane in the membrane
cells and their membranes

Figure 1-24 Essential Cell Biology, 2/e. (© 2004 Garland Science)
lipids

(A) polar (hydrophilic) head
(B) nonpolar (hydrophobic) tails
(C) double bond
(D) head tails

Figure 11-6 Essential Cell Biology, 2/e. (© 2004 Garland Science)
lipid bilayers
membrane traffic
golgi

Fig. 15-24 ECB
mitochondria
mitochondria
mitochondria
I know what the membrane did last summer.
vesicle transport
phagocytosis

Fig. 15-31 ECB
cell lipid census

(A) Graph showing the percentage of various lipids in different membrane types:
- Plasma
- Mitochondrial inner
- Mitochondrial outer
- Endoplasmic reticulum
- Rough ER
- Smooth ER
- Golgi

(B) Chemical structures of different lipids:
- Cholesterol
- Phosphatidylethanolamine
- Phosphatidylserine
- Phosphatidylcholine
- Sphingomyelin

Rat hepatocyte membrane type

Diagram with chemical structures of various lipids and their distribution in different membrane types.
The Inner Life of the Cell
protein coats
clathrin

Fig. 15-18 ECB

Fig. 15-19 ECB
clathrin

(A) (B) (C)

heavy chain
light chain

(C) 50 nm
**Helix insertion**

- **Amphipathic helix insertion**

**Scaffolding**

- **Indirect scaffolding**
- **Direct scaffolding** (negative)
- **Direct scaffolding** (positive)

**Lipid composition**

- **Acyl chain composition**
- **Headgroup composition**

**Cytoskeleton**

- **Actin cytoskeleton**
- **Microtubule motors**

**Membrane proteins**

- **Membrane protein oligomerization**
- **Membrane protein shape**
vesicle

micropipette tip

$R_v$

$R_1$

$d$
surface tension
tethers in cells
tethers in vitro
tethers: in vivo model