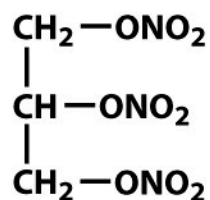


Chemistry of Explosions

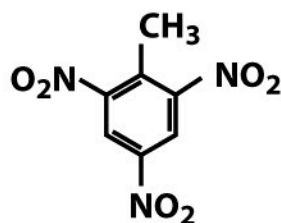
Chapter 10



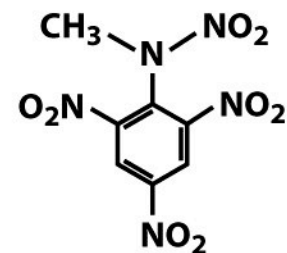
Chapter 10 Opener
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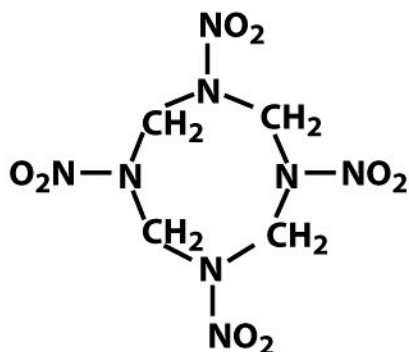
**Nitroglycerin
(NG)**



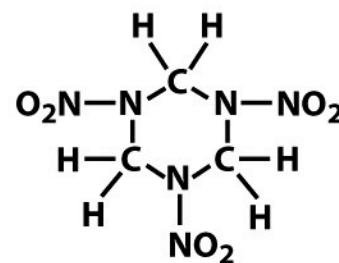
**2,4,6-trinitrotoluene
(TNT)**



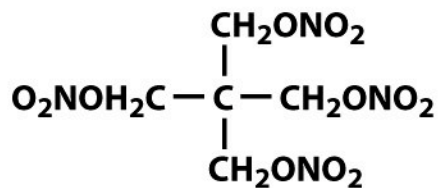
**2,4,6-trinitrophenyl-n-methylnitramine
(tetryl)**



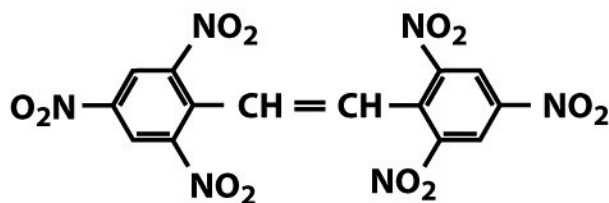
**Cyclotetramethylenetetranitramine
(HMX)**



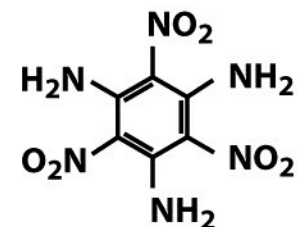
**Cyclotrimethylenetrinitramine
(RDX)**



**Pentaerythryltetranitrate
(PETN)**



**Hexanitrostilbene
(HNS)**

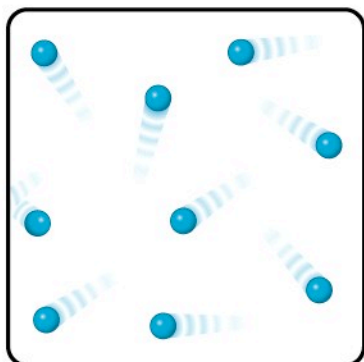


**Trinitrotriaminobenzene
(TATB)**

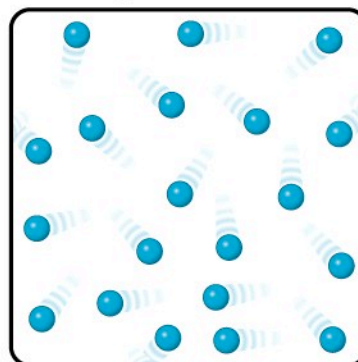


Unnumbered figure pg 304
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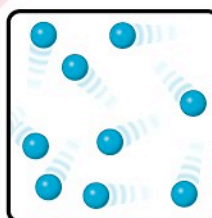
**Increase temperature
(Charles's law)**



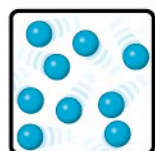
**Increase number of gas particles
(Avogadro's law)**



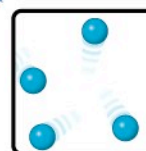
**Increase
volume**



**Decrease
volume**



**Decrease temperature
(Charles's law)**



**Decrease number of gas particles
(Avogadro's law)**

Figure 10-5
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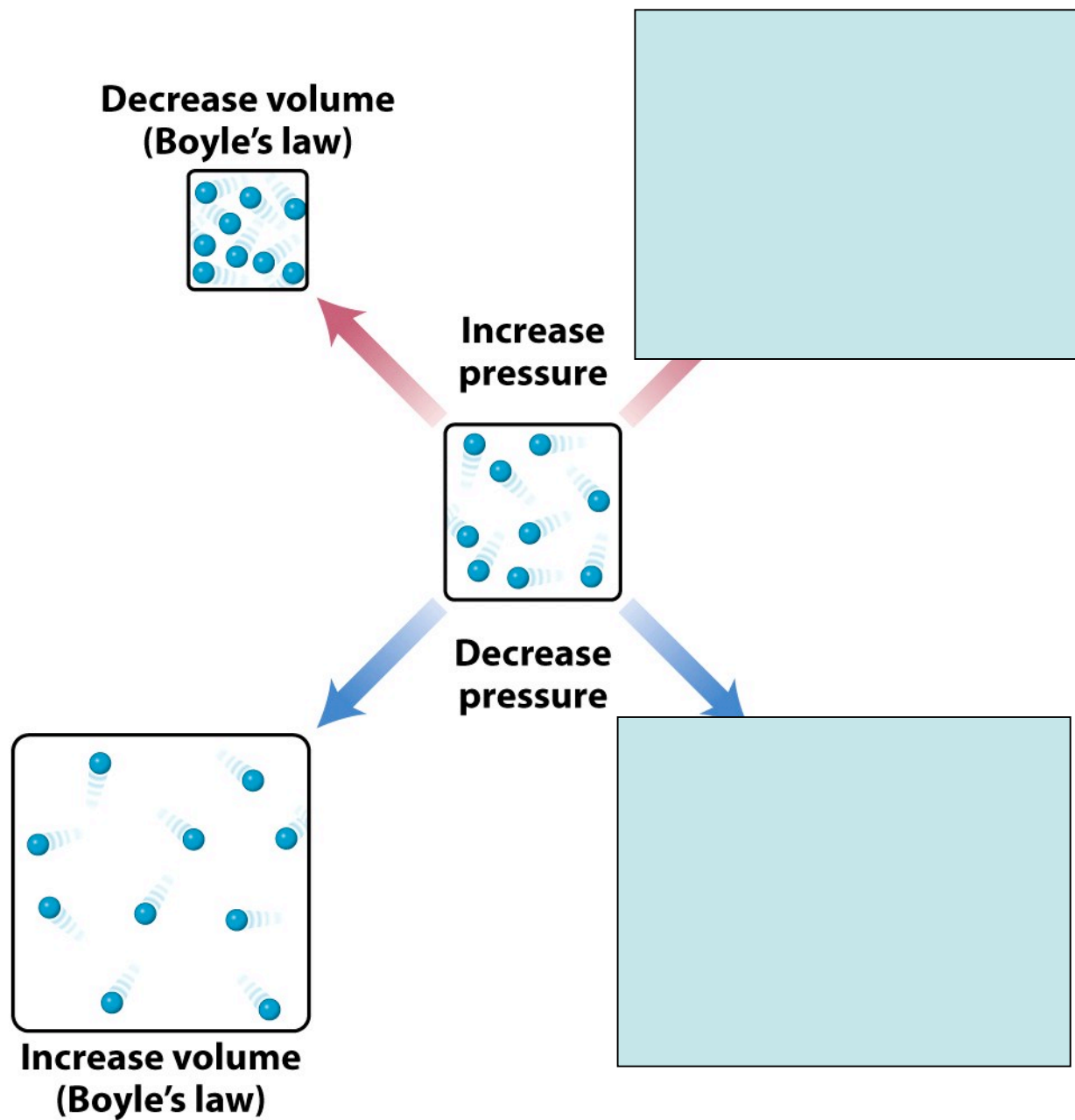
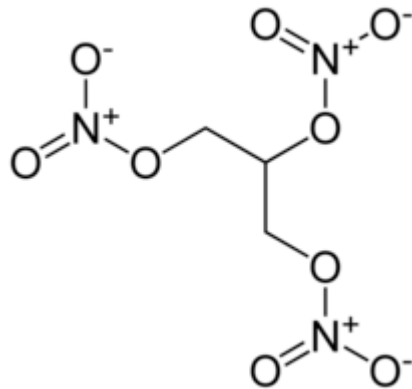
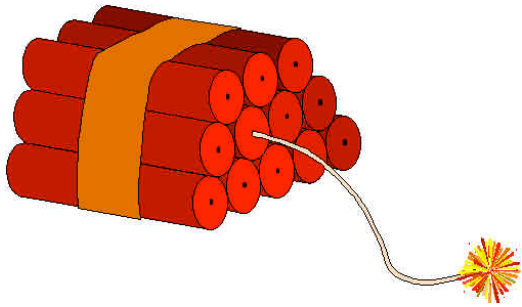


Figure 10-6
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Nitroglycerin



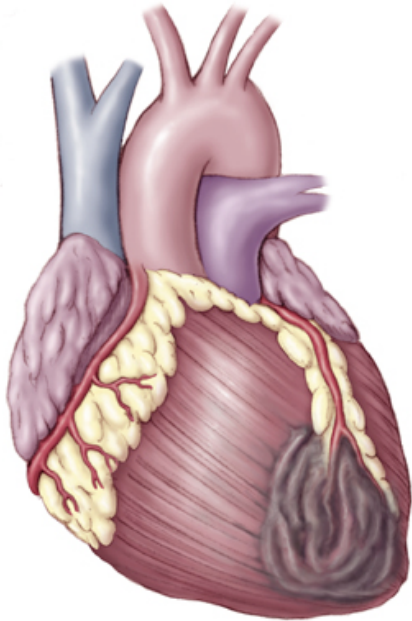
Dynamite is nitroglycerin mixed with clay

The clay stabilizes the explosive
makes it resistant to shockwave detonation

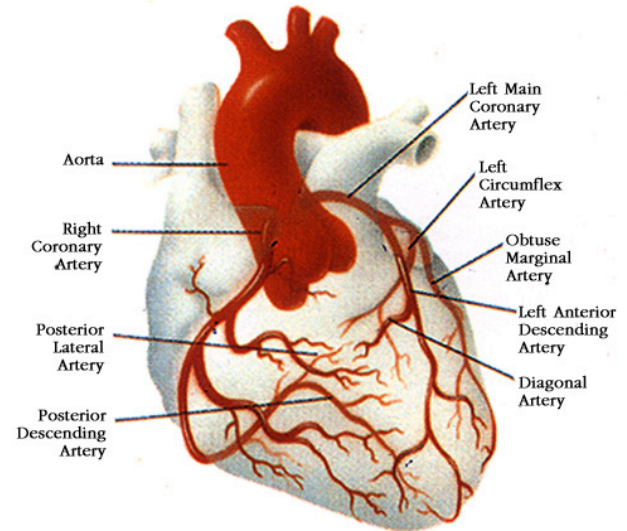
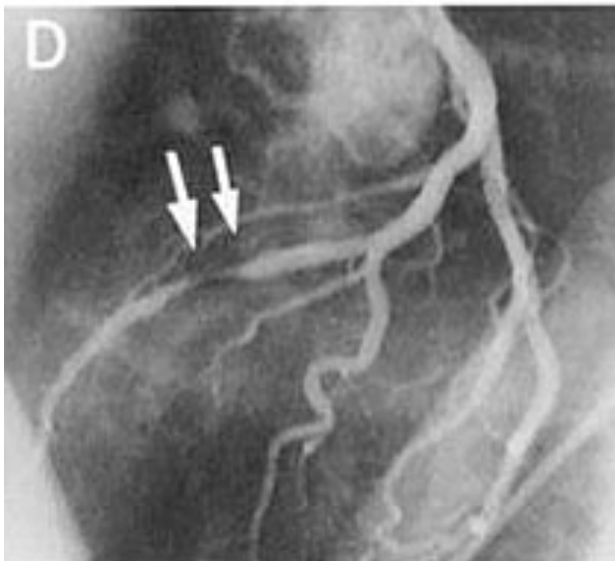
Needs a lighted fuse or detonator to ignite



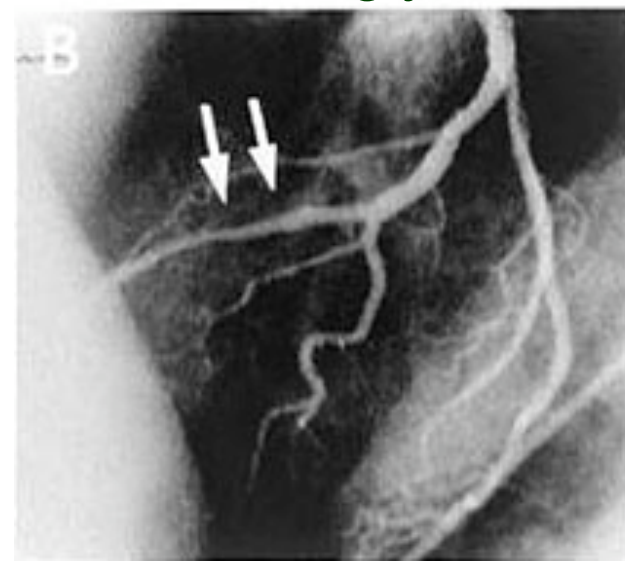
Coronary Arteries and Nitroglycerin



Without Nitroglycerin

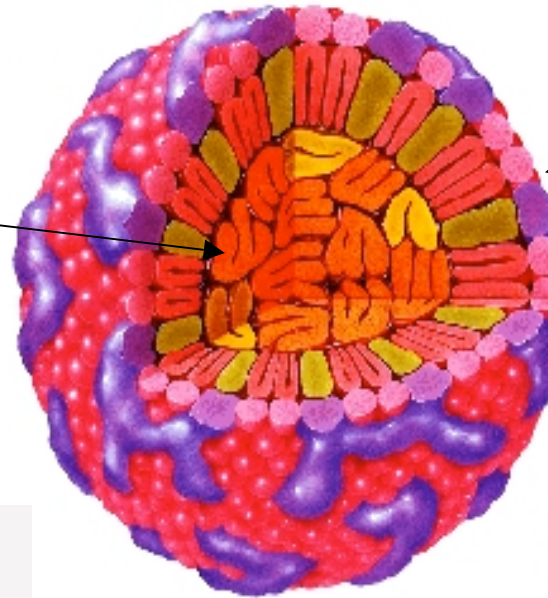


With Nitroglycerin



Lipoproteins: A Bad Wrap ??

Cholesterol-packed interior

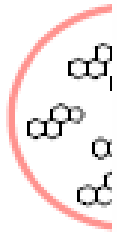


Protein and lipid outer surface





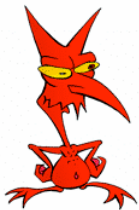
Lipoproteins: A Bad Wrap ??



“Bad” Cholesterol



You'll see why in a minute...



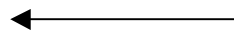
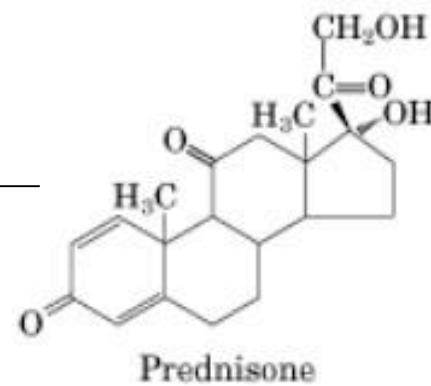
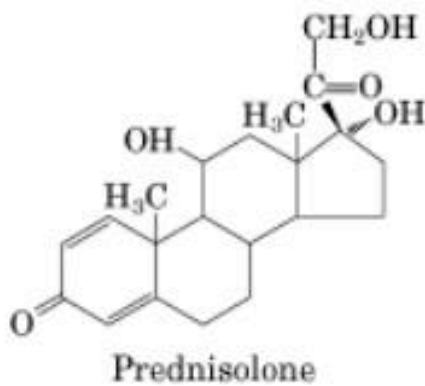
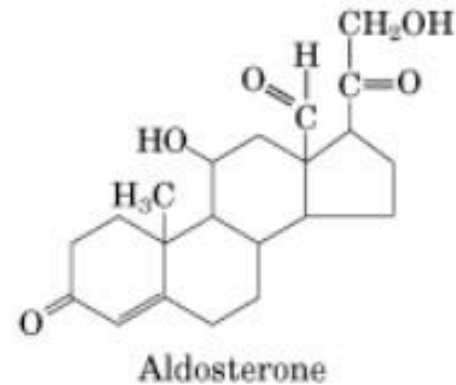
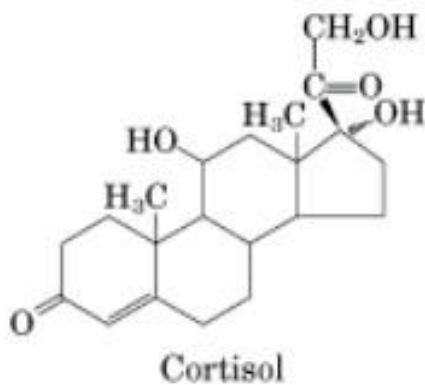
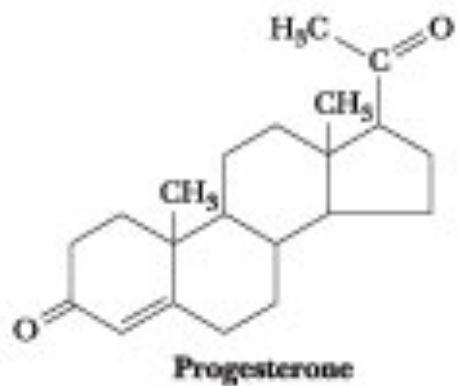
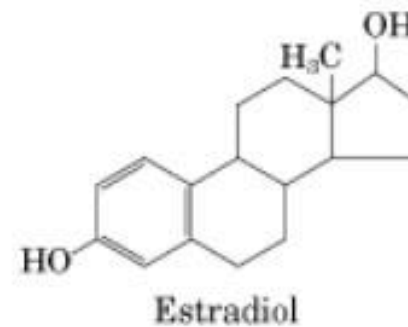
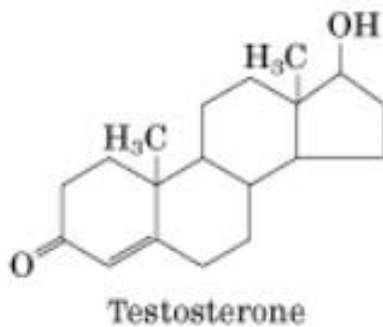
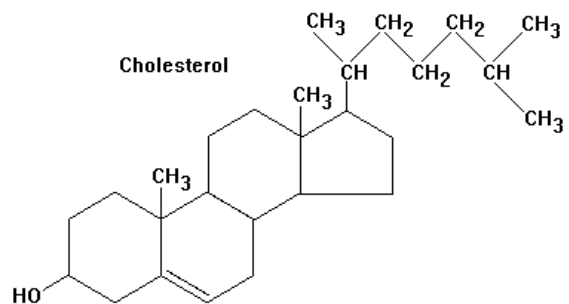
Cholesterol
from cells to liver
for disposal

“Good” Cholesterol



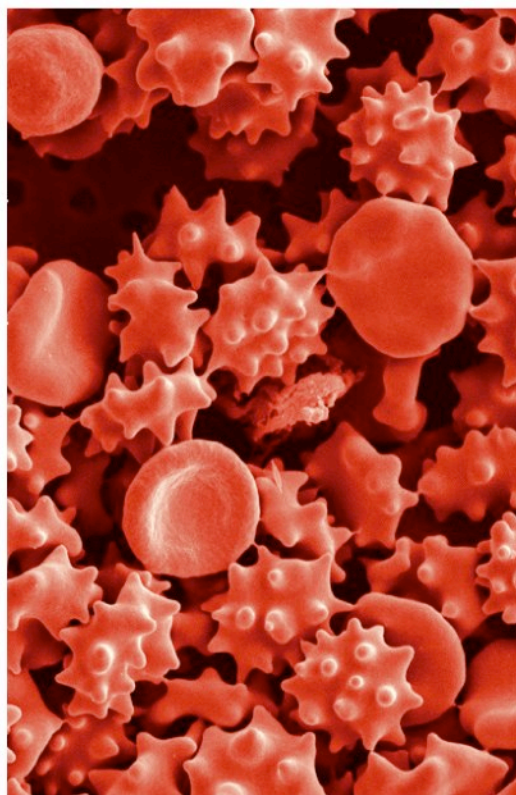
Removes cholesterol
from your blood



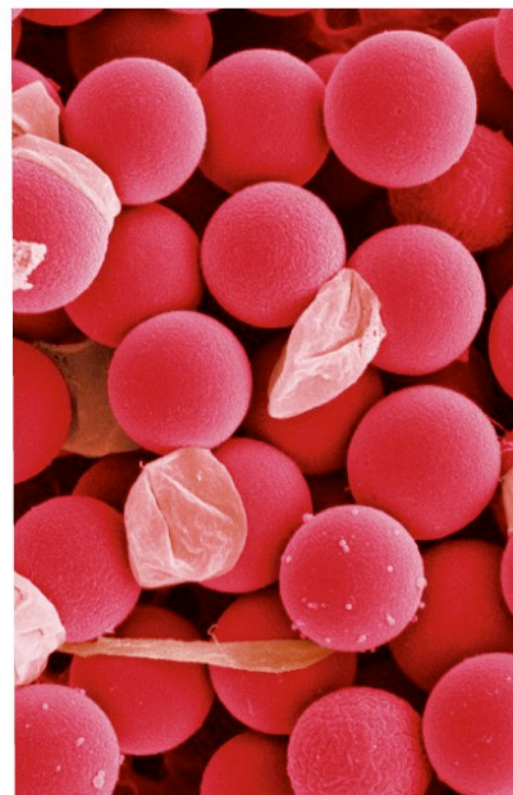




(a)



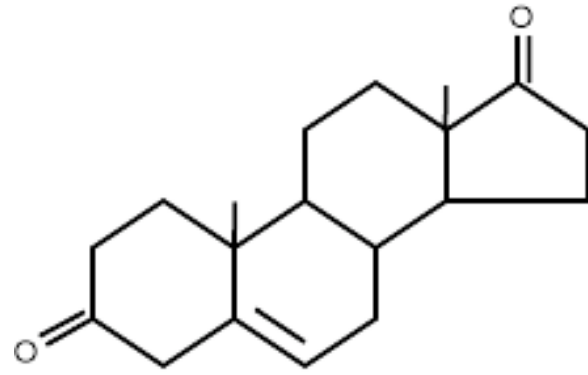
(b)



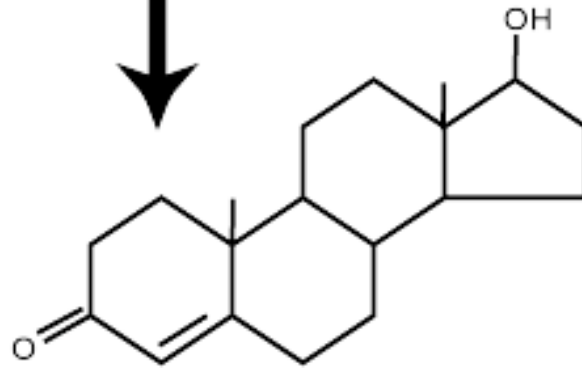
(c)

Figure 6-11
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Androstenedione and Steroids



Androstenedione



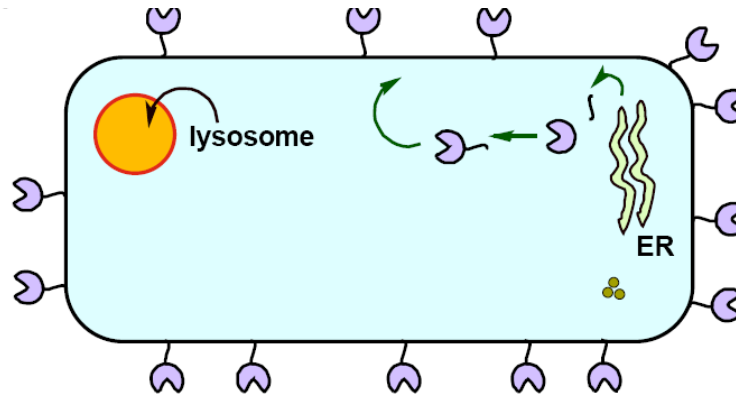
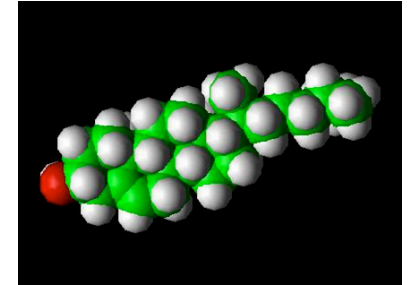
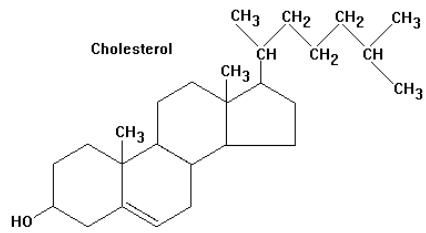
Testosterone



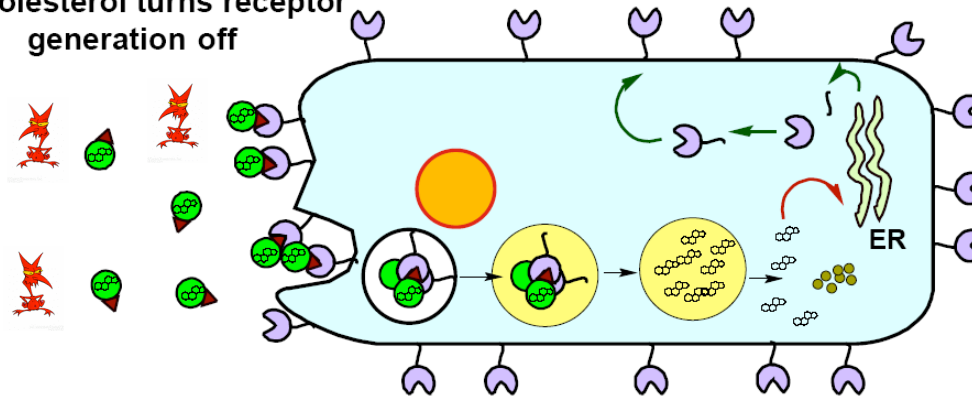
Amo Sancetta / AP



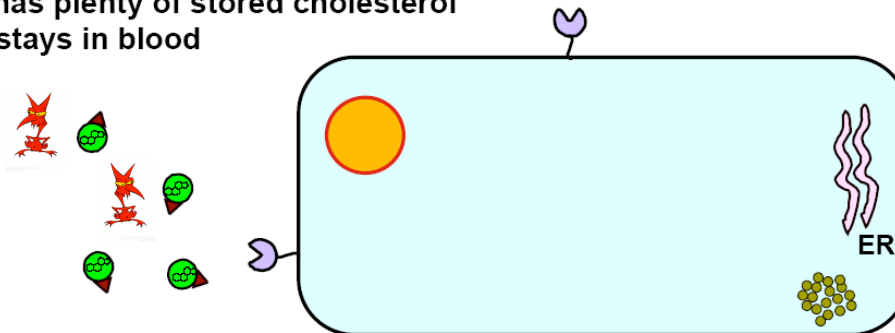
Cholesterol



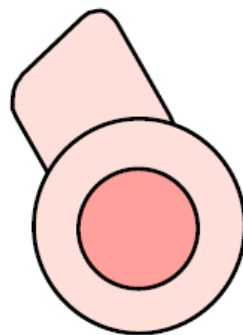
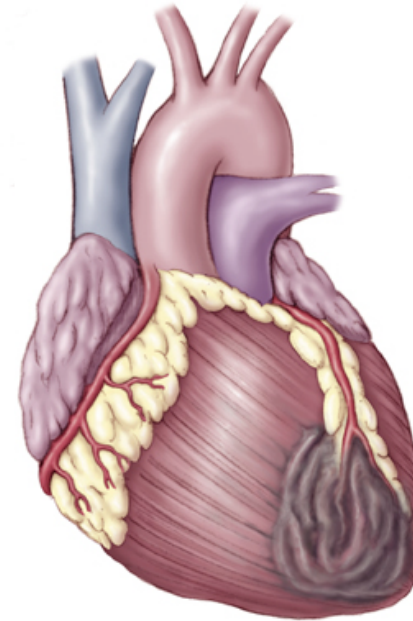
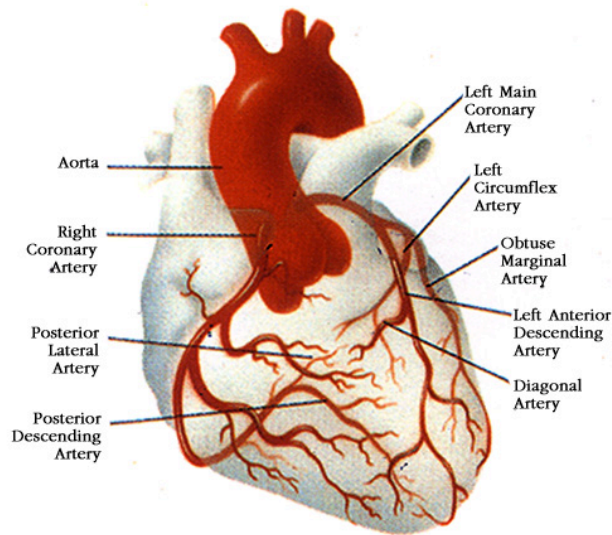
LDL absorbed by cells
Cholesterol turns receptor
generation off



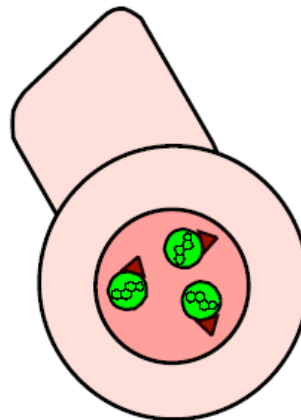
Cell has plenty of stored cholesterol
LDL stays in blood



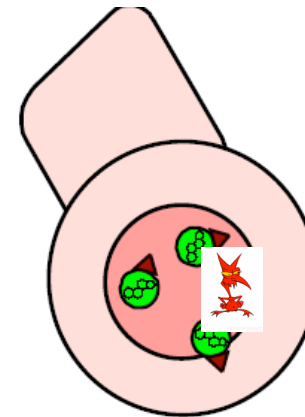
Arteriosclerosis and Heart Attack



**Normal
Artery**

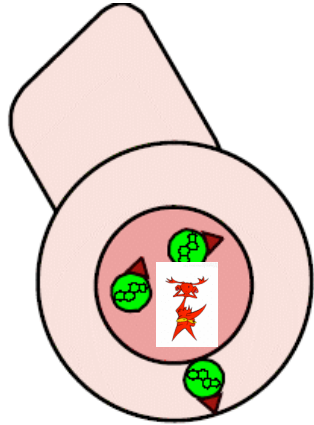


**High
LDL**

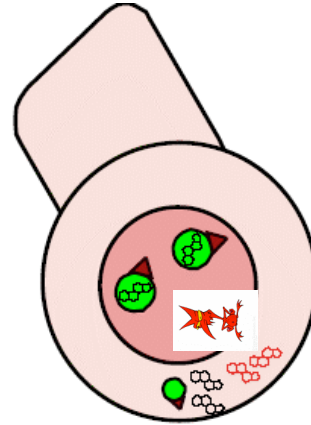


**LDL lodges
into artery wall lining**

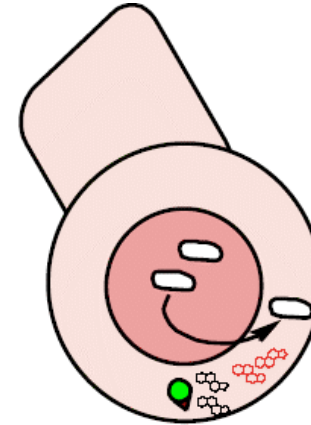
Arteriosclerosis and Heart Attack



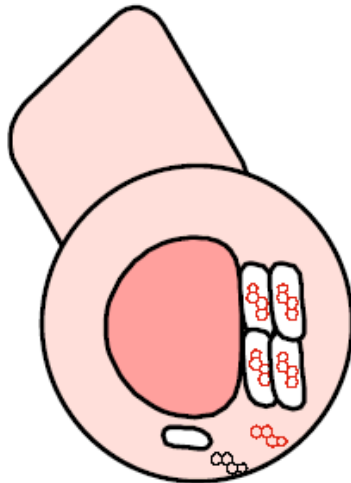
LDL enters lining



Cholesterol release and oxidized



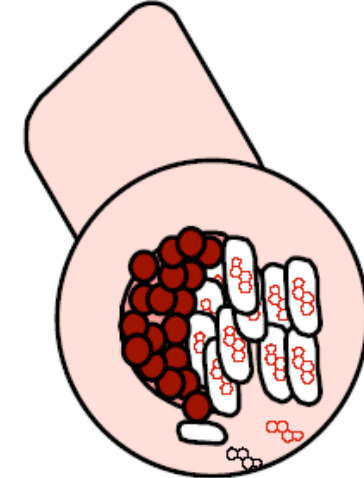
White blood cells respond



White blood cells consume cholesterol forming plaque, narrow artery

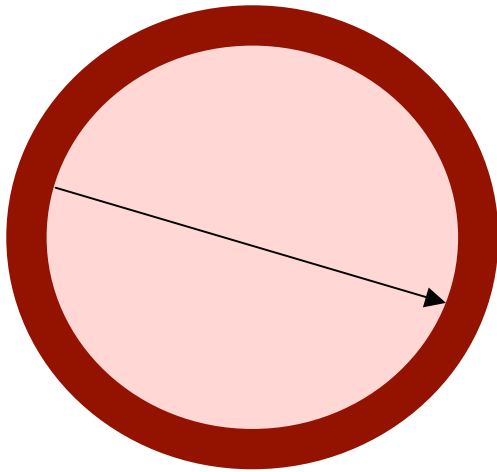
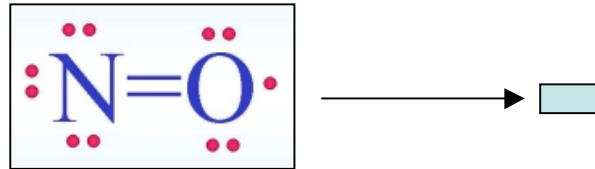


Plaque can rupture through artery wall lining

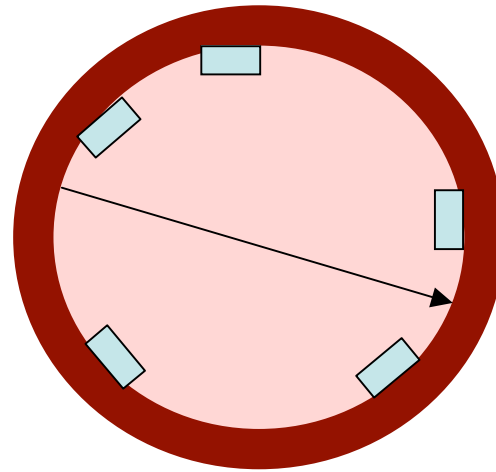


Causing clots artery blockage

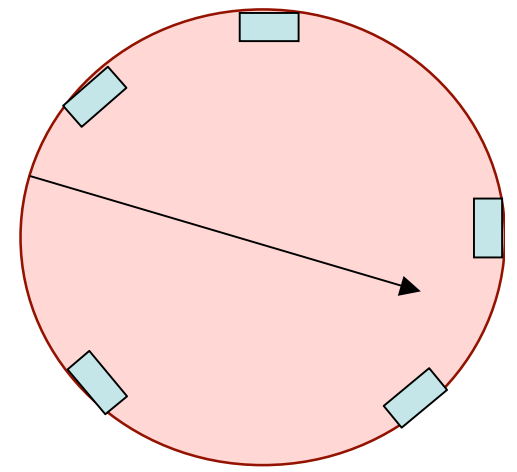
Nitric Oxide



Narrow
Vessel



NO binds to
receptors on surface
of vessel



Blood vessel
dilates

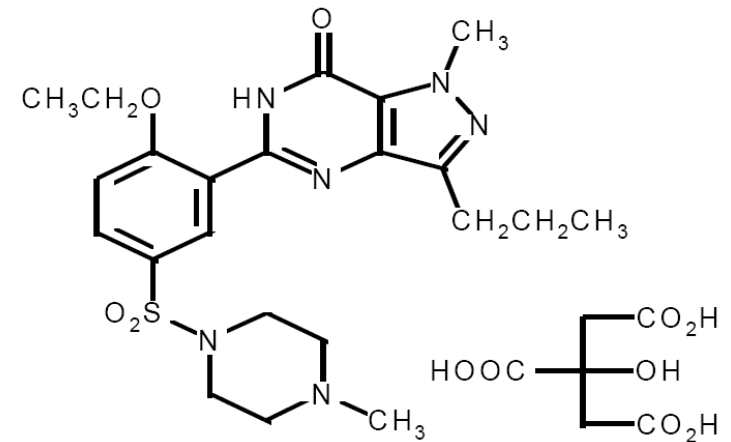
UK-92480

Discovered in 1989 by Pfizer

Treat hypertension (High BP)

On the scrap heap of failed drugs

During a 10-day study of angina patients, noticed a strange side effect....



If a relaxing moment
turns into the right moment
...will you be ready?

