**Biochemistry pictures** (from Rasmol)

CLASS 29

Primary structure of human proinsulin:

```
RasMol> show sequence
PHE1   VAL2   ASN3   GLN4   HIS5   LEU6   CYS7   GLY8   SER9   HIS10
LEU11  VAL12  GLU13  ALA14  LEU15  TYR16  LEU17  VAL18  CYS19  GLY20
GLU21  ARG22  GLY23  PHE24  PHE25  TYR26  THR27  PRO28  LYS29  THR30
ARG31  ARG32  TYR33  PRO34  GLY35  ASP36  VAL37  LYS38  ARG39  GLY40
ILE41  VAL42  GLU43  GLN44  CYS45  CYS46  THR47  SER48  ILE49  CYS50
SER51  LEU52  TYR53  GLN54  LEU55  GLU56  ASN57  TYR58  CYS59  ASN60
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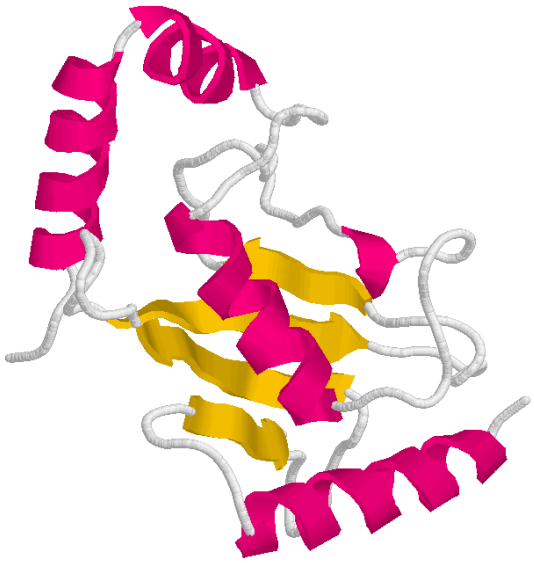
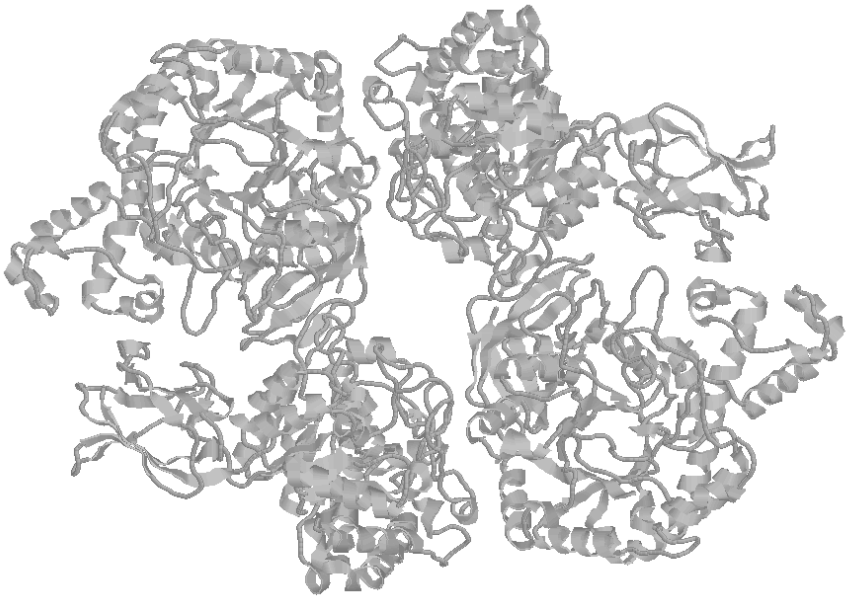
Ubiquitin secondary and tertiary structure (red = α-helix, yellow = β-sheet, white = no secondary structure)



Bacterial β-amylase tertiary structure

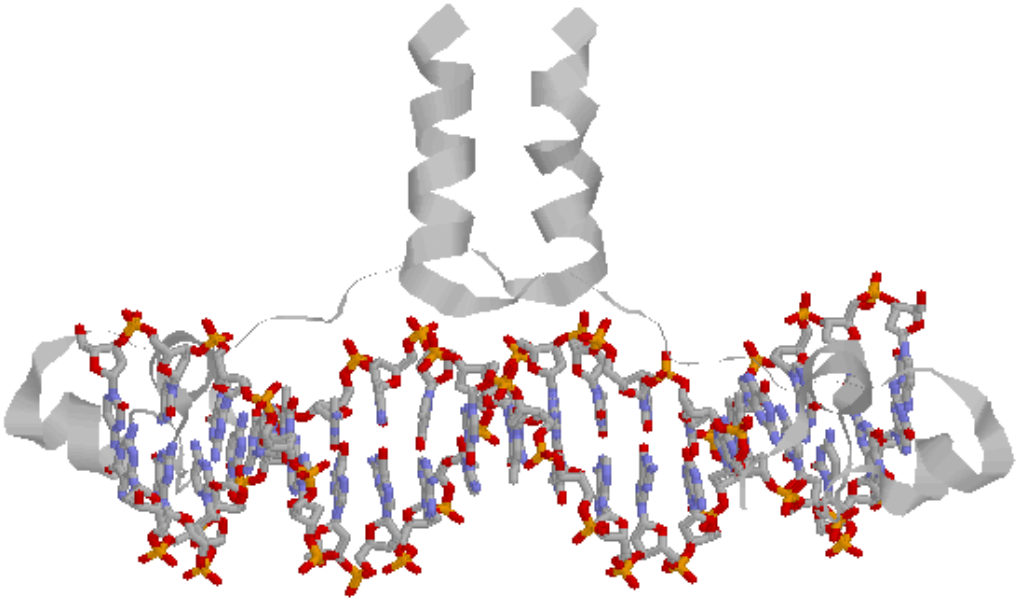


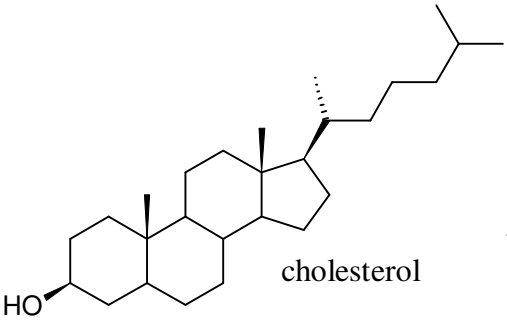
CLASS 30

Figures shown in class are in the textbook

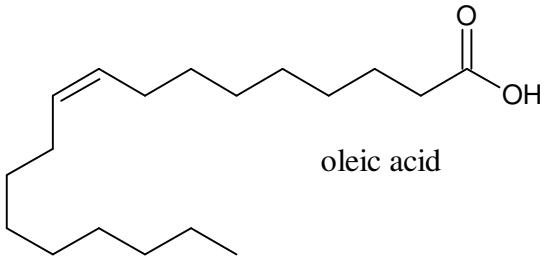
Class 31

Picture of an RNA strand with an associated protein growing off it (RNA is the multicoloured stick part, the protein is represented by grey cartoon)

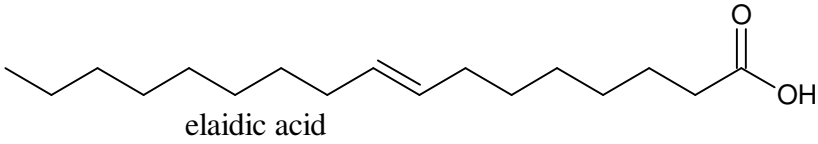




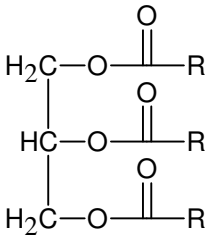

cholesterol



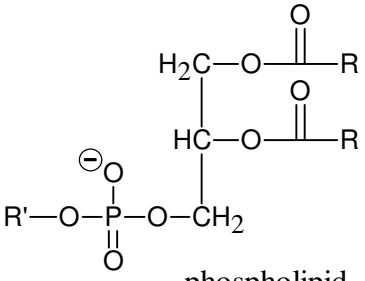

oleic acid




elaidic acid

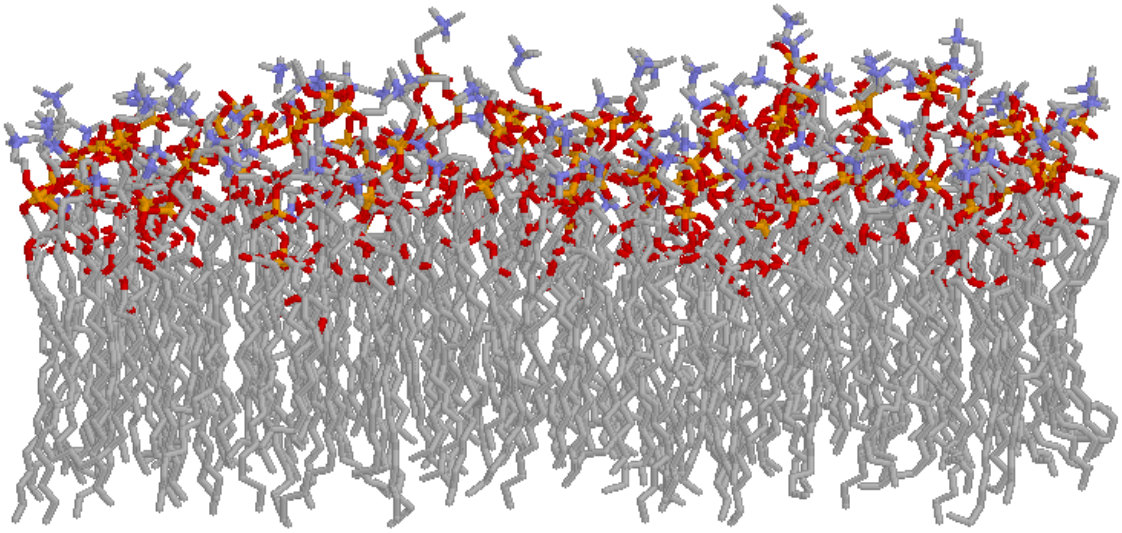



triglyceride
(R = fatty acid groups)

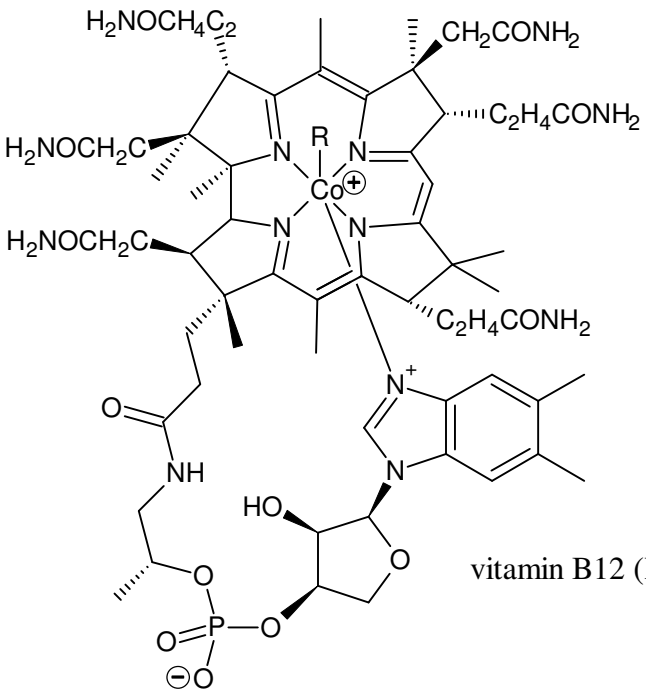



phospholipid
(R' is $+^{ve}$ charged)

Phospholipid monolayer (grey = carbon, red = oxygen, blue = nitrogen (ammonium), orange = phosphorus); a bilayer would be two of these with the grey parts pointing towards each other



Class 32




vitamin B12 (R = CN, $CH_3$, etc.)

Lobster hemocyanin – the two balls are copper atoms