

Program

Monday: Lecture + course

Tuesday: Lecture + course

Wednesday: Lecture + course

Thursday: Lecture + course

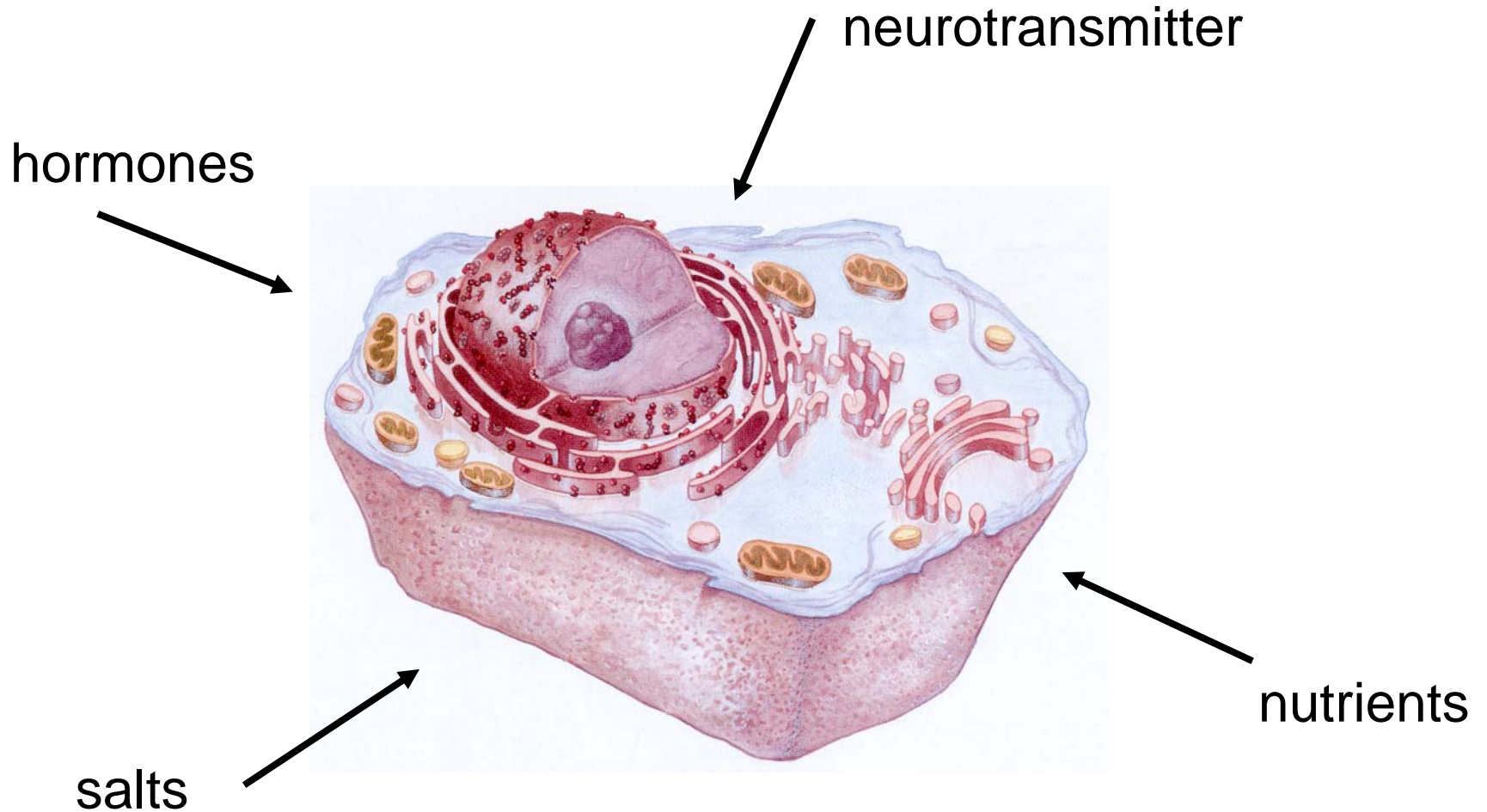
Friday:

Molecular components

of

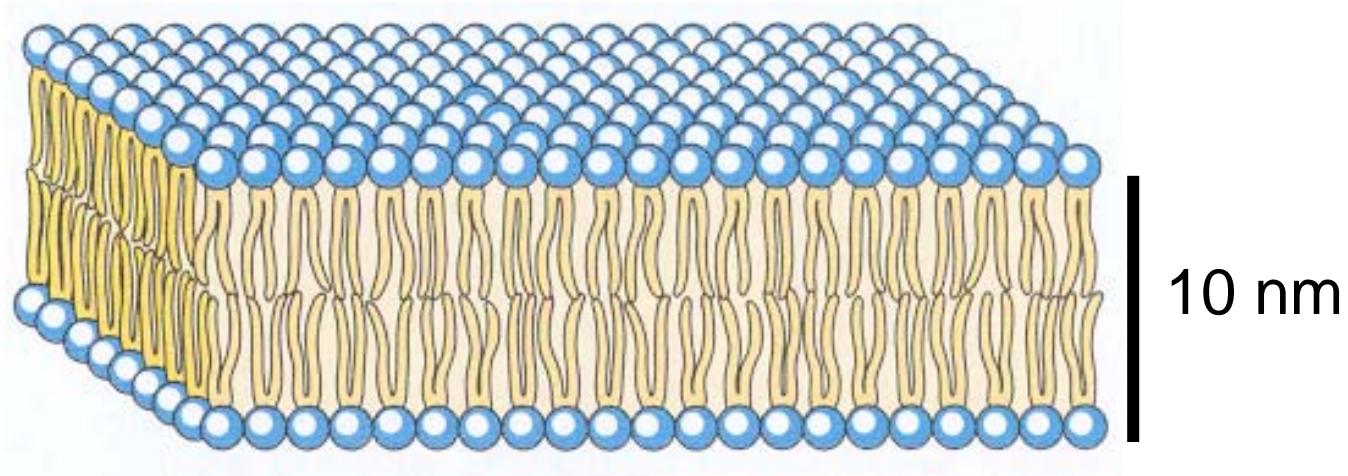
cellular signal-transduction processes

Signal transduction



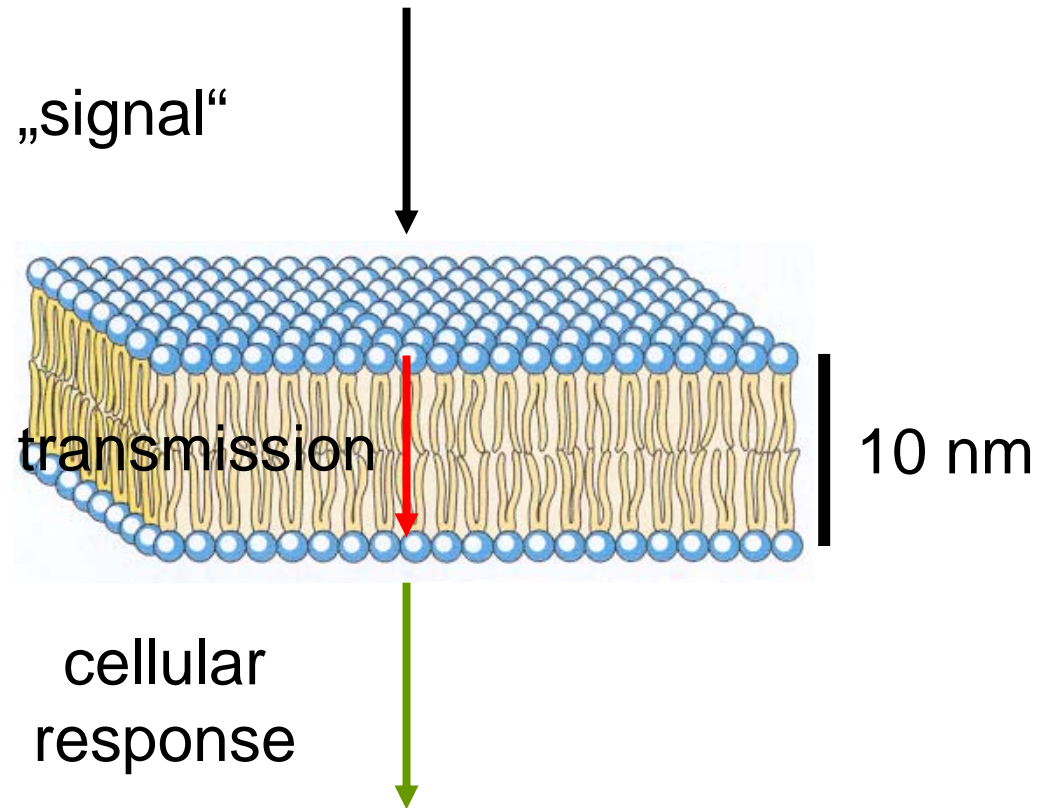
Every cell has to cope with a multitude of external signals

Membranes



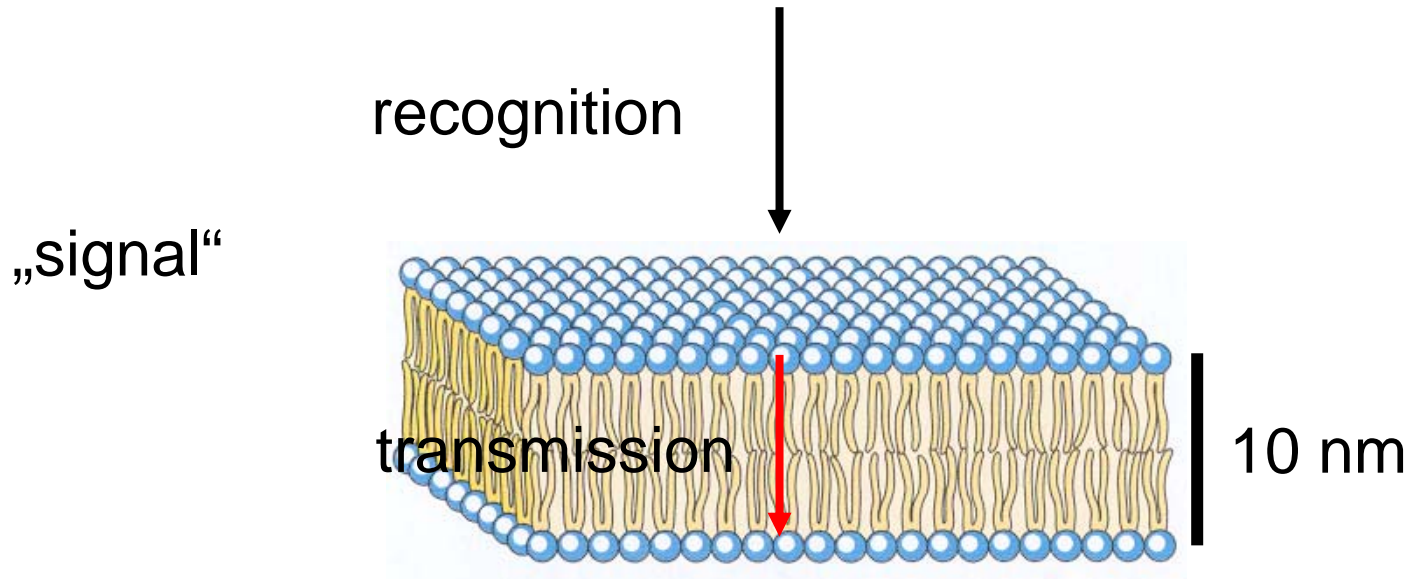
diffusion barrier

Signal transduction



Signal transduction

Receptors



Receptors

Hormon receptors: receptor tyrosine kinases

G-protein coupled receptors (GPCR):

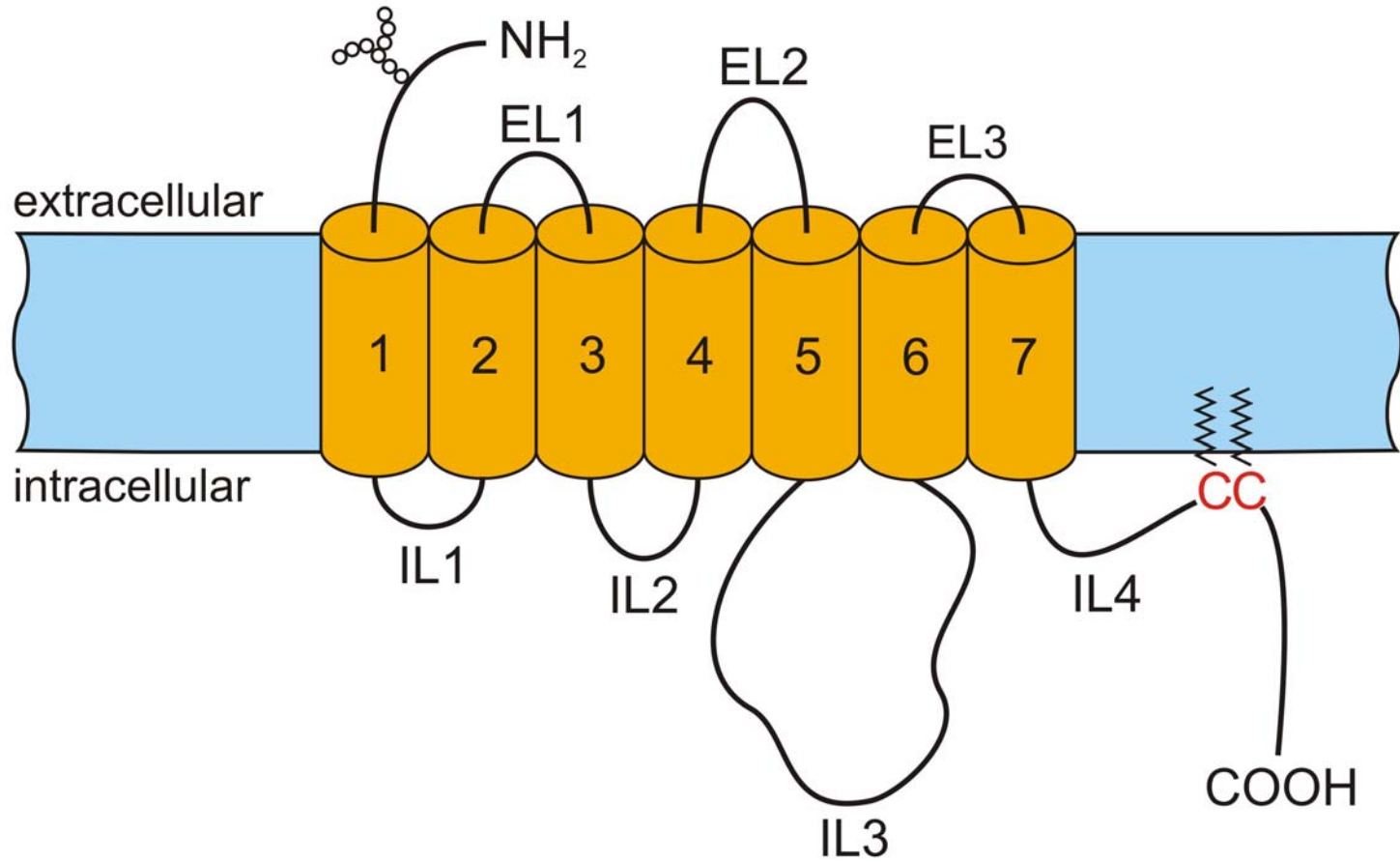
rhodopsin

odorant receptors

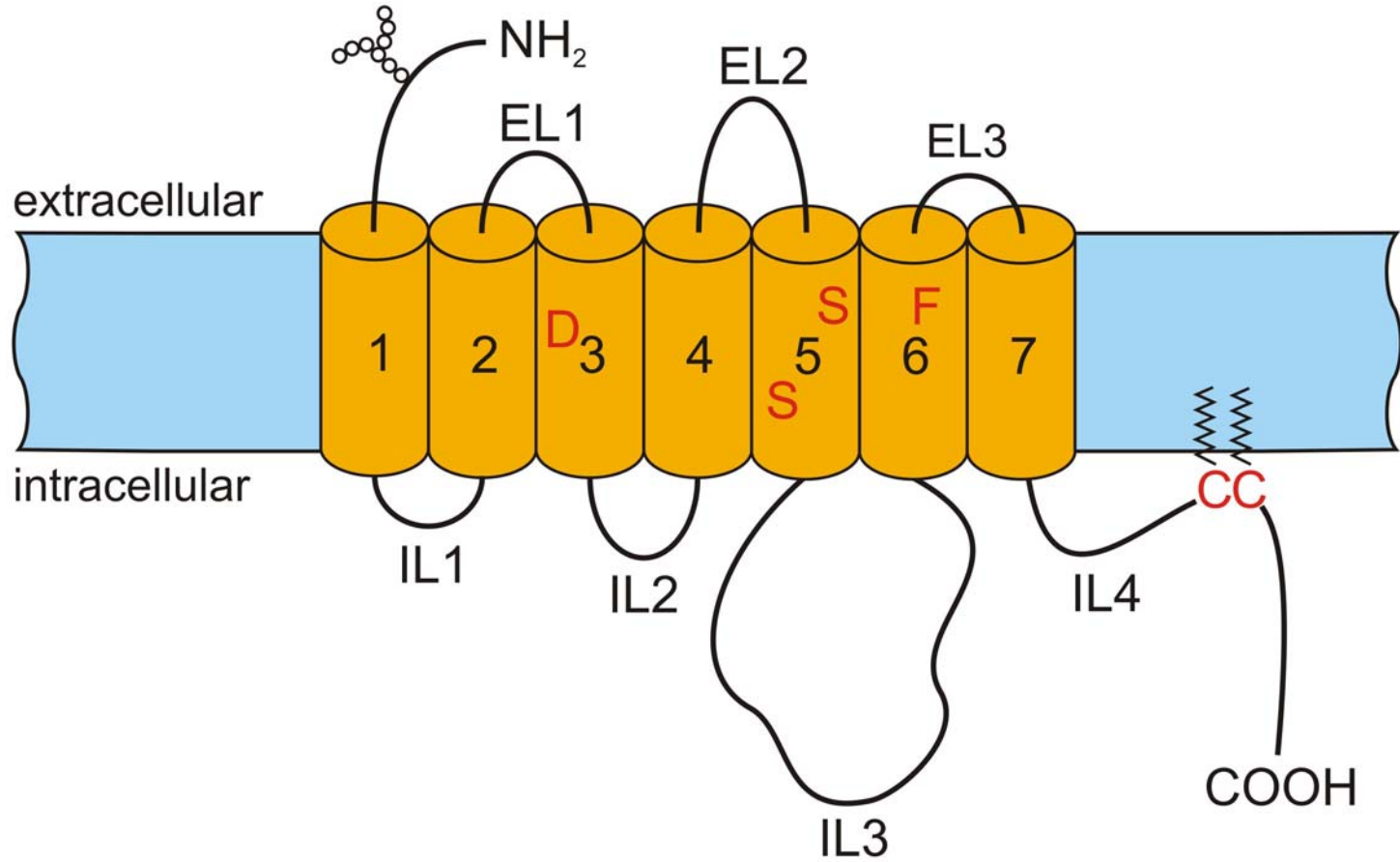
neurotransmitter receptors

neurohormon receptors

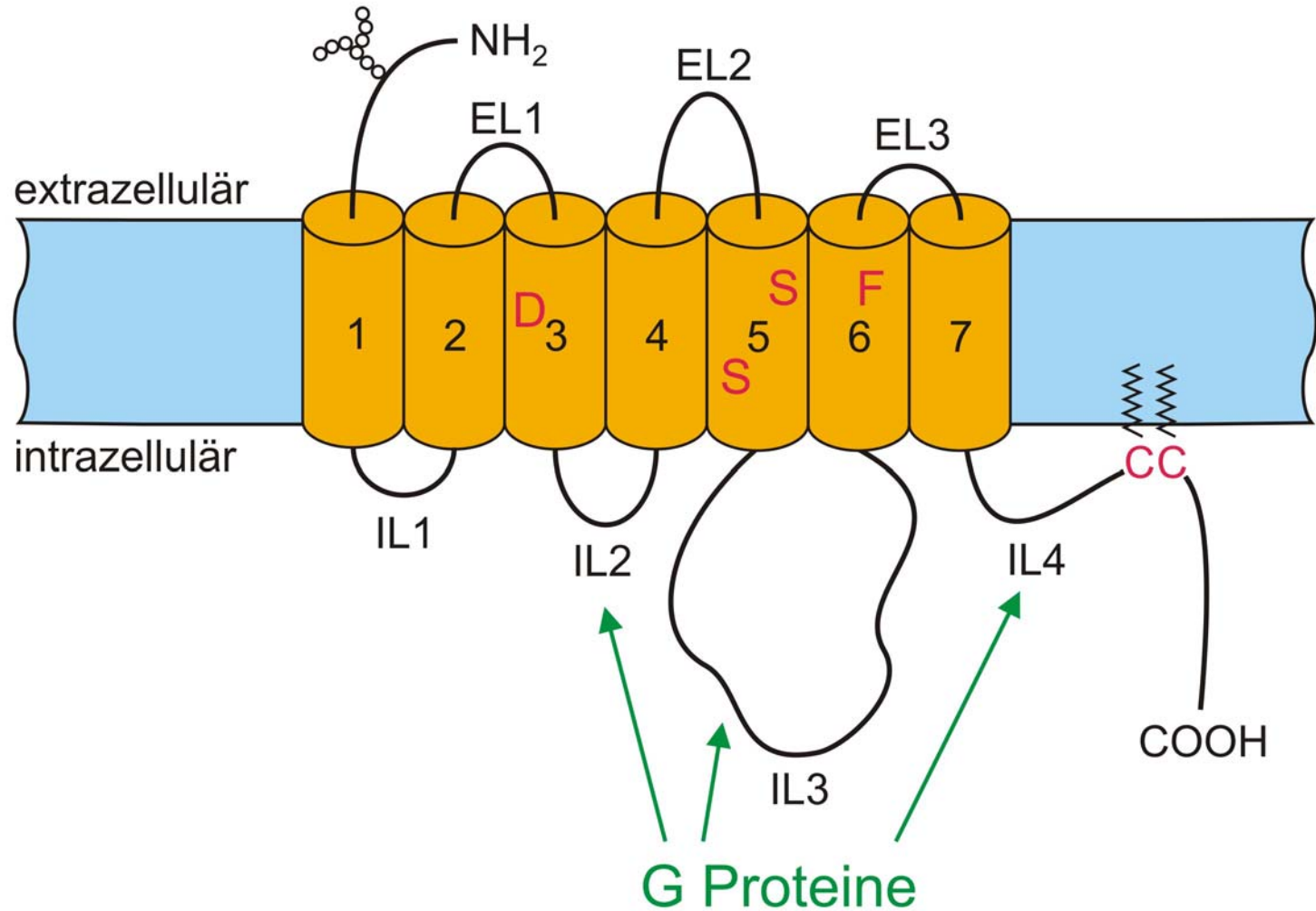
Receptors



Receptors

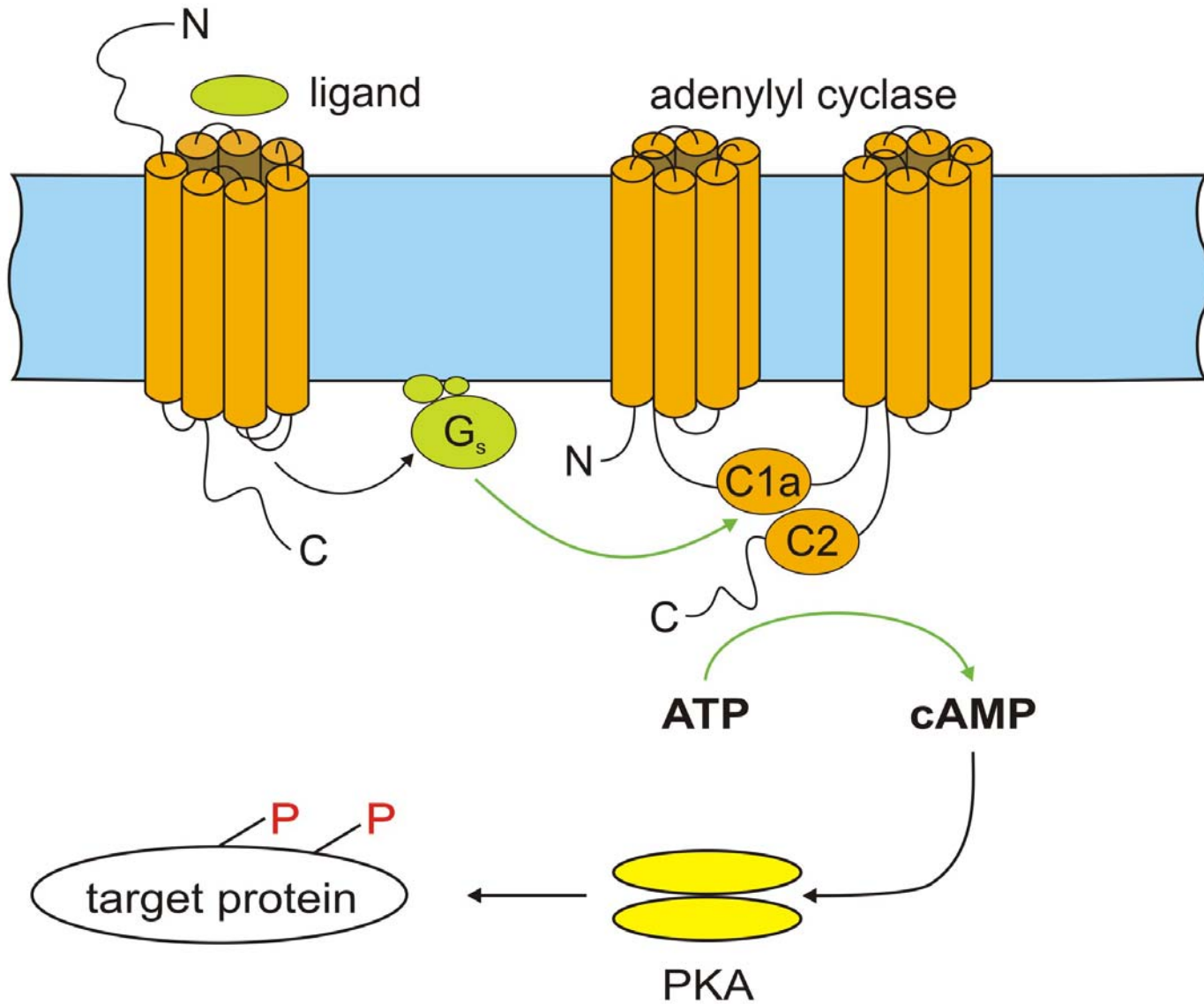


Receptors

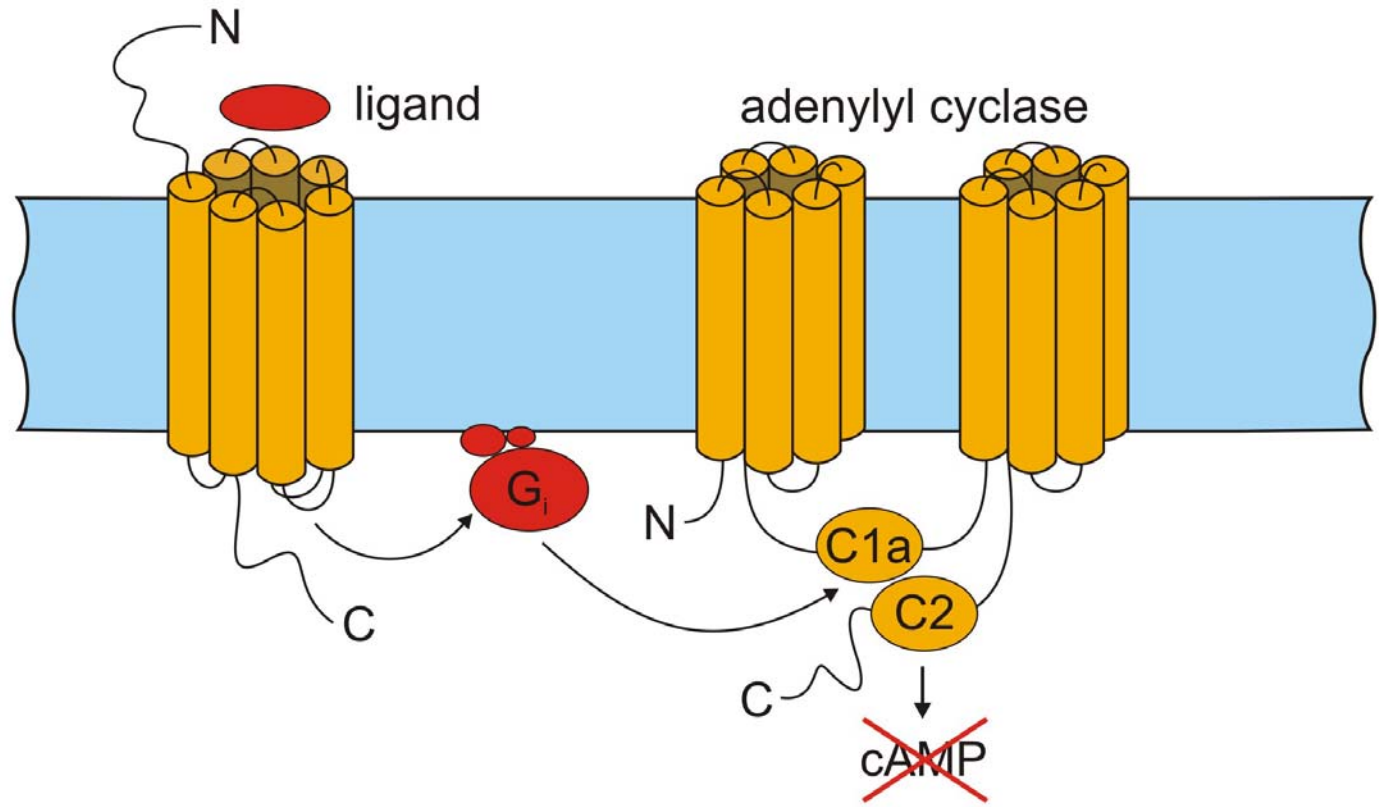


What type of cellular signals
are produced by
G-protein coupled receptors?

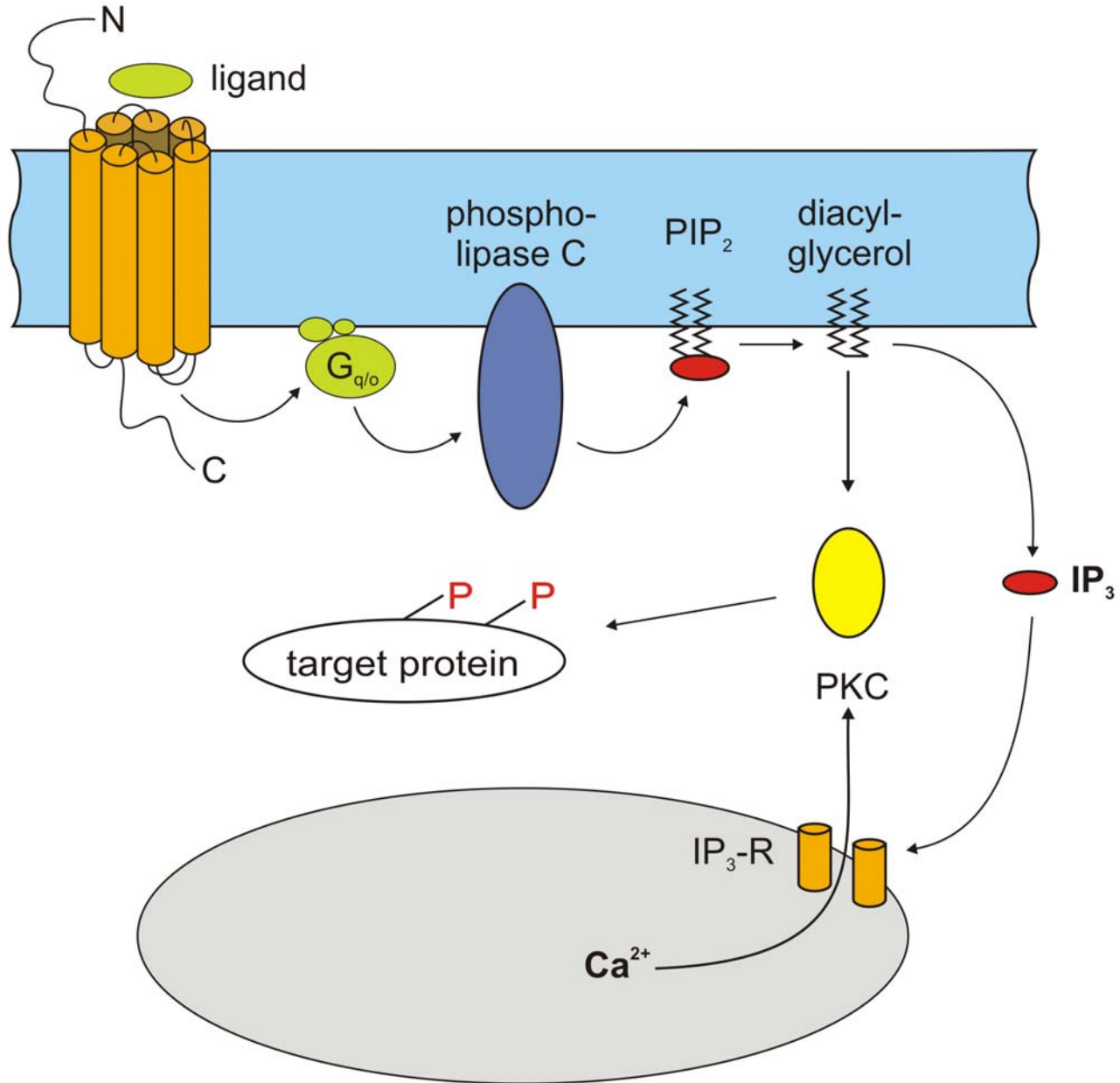
Signal transduction



Signal transduction



Signal transduction



GPCR-mediated signalling

activation adenylyl cyclase: cAMP synthesis ↑

inhibition adenylyl cyclase: cAMP synthesis ↓

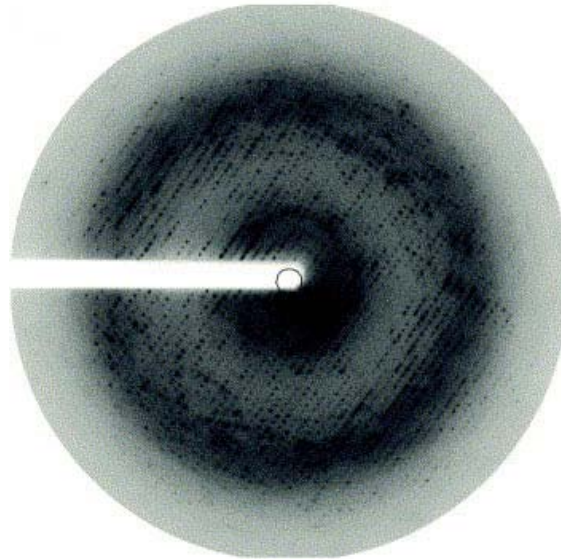
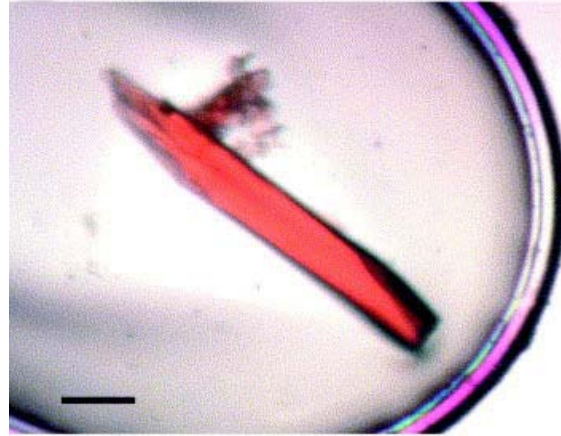
activation phospholipase C: IP_3 , Ca^{2+} , PKC

activation phospholipase A: arachidonic acid ...

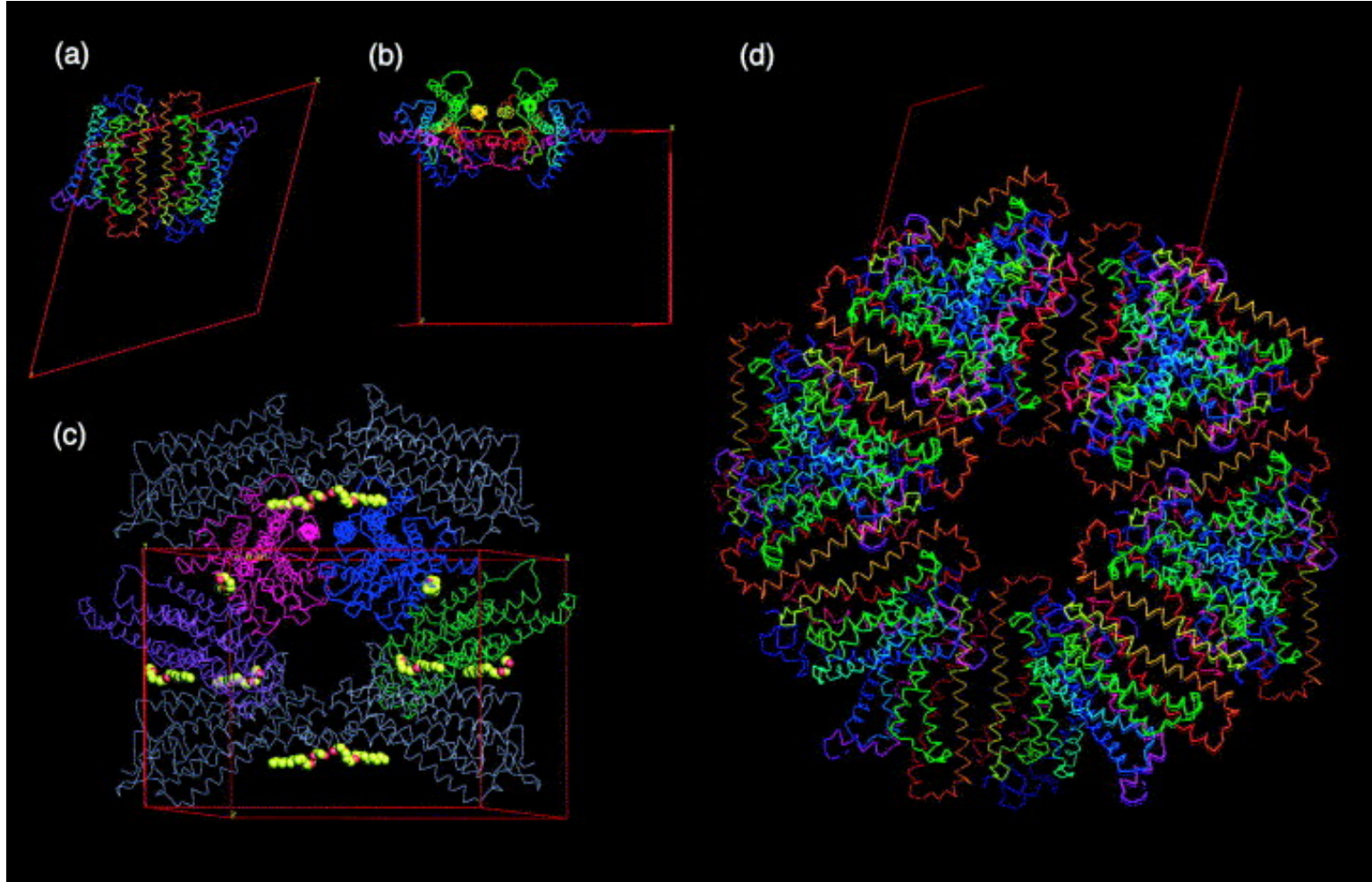
The best studied
G-protein coupled receptor

Rhodopsin

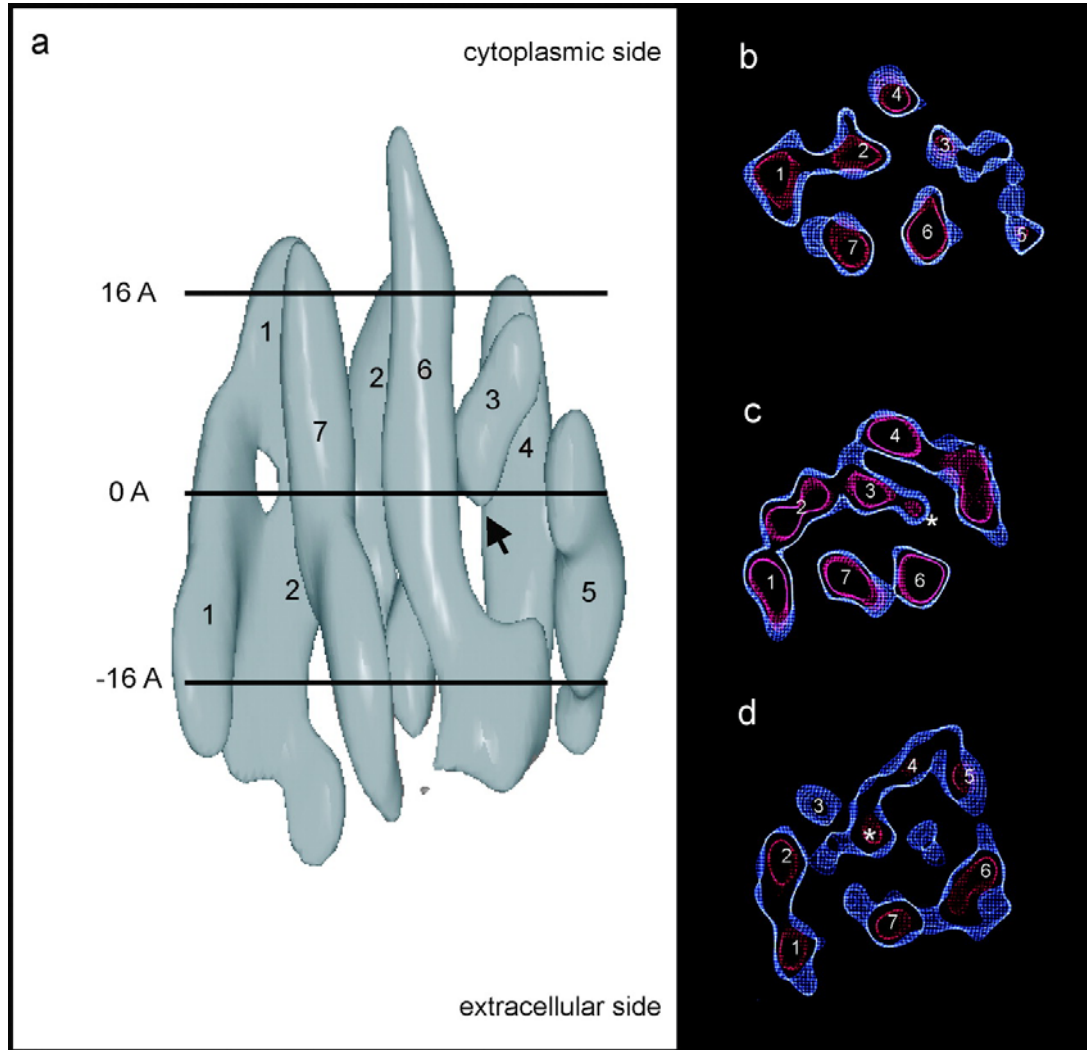
Rhodopsin



Rhodopsin



Rhodopsin



Vision -

an example of a

GPCR-regulated signalling cascade

