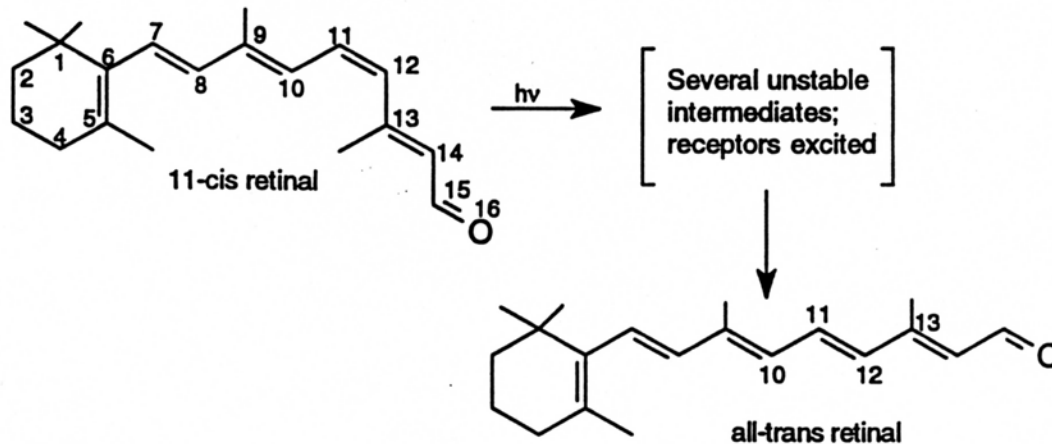


## CHANGES IN RHODOPSIN DURING VISUAL TRANSDUCTION

- A. In the rods of the retina one finds the chemical rhodopsin. Rhodopsin is a combination of opsin (a protein) and 11-cis retinal (called the chromophore since it is the part of the rhodopsin where the light acts).
- B. As you can see below there is a *cis* type structure around the bond between carbon atoms 11 and 12 in 11-cis retinal.
- C. The effect of light on the chromophore is to allow 11-cis retinal to *isomerize* to all-trans retinal (note that here the 11-12 bond has a trans geometry).



- D. This isomerization triggers a change in the shape of the protein which leads to an electrical response in the rod membrane and the all-trans retinal splits away from the opsin.
- E. In order for the rhodopsin to be "reusable," the retinal must be reconverted to the 11-cis form and reunited with the opsin. Vitamin A (just like retinal except for an O-H instead of an O attached to carbon 15) aids in the reconversion.

