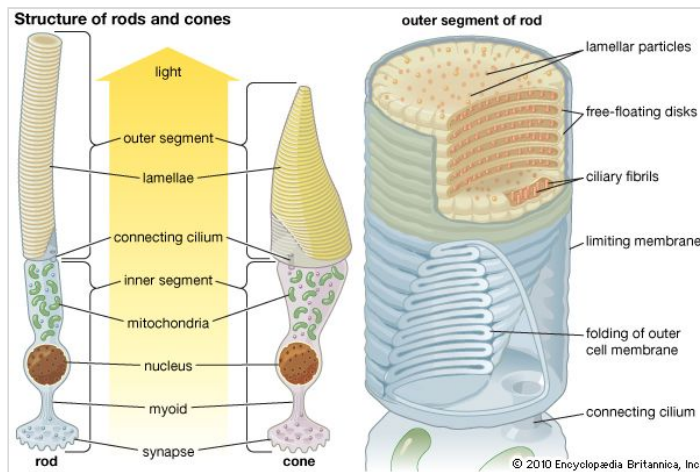


Rhodopsin

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<https://www.youtube.com/watch?v=o0DYP-u1rNM>

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Where is Rhodopsin found?

Rhodopsin is found in specialized receptor cells called rods. Rhodopsins are found in many organisms and are necessary for certain animals (including humans) to see in dim light. This protein is located in the retina. Rhodopsin is found specifically within the tightly packed discs that make up the retinas photo-receptive rod cells.

What does Rhodopsin do?

Rhodopsin is in charge of perceiving light. Rhodopsin is found in cone cells which only function in bright light. Different wavelengths of light are absorbed more or less strongly. The retinal changes its shape and separates from the opsin component (different proteins sensitive to light). This then

sends signals to the primary visual cortex of the brain. The different ways of absorbing light are responsible for our ability to see in color.

Why is Rhodopsin important?

Rhodopsin is important because it allows animals to see in color and to see in dim light. Being able to see in color is important, and being able to see in dim light is very important for nocturnal animals or animals live in dark environments.

Scientists demonstrate adaption of animal vision in extreme environments

Cell biologists from the University of Toronto found that animals can adapt their ability to see even in extreme environments and conditions. They researched eyes of catfish that lived in the cold-water streams at high altitudes in the Andes Mountains. "Vision is initiated when several chemical proteins in the retina are activated. It is a key sensory system that enables organisms to adapt to their environment, as how killer whales did to improve their ability to see underwater in predominantly blue-tinted light." When they looked at the cold temperatures and the catfishes' reactions they found that rhodopsin was also involved, "it accelerates the speed at which vision occurs among the fish living at the highest -- and therefore coldest -- elevations."

University of Toronto. "Scientists demonstrate adaptation of animal vision in extreme environments." ScienceDaily. ScienceDaily, 19 June 2017.

<www.sciencedaily.com/releases/2017/06/170619165401.htm>
