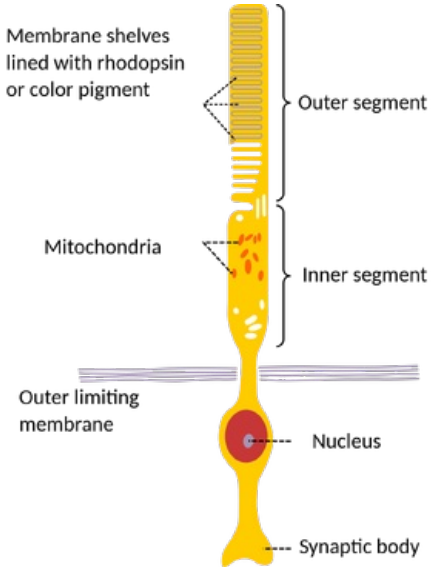
Rods

A rod is a type of sensory cell located on the retina of the eye. Its function is to differentiate the shade of gray. Rods are more sensitive to light than the other sensory cells of the eye - cones.

General structure of rods

Rods have a characteristic shape, the same in all parts of the retina. The length of the rods reaches **50 µm** . The photosensitive part is called **the external segment** . **The internal part** contains the receptor core and synaptic connections with bipolar cells.

We can observe approximately **120 million** rods in the human retina.

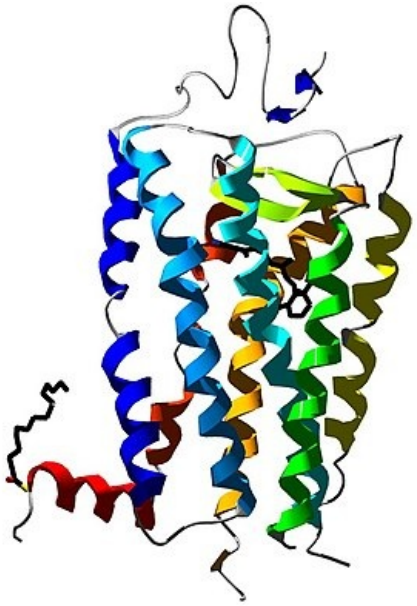


Rod cell

Visual pigment

Rods contain the pigment **rhodopsin** - the so-called **visual purple** . It is a chromoprotein composed of opsin protein and retinal, which is an aldehyde of vitamin A. Under the influence of light, rhodopsin breaks down into **retinal** and **opsin** and changes its color to yellow. This reaction is reversible and takes place very quickly. However, under too much light, retinal turns into retinol and its color turns white, and this reaction is reversible by a slow process. Thus, rhodopsin regeneration can take place via a slow or a fast pathway. This explains the differences in the speed of adaptation of the eye to darkness after previous illumination.

In avitaminosis A, a sufficient amount of rhodopsin is not produced, which manifests itself in dim vision, night blindness (**hemeralopia**).


3D rhodopsin molecule

Links

Related articles

- Biochemistry of the vision process
- Cones
- Eye
- Retina
- Photosensitive cells

External links

- Tyčinka (oko) - článek na české wikipedii (https://cs.wikipedia.org/wiki/Ty%C4%8Dinka_(oko)%7C)

Source

KYMPLOVÁ, Jaroslava. *https://portal.lf1.cuni.cz* [online]. [cit. 2012-09-20]. <https://portal.lf1.cuni.cz/clanek-793-katalog-metod-v-biofyzice>.