

Cone cell

Cone cells are much thicker than rods and have a bottle shape, but the shape varies according to location. In the central pit, they are already as long or even longer than the stamens. The narrowed part - the outer segment is photosensitive, the wider part is called the inner segment.

The largest concentration of cones is the yellow spot, in which there is a small pit (fovea centralis). It is the place of the sharpest vision. From the center of the central fovea towards the periphery of the retina, their density gradually decreases.

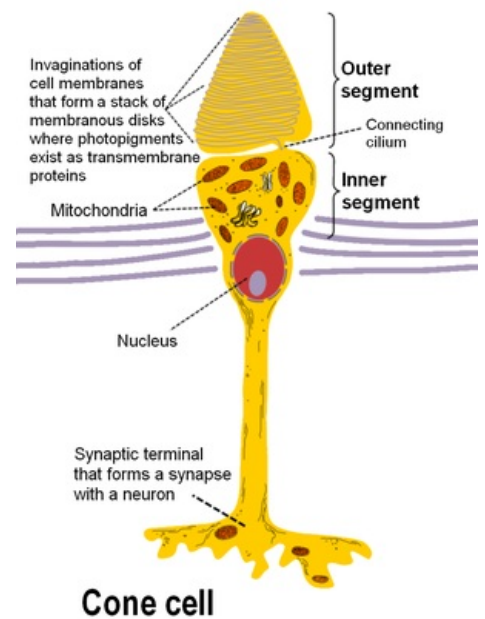
Function

The cones provide photopic vision and are largely responsible for visual acuity. The cones enable recognition of both light intensity and color and their saturation.

The color of the light depends on its wavelength. A normal eye can distinguish about 200 shades in the visible spectrum. Differential sensitivity is the smallest difference in wavelength that the eye can distinguish. In the middle of the spectrum, the differential threshold is very small, while at both ends of the spectrum, color discrimination is poor. Therefore, for example, in the red region, wavelengths in the 680–750 nm band are not distinguished.

Mechanism of color perception

The mechanism of color perception is still not fully understood, but the trichromatic theory has the most supporters. The visual analyzer distinguishes colors by adding three colors, red, green, and blue. There are three types of pigments in the human retina, whose sensitivity corresponds to different wavelengths of light. All three are thought to be retinal bound to three different opsins, distinct from opsin and rhodopsin (iodopsin). Color blindness can occur with disorders of the formation of eye pigments. Complete color blindness (monochromasia) is associated with other defects. With dichromats, it is most often a red or green color perception disorder.



Cone cell structure

Links

Related articles

- Rods
- Biochemistry of the vision process
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Source

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