Development of the visual system

Under construction / Forgotten

This article was marked by its author as *Under construction*, but the last edit is older than 30 days. If you want to edit this page, please try to contact its author first (you fill find him in the history (https://www.wikilectures.eu/index.php?title=Development_of_the_visual_system&action=history)). Watch the as well. If the author will not continue in work, remove the template `{{Under construction}}` and the page.

Last update: Monday, 19 Dec 2022 at 7.52 pm.

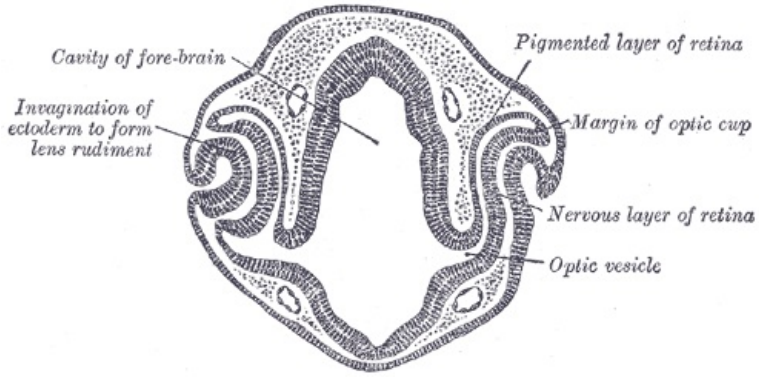
This article has been translated from WikiSkripta; ready for the **editor's review**.

Visual the organ is developing that four sources :

- from neuroectoderm at anterior brain (retina , rear layer iris and vision nerve);
- surface ectoderm u (lens and epithelium corneas);
- [[mesoderm]]u (fibrous and vascular layer eyes);
- cells neural slats (choroid , sclera , endothelium corneas).

Stages development eyes

Development eye is visible from the 22nd day intrauterine development , in neural wallah head the end the germ appears **eyes furrows** (grooves). After merging neural eye rolls _ gutters vychlipi , whereby they create **eye ramparts** . Connection with the front gradually through the brain tapers into shape ocular stopwatch . At the same time is running out and to changes surface ectoderm head - his part adjacent to the eyes the sacs are thickened , whereby arise the so- called **eye placodes** . Then occurs to their intussusception in the form of " lenticular ". jamek **and with continuing by pinching theirs edges together _ zoom in , merge into** lenticular pouches **and thereby is losing connection with surface ectoderm . Ocular pouches will create double layered ocular cups (initially they close the so- called intraretinal space), whose edges gradually they start veer around lenses . On the ventral side eye cups and on the spot their stopwatches appear _ notches - fissurae optics containing vascular mesenchyme , ze which the [[arteria hyaloidea]] (supplying internal layer eye cups) and vena hyaloidea . Distal sections these vessel degenerate , however proximal they remain such as the artery and vein centralis retinae.**



Development retina

Retina develops that walls of the eye cup , external layer of the eye cup contains cells with small pigmented grains and gives arise pigmented layer retina . Rear four fifths this one layers they give arise pars optica retinae, is formed cells reversed to intraretinal space that gradually _ _ they differentiate into rods and cones . To this one layer photoreceptors adjoins mantle layer comprising **external nuclear layer** which make up cores sticks and cones , and **internal nuclear layer** formed bipolar cells and a layer ganglia cells . On the inside surface are located axons nervous cells that converge _ _ in visual nerve passing through ocular stem . Front a fifth internal layers of the eye cup gives arise pars caeca retinae, contains amended ganglia cells , but no longer rods and cones . This layer is subsequently divides in pars iridica retinae giving arise internal layer irises and in pars ciliaris retinae, ze which arises ciliated body .

Development of corpus ciliare

Pigmented part ciliary epithelium has its origin in the external sheet of the eye cup (hence further turns into pigment epithelium retina), opposite to that unpigmented part epithelium represents a continuation of the pars nervosa of the retina , which it does not contain neurons . **Muscle ciliaris** (his by contraction changes optical Properties lens) differentiates from mesenchyme lying down on edge of the eye a cup .

Development irises

iris differentiates from the rim of the eye a cup that retracts _ in and partially so overlaps lens . Both layers of the eye cup here they remain thin , iris stroma has its cell origin _ neural slats . The **Musculus dilatator pupillae** and the **musculus sphincter pupillae** originate from the neuroectoderm of the eye a cup .

Development lenses

lens develops from the lenticular pouch (i.e. from the surface ectoderm), cells in her front the wall too they do not change and become subcapsular epithelium lenses . Cylindrical cells rear walls they are losing own cores and occurs their _ transform into long fibers . Thus arise **primary fibers lenses** . With theirs growth obliteration occurs _ cavities lentil pouch . Cells equatorial zones lenses are gaining cubic shape , they lose cores and changes **secondary fibers lenses** .

Development choroids , sclerae and corneas

Basis eyes are on end the fifth weekly intrauterine development surrounded by mesenchyme , which subsequently _ will divide in two layers - external , which gives arise white and substantial parts cornea , and internal , which differentiates into the choroid , iris and ciliary body body .

Development corneas

Front epithelium cornea has origin in the surface ectoderm , considerable part corneas arises from mesenchyme , which has origin in mesoderm . Corneal the endothelium differentiates from the cells neural slats .

Development choroids and sclera

Mesenchyme reacts on inductive signals pigmented epithelium retina and thus differentiates _ on internal vascular layer and outer fibrous layer (bleach).

Development eye chambers

Between basis lens and cornea there is a gap mesenchyme , whereby arises **anterior chamber ocular** . Externally layer spaced out mesenchyme is formed in the substantia propria corneae , inner (membrana iridopupillaris) is the basis for the iris stroma . **Rear chamber the eye '** arises in space before lens for iris . After disappearing pupillary membranes then is running out to communication between both chambers .

Development eye lid

Emergence lid we can observe from the sixth week , they differentiate from the cells neural slats . They create cutaneous folds overlapping cornea , on the beginning the tenth weekly intrauterine development to each other they grow and separate only in the 26th- 28th week . Algae , as well so glands arise from the surface ectoderm , ligament and tarsal discs they have origin in mesenchyme of the eye eyelids . The *Musculus orbicularis oculi* arises from the second pharyngeal arc and is therefore innervated n . facialis .

Development tears gland

Tearful the gland develops from the lobes surface ectoderm . At birth they are glands small , non -functional (approximately until the sixth of the week). From this reason newborn at screaming he doesn't cry . < noinclude >

Related articles

- Eye

Used literature

- {{#switch: book

|book =

Incomplete publication citation. . *Birth a person.* Prague : ISV, 2002. 564 s. 978-80-7262-438-6.

|collection =

Incomplete citation of contribution in proceedings. . *Birth a person.* Prague : ISV, 2002. 564 s. {{
#if: 80-85866-94-3 |978-80-7262-438-6} }
|article =
Incomplete article citation. . 2002, year 2002,

|web =

Incomplete site citation. . ISV, ©2002.

|cd =

Incomplete carrier citation. . ISV, ©2002.

|db =

Incomplete database citation. ISV, ©2002.

|corporate_literature =

. *Birth a person.* Prague : ISV, 2002. 564 s. 978-80-7262-438-6} }

- {{#switch: book

|book =

Incomplete publication citation. . *Langman's medical embryology.* Prague : Grada, 2011. 414 s. 1. Czech; 978-80-7262-438-6.

|collection =

Incomplete citation of contribution in proceedings. . *Langman's medical embryology.* Prague : Grada, 2011. 414 s. 1. Czech; {{
#if: 978-80-247-2640-3 |978-80-7262-438-6} }
|article =
Incomplete article citation. . 2011, year 2011,

|web =

Incomplete site citation. . Grada, ©2011.

|cd =

Incomplete carrier citation. . Grada, ©2011.

|db =

Incomplete database citation. Grada, ©2011.

|corporate_literature =

. *Langman's medical embryology.* Prague : Grada, 2011. 414 s. 1. Czech; 978-80-7262-438-6} }

</ noinclude >\