

Glandular epithelium (practicum) (1.LF UK)

In the practical exercise, the following preparations are microscopied:

B6 - Parotid gland

B7 - Glandula submandibularis

H2 - Skin with hair

H3 - Axilla

For all preparations, in this practical exercise we will focus only on terms related to their secretory activity. Salivary glands as a whole and their recognition and histology of the skin belong to the content of the summer semester.

B6 - Parotid gland

The parotid salivary gland is **purely serous**. Therefore, we will mainly observe **serous acini** and various types of **ducts**. A serous acinus can be seen under a microscope as a round, oval (sometimes deformed) formation. It is made up of pyramid-shaped cells (triangular in cross-section), which are completely filled with secretory granules (more prominent points) to the extent that they cover their round core and the lumen of the acinus itself, thanks to which we can easily find the ducts according to their lumen (white points).

Since the parotid gland is a **compound** gland, it contains several types of ducts that are arranged **hierarchically**. We observe here:

- **inserted duct**, which consists only of the basement membrane and **the cubic epithelium**. Due to its thin wall, its lumen is therefore collapsed on the specimen
- several inserted ducts merge into the **annealed (intralobular) duct**, where cylindrical cells with **radial annealing** at the base (mitochondria) attach to the basement membrane
- annealed ducts further merge into **interlobular** ducts, composed of a basement membrane and a multi-row cylindrical epithelium with goblet cells. Thanks to their position in the septa between the lobes, they are very easy to find

B7 - Glandula submandibularis

The submandibular gland is a **seromucinous** gland. We will focus here on the **mucinous tubule**, which is clearly visible in clear staining methods. Thanks to the mucin, it is pale to **white** and thus the cylindrical cells and their flattened nuclei are clearly visible. But mucin can be **colored**, e.g. alcian blue or PAS reaction

At the end of those tubules, which are cut longitudinally, **serous lunules** are visible. It is a formation of serous cells that attach to the ends of the tubules and through the slits between the cells of the tubule it drains its secretion into its lumen.

Note: In some literature, it is possible to meet the statement that the serous lunula are an artifact during the processing of the preparation, and in fact the cylindrical cells of the tubule and the serous cells form a single layer.

H2 - Skin with hair

Here we will focus on the **holocrine sebaceous glands**. Their alveoli are lined with epithelium, the cells of which undergo changes towards the center. The nuclei of the cells are wrinkled, placed **in the middle** of the cell. The cytoplasm of the cells is very light, as it contains **lipid droplets**, from which the fat disappears during the processing of the preparation. In the secretion (sebum), whole cells eventually break down and thus must be constantly replenished from the dividing basal cells on the periphery of the gland.

The ducts of the holocrine glands, formed by **the multi-layered squamous epithelium**, open into the infundibulum of the hair follicle, where the secretion then reaches the surface of the skin.

H3 - Axilla

We microscope the axilla because of the sweat **apocrine glands** present here. We recognize them as "hollow" round (so as if ring-like) formations formed by a single layer of cells, the height of which is determined by the stage of the secretion cycle:

- at the beginning of the cycle - cells are cubic with a round nucleus
- formation of a secretion that accumulates in the apical cytoplasm -> cells have a cylindrical shape and the nucleus is pushed to the basement membrane
- apocrine secretion occurs - the membrane-encased secretion is separated -> the cell loses the supranuclear

part = secretion and membrane material, so it decreases again

The ducts of the apocrine glands, like the eccrine glands, are formed by a **double-layered cubic epithelium** and open into the hair follicle, just above the ducts of the sebaceous glands. Their lumen is usually collapsed.

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