Seminar: Structure and function of skin, development of the mammary gland. Practical class: Skin & its appendages, mammary gland. slides: no hairy skin (no. 83),

- Nonhairy skin fingertip (no. 84),
- hairy skin (no. 85),
- active (lactating) mammary gland (no. 86),
- inactive mammary gland (no. 87),
- evelid (no. 91),

## Specimen x (no. 6) – please, answer the questions for specimen x, as in practical class # 17. Electronograms and text:

- keratinization (fig. 14),
- hemidesmosomes in epidermis, the border epidermis dermis (EM 131),
- the structure of human epidermis (fig. 15),

## Schema # 14





nonhairy skin



hairy skin

- 1- Cell from stratum corneum
- 2- keratin + involucrin, cytokeratins and filagon
- 3- ceramide layer 4- stratum granulosum cells
- 5- lamellar bodies
- 6- vesicles containing profilaggrin and involucrin7- Golgi apparatus

Epidermal cells of stratum granulosum and stratum lucidum synthesize proteins: profilaggrin and involucrin, as well as lipid acyloglycosyloceramide. These compounds are localized in the cytoplasmic granules, formerly known as "keratohyaline granules". In keratinizing cells the polypeptide filaggn (name derived from filament aggregation) binds cytokeratin filaments and produce keratinizing masses in the internal (proximal) part of keratinizing cells. Involucrin molecules aggregate and produce keratinizing masses in the external (distal) part of the keratinizing cell.

Ceramide forms lamellae in the cytoplasmic vesicles, thus such vesicles are named "lamellar bodies". Ceramide lamellae are secreted into the space between the granular and keratinizing cells, and under the cell membrane of keratinizing cells they form a lipid layer, which is not permeable to water.







EM - 131.

Hemidesmosomes in epidermis, the border of epidermis and dermis, collagen fibres

- A Hemidesmosomes
- B cytokeratin filaments
- C cross-sections of collagen fibres
- D keratinocyte cell membrane
- E basal lamina

D+E - border lines between epidermis and dermis