

5. MICROSCOPIC AND ULTRASTRUCTURAL CHARACTERISTICS OF KERATINOCYTES



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Introduction. Keratinocytes are the principal epidermal cells, constituting the outermost layer of the skin - the external and largest organ of the human body. Epidermal keratinocytes are highly specialized epithelial cells that are designed to perform a very specific function: separating the organism from its environment, but not only.

Aim of study. The study aims was to describe microscopic and ultrastructural characteristics of keratinocytes and identification of keratinocytes specific markers.

Methods and materials. A bibliographic study of scientific literature specialized at microscopic and ultrastructural characteristics of keratinocytes and keratinocyte-specific markers

Results. Epidermal keratinocytes are differentiated progressively through the layers, from the basal, spiny and granular to the stratum corneum. Depending on their function and state of differentiation, they have different structural characteristics, sometimes more complex than those of the simple epithelial cells that make up the digestive tract and exocrine glands. Basal keratinocytes attach to the basement membrane with hemidesmosomes and have keratins such as KRT5 and KRT14. Suprabasal keratinocytes begin to produce KRT1 and KRT10 and are attached to the neighboring keratinocytes via desmosomes. Granular layer cells with keratohyalin granules express KRT2 and are attached to neighboring cells mostly by tight junctions. The advances in the understanding of skin development have provided information on new molecular markers such as filaggrin (Flg) (granular and cornified layer marker) and loricrin (Lor) (cornified layer marker), which are differentiation markers and play an important role in the barrier function of the skin.

Conclusion. The understanding of the molecular events underlying differentiation of the keratinocytes has advanced greatly in recent years. Progress has also been made in the understanding of the gene expressed regulations of human keratinocytes and, as well, in the elucidating of their structure and function.