

EPIDERMIS The epidermis consists mainly of a stratified squamous keratinized epithelium composed of cells called keratinocytes. There are also three much less abundant epidermal cell types: pigment-producing melanocytes, antigen-presenting Langerhans cells, and tactile epithelial cells called Merkel cells (Figure 18-2). The epidermis forms the major distinction between thick skin (Figure 18-2a), found on the palms and soles, and thin skin (Figure 18-3) found elsewhere on the body. The designations “thick” and “thin” refer to the thickness of the epidermal layer, which alone varies from 75 to 150 μm for thin skin and from 400 to 1400 μm (1.4 mm) for thick skin. Total skin thickness (epidermis plus dermis) also varies according to the site. For example, full skin on the back is about 4-mm thick, whereas that of the scalp is about 1.5-mm thick. Like all epithelia, the stratified squamous epidermis lacks microvasculature, its cells receiving nutrients and O_2 by diffusion from the dermis. From the dermis, the epidermis consists of four layers of keratinocytes (or five layers in thick skin, Figure 18-2): = The basal layer (stratum basale) is a single layer of basophilic cuboidal or columnar cells on the basement membrane at the dermal-epidermal junction (Figures 18-2 and 18-3). Hemidesmosomes in the basal cell membranes join these cells to the basal lamina, and desmosomes bind the cells of this layer together in their lateral and upper surfaces. The stratum basale is characterized by intense mitotic activity and contains, along with the deepest part of the next layer, progenitor cells for all the epidermal layers. In addition to the basal stem cells for keratinocytes found here, a niche for such cells