

(Fig. 1): epidermis, dermis and subcutis (or hypodermis). The epidermis is composed of 80% keratinocytes that differentiate and migrate towards the surface (this process is called keratinization), resulting in the formation of four different ‘strata’ (inwards from the outer skin layer): corneum, granulosum, spinosum and basale (Keng and Lau 2015; Nicol 2005). The stratum corneum (10–20  $\mu\text{m}$  thick) has a peculiar organization in which corneocytes (representing the physical barrier) are arranged in the well-known ‘bricks in mortar’ system within the lipid matrix; the lipid matrix is composed of ceramides, free-fatty acid and cholesterol (Michaels et al. 1975; Menon et al. 2012; van Smeden et al. 2014). This layer is always damaged when a wound occurs. It also represents one of the major obstacles within topical drug delivery (Williams 2003).

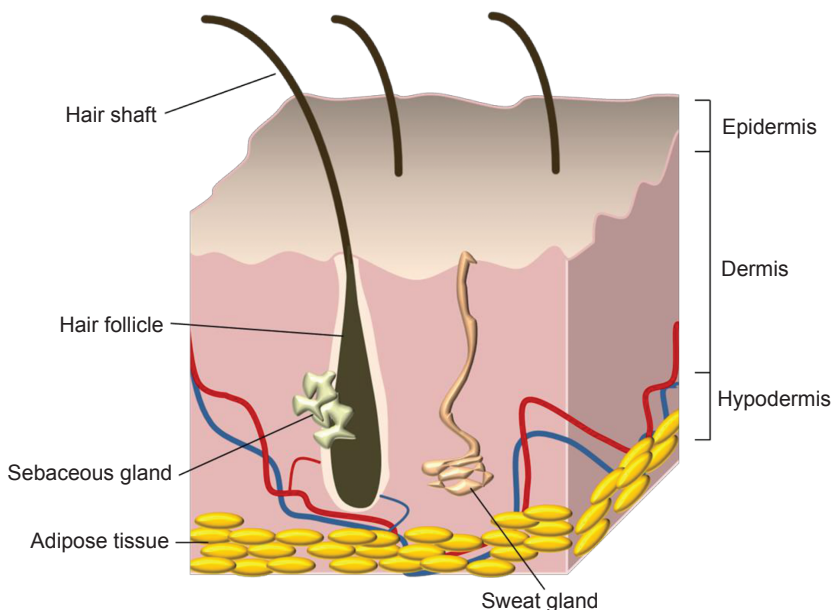


Fig. 1. Schematical representation of human skin structure.

## Classification of Wounds

A wound is defined as a disruption of skin integrity, which can be a symptom of a pre-existing pathological condition or caused by mechanical, thermal or chemical damage (Thomas 1990). Wounds can be classified into two main types, depending on the healing time and response to treatments: acute or chronic (Harper et al. 2014). The correct diagnosis of each wound (by identifying the causes and types of tissue present) can greatly influence the choice of treatment and the healing outcome (Trudie 2015).

### *Acute wounds*

Acute or ‘superficial’ wounds usually heal within a period of three weeks and involve only the epidermis and dermis (they are then called ‘superficial’) or they can expand