Skin biology video 1 notes

[A fuller account of skin biology is provided in edderm101]

Skin thickness: this obviously varies at different body sites, and the relative contribution of the two compartments varies, too. On the palms and soles the epidermis can be 1mm or more thick, whereas the epidermis is much thinner on the eyelids or the genitalia. The dermis on the lower back, is much thicker than on the eyelid, too. You might be able to work out why there is this variation?

Keratins: there are over 50 keratin genes — you do not need to know the numbers, or the details of how keratins assemble in pairs or their macromolecular structure. But do recognise now that mutations of keratins are associated with a range of different disorders.

Keratinisation: I find this an odd word, because there is some ambiguity to it. Keratinisation is best described as the process of differentiation in skin that leads to the dead anucleate cell compartment called the stratum corneum (or horny cell layer).

The cell compartments (or layers) within the epidermis are: basal layer; spindle cell layer; granular layer; and stratum corneum.

Filaggrin: is a key protein, so called because is a keratin **fil**ament **agg**regating protein. Mutations of filaggrin are associated with atopic dermatitis and some cases of ichthyosis. We will revisit this later.

Lipids: skin is relatively water impermeable. Extracellular lipids produced by keratinocytes are key to this ability.

Cell types of the epidermis: The other main resident cells in the epidermis are melanocytes and Langerhans' cells. Both the latter are dendritic (star like shape) but they are not related to each other. Melanocytes are neural crest derived cells, and Langerhans' cells are bone marrow derived.

The picture of the Langerhans' cell is en face — rather than the conventional cross section (the plane of the image is parallel to the skin surface.

Melanin: we will deal with this later but melanin is produced in melanocytes, but the melanin is passed to keratinocytes.

Mast cells are similar to basophils although the exact relation is disputed.

Appendageal structures: the collective name for the hair follicle, the sebaceous glands and the eccrine glands. The basic cell type of these structures is the keratinocyte, even though the bulk of them is geographically located in the dermis.
eccrine gland epidermal but geographically in the dermis. an appendageal structure
I haven't mentioned apocrine glands, play limited role in man , found in the axillae and genital area
nerves: no parasympathetic supply to skin. Itch dealt with in a later video
mediators in mast cells dealt with later. Histamine + mentioned.