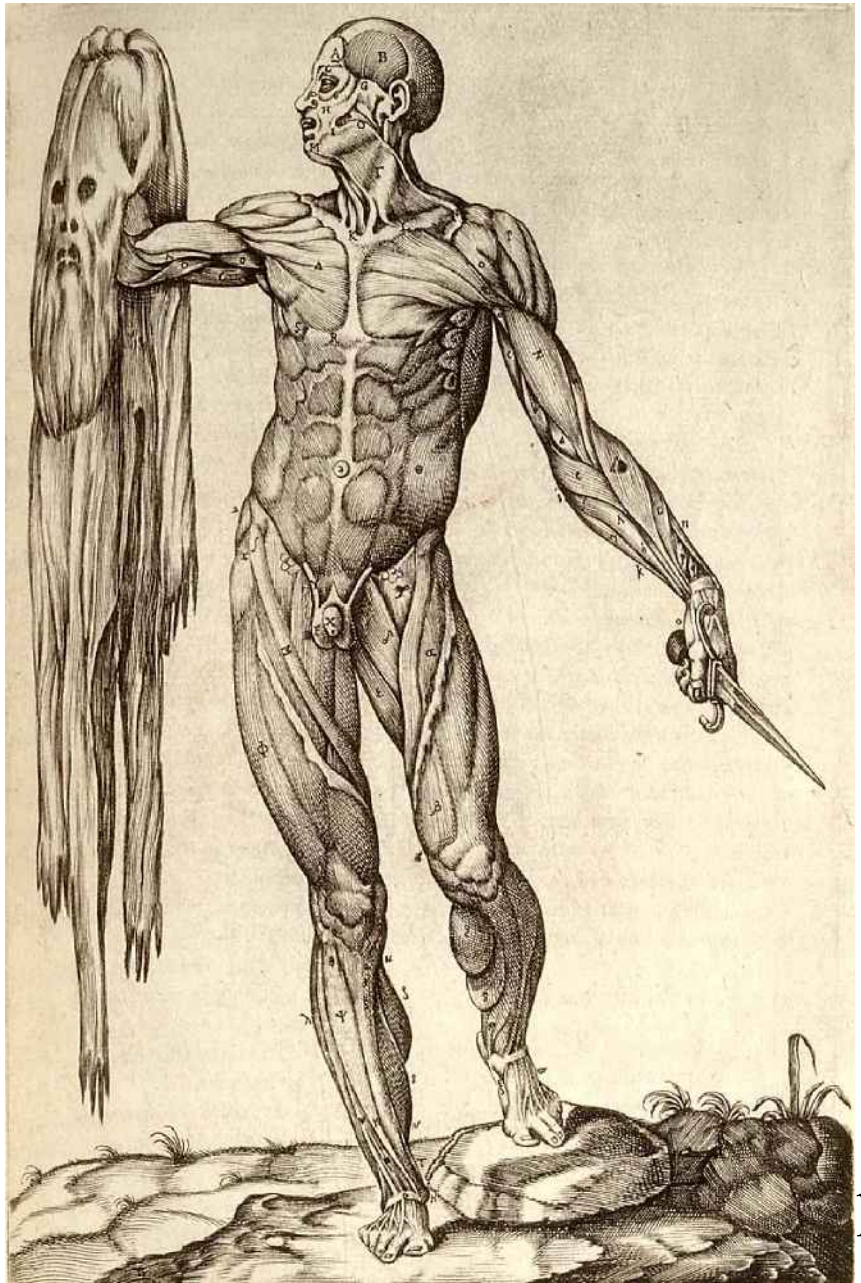
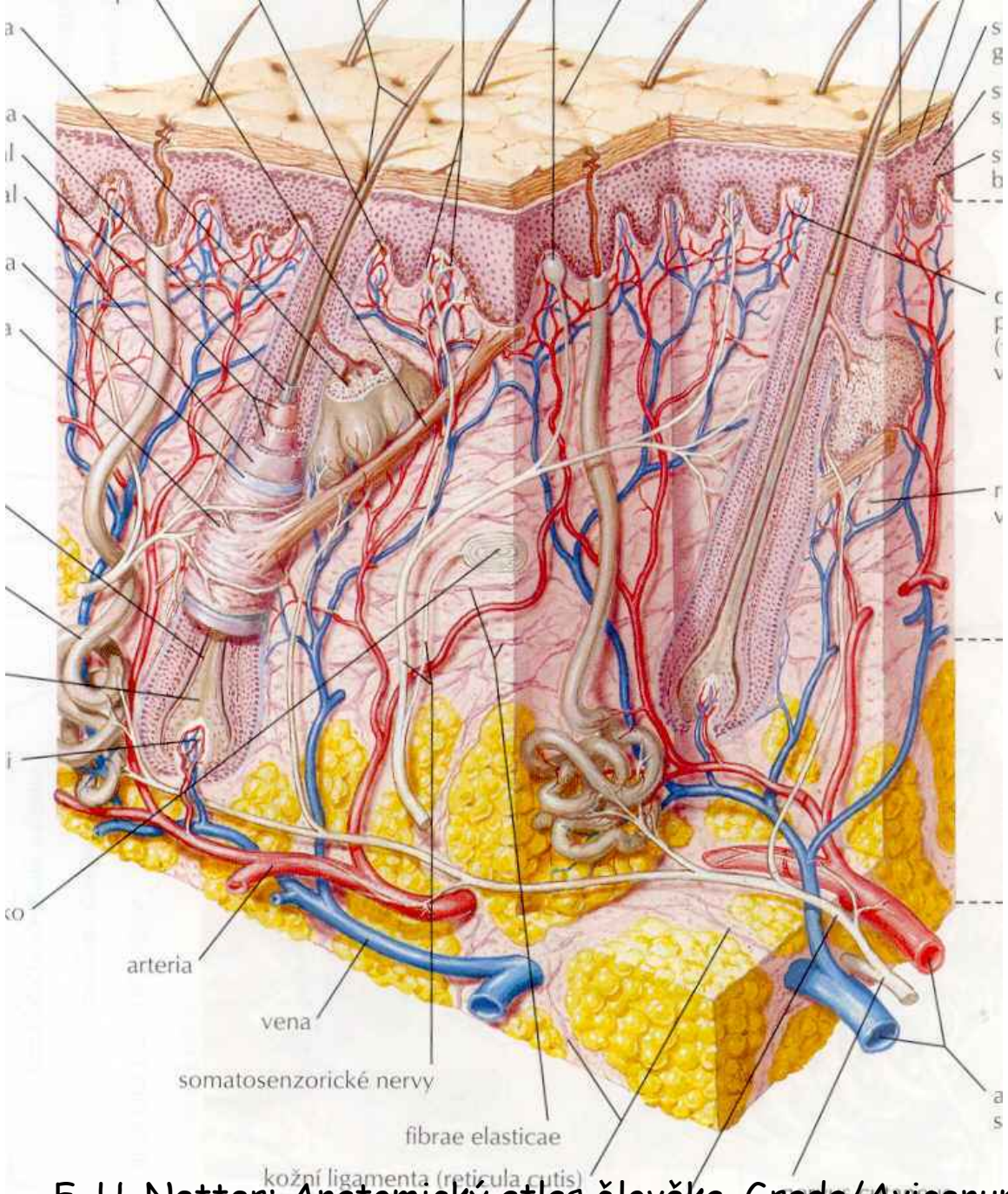
SKIN



http://www.museion.ku.dk/2008/04

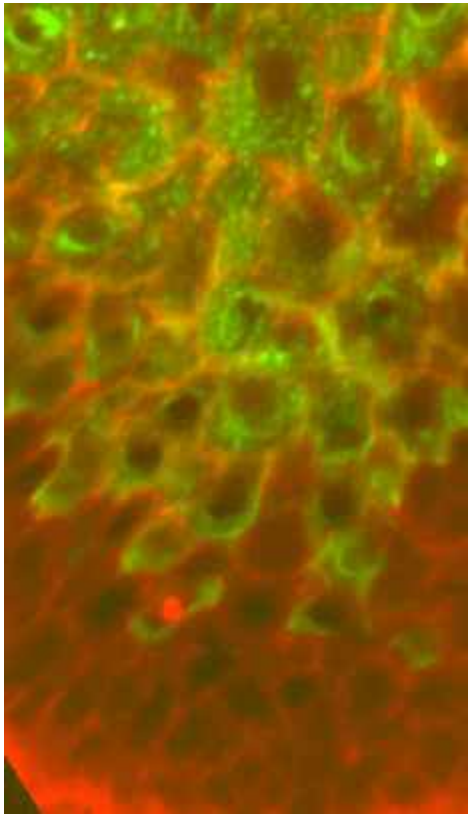
Skin-schematic presentation



F. H. Netter: Anatomický atlas člověka. Grada/Avicenum, Praha, 2003

Squamous epithelium

Molecular stratification of squamous epithelium

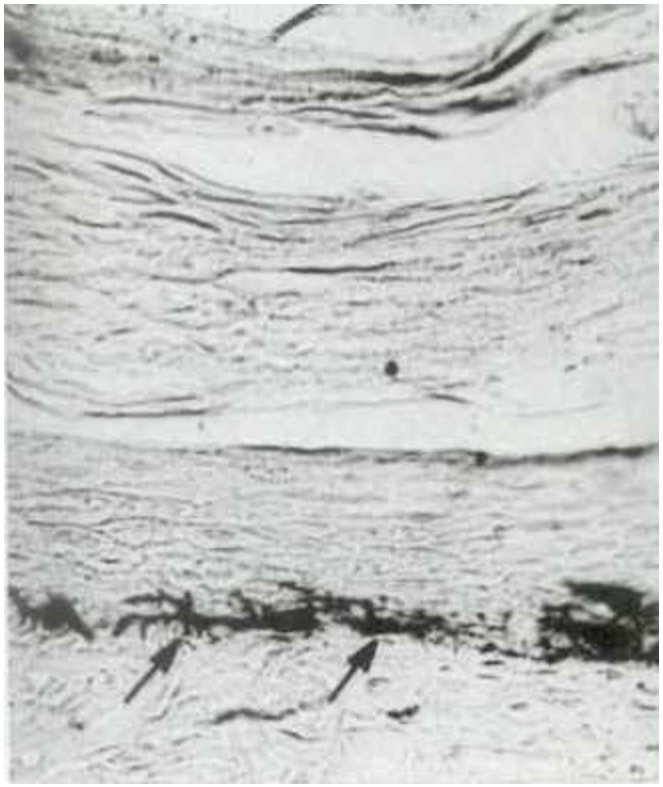


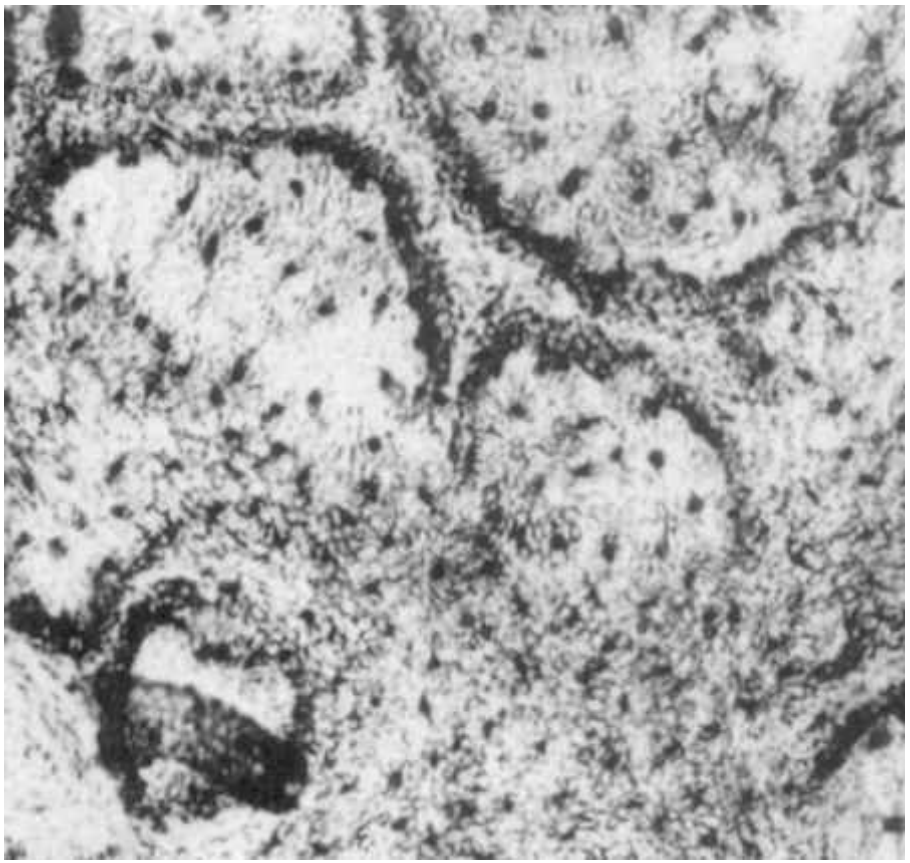
Gal-3-BS

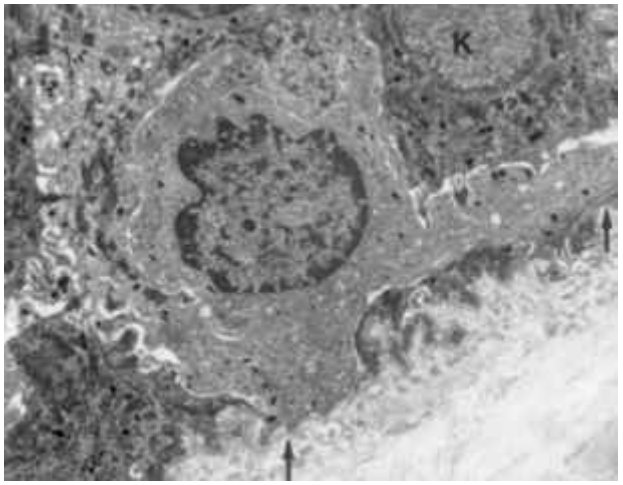
CK10

Stratum corneum

P. L. Williams et al.: Gray´s Anatomy. Churchill Livigstone, New York, 1995







Melanocytes

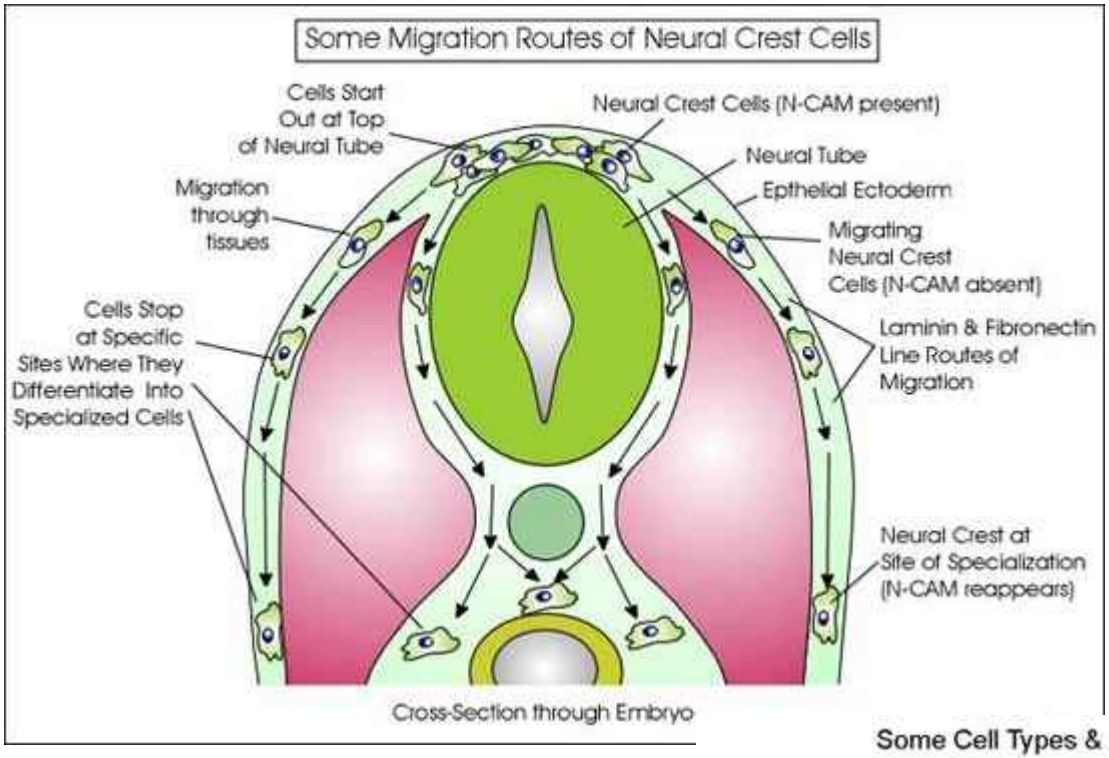
P. L. Williams et al.: Gray´s Anatomy. Churchill Livigstone, New York, 1995

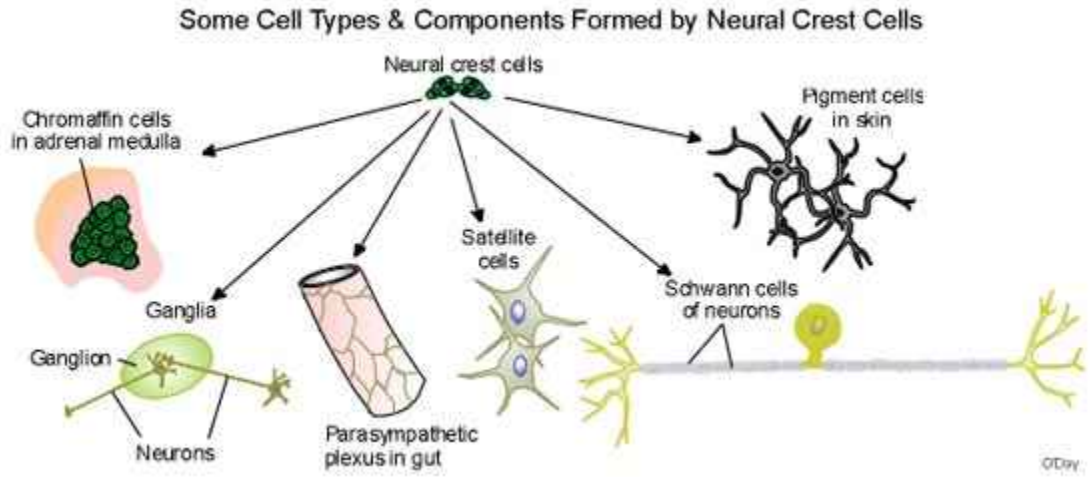
Malignant malinoma

http://melanoma.blogsome.com/category/skin-image-processing/

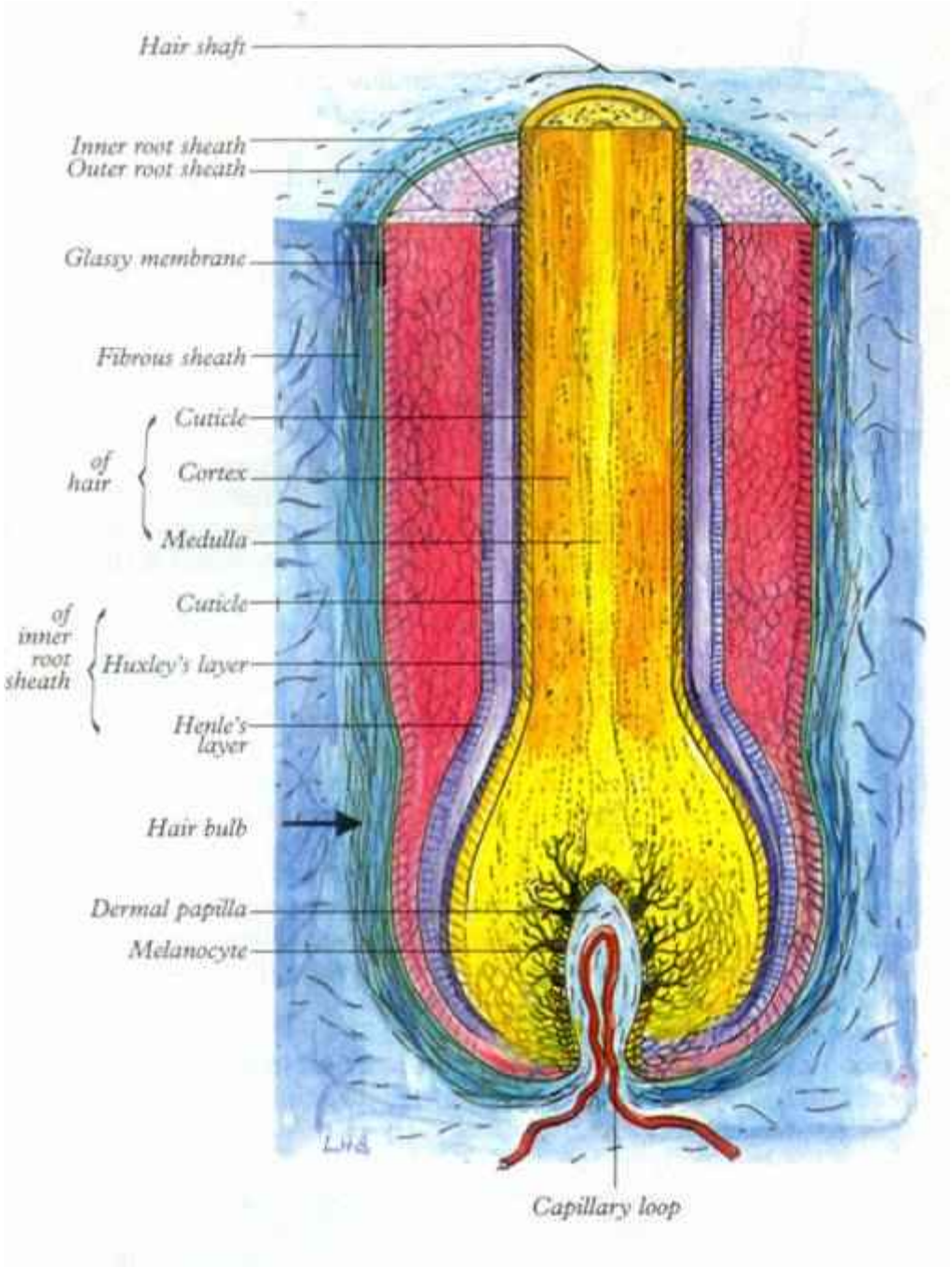
Merkelovy buňky (K20)

P. L. Williams et al.: Gray´s Anatomy. Churchill Livigstone, New York, 1995





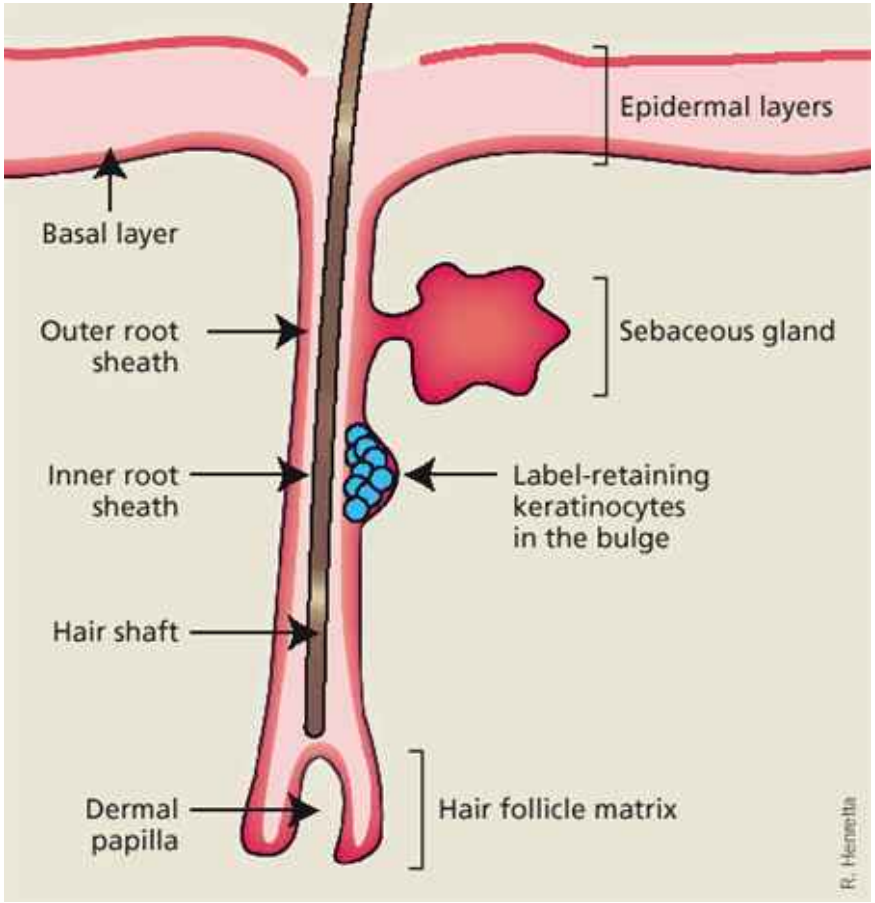
http://www.erin.utoronto.ca/~w3bio380/lecture16.htm



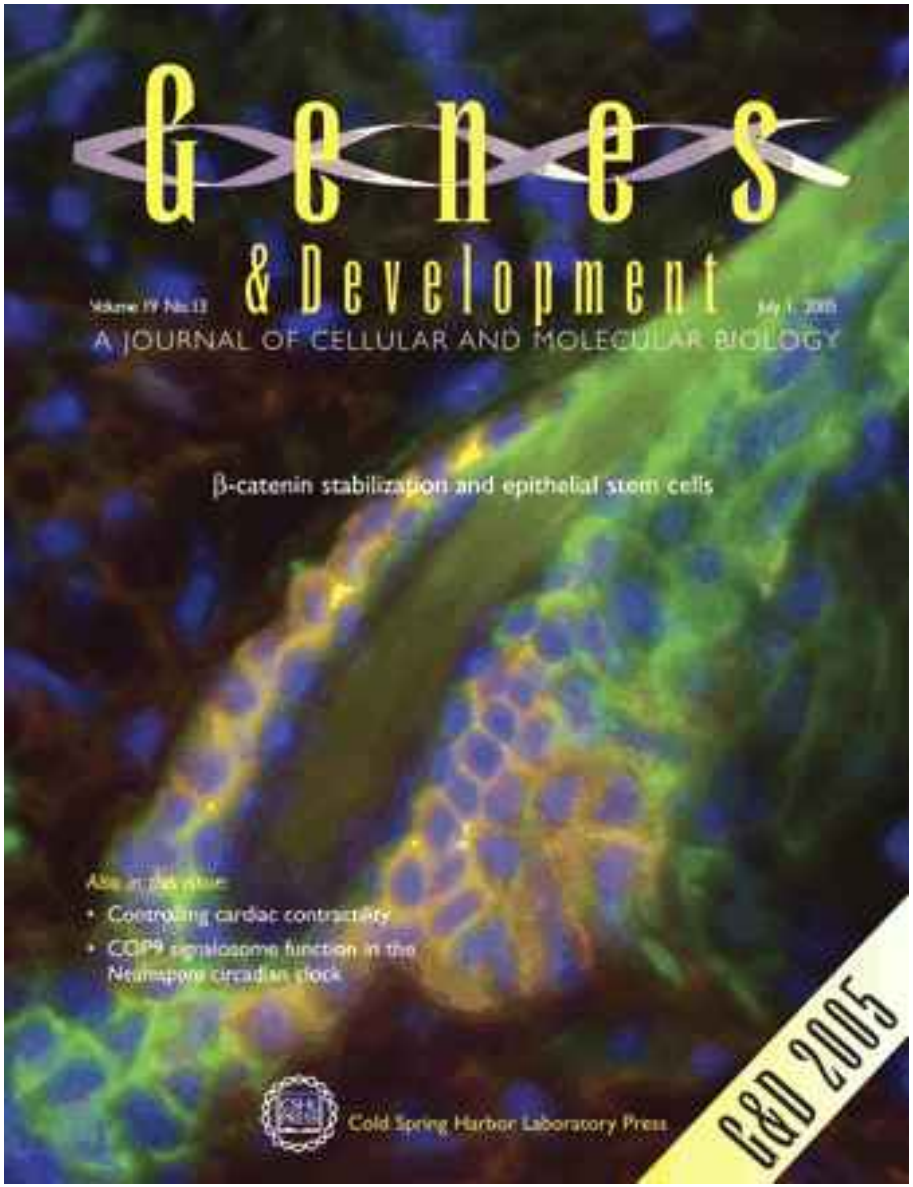
Hair and its sheaths

P. L. Williams et al.: Gray´s Anatomy. Churchill Livigstone, New York, 1995

Hair and its sheaths



http://www.nature.com/nbt/journal/v22/n4/fig_tab/nbt0404-393_F1.html


Genes
& Development
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DEVELOPMENTAL DYNAMICS 231:258–269, 2004

RESEARCH ARTICLE

Pluripotent Neural Crest Stem Cells in the Adult Hair Follicle

M. Sieber-Blum,[1*] M. Grim,[2] Y.F. Hu,[1] and V. Szeder[1,2]

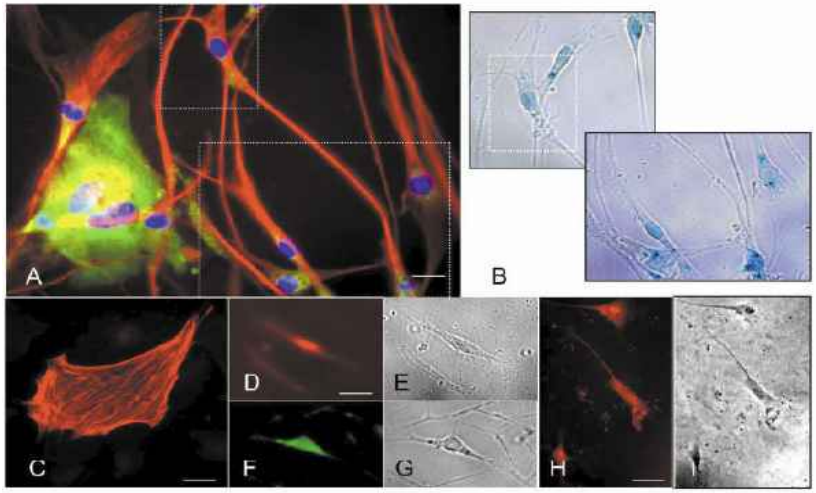


Fig. 7.

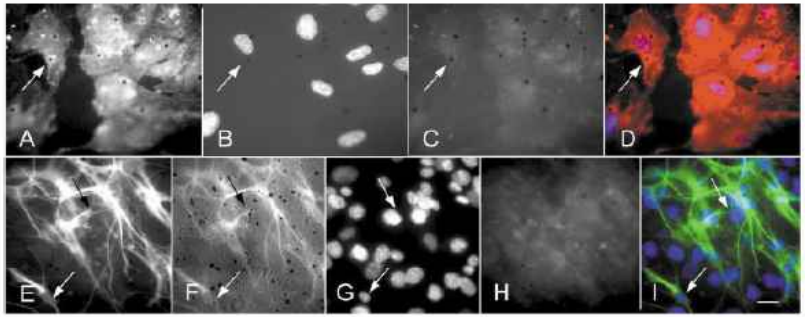
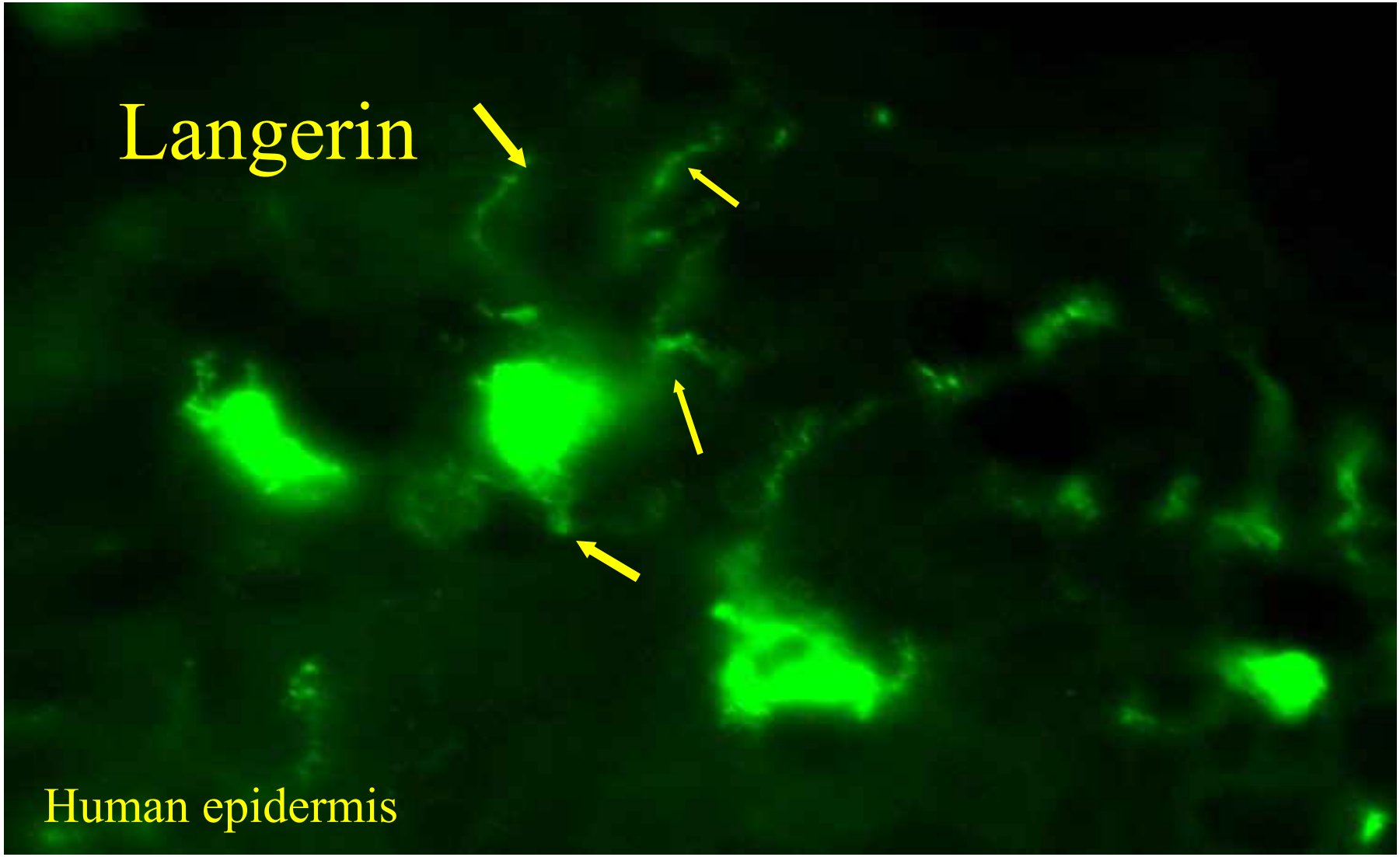


Fig. 7. Differentiated cell types expressed in clones. A,B: Quadruple stain combining anti-neuron-specific β-III tubulin antibodies (Texas Red) with anti-smooth muscle actin monoclonal antibody (fluorescein), DAPI (4′,6-diamidine-2-phenylidole-dihydrochloride) nuclear stain (blue), and X-gal reactivity (shown in B). Several neurons and one smooth muscle cell are visible (focus is on neurons). B: X-gal reaction of two areas marked in A. C: Smooth muscle cell (anti-smooth muscle actin antibody; Texas Red). D: Rare SCIP-immunoreactive Schwann cell. E: Corresponding phase contrast image. F: Rare S100-immunoreactive Schwann cell progenitor. G: Corresponding phase contrast image. H: Three MelEM-immunoreactive melanocyte progenitors. I: Corresponding phase contrast image. Scale bars = 50 μm in A (applies to A,B), in C, in D (applies to D–G), in H (applies to H,I).

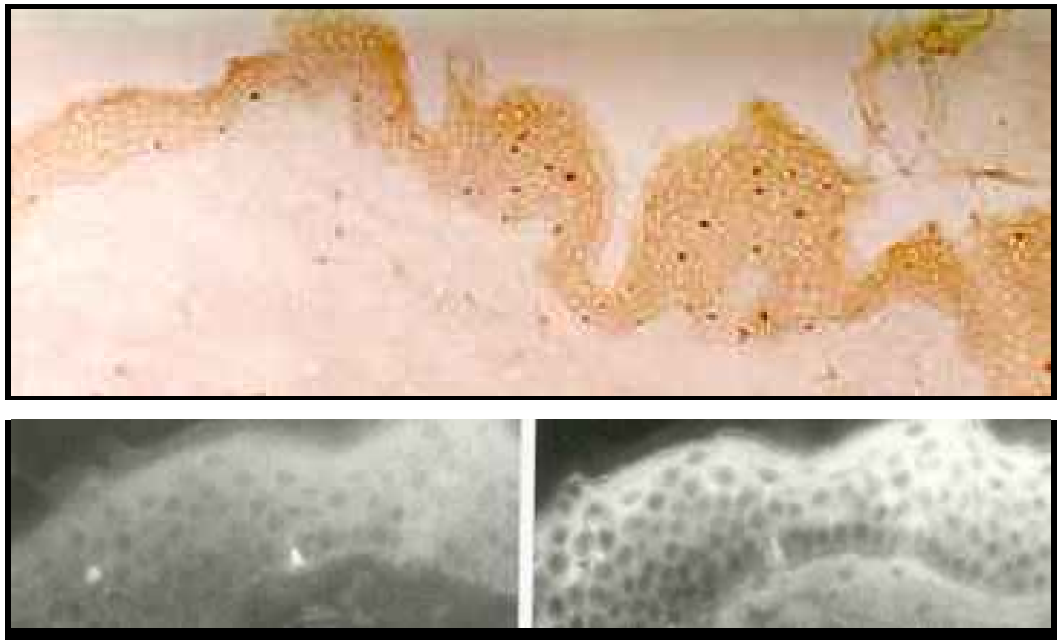
Fig. 8. Targeted differentiation of epidermal neural crest cells into Schwann cell progenitors. To obtain larger numbers of Schwann cell progenitors, clones were grown in the presence of neuregulin-1. Quadruple stain combining β-III tubulin (fluorescein), glial fibrillary acidic protein (GFAP, Texas Red), DAPI (4′,6-diamidine-2-phenylidole-dihydrochloride) nuclear stain (blue), and X-gal reaction (black). A: GFAP stain with X-gal reaction product (e.g., arrow). Several Schwann cell progenitors are visible. B: DAPI nuclear stain of same area as in A. C: β-III tubulin immunoreactivity (Texas Red) in the same area is absent. Arrow depicts same cell and X-gal reaction product as in A and B. D: Merged images of GFAP (Texas Red), β-III tubulin (fluorescein, absent), DAPI nuclear stain, and X-gal reaction. This series of images shows that Schwann cell progenitors are present in large numbers and that they do not express a neuronal marker. In a different area in the same clone, neurons are present (arrow). E: β-III tubulin stain; several multipolar neurons are present. F: Merged brightfield and β-III tubulin images of the same area as in E to show that neurons contain X-gal reaction product (arrows in E, F, G, and I). G: Corresponding DAPI nuclear stain. H: GFAP immunoreactivity in the same area is absent (Texas Red). I: Merged images in pseudocolor of β-III tubulin (fluorescein), GFAP (Texas Red, absent), and DAPI nuclear stain (blue). The data show that neurons do not express a Schwann cell marker. Scale bar = 10 μm in I (applies to A–I).


Langerin
Human epidermis

Coexpression of binding sites for A(B) histo-blood group trisaccharides with galectin-3 and Lag antigen in human Langerhans cells

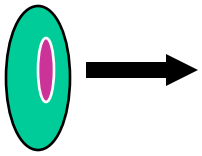
Karel Smetana,* Zuzana Holíková,* Radek Klubal,† Nicolai V. Bovin,‡ Barbora Dvořánková,§ Jiřina Bartůňková,† Fu-Tong Liu,‖ and Hans-Joachim Gabius#

Langerhans dendritic cells



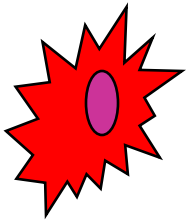
Saccharide	Binding to LC
A(tri)	+
B(tri)	+
Le c	-
Le d (0)	-
sLe x	-

A(tri) binding **Lag antigen**



Gal-3

KC

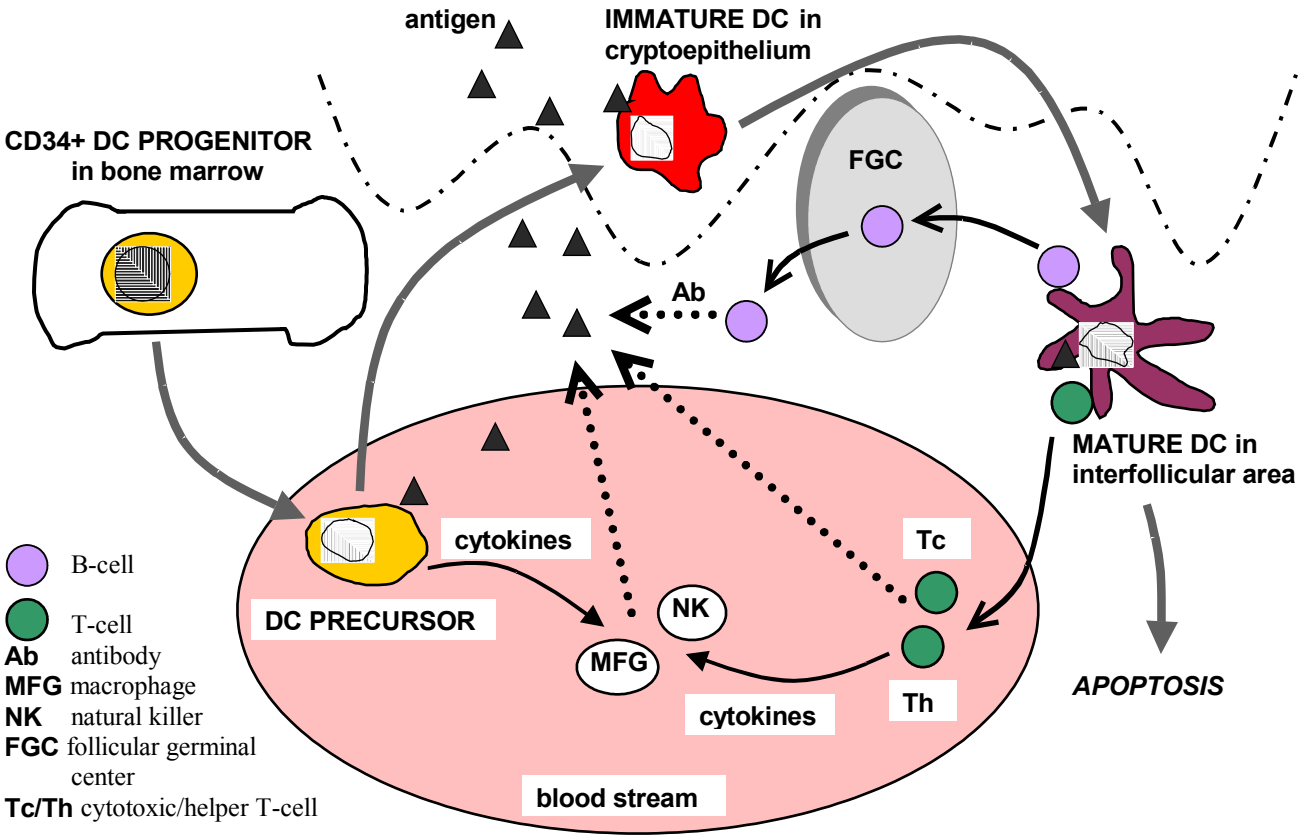


LC

CD1a

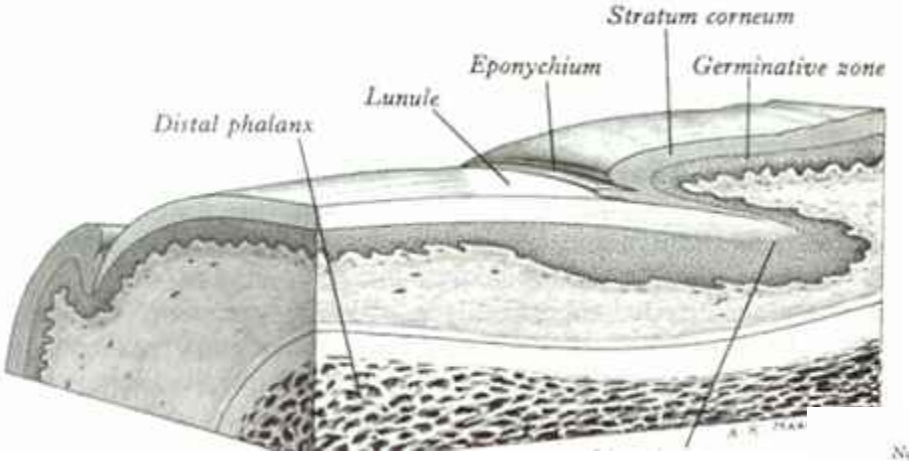
Gal-3-BS

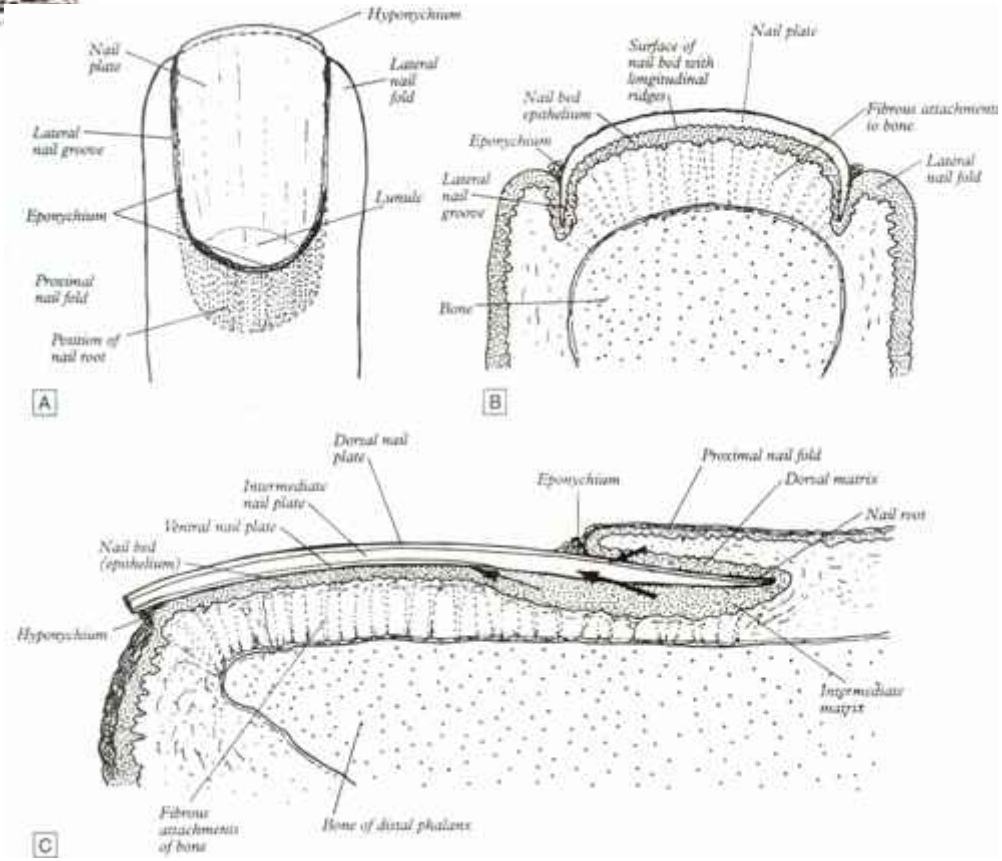
Function and origin of dendritic cells in the skin



Plzák et al. Eur Arch Otorhionolaryngol 260: 266 (2003)

Nail





P. L. Williams et al.: Gray´s Anatomy. Churchill Livigstone, New York, 1995

Traumatic and trophic skin defects

Skin functions:

Protective

Immune

Metabolic

Aesthetic

Skin damage /1 year (USA):

Severe burn injuries = 1 100 000

5 000 +

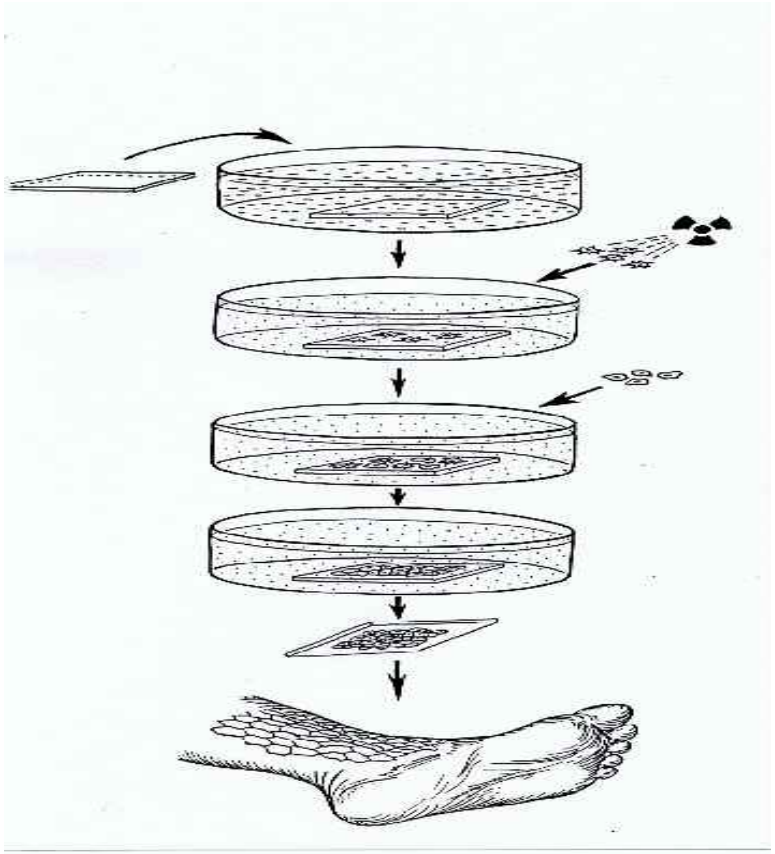
Trophic ulcerations = 4 500 000

Severe burn injury

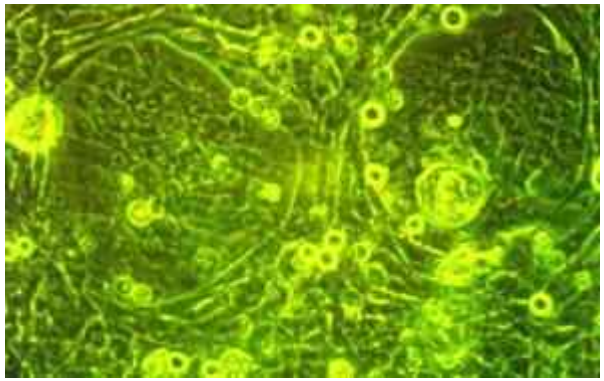
http://www.elginburninjurylawyer.co/elgin-burn-injury-treatment.html

http://www.albuquerque-personal-injury-attorneys.com/areas-of-practice/learn-more/burn-injuries/

Cultured keratinocyte grafting



Adhesion and growth of autologous/allogenic keratinocytes on polymer surface



Cultured keratinocyte grafting

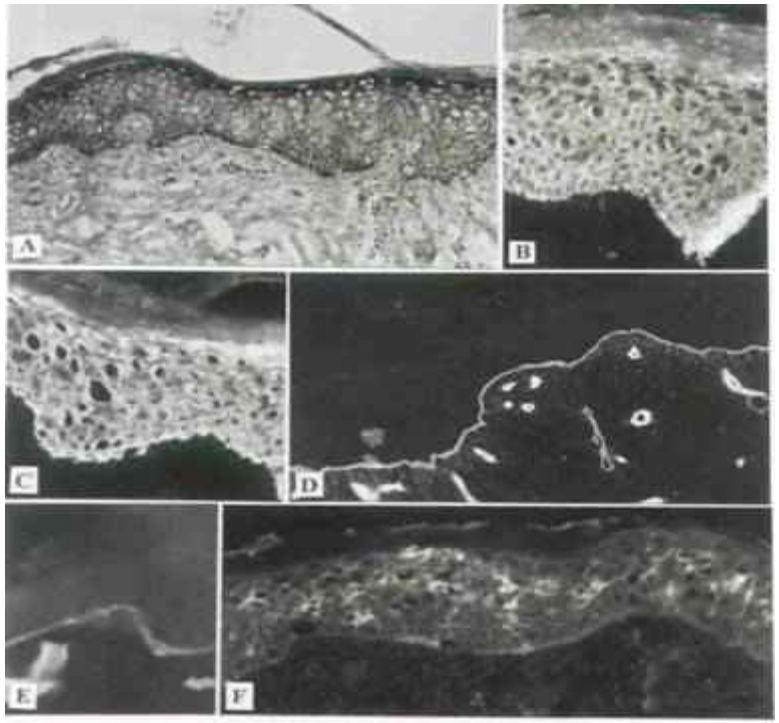
Day 0

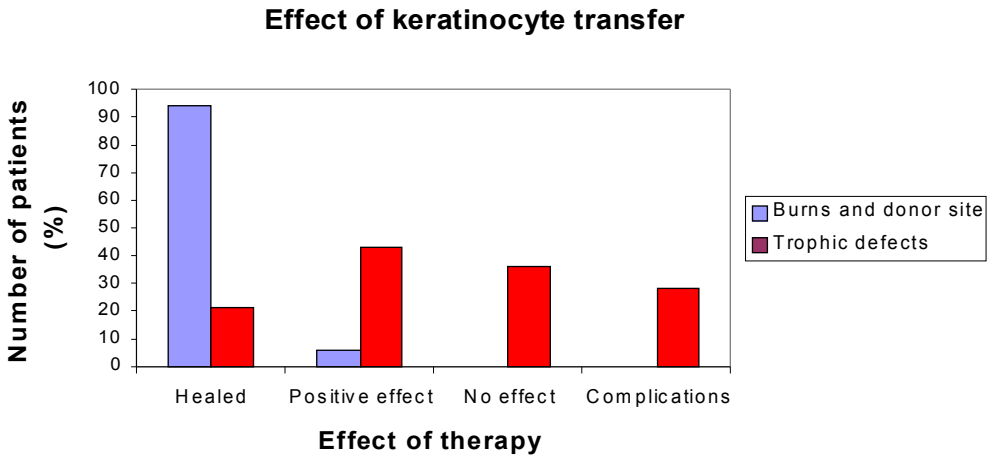
2 years

Day 0

1 year

Cultured keratinocyte grafting





Efficiency of grafting of immobilized keratinocytes to the wound bed

Dvořánková, et al.: Int. J. Dermatol. 42: 219-223, 2003