



Peels
CLASSIFICATION OF A.TENENBAUM
DU AESTHETIC MEDICINE
06-2025



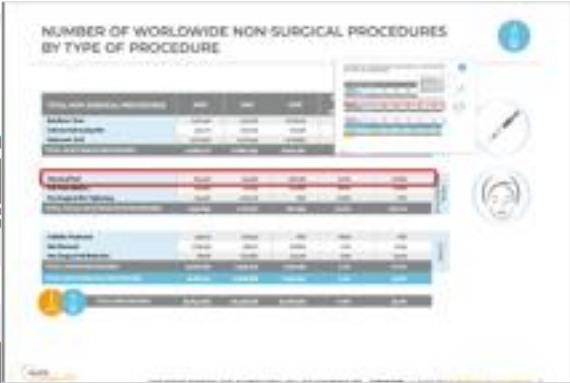
A.TENENBAUM, M.D., Ph.D., D.Sc
M.TIZIANI, RCSA



NUMBER OF WORLDWIDE NON-SURGICAL PROCEDURES BY TYPE OF PROCEDURE



TOTAL NON-SURGICAL PROCEDURES	2022	2021	2018	P
Botulinum Toxin	9,221,419	7,312,616	6,097,516	20
Calcium Hydroxylapatite	350,716	290,095	129,038	
Hyaluronic Acid	4,312,037	5,279,344	3,729,833	
TOTAL INJECTABLES PROCEDURES	13,884,172	12,882,055	9,956,387	



Chemical Peel	844,616	534,831	408,485	57.9%	106.8%
Full Field Ablative	367,983	231,955	192,880	58.6%	90.8%
Non-Surgical Skin Tightening	734,257	1,003,731	N/A	-26.8%	N/A
TOTAL FACIAL REJUVENATION PROCEDURES	1,946,855	1,770,517	601,365	10.0%	223.7%



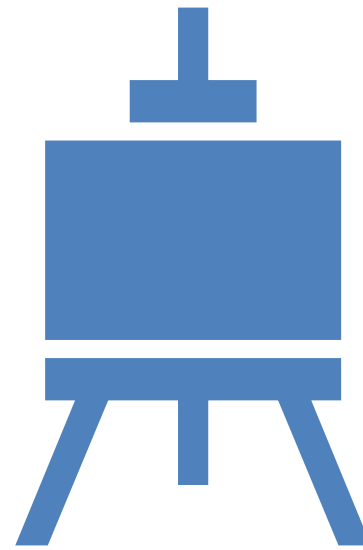
Cellulite Treatment	449,314	379,224	N/A	18.5%	N/A
Hair Removal	1,798,253	1,836,111	916,869	-2.1%	96.1%
Non-Surgical Fat Reduction	778,716	730,980	473,316	6.5%	64.5%
TOTAL OTHER PROCEDURES	3,026,284	2,946,316	1,390,185	2.7%	117.7%
TOTAL NON-SURGICAL PROCEDURES	18,857,311	17,598,888	11,947,937	7.2%	57.8%



TOTAL PROCEDURES	33,844,293	30,439,576	23,266,375	11.2%	45.5%
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to wake up your
interest

[Peels Gallery](#)



Why Perform Chemical Peels?

Peelings IMPROVE results of surgery, as non invasive procedures



Peelings make you different from other colleagues thinking just to do invasive, mini invasive, or non invasive treatments



Peelings will bring you more patients



Patients judge us on their outlook.

Take a Look

My personal case

I am not better , may be not so good as other surgeons in surgical procedures

But I can compete with other colleagues for my post surgical results thanks to Peelings

Surgical Rhinoplasty + Metabolic Peels

BEFORE

AFTER



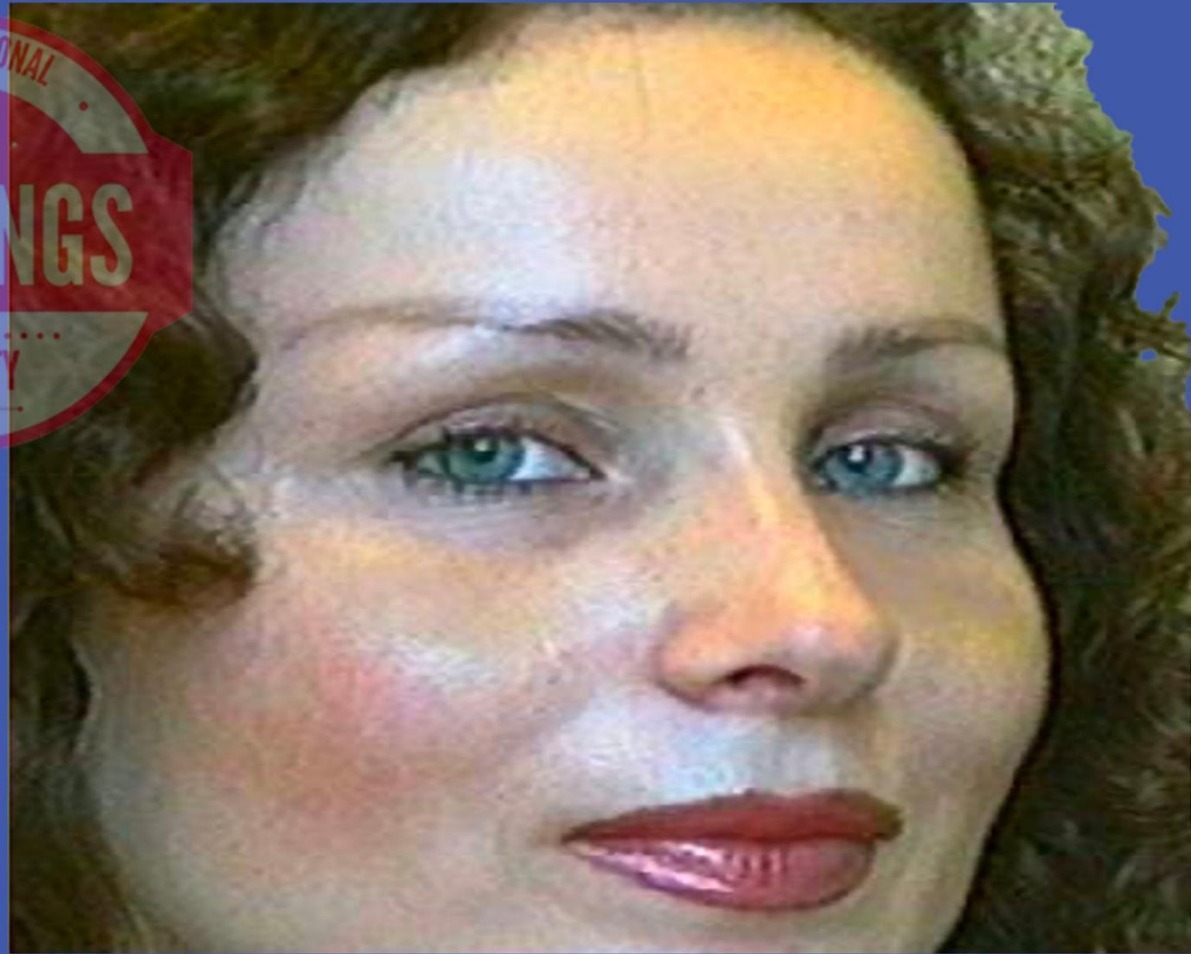
Courtesy of Dr. Alain Tenenbaum

Surgical Rhinoplasty + Metabolic Peels

BEFORE



AFTER



Courtesy of Dr. Alain Tenenbaum

Lipoplasty + Facelift + Blepharoplasty + Endopeel + Metabolic Peels

BEFORE

AFTER



Courtesy of Dr. Alain Tenenbaum

Lipoplasty + Facelift + Blepharoplasty + Endo Peel + Metabolic Peels

BEFORE

AFTER



Courtesy of Dr. Alain Tenenbaum

Facelift + Blepharoplasty + Endopeel + Metabolic Peels

BEFORE

AFTER



Courtesy of Dr. Alain Tenenbaum



Scientific Publications of Interest





PROCEDURES IN COSMETIC DERMATOLOGY
Series editor: Jeffrey S. Dover
Associate editor: Murad Alam

Chemical Peels

Edited by Rebecca C Tung
Mark G Rubin

SAUNDERS
ELSEVIER

2ND EDITION



DERMATOLOGÍA ESTÉTICA
Editor de la serie: Jeffrey S. Dover
Editor asociado: Murad Alam

Exfoliación química

Editado por Rebecca C. Tung
Mark G. Rubin



2.^a
EDICIÓN



Series editors

Jeffrey S. Dover
Murad Alam



Enhanced
DIGITAL
VERSION
Included

PROCEDURES IN COSMETIC DERMATOLOGY

THIRD EDITION

Chemical Peels

Edited by

Suzan Obagi MD

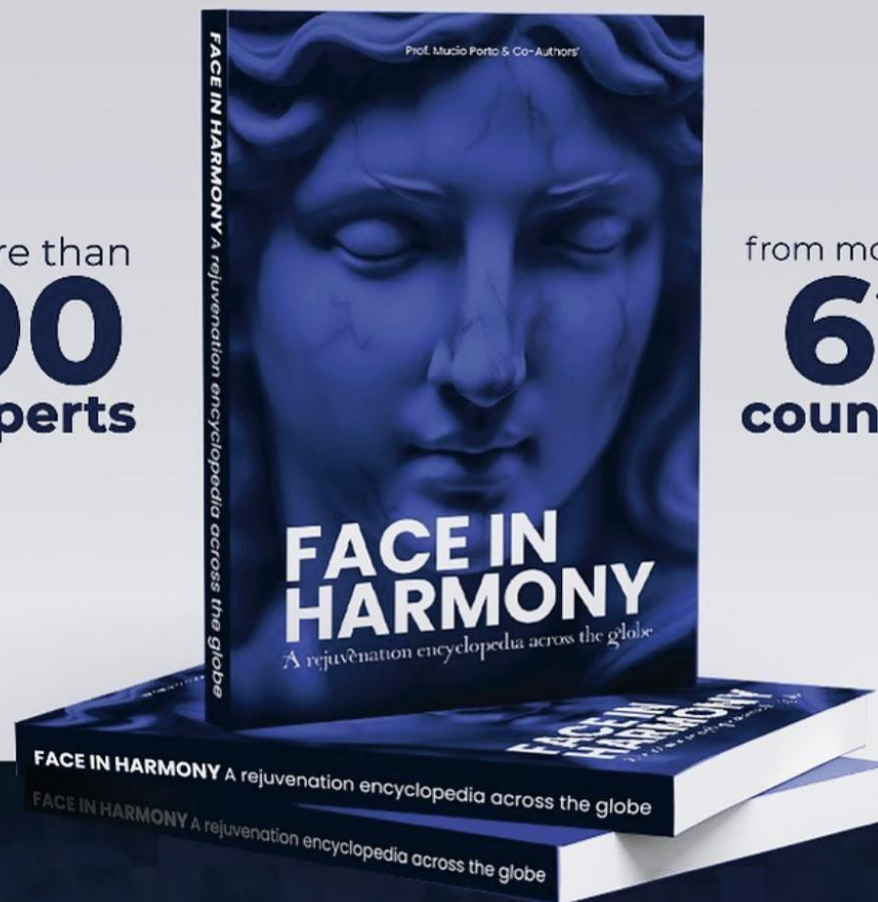


ELSEVIER

FACE IN HARMONY

A rejuvenation encyclopedia across the globe

more than
90
experts



from more than
62
countries

More than 1000 pages of studies, knowledge and
Techniques on Facial Rejuvenation across the globe

1

The Chemistry of Peels: A Hypothesis of Action Mechanisms and a Proposal of a New Classification of Chemical Peelings

Luc Dewandre, Alain Tenenbaum

1

Química de las exfoliaciones: hipótesis de los mecanismos de acción y propuesta de una clasificación nueva de las exfoliaciones químicas

Luc Dewandre, Alain Tenenbaum

DEFINITION OF CHEMICAL PEELS



flake-off? peel-off ?

A chemical peel is a treatment technique that is used to

Improve and smooth the *facial* and / or *body* skin structure

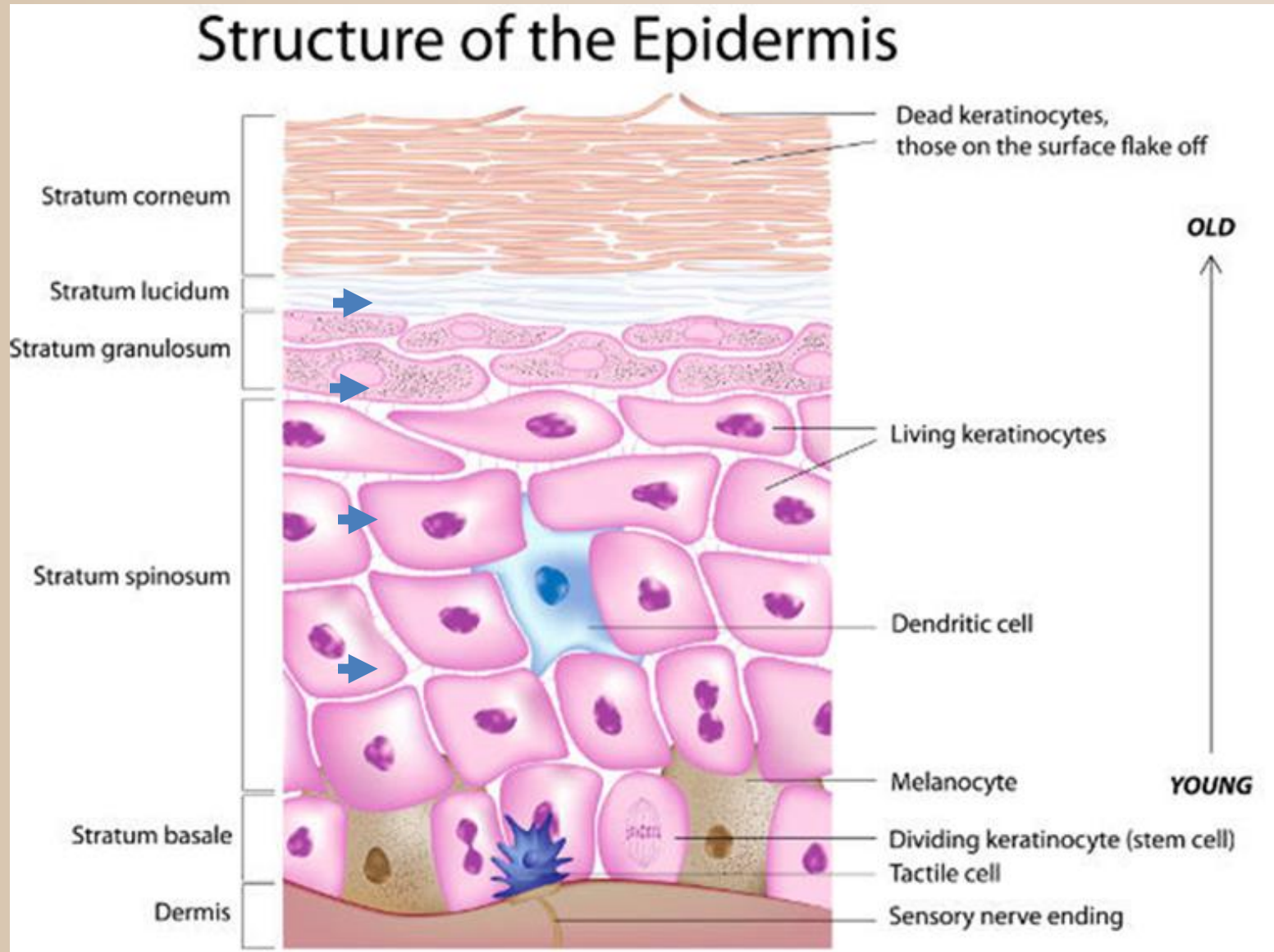
with a chemical solution, which causes

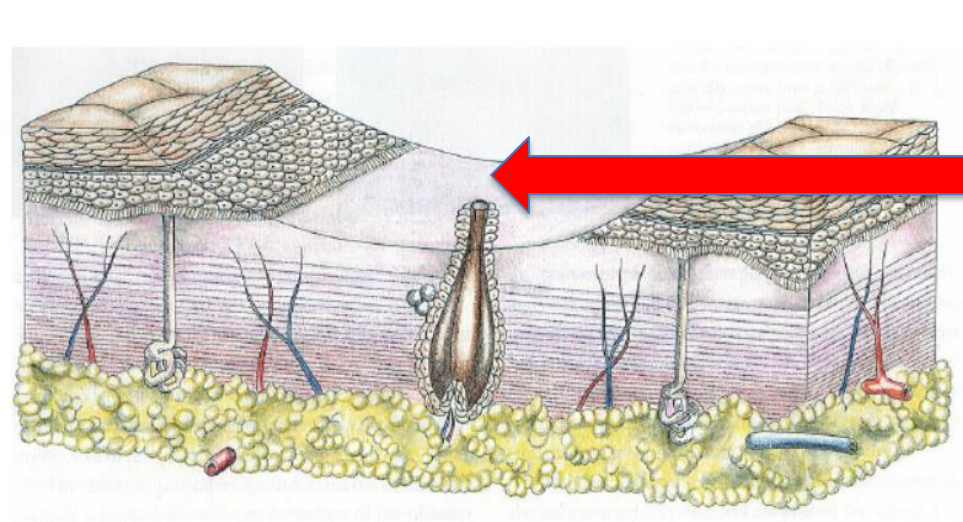
- The **dead skin** peels off
- The **regenerated skin** is usually smoother and less wrinkled than the old skin.

Desquamation is not mandatory

Epidermis Histology

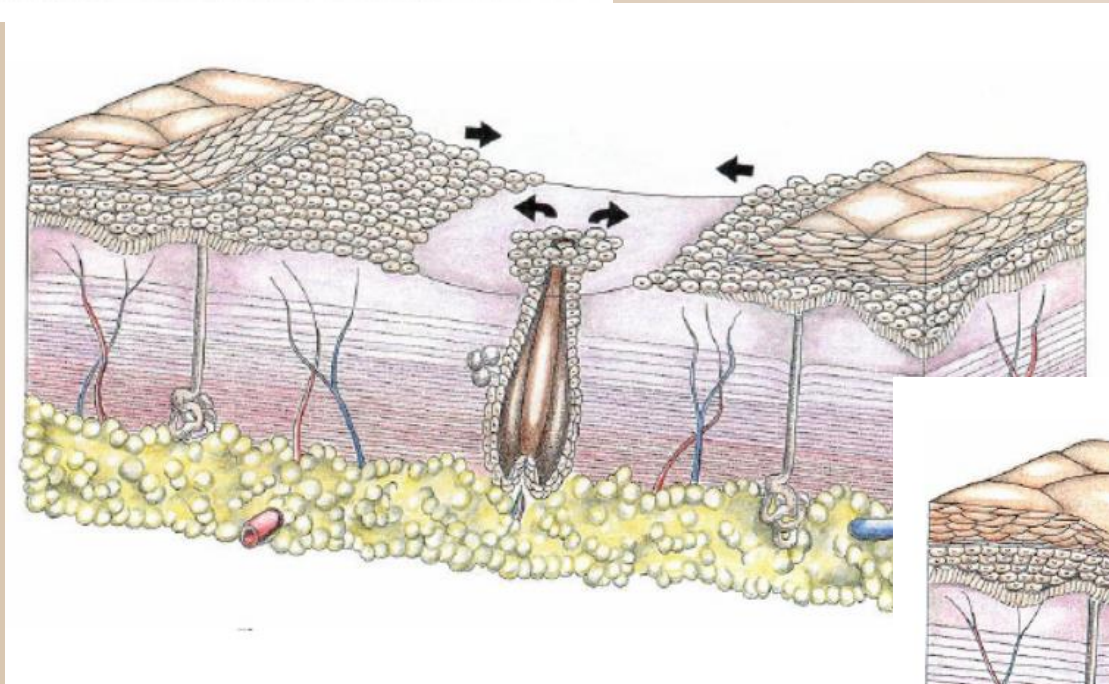
Most of the cells in the epidermis are keratinocytes, which are organized into 4 layers



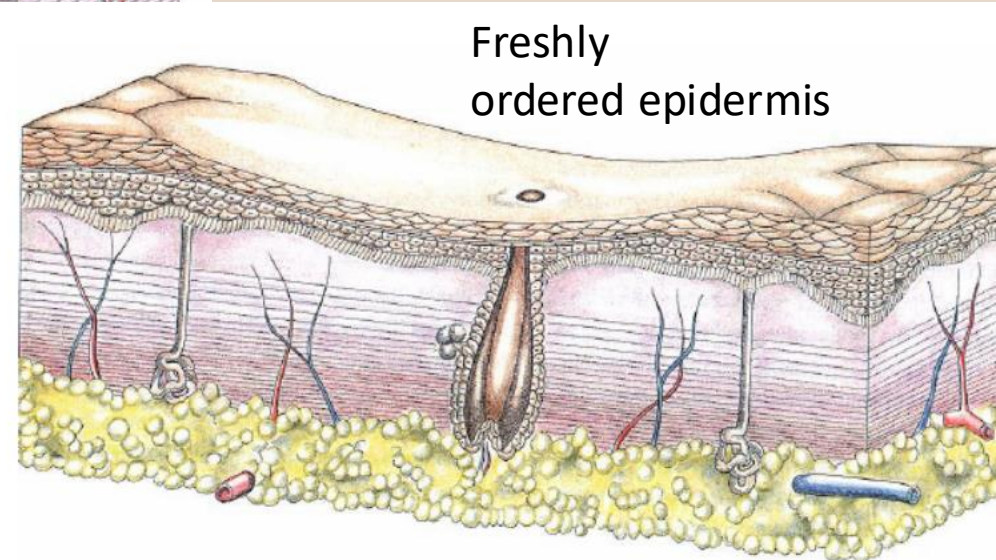


Acid-Induced Skin Reaction

Burn of the epidermis and superficial dermis



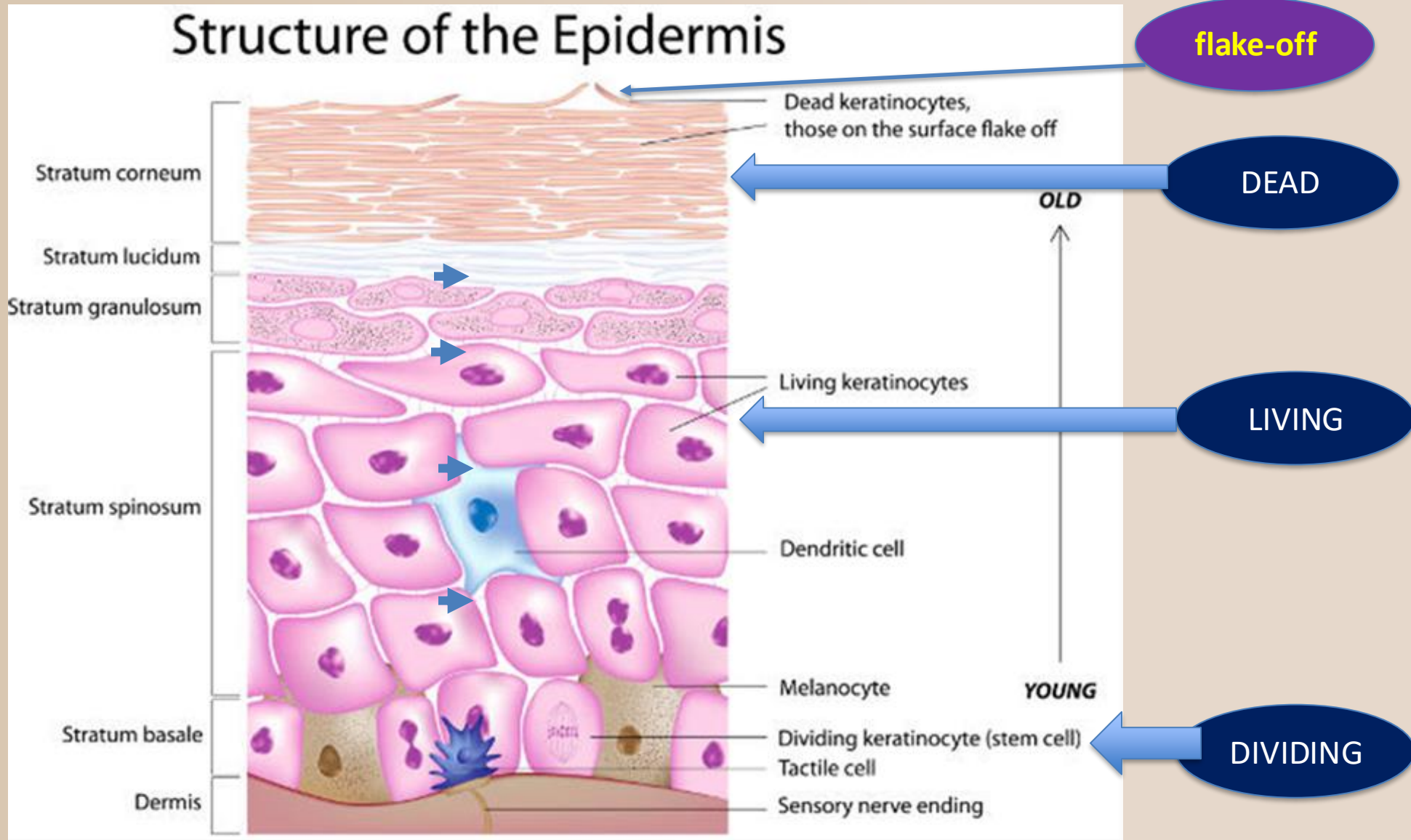
Skin reparation after 2 to 5 days after the chemical burn provoked by the peel



Physiopathology of the Not Metabolic Acids

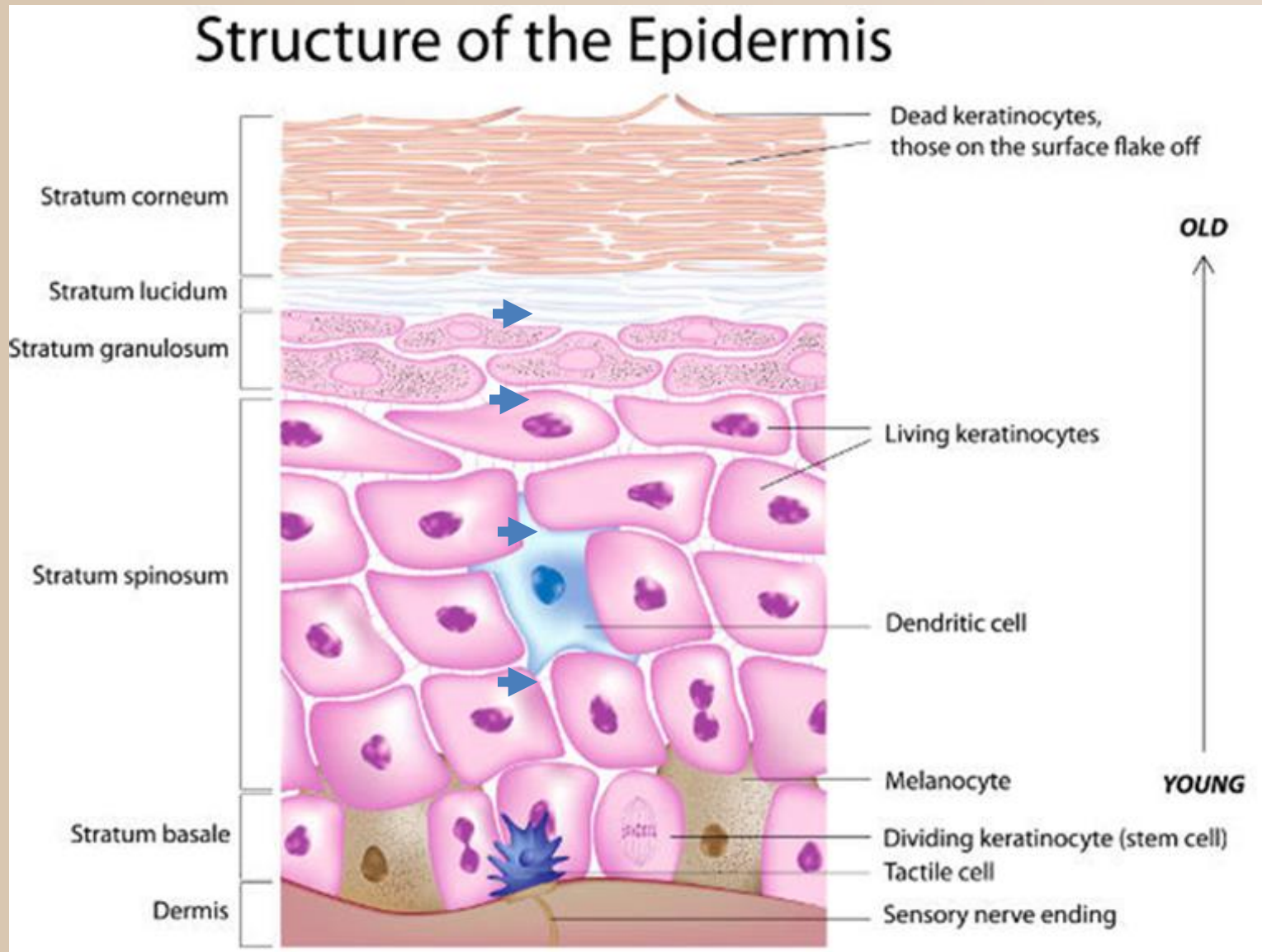
Epidermis & Keratinocytes

Most of the cells in the epidermis are **keratinocytes**, which are organized into **4 layers**



Epidermis

Most of the cells in the epidermis are **keratinocytes**, which are organized into **4 layers**



30 MIN peel-off

OTHER Peels

IMPORTANT TO KNOW

BOTH ARE Peels

COMBINATION IS POSSIBLE

peel-off-flake-off
NO DESQUAMATION

30 Min Peel Off
No desquamation



Courtesy of Dr. Alain Tenenbaum



NO COMPLICATION

SLOUGH OFF
WITH DESQUAMATION

Desquamation 7 days after TCA on Asian Skin



Courtesy of Dr. Alain Tenenbaum & Mauro Tiziani



HUGE RISK OF COMPLICATIONS

Desquamation Day = Dangerous Day

Stop Social Eviction (Downtime) with Metabolic Peels



No cohesion of corneocytes

Easy Penetration of chemicals
Radiations etc

Damages following peelings
procedures are mostly dued
when patient is **at home** at
the moment of desquamation

Desquamation 7 days after TCA on Asian Skin



Courtesy of Dr.Alain Tenenbaum & Mauro Tiziani

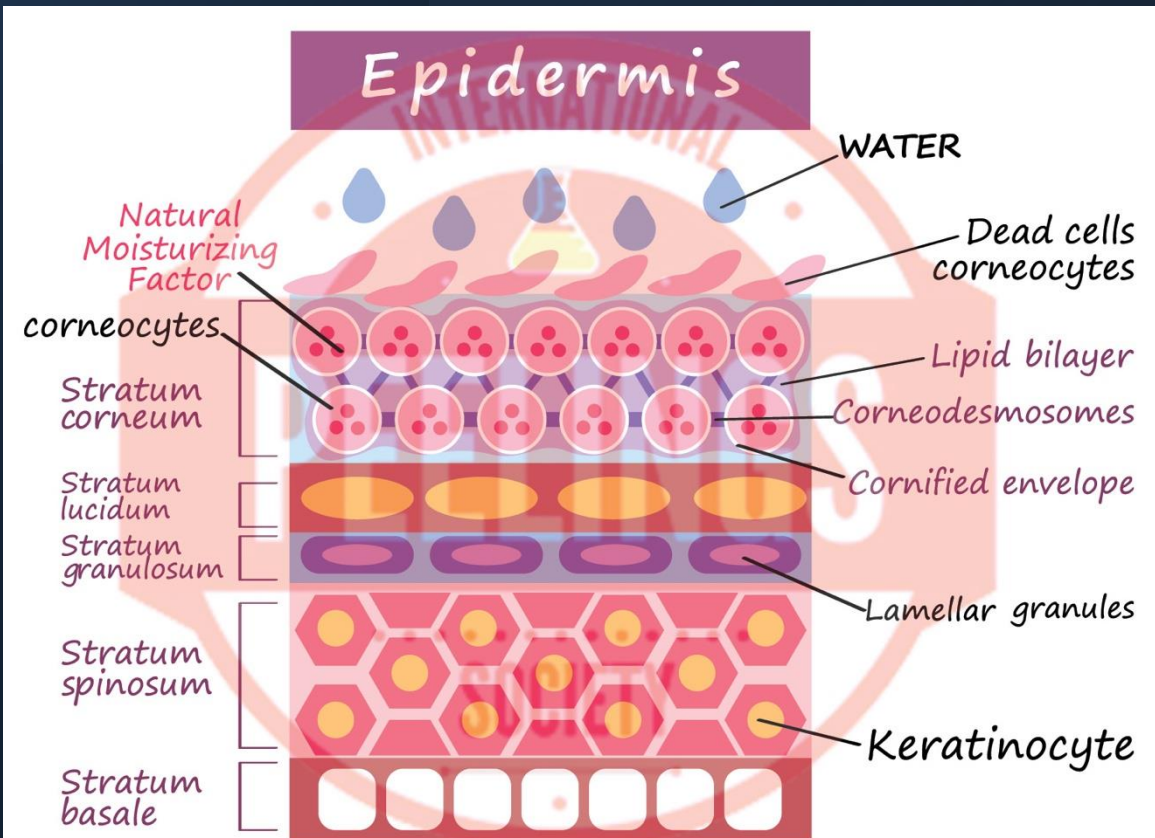


Desquamation Day = Dangerous Day

Role of Corneocytes



Desquamation 7 days after TCA on Asian Skin



Courtesy of Dr. Alain Tenenbaum & Mauro Tiziani

Desquamation Day Recommendations

- No tap water, no mineral water for the skin
- Do not use alcohol or alcohol-based creams (like many sunscreens)
- Do not use hydroalcoholic solutions
- Do not use creams that contain metal ions (tattoo vs hyperchromia).





Desquamation Day
Use only
Demineralized
Water



Peel Off-Flake Off

Valid for all skin types at any time of the year

30 Min Peel off

On black Skin



COURTESY OF DR. ALAIN TENENBAUM

30 Min Peel off



COURTESY OF DR. ALAIN TENENBAUM

30 Min Peel off

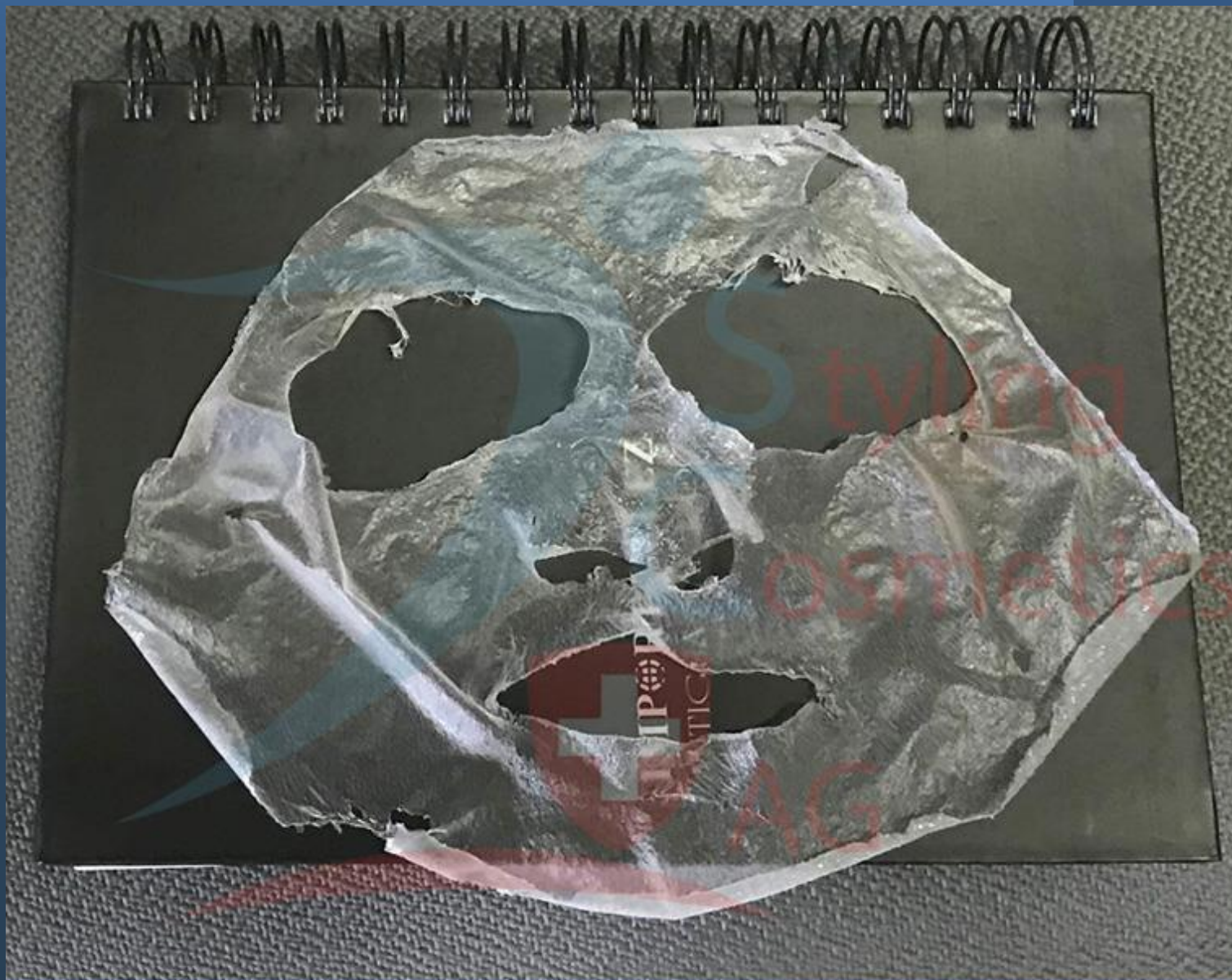
On indian Skin



COURTESY OF DR. ALAIN TENENBAUM



30 MIN PEEL OFF : REMOVE IT FROM TOP TO DOWN



30 MIN PEEL OFF : FULL MASK REMOVED



30 MIN PEEL OFF : BLACK POINT REMOVED

Hands Immediate Rejuvenation Using 30 Min Peel Off

BEFORE



AFTER 45 MIN



Courtesy of Mauro Tiziani

Main Indications for Peels Face,Body,Hands,Feet

- Anti Aging
- Acne
- Depigmentation
- Remove dead cells
- Skin regeneration
- Bleaching-whitening
- To improve the texture and tone of the skin
- Restore brightness and radiance to smokers' skin
- Scar Improvement
- Improve results of surgery
- Treatment of Complications dued to other Peels treatment



See More Indications on
<https://chemicalpeeling.com/>

**THE ISSUES
CAUSED BY**

**ENDOWED
PERIODICALS**



BIG PHARMA



BUREAUCRATS



Endowed Periodicals

The issues caused by Endowed Periodicals

LIST OF ENDOWED PERIODICALS	
JOURNAL TITLE	ENDOWED BY
Developmental Medicine and Child Neurology	Mrs. Alex. Comfort, in memory of Dame Eileen Younghusband D.B.E., J.P.
European Journal of Clinical Pharmacology	Lilly Industries
Gut	Dr. A.H. James
Human Nutrition - Applied Nutrition	Mars Health Education Fund
Human Nutrition - Clinical Nutrition	Mars Health Education Fund
Immunology Today	Mr. N. Asherson
International Archives of Occupational and Environmental Health	Dr. E. T. Ruston
Journal of Investigative Dermatology	Stiefel Laboratories (UK) Limited
Journal of Laryngology and Otolaryngology	Mr. N. Asherson
Journal of Lipid Research	Bristol Myers Co. Limited

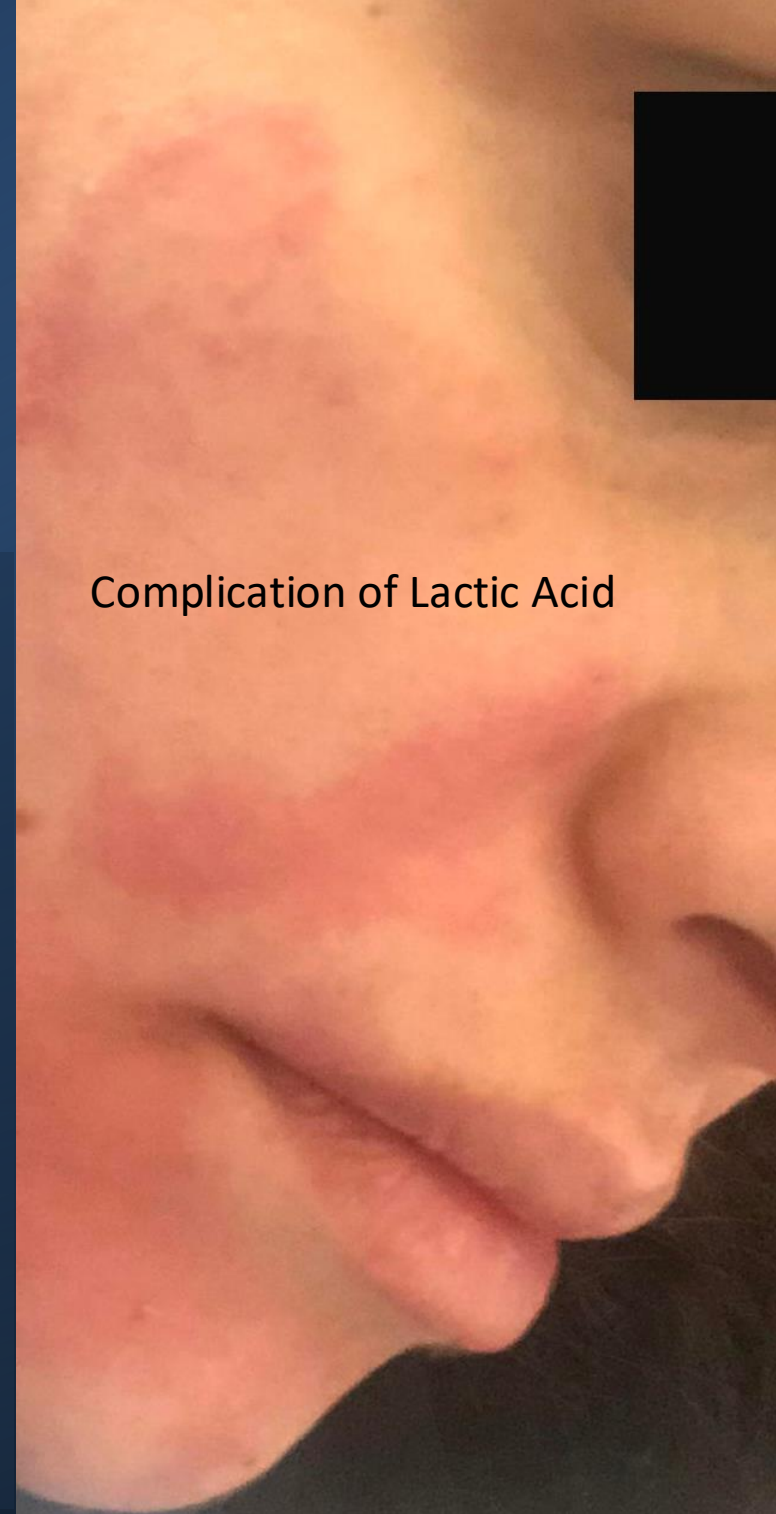
Archives of Dermatology	Stiefel Laboratories (UK) Limited
Archives of Environmental Health	Dr. E. T. Ruston
British Heart Journal	Boehringer Ingelheim Limited
British Journal of Clinical Pharmacology	Anonymous
British Journal of Dermatology	E.R. Squibb & Sons Limited
British Journal of Industrial Medicine	Dr. E. T. Ruston
British Journal of Ophthalmology	Beresford & Betty Hall-Parker
British Journal of Pharmacology	Leo Laboratories Limited
British Journal of Psychiatry	E.R. Squibb & Sons Limited
British Journal of Rheumatology	Air Commodore D. Stevenson
British Journal of Surgery	Henry Blacow Yates
Bulletin of the History of Medicine	Dr. A.S. Thorley
Cardiology	Florence Jackson Legacy
Cardiovascular Research	Florence Jackson Legacy
Caries Research	Mars Health Education Fund
Clinical Materials	Porter Nash Limited
Clinics in Developmental Medicine	Mrs. Alex. Comfort, in memory of Dame Eileen Younghusband D.B.E., J.P.

Endowed scientific periodicals, while often seen as a mark of quality, still require critical evaluation for objectivity. Their funding structure, while providing financial stability, can potentially influence editorial decisions and the types of research published. Objectivity in scientific publications means presenting facts and evidence without bias, which can be a challenge for any publication, regardless of funding

The issues caused by Big Pharma

Complications
of Brand Names Peels
with Big Marketing &
Poor Chemistry Knowledge
(Spain, Uruguay, Ecuador, Argentina,
Korea, China...)

Complication of Lactic Acid



Encuesta sobre Dermatitis facial
causada por el uso de cubrebocas en el personal
médico durante la pandemia de COVID-19 en México.

Victims of Covid Restrictions

The issues caused by Bureaucrats.



de los médicos alumnos de la
5ª generación del Diplomado en Nutrición
Anti-envejecimiento y Estética 2021



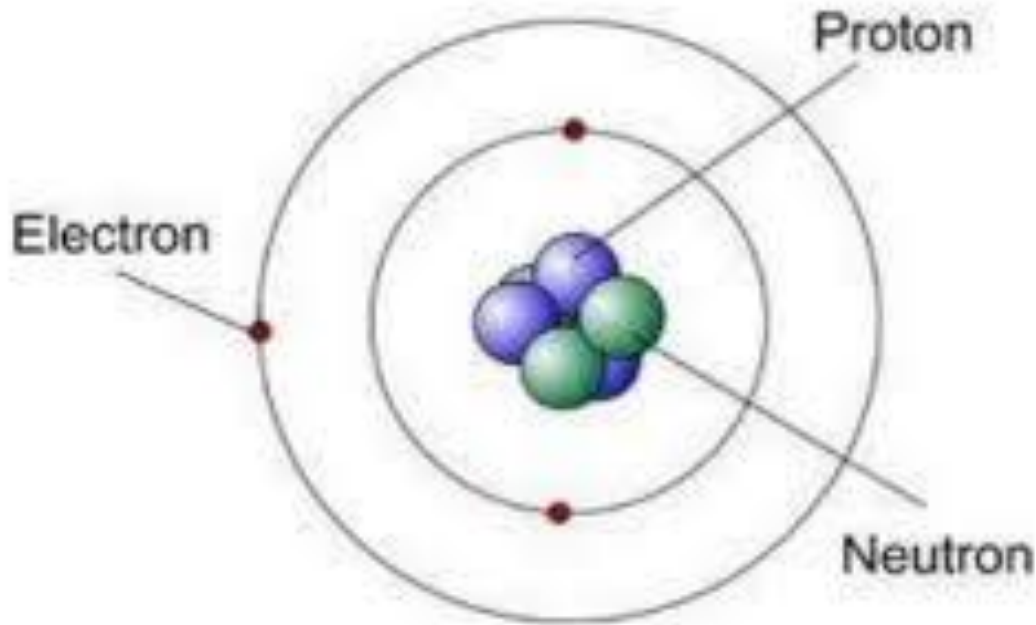
Learning Objectives

- Which acids are dangerous and non-dangerous?
- Which acids are aggressive and not-aggressive?
- How to determine the penetration of an acid?
- Which parameters are variable and which are constant?
- What are the elements that distinguish one TCA from others?
- Do exist really deep, medium and superficial peels?
- How to treat complications of Peels? Why do they occur?
- What to avoid in a chemical peel treatment?
- Why do patients change their peeler?
- How to avoid a medico-legal case after exfoliation?
- Which classifications for chemical peels?
- What is the difference between physical, chemical, mechanical and thermodynamic peels?

Structure of atoms, molecules

Ions : Anions +Cations

Protons and neutrons



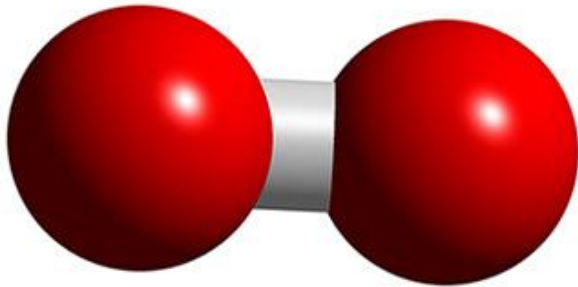
- **Atoms are building blocks of matter. They consist of the atomic nucleus and the atomic shell. The atomic nucleus is composed of positively charged particles, the protons and the uncharged neutrons, which in turn consist of other elementary particles.**

Atomic nucleus = protons + neutrons

Atomic shell = electrons

Structure of molecules

oxygen or O₂



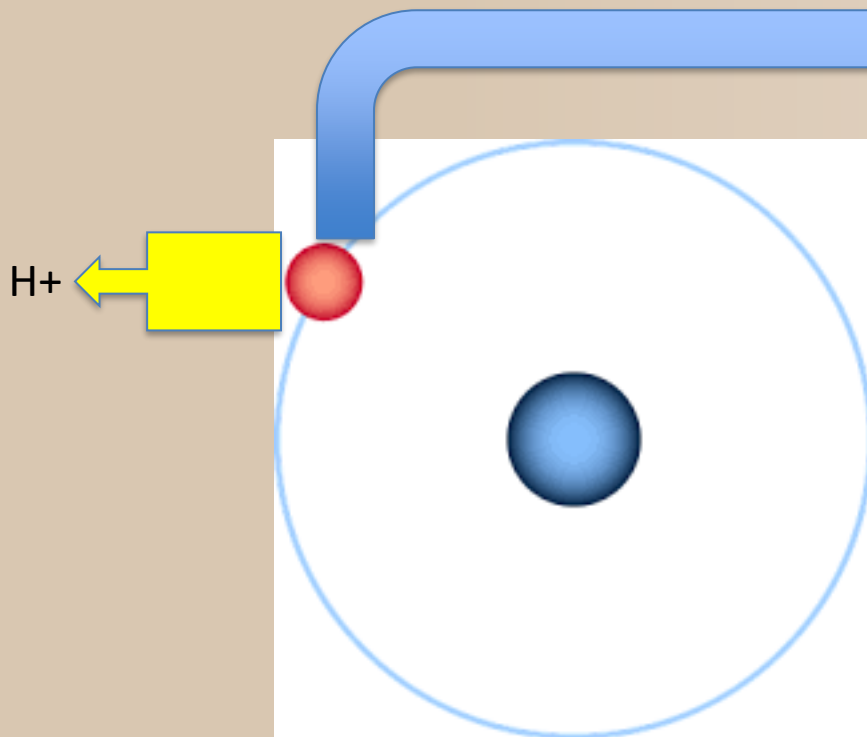
- Molecular structure or molecular geometry is the geometric, spatial relative arrangement of atoms in a molecule
-

Molecules \geq 2 atoms together (A.Tenenbaum)

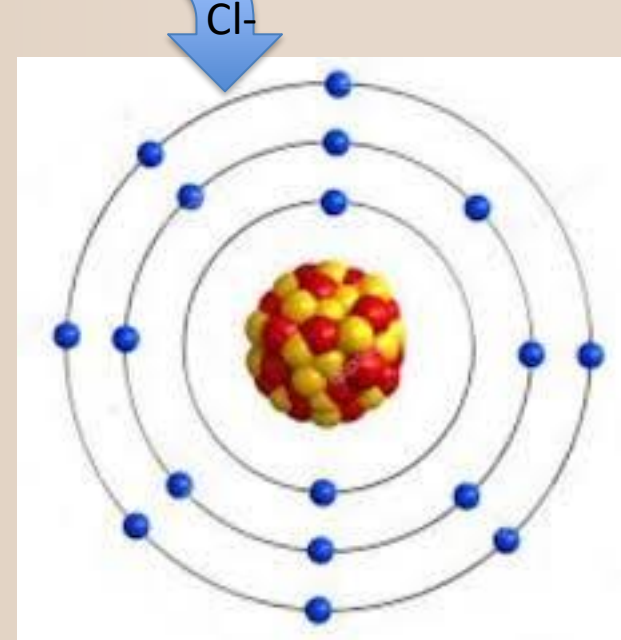
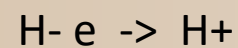
Structure of ions and molecules

ELECTRONS LOOSER = POSITIVE IONS = CATIONS

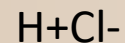
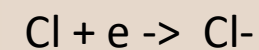
ELECTRONS WINNER = NEGATIVE IONS = ANIONS



HYDROGEN



CHLORINE



Mendeleev's periodic table

<div><div>1</div><div>1 1,0079 H Wasserstoff 2,2 0,03</div><div>2</div><div>3 6,9675 Li Lithium 0,98 0,53</div><div>4</div><div>4 9,0122 Be Beryllium 1,57 1,85</div><div>17</div><div>17 35,451 Cl Chlor 3,16 3,21</div><div>18</div><div>2 4,0026 He Helium 0,18</div></div> <div><div>Legende</div><div><div>Symbol</div><div>schwarz = Feststoff blau = Flüssigkeit rot = Gas grau = unbekannt unterstrichen = radioaktiv</div><div>Ordnungszahl Atommasse Symbol Name Elektronegativität Dichte</div><div>Serie (Flächenfarbe)</div><div><div>Alkalimetalle</div><div>Erdalkalimetalle</div><div>Übergangsmetalle</div><div>Lanthanoide</div><div>Actinoide</div><div>Metalle</div><div>Halbmetalle</div><div>Nichtmetalle</div><div>Halogene</div><div>Edelgase</div><div>unbekannt</div></div><div>Dichte</div><div>rot = kg / m³ schwarz = kg / dm³ grau = unbestimmt</div><div>Schraffur</div><div>durchgehend = natürliches Element schraffiert = künstliches Element</div></div></div> <div><div>Gruppe</div><div>13 10,813 B Bor 2,04 2,46</div><div>14 12,011 C Kohlenstoff 2,55 2,26</div><div>15 14,007 N Stickstoff 3,04 1,25</div><div>16 15,999 O Sauerstoff 3,44 1,43</div><div>17 18,998 F Fluor 3,98 1,70</div><div>18 20,180 Ne Neon 0,90</div><div>13 26,981 Al Aluminium 1,61 2,70</div><div>14 28,085 Si Silicium 1,9 2,34</div><div>15 30,974 P Phosphor 2,19 2,69</div><div>16 32,067 S Schwefel 2,58 2,07</div><div>17 35,451 Cl Chlor 3,16 3,21</div><div>18 39,948 Ar Argon 0,82 1,78</div><div>13 69,723 Ga Gallium 1,81 5,90</div><div>14 72,631 Ge Germanium 2,01 5,32</div><div>15 74,922 As Arsen 2,18 5,73</div><div>16 78,972 Se Selen 2,55 4,82</div><div>17 79,904 Br Brom 2,96 3,12</div><div>18 83,798 Kr Krypton 3,75</div><div>13 114,818 In Indium 1,78 7,31</div><div>14 118,711 Sn Zinn 1,96 7,26</div><div>15 121,760 Sb Antimon 2,05 6,70</div><div>16 127,60 Te Tellur 2,66 6,25</div><div>17 126,904 I Iod 2,1 4,94</div><div>18 131,294 Xe Xenon 5,90</div><div>13 204,384 Tl Thallium 1,62 11,85</div><div>14 207,2 Pb Blei 2,33 11,35</div><div>15 208,980 Bi Bismut 2,02 9,75</div><div>16 209,98 Po Polonium 2,0 9,20</div><div>17 210 At Astat 2,2 ?</div><div>18 222 Rn Radon 9,73</div><div>13 278 Nh Nihonium ? ?</div><div>14 289 Fl Flerovium ? ?</div><div>15 288 Mc Moscovium ? ?</div><div>16 293 Lv Livermorium ? ?</div><div>17 294 Ts Tenness ? ?</div><div>18 294 Og Oganesson ? ?</div></div>

Periode

1
2
3
4
5
6
7

19 39,098
K
Kalium
0,82 0,86

20 40,078
Ca
Calcium
1,36 1,55

21 44,956
Sc
Scandium
1,36 2,98

22 47,867
Ti
Titan
1,54 4,50

23 50,941
V
Vanadium
1,63 6,11

24 51,996
Cr
Chrom
1,66 7,14

25 54,938
Mn
Mangan
1,55 7,43

26 55,845
Fe
Eisen
1,83 7,87

27 58,933
Co
Cobalt
1,91 8,90

28 58,693
Ni
Nickel
1,88 8,91

29 63,546
Cu
Kupfer
1,9 8,92

30 65,380
Zn
Zink
1,65 7,14

31 69,723
Ga
Gallium
1,81 5,90

32 72,631
Ge
Germanium
2,01 5,32

33 74,922
As
Arsen
2,18 5,73

34 78,972
Se
Selen
2,55 4,82

35 79,904
Br
Brom
2,96 3,12

36 83,798
Kr
Krypton
3,75

37 85,468
Rb
Rubidium
0,82 1,53

38 87,620
Sr
Strontium
0,95 2,63

39 88,906
Y
Yttrium
1,22 4,47

40 91,224
Zr
Zirkonium
1,33 6,50

41 92,906
Nb
Niob
1,6 8,57

42 95,95
Mo
Molybdän
1,2 10,28

43 97,907
Tc
Technetium
1,9 11,50

44 101,07
Ru
Ruthenium
2,2 12,37

45 102,905
Rh
Rhodium
2,28 12,45

46 106,42
Pd
Palladium
2,2 12,02

47 107,868
Ag
Silber
1,93 10,49

48 112,414
Cd
Cadmium
1,69 8,64

49 114,818
In
Indium
1,78 7,31

50 118,711
Sn
Zinn
1,96 7,26

51 121,760
Sb
Antimon
2,05 6,70

52 127,60
Te
Tellur
2,66 6,25

53 126,904
I
Iod
2,1 4,94

54 131,294
Xe
Xenon
5,90

55 132,906
Cs
Caesium
0,79 1,90

56 137,328
Ba
Barium
0,89 3,59

57 138,906
La
Lanthan
1,1 6,15

58 - 71
siehe unten

59 140,908
Ce
Cer
1,12 6,77

60 144,242
Nd
Neodym
1,14 7,01

61 150,360
Sm
Samarium
1,17 7,54

62 151,964
Eu
Europium
1,2 5,25

63 157,25
Gd
Gadolinium
1,2 7,89

64 158,925
Tb
Terbium
1,1 8,25

65 162,500
Dy
Dysprosium
1,22 8,55

66 164,930
Ho
Holmium
1,23 8,78

67 167,259
Er
Erbium
1,24 9,05

68 168,934
Tm
Thulium
1,25 9,32

69 173,045
Yb
Ytterbium
1,1 6,97

70 174,967
Lu
Lutetium
1,27 9,84

71 174,967
Lu
Lutetium
1,27 9,84

72 178,49
Hf
Hafnium
1,3 13,3

73 180,948
Ta
Tantal
1,5 16,65

74 183,84
W
Wolfram
2,36 19,25

75 186,207
Re
Rhenium
1,9 21,0

76 190,23
Os
Osmium
2,2 22,6

77 192,217
Ir
Iridium
2,2 22,56

78 195,085
Pt
Platin
2,28 21,45

79 196,967
Au
Gold
2,54 19,32

80 200,592
Hg
Quecksilber
1,9 13,55

81 204,384
Tl
Thallium
1,62 11,85

82 207,2
Pb
Blei
2,33 11,35

83 208,980
Bi
Bismut
2,02 9,75

84 209,98
Po
Polonium
2,0 9,20

85 210
At
Astat
2,2 ?

86 222
Rn
Radon
9,73

87 223
Fr
Francium
? 0,7

88 226
Ra
Radium
? 0,89

89 227
Ac
Actinium
? 1,1

90 - 103
siehe unten

91 231,036
Pa
Protactinium
? 1,3

92 238,029
U
Uran
? 1,36

93 237
Np
Neptunium
? 1,38

94 244
Pu
Plutonium
? 1,3

95 243
Am
Americium
? 1,28

96 247
Cm
Curium
? 1,3

97 247
Bk
Berkelium
? 1,3

98 251
Cf
Californium
? 1,3

99 252
Es
Einsteinium
? 1,3

100 257
Fm
Fermium
? 1,3

101 258
Md
Mendelevium
? 1,3

102 259
No
Nobelium
? 1,3

103 262
Lr
Lawrencium
? 1,3

Lanthanoide

Actinoide

Binding and 2(nxn) Covalence

- Atomic number Z
- H Z=1 1
- O Z=8 (2+6)

Lewis-Struktur von Wasser H₂O





THE WATER
H₂O

Anzahl der Valenzelektronen

2



He

5



N

3



Al

6



S

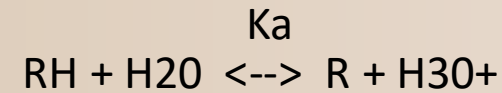
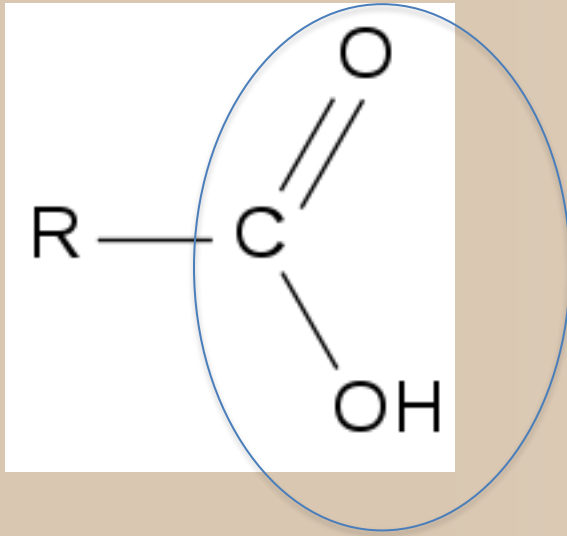
2



Ca

Was uns interessiert	VALENZ	
C	4	vierwertig
H	1	einwertig
O	2	zweiwertig
Cl	1	einwertig

the acid function



R = A⁻ = Anion

H₃O⁺ = Cation

K_a = constant of dissociation of an acid in solution

$$\text{pK}_a = -\log(\text{K}_a)$$



H₃O⁺ = HYDRONIUM ION or acid ion



R-COO⁻ = Anion

$$\text{pH} = -\log(\text{H}_3\text{O}^+)$$

Practical exercise

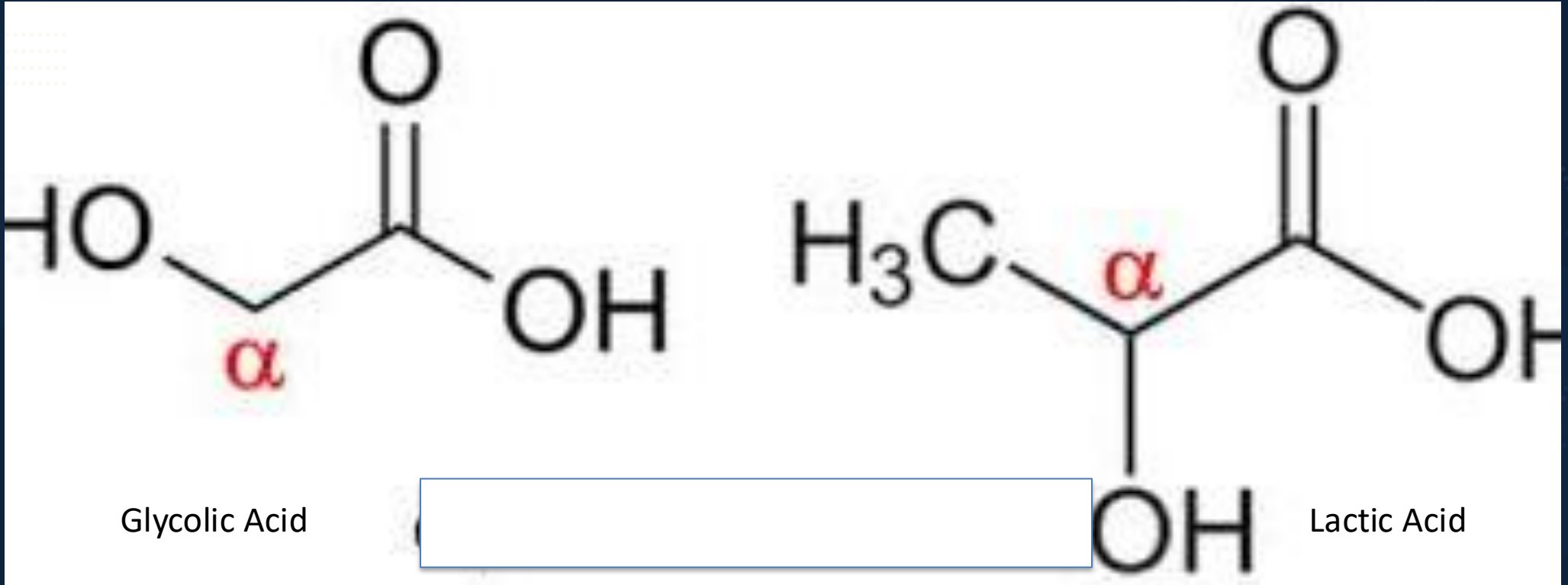
the acid function - COOH

- H₂O Water
- Glycolic acid C₂H₄O₃
- Lactic acid C₃H₆O₃
- TCA Trichloroacetic acid C₂Cl₃HO₂
- Acetic acid C₂H₄O₂

The Category of AHA or Alpha Hydroxy Acids

Glycolic acid and lactic acid
Fruit acids and alpha
hydroxy acids (AHA)

- the hydroxy radical -OH
- Alpha carbon
- the acid function -COOH



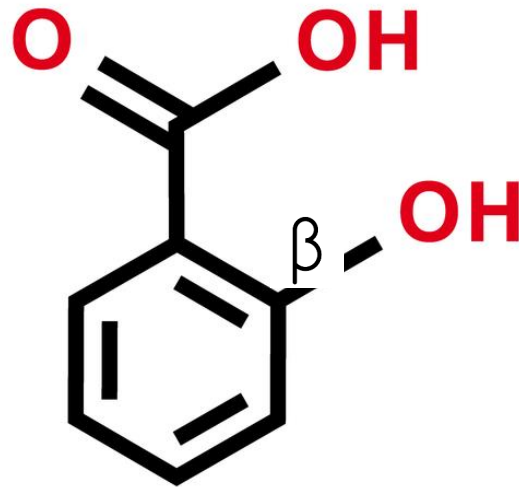
The Category of BHA or Beta Hydroxy Acids

the hydroxy radical -OH



Beta carbon

the acid function -COOH

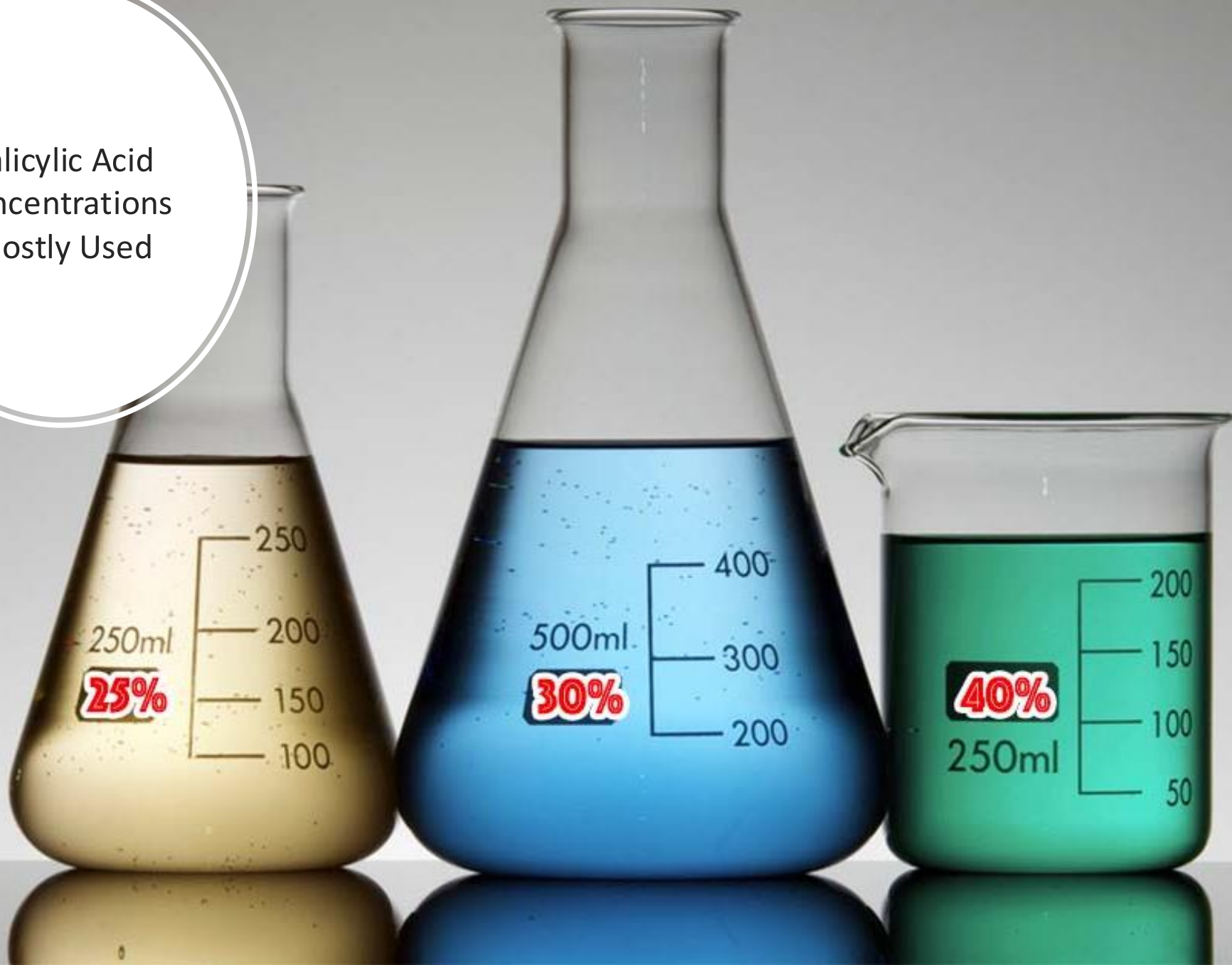


SALICYLIC ACID



SALICYLIC ACID CONCENTRATIONS

Salicylic Acid
Concentrations
Mostly Used



AHA vs. BHA: Solubility and Clinical Application



AHA

Alpha Hydroxy Acid

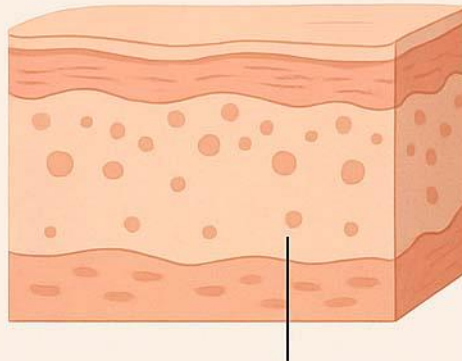
WATER-SOLUBLE



BHA

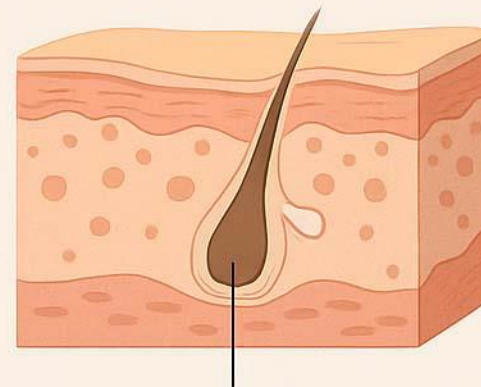
Beta Hydroxy Acid

OIL-SOLUBLE



Surface exfoliation

Dry, sun-damaged skin



Deeper into pores

Acne-prone, oily skin



Comparison of AHA vs BHA

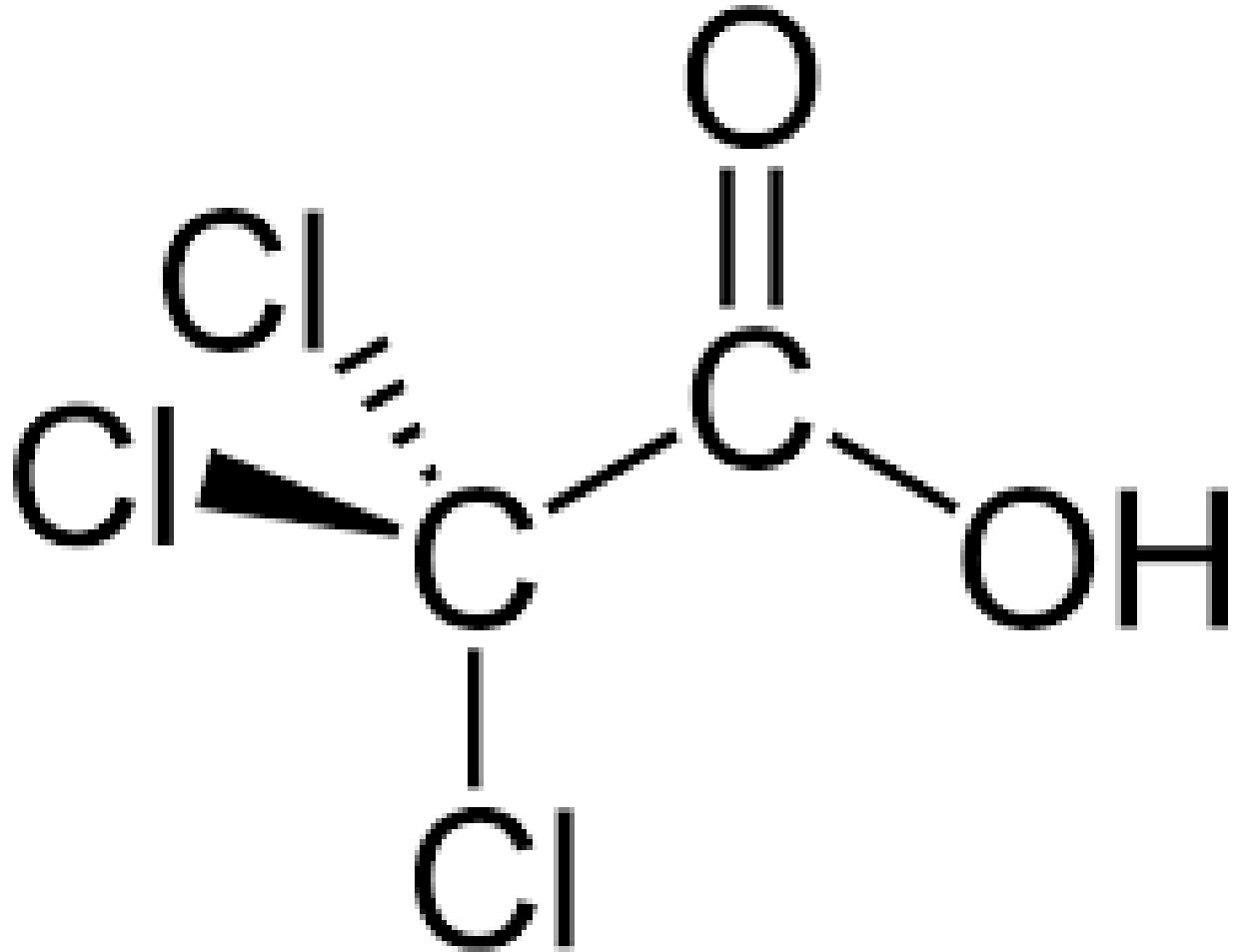
	AHA	BHA
1	Acid <ul style="list-style-type: none">• Citric Acid• Lactic Acid	Salicylic Acid
2	Solubility	
	Water Soluble	Oil Soluble
3	Target	
	Surface Exfoliation	Penetrates deeper into the Pores
4	Actions	
	<ul style="list-style-type: none">• On Skin surface• Remove Skin Dead cells• Improve Texture• Hydrate the Skin (citric acid)	<ul style="list-style-type: none">• Dissolve Sebum• Clear Clogged Pores• Reduce Inflammation• Comedolytic Properties
5	Effectiveness	
	<ul style="list-style-type: none">• On Dry Skin• On Sun Damaged Skin• On Mature Skin	<ul style="list-style-type: none">• On Acne Prone• On Oily Skin• On Black Heads
6	For Dark Skin Types	Better Tolerated

TOPOGRAPHICAL MAPPING OF DRY AND OILY FACIAL SKIN

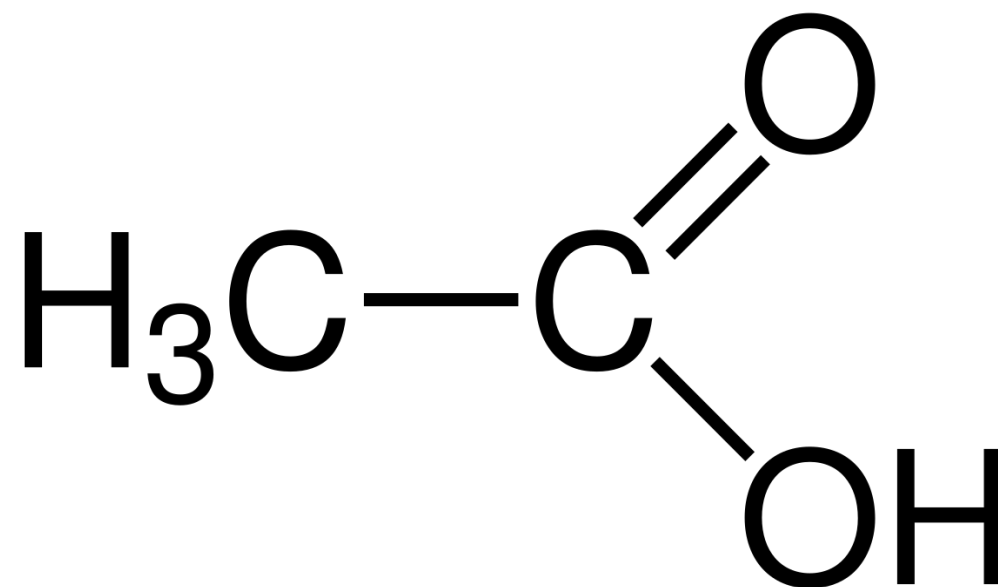


Courtesy of Dr. Alain TENENBAUM & Mauro TIZIANI

Note: TCA
Is neither
an AHA,
nor a BHA



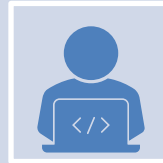
Acetic acid is
neither an AHA
nor a BHA



Decimal Logarithms

pH & pKa

- $\log 1 = 0$
- $\log 10 = 1$
- $\log 100 = 2$
- $\log 1000 = 3$
- $\log 100000000 = 7$



$$\text{pH} = -\log (H^+) \\ = -\log (H_3O^+)$$

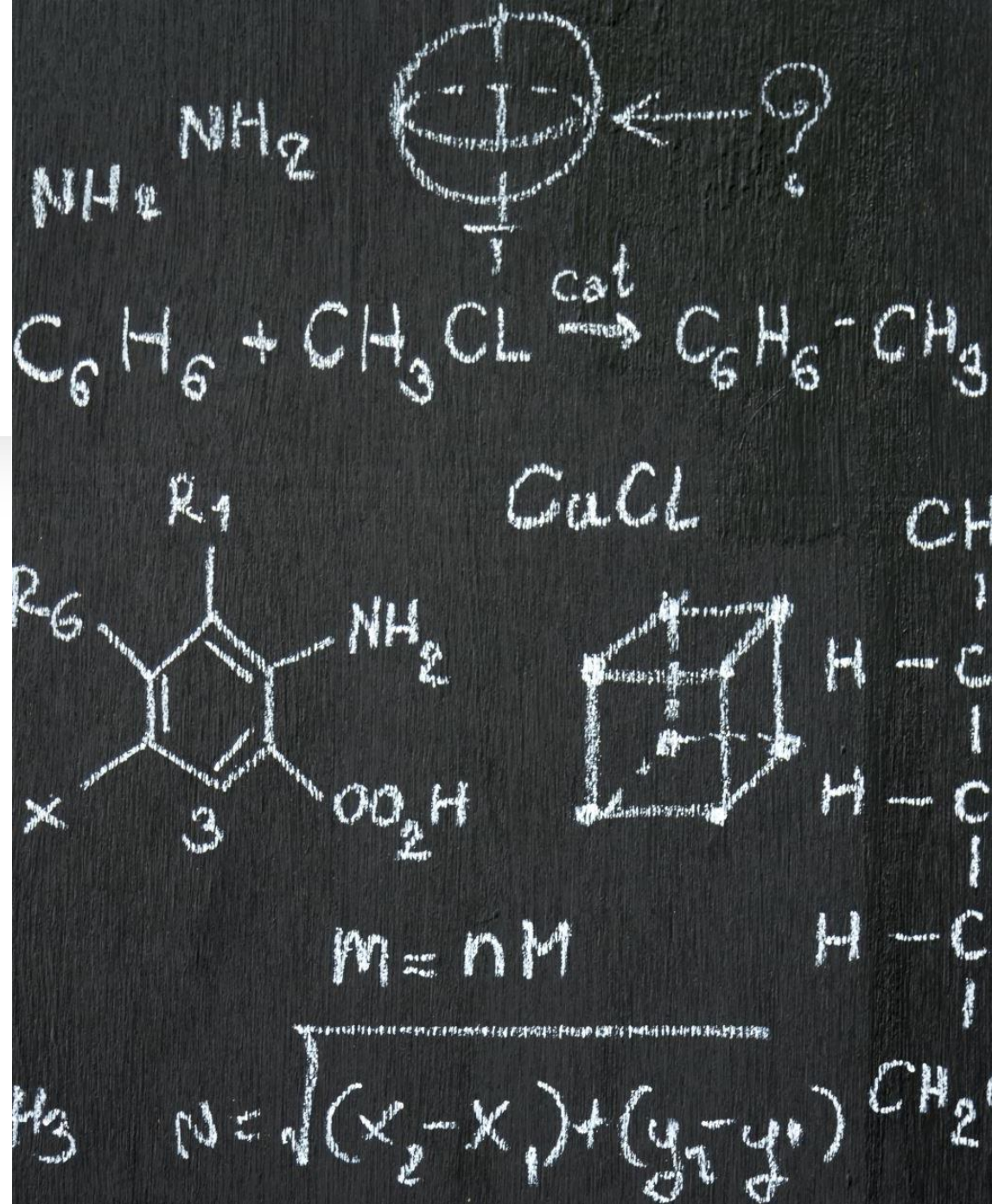
$$\text{pKa} = -\log K_a$$



$$\text{pH} = -\log (H_3O^+)$$

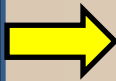
UNIT OF CONCENTRATION OF AN ACID mol/l vs g/l

- EXAMPLE : HCl Chloric Acid
- Sum of atomic masses (Mendeleiev)
- $H = 1$ $Cl = 35$ ie $HCl = 36$
- 1 mol HCl weighs 36g i.e.
- 0.1 mol weighs 3.6g
- HCl 0.1 mol/l = 3.6g crystal HCl for 1l H_2O
- pH of 0.1 mol/l HCl = $-\log(1/10)=1$
extremely acidic
- $pH = -\log(H^{30+}) = -\log(H^+)$

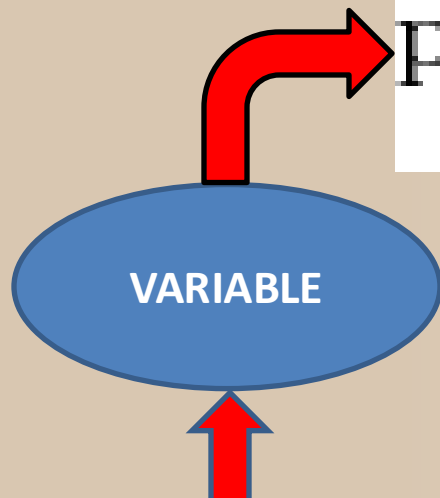




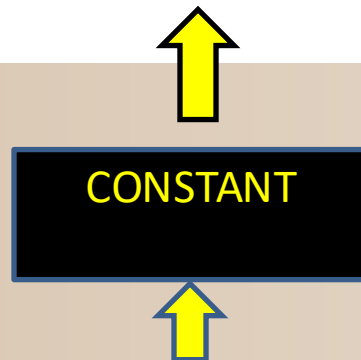
CONSTANT



$$K_a = \frac{[H^+][A^-]}{[HA]}$$



modulate the pH value

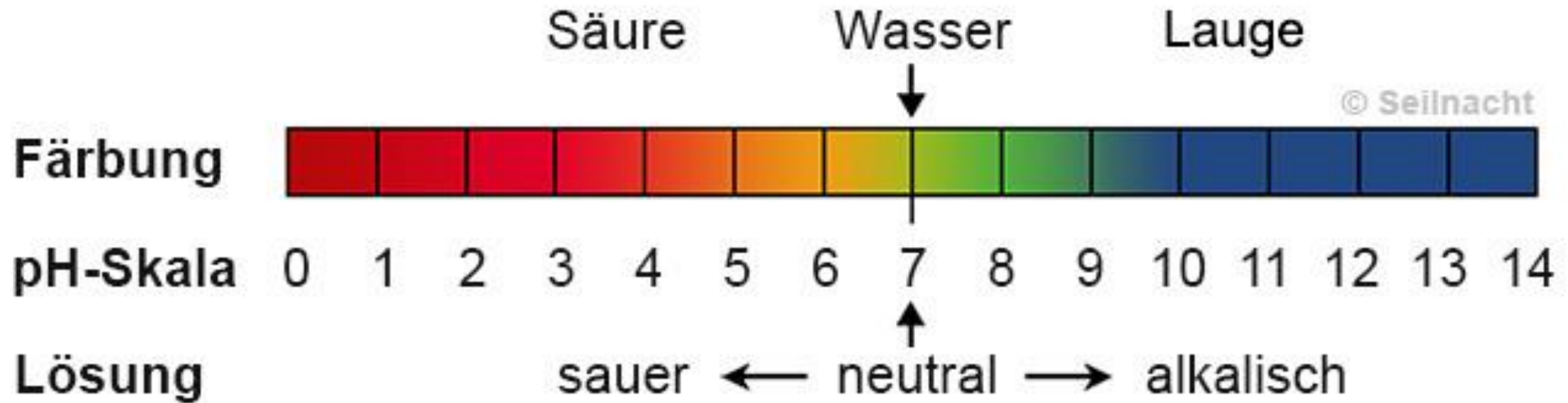


Choose the acid f(pKa)

$$pH = pK_a + \log_{10} \left(\frac{[A^-]}{[HA]} \right)$$

Equation of
Henderson
Hasselbach

The pH of an acid is variable for a same concentration



Your task will be to play with the pH of the chosen acid
once after selecting the acid (A.TENENBAUM)

pH is function of temperature, altitude, hygrometry



pH and pKa

Choose your acidity pKa

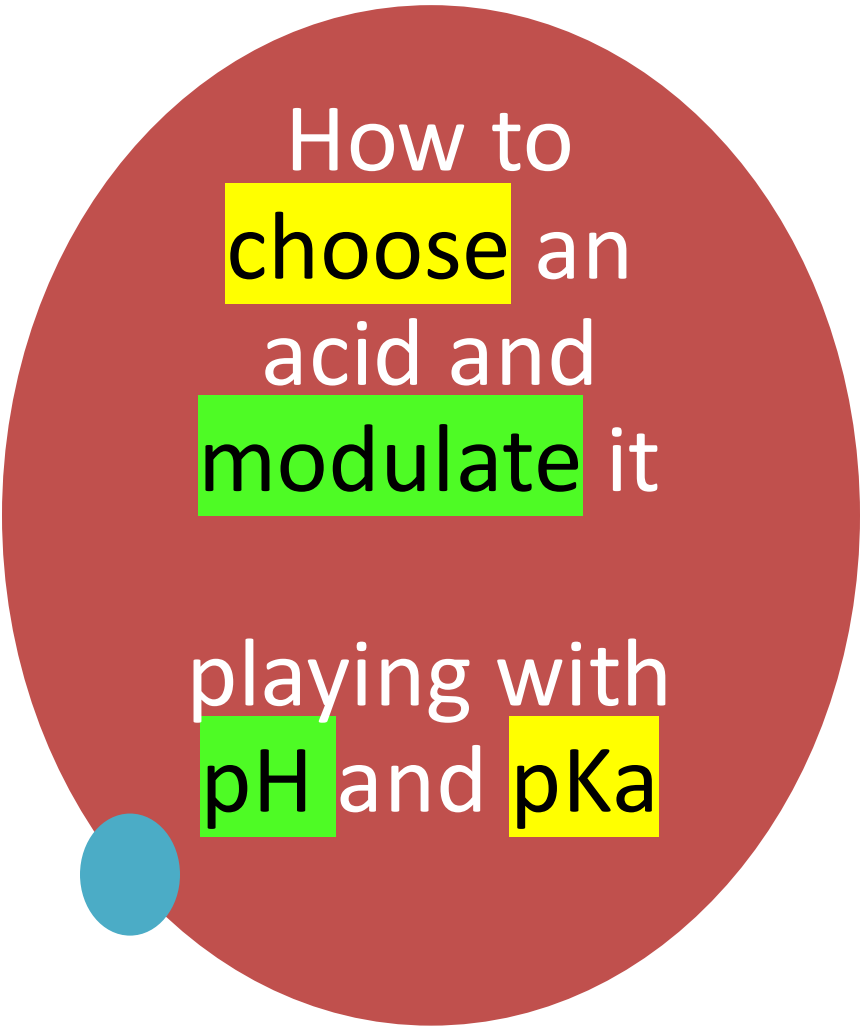
☐ pKa = aggressiveness

☐ pKa = Constant

Modulate your acidity pH

☐ pH = penetration

☐ pH = variable



How to
choose an
acid and
modulate it

playing with
pH and **pKa**

- **pKa** is a constant
- **Aggressiveness** (pKa lower = more aggressive)
- **Hazardousness** (monoprotic more dangerous than triprotic)
- **Medical indications** (it is better to know perfectly a small selection of products than to get involved in too many products that you do not master)

How to modulate an acid Playing with pH and pKa

- pH is a variable

The pH is lowered

1. for a higher acid concentration in mol / l, g / l, w / v
2. the number of applications or coats with the same acid on the skin in 1 session
3. Repeating sessions, especially on flaky skin or skin in desquamation.

Playing with the pH using concentrations

Example : TCA ($2C + 2O + 3 Cl$) Mol mass : 127g

In Europe weight/weight

- TCA 10% w/w = 10g TCA in 90g H₂O

In USA weight/volume

- TCA 10% w/v = 10g TCA in 100 g(ml) H₂O

How to transform your TCA 10% into TCA 5%

We want to get 5g TCA for 95ml
H₂O (5%)

This is same as 10 g for 190 ml H₂O
Then just add 100 ml

5g TCA in 100 ml is like 10g TCA in 200 ml
Then add 100 ml

10g in 190 ml (EU) is more concentrated than 10g in 200 ml (US)

Conclusion : pH Acid x with y % w/w < pH same Acid x with y% w/v



A. Tenenbaum in self made transitory „laboratory,, Safety and Protection are the most important instruments ,devices and test tubes for preparing in emergency a TCA outside a laboratory

Raw Material and Water



How to choose a TCA

1. The density of the steam.
2. **The degree of purity.**
3. The quality (analytical indication of the pH value)
4. Refractive index
5. The boiling point per liter
6. The density in g /ml bei 25 ° C.
7. **Residual traces of anions and/or cations, if they are still present, can cause tattoos. (differential diagnosis with dyschromia) in case of deep penetration associated with pH. For this reason, it is not recommended to use TCA, which is regulated or neutralized with ordinary water, as it contains metal ions.**
8. Other chemical residues: whether they should be considered ignored or not, such as SO₄.
9. The flash point (A high flash point provides more safety).
10. Any impurities, e.g. insoluble materials, etc.
11. **Solubility in water in "moles" at 20 C° with the clarity or lack of color of the solution obtained.**
12. Turbidity
13. Vapor Pressure (For sealing and lubricating at low vapor pressure in high vacuum applications.) Vapor expression, Pa at 51 ° C: 133.
14. Stability when offered in gel

TCA and Packaging

Liquid



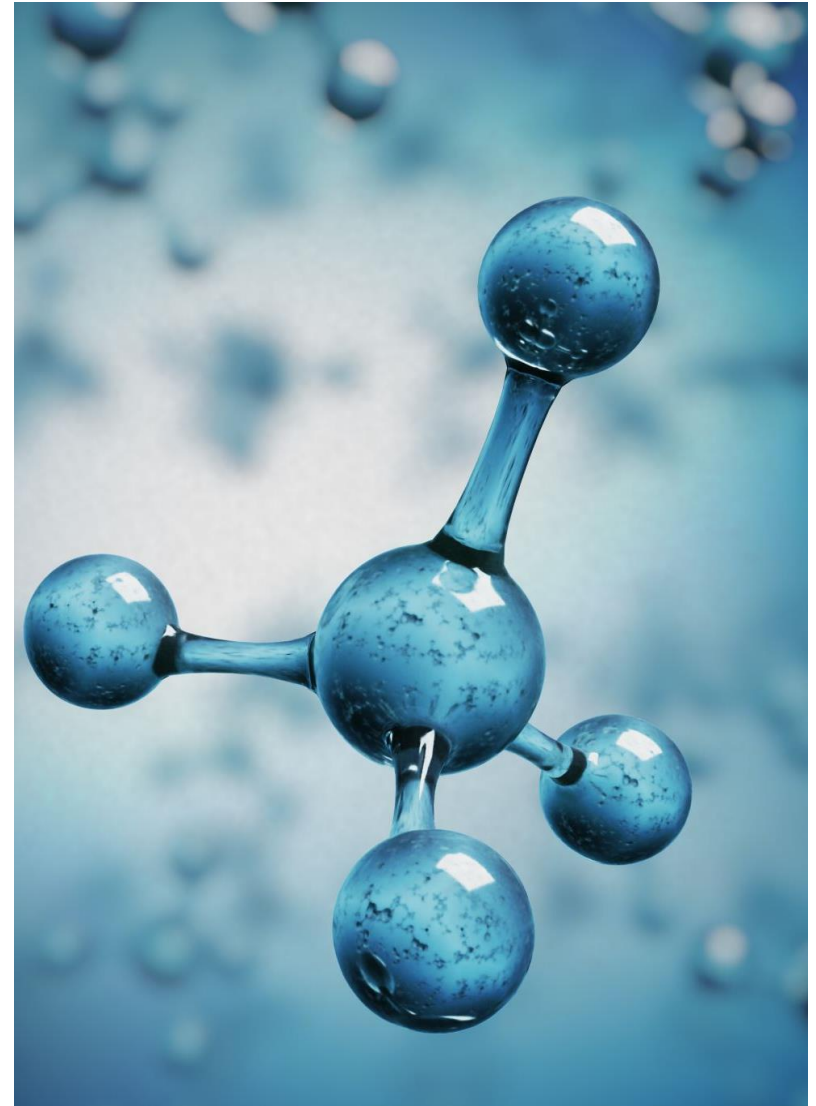
TCA GEL STABLE till 18%w/w

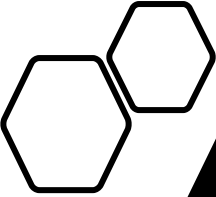


Airless

Recommended methods for helping ingredients to penetrate into the skin or decreasing the pH (MODULATE THE pH)

- Q or exothermic reaction
(Cream 1 + Cream 2)
- Increasing the concentration of the acid
- More coats applied on same area with same acid
- Lipoic acid(A.TENENBAUM + M.TIZIANI)
- The fewer ingredients a cream contains, the easier it is to penetrate due to its low molecular weight (M.TIZIANI)
- For severely dehydrated skin,
use a low molecular weight moisturizer + Lipoic acid in a sequential way





A decorative graphic consisting of three hexagons. One is a solid black hexagon, and two are white hexagons with black outlines, arranged in a cluster at the top center of the slide.


Classification of A.Tenenbaum


A large hexagonal frame with a black outline. Inside the frame, there is a solid black hexagon on the left side. A thin black line extends from the bottom of this black hexagon, curving downwards and to the right, ending near the bottom-left corner of the large hexagonal frame.


Classification of
L.Dewandre

Acid category	Acid subcategory	pKa>3 rising	pKa=3	pKa<3	pKa1	pKa2	pKa3	L. Dewandre	Number of reactions
Alpha Hydroxy	Aliphatic		Wine A (tartaric)		3.04	4.37		Metabolism	2
		Citric A			3.15	4.77	6.40	Metabolism	3 Triprotic
		Apples A (malic)			3.40	5.13		Metabolism	2 Diprotic
		Glycol A			3.83			Metabolism	1 monoprotic
		Milk.A (lactic)			3.86			Metabolism	1
	Aromatic Benzene ring		Almond.A mandelic		3.37			Metabolism	1
Alpha Keto				Grapes Acid (pyruvic)	2.49			Not available	1
Bicarboxylic acid		Azelain a			4.55	5.59		Metabolism	2
Beta-Hydroxid			Salicylic a		2.97			poisonous	1
TCA				TCA	0.54			caustic	1
Phenol	Aromatisch	Phenol			9.95			poisonous	Alcohol-Base

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<div> <div>EU LAW</div> <div>Cosmeticians cant use any acid with pKa <3</div> </div>		Milk.A (lactic)			3.86			Metabolism	1
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	Aggressiveness e.g. citric A>glycolic A pKa 3.15<3.83		Glycol A		3.83			Metabolism	1 monoprotic
	Aromatic Benzene ring		Almond.A mandelic		3.37			Metabolism	1
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	<div> DANGER Low Nr of reactions e.g. glycolic A vs citric A Mono vs Triprotic </div>		Glycol A		3.83			Metabolism	1 monoprotic
			Milk.A (lactic)		3.86			Metabolism	1
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Anti Aging Peelings on Phototype 3
Treatment : Citric Acid each day x 15 days
+ 2 times metabolic peels 1 x week

BEFORE



AFTER 15 DAYS

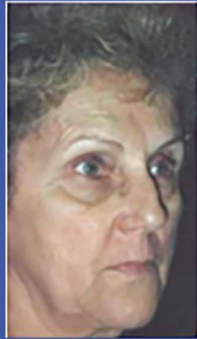


Protocol : Go on Peeling (citric acid) on the skin even during desquamation
Patient can go to the beach (Cancun) each day

Courtesy of Dr. Alain Tenenbaum

Anti Aging Peelings on Phototype 3
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BEFORE



AFTER 15 DAYS



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Patient can go to the beach (Cancun) each day

Courtesy of Dr. Alain Tenenbaum

TO MEMORIZE

Citric acid is not dangerous at the difference of glycolic acid, but citric acid is more aggressive and cheaper

How to Avoid Social Downtime

- It is better to repeat the sessions several times with a harmless and sufficiently aggressive acid than a single session with a dangerous and aggressive acid.
- TCA vs Citric Acid
- It is better to repeat the sessions with a less concentrated acid than to use a hyperconcentrated acid in 1 or 2 sessions (not valid for hyperchromies)
- See with TCA 4-3-2-2-... Instead of 1X4



pH and pKa


Buffer in dermatology- skin hydration


pH skin = 5.5


- ☐ pH skin (5.5) < pKa < 7 Moisturizing and less corrosive. (hydratant- **MOISTURIZER**)
- ☐ $0 < \text{pKa} < \text{pH skin}(5.5)$ **keratoregulators** and promote desquamation (desquamation + cell regeneration)
- ☐ pKa = pH (5.5) skin Ideal (citric acid - triprotic) moisturizing + desquamation

Die Haut muss nach einem Peeling mit einer keratoregulatorischen Säure (pKa < 5.5) systematisch mit Feuchtigkeit versorgt werden

Peeling de Luxe Plus is the ideal buffer for any acid that needs to be buffered.
Peeling de Luxe Plus is not a moisturizer.

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		Milk.A (lactic)			3.86			Metabolism	1
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MOISTURIZERS									
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Metabolic Peels

Classification of L.Dewandre

Revised & Updated by A.Tenenbaum



Metabolic Peels are next generation skin peels that incorporate Chirally Correct AHA and encapsulated Retinoic Acid to stimulate the skins natural renewal processes.



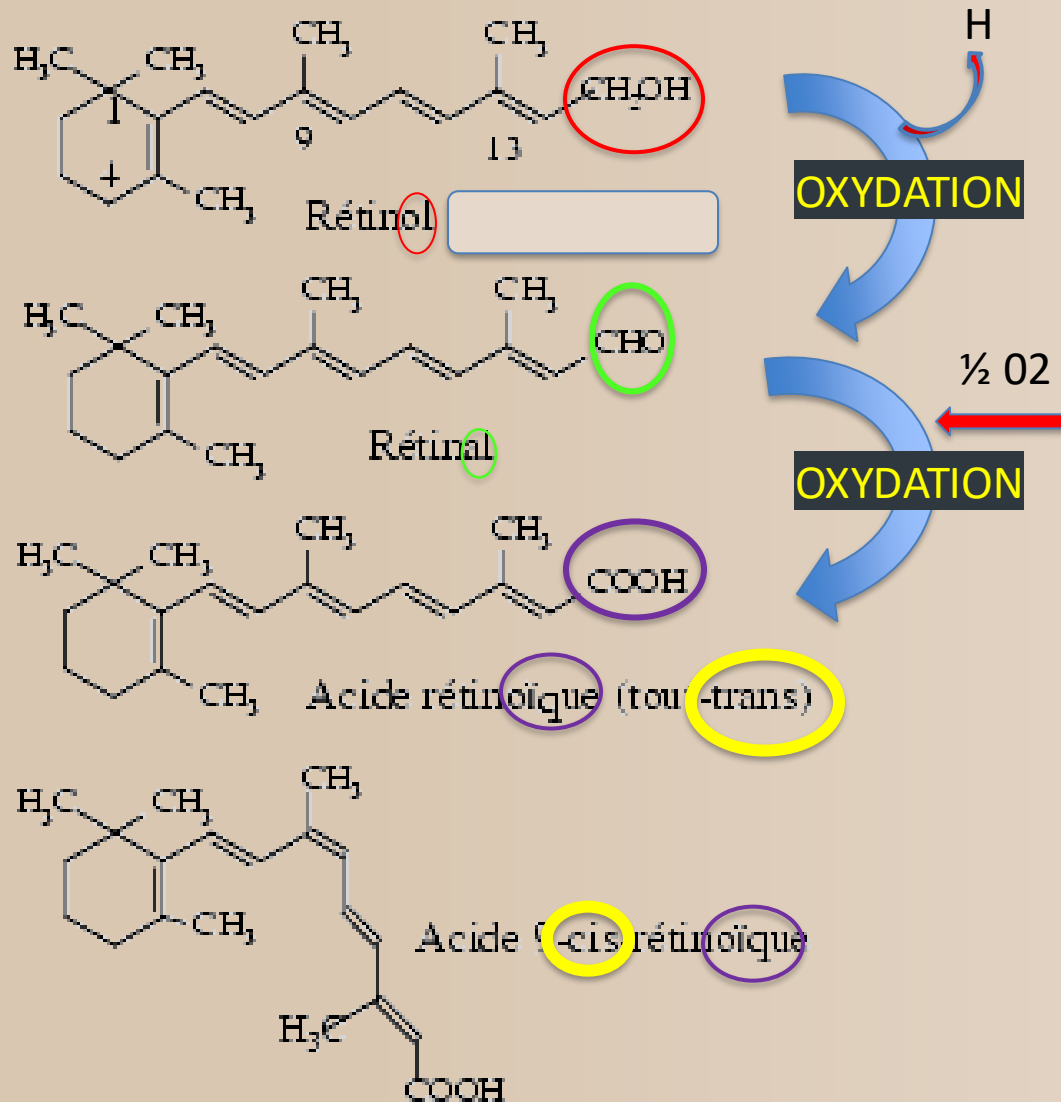
Peels without downtime or irritation,



Metabolic Peels target the living layer of the skin(Stratum Germinativum or Basal) and increase cell renewal.

Retinol, retinaldehyde and retinoic acid

Oxidation and effect



SUFFIXE - OL for Alcohol

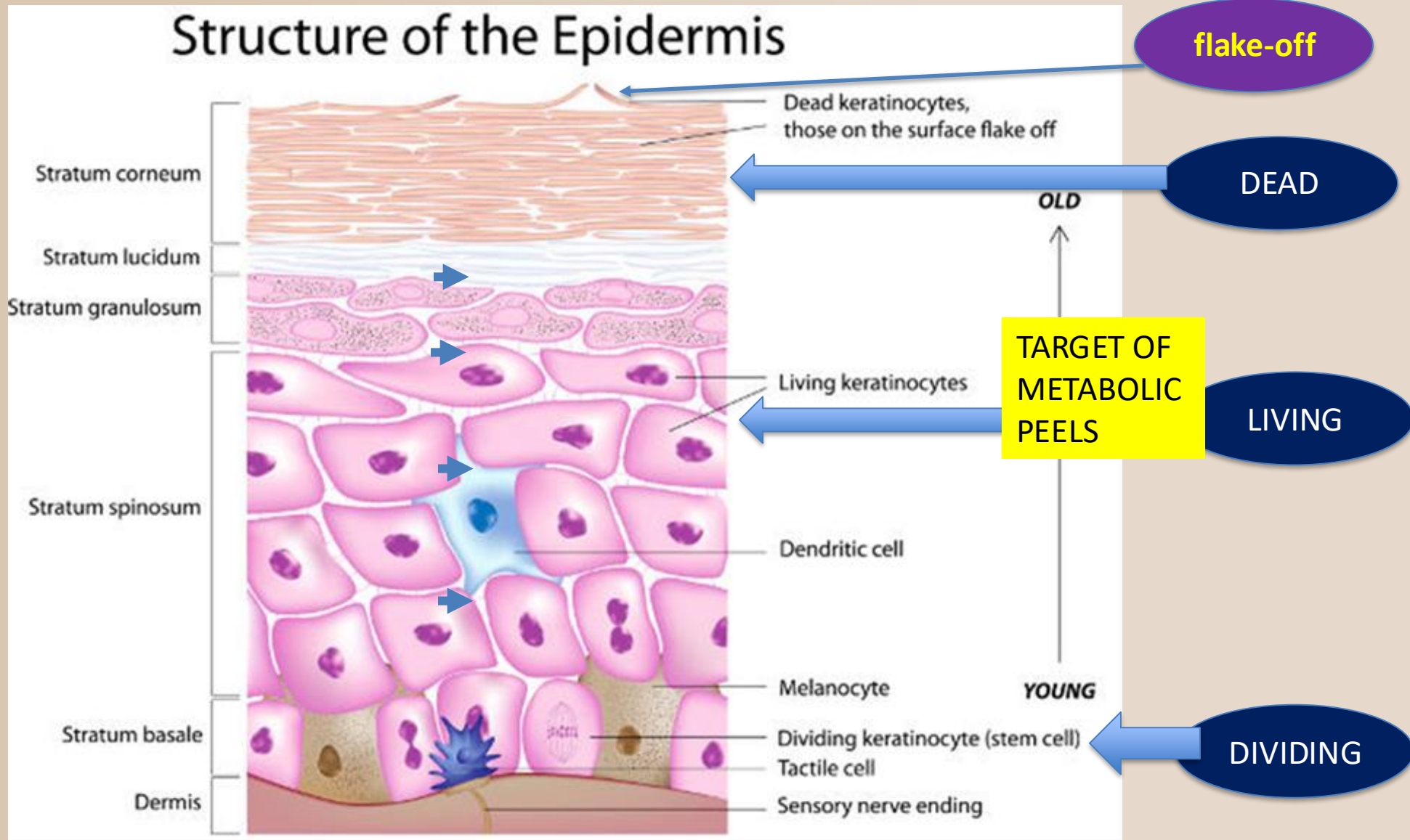
SUFFIXE - AL for ALDEHYDE


SUFFIXE - OIC for acids

Retinoic acids work best when they are stable
Peeling de Luxe Plus contains stable retinoic acids

Retinoic acids are more expensive than retinol

Main Target of Metabolic Peels



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CLASSIFICATION DR.L.DEWANDRE		Milk.A (lactic)			3.86			Metabolism	1
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Chiral Correction

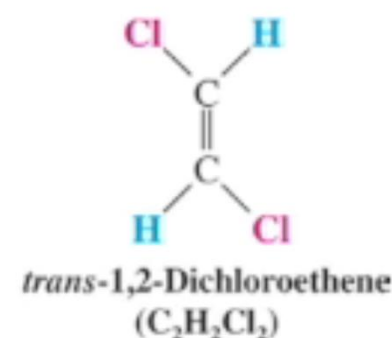
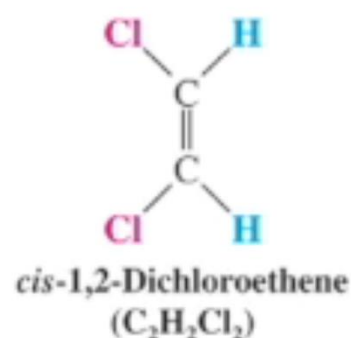
What is Chiral Correction?

In a Nut Shell - Chiral-correction is the purification on a molecular level to ensure optimal interaction with your body.

The Science - Some molecules are like hands. Left and right hands are mirror images, but are not superimposable.

A molecule that is not superimposable is said to be **chiral**.

Chemically the same ingredient, but structurally different. An L-or D-prefix denote the chiral version.



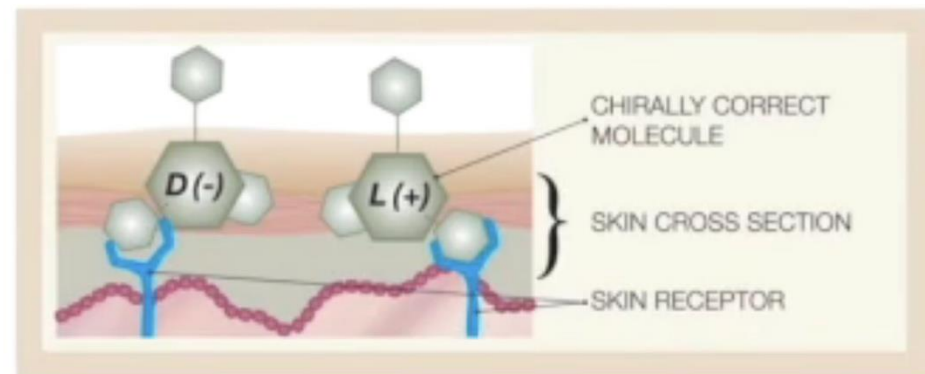
Chiral Correction 2

Implications for the Skin

Although chemically two forms of an ingredient may be identical, because their shape is different they will interact with the skin differently.

Like a **key in a lock**, only the chirally-correct form of an ingredient can interact with the appropriate cell receptor and trigger the right cellular response. The wrong form of the ingredient can collect on the skin's surface and can cause irritation.


How a Chiral Molecule Works



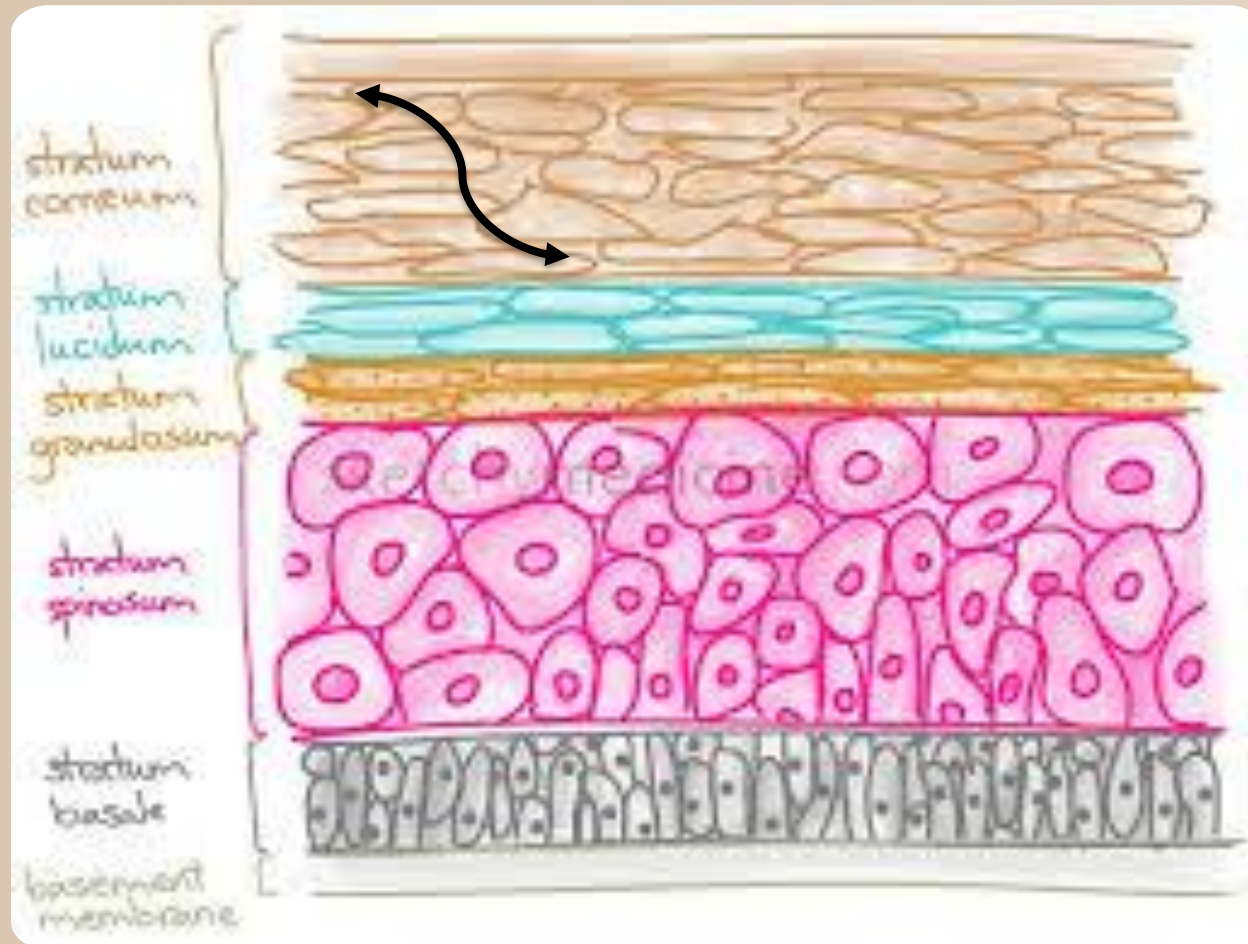
CosMedix ingredients contain only the correct-fitting molecules for the skin's receptors

- L-Lactic Acid - Boosts ceramide production by 50%
- D-Lactic Acid - Has no effect on ceramide production and causes irritation.

Ceramides are fats or lipids that are found in skin cells. They make up 30% to 40% of your outer skin layer, or epidermis. Ceramides are important for retaining your skin's moisture and preventing the entry of germs into your body.

Acid category	Acid subcategory	pKa>3 rising	pKa=3	pKa<3	pKa1	pKa2	pKa3	Tenenbaum ENANTIOMERS	Number of reactions
Alpha Hydroxy	Aliphatic		Wine A (tartaric)		3.04	4.37		Chiral	2
		Citric A			3.15	4.77	6.40	Chiral	3 Triprotic
		Apples A (malic)			3.40	5.13		Chiral	2 Diprotic
<div> <div>CLASSIFICATION</div> <div>Chiral Acids</div> <div>A.TENENBAUM</div> </div>		Glycolic A	Skin does not have a receptor site for glycolic acid.		3.83			Not available	1 monoprotic
		Milk.A (lactic)			3.86			Chiral	1
	Aromatic Benzene ring		Almond.A mandelic		3.37			Chiral	1
Alpha Keto				Grapes Acid (pyruvic)	2.49			Not available	1
Bicarboxylic acid		Azelain a			4.55	5.59		Not available	2
Beta-Hydroxid			Salicylic a		2.97			Chiral Aspirin not chiral	1
TCA				TCA	0.54			caustic	1

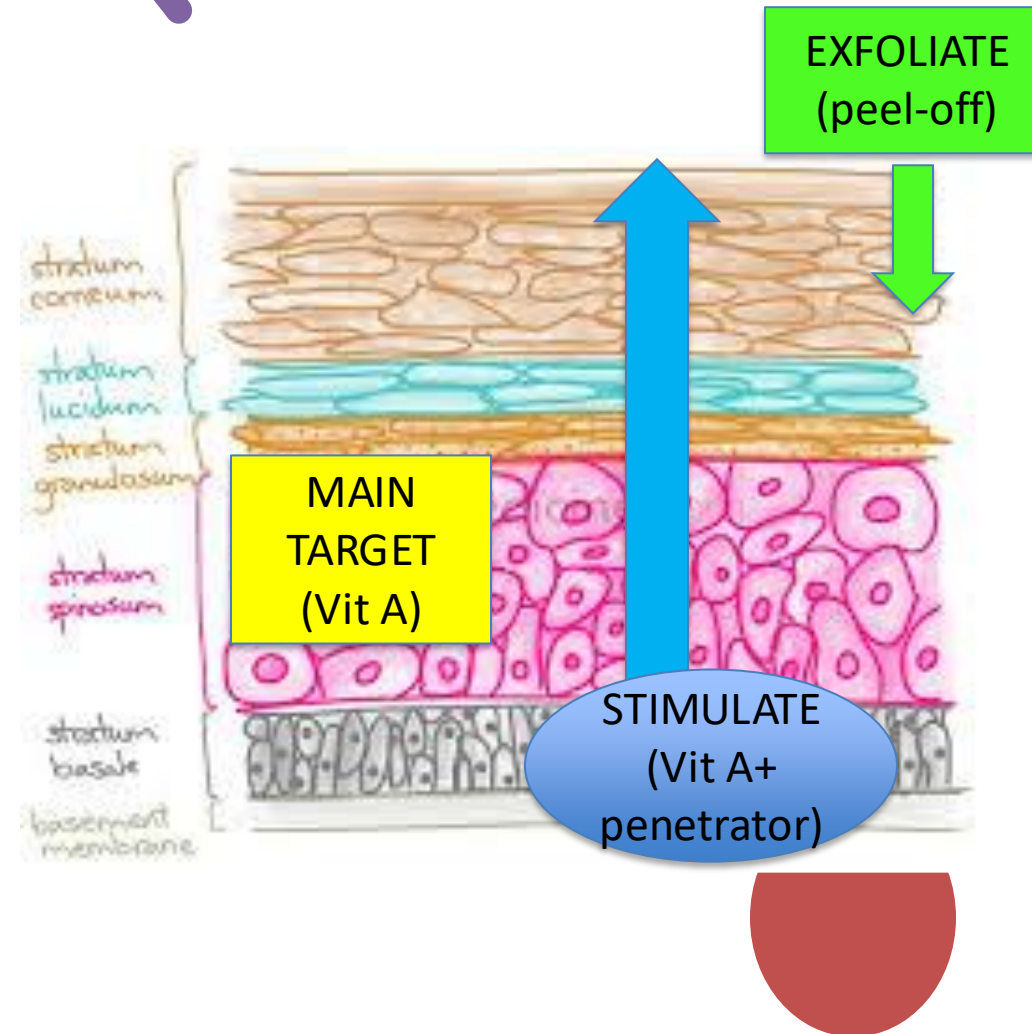
TRADITIONAL CHEMICAL PEELS -> FORCING REPAIR



- Exfoliate the skin from the stratum corneum downwards

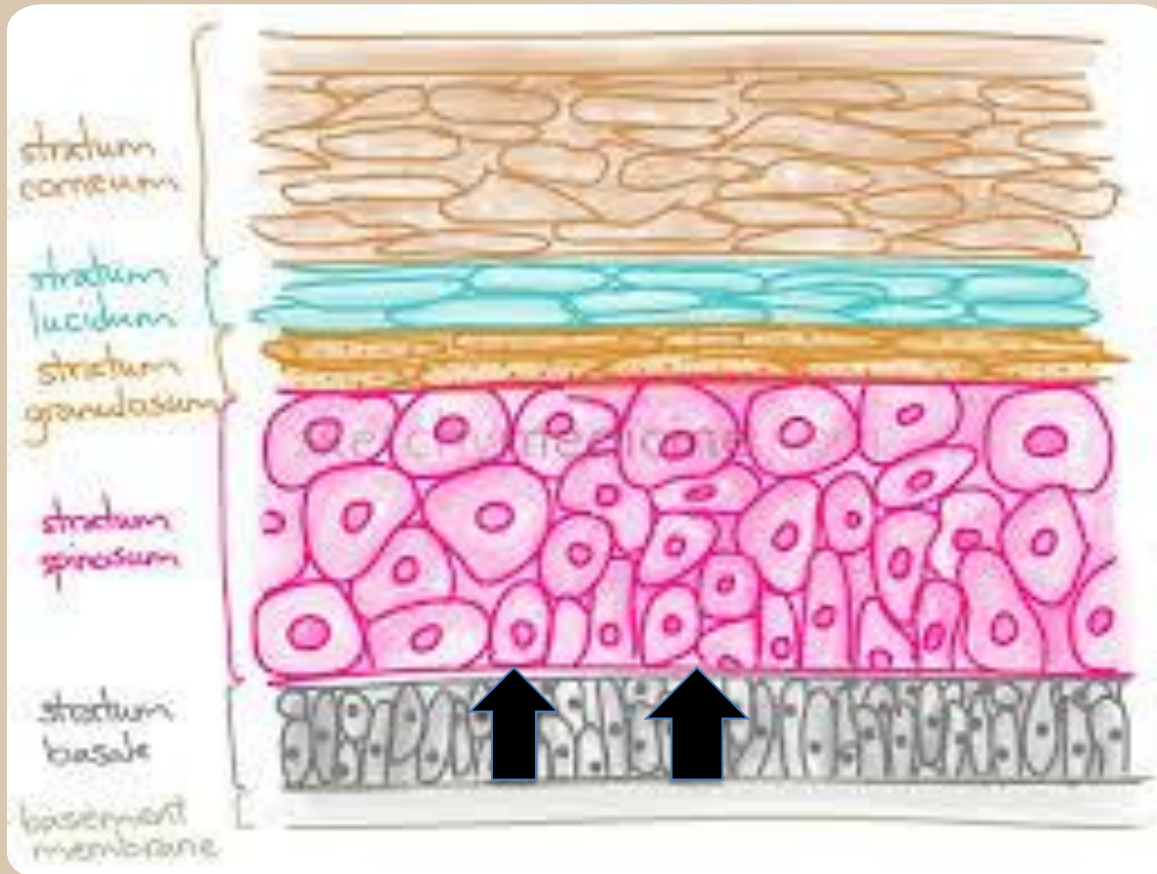
Metabolic Peels vs Chemical Peels

- Metabolic Peels contain Vit A that targets the living layer of the skin and increases cell renewal. (Ex Peeling de Luxe Plus)
- Traditional Chemical Peels use Acids to exfoliate the skin from the stratum corneum downwards (Ex 30 min peel-off)
- Metabolic Peels use encapsulated Retinoic Acid to stimulate renewal from the stratum germinativum upwards, working with the skins natural renewal instead of forcing repair.
- This is a non ablative, non traumatic approach to skin peeling that supports skin function



Stratum basal = Stratum Germinativum

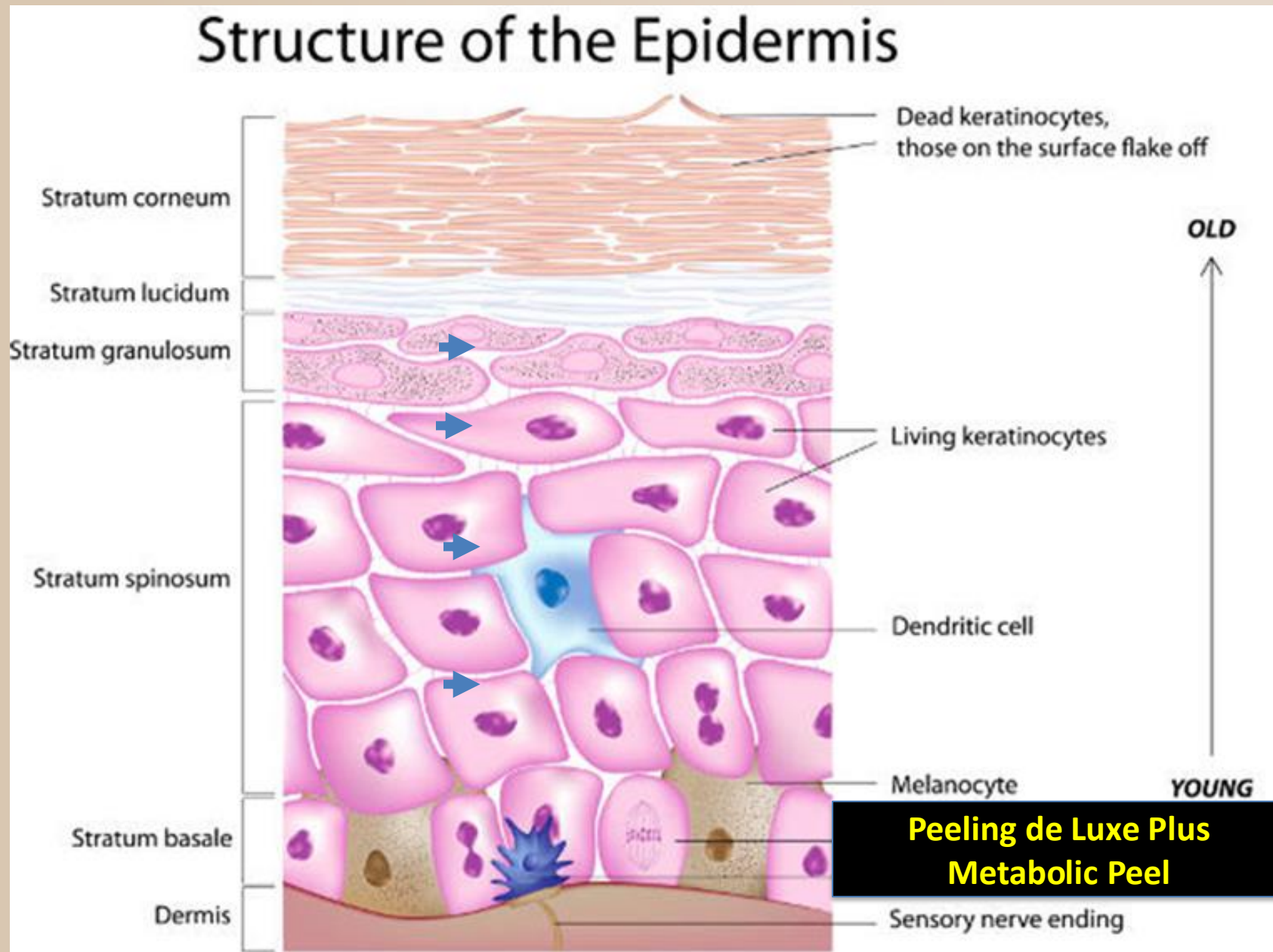
METABOLIC PEELS -> SKIN NATURAL RENEWAL SUPPORTING SKIN FUNCTION



- Stimulate renewal from the stratum basale or germinativum upwards

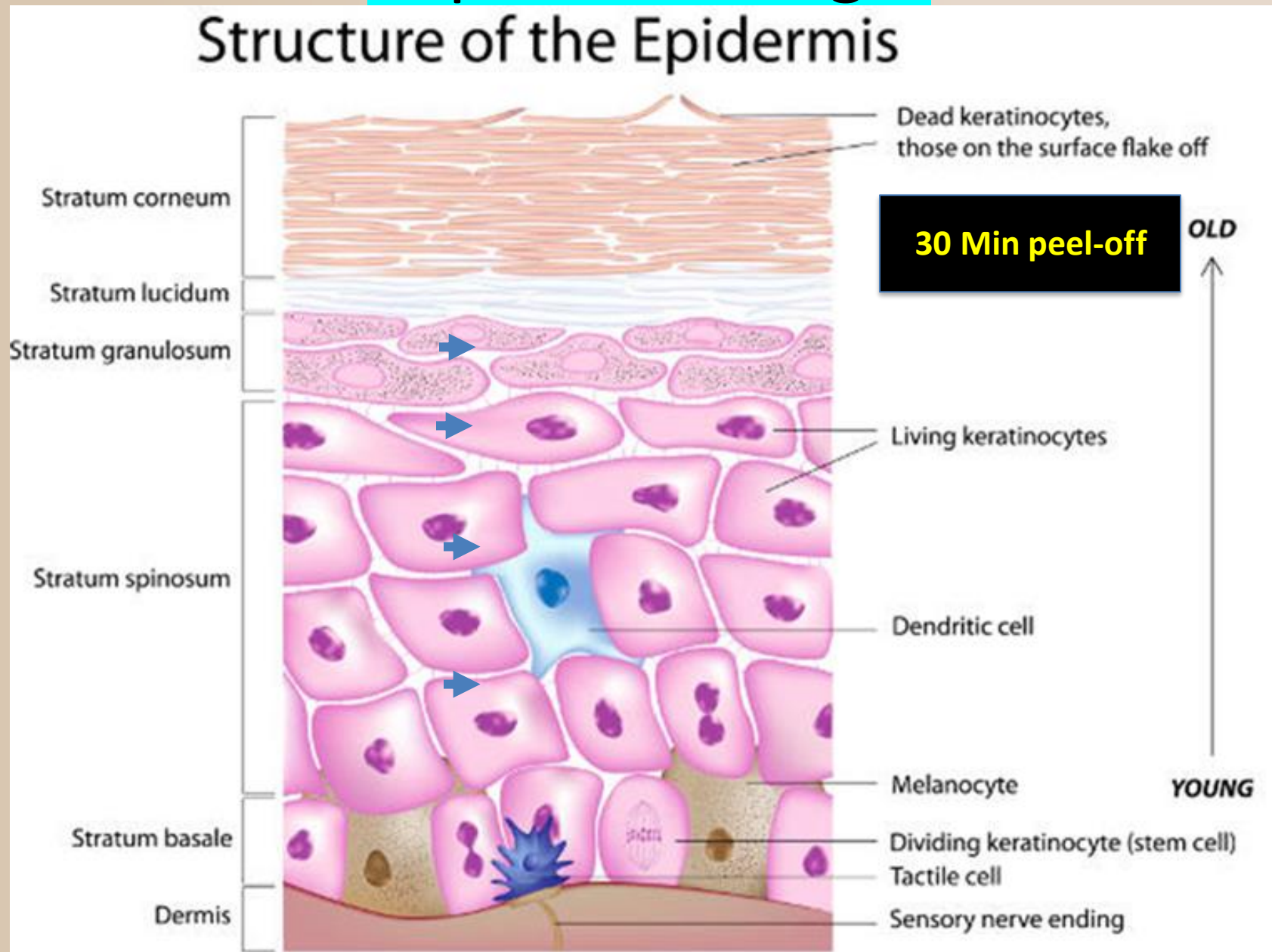
Different Targets of Epidermis

Metabolic Peel targets stratum basal and increases cell renewal

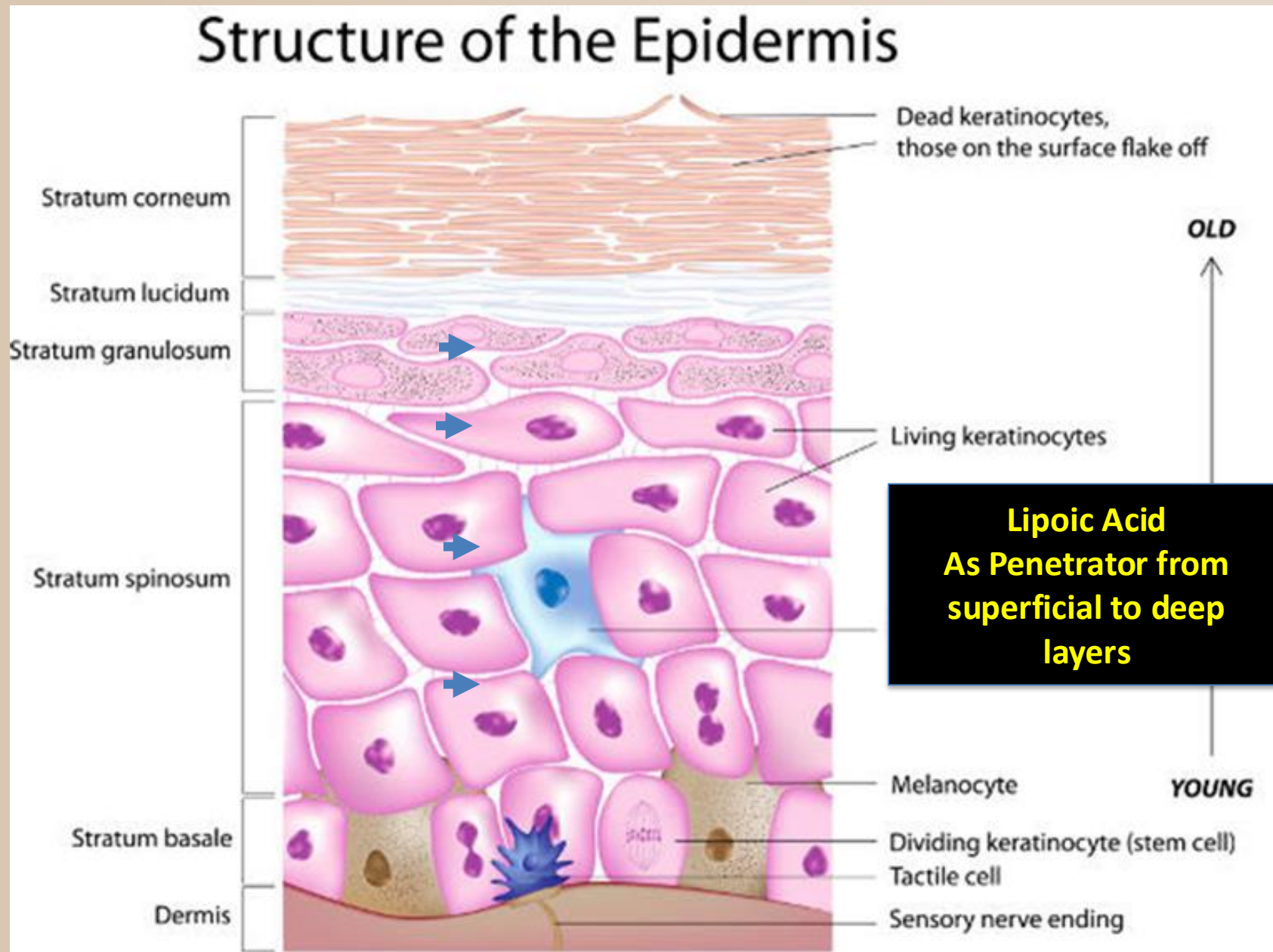


Different Targets of Epidermis

Superficial Target



Different Targets of Epidermis



Treatment Protocol of Mauro Tiziani

3 Targets = 3 Products
Stimulate, Exfoliate, Penetrate SEP

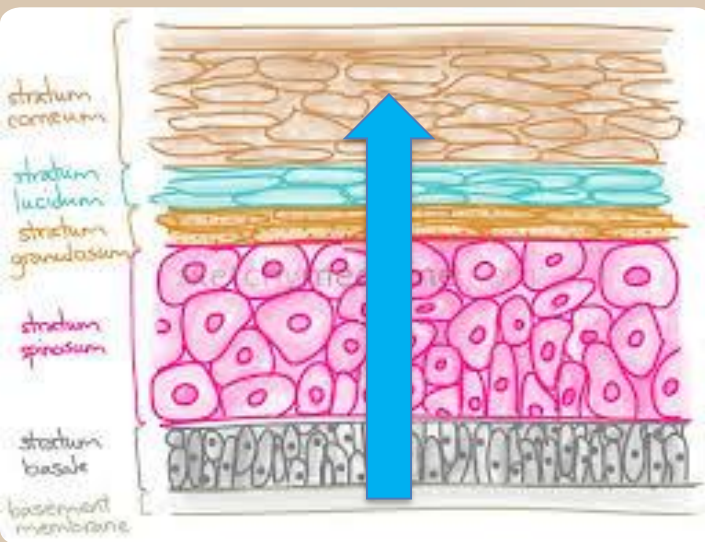
THE METABOLIC PEELS SET

STIMULATE	EXFOLIATE	PENETRATE
PEELING DE LUXE PLUS PURE METABOLIC PEEL	30 MIN PEEL OFF	LIPOIC ACID
		

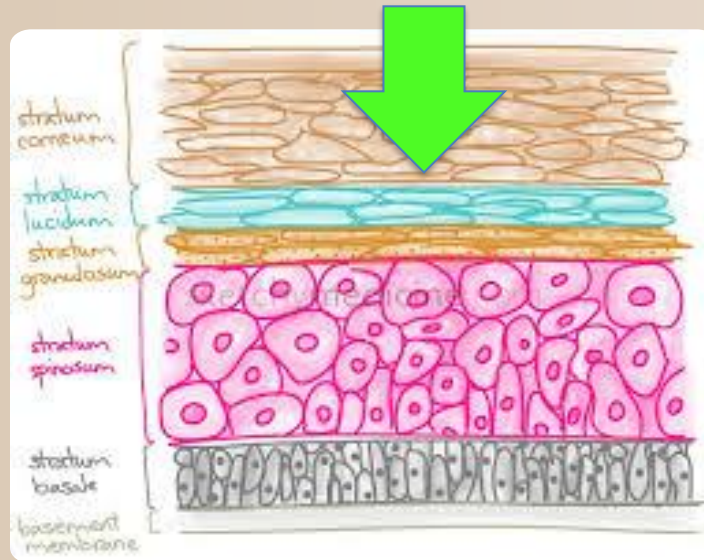
STIMULATE

EXFOLIATE

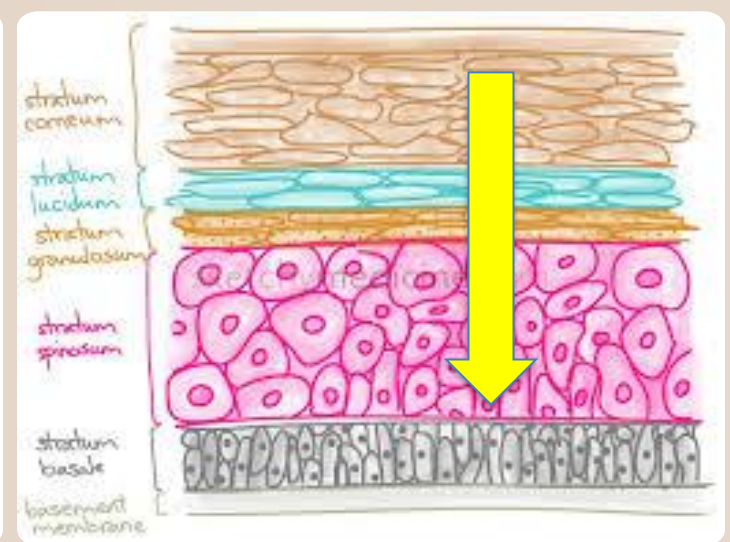
PENETRATE



PEELING DE LUXE PLUS



30 MIN peel-off



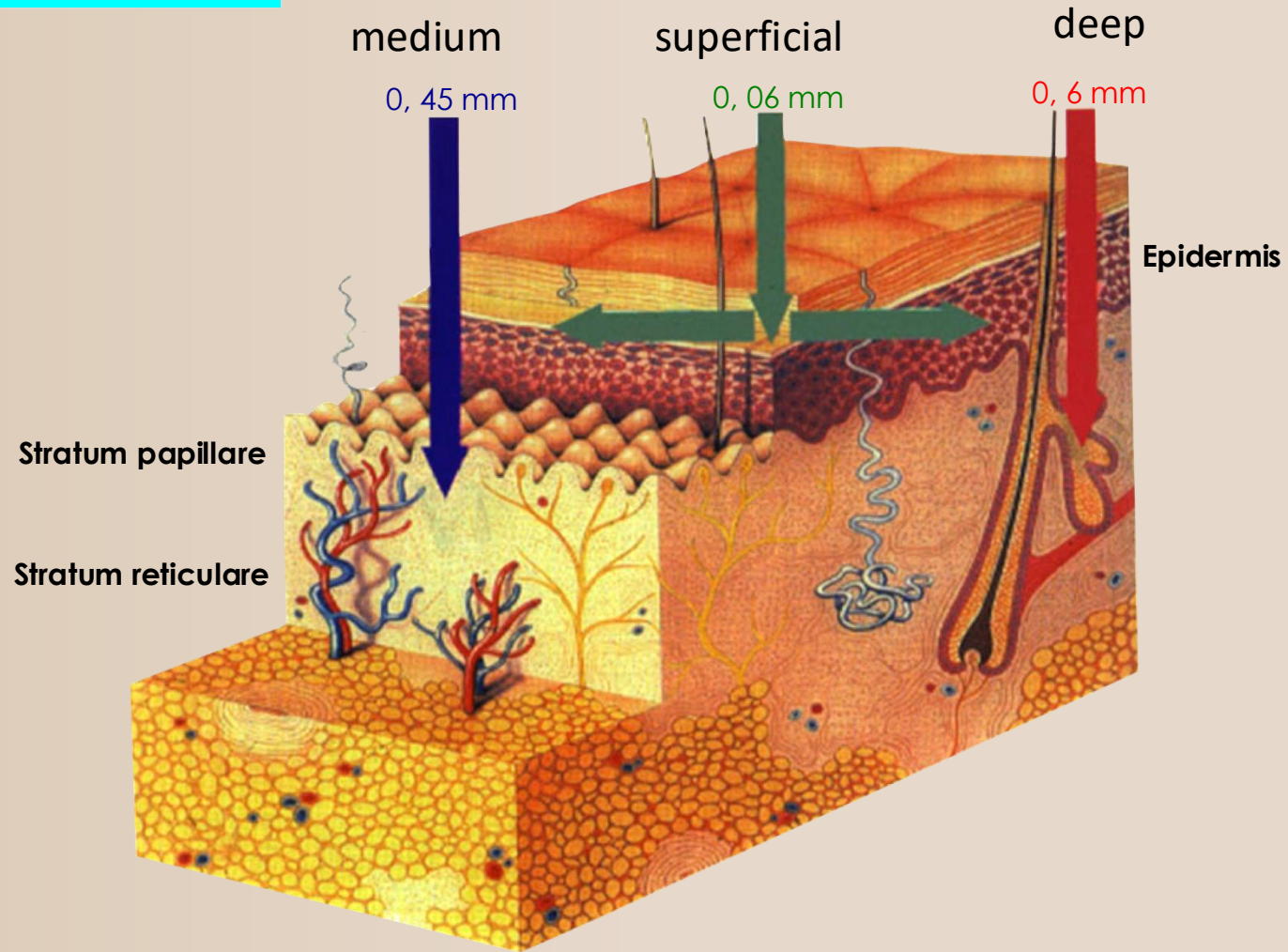
LIPOIC ACID



Superficial, medium & deep Peels

Penetration depends of pH modulation

New Concept of Mauro Tiziani



Get deeper with Lipoic Acid without modulating the pH
(A.TENENBAUM)

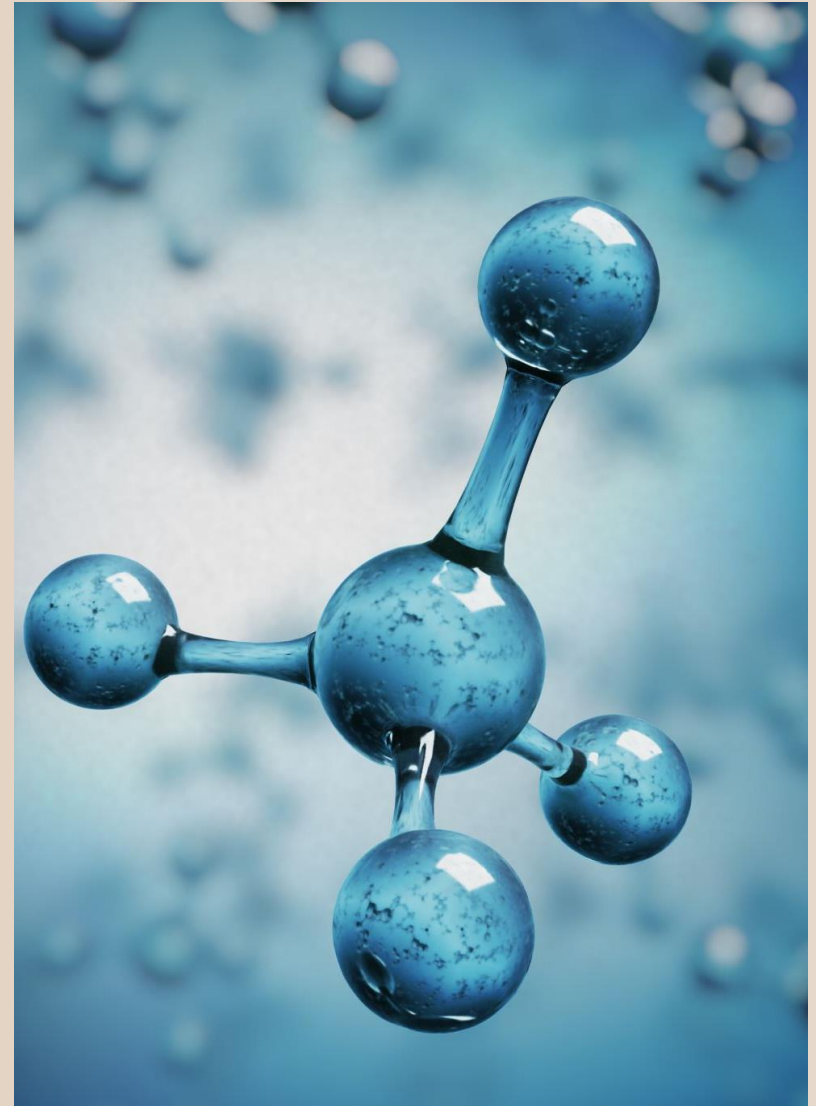


Concept of Mauro Tiziani



Recommended methods for helping ingredients to penetrate into the skin or decreasing the pH (MODULATE THE pH)

- Q or exothermic reaction
(Cream 1 + Cream 2)
- Increasing the concentration of the acid
- More coats applied on same area with same acid
- Lipoic acid(A.TENENBAUM + M.TIZIANI)
- The fewer ingredients a cream contains, the easier it is to penetrate due to its low molecular weight (M.TIZIANI)
- For severely dehydrated skin,
use a low molecular weight moisturizer + Lipoic acid in a sequential way



how to allow an acid to penetrate deeply into the skin layers

Choose an aggressive acid (pKa min) at lower concentration is the best tool

1. High acid concentration
2. Number of coats on the skin
3. Time on the skin before neutralization or defrosting
4. From Rosé Frosting to White Frosting
5. Repeat sessions (especially during desquamation)
6. Best Option: Add Lipoic Acid

LIPOLIC ACID



Practical Trends of A.Tenenbaum



DO'S

Do peels without social eviction, for all skin types in any seasons



Better a long ,,invisible,, desquamation than a short visible one (social eviction) A.Tenenbaum



Choose best tools to convert a superficial peel into a medium or deep peel (Q, lipoic acid ..)

FORBIDDEN COMBINATION OF CHEMICAL PEELS

- With not chiral molecules
- With alcohols I, II
- With bases
- With L+D mixed molecules
- With D molecules

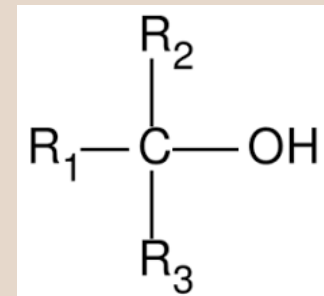
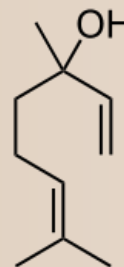


the 3 types of primary, secondary and tertiary alcohol

- **primary alcohol** $R-CH_2OH$ ex Ethanol CH_3-CH_2OH
- **Secondary** Alcohol $R_1-CHOH-R_2$
zB Isopropanol $CH_3-CHOH-CH_3$

Ethanol and isopropanol are disinfectants

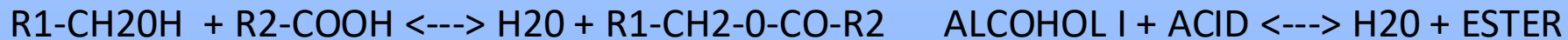
Tertiary Alcohol ex Linalol oder 3,7-Dimethyl-1,6-octadien-3-ol is a tertiary alcohol with a floral and fresh smell.



Esterification reactions

The esters

- Alcohol I or II + acid \rightleftharpoons ester + H₂O
- Alcohol III : No esterification reaction with acids



For us, this means that the skin should never be disinfected with alcohol I or II before applying an acid to the patient's skin. Use better a wipe with cetrimonim (Aseptiskin)

Similarly, after exfoliation, the patient should not wear perfumed clothing or use perfume.

Esterification reactions

The esters

Ethanol as
Desinfection
TCA after



Esterification Reaction on the Jowl
Alcohol as Skin Desinfectant + Acid



Courtesy of Dr. Alain Tenenbaum

Primary & Secondary Alcohols in Most Skincare Sunscreens SPF30!



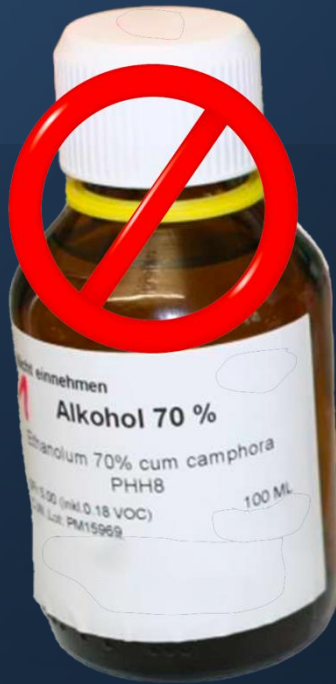
- **Cetyl Alcohol used as emollient**

- primary alcohol
- High molecular weight
- $\text{CH}_3-(\text{CH}_2)_{14}-\text{CH}_2\text{OH}$

- **Butylene Glycol used as Solvent**

- primary alcohol & secondary alcohol
- $\text{CH}_2\text{OH}-\text{CHOH}-\text{CH}_3$

Ethanol is unfortunately mostly used as
Skin Desinfectant –Skin Tonics- Skin Cleansers
and too as „ denatured alcohol !,,



A denatured alcohol is made unfit for human consumption by adding additives



ESTERIFICATION ON THE NECK AFTER THE PRESENCE OF PERFUME ON THE COLLAR

Esterification Reaction on the Neck
Perfume (Alcohol) + Acid



Courtesy of Dr. Alain Tenenbaum



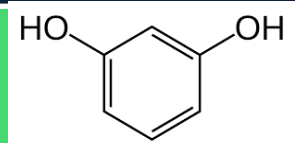
ONE MIXTURE COMBINATION TO KNOW JESSNER PEEL

OLD FASHION PEEL

100 mg of 95% ethanol !!



14 g of resorcinol (chiral).



It is neither a primary nor a secondary alcohol

14 g of salicylic acid (chiral)
BHA

and 14 ml of lactic acid (chiral)
AHA

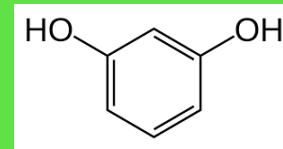
NOT SEQUENTIAL COMBINATION

THIS MODIFIED JESSNER IS FOR ME LOGIC

ONE MIXTURE
COMBINATION
TO KNOW
JESSNER PEEL
MODIFIED

5% W/V citric acid (chiral)


20% W/V of resorcinol
(chiral)



10% W/V lactic acid
(chiral)

NOT SEQUENTIAL COMBINATION

Modern PEEL

Acid category	Acid subcategory	pKa>3 rising	pKa=3	pKa<3	pKa1	pKa2	pKa3	L. Dewandre Modified by AT ENANTIOMERS	Number of reactions
Alpha Hydroxy	Aliphatic		Wine A (tartaric)		3.04	4.37		Chiral	2
 <div> <div>CLASSIFICATION</div> <div>DR.L.DEWANDRE</div> <div>modified by</div> <div>A.TENENBAUM</div> </div>		Citric A			3.15	4.77	6.40	Chiral	3 Triprotic
		Apples A (malic)			3.40	5.13		Chiral	2 Diprotic
		Glycolic A	Skin does not have a receptor site for glycolic acid.		3.83			Not available	1 monoprotic
		Milk.A (lactic)			3.86			Chiral	1
	Aromatic Benzene ring		Almond.A mandelic		3.37			Chiral	1
Alpha Keto				Grapes Acid (pyruvic)	2.49			Not available	1
Bicarboxylic acid		Azelain a			4.55	5.59		Not available	2
Beta-Hydroxid			Salicylic a		2.97			Chiral Aspirin not chiral	1
TCA				TCA	0.54			caustic	1

Combination Chemical Peels vs Single Chemical Peels in mild moderate Acne

Single Chemical Peels

TCA 30% W/V
Salicylic 30% W/V

Side Effects

Combination Chemical Peels

Jessner followed by TCA 20% W/V- SEQUENTIAL
Salicylic 20% W/V + Mandelic 10% W/V MIXTURE

Side Effects

Treatment Protocol : 6 SESSIONS WITH 2 WEEKS INTERVAL
FOLLOW UP 3 MONTHS AFTER LAST SESSION

OLD FASHION TREATMENT OF ACNE

SEQUENTIAL COMBINATION > MIXTURE COMBINATION

Neutralization of an acid-pH regulation and exothermic reaction (release of thermal energy)



Hydrochloric acid + caustic soda \rightarrow table salt + water + Q

Acid + Base \rightarrow Salt + Water + Q

$(\text{pH} < 7) + (\text{pH} > 7) \rightarrow \text{pH} = 7$

Products which are pH Regulators of Peels acids

NaHCO_3 (sodium bicarbonate salt) instead of NaOH (base) (IMPORTANT) is not a frosting stopper but increases the pH

PEELING DE LUXE PLUS
(frosting stopper) for your emergency equipment stops the duration of the low pH effect of the peelings acid

NEVER ADD WATER
because $\text{Acid} + \text{H}_2\text{O} = \text{Q}$
(combustion)

pH regulation and neutralizer



NaHCO_3
Not frosting stopper
Use for acid with $\text{pKa} > 3$



FROSTING STOPPER
for your emergency equipment
Use for acid with $\text{pKa} < 3$





Buffer or tampon

$$pK_a = pH$$

- A buffer solution is used to **limit fluctuations in pH.**
- If you want to buffer a „weak,, acid , you need to use a strong base salt
- **Best : NaHCO_3 and as well as peeling de luxe plus**
- *It's up to you to buffer*, but do not buy products containing acid + buffer in the same bottle
- **Some companies sell, "buffered TCA »which is responsible of pigmentary rebounds !**

Cosmetic
creams
should not
contain



1. Primary or secondary alcohols (esterification)
2. Acids with $pK_a < 3$
3. Phenol
4. Aldehydes without antioxidants
5. Comedogenic agents
6. Allergic INGREDIENTS
7. Acne pathogens
8. Not INCI Ingredients
9. Animal collagen (sheep, beef, chicken, pig)
10. Huge amounts of preservatives (parabens..)



Unfortunately, 98% of cosmetic products contain highly comedogenic active ingredients

- Lanolin ++++
- Myristate-myristic acid-Blackberry acid
- Butyl stearate
- Isopropyl palmitate ++++++
- LAURETH +++

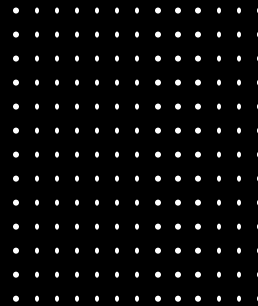


It is important to check the list of ingredients before buying a cosmetic product

Choose products with lowest molecular mass



Home care
must include



1. Anti-UVA, Anti-UVB without Alcohols (no sunscreens) -> melasma story
2. Antioxidants
3. Anti free radicals
4. Hydratant factors
5. Vitamin factors
6. Depigmentation agents (choose them)
7. Triprotic or Diprotic Acids with high pK_a , which continue the peeling effect
8. Sea vegetable collagen
9. Avoid parabens



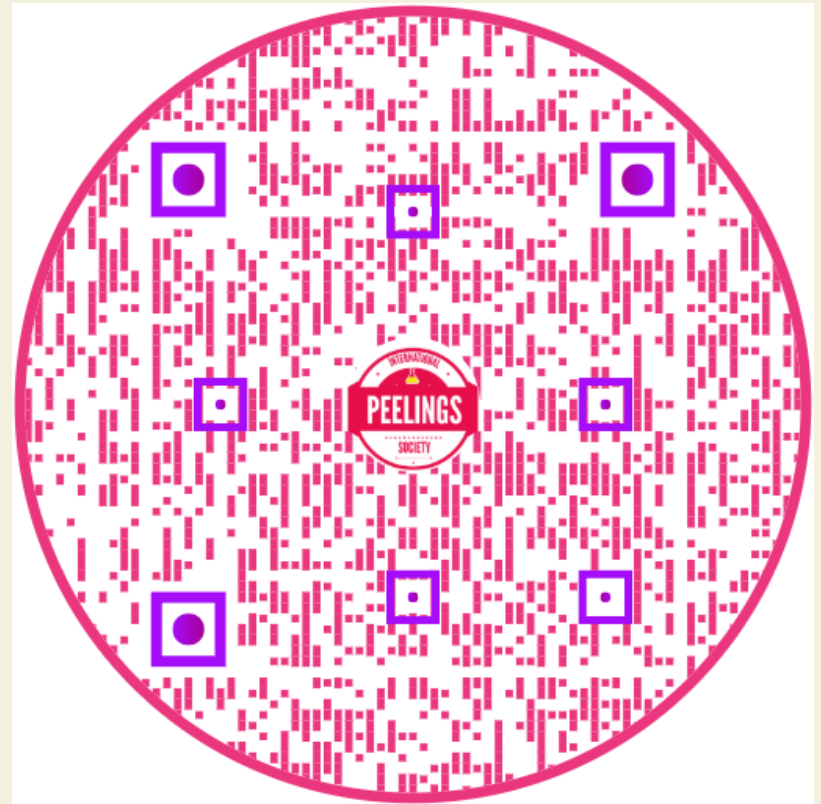


Medications that cause acne

- ☐ Steroids
- ☐ ACTH hormone
- ☐ Antiepileptics:
phenytoin, phenobarbital
- ☐ Vitamins: B1, B6, B12
- ☐ Halogens: fluorine,
bromine, iodine
- ☐ Androgens: anabolic,
danazol
- ☐ Tetracyclines
- ☐ Isoniazid
- ☐ Lithium
- ☐ Quinidine
- ☐ Amineptine
- ☐ Thyroid hormone
- ☐ Ammonium salts
- ☐ Chemotherapy:
actinomycin D.
- ☐ Thiourea

Main Protocol Metabolic Peels

[Protocol Metabolic Peels](#)



Peeling on Black Skin
Metabolic Peels-Protocol of Mauro Tiziani

BEFORE

AFTER



Courtesy of Dr. Alain Tenenbaum

Peeling on Black Skin
Metabolic Peels-Protocol of Mauro Tiziani

BEFORE

AFTER



Courtesy of Dr. Alain Tenenbaum

Peeling on Latino (Argentina) Skin
Metabolic Peels-Protocol of Mauro Tiziani

BEFORE



AFTER



Courtesy of Dr. Alain Tenenbaum

Peeling on Latino (Argentina) Skin
Metabolic Peels-Protocol of Mauro Tiziani

BEFORE



AFTER

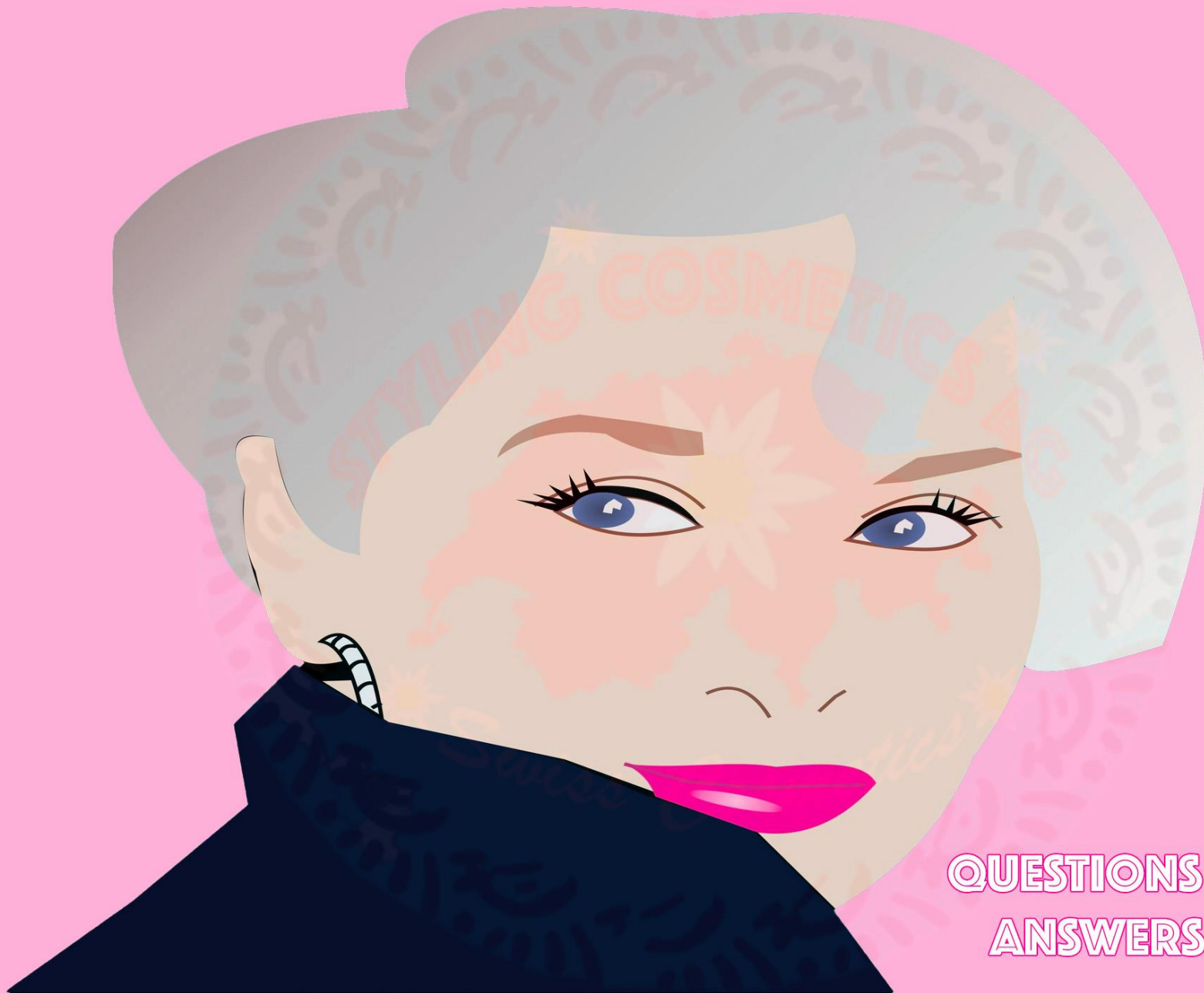


Courtesy of Dr. Alain Tenenbaum

Aesthetic treatments mainly used by cosmetologists

Milchsäure (Lactic Acid)	Azelainsäure Azelaic Acid	Mandelsäure Mandelic Acid	Kojisäure (in Cremes) Kojic Acid	Phytinsäure Phytic acid	Glykolsäure Glycolic acid
<div><ul style="list-style-type: none">- Keratoregulator ++- Skin lightener ????- Bacteriostatics- Stimulates cell differentiation ?—Moisturizing</div>	<div><ul style="list-style-type: none">- Skin lightener- Bacteriostatics- Anti-oxidant- Keratoregulator +- Moisturizer</div>	<div><ul style="list-style-type: none">- Keratoregulator +++- Bacteriostatics- Moisturizing</div>	<div><ul style="list-style-type: none">-Tyrosinase-Inhibitor-Depigmentation</div>	<div><ul style="list-style-type: none">- Melanin Formation Blocker- Anti-oxidant</div>	<div><ul style="list-style-type: none">- Good results (epidermal enzymes)- Dispersion of melanin of the basal layer- Keratoregulator +++—Moisturizing</div>

Medical supervision is helpful in reducing the risk of post-inflammatory hyperpigmentation PIH that has been observed with the use of these products.



QUESTIONS &
ANSWERS

Choosing the Right Acid :

Lactic Acid vs. TCA vs. Salicylic Acid

Property	Lactic Acid	TCA (Trichloroacetic Acid)	Salicylic Acid
Chemical Type	AHA	Medium-depth chemical acid	BHA
Main Actions	Gentle exfoliation	Resurfacing, pigmentation, texture	Keratolytic, seoregulating, anti-acne
Penetration Depth	Superficial	Superficial to medium	Superficial
Skin Type Suitability	Dry, sensitive, dehydrated skin	Photodamaged, aged, thick skin	Oily, acne-prone skin
Risk of PIH	Moderate	Moderate to high (especially in dark skin)	Moderate
Downtime	Moderate to significant	Moderate to significant	Mild to moderate
Best for	Brightening ?????	Deep pigmentation, lines, texture	Acne, comedones, enlarged pores
Hydrating	No	No	No
Common Side Effects	Temporary redness, stinging	erythema	Dryness, stinging

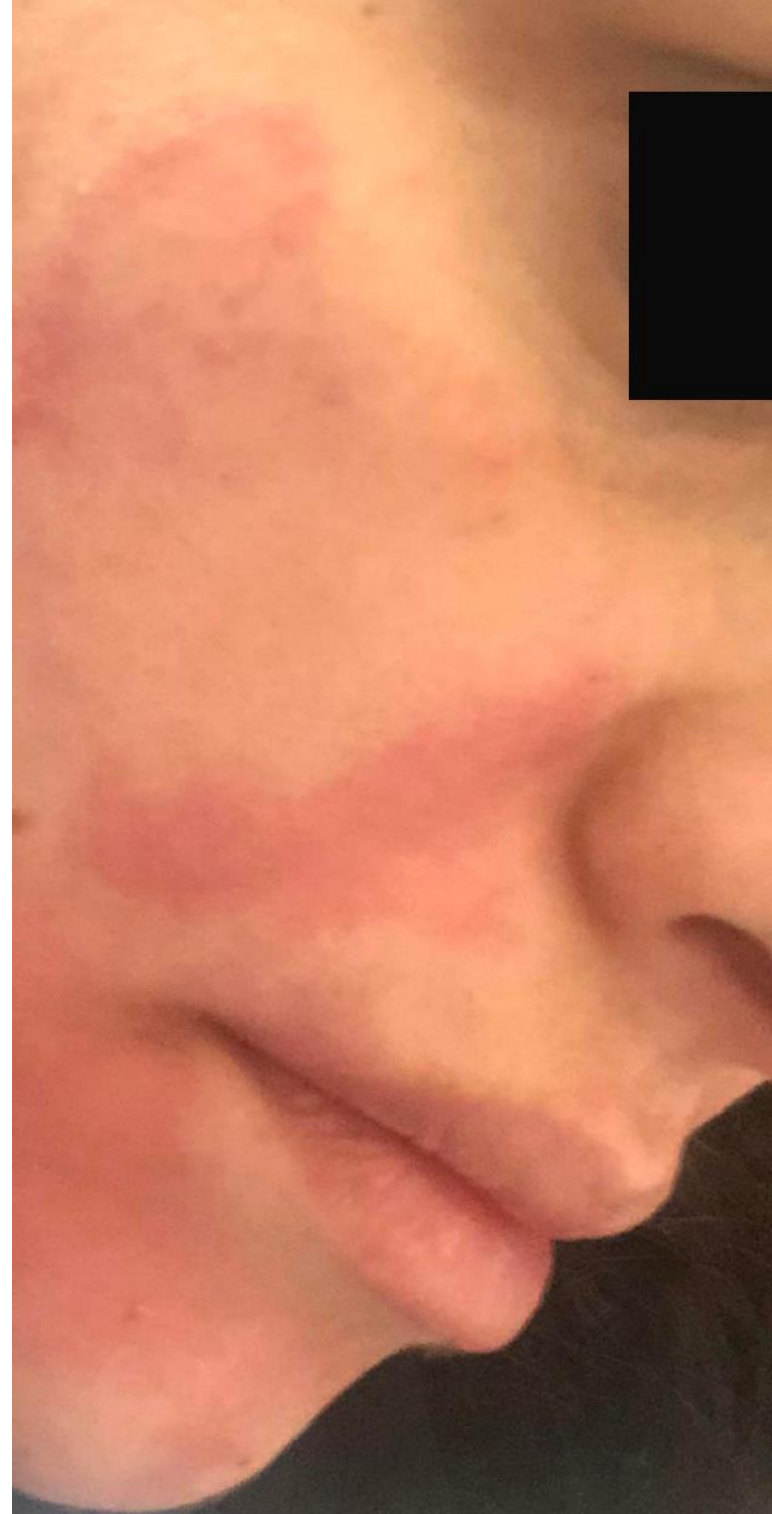
- Lactic Acid is ideal for gentle, no-downtime treatments in sensitive or dry skin. But for my own opinion never use it.
 - TCA offers deeper results but must be used with caution, especially on darker skin types.
 - Salicylic Acid is the go-to for ,, oily,, acne and oily skin management.
- Tip: Always consider skin type, medical history, and desired outcomes when choosing a peeling agent.

Complications
of Brand Names Peels
with Big Marketing &
Poor Chemistry
Knowledge

(Spain, Argentina, Korea,
China)

**Complication of
Lactic Acid**

(Mostly distributed to Cosmeticians)



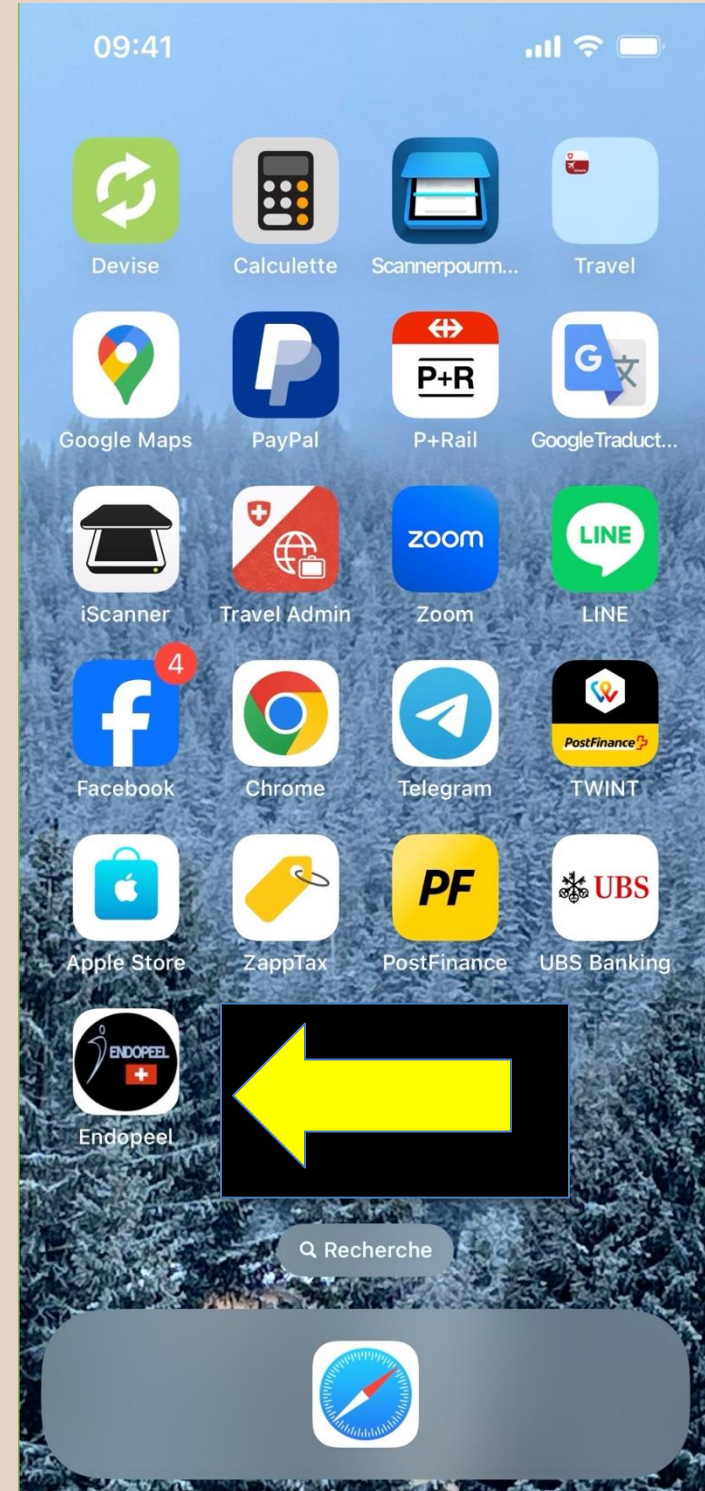
	Peelings	Lasers
Goals	Peels involve applying a chemical solution to the skin, which exfoliates the <u>outer layers</u> , promoting cell turnover and revealing fresher, smoother skin.	Laser treatments use focused light to target <u>specific layers</u> of the skin, stimulating collagen production and improving skin texture.
Advantages	<ul style="list-style-type: none"> • Effective for texture issues like fine lines, acne scars, and pigmentation. • No need for expensive equipment. • Minimal risk when used correctly. • Generally less expensive than lasers. 	<ul style="list-style-type: none"> • Targeted treatment for specific concerns like pigmentation, vascular issues, and deeper wrinkles. • Stimulates collagen production for long-term skin improvements. • Can offer more precise results with less risk of post-inflammatory pigmentation (depending on the type of laser).
Disadvantages	<ul style="list-style-type: none"> • Potential for side effects like irritation, redness, or pigmentation changes (especially with deep peels). • Downtime can vary depending on the depth of the peel. 	<ul style="list-style-type: none"> • More expensive than peels. • Can involve more downtime, especially with more aggressive lasers. • Potential for side effects like hyperpigmentation or scarring (especially if not done correctly).

	Peelings. (M.D)	Hydrafacial (Cosmetician)
How it works	Chemical peels involve applying a chemical solution to the skin, which causes the top layers to exfoliate and peel off .	Hydrafacial is a non-invasive treatment that combines cleansing , exfoliation, extraction, hydration, and antioxidant protection. It uses a specialized device that vacuums out impurities and infuses the skin with hydrating serums.
Benefits	<ul style="list-style-type: none"> • Improves skin texture and tone. • Reduces fine lines and wrinkles. • Treats acne by unclogging pores and reducing oil production. • Brightens pigmentation (e.g., melasma, age spots). • Results are typically more dramatic 	<ul style="list-style-type: none"> • Instant hydration and glow. • Gentle exfoliation • Improves skin texture and appearance. • No downtime • Targets a wide range of concerns, such as acne, fine lines, hyperpigmentation, and dullness. • No risk of peeling as it's more a "deep cleansing" than a full exfoliation.
Intensity	<ul style="list-style-type: none"> • more intense • longer-lasting results 	<ul style="list-style-type: none"> • Gentler
Downtime	<ul style="list-style-type: none"> • Peeling • redness post-treatment. 	<ul style="list-style-type: none"> • No downtime
Customization	<ul style="list-style-type: none"> • higher degree of customization based on skin type and concerns 	<ul style="list-style-type: none"> • Customization , especially in terms of serums used, but are more focused on hydration and exfoliation (gommage)
Maintenance		<ul style="list-style-type: none"> • hydration, quick glow, maintain a perfect hydrafacial

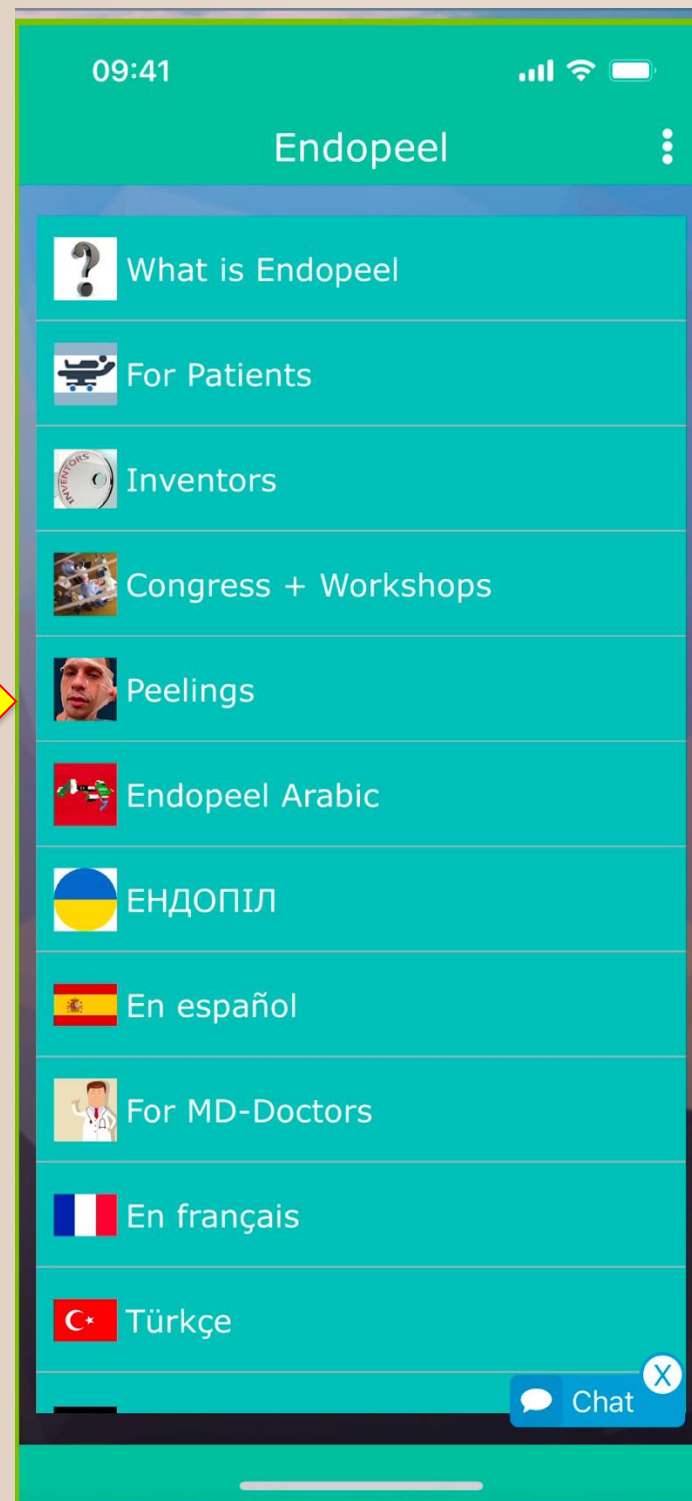
	Peelings	Microneedling
Mechanisms of Action	<ul style="list-style-type: none"> • <u>Chemical</u> Exfoliation • Skin Regeneration 	<ul style="list-style-type: none"> • <u>Physical</u> Stimulation to get Collagen Production through • Micro Injuries
Treatment Depth	<ul style="list-style-type: none"> • All layers but superficial layers are mostly diffused 	<ul style="list-style-type: none"> • Deeper Layers
Downtime	<ul style="list-style-type: none"> • Desquamation • Redness for deep ones 	<ul style="list-style-type: none"> • <u>No desquamation</u> • Redness • <u>Swelling</u>
Indications	<ul style="list-style-type: none"> • Pigmentation Issues • Fine Lines • Texture • <u>Immediate</u> Results 	<ul style="list-style-type: none"> • Collagen Boosting • Tackling Scars • Advanced Aging Concerns
Recommandations	<ul style="list-style-type: none"> • Use Lipoic Acid to allow a better penetration 	<ul style="list-style-type: none"> • Can be done after a light peeling to enhance results • To get deeper use bestens Lipoic Acid

Peels vs Microneedling

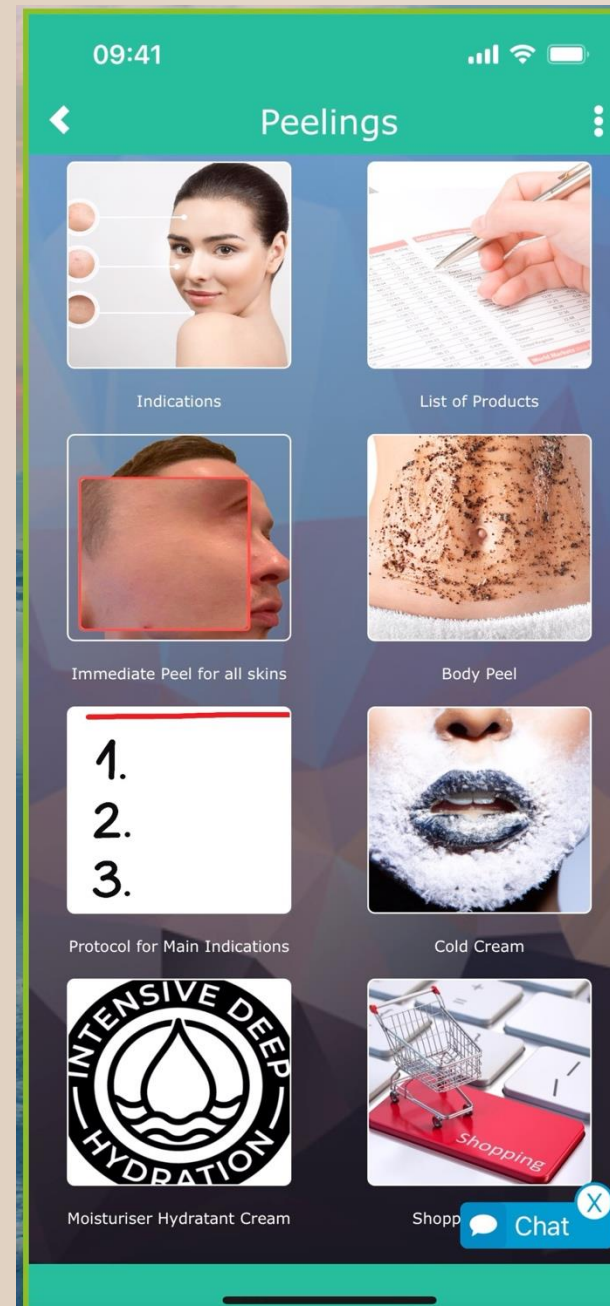
APP „ENDOPEEL,,



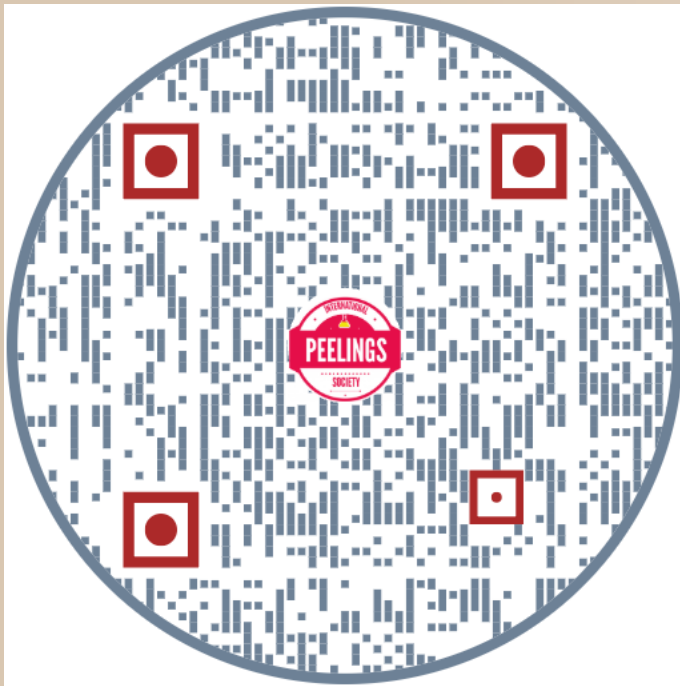
APP ,, ENDOPEEL,,



App „Endopeel,,



emergency-skin-rash-kit



Bring home this message

Peelings should be done the day of sutures removals,
even on the scars

If peelings are done without previous surgery, **OUR**
peelings can be done by your MPA

Do not use „ cocktail peelings,, made in countries
without knowledge of chemistry

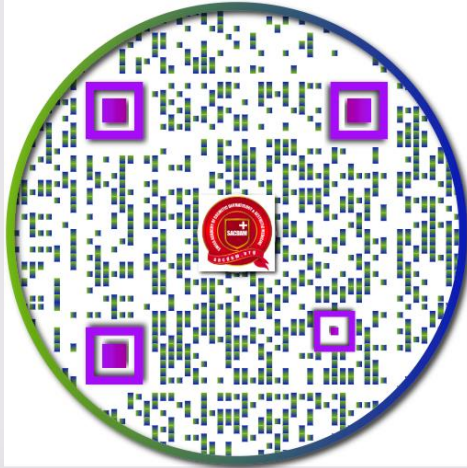
Do not use phenol peelings which can be lethal, with
stricted limited indications, which need OP room with
anaesthesist and which cant be controlled as surgery



Get quickly
tanned
without burns

How to get
quickly and
deep tanned
without
burns





Next Workshops in Zürich



WORKSHOP PEELS
ZÜRICH-SWITZERLAND :
SEPTEMBER 19TH : 2 PM-6 PM

Deadline for Registration : August 20 th

WITH
MAURO TIZIANI
DR. ALAIN TENENBAUM

<https://aesthetic.events/workshop-metabolic-peels-zurich-2025>

QR code in top left corner.

QR code on a smartphone in top right corner with text "SCAN ME".

Four heart-shaped icons with flags (USA, Germany, France, Italy) on the right side.



WORKSHOP
ENDOPEEL PREPARES YOUR FACE FOR YOUR AUTUMN
ZÜRICH-SWITZERLAND : SEPTEMBER 20TH, 9 AM-6 PM

Deadline for Registration : August 20 th

WITH
MAURO TIZIANI
DR. ALAIN TENENBAUM

<https://aesthetic.events/endo peel-workshop-zurich-2025>

QR code in bottom left corner.

QR code on a smartphone in top right corner with text "SCAN ME".

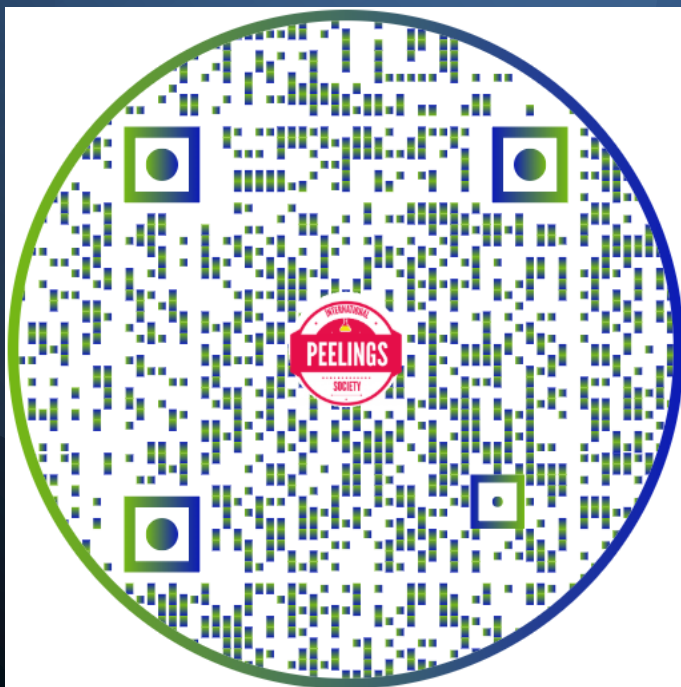
Four heart-shaped icons with flags (USA, Germany, France, Italy) on the right side.

DURING THE
LUNCH OR
COFFEE
BREAK
I CAN HELP
YOU FOR



Become a
Member

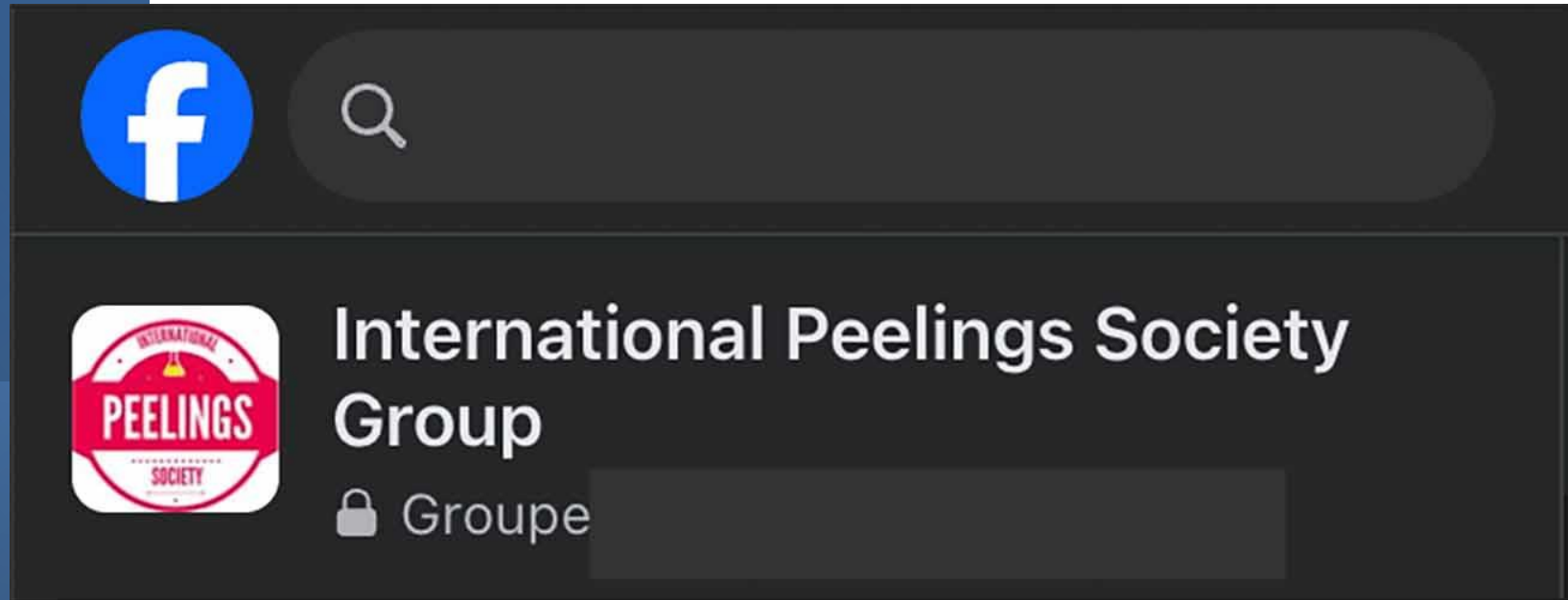
MEMBERSHIP



DURING LUNCH OR COFFEE BREAK

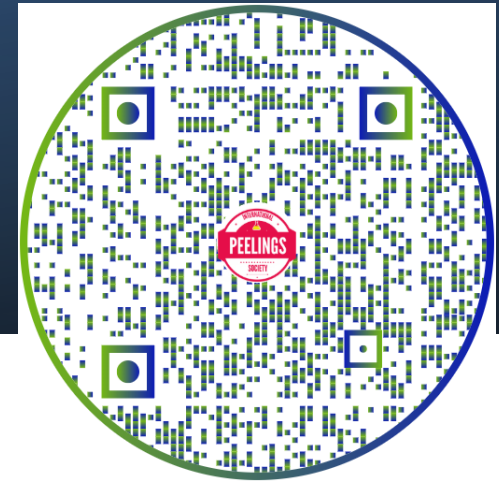


FACEBOOK GROUP



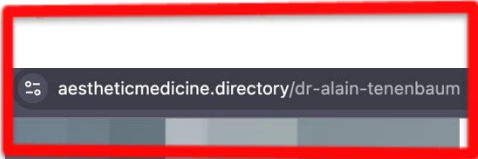
[ask to be inside this group](#)

[link to website](#)



[HOME](#) [MISSION](#) [PEELINGS](#) [INVENTORS BOARD](#) [MEMBERSHIP](#)





aestheticmedicine.directory/dr-alain-tenenbaum



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Dr.Alain Tenenbaum

Endopeel transforms a pay boy into a play boy

2036 QR code VCard



135 Wasserfallstrasse, Engelberg
6390, OW, Switzerland

+41764177315

+41764177315

https://endopeel.com Content responsible

Categories:

IPSC Members (International Peeling Society), Aesthetic Medicine Practitioners

Contact person

Alain

Quote

Contact business



Map

Gallery

Map Directions

Toggle Street View



Zoom +

The background consists of a dark blue field with a lighter blue vertical bar on the left and a large, semi-transparent light blue circle on the right side.

Next Lecture

HYPERPIGMENTATION

Facial Hyperchromy



Introduction to Hyperpigmentation

Hyperpigmentation refers to the darkening of the skin due to an increase in melanin production or deposition. It can occur in localized areas or over larger areas of the body. This condition is commonly seen in clinical practice and can result from a variety of intrinsic and extrinsic factors.

Definition

- **Hyperpigmentation** is the condition in which certain areas of the skin become darker than the surrounding skin due to an excess production of melanin. It can be either focal (localized) or diffuse (spread over a larger area) and is often a cosmetic concern for patients. Hyperpigmentation is not a single disorder but rather a clinical manifestation of various underlying pathophysiological processes.

Specific types of hyperpigmentation

- *melasma*
- *post-inflammatory hyperpigmentation*
- *Lentigines*

Concepts of A.Tenenbaum & M.Tiziani

1.Targeting the pigment directly Or the „ColorKiller,, of A.Tenenbaum

A red rectangular box with a white horizontal band in the center containing the word "COLORKILLER" in blue capital letters.

COLORKILLER

by inducing a form of *photodamage* or '*photonecrosis*' to effectively destroy the colors responsible for the clinical expression of hyperpigmentation

A close-up photograph of a person's face with a white, frost-like substance applied to the cheek. A small circular logo in the bottom left corner reads "PEELINGS" and "SALICYLIC".

WHITE FROSTING

By using the frosting effect of TCA ensuring that it *completely covers the hyperpigmented area and effectively obscures the discoloration.*

2.Addressing the 3 key compartments of melanin metabolism

- **Production**: Modifying the melanogenesis process to reduce melanin synthesis.
- **Transport**: Interfering with the movement of melanin within the skin to prevent uneven distribution.
- **Destruction**: Enhancing the breakdown and removal of excess melanin from the skin.

2 = Gentle Treatment Without Downtime
(Protocol by M. Tiziani)

1 + 2 = Aggressive Treatment with Downtime
(Protocol by A. Tenenbaum)

Frostings

*Targeting the
pigment
(ColorKiller)*

ROSE FROSTING



GREY FROSTING



WHITE FROSTING



Frostings & TCA

*Targeting the
pigment
(ColorKiller)*

ROSE FROSTING



GREY FROSTING



WHITE FROSTING



*Targeting the
pigment
(ColorKiller)*

*The frosting has
to completely
cover the
hyperpigmented
areas*



**FROSTING DOESNT COMPLETELY COVER
THE HYPERPIGMENTED AREAS
ON THIS ASIAN MALE PATIENT**



Courtesy of Dr. Alain Tenenbaum



White
Frosting
appearing
over existing
Crusts
at 2nd or 3rd
Session

FROSTING APPEARING OVER EXISTING CRUSTS



Courtesy of Dr. Alain Tenenbaum

POST CHEMO-DERMABRASION DEMARCATIION LINE

Complication
Observed After
Chemodermabrasion
Performed by a
Dermatologist



Courtesy of Dr. Alain Tenenbaum

Targeting the pigment (ColorKiller)

Degressive Concentrations
(from higher to lower)
around the lesion are the
Best Option to avoid
Demarcation Lines.

Don't forget to treat
WHOLE FACE even for a
small loco-regional lesion !
(A.TENENBAUM)

THE TCA MOSAIC APPROACH FOR TREATING A DEMARCATION LINE



Courtesy of Dr. Alain Tenenbaum

THE WHITE FROSTING EXTENDS BEYOND THE LESION
INTO THE PERILESIONAL AREA

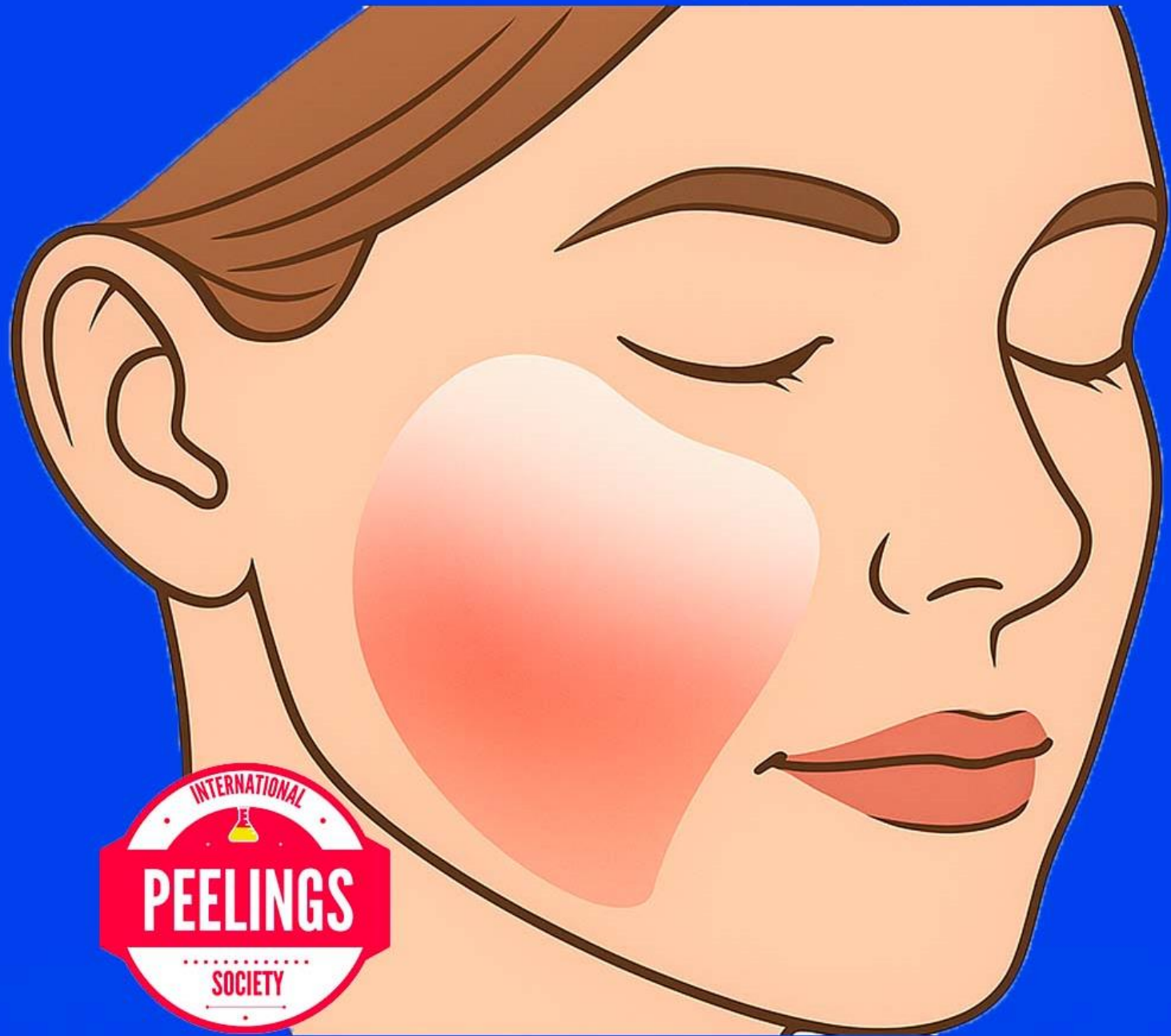
*Targeting
the pigment
(ColorKiller)*



Courtesy of Dr. Alain Tenenbaum

DEFROSTING FOLLOWING WHITE FROSTING

*Targeting
the pigment
(ColorKiller)*



Targeting the pigment (ColorKiller)

When to apply the frosting stopper (Peeling de Luxe Plus)

Condition

White frosting appears on the lesion

Frosting turns from grey to white on the perilesion (external limits of the lesion)

Frosting turns from red to grey on the perilesion (near the lesion but not in direct contact)

Action

Apply the frosting stopper at the moment of defrosting following the white frosting on the lesion.

Apply the frosting stopper just juxtaposing the external limits of the lesion.

Apply the frosting stopper not directly juxtaposing the lesion, but at the moment of defrosting.

*Targeting
the pigment
(ColorKiller)*

When to
apply the
frosting
stopper
(Peeling de
Luxe Plus)

WHEN TO USE THE FROSTING STOPPER (PEELING DE LUXE PLUS)



Courtesy of Dr. Alain Tenenbaum

Concepts of A.Tenenbaum & M.Tiziani

1.Targeting the pigment directly Or the „ColorKiller,, of A.Tenenbaum

A red rectangular box with a white horizontal band in the center. The word "COLORKILLER" is written in white capital letters on the red background.

COLORKILLER

by inducing a form of *photodamage* or '*photonecrosis*' to effectively destroy the colors responsible for the clinical expression of hyperpigmentation

A close-up photograph of a person's face, showing a white, frost-like substance applied to the cheek. The person's eyes are closed. A small circular logo is visible in the bottom left corner of the image.

WHITE FROSTING

By using the frosting effect of TCA ensuring that it *completely covers the hyperpigmented area and effectively obscures the discoloration.*

2.Addressing the 3 key compartments of melanin metabolism

- **Production**: Modifying the melanogenesis process to reduce melanin synthesis.
- **Transport**: Interfering with the movement of melanin within the skin to prevent uneven distribution.
- **Destruction**: Enhancing the breakdown and removal of excess melanin from the skin.

1 + 2 = Aggressive Treatment with Downtime

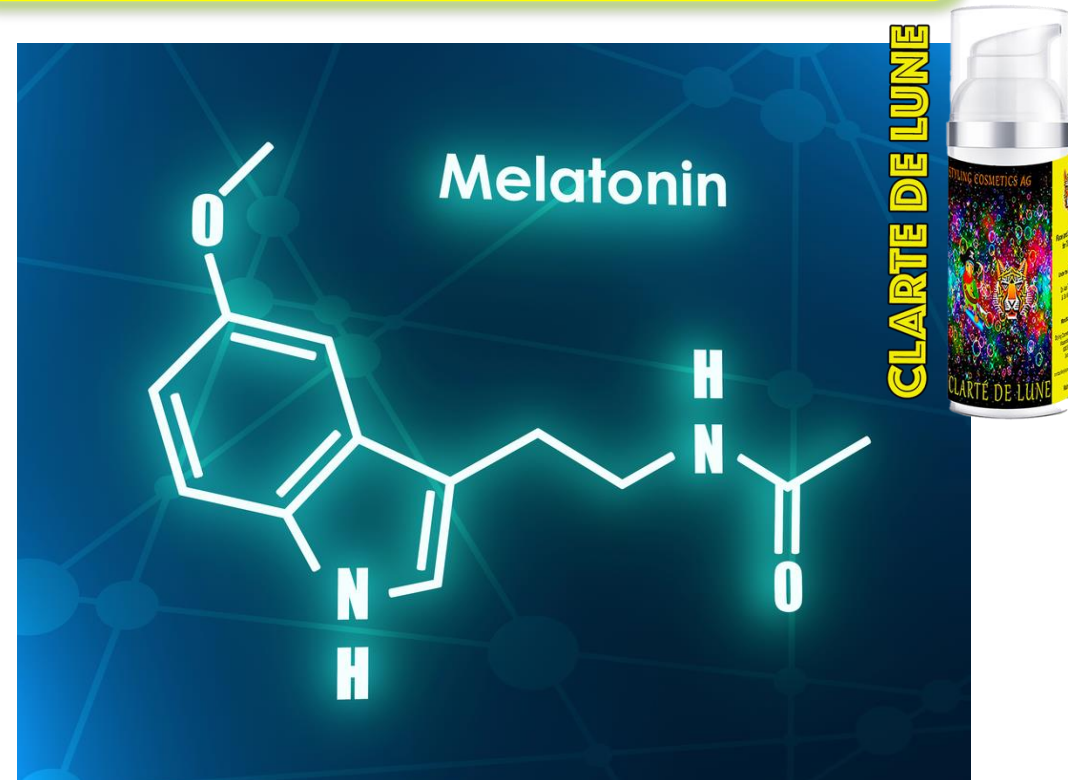
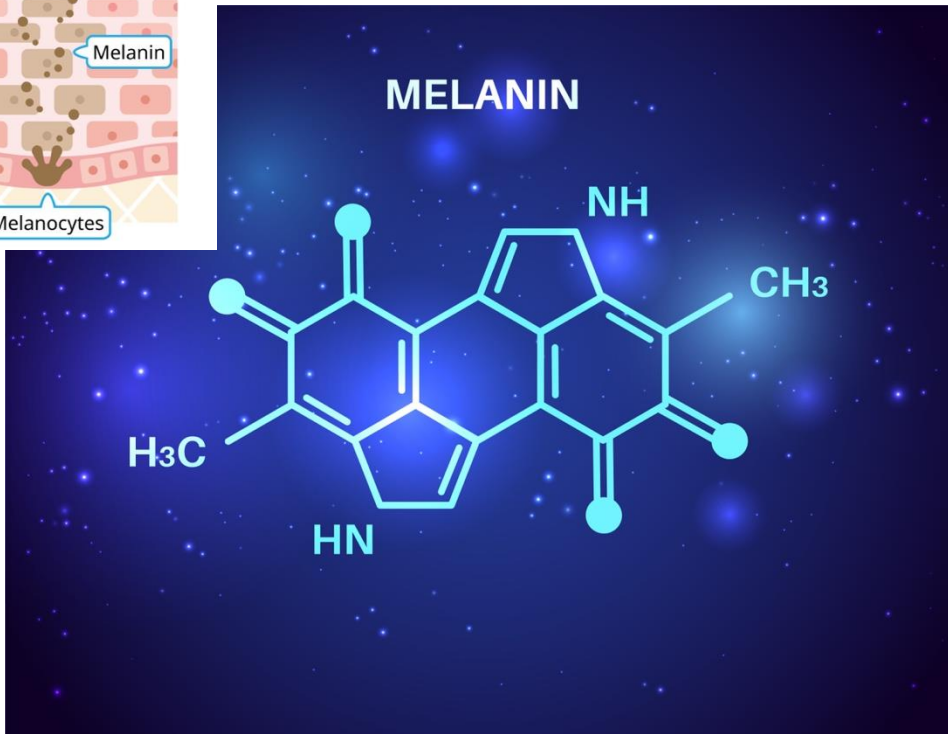
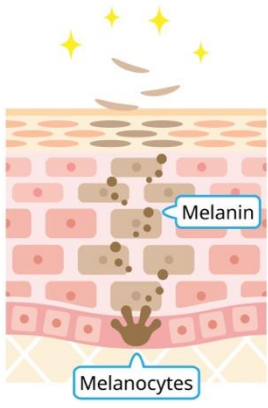
(Protocol by A. Tenenbaum)

2 = Gentle Treatment Without Downtime

(Protocol by M. Tiziani)

No Confusion

Addressing the 3 key compartments of melanin metabolism



COMPARTMENT		GOAL/AIM	CATEGORY OF TREATMENT	INGREDIENTS	PRODUCT
1	Production	Reduce the production of melanin	Prevention + Maintenance Treatments	<ul style="list-style-type: none">• Tretinoin• Tranexamic Acid	Peeling de Luxe Plus
2	Circulation	Lower the melanin transfer through melanosomes	Maintenance Treatment	<ul style="list-style-type: none">• Topical Melatonin Regulates Melanin (see below)	Clarté de Lune
3	Destruction	Treat the hyperchromy or hyperchromies	Attack Treatment	<ul style="list-style-type: none">• Azelaic Acid• Arbutin• Kojic Acid• Vit C	StretchPeel

Addressing the 3 Key Compartments of Melanin Metabolism



Protocol
Hyperpigmentation

Protocol
Hyperpigmentation

Treatment of Cervical Hyperchromy
Post Chemodermabrasion
TCA + Metabolic Peels + Depigmentants
Protocol of A.Tenenbaum

BEFORE



AFTER 4 SESSIONS



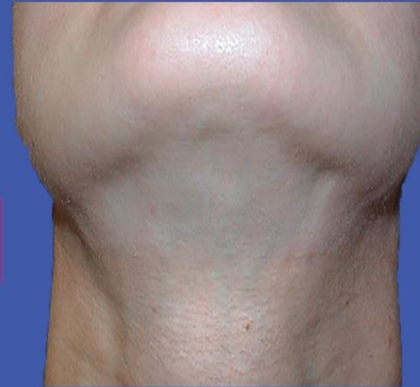
Courtesy of Dr. Alain Tenenbaum

Treatment of Cervical Hyperchromy
Post Chemodermoabrasion
TCA + Metabolic Peels + Depigmentants
Protocol of A.Tenenbaum : 4 sessions-1 session/week

D0



D365 stable



D60



Courtesy of Dr.Alain Tenenbaum

Treatment of Cervical Hyperchromy
Post Chemodermoabrasion
TCA + Metabolic Peels + Depigmentants
Protocol of A.Tenenbaum : 4 sessions-1 session/week

D0



D365 stable



D60



Courtesy of Dr.Alain Tenenbaum

TCA 30% w/w on Asian Skin for Deep Acne Scars
1 Session Only
Protocol : TCA + Metabolic Peel + Depigmentant + Moisturizer

D0



D7



Courtesy of Dr. Alain Tenenbaum

TCA 30% w/w on Asian Skin for Deep Acne Scars
1 Session Only
Protocol : TCA + Metabolic Peel + Depigmentant + Moisturizer



D0

D7



D1

D3

D4

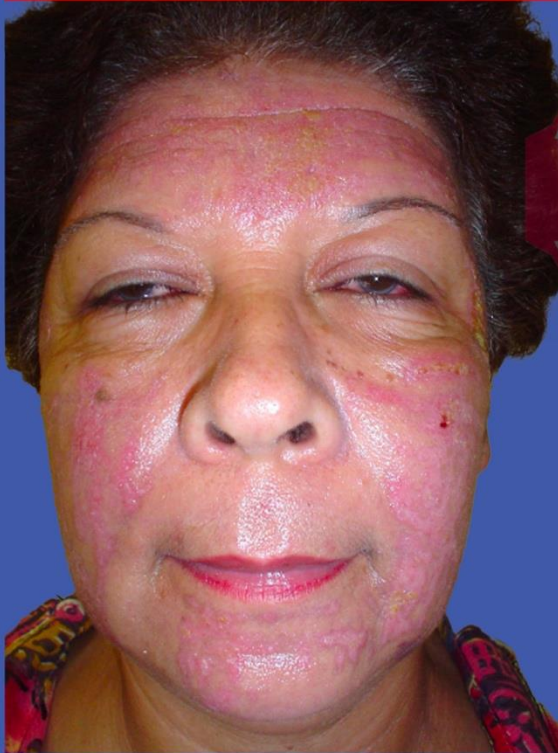


Courtesy of Dr. Alain Tenenbaum

Treatment of Facial Hyperchromy
dued to a peelings complication (TCA + Glycolic Acid)
Fixed with TCA + Metabolic Peels + Depigmentants

BEFORE

3 weeks after TCA + Glycolic Acid



AFTER 4 MONTHS



Protocol Hyperchromy of Dr. Alain Tenenbaum

LIFE
GOES
ON

Treatment of Facial Hyperchromy
dued to a peelings complication (TCA + Glycolic Acid)
Fixed with TCA + Metabolic Peels + Depigmentants

Never give up

before



1month



2 months



3 months



4 months



Protocol Hyperchromy of Dr. Alain Tenenbaum

Treatment of Low Neck (Décolleté)
Post Glycolic Acid Complication
Treatment : TCA + Metabolic Peels + Depigmentants
Protocol of A.Tenenbaum

BEFORE

3 weeks after glycolic acid



AFTER 90 DAYS



Protocol Hyperchromy of Dr.Alain Tenenbaum

2.Addressing the 3 Key Compartments of Melanin Metabolism

MECHANISM OF ACTION OF TOPICAL MELATONIN IN SKIN PIGMENTATION REGULATION

Key Ingredients

- Melatonin: neuroohormone with cutaneous activity
- Tocopherol (Vitamin E): antioxidant synergy
- Glutamic Acid & Citric Acid: support skin metabolism and pH balance

Mechanisms of Action

Mechanism	Description
Antioxidant Activity	Neutralizes free radicals and reduces oxidative stress that stimulates melangensis
Tyrosinose Downregulation	Inhibits tyrosinase enzyme, reducing melanin synthesis
Melatonin Receptor Antivation	Binds MT1/MT2 receptors o melanocytes, modulating melanogenic signaling pathways
Inhibition of Melanin Transfer	Modulates keratinocyte-melanocyte communication, decreasing melanosome transfer
Gene Expression Regulation	Influences MITF and related genes controlling melanin production
Anti-inflammatory Effects	Reduces post-inflammatory hyperpigmentation through skin calming and repair

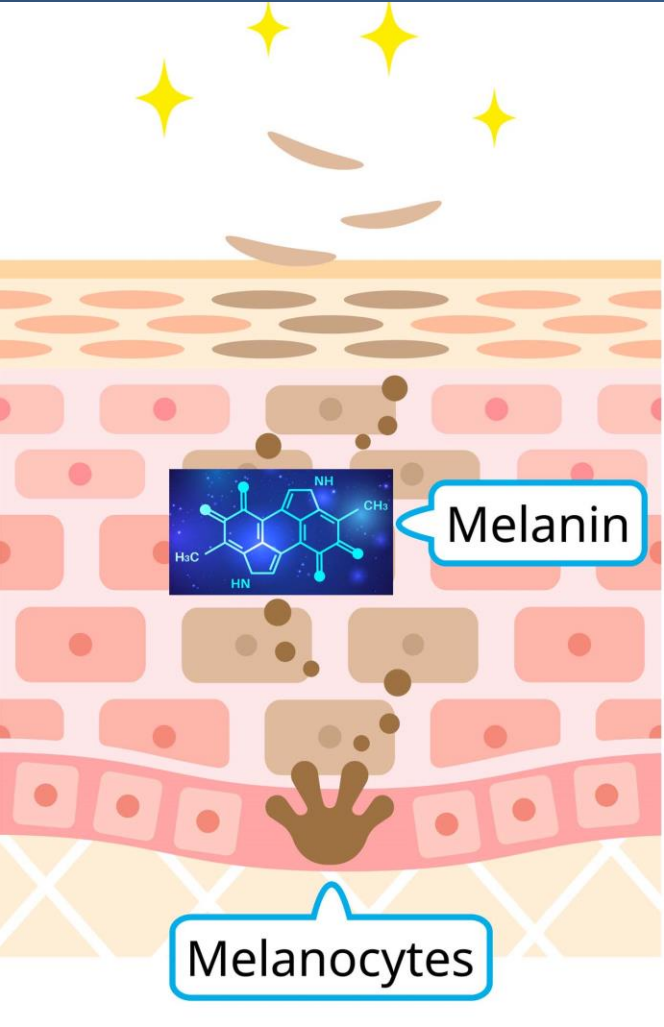
Clinical Effects

- Reduction of hyperchromia and dark spots
- Improved skin tone uniformity
- Enhanced skin protection against UV-induced pigmentation

Application Tips

- Can be combined with metabolic peels for synergistic depigmentation

CLARTE DE LUNE



Melasma on Asian Female



Definition of Melasma

- Melasma is a common skin condition characterized by the development of brown or grayish-brown patches, typically on the face.
- It is often found on areas that are exposed to the sun, such as the
 - -cheeks
 - -forehead
 - -nose and
 - -upper lip.
- The condition is more common in **women**, especially during **pregnancy** or when using **birth control pills**, due to hormonal changes.
- It can also be triggered or worsened by **sun exposure**, certain **medications**, or skin irritation.
- The patches are usually symmetrical, and melasma is typically more noticeable in individuals with darker skin tones.

MELASMA

Histo-Pathophysiology of Melasma

Melanocyte hyperactivity:

Melasma is not due to an increased number of melanocytes, but rather their increased **functional activity**, leading to excess melanin production.

Epidermal melasma: Melanin is predominantly found in the basal and suprabasal layers.

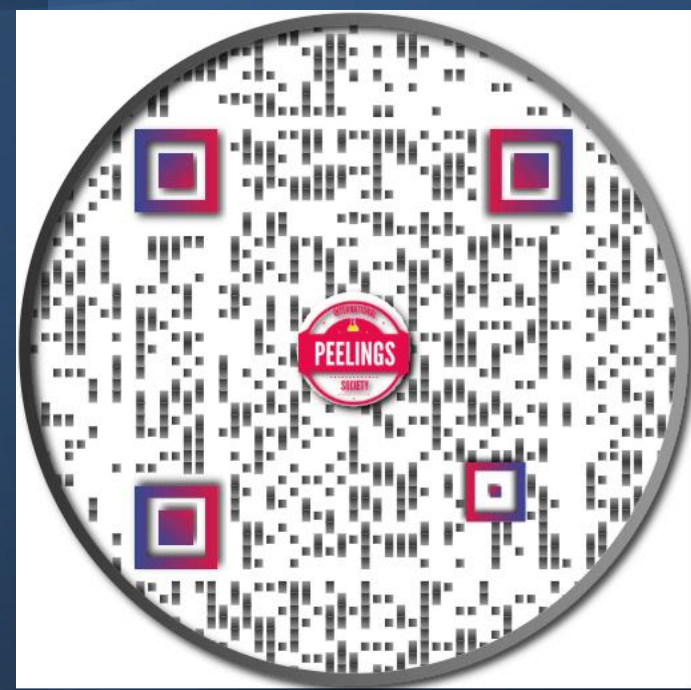
Dermal melasma: Melanin is present in melanophages in the dermis, often due to melanin leakage (pigmentary incontinence).

Normal skin

Epidermal melasma

Dermal melasma

Melasma has become more prevalent in recent years



Melasma

A close-up photograph of a person wearing a blue lab coat, pouring a clear, gel-like substance from a small white bottle into their open palm. The background is softly blurred, showing a white curtain. The text "Which Sunscreen without Alcohol?" is overlaid in white, centered on the image.

Which Sunscreen without Alcohol?

2.Addressing the 3 Key Compartments of Melanin Metabolism

StretchPeel as Sunprotector

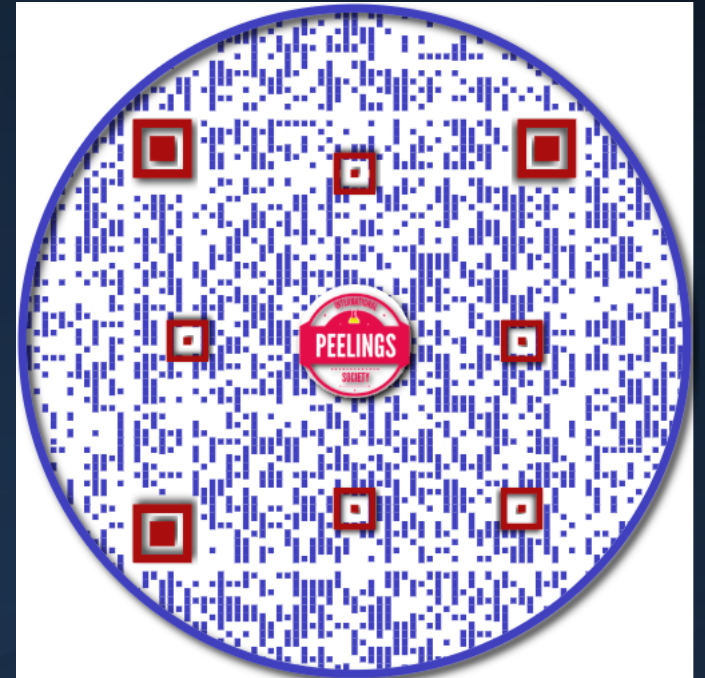
- Stretchpeel is helping to make heller hyperchromies and is acting as well as sunprotector without alcohol.
- Stretchpeel is *completely free of chemical filters like oxybenzone, avobenzone, and octinoxate.*
- These chemical filters can sometimes lead to hormonal disruptions or photosensitivity in some people, possibly contributing to melasma
- Stretchpeel cream is a powerful Sunprotector Depigmenting agent and multivitamin cream.



Melasma

Treatment must
be aggressive
Any "soft"
treatment will
only worsen the
results

Protocol Melasma



Protocol & Treatment Melasma

How to get rid of
Melasma
after uncorrect
treatment :
frosting not
covering the
whole colour of
the melasma !

Correction of Insufficient Treatment of Melasma with TCA 30% w/w + Metabolic Peels + Depigmentants

7 DAYS
AFTER TCA 18% w/w
UNCORRECT



Korean Female 29Y



7 DAYS
AFTER TCA 30% w/w
CORRECT



Courtesy of Dr. Alain Tenenbaum

Correction of Insufficient Treatment of infraocular Melasma with TCA 30% w/w + Metabolic Peels + Depigmentants

7 DAYS
AFTER TCA 18% w/w
UNCORRECT



Korean Female 29Y



7 DAYS
AFTER TCA 30% w/w
CORRECT



Courtesy of Dr. Alain Tenenbaum



Social Eviction (Downtime) Information with TCA 3 Days after Each Session

TCA 20% w/w on Phototype 2
Huge social eviction 3 days after each session
TCA + Metabolic Peels + Depigmentants + Moisturizer
Protocol of A.Tenenbaum : 4 sessions-1 session/week

D0



D21+3



D8+3



D15+3



Courtesy of Dr.Alain Tenenbaum

[Patient Leaflet to avoid
Panic](#)

Patient Leaflet to Avoid Panic



Combination EBD+ Peels

Combination EBD (Erb Yag) & TCA 30% w/w
No waterphotodetersion ! Only with TCA

D0



1 ST SESSION

Korean Male



D7



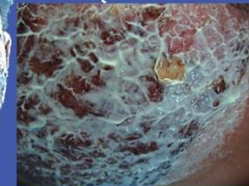
D1



D4



Peeling Sushi or
Laser Spot
Desquamation



Courtesy of Dr. Alain Tenenbaum

Combination EBD (Erb Yag) & TCA 30% w/w
No waterphotodetersion ! Only with TCA

2nd SESSION

No need to go on
with a 2nd session.

It s better to go
on with metabolic
peels without TCA



Courtesy of Dr.Alain Tenenbaum

2.Targeting the pigment (ColorKiller)

Is Salicylic Acid a Color Killer?

- Frosting with salicylic acid is purely physical, not biochemical
- Therefore, the **colorkiller** effect is more about **optical masking** or synergistic combination with agents like TCA or lactic acid for pigmentation correction.
- Unlike TCA, salicylic acid **does not produce true frosting through protein coagulation.**
- Instead, it creates a **pseudofrosting** due to **crystallization** of the acid on the skin as the solvent evaporates—often mistaken for "white frost."
- That said, we can still classify **clinical effects and visual appearances** by concentration

Comparison Table : TCA vs. Salicylic Acid for Hyperpigmentation used as „ Color Killers,,

S (Salicylic) for S (Superficial)

2.Targeting the pigment (ColorKiller)

Feature	TCA (Trichloroacetic Acid)	Salicylic Acid
Type of Acid	TCA	Beta-hydroxy acid (BHA)
Mechanism of Action	Medium-depth peel that exfoliates and stimulates collagen production	Superficial exfoliation, oil-soluble, penetrates pores
Target Area	Deeper pigmentation (e.g., melasma, sun spots)	Superficial pigmentation (e.g., PIH)
Penetration Depth	Medium depth	Superficial to medium depth
Suitable for Skin Types	Thicker skin types or severe pigmentation	Best for oily, acne-prone skin with superficial „light,,pigmentation
Frequency of Treatment	4 treatments spaced 1 /week or 2 weeks	Can be used more frequently (bi-weekly, monthly)
Main Benefits	Reduces deeper pigmentation, stimulates collagen production, improves skin texture	Prevents clogged pores, brightens skin
Side Effects	Redness, swelling, scabbing (can be intense)	Mild redness less intense than TCA

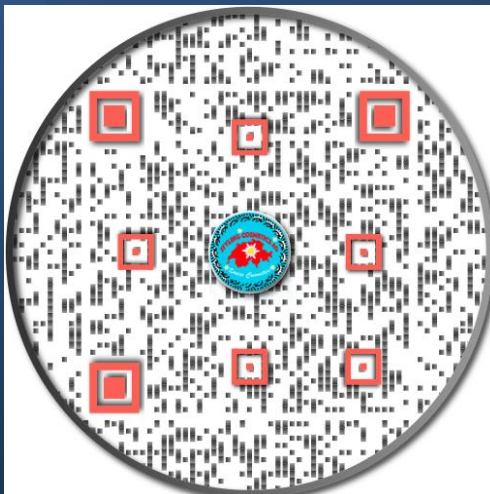
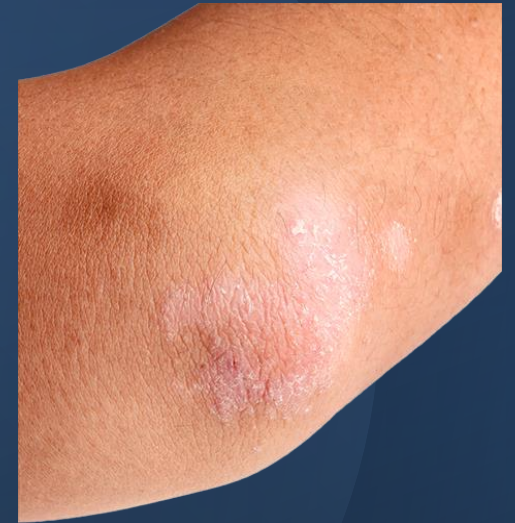
Clinical Effects & Visual Appearance

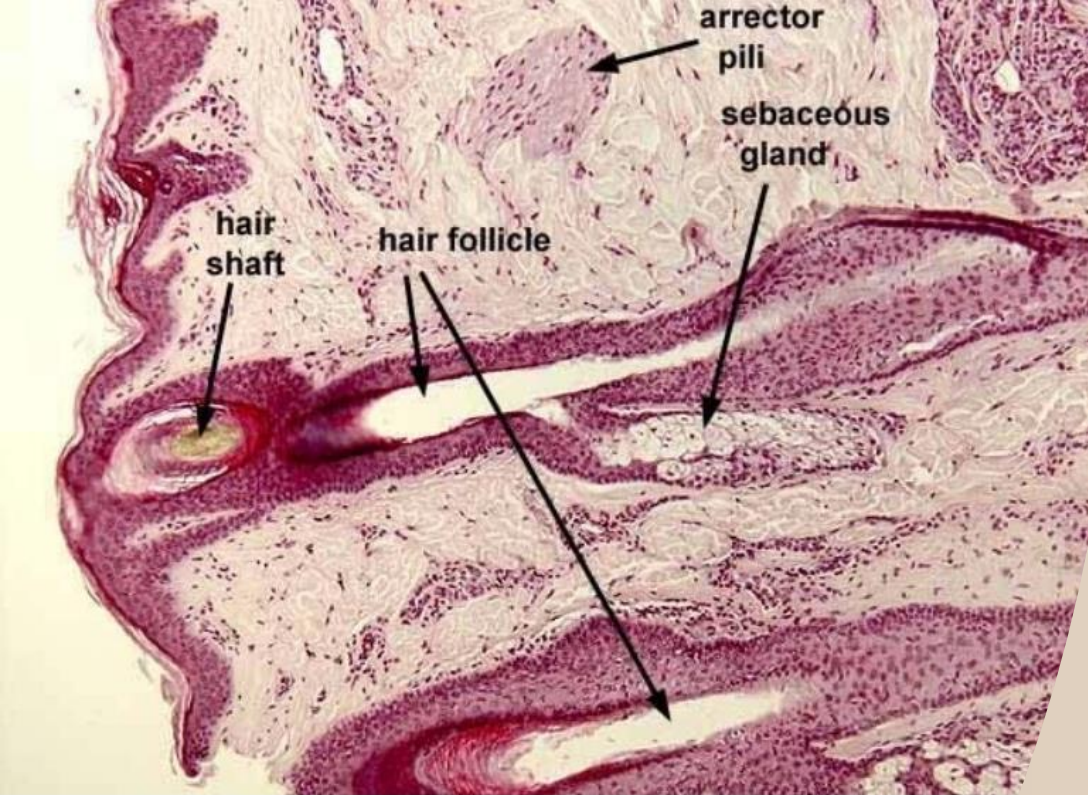
2.Targeting the pigment (ColorKiller)

SALICYLIC CONCENTRATIONS & VISUAL EFFECTS		ROSE (BLUSH)	GREY (PATCHY)	WHITE DENSE
1	Physical Effect	Appearance	Crystallization	Pseudo Frosting
2	Concentrations w/v	25% or less	25-30%	30-40%
3	Effects	<ul style="list-style-type: none">Mild erythemano visible frostingno visible crystallization	<ul style="list-style-type: none">Visible pseudofrosting in some zonespartial precipitation of crystals	<ul style="list-style-type: none">Thick white filmcrystallized salicylic acidnot true protein coagulation
4	Depth	<ul style="list-style-type: none">Very superficial	<ul style="list-style-type: none">Superficial peel	<ul style="list-style-type: none">Superficial epidermal peel
5	Indications	<div><ul style="list-style-type: none">Sensitive skin</div> <div><ul style="list-style-type: none">maintenance treatments</div>	<ul style="list-style-type: none">Acne-prone skincomedonesoily zones	<ul style="list-style-type: none">Acneseborrheic skinkeratosis pilaristhick skin areas (nose, chin, back)

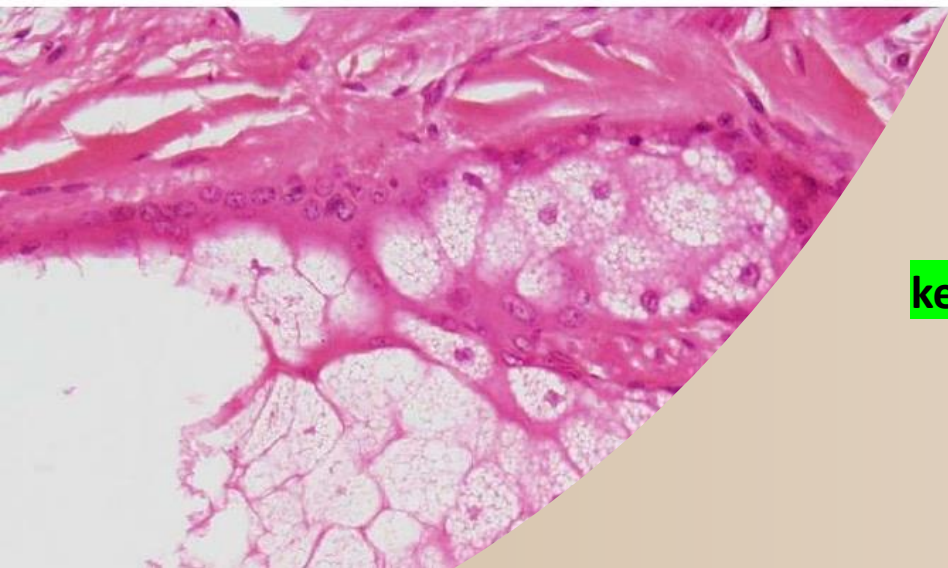
Indications for Keratotic Zones Use of Salicylic Acid in Ethanol

<https://chemicalpeeling.com/products-list/salicylic-acid>





To Peel or
not to Peel
Armpits



keratinized stratified squamous epithelium. = Keratotic Zone

Hyperpigmentation of Axillary Hollow
Treatment : Salicylic Acid + Metabolic Peels

BEFORE

AFTER



Courtesy of Dr. Alain Tenenbaum

TCA + Metabolic Peels
alternate with Salicylic Acid + Metabolic Peels

BEFORE

AFTER 3 SESSIONS



What do you need?

- Disposable clothing for patients and peelers (gown-e.g. non-sterile)
- Monouse gloves (S-M-L) non-sterile
- Robust cotton swabs non-sterile
- non-sterile wooden tongue depressor
- Monouse hoods
- Multicompresses 10x10 cm made of cotton non-sterile (no swabs)
- Porcelain, glass container-(No metal containers)
- Products



PEELS IN INTIMATE AREAS

A.TENENBAUM,
M.D.,Ph.D., D.Sc



M.TIZIANI, RCSA

drpeeling@bluewin.ch



Intimate Areas

Where Skin Care is Important

For Men

Perianal
Area

For Women

Perianal
Area

Genital
Area

Inner
Thighs



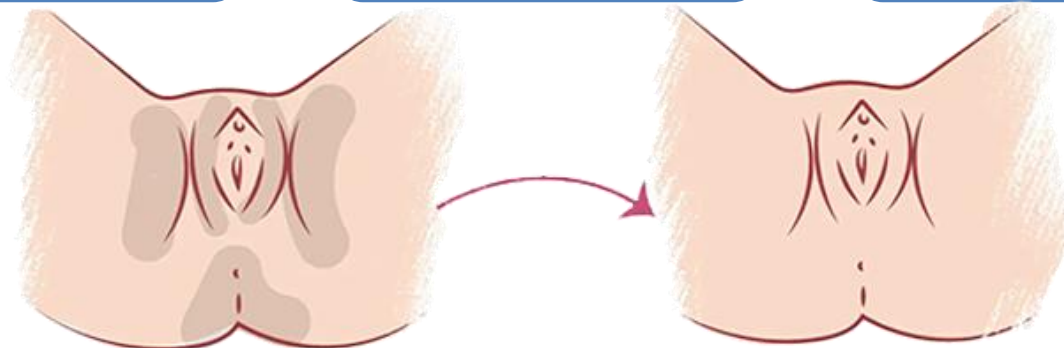
Common Indications

Pigmentation
Issues

Post
Pregnancy
Skin Changes

Aging

Lichen
Sclerosus

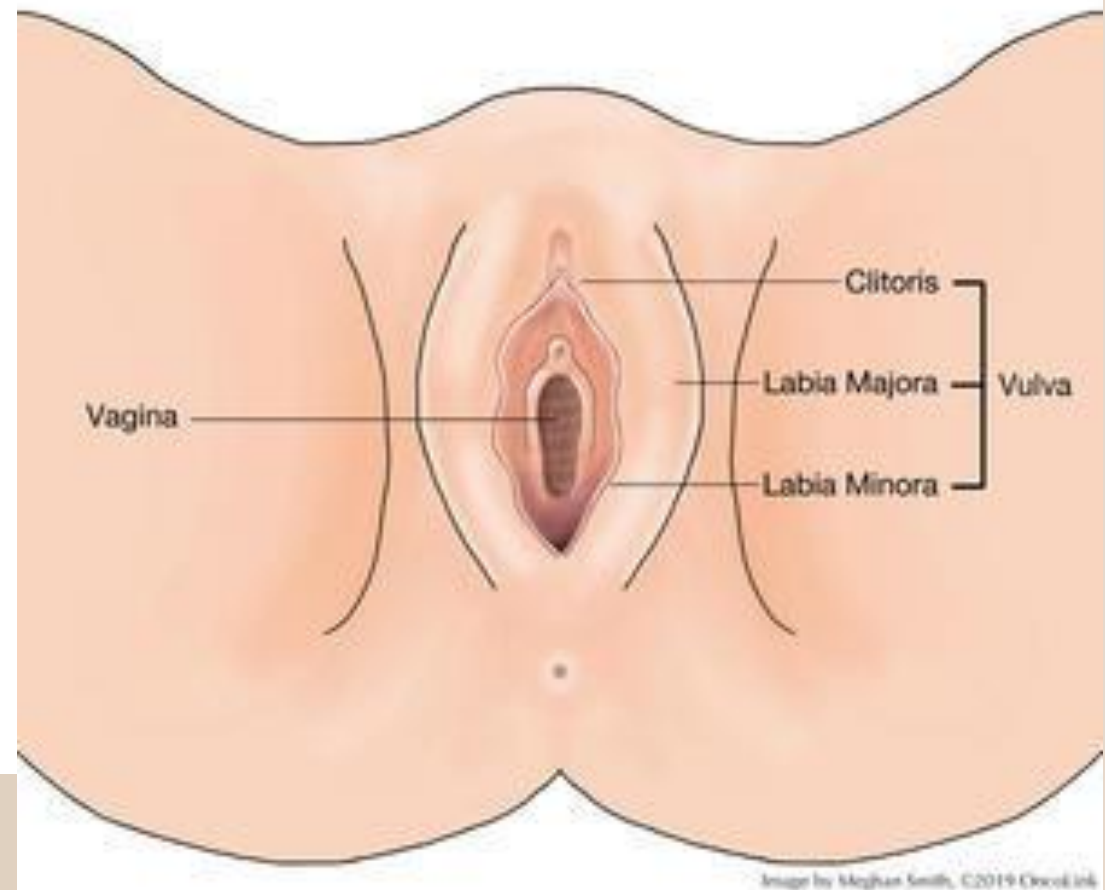
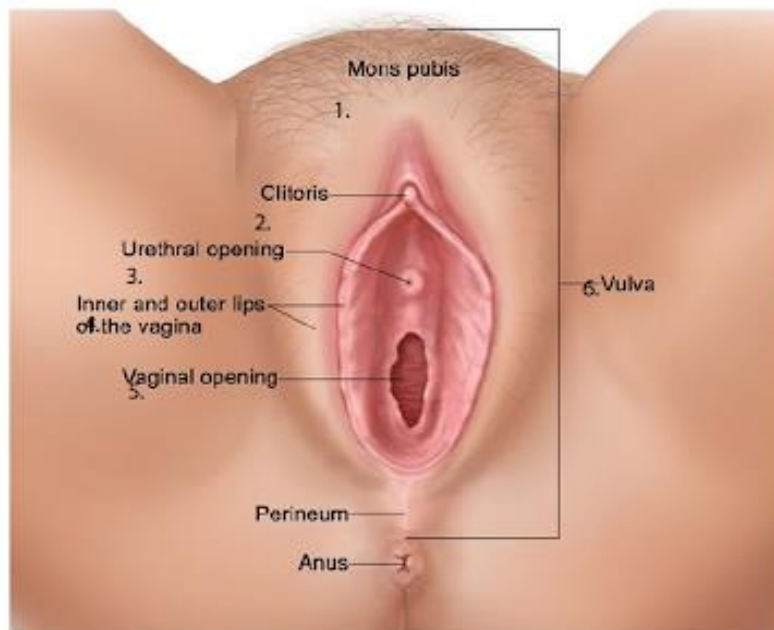


Which external structures of the vulva can be treated

STRUCTURES OF THE VULVA

NEVER TREAT INTERNAL STRUCTURES OF THE VULVA WITH Peels LIKE LABIA MINORA

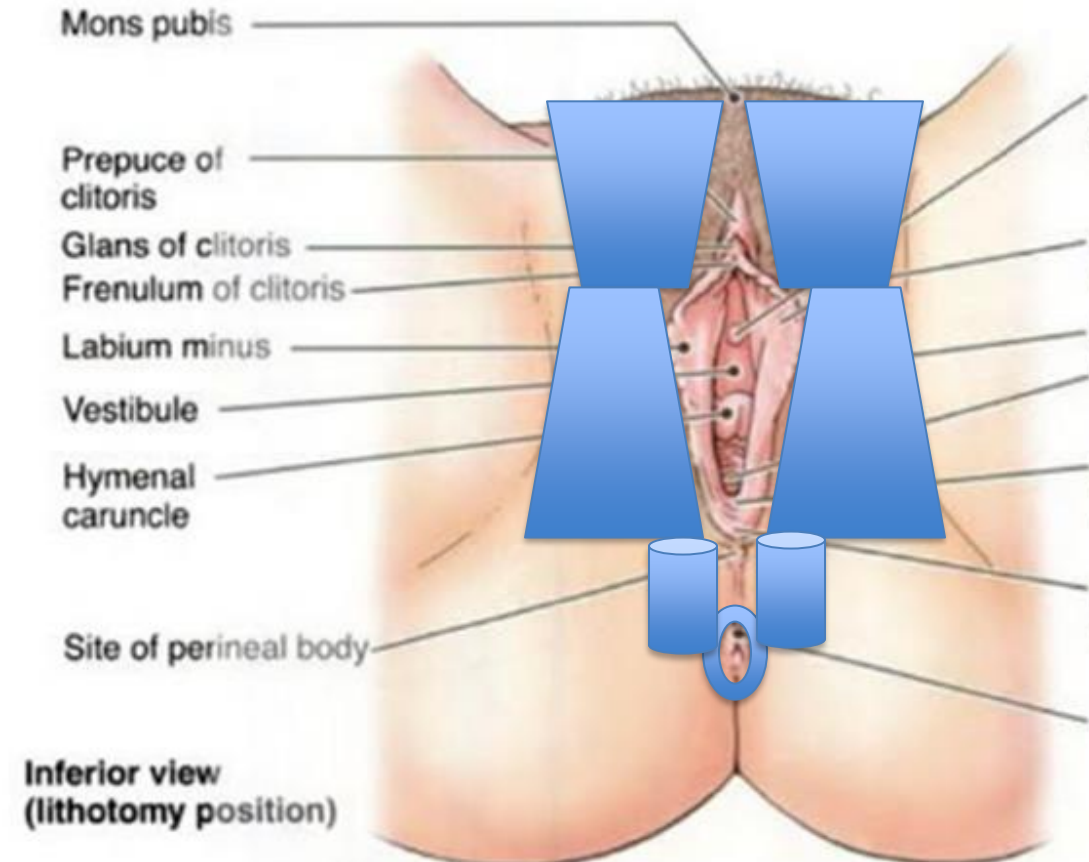
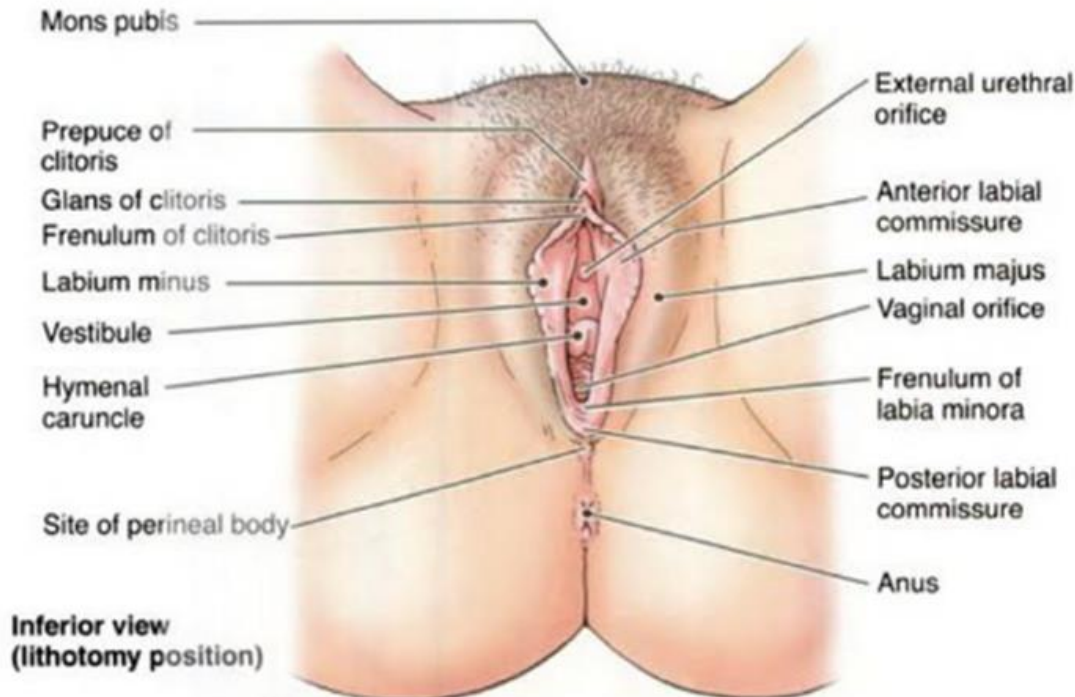
External Reproductive Anatomy



FEMALE VULVA

FEMALE PERINEUM

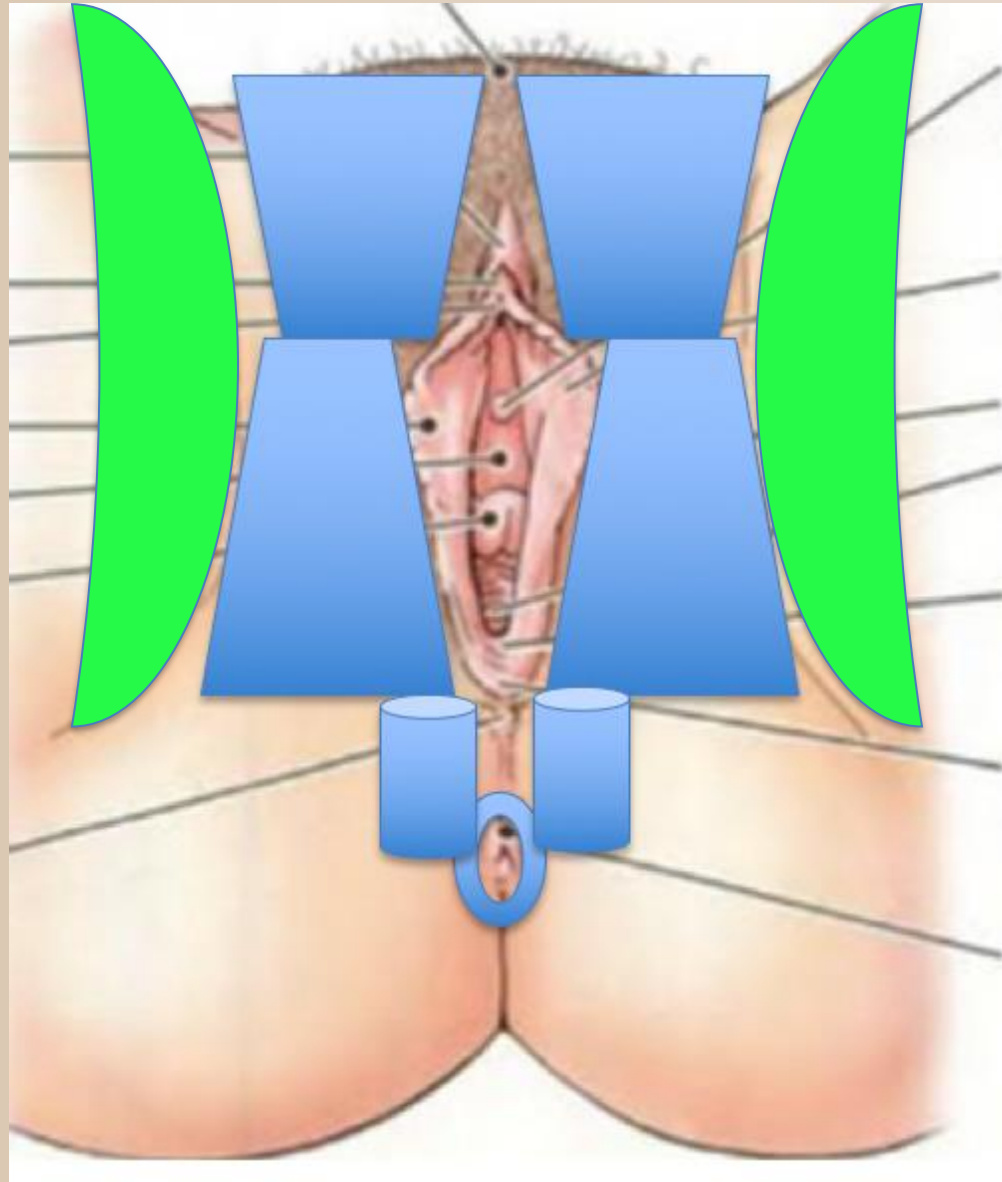
TREAT ONLY EXTERNAL VISIBLE STRUCTURES
FROM PUBIS TO PERIANAL AREA



WHERE TO PEEL

IN BLUE : EXTERNAL FEMALE GENITALIA+ PERIANAL AREA

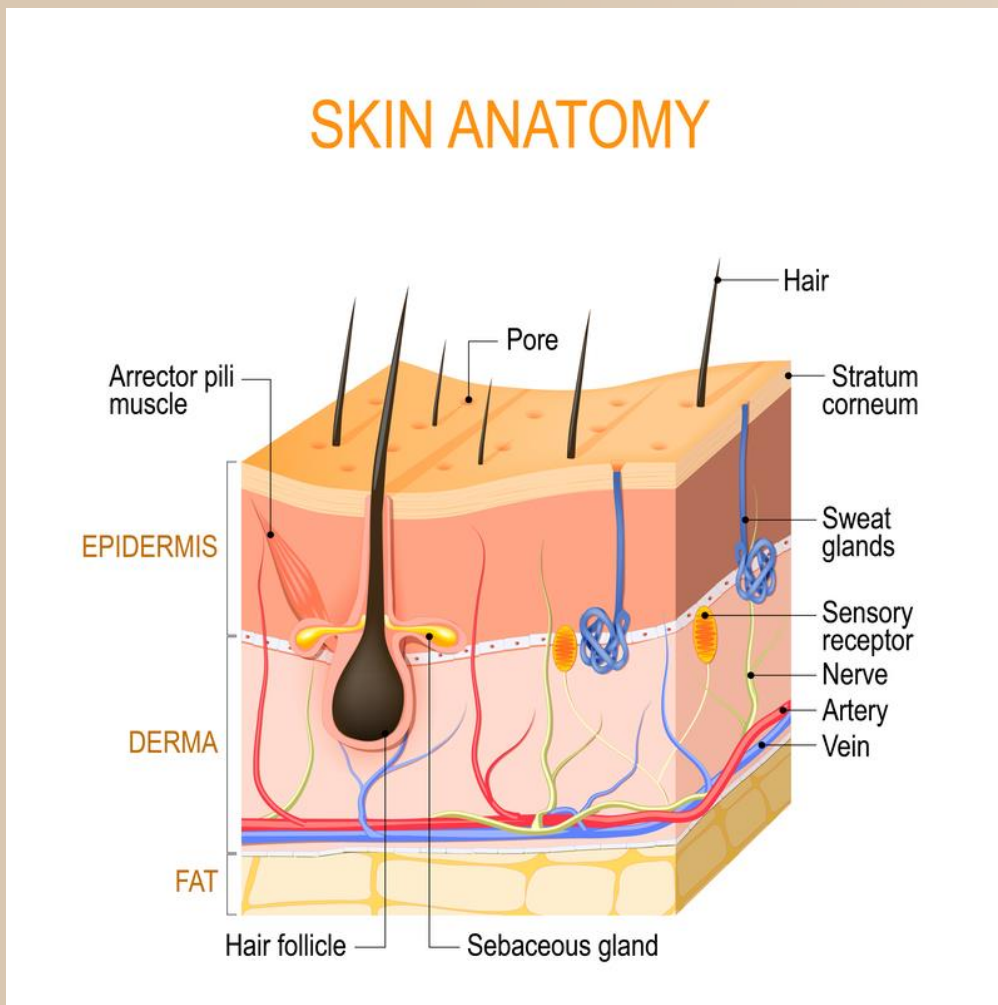
IN GREEN : INNER THIGHS



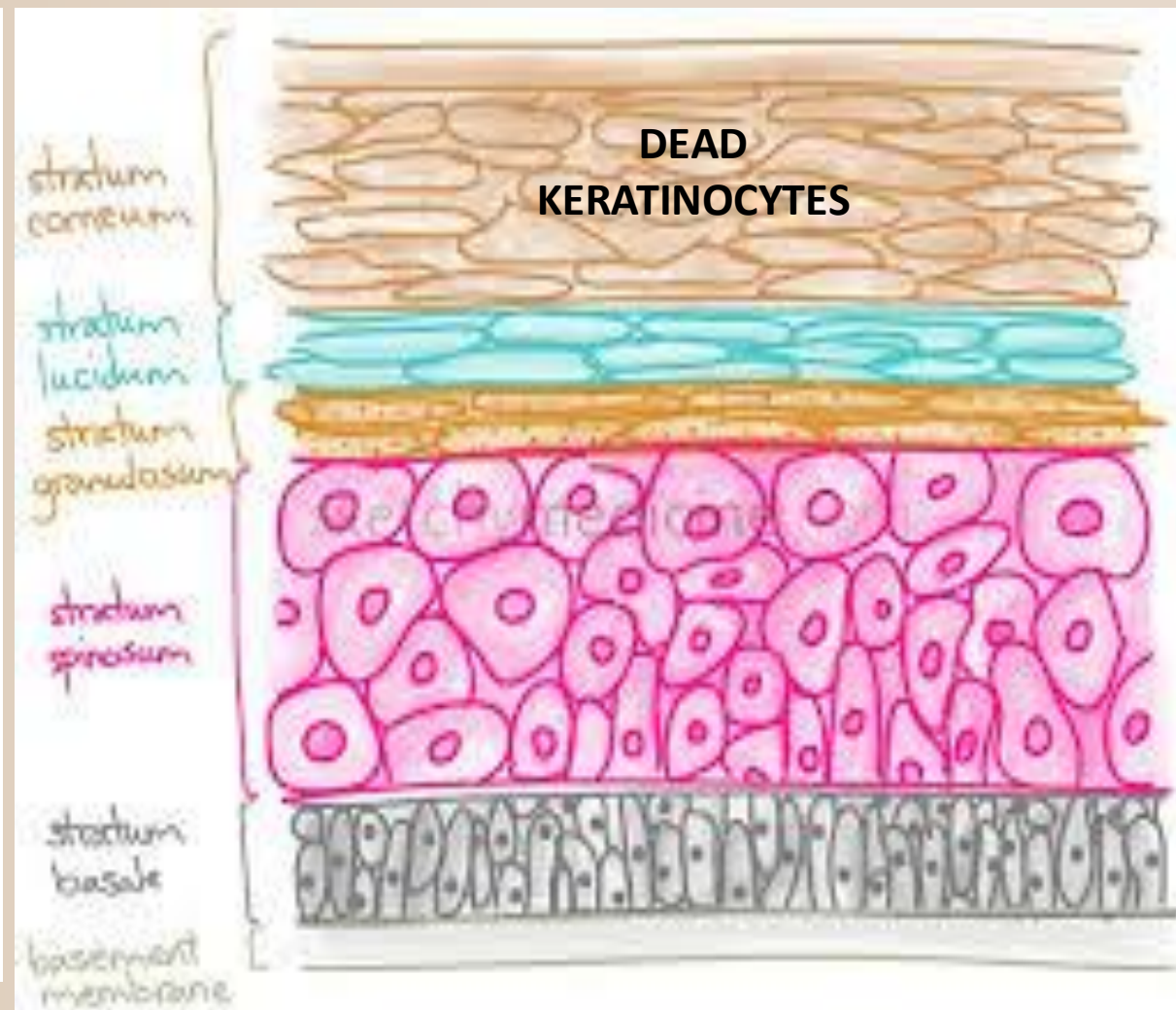
HISTOLOGY OF THE SKIN AND EPIDERMIS

Skin in Intimate Areas is thinner with higher sensitivity and potential for Hyperpigmentation

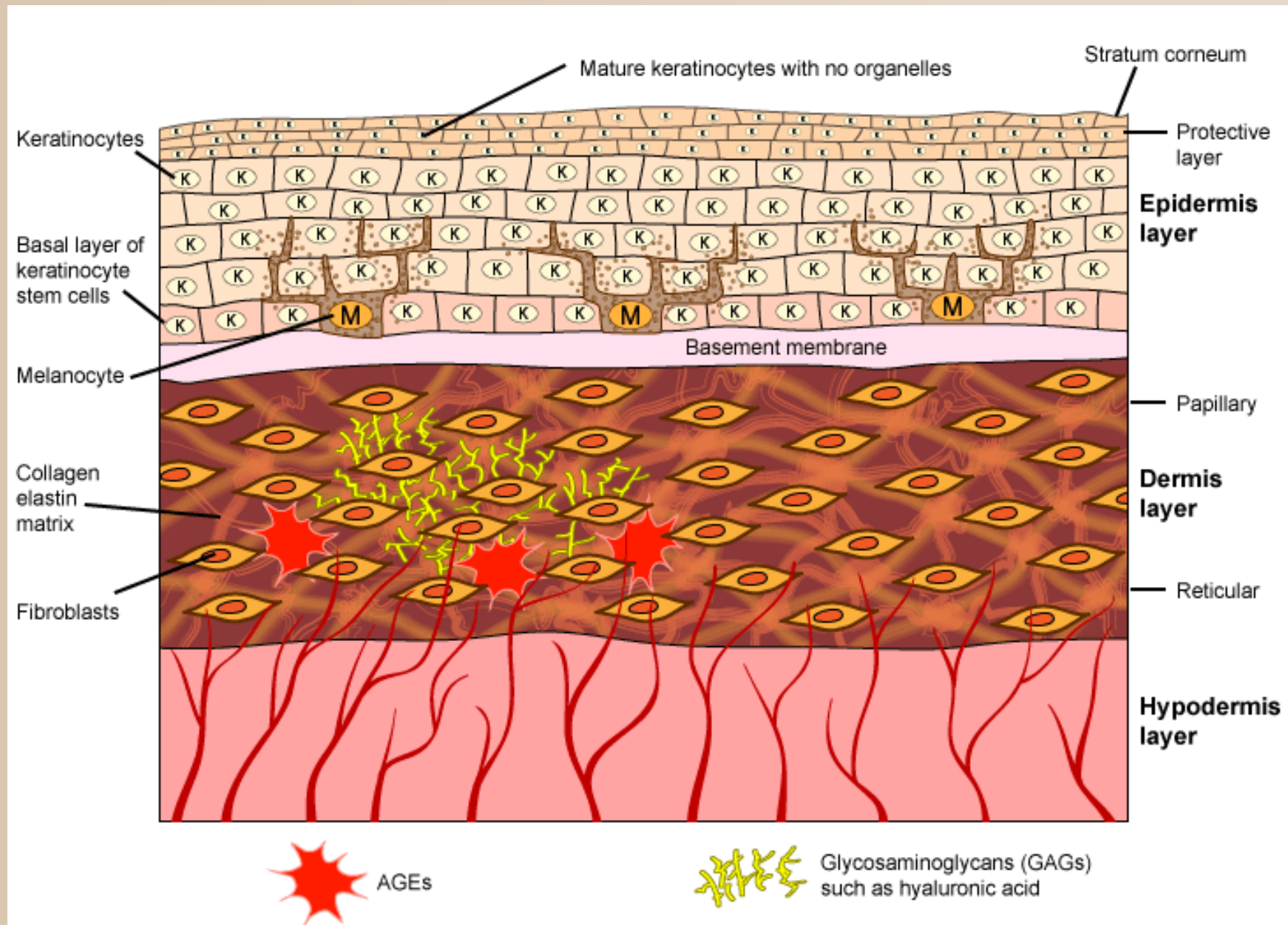
3 Layers



5 Epidermal layers

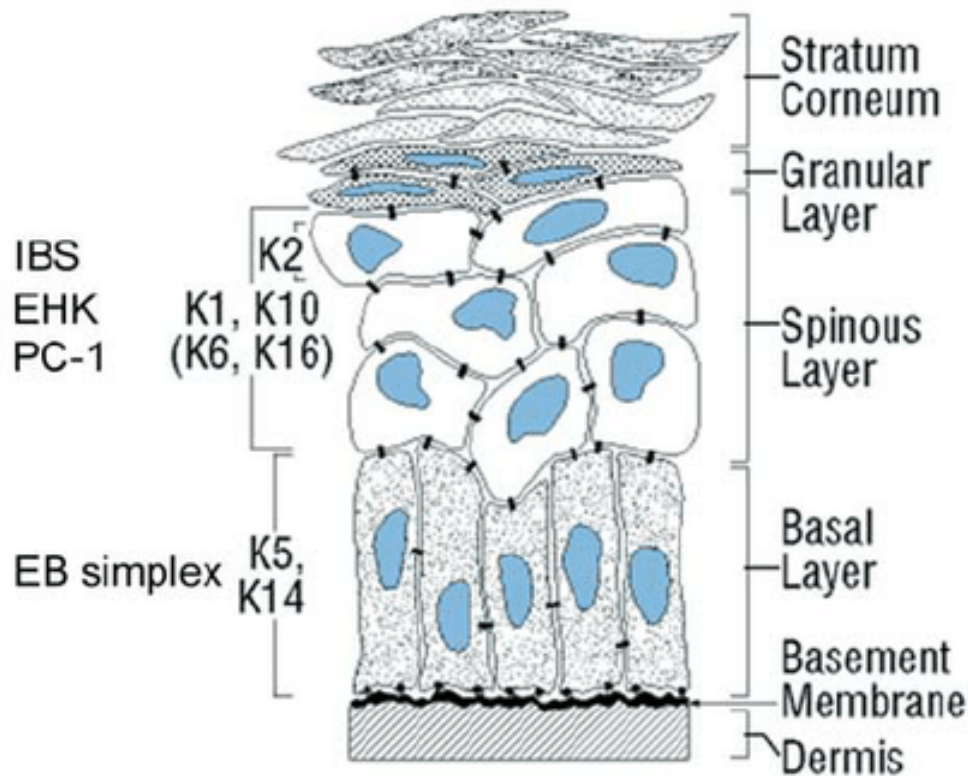


PIGMENTED LAYERS ARE EPIDERMIS, BASEMENT MEMBRANE AND DERMIS

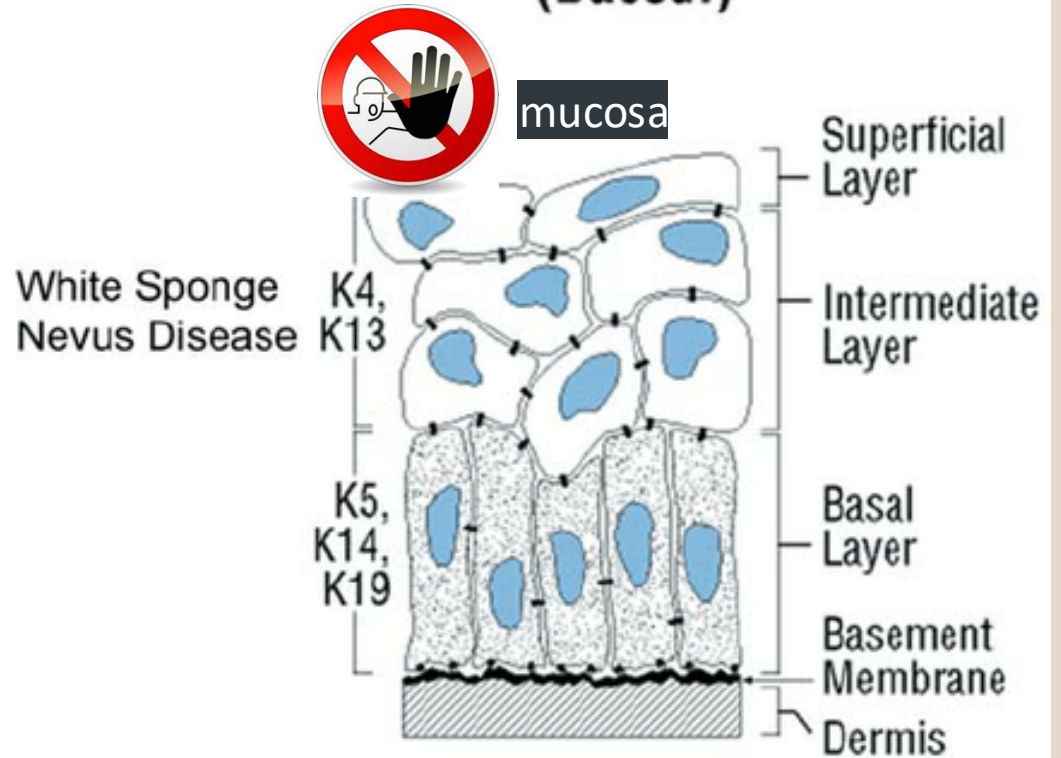


KERATINIZED AND NON KERATINIZED STRATIFIED SQUAMOUS EPITHELIUM

Epidermis, Oral Keratinized



Oral Non-Keratinized (Buccal)



TO PEEL OR NOT TO PEEL THAT IS THE QUESTION



keratinized stratified squamous epithelium

MONS PUBIS

LABIA MAJORA

EXTERNAL ANAL MARGIN

PERIANAL AREA

INNER THIGHS



NOT keratinized stratified squamous epithelium
(Mucosa)

CLITORIS

LABIA MINORA

VESTIBULE

ANUS

VAGINA

TO PEEL OR NOT TO PEEL THAT IS THE QUESTION



NOT keratinized stratified squamous epithelium
(Mucosa)

CLITORIS

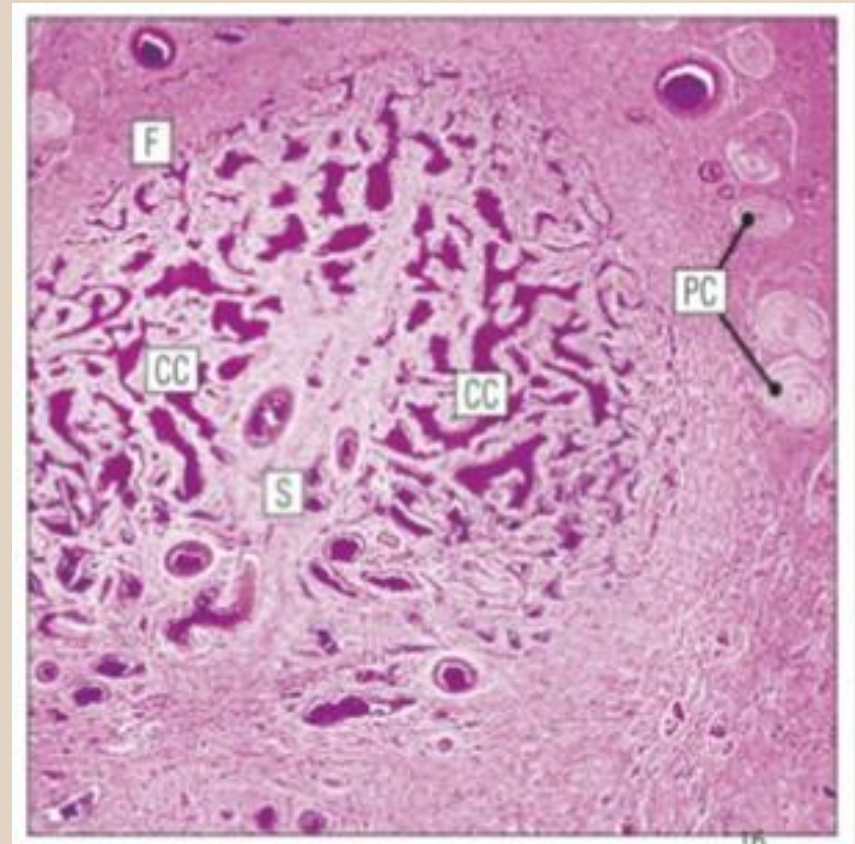
LABIA MINORA

VESTIBULE

ANUS

VAGINA

CLITORIS



No hair follicles are observed in this section

TO PEEL OR NOT TO PEEL THAT IS THE QUESTION



LABIA MINORA

NOT keratinized stratified squamous epithelium
(Mucosa)

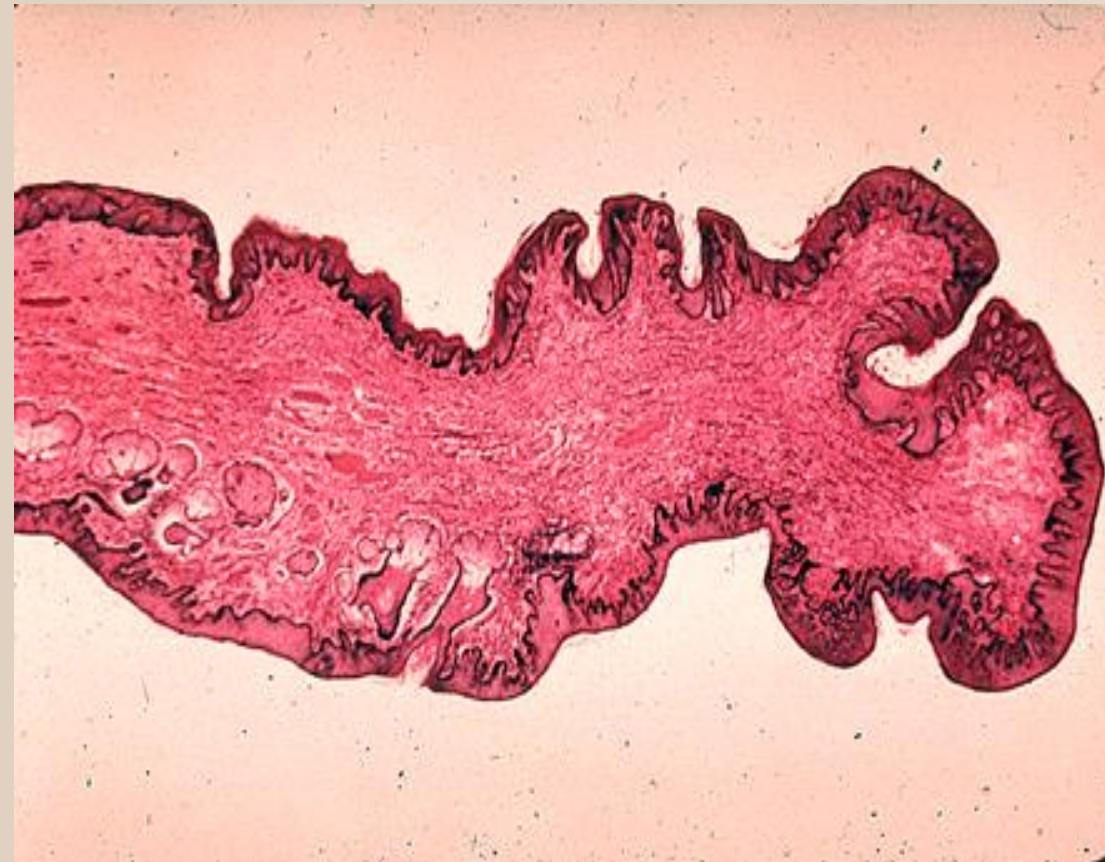
CLITORIS

LABIA MINORA

VESTIBULE

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VAGINA



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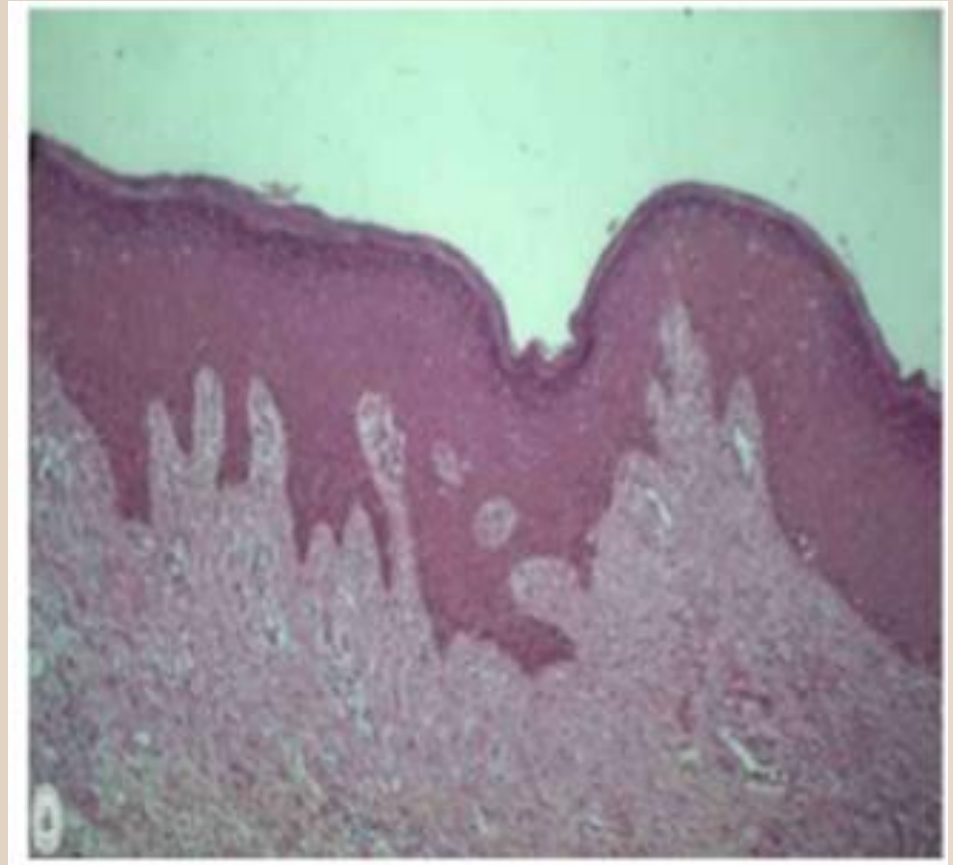
LABIA MINORA

VESTIBULE

ANUS

VAGINA

VESTIBULE



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TO PEEL OR NOT TO PEEL THAT IS THE QUESTION



RECTUM

NOT keratinized stratified squamous epithelium
(Mucosa)

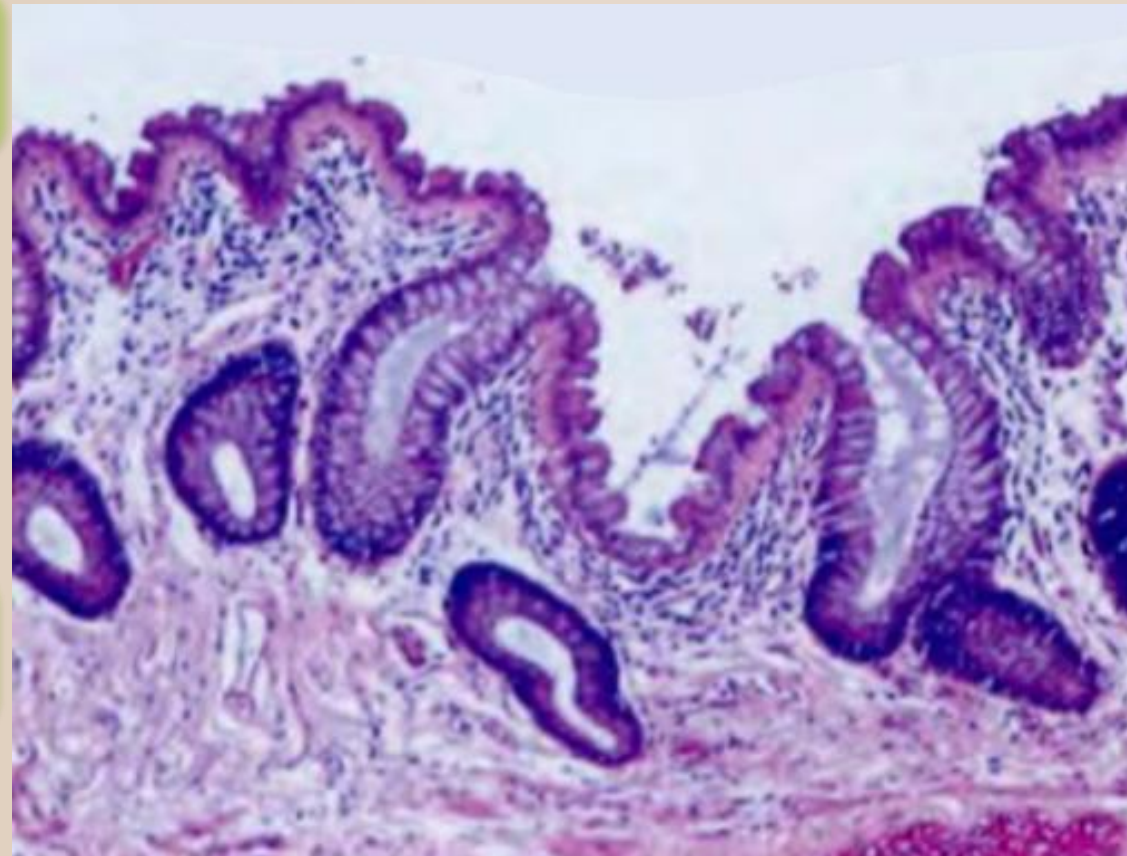
CLITORIS

LABIA MINORA

VESTIBULE

ANUS

VAGINA



No hair follicles are observed in this section

TO PEEL OR NOT TO PEEL THAT IS THE QUESTION



NOT keratinized stratified squamous epithelium
(Mucosa)

CLITORIS

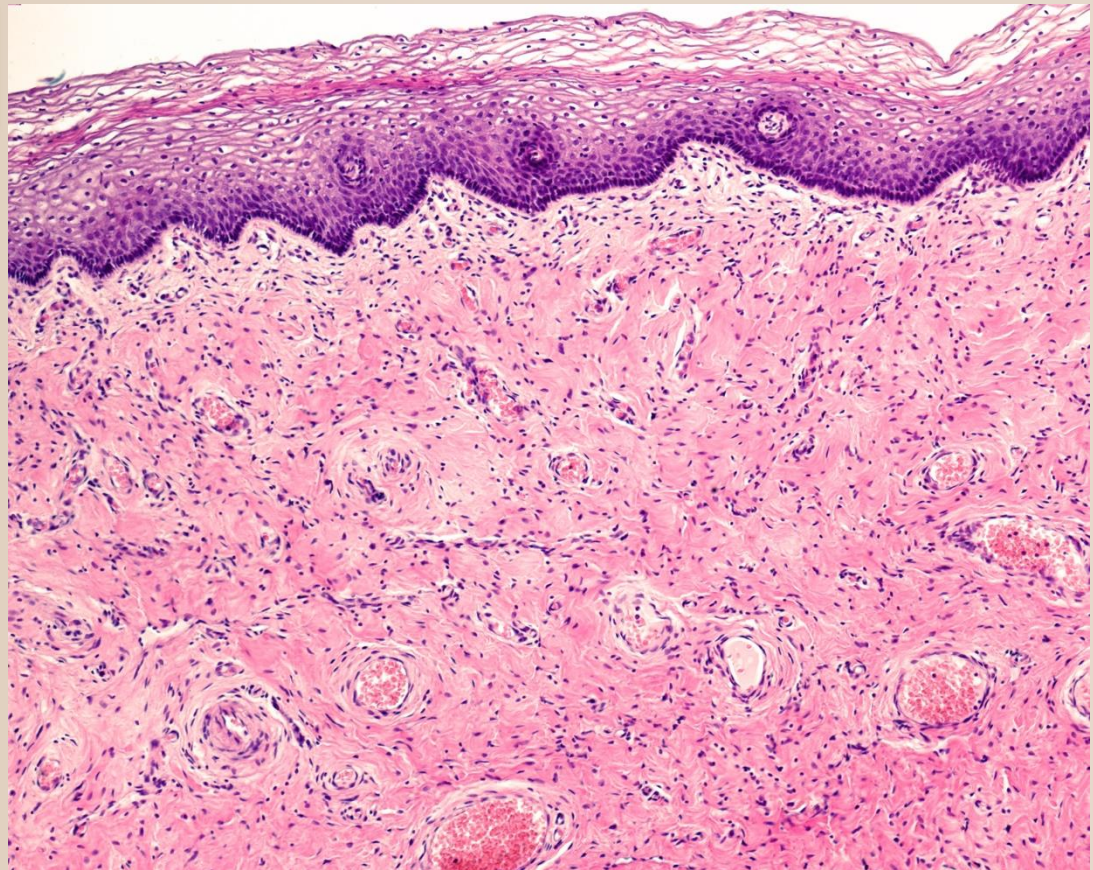
LABIA MINORA

VESTIBULE

ANUS

VAGINA

VAGINA



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TO PEEL OR NOT TO PEEL THAT IS THE QUESTION



keratinized stratified squamous epithelium

MONS PUBIS

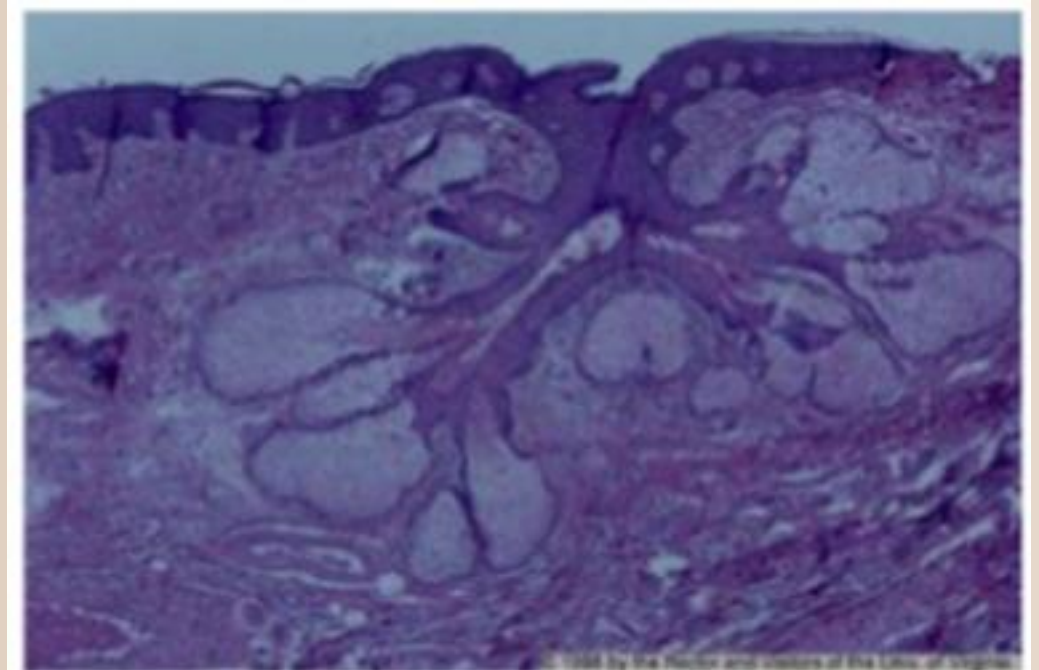
LABIA MAJORA

EXTERNAL ANAL MARGIN

PERIANAL AREA

INNER THIGHS

MONS PUBIS



Hair follicles are observed in this section

TO PEEL OR NOT TO PEEL THAT IS THE QUESTION



keratinized stratified squamous epithelium

MONS PUBIS

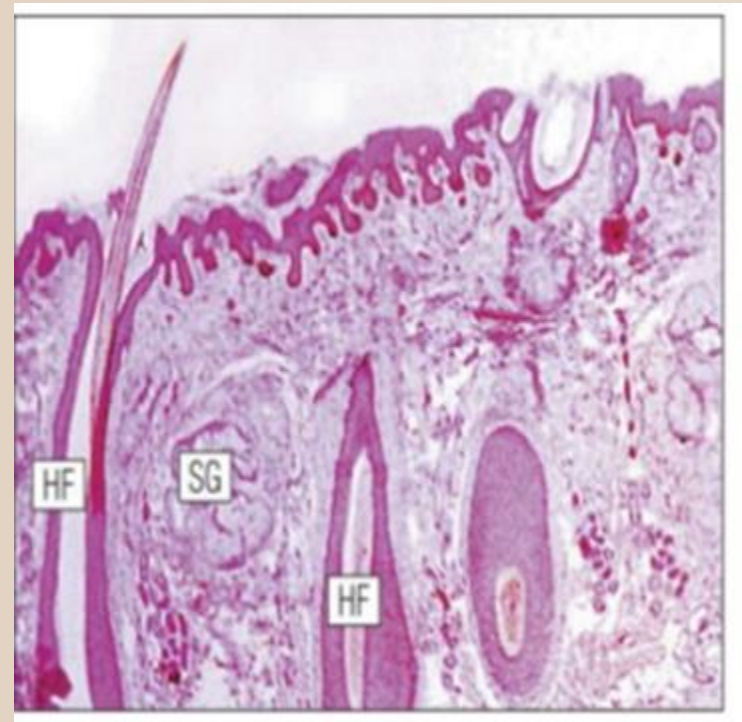
LABIA MAJORA

EXTERNAL ANAL MARGIN

PERIANAL AREA

INNER THIGHS

LABIA MAJORA



Hair follicles are observed in this section

TO PEEL OR NOT TO PEEL THAT IS THE QUESTION



keratinized stratified squamous epithelium

MONS PUBIS

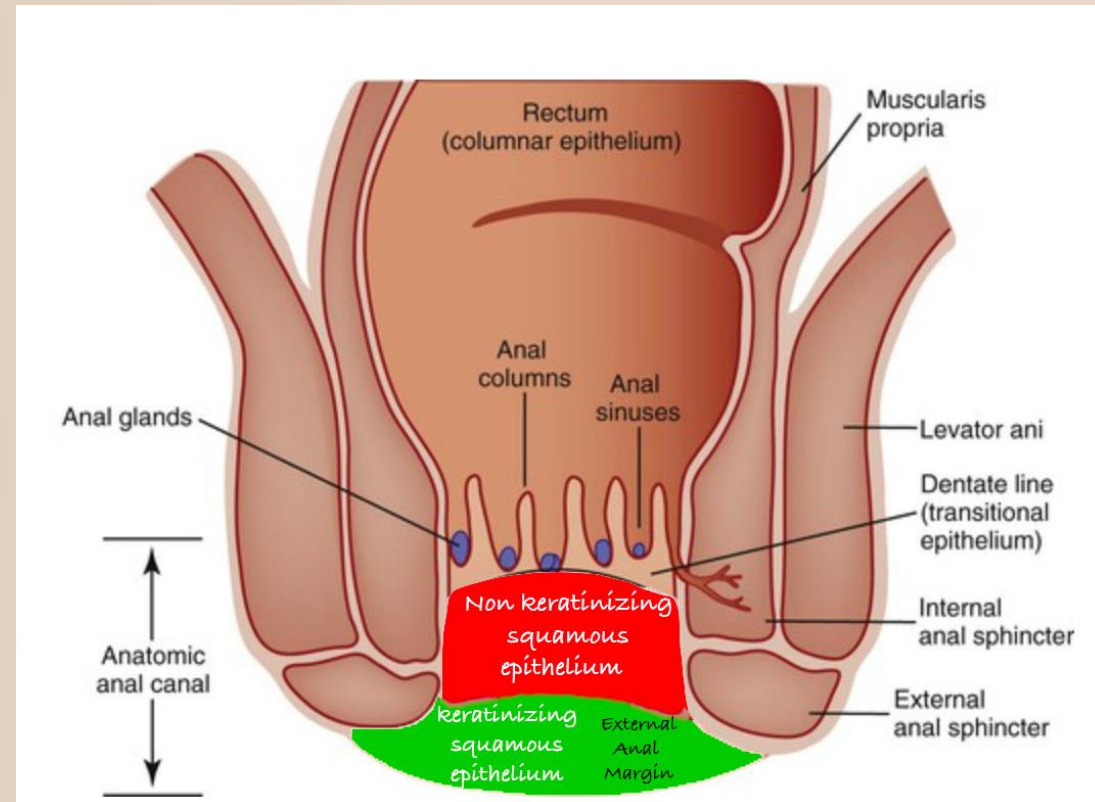
LABIA MAJORA

EXTERNAL ANAL MARGIN

PERIANAL AREA

INNER THIGHS

EXTERNAL ANAL MARGIN TRANSITION AREA



TO PEEL OR NOT TO PEEL THAT IS THE QUESTION



keratinized stratified squamous epithelium

MONS PUBIS

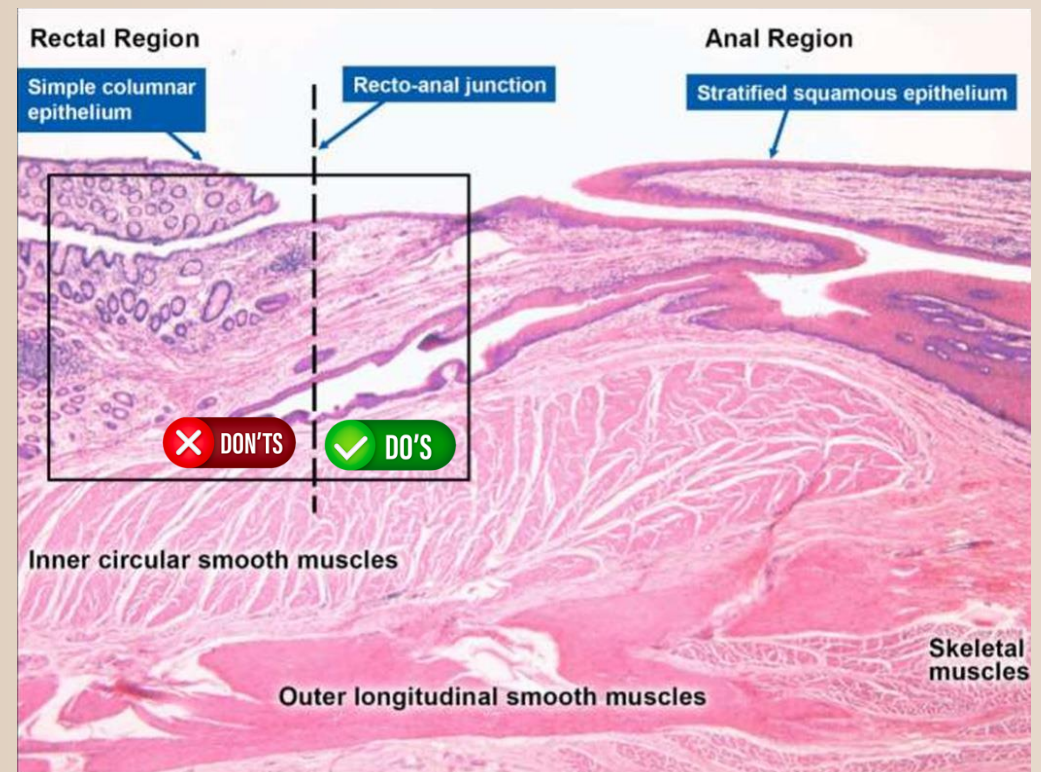
LABIA MAJORA

EXTERNAL ANAL MARGIN

PERIANAL AREA

INNER THIGHS

EXTERNAL ANAL MARGIN TRANSITION ZONE



No hair follicles are seen in this section,
although they are typically present in the
peri anal skin

TO PEEL OR NOT TO PEEL THAT IS THE QUESTION



keratinized stratified squamous epithelium

MONS PUBIS

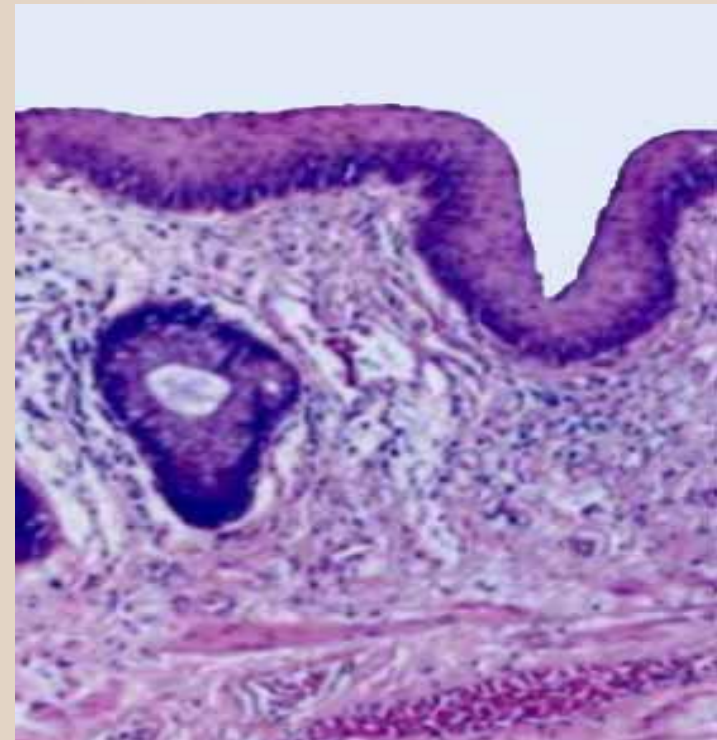
LABIA MAJORA

EXTERNAL ANAL MARGIN

PERIANAL AREA

INNER THIGHS

PERIANAL AREA



No hair follicles are seen in this section,
although they are typically present in this region

ETIOLOGY OF HYPERPIGMENTATION IN INTIMATE AREAS

- **DRUGS & CHEMICALS**

- Hydroquinon->hypopigmentation
- Antibiotics :Tetracyclins,Rifampicin,AZT
- Antimalaria
- Cytostatics
- Psychomedicines : phenothiazin
- Antiepileptics : Phenytoin
- Antiarythmics: Cordaron
- Psoralens
- Melanocyte Stimulating Hormon
- Arsenic
- Bergamote

- **DERMA-PATHOLOGIES**

- PIH
- Psoriasis
- Pityriasis Versicolor
- LED
- Lichens
- Ephelides
- Lentigines
- Neurofibromatosis
- Naevus (Becker)
- Peutz-Jeghers Syndrome (gastro intestinal disease)
- Hemochromatosis (Fe)

- **BAD HABITS**

- -UV or solarium
- -jeans too tight
- -underwear too tight
- -pantyhose
- -check laundry products
- -check buttons, metals ... of clothes & underwears
- -depilation, shaving, other products

- **HORMONAL DISORDERS**

- -Addison
- -ACTH
- -Testosteron in excess
- -Anabolisants
- -Pregnancy
- -Oral Contraceptives
- -Post Pubertal Melanosis

Concepts of A.Tenenbaum & M.Tiziani

1.Targeting the pigment directly Or the „ColorKiller,, of A.Tenenbaum

A red rectangular box with a white horizontal band in the center containing the word "COLORKILLER" in blue capital letters.

COLORKILLER

by inducing a form of *photodamage* or '*photonecrosis*' to effectively destroy the colors responsible for the clinical expression of hyperpigmentation

A close-up photograph of a person's face with a white, frost-like substance applied to the cheek. A small circular logo in the bottom left corner reads "PEELINGS" and "HAIR".

WHITE FROSTING

By using the frosting effect ensuring that it *completely covers the hyperpigmented area and effectively obscures the discoloration.*

2.Addressing the 3 key compartments of melanin metabolism

- **Production**: Modifying the melanogenesis process to reduce melanin synthesis.
- **Transport**: Interfering with the movement of melanin within the skin to prevent uneven distribution.
- **Destruction**: Enhancing the breakdown and removal of excess melanin from the skin.

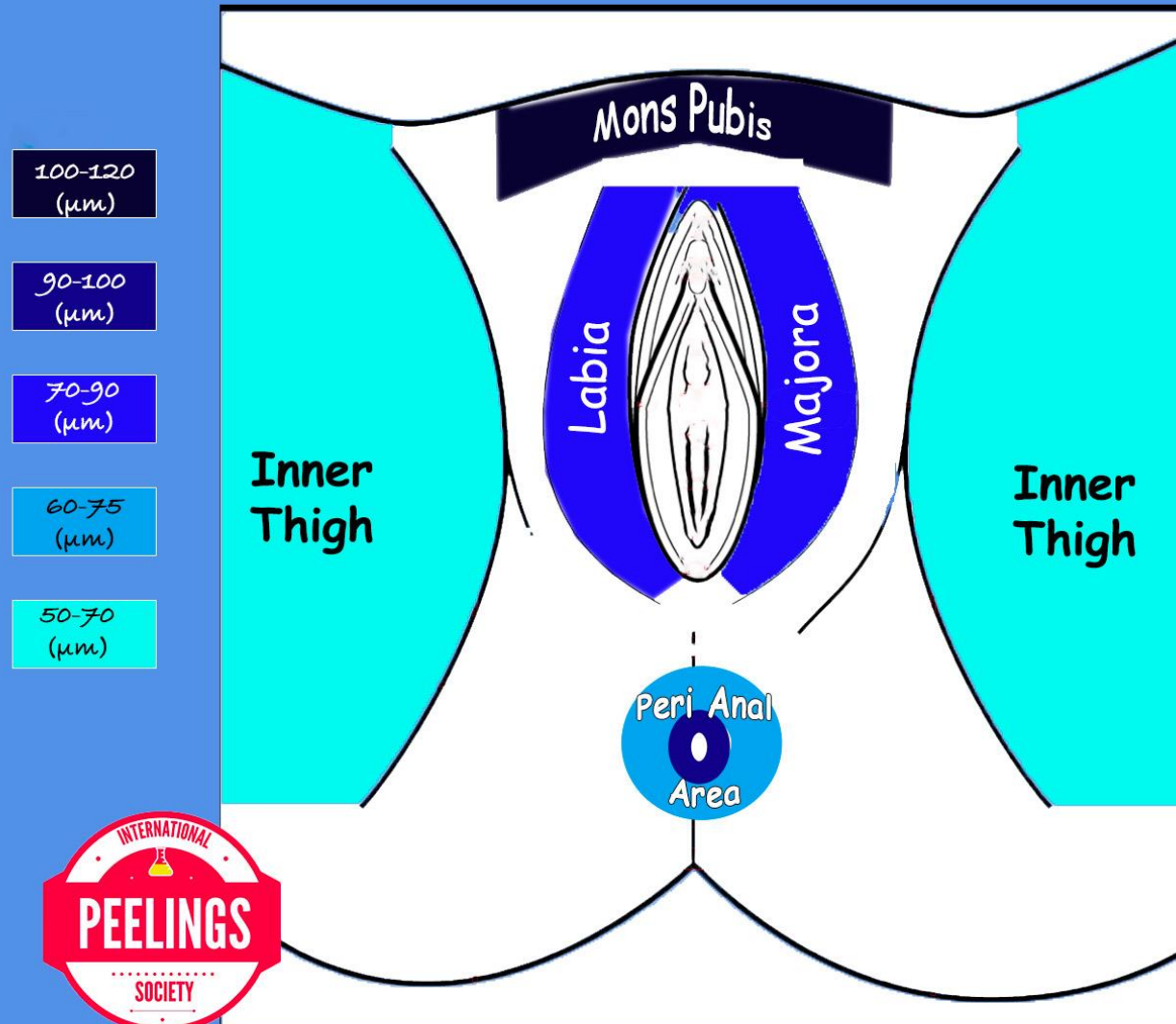
1 + 2 = Aggressive Treatment with Downtime

(Protocol by A. Tenenbaum)

2 = Gentle Treatment Without Downtime

(Protocol by M. Tiziani)

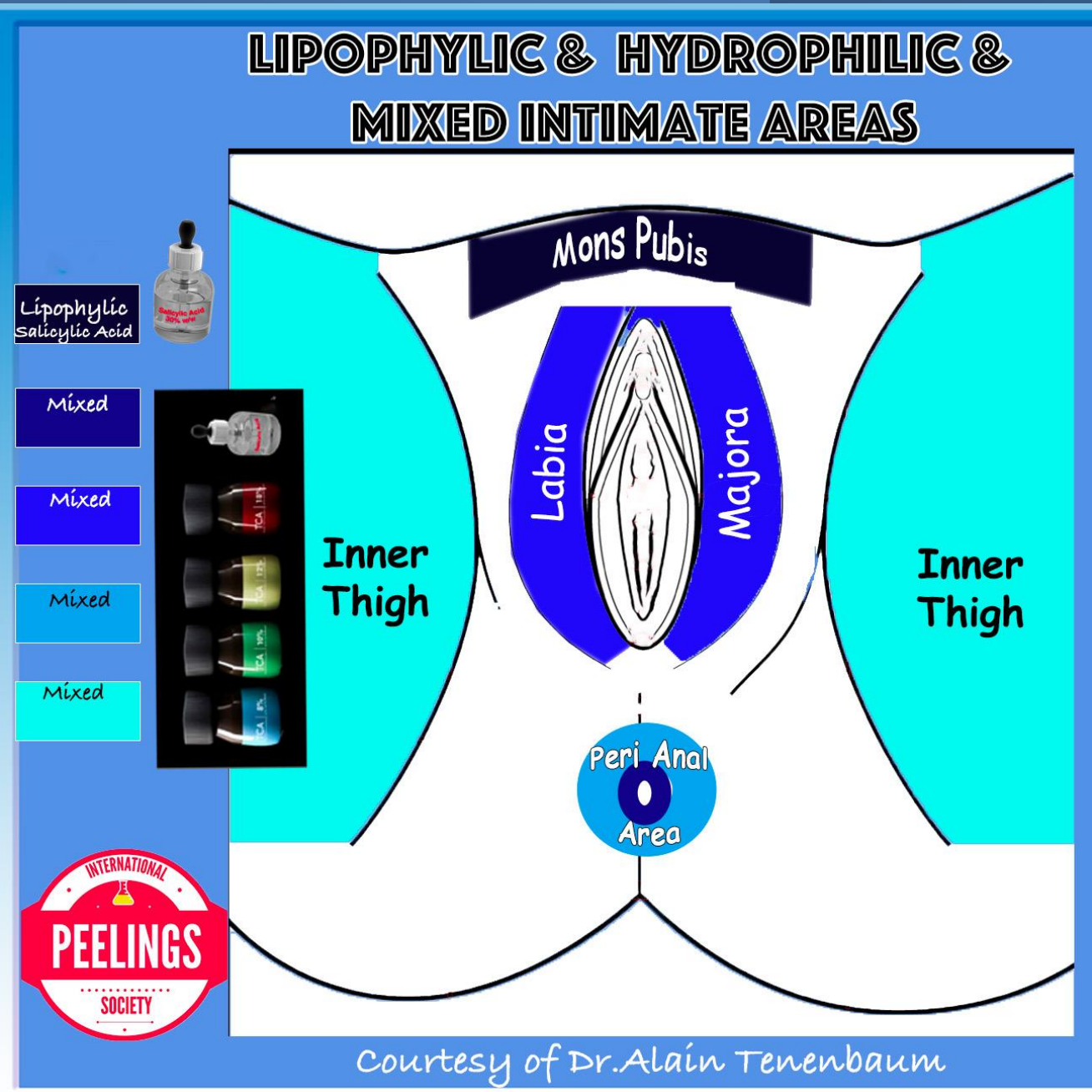
EPIDERMAL THICKNESS OF INTIMATE AREAS



Courtesy of Dr. Alain Tenenbaum

1.Targeting the pigment directly

Or the „ColorKiller,, of A.Tenenbaum



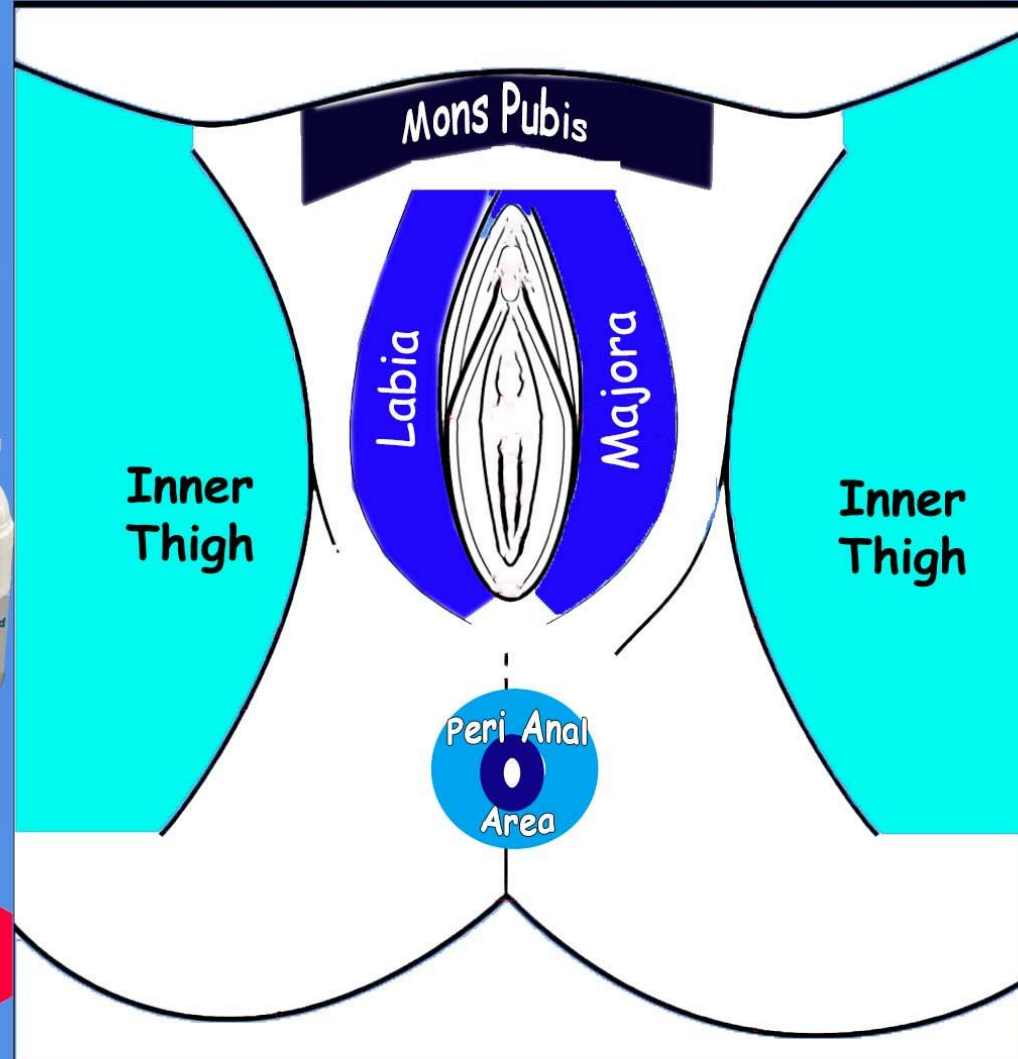
Targeting the pigment directly
Or the „ColorKiller,, of A.Tenenbaum

Which Salicylic Acid to use ?

Comparison of Salicylic Acids

Targeting the pigment directly
Or the „ColorKiller,, of A.Tenenbaum

SALICYLIC ACIDS IN ETHANOL VS GLYCEROL FOR INTIMATE AREAS



Courtesy of Dr. Alain Tenenbaum

HYPERPIGMENTATION OF FEMALE GENITAL SKIN



Courtesy of Dr. Alain Tenenbaum

Targeting the pigment directly
Or the „ColorKiller,, of A.Tenenbaum

INITIAL APPEARANCE OF WHITE (PSEUDO) FROSTING ON THE LABIA MAJORA



Courtesy of Dr. Alain Tenenbaum

Protocols

Attack Treatment Only in made by MD

- TCA at 10-12-15-18% w/w
- In liquids
- Or Ideally in Creams

- Salicylic Acid 25% w/w
- Ideally in ALCOHOL OR GLYCEROL

Maintenance Treatment Home care and/or Paramedical Team

- Use only Specific Creams

Which acids can be used for maintenance

Acids	Mandelic	<i>Glycolic</i>	Lactic	Azelaic	Kojic	Phytic
Action	Promotes surface lifting of excess pigment	NO Dispersion of Melanin in basal membrane layer IRRELEVANT	Skin Lightening ??? Not bleaching agent IRRELEVANT	Skin Lightening	Tyrosinase Inhibitor	Melanin formation blocker though chelation ??? IRRELEVANT
pKa	3.37	3.83	3.86	4.55-5.59 DIPROTIC	9.40	HEXAPROTIC 1.1-3.2-5.2 8.0-9.2-12.0
Kerato regulator	YES	YES	YES	YES	NO	?
Moisturizer	NO	NO	NO	MINIMUM	NO	?
AHA						

Fitzpatrick Scale and Intimate Area

The Fitzpatrick Scale

					
TYPE I Light, pale white Always burns, never tans	TYPE II White, fair Usually burns, tans with difficulty	TYPE III Medium, white to olive Sometimes mild burn, gradually tans to olive	TYPE IV Olive, moderate brown Rarely burns, tans with ease to a moderate brown	TYPE V Brown, dark brown Very rarely burns, tans very easily	TYPE VI Black, very dark brown to black Never burns, tans very easily, deeply pigmented

The Fitzpatrick Scale					
					
TYPE I	TYPE II	TYPE III	TYPE IV	TYPE V	TYPE VI
Light, pale white	White, fair	Medium, white to olive	Olive, moderate brown	Brown, dark brown	Black, very dark brown to black
Always burns, never tans	Slightly tans, tan with difficulty	Occasionally mild burn, gradually tans to olive	Never burns, tans with ease to moderate degree	Very rarely burns, dark tan to black	Never burns, tans very easily, deeply pigmented

Male Perianal Area Phototype 3/4

The patient must be depilated 3 days before the procedure and cleaned with chlorhexidine or cetrimide without alcohol before the procedure

PERIANAL SKIN HYPERPIGMENTATION



COURTESY OF DR. ALAIN TENENBAUM

Perianal Area is a thick dry area

The perianal area is typically considered a **dry area**, as it has a low concentration of sebaceous (oil-producing) glands.

However, it can become moist due to sweat, mucus, or hygiene-related factors.

The skin in this area can be **sensitive**, so it's important to maintain proper hygiene without causing irritation.

External Anal Margin is thicker and drier vs PeriAnal Area

The external anal margin is generally thicker and drier compared to the rest of the perianal skin.

This area has a tougher skin texture, which helps protect it from friction and abrasion.

It's also less oily because it has fewer sebaceous glands.

However, like the rest of the perianal region, it can still be affected by moisture, such as sweat, or irritation from hygiene practices or stool. The skin is also more prone to dryness, particularly if there's excessive wiping or use of harsh products.

Concepts of A.Tenenbaum & M.Tiziani

External Anal Margin & Peri Anal Area

1.Targeting the pigment directly Or the „ColorKiller,, of A.Tenenbaum

A red rectangular box with a white horizontal band in the center containing the word "COLORKILLER" in blue capital letters.

COLORKILLER

by inducing a form of *photodamage* or '*photonecrosis*' to effectively destroy the colors responsible for the clinical expression of hyperpigmentation

A close-up photograph of a person's face with a white, frost-like substance applied to the cheek. A small circular logo in the bottom left corner reads "WHITE FROSTING" and "PEELINGS".

WHITE FROSTING

By using the frosting effect ensuring that it *completely covers the hyperpigmented area and effectively obscures the discoloration.*

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External Anal Margin & Peri Anal Area

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COLORKILLER

by inducing a form of *photodamage* or '*photonecrosis*' to effectively destroy the colors responsible for the clinical expression of hyperpigmentation

A close-up photograph of a person's face, showing a white, frost-like substance applied to the cheek. The text "WHITE FROSTING" is written in white capital letters on a blue background at the top left. A small circular logo with the word "PEELINGS" is visible in the bottom left corner.

WHITE FROSTING

By using the frosting effect ensuring that it *completely covers the hyperpigmented area and effectively obscures the discoloration.*

Attack Treatment Protocol for Peri Anal Area



- Alternate TCA , Salicylic acid in ethanol and Salicylic acid in glycerol to get a frosting 1 session each 2 weeks x 4-6 weeks
- Then as usual

A blue double-headed arrow pointing left and right.

Attack Treatment Protocol for External Anal Margin



- Dont use TCA because the frosting could reach the rectum !
- Then as usual

Bleaching Set for Maintenance

For Intime Area

Actions from XS to De Luxe



Set Bleaching

- **fotocosm XS 50 ml** arbutin-kojic acid
- **fotocosm S 50 ml** arbutin-kojic acid-tranxenamic acid
- **fotocosm L 50 ml** arbutin-kojic acid-double concentrations
- **fotocosm XL 50 ml** arbutin-kojic acid-tranxenamic-double concentrations
- **fotocosm de luxe 50 ml** azelaic-tranxenamic-mandelic-phytic acids

Anal Bleaching Timeline <i>How long does it take to get your desired result?</i>						
Desired Skin Color						
	I Light, pale white	II White, fair	III Medium white to olive	IV Olive, mid brown	V Brown, dark brown	VI Very dark brown, black
Current Skin Color	VI Very dark brown, black	Fotocosm de Luxe	Fotocosm de Luxe	Fotocosm de Luxe	Fotocosm XL	Fotocosm L
	V Brown, dark brown	Fotocosm de Luxe	Fotocosm de Luxe	Fotocosm XL	Fotocosm L	
	IV Olive, mid brown	Fotocosm de Luxe	Fotocosm XL	Fotocosm L		
	III Medium white to olive	Fotocosm S	Fotocosm L			
	II White, fair	Fotocosm XS-S				
	I Light, pale white					













Anal Bleaching Guide

Anal Bleaching Timeline

How long does it take to get your desired result?

Desired Skin Color

Current Skin Color

	 I Light, pale white	 II White, fair	 III Medium white to olive	 IV Olive, mid brown	 V Brown, dark brown	 VI Very dark brown, black
 VI	14-16 weeks	12-14 weeks	10-12 weeks	8-10 weeks	6-8 weeks	
 V	10-12 weeks	8-10 weeks	6-8 weeks	4-6 weeks		
 IV	8-10 weeks	6-8 weeks	4-6 weeks			
 III	6-8 weeks	4-6 weeks				
 II	4-6 weeks					
 I						

Attack Treatment :
1 Session each 2 Weeks

Maintenance Treatment
1 x time / day / nr of weeks as
mentioned in this table

Anal Bleaching **Guide**

MAINTENANCE Treatment Protocol

		Desired Skin Color					
		I	II	III	IV	V	VI
		Light, pale white	White, fair	Medium white to olive	Olive, mid brown	Brown, dark brown	Very dark brown, black
Current Skin Color	VI	14-16 weeks	12-14 weeks	10-12 weeks	8-10 weeks	6-8 weeks	
	V	10-12 weeks	8-10 weeks	6-8 weeks	4-6 weeks		
	IV	8-10 weeks	6-8 weeks	4-6 weeks			
	III	6-8 weeks	4-6 weeks	Maintenance Treatment 1 x time / day / nr of weeks as mentioned in this table			
	II	4-6 weeks					
	I						
		Maintenance Duration					

		Desired Skin Color					
		I	II	III	IV	V	VI
		Light, pale white	White, fair	Medium white to olive	Olive, mid brown	Brown, dark brown	Very dark brown, black
Current Skin Color	VI	Fotocosc de Luxe	Fotocosc de Luxe	Fotocosc de Luxe	Fotocosc XL	Fotocosc L	
	V	Fotocosc de Luxe	Fotocosc de Luxe	Fotocosc XL	Fotocosc L		
	IV	Fotocosc de Luxe	Fotocosc XL	Fotocosc L			
	III	Fotocosc S	Fotocosc L				
	II	Fotocosc XS-S					
	I						
		MAINTENANCE					

Special recommendations for women

- Beware of menstrual blood (contains iron and can therefore create a tattoo)
- That is why Peeling de Luxe Plus is used during the menstrual period.
- Contraindications: pregnancy, hormones (birth control pills) ,anal sex.
- Sex is possible when desquamation is over



The real
challenge is
to convince
Armenians
as Middle
East MD





FREQUENTED
ASKED QUESTIONS

Combination Endopeel + Metabolic Peels for Face Anti Aging



Left Hemiface treated Hand untreated

Courtesy of Dr. Alain Tenenbaum & Mauro Tiziani

Treatment of Acne on Teenager Caucasian Male
PrePeel + TCA 10% w/w + Lipoic Acid

BEFORE

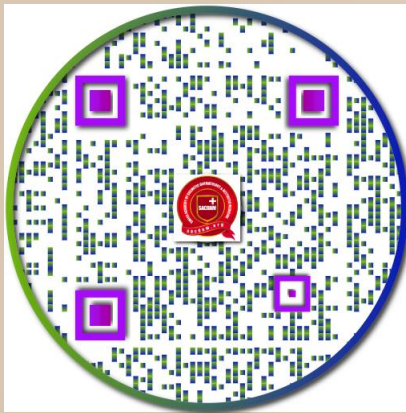


AFTER 7 DAYS



Courtesy of Mauro Tiziani





Next Workshops in Zürich



WORKSHOP PEELS
ZÜRICH-SWITZERLAND :
SEPTEMBER 19TH : 2 PM-6 PM

Deadline for Registration : August 20 th

WITH
MAURO TIZIANI
DR. ALAIN TENENBAUM

<https://aesthetic.events/workshop-metabolic-peels-zurich-2025>

QR code in top left corner. QR code in top right corner with 'SCAN ME' text. Vertical row of four heart-shaped flags (USA, Germany, France, Italy) on the right side.



WORKSHOP
ENDOPEEL PREPARES YOUR FACE FOR YOUR AUTUMN
ZÜRICH-SWITZERLAND : SEPTEMBER 20TH, 9 AM-6 PM

Deadline for Registration : August 20 th

WITH
MAURO TIZIANI
DR. ALAIN TENENBAUM

<https://aesthetic.events/endopeel-workshop-zurich-2025>

QR code in bottom left corner. QR code in top right corner with 'SCAN ME' text. Vertical row of four heart-shaped flags (USA, Germany, France, Italy) on the right side.



Peels 2h COURSE

Its time to wake up



A.TENENBAUM, M.D.,Ph.D., D.Sc
M.TIZIANI, RCSA