



PEELINGS
CLASSIFICATION OF A.TENENBAUM
DU AESTHETIC MEDICINE
11- 2024

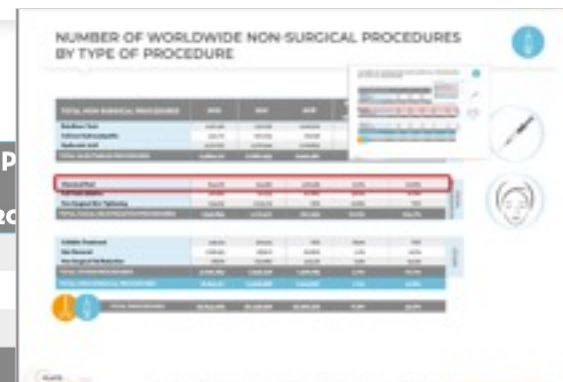


A.TENENBAUM, M.D.,Ph.D., D.Sc
M.TIZIANI, RCSA

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%


OTHER



TOTAL PROCEDURES	33,844,293	30,439,576	23,266,375	11.2%	45.5%
-------------------------	-------------------	-------------------	-------------------	--------------	--------------

Benefits to use Peelings correctly?

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



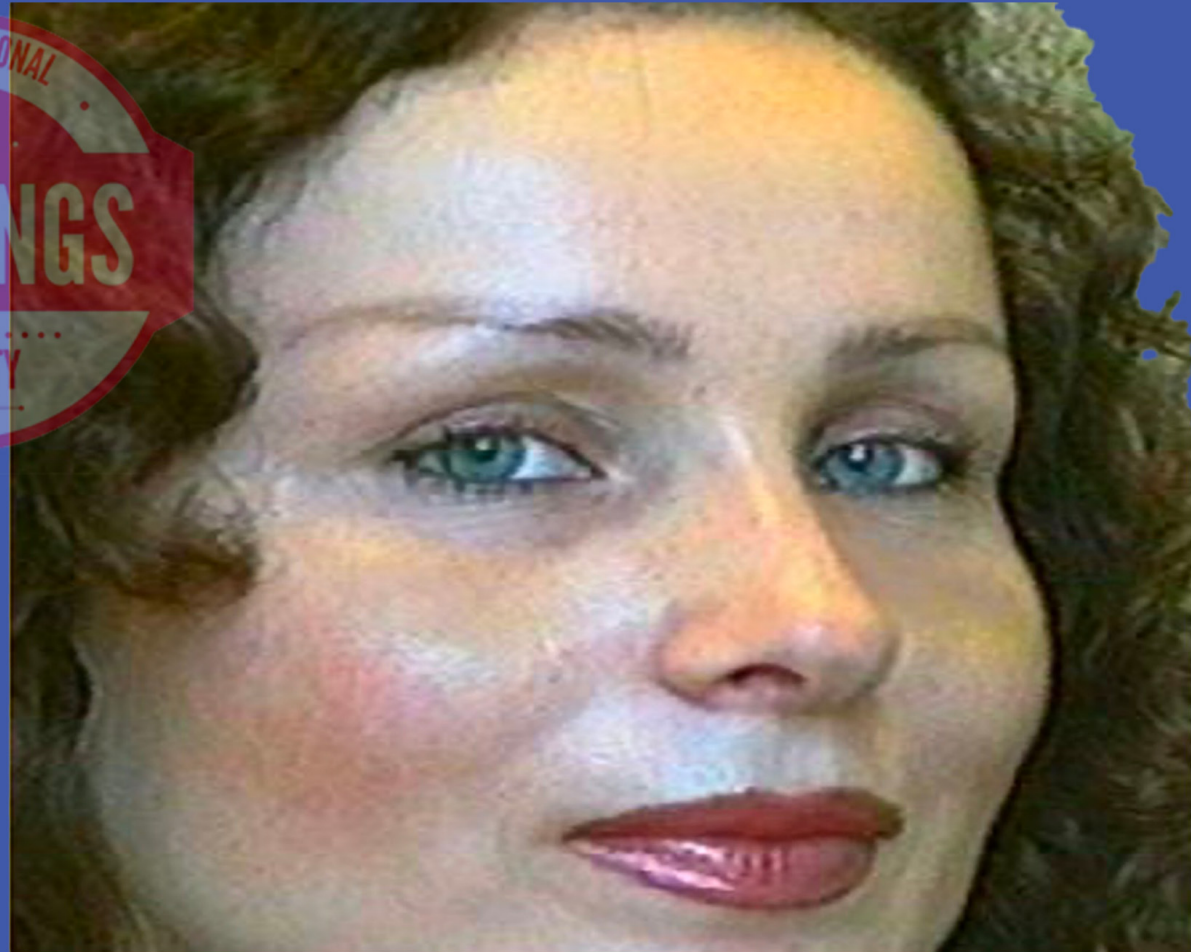
Courtesy of Dr. Alain Tenenbaum

Surgical Rhinoplasty + Metabolic Peels

BEFORE



AFTER



Courtesy of Dr. Alain Tenenbaum

Lipoplasty + Facelift + Blepharoplasty + Endo Peel + 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



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

2



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

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

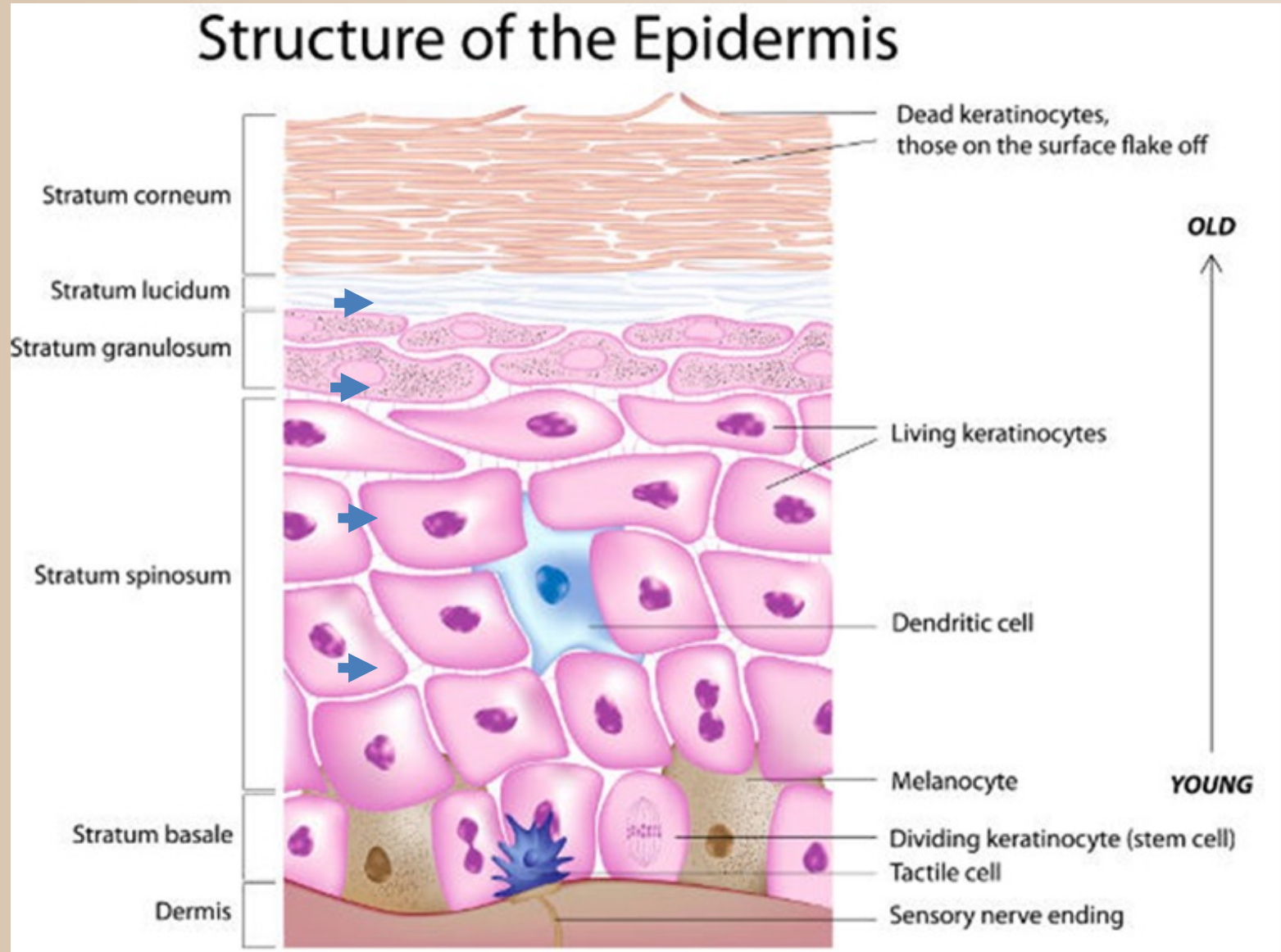
with a chemical solution, which causes

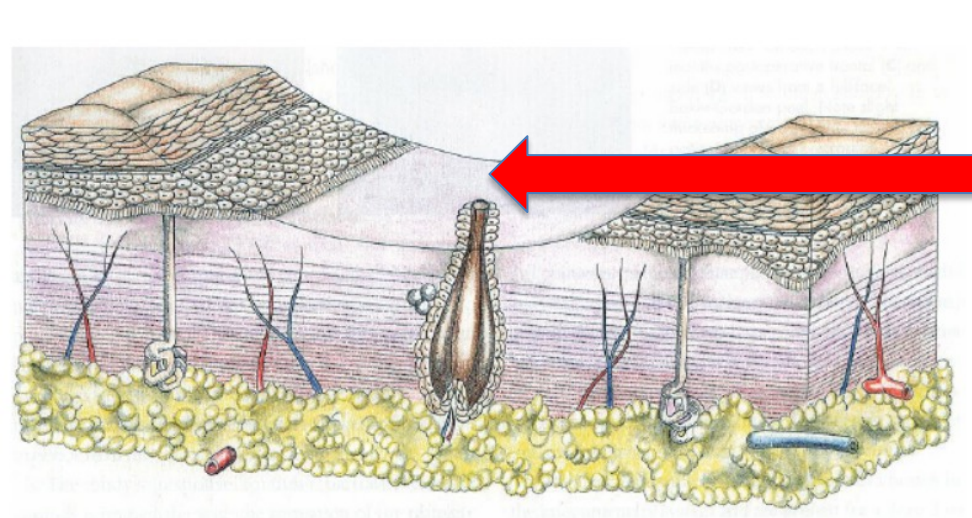
- The **dead skin** peels off
- The **regenerated skin** is usually smoother and less wrinkled than the old skin.

Desquamation is not mandatory

Epidermis Histology

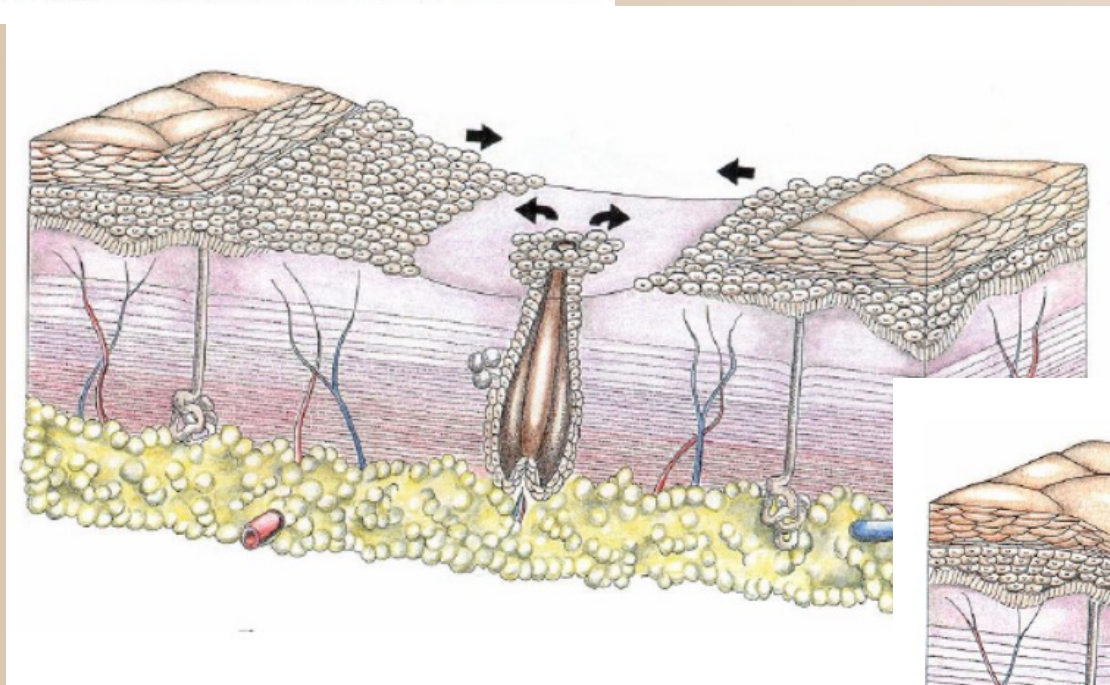
Most of the cells in the epidermis are keratinocytes, which are organized into 4 layers



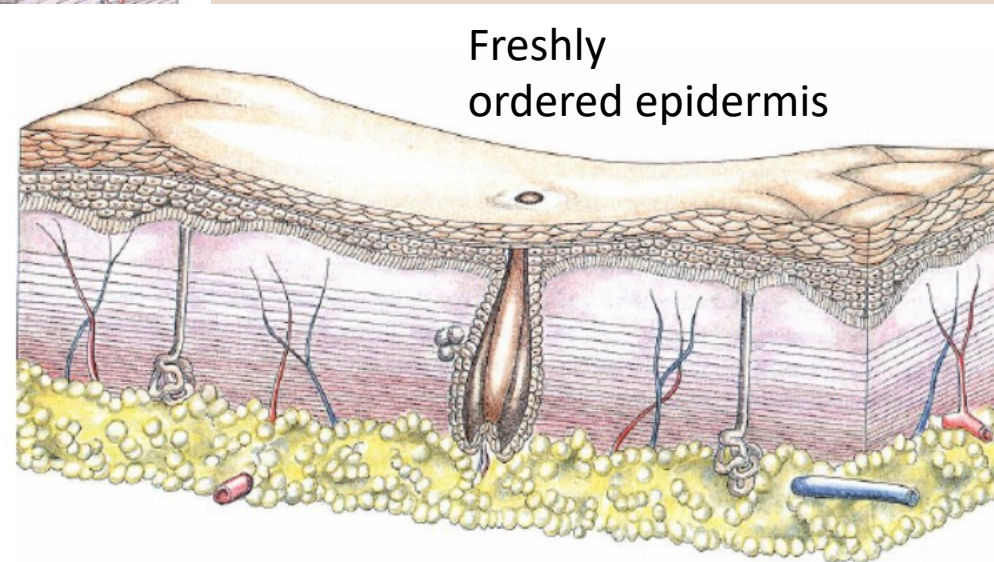


Acid Aggression

Burn of the epidermis and superficial dermis



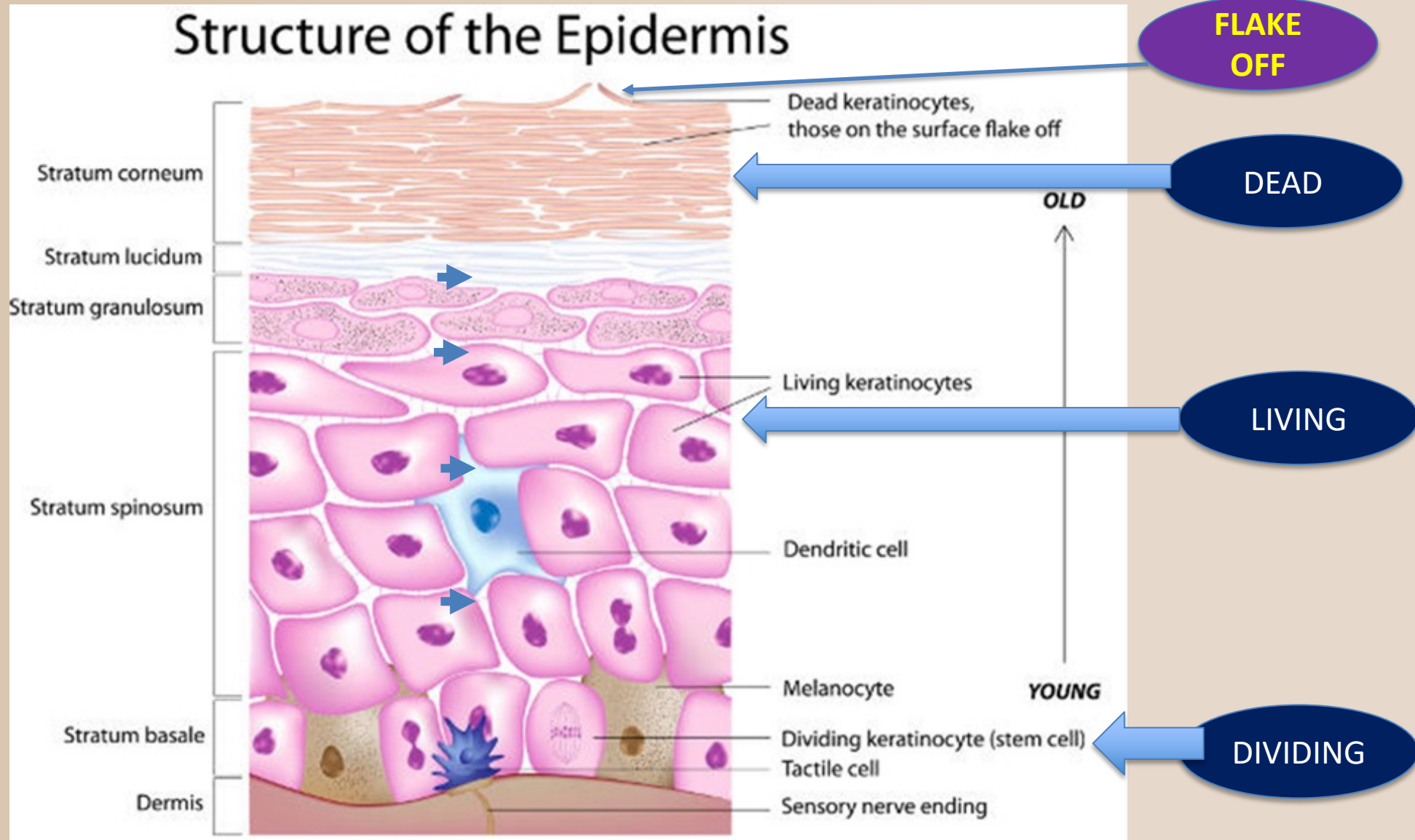
Skin reparation after 2 to 5 days after the chemical burn provoked by the peel



Physiopathology of the The Not Metabolic Acids

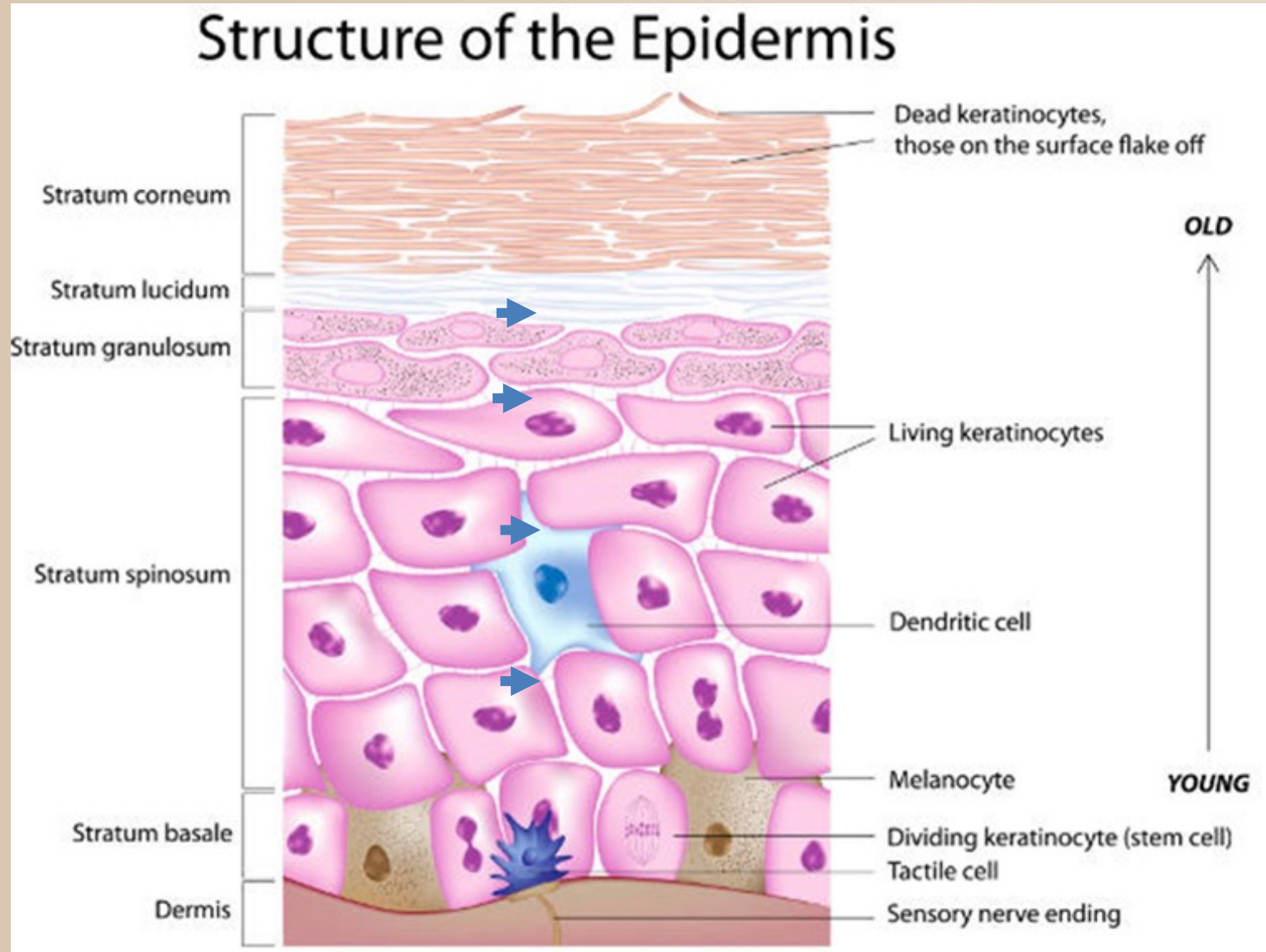
Epidermis & Keratinocytes

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 PEELINGS

IMPORTANT TO KNOW BOTH ARE PEELINGS 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 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

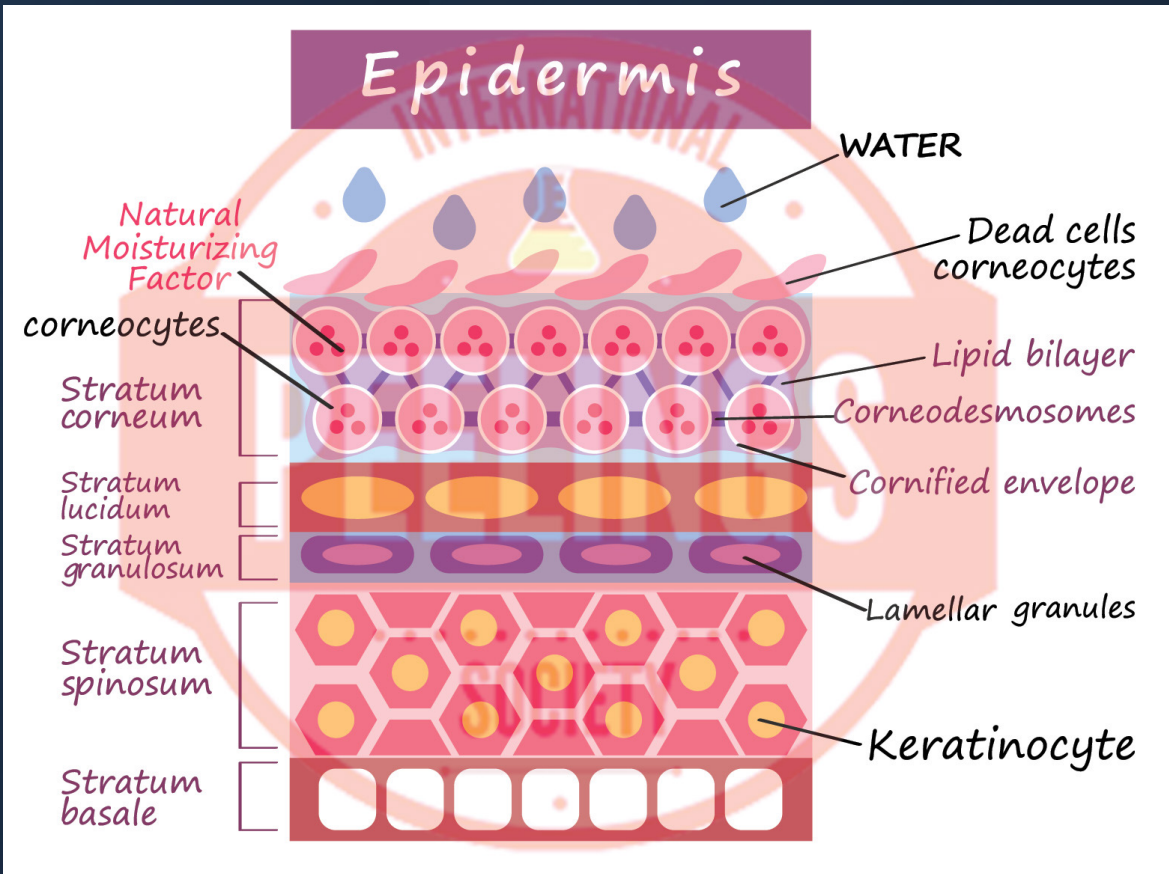
DONT DO THAT ANYMORE FROM 2024

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
- Only demineralized water is OK
- 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).



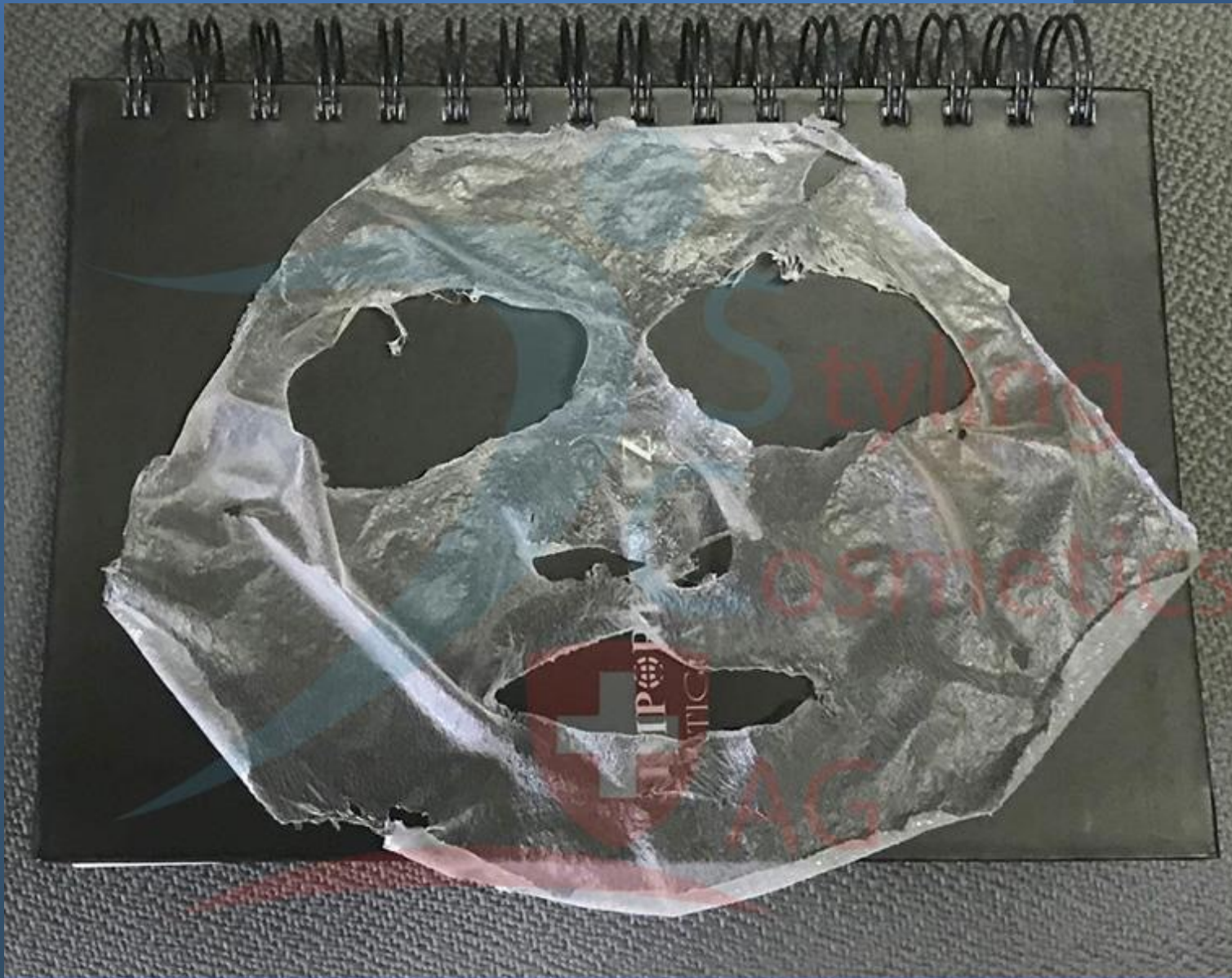
Step 2 of Metabolic Peels Protocol

Valid for all skin types at any time of the year





30 MIN PEEL OFF : REMOVE IT FROM TOP TO DOWN



30 MIN PEEL OFF : FULL MASK REMOVED



30 MIN PEEL OFF : BLACK POINT REMOVED

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

Main Indications for peelings 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 due to other peelings treatment

Combination Endopeel + Metabolic Peels for Face Anti Aging



Left Hemiface treated Hand untreated

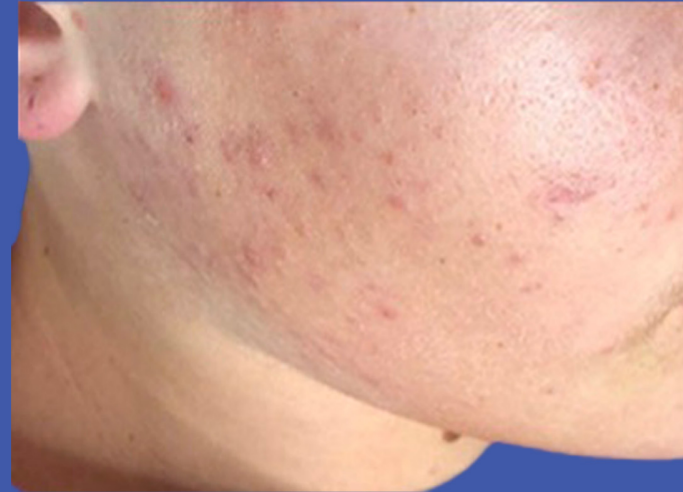
Courtesy of Dr. Alain Tenenbaum & Mauro Tiziani

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

BEFORE



AFTER 7 DAYS



Courtesy of Mauro Tiziani

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

BEFORE



AFTER 4 SESSIONS



Courtesy of Dr. Alain Tenenbaum

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



Courtesy of Bob Chan

Complication of Lactic Acid

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



Nº REGISTRO 17DAP04804

Encuesta sobre Dermatosis facial

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

Victims of
Covid
Restrictions



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

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



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 Otology	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.



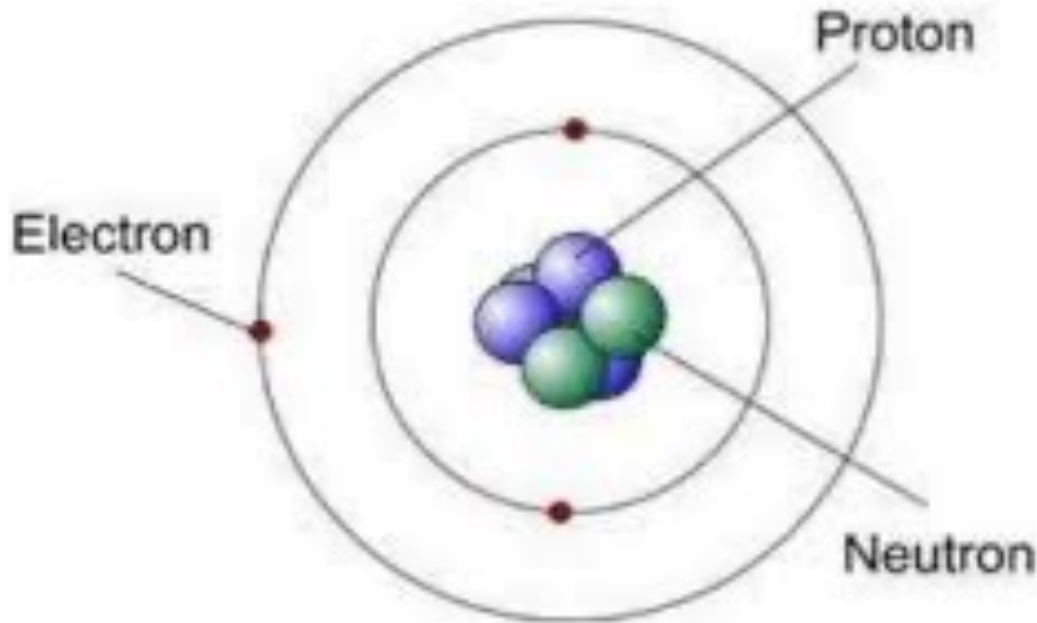
GOALS

- 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 peelings? 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



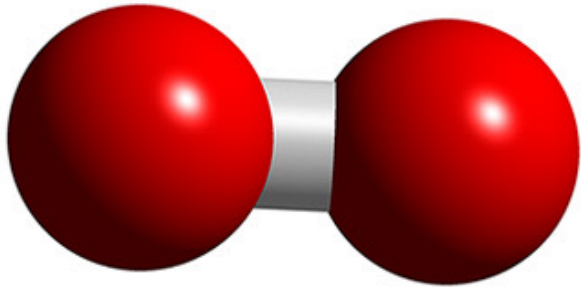
- **Atoms are building blocks of matter. They consist of the atomic nucleus and the atomic shell. The atomic nucleus is composed of positively charged particles, the protons and the uncharged neutrons, which in turn consist of other elementary particles.**

Atomic nucleus = protons + neutrons

Atomic shell = electrons

Structure of molecules

oxygen or O₂



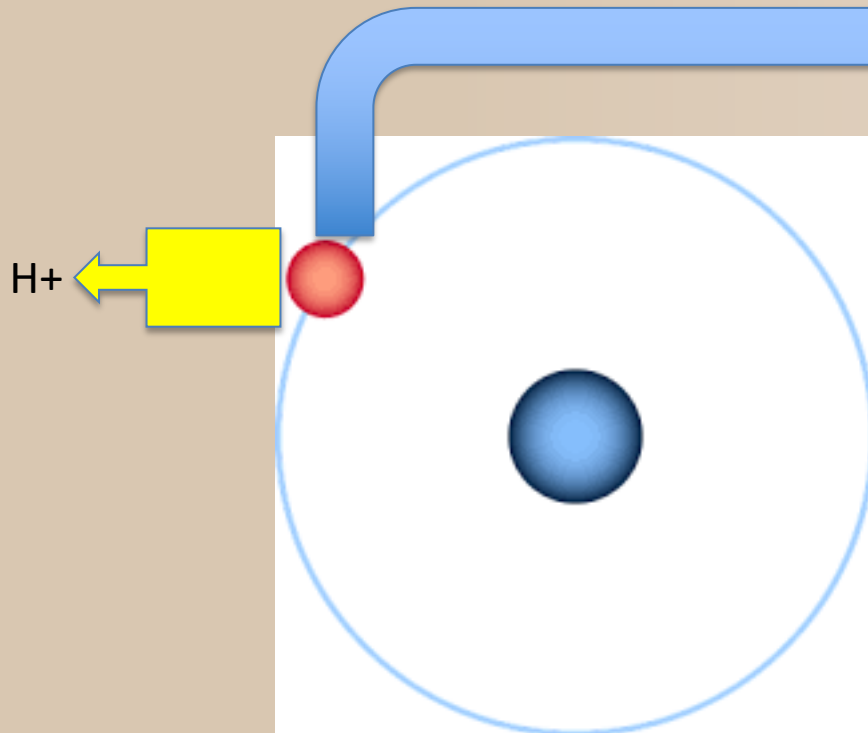
- Molecular structure or molecular geometry is the geometric, spatial relative arrangement of atoms in a molecule
-

Molecules \geq 2 atoms together (A.Tenenbaum)

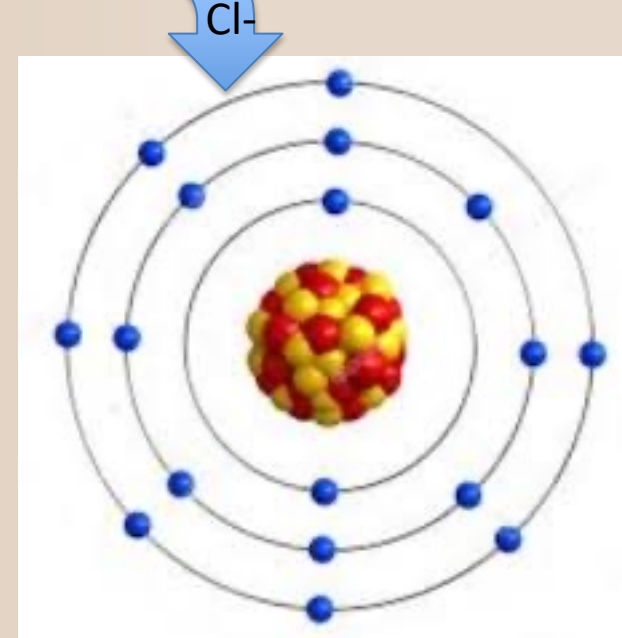
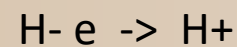
Structure of ions and molecules

ELECTRONS LOOSER = POSITIVE IONS = CATIONS

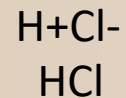
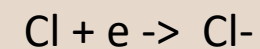
ELECTRONS WINNER = NEGATIVE IONS = ANIONS



HYDROGEN



CHLORINE



Mendeleev's periodic table

<div><div><div>1</div><div>1,0079</div><div>H</div><div>Wasserstoff</div><div>2,2</div><div>0,09</div></div><div><div>2</div><div>4,0026</div><div>He</div><div>Helium</div><div>—</div><div>0,18</div></div></div>																	
<div><div><div>3</div><div>6,9675</div><div>Li</div><div>Lithium</div><div>0,98</div><div>0,53</div></div><div><div>4</div><div>9,0122</div><div>Be</div><div>Beryllium</div><div>1,57</div><div>1,85</div></div></div>																	
<div><div><div>11</div><div>22,990</div><div>Na</div><div>Natrium</div><div>0,93</div><div>0,97</div></div><div><div>12</div><div>24,305</div><div>Mg</div><div>Magnesium</div><div>1,31</div><div>1,74</div></div></div>																	
<div><div><div>19</div><div>39,098</div><div>K</div><div>Kalium</div><div>0,82</div><div>0,86</div></div><div><div>20</div><div>40,078</div><div>Ca</div><div>Calcium</div><div>1,0</div><div>1,55</div></div><div><div>21</div><div>44,956</div><div>Sc</div><div>Scandium</div><div>1,36</div><div>2,98</div></div></div>																	
<div><div><div>37</div><div>85,468</div><div>Rb</div><div>Rubidium</div><div>0,82</div><div>1,53</div></div><div><div>38</div><div>87,620</div><div>Sr</div><div>Strontium</div><div>0,95</div><div>2,63</div></div><div><div>39</div><div>88,906</div><div>Y</div><div>Yttrium</div><div>1,22</div><div>4,47</div></div></div>																	
<div><div><div>55</div><div>132,906</div><div>Cs</div><div>Caesium</div><div>0,79</div><div>1,90</div></div><div><div>56</div><div>137,328</div><div>Ba</div><div>Barium</div><div>0,89</div><div>3,59</div></div><div><div>57</div><div>138,906</div><div>La</div><div>Lanthan</div><div>1,1</div><div>6,15</div></div><div><div>58 - 71</div><div></div><div></div><div>siehe unten</div><div></div><div></div></div></div>																	
<div><div><div>87</div><div>(223)</div><div>Fr</div><div>Francium</div><div>0,7</div><div>?</div></div><div><div>88</div><div>(226)</div><div>Ra</div><div>Radium</div><div>0,89</div><div>5,5</div></div><div><div>89</div><div>(227)</div><div>Ac</div><div>Actinium</div><div>1,1</div><div>10,1</div></div><div><div>90 - 103</div><div></div><div></div><div>siehe unten</div><div></div><div></div></div></div>																	
<div><div><div>17</div><div>35,451</div><div>Cl</div><div>Chlor</div><div>3,16</div><div>3,21</div></div><div><div>35,451</div><div></div><div></div><div>Serie</div><div></div><div></div></div></div>																	
<div><div><div>Symbol</div><div>schwarz = Feststoff</div><div>blau = Flüssigkeit</div><div>rot = Gas</div><div>grau = unbekannt</div><div>unterstrichen = radioaktiv</div></div><div><div>Serie (Flächenfarbe)</div><div>Alkalimetalle</div><div>Erddalkalimetalle</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><div>Dichte</div><div>rot = kg / m³</div><div>schwarz = kg / dm³</div><div>grau = unbestimmt</div></div><div><div>Schraffur</div><div>durchgehend = natürliches Element</div><div>schraffiert = künstliches Element</div></div></div>																	
<div><div><div>13</div><div>10,813</div><div>B</div><div>Bor</div><div>2,04</div><div>2,46</div></div><div><div>14</div><div>12,011</div><div>C</div><div>Kohlenstoff</div><div>2,55</div><div>2,26</div></div><div><div>15</div><div>14,007</div><div>N</div><div>Stickstoff</div><div>3,04</div><div>1,25</div></div><div><div>16</div><div>15,999</div><div>O</div><div>Sauerstoff</div><div>3,44</div><div>1,43</div></div><div><div>17</div><div>18,998</div><div>F</div><div>Fluor</div><div>3,98</div><div>1,70</div></div><div><div>18</div><div>20,180</div><div>Ne</div><div>Neon</div><div>—</div><div>0,90</div></div></div>																	
<div><div><div>31</div><div>69,723</div><div>Al</div><div>Aluminium</div><div>1,61</div><div>2,70</div></div><div><div>32</div><div>72,631</div><div>Si</div><div>Silicium</div><div>1,9</div><div>2,34</div></div><div><div>33</div><div>74,922</div><div>P</div><div>Phosphor</div><div>2,19</div><div>2,69</div></div><div><div>34</div><div>78,972</div><div>S</div><div>Schwefel</div><div>2,58</div><div>2,07</div></div><div><div>35</div><div>79,904</div><div>Cl</div><div>Chlor</div><div>3,16</div><div>3,21</div></div><div><div>36</div><div>83,798</div><div>Ar</div><div>Argon</div><div>0,82</div><div>1,78</div></div></div>																	
<div><div><div>49</div><div>114,818</div><div>Ga</div><div>Gallium</div><div>1,81</div><div>5,90</div></div><div><div>50</div><div>118,711</div><div>Ge</div><div>Germanium</div><div>2,01</div><div>5,32</div></div><div><div>51</div><div>121,760</div><div>As</div><div>Arsen</div><div>2,18</div><div>5,73</div></div><div><div>52</div><div>127,60</div><div>Se</div><div>Selen</div><div>2,55</div><div>4,82</div></div><div><div>53</div><div>126,904</div><div>Br</div><div>Brom</div><div>2,96</div><div>3,12</div></div><div><div>54</div><div>131,294</div><div>Kr</div><div>Krypton</div><div>—</div><div>3,75</div></div></div>																	
<div><div><div>81</div><div>204,384</div><div>Tl</div><div>Thallium</div><div>1,62</div><div>11,85</div></div><div><div>82</div><div>207,2</div><div>Pb</div><div>Blei</div><div>2,33</div><div>11,35</div></div><div><div>83</div><div>208,980</div><div>Bi</div><div>Bismut</div><div>2,02</div><div>9,75</div></div><div><div>84</div><div>209,98</div><div>Po</div><div>Polonium</div><div>0,90</div><div>9,20</div></div><div><div>85</div><div>(210)</div><div>At</div><div>Astat</div><div>2,2</div><div>?</div></div><div><div>86</div><div>(222)</div><div>Rn</div><div>Radon</div><div>—</div><div>9,73</div></div></div>																	
<div><div><div>104</div><div>(267)</div><div>Rf</div><div>Rutherfordium</div><div>?</div><div>?</div></div><div><div>105</div><div>(269)</div><div>Db</div><div>Dubnium</div><div>?</div><div>?</div></div><div><div>106</div><div>(270)</div><div>Sg</div><div>Seaborgium</div><div>?</div><div>?</div></div><div><div>107</div><div>(272)</div><div>Bh</div><div>Bohrium</div><div>?</div><div>?</div></div><div><div>108</div><div>(273)</div><div>Hs</div><div>Hassium</div><div>?</div><div>?</div></div><div><div>109</div><div>(277)</div><div>Mt</div><div>Mitnethium</div><div>?</div><div>?</div></div><div><div>110</div><div>(281)</div><div>Ds</div><div>Darmstadtium</div><div>?</div><div>?</div></div><div><div>111</div><div>(281)</div><div>Rg</div><div>Roentgenium</div><div>?</div><div>?</div></div><div><div>112</div><div>(285)</div><div>Cn</div><div>Copernicium</div><div>?</div><div>?</div></div><div><div>113</div><div>(286)</div><div>Nh</div><div>Nihonium</div><div>?</div><div>?</div></div><div><div>114</div><div>(289)</div><div>Fl</div><div>Flerovium</div><div>?</div><div>?</div></div><div><div>115</div><div>(288)</div><div>Mc</div><div>Moscovium</div><div>?</div><div>?</div></div><div><div>116</div><div>(293)</div><div>Lv</div><div>Livermorium</div><div>?</div><div>?</div></div><div><div>117</div><div>(294)</div><div>Ts</div><div>Tenness</div><div>?</div><div>?</div></div><div><div>118</div><div>(294)</div><div>Og</div><div>Oganesson</div><div>?</div><div>?</div></div></div>																	
<div><div><div>58</div><div>140,116</div><div>Ce</div><div>Cer</div><div>1,12</div><div>6,77</div></div><div><div>59</div><div>140,908</div><div>Pr</div><div>Praseodym</div><div>1,13</div><div>6,48</div></div><div><div>60</div><div>144,242</div><div>Nd</div><div>Neodym</div><div>1,14</div><div>7,01</div></div><div><div>61</div><div>(145)</div><div>Pm</div><div>Promethium</div><div>1,13</div><div>7,22</div></div><div><div>62</div><div>150,360</div><div>Sm</div><div>Samarium</div><div>1,17</div><div>7,54</div></div><div><div>63</div><div>151,964</div><div>Eu</div><div>Europium</div><div>1,2</div><div>5,25</div></div><div><div>64</div><div>157,25</div><div>Gd</div><div>Gadolinium</div><div>1,23</div><div>7,89</div></div><div><div>65</div><div>158,925</div><div>Tb</div><div>Terbium</div><div>1,1</div><div>8,25</div></div><div><div>66</div><div>162,50</div><div>Dy</div><div>Dysprosium</div><div>1,22</div><div>8,55</div></div><div><div>67</div><div>164,930</div><div>Ho</div><div>Holmium</div><div>1,23</div><div>8,78</div></div><div><div>68</div><div>167,259</div><div>Er</div><div>Erbium</div><div>1,24</div><div>9,05</div></div><div><div>69</div><div>168,934</div><div>Tm</div><div>Thulium</div><div>1,25</div><div>9,32</div></div><div><div>70</div><div>173,045</div><div>Yb</div><div>Ytterbium</div><div>1,1</div><div>6,97</div></div><div><div>71</div><div>174,967</div><div>Lu</div><div>Lutetium</div><div>1,27</div><div>9,84</div></div></div>																	
<div><div><div>90</div><div>232,038</div><div>Th</div><div>Thorium</div><div>1,5</div><div>11,72</div></div><div><div>91</div><div>231,036</div><div>Pa</div><div>Protactinium</div><div>1,3</div><div>15,4</div></div><div><div>92</div><div>238,029</div><div>U</div><div>Uran</div><div>1,36</div><div>18,95</div></div><div><div>93</div><div>(237)</div><div>Np</div><div>Neptunium</div><div>1,38</div><div>20,45</div></div><div><div>94</div><div>(244)</div><div>Pu</div><div>Plutonium</div><div>1,3</div><div>19,82</div></div><div><div>95</div><div>(243)</div><div>Am</div><div>Americium</div><div>1,28</div><div>13,67</div></div><div><div>96</div><div>(247)</div><div>Cm</div><div>Curium</div><div>1,3</div><div>13,51</div></div><div><div>97</div><div>(247)</div><div>Bk</div><div>Berkelium</div><div>1,3</div><div>14,78</div></div><div><div>98</div><div>(251)</div><div>Cf</div><div>Californium</div><div>1,3</div><div>15,1</div></div><div><div>99</div><div>(252)</div><div>Es</div><div>Einsteinium</div><div>?</div><div>1,3</div></div><div><div>100</div><div>(257)</div><div>Fm</div><div>Fermium</div><div>?</div><div>1,3</div></div><div><div>101</div><div>(258)</div><div>Md</div><div>Mendelevium</div><div>?</div><div>1,3</div></div><div><div>102</div><div>(259)</div><div>No</div><div>Nobelium</div><div>?</div><div>1,3</div></div><div><div>103</div><div>(262)</div><div>Lr</div><div>Lawrencium</div><div>?</div><div>1,3</div></div></div>																	

17

35,451

Cl

Chlor

3,16

3,21

Symbol

schwarz = Feststoff

blau = Flüssigkeit

rot = Gas

grau = unbekannt

unterstrichen = radioaktiv

Dichte

rot = kg / m³

schwarz = kg / dm³

grau = unbestimmt

Serie (Flächenfarbe)

Alkalimetalle

Erdalkalimetalle

Übergangsmetalle

Lanthanoide

Actinoide

Metalle

Halbmetalle

Nichtmetalle

Halogene

Edelgase

unbekannt

Schraffur

durchgehend = natürliches Element

schraffiert = künstliches Element

Gruppe

13

14

15

16

17

18

Periode

1

2

3

4

5

6

7

Lanthanoide

Actinoide

Binding and 2(nxn) Covalence

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

Lewis-Struktur von Wasser H₂O





water

THE WATER
H₂O

Anzahl der Valenzelektronen

2



He

5



N

3



Al

6



S

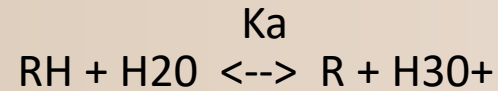
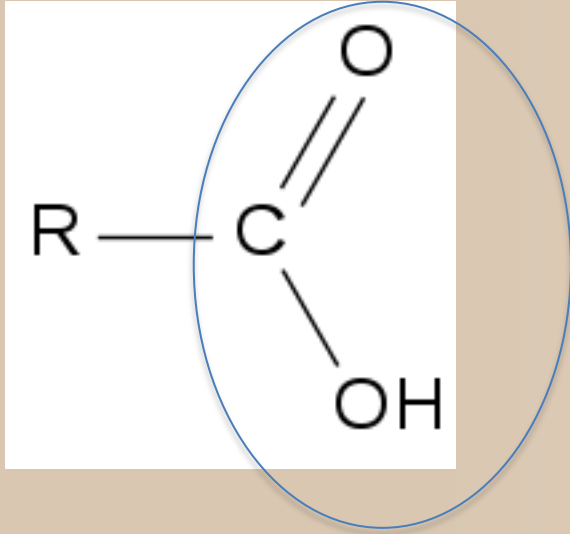
2



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

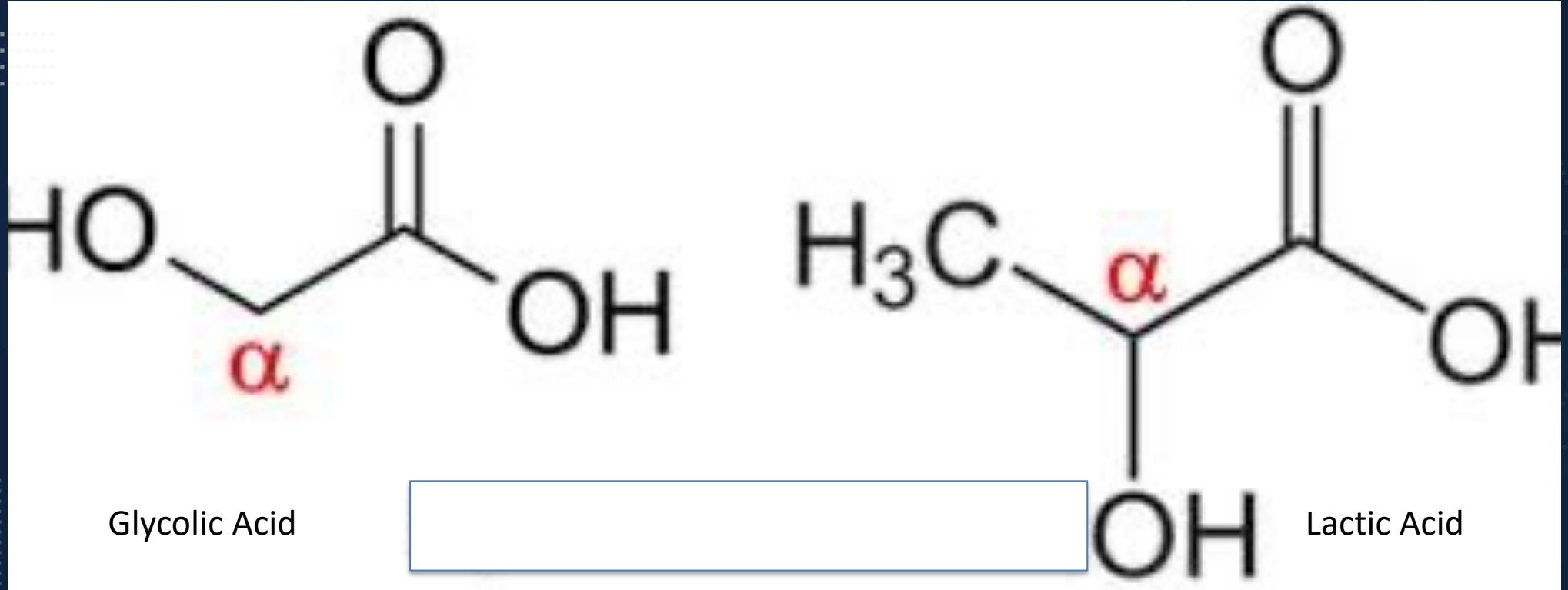
the acid function - COOH

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

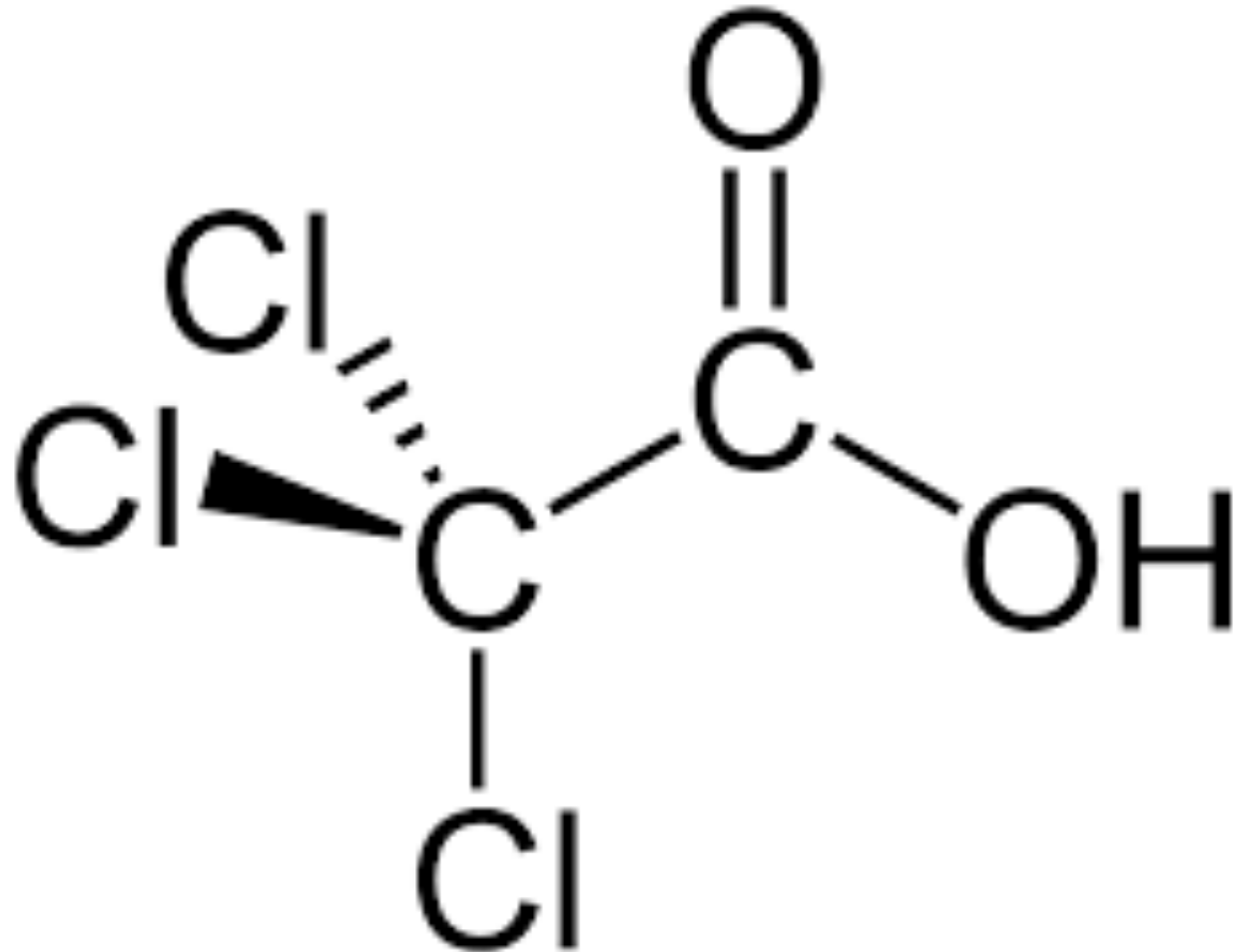
The Category of AHA or Alpha Hydroxy Acids

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

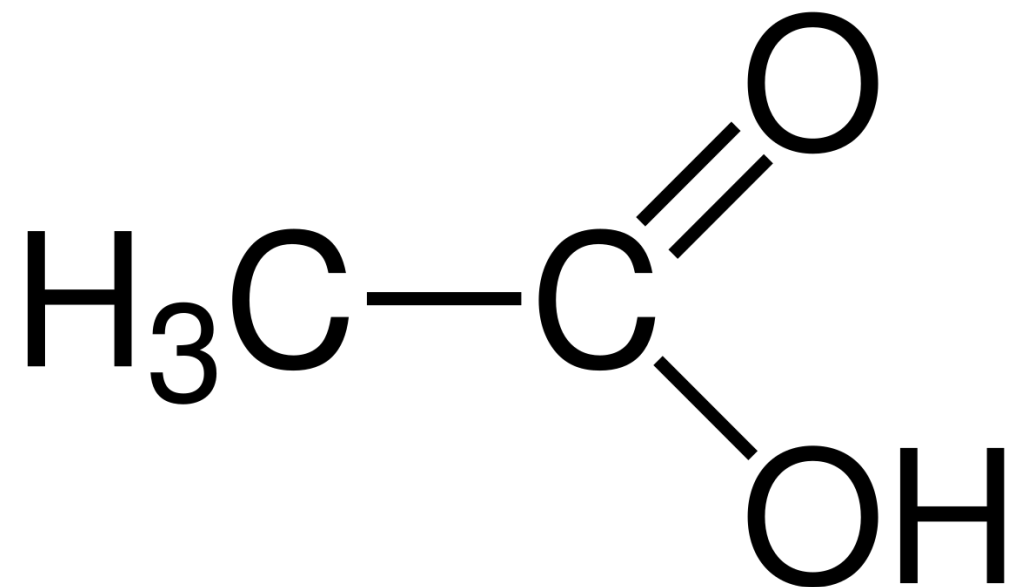
- the hydroxy radical -OH
- Alpha carbon
- the acid function -COOH



Trichloroacetic
acid TCA is not
an AHA



Acetic acid is not
AHA



Decimal logarithm and pH

- $\log 1 = 0$
- $\log 10 = 1$
- $\log 100 = 2$
- $\log 1000 = 3$
- $\log 100000000 = 7$
- $\text{pH} = -\log (H^+) = -\log (H_3O^+)$
- $\text{pH} = -\log (H_3O^+)$

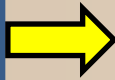
$$\text{pK}_a = -\log K_a$$

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 0.1 mol/l HCl = 1 pH=1 extremely acidic
- $pH = -\log (H_3O^+) = -\log(H^+)$



CONSTANT



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

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

Equation of
Henderson
Hasselbach

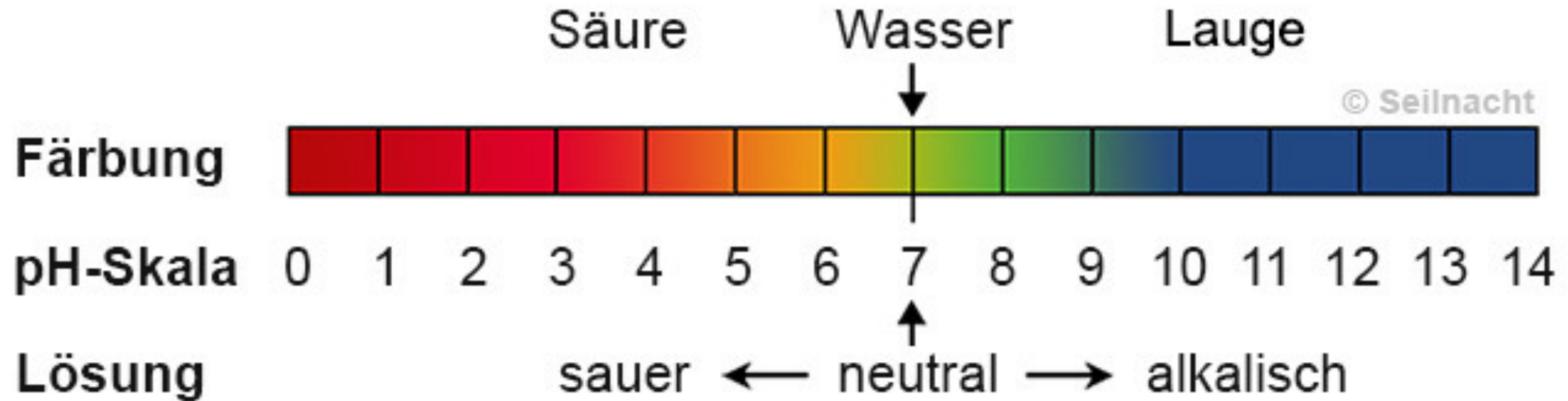
VARIABLE

CONSTANT

modulate the pH value

Choose the acid f(pKa)

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

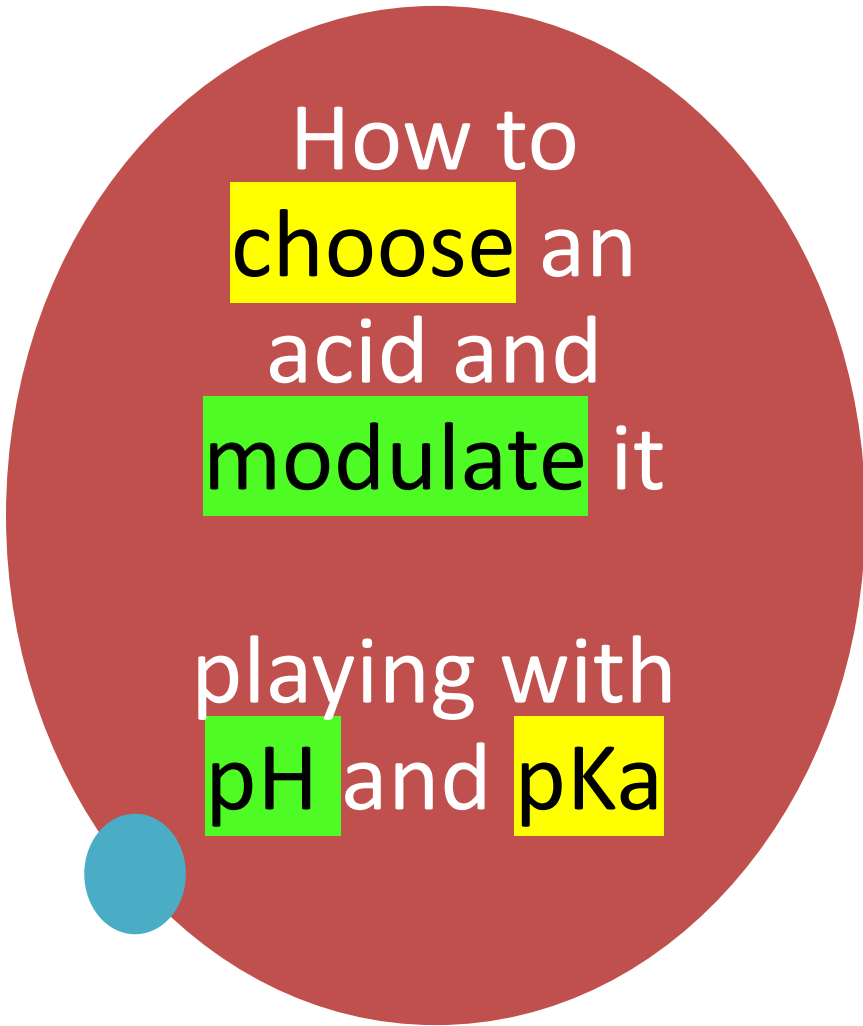
☐ pKa = aggressiveness

☐ 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



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



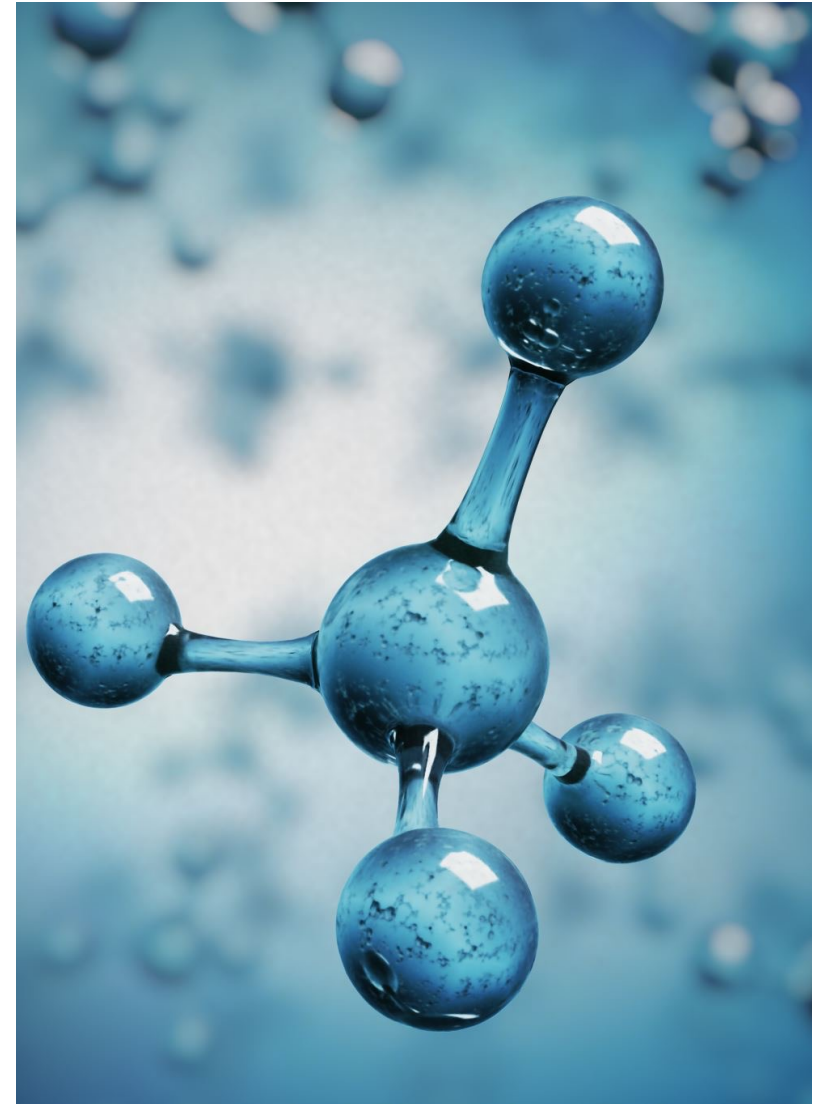
TCA GEL STABLE till 18%w/w

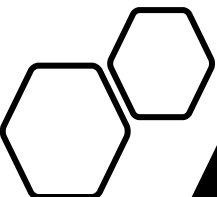


Airless

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 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
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
CLASSIFICATION DR.ALAIN TENENBAUM		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

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
<div>CHOOSE AN ACID f(pKa)</div>		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

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
 <div> <div>EU LAW</div> <div>Cosmeticians cant use any acid with pKa <3</div> </div>		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

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
	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
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

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
<div> <div>DANGER</div> <div>Low Nr of reactions</div> <div>e.g. glycolic A vs citric A</div> <div>Mono vs Triprotic</div> </div>		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

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

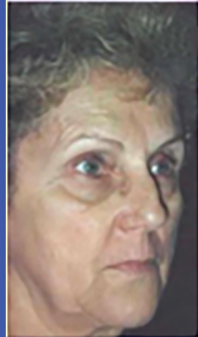


Protocol : Go on Peeling (citric acid) on the skin even during desquamation
Patient can go to the beach (Cancun) each day

Courtesy of Dr. Alain Tenenbaum

Anti Aging Peelings on Phototype 3
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

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 EVICTION

- 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

Practical exercise

Choose your acidity

Advantages and disadvantages

Dangerous acids

<u>Categoría del ácido</u>	<u>Subcategoría del ácido</u>	<u>pKa>3 de Menor a Mayor</u>	<u>pKa=3</u>	<u>pKa<3</u>	<u>pKa1</u>	<u>pKa2</u>	<u>pKa3</u>	<u>Clasificación de L. Dewandre</u>	<u>Número de reacciones</u>
Alpha Hydroxy	Alifático		Tartárico		3.04	4.37		Metabólico	Diprótico
		Cítrico			3.15	4.77	6.40	Metabólico	Triprótico
		Málico			3.40	5.13		Metabólico	Diprótico
		Glicólico			3.83			Metabólico	Monoprótico
		Láctico			3.86			Metabólico	Monoprótico
	Aromático		Mandélico		3.37			Metabólico	Monoprótico
Alpha Keto				Pirúvico	2.49			No Disponible	Monoprótico
Bicarboxílico		Azeláico			4.55	5.59		Metabólico	Diprótico
Beta Hidróxido			Salicílico		2.97			Tóxico	Monoprótico
TCA				TCA	0.54			Cáustico	Monoprótico
Fenol	Aromático	Fenol			9.95			Tóxico	Alcohol Base

- Salicylic Peel 20%
- Azelaic Peel 25%
- Lactic Peel 45%
- Pyruvic Peel 20%
- Phytic Peel 10%
- Mandelic Peel 45%
- Glycolic Peel 30%

The special case of phytic acid, an exception



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)
- $\text{pKa} = \text{pH}(5.5) \text{ skin}$ 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 is the ideal buffer for any acid that needs to be buffered.
Peeling de Luxe is not a moisturizer.

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
	KERATOREGULATORS	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

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
	MOISTURIZERS	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

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
	KERATOREGULATORS+ MOISTURIZERS	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

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.



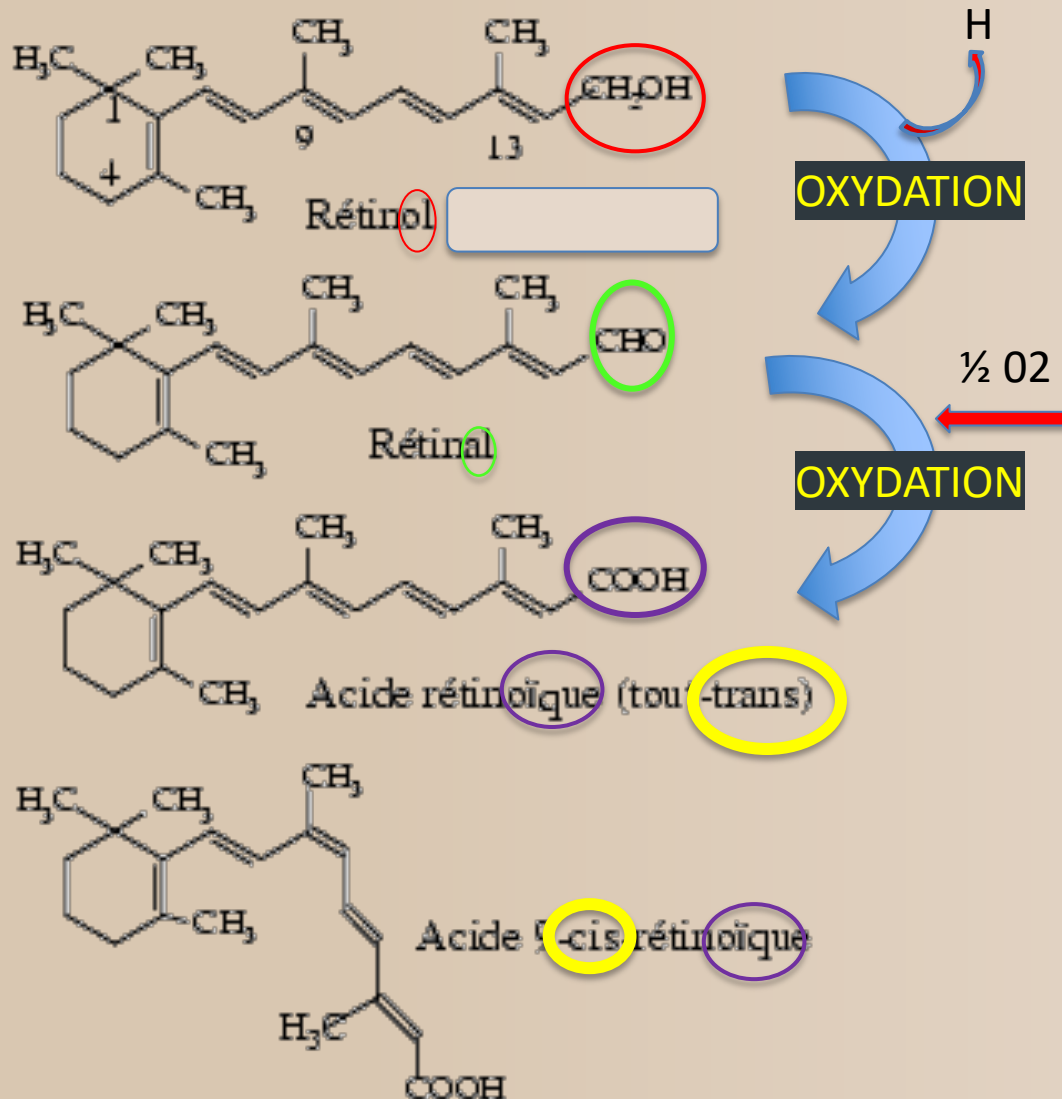
Peels without downtime or irritation,



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



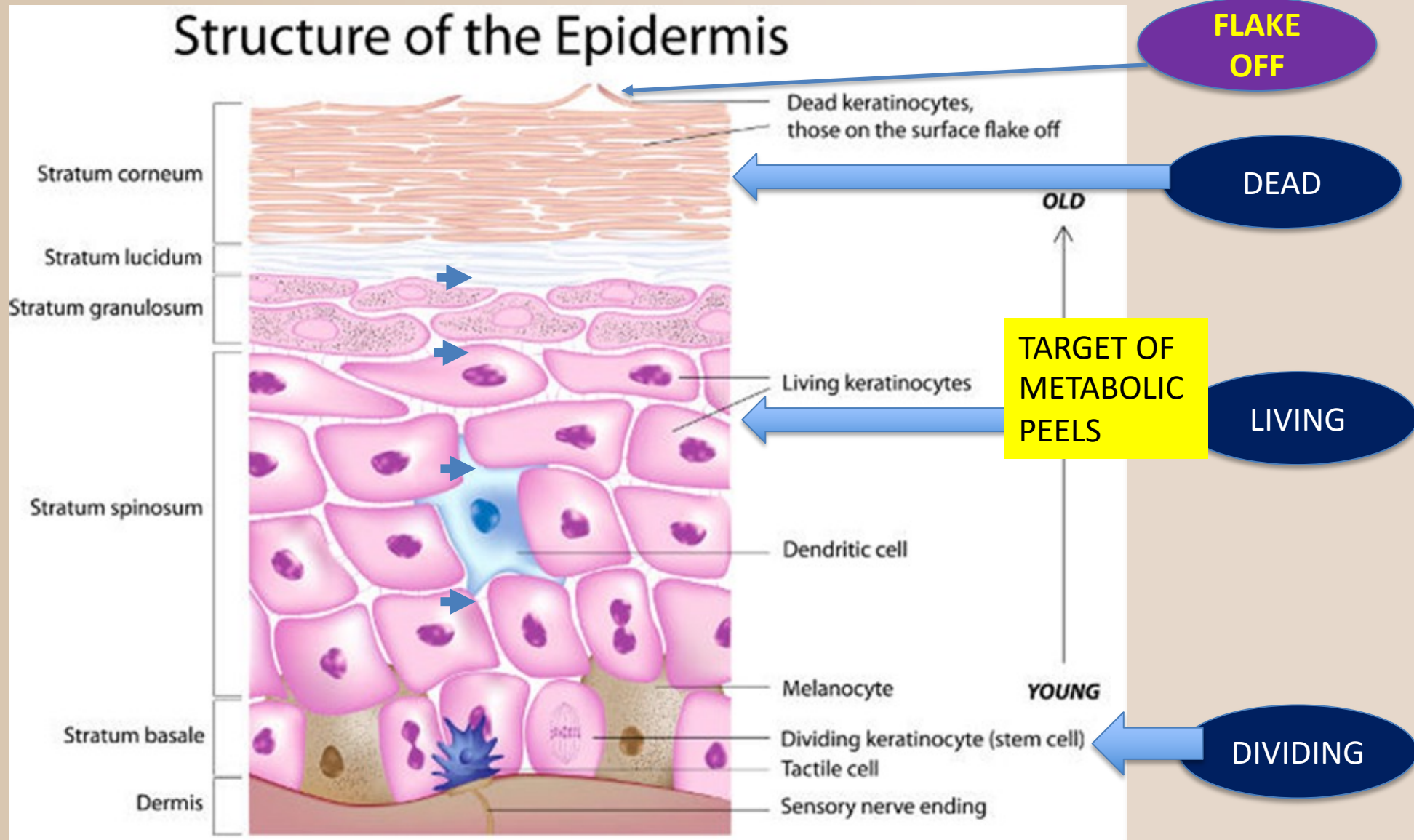
SUFFIXE - OL for Alcohol

SUFFIXE - AL for ALDEHYDE

SUFFIXE - OIC for acids

Retinoic acids work best when they are stable
 Peeling de Luxe contains stable retinoic acids
 Retinoic acids are more expensive than retinol

Main Target of Metabolic Peels



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
CLASSIFICATION DR.L.DEWANDRE		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

Chiral Correction

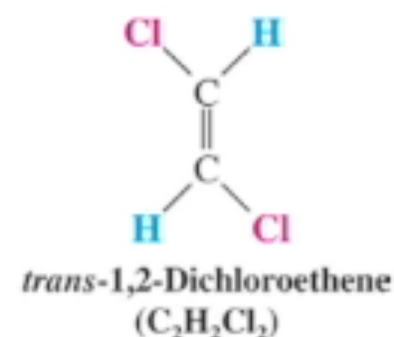
What is Chiral Correction?

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.

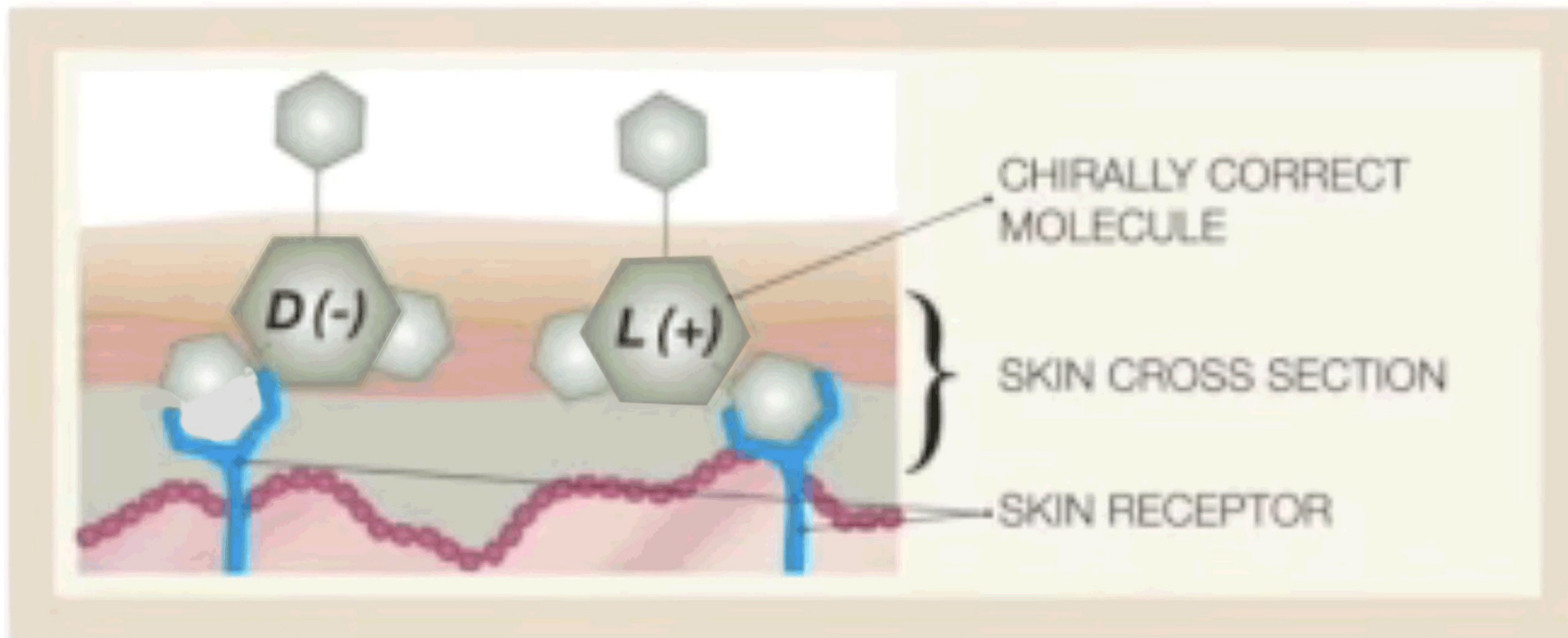



Chiral Correction

Implications for the Skin

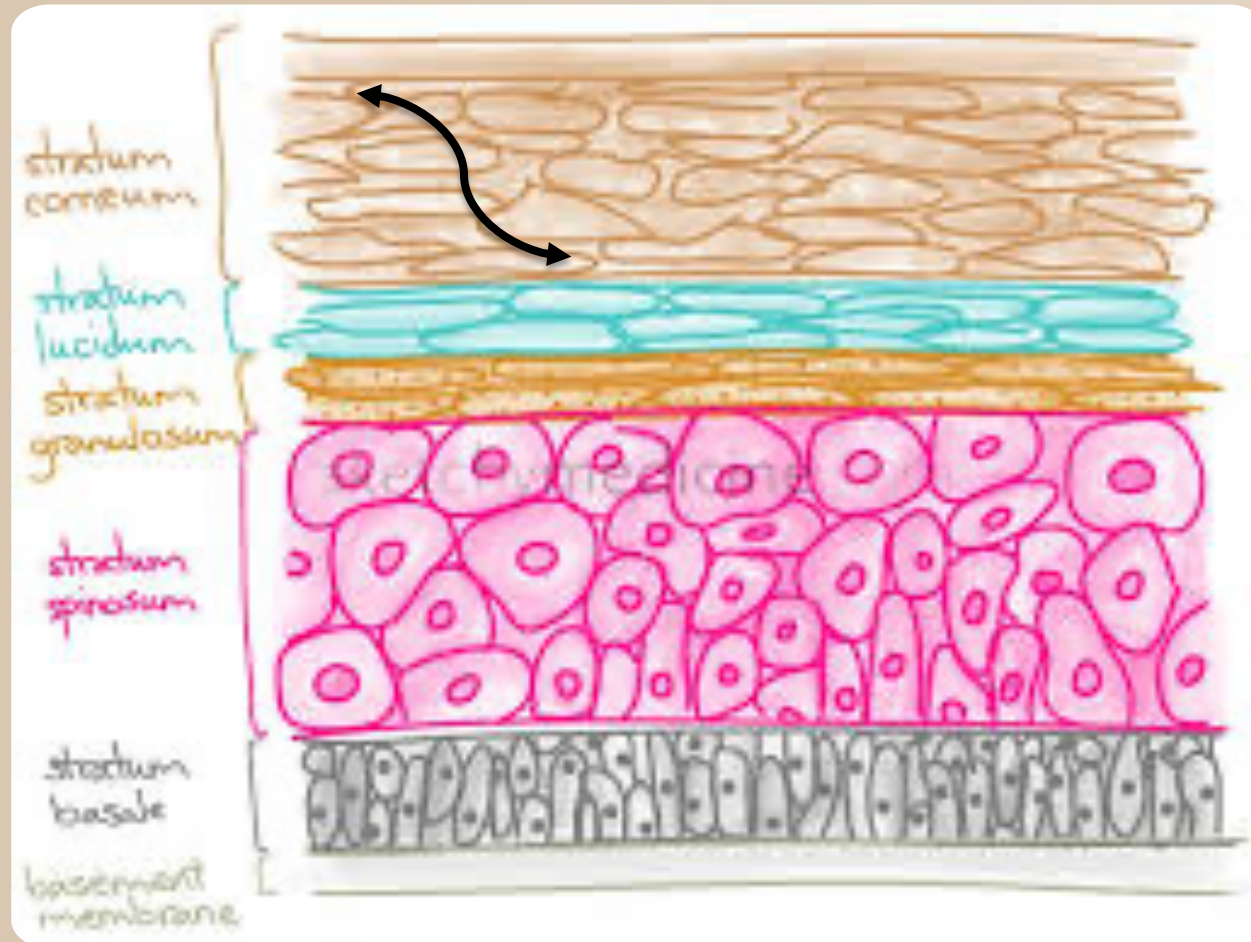
Although chemically two forms of an ingredient may be identical, because their shape is different they will interact with the skin differently.

How a Chiral Molecule Works



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

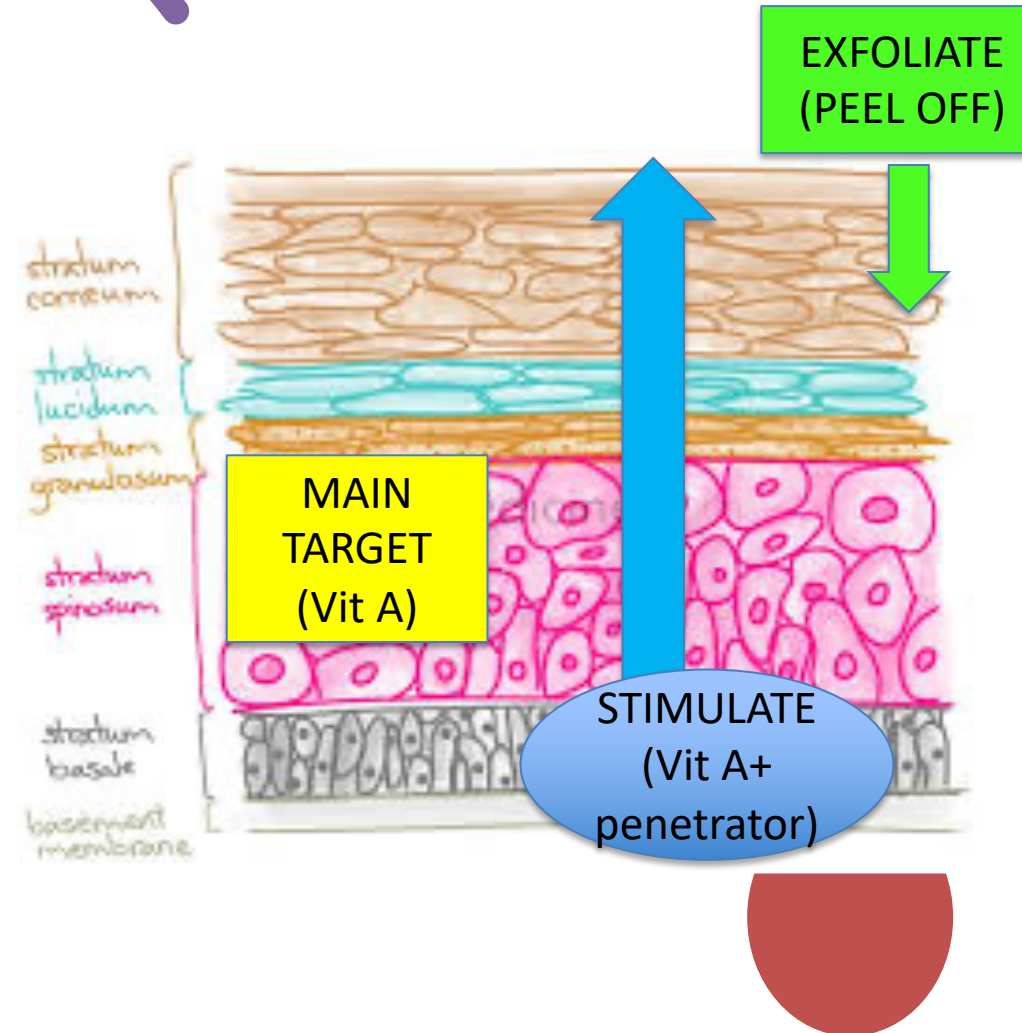
TRADITIONAL CHEMICAL PEELS -> FORCING REPAIR



- Exfoliate the skin from the stratum corneum downwards

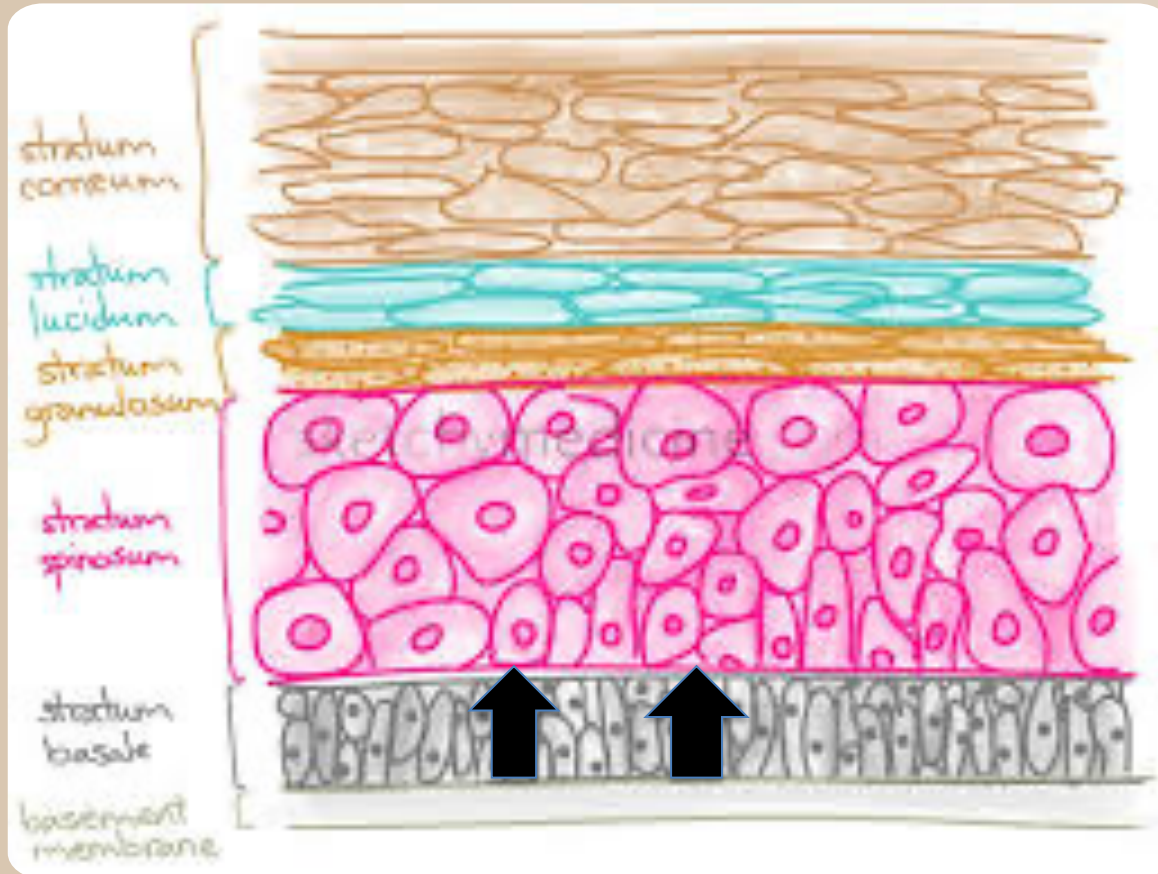
Metabolic Peels vs Chemical Peels

- Metabolic Peels contain Vit A that targets the living layer of the skin and increases cell renewal. (Ex Peeling de Luxe)
- 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

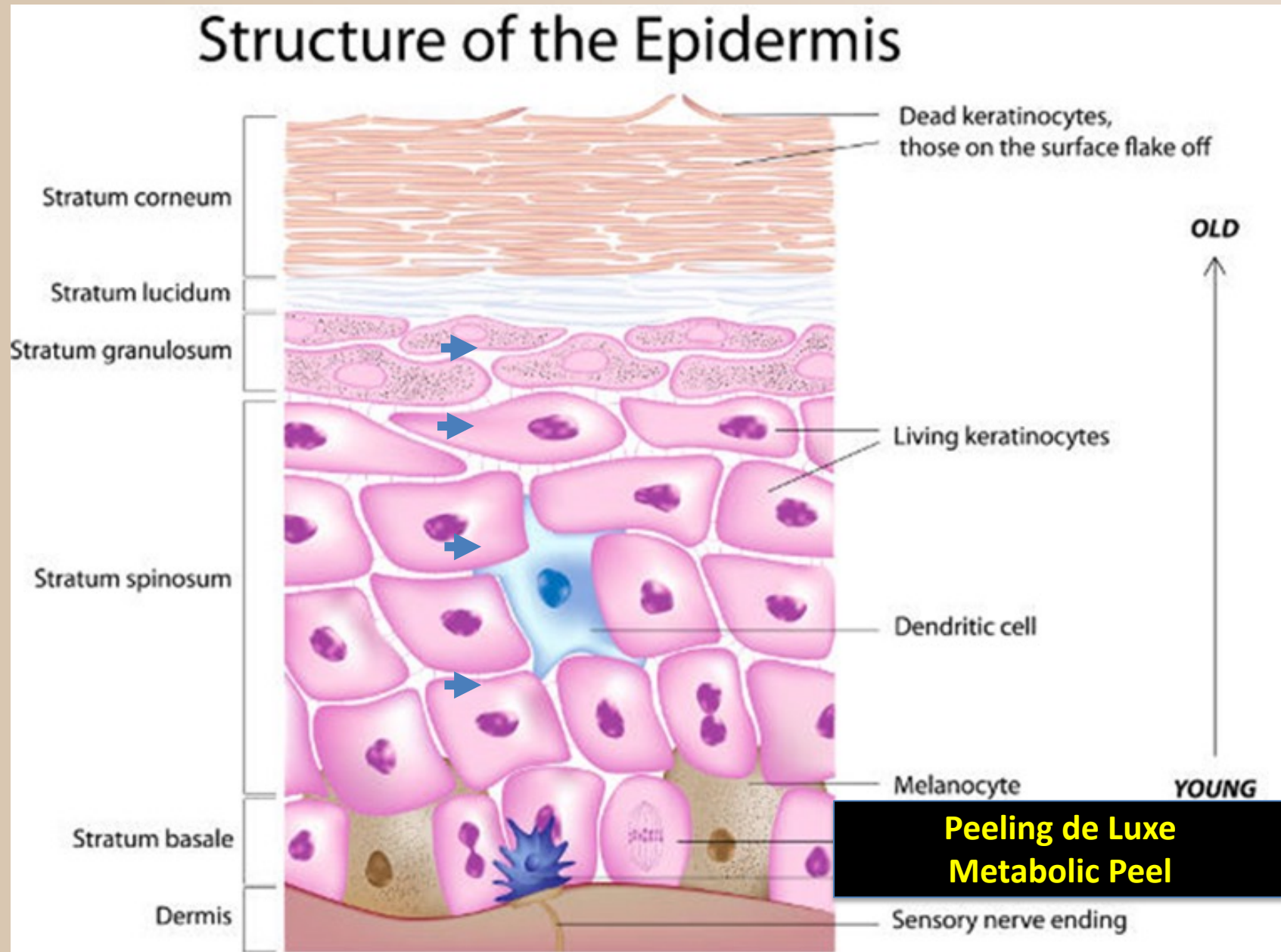
METABOLIC PEELS -> SKIN NATURAL RENEWAL SUPPORTING SKIN FUNCTION



- Stimulate renewal from the stratum basale or germinativum upwards

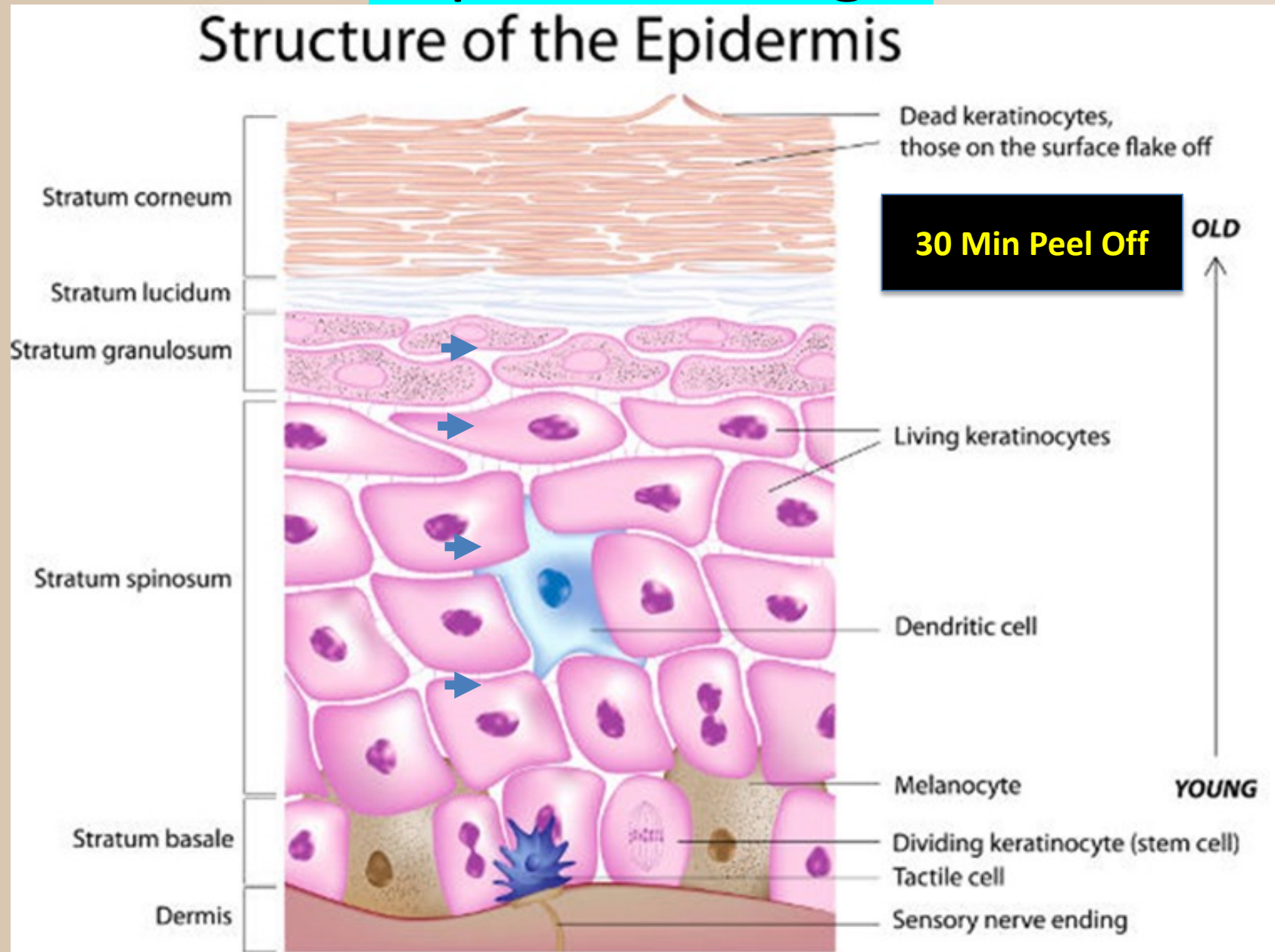
Different Targets of Epidermis

Metabolic Peel targets stratum basal and increases cell renewal

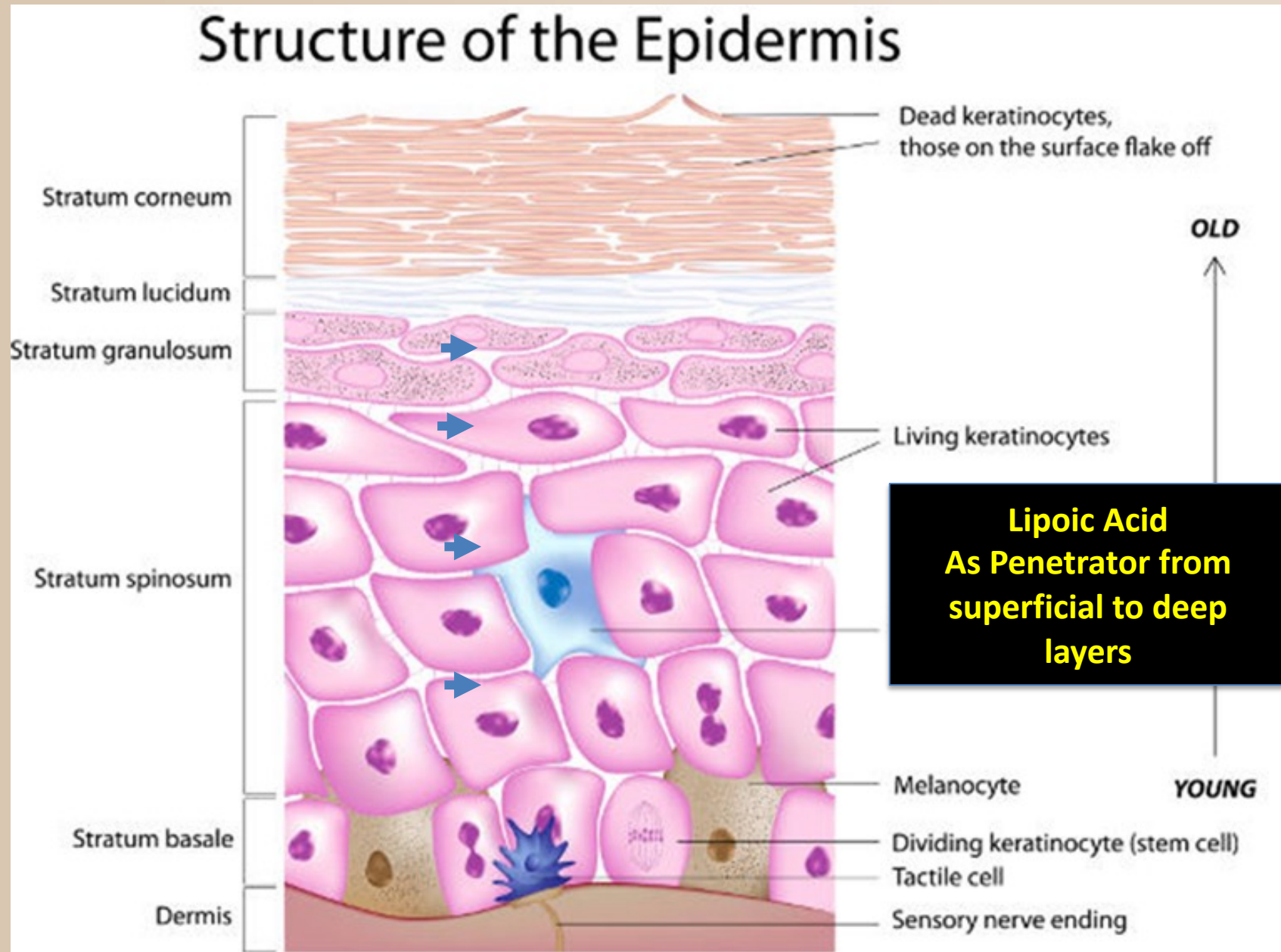


Different Targets of Epidermis

Superficial Target



Different Targets of Epidermis



Protocol of Mauro Tiziani

3 Targets = 3 Products
Stimulate, Exfoliate, Penetrate SEP

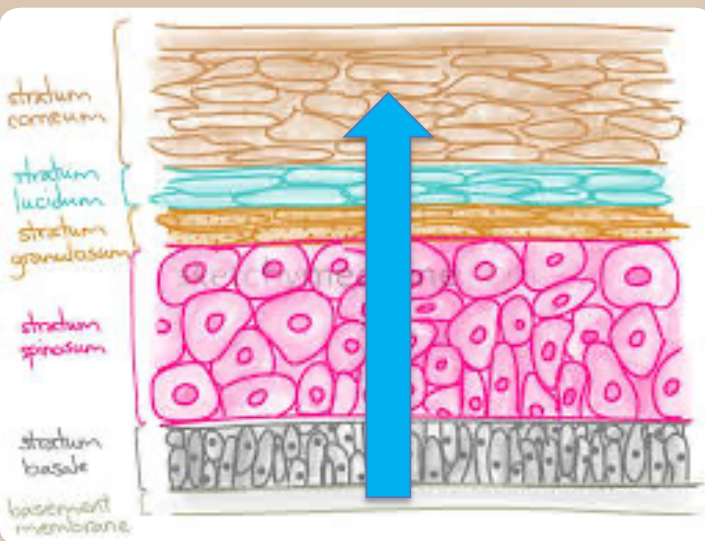
THE METABOLIC PEELS SET

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

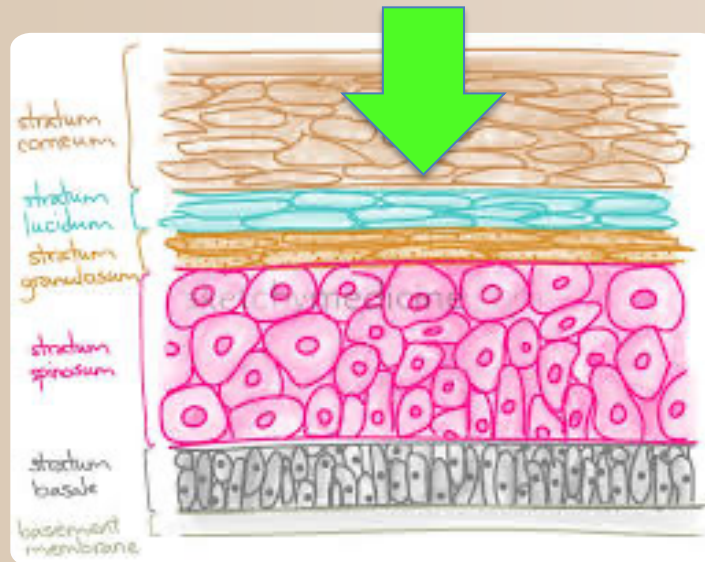
STIMULATE

EXFOLIATE

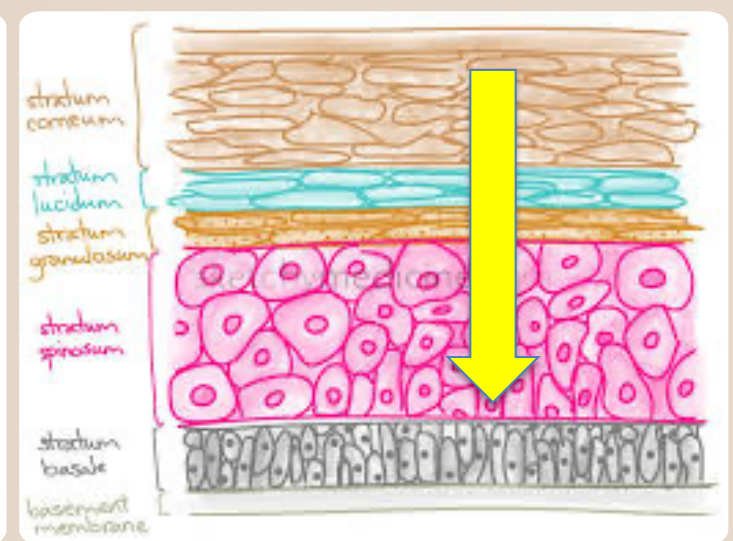
PENETRATE



PEELING DE LUXE



30 MIN PEEL OFF



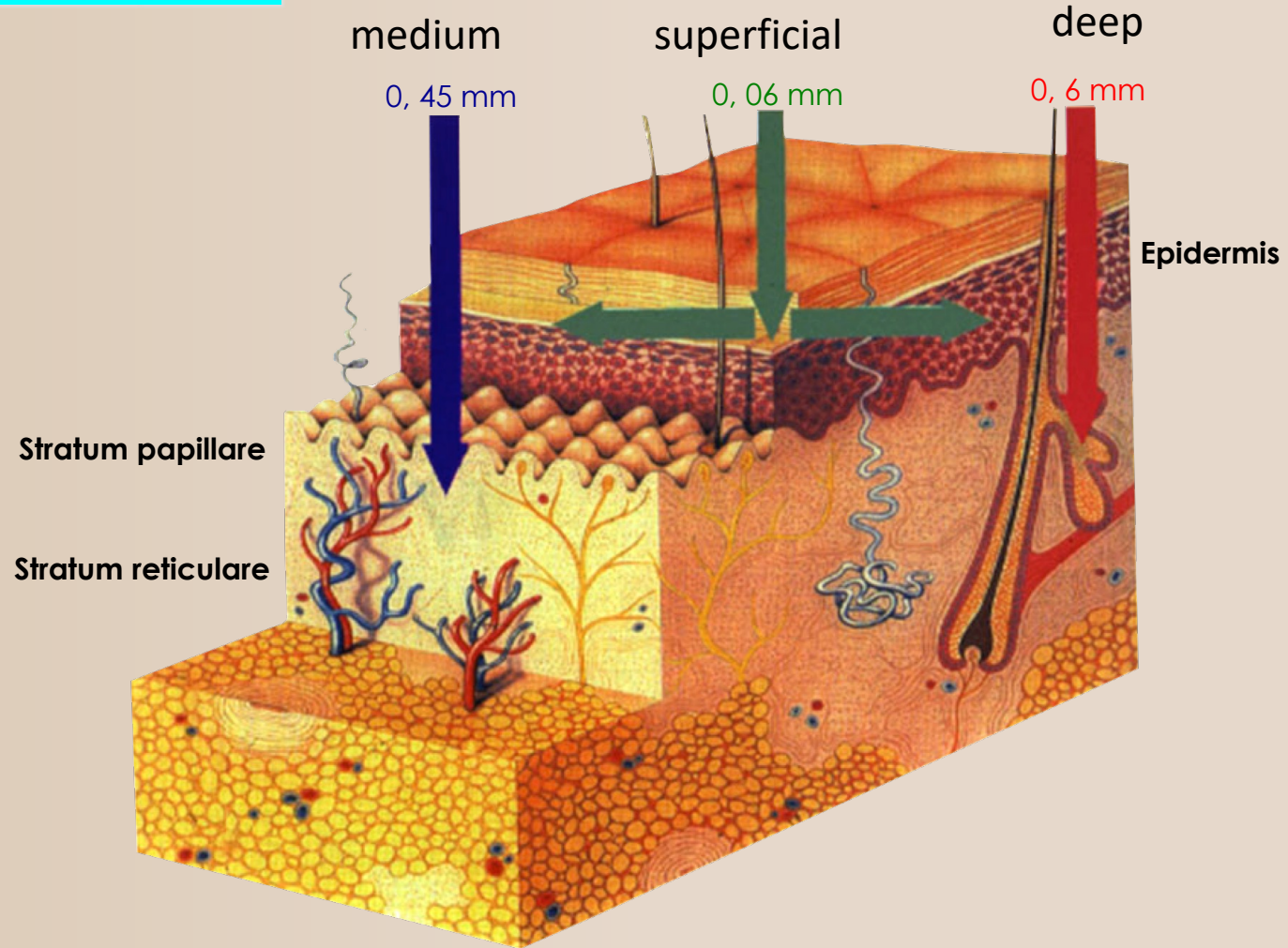
LIPOIC ACID



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)



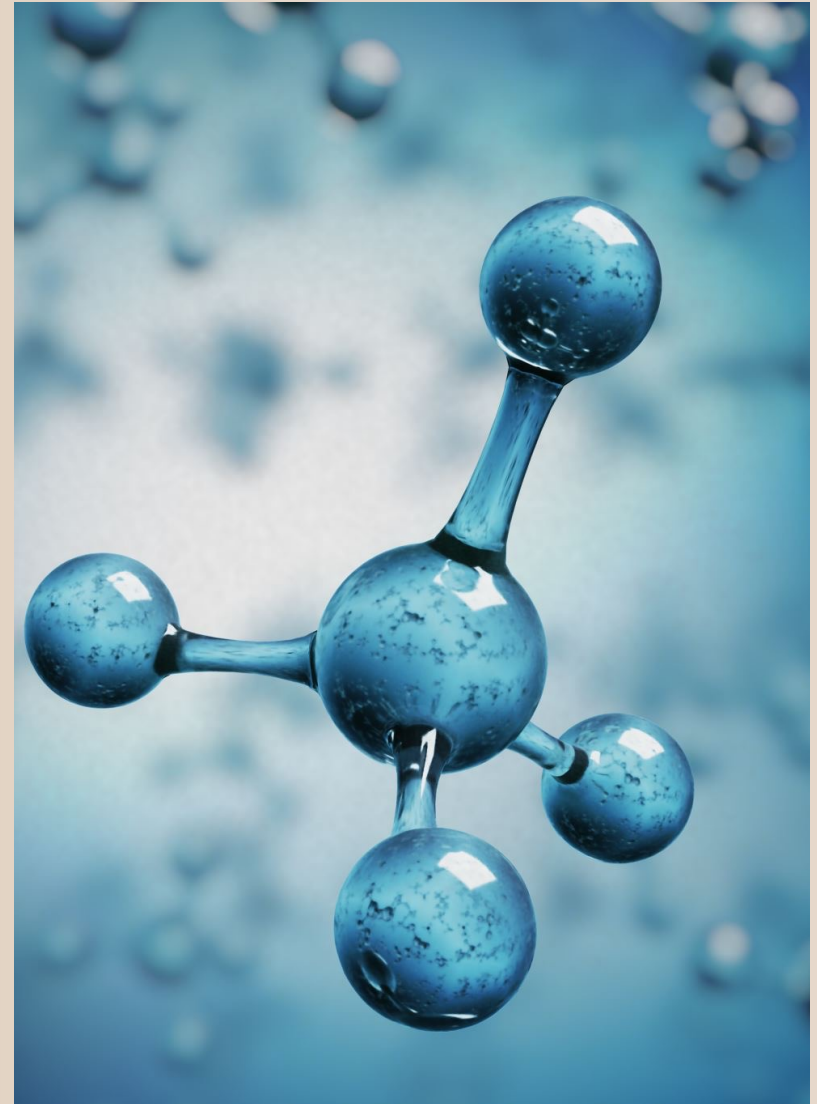
Concept of Mauro Tiziani

- Chin
- Perioral area
- Forehead
- Nasal Tip
- Cheeks / nose
- Frown
- Periocular area
- Neck



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



Practical Trends of A.Tenenbaum



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

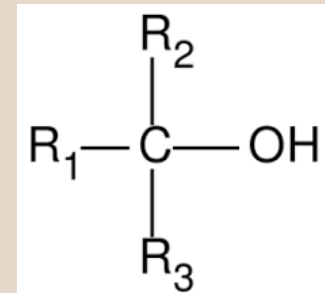
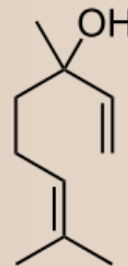


the 3 types of primary, secondary and tertiary alcohol

- **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

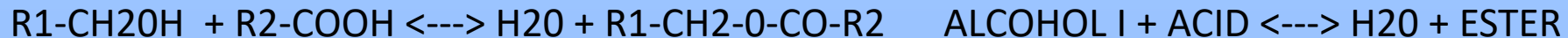
Tertiary Alcohol ex Linalol oder 3,7-Dimethyl-1,6-octadien-3-ol is a tertiary alcohol with a floral and fresh smell.



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



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

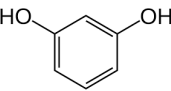
ONE MIXTURE
COMBINATION
TO KNOW
JESSNER PEEL

OLD FASHION PEEL

100 mg of 95% ethanol !!



14 g of resorcinol (chiral)



14 g of salicylic acid (chiral)

and 14 ml of lactic acid (chiral)

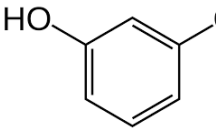
NOT SEQUENTIAL COMBINATION

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	Jessner followed by TCA 20% W/V- SEQUENTIAL
Salicylic 30% W/V	Salicylic 20% W/V + Mandelic 10% W/V MIXTURE

Combination Chemical Peels

Side Effects

Side Effects

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

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

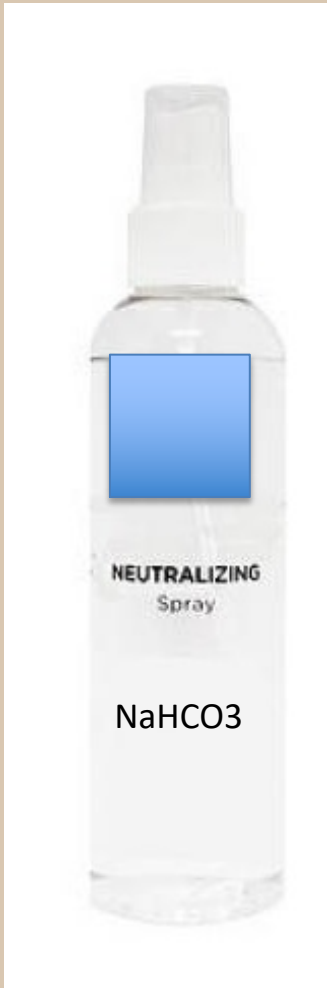
Products which are pH Regulators of peelings acids

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

PEELING DE LUXE (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



NaHCO₃
Not frosting stopper
Use for acid with pKa > 3



PEELING DE LUXE
FROSTING STOPPER

for your emergency equipment
Use for acid with pKa < 3



H₂O

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
- 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 +++

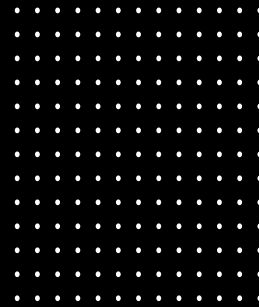


It is important to check the list of ingredients before buying a cosmetic product

Choose products with lowest molecular mass



Homecare
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 pKa, which continue the peeling effect
8. Sea vegetable collagen
9. Avoid parabens

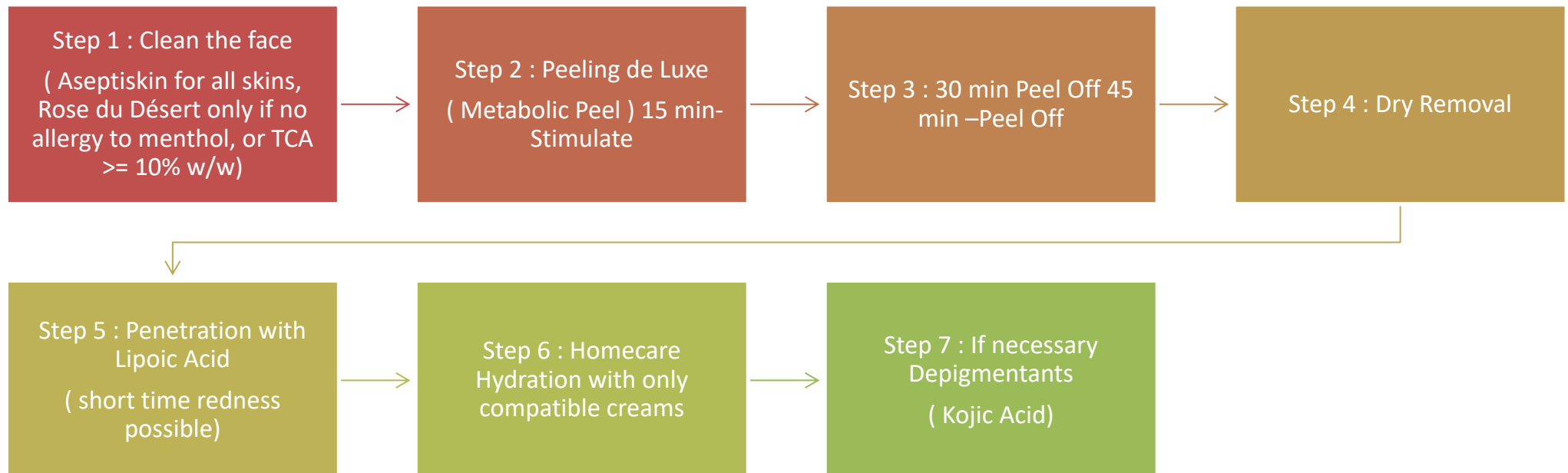




Medications that cause acne

- ☐ 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

Protocol of Mauro Tiziani , Molecular Biologist for most indications, valid for all skin types in any seasons



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

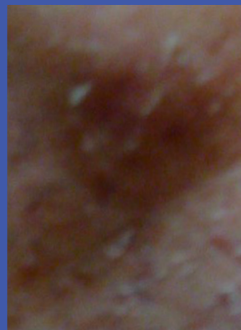
BEFORE

AFTER



Courtesy of Dr. Alain Tenenbaum

Desquamation on Black Skin
Longer Duration of Desquamation is better than
Amplitude of Desquamation



Courtesy of Dr. Alain Tenenbaum

Hyperchromia

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

(A.TENENBAUM)

Frostings

White Frosting



Light Frosting



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

BEFORE

AFTER 4 SESSIONS



Courtesy of Dr. Alain Tenenbaum

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
local or loco-regional lesion !
(A.TENENBAUM)

Treatment of Cervical Hyperchromy Post Chemodermabrasion

TCA on the lesion and around the lesion



Courtesy of Dr. Alain Tenenbaum

Treatment of Cervical Hyperchromy Post Chemodermabrasion

Frosting Levels & Frosting Stopper (Metabolic Peel)



Courtesy of Dr. Alain Tenenbaum

Protocol Hyperchromy of A.Tenenbaum

1 session / week x 4 weeks

Treatment of Cervical Hyperchromy
Post Chemodermabrasion

TCA on the lesion and around the lesion



Courtesy of Dr. Alain Tenenbaum

Treatment of Cervical Hyperchromy
Post Chemodermabrasion

Frosting Levels & Frosting Stopper (Metabolic Peel)



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



Clinical Cases & Indications for

TCA > 20% w/w



Protocol 1 / week x 4 weeks



Go on crosts (crosts peeling)



Inform your patient of their outlook which looks worse 3 days after each session leading to social eviction.

Social Eviction 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

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

D0

D7



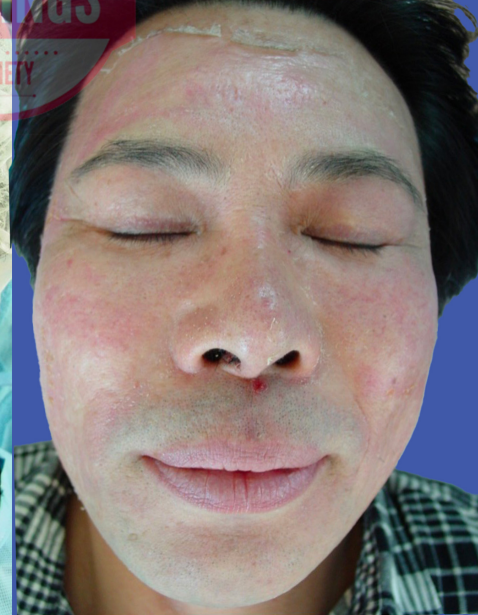
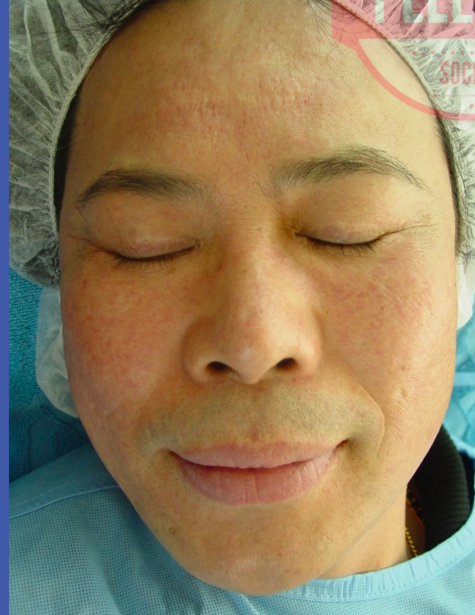
Courtesy of Dr. Alain Tenenbaum

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

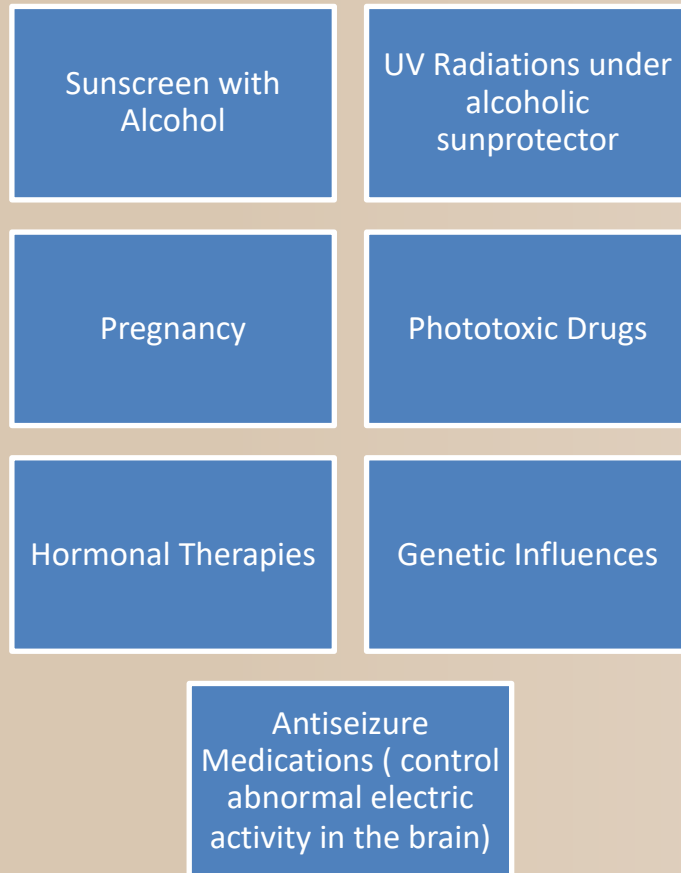


Courtesy of Dr. Alain Tenenbaum

Melasma

skin condition that causes patches and spots, usually on the face, which are darker than your natural skin tone.

Etiologies



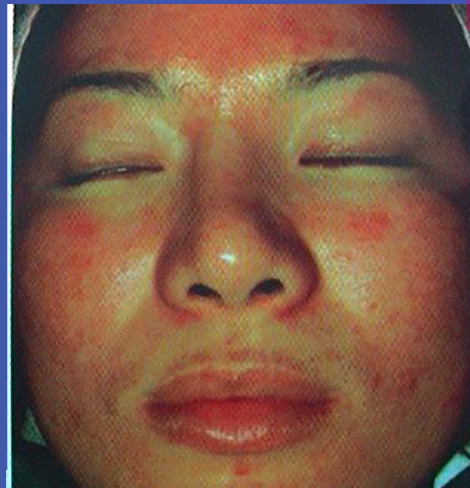
Treatment

- Hydroquinone?
- TCA $\geq 30\%$ w/w + Metabolic Peels + Depigmentant + Moisturizer
- NO ALCOHOL

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



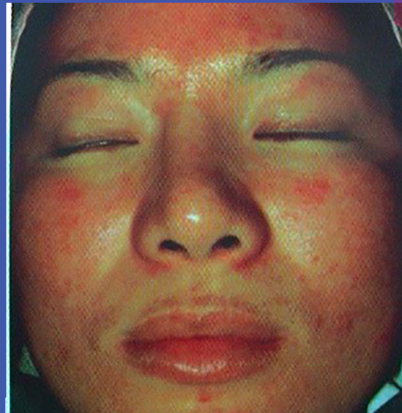
7 DAYS
AFTER TCA 30% w/w
CORRECT



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

Combination EBD+ Peels

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

D0



1 ST SESSION

Korean Male



D7



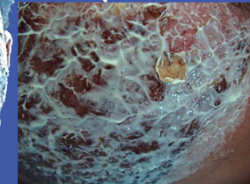
D1



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

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, u carton container-(No metal containers)

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

www.international-
peelings-society.org



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



www.international-peelings-society.org

MEMBERSHIP





Countries

Argentina
Bolivia
France
Guatemala
Mexico

More (+)

Cities

Alpnach Dorf
Cancun
CDMX, Area Metropolitana, México
Ciudad de México
Draguignan

More (+)

Results 1 - 12 of 12

Relevance

All categories / IPSC Members (International Peelings Society)



IPSC Members (International Peelings Society)

Find all medical doctors members of IPSC, international peelings society

1. ALAIN TENENBAUM

☆☆☆☆☆



Alpnach Dorf, Obwalden, Switzerland

+41764177315

» Website Map Directions » More Info

Categories: IPSC Members (International Peelings Society)

Featured

2. Lorena Morzilli

☆☆☆☆☆



[Home](#)

[Directory](#)

[Events](#)

[Login/Logout](#)

[Back to search results](#)

ALAIN TENENBAUM Claimed

22006 Print

endopeel is the best procedure in aesthetic medicine for plastic surgeons, gynecologists, cosmetic dermatologists and aesthetic medicine practitioners.



☆☆☆☆☆

Contact person

Research & Development

ALAIN TENENBAUM (+)

Alpnach Dorf, Obwalden, Switzerland

+41764177315

[alain@endopeel.com](#)

[Website](#) [Contact business](#) | [Quote Request](#)

[Content responsible person](#)



Business Details

endopeel is the best procedure in aesthetic medicine for plastic surgeons, gynecologists, cosmetic dermatologists and aesthetic medicine practitioners.

Categories: Endopeel Board Certified Medical Doctors, SACDAM Members, IPSC Members (International Peelings Society), Aesthetic Medicine Practitioners, Board Certified Facial Plastic Surgeon

Keywords: endopeel, retensadocutaneo, pectoroplasty, sixpacks, medical facelift, medical rhinoplasty, abdominopexy, trapezoplasty, biceps projection, arm lift

General info Dr.Alain Tenenbaum is the Inventor of Endopeel Techniques & Products as of some Peelings.He is teaching worldwide his techniques to plastic surgeons, facial plastic surgeons,cosmetic dermatologists and aesthetic medicine practitioners in different languages like english,german, french,italian, spanish ..

FACEBOOK GROUP

facebook.com/groups/901064043307458

Applications Backlog CORONAVIRUS Buyers Guide-SEO Captcha chemicalpeels E Mails ENDOPEEL Events-Travels-Vi... godaddy-plek Google Calendar Erreur liée à la co... Medical Cosmetic... indications Endop...

Search Facebook

Home

Manage Group

International Peelings Society Group
Private group

If you'd like, you can switch to the classic Facebook.com for 48 hours to manage your group.
[Switch Now](#)

Admin Tools

- Member Requests
- Automatic Member Approvals
- Membership Questions
- Pending Posts
- Post Topics
- Scheduled Posts
- Activity Log
- Group Rules

International Peelings Society Group
Private group · 712 members

About Discussion Announcements Rooms Members Events Media Files

What's on your mind, Alain?

Room Photo/Video Tag People

Announcements · 3 [See All](#)

Alain Tenenbaum
Admin

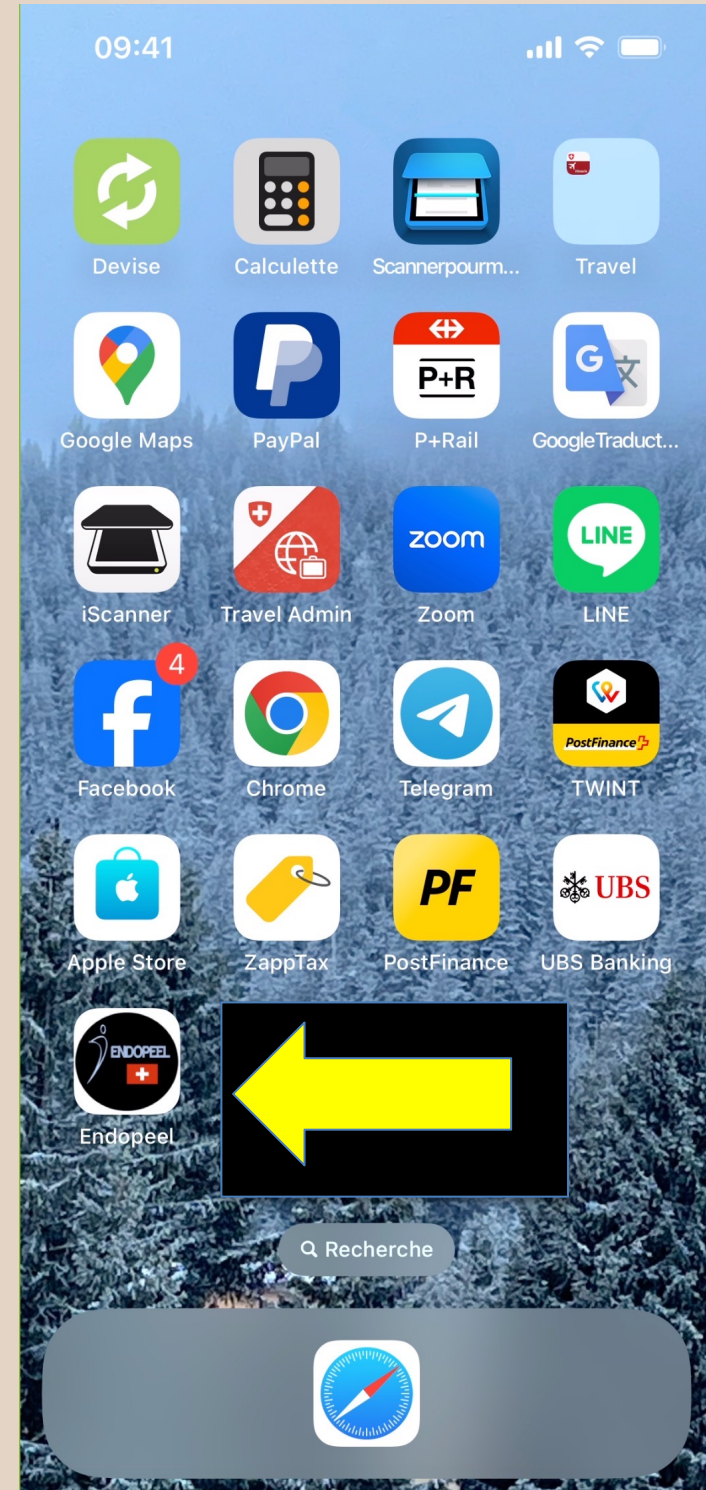
About

Share your experience about chemical peelings. Recently some combined procedures with less aggressive chemical peels have shown to give better r... [See More](#)

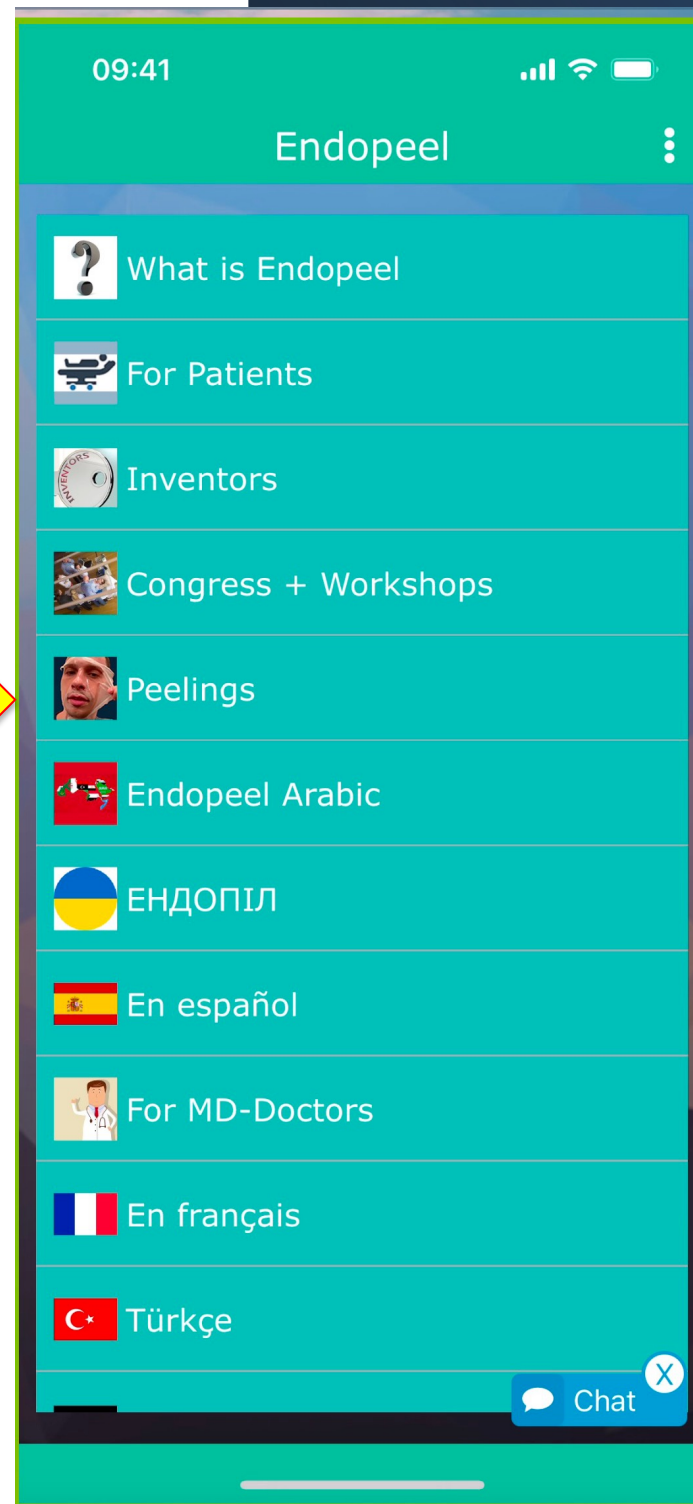
Private
Only members can see who's in the group and what they post

Visible

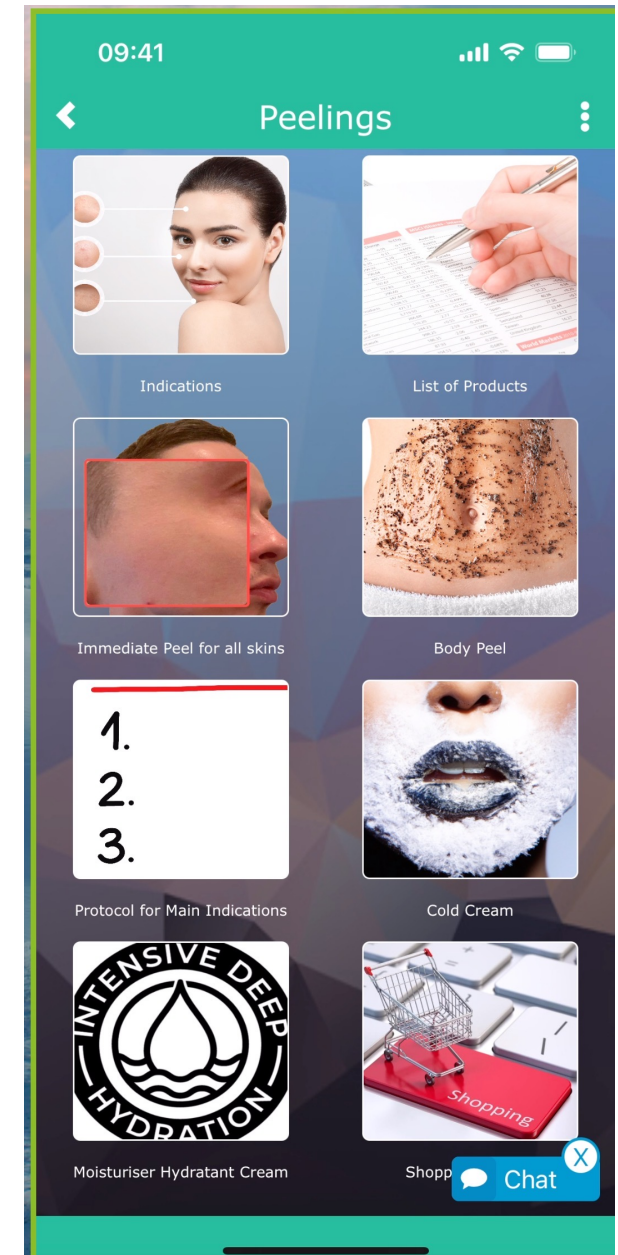
APP „ENDOPEEL,,



APP „ ENDOPEEL,,



App „Endopeel,,





PEELINGS 1h30-2h COURSE

Its time to wake up



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