



**PEELINGS**  
**CLASSIFICATION OF A.TENENBAUM**  
**UK 09-2024**



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

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- Intellectual property rights (IPR) have been defined as ideas, inventions, and creative expressions based on which there is a public willingness to bestow the status of property. IPR provide certain exclusive rights to the inventors or creators of that property, in order to enable them to reap commercial benefits from their creative efforts or reputation. There are several types of intellectual property protection like patent, copyright, trademark, etc.


# Why this lecture for plastic surgeons ?

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Peelings IMPROVE results of surgery



Peelings make you different from other colleagues thinking just to do procedures in OP Room



Peelings will bring you more patients



Patients judge us on their outlook and make a lawsuit if they aren't satisfied by outlook results

# Take a Look

---

I am not better , may be not so good as you as surgeon

But I can compete with you for my results post surgery thanks to Peelings



# Rhinoplasty + Peeling de Luxe Technology





# Rhinoplasty + Peeling de Luxe technology





## Facecelift+ Endopeel +Peeling de Luxe Technology



# Lipoplasty ,Facelift ,Blepharoplasty Endopeel+ Peeling de Luxe technology





# Facelift + Blepharoplasty + Endopeel+ Peeling de Luxe Technology



Copyright Dr. Alain Tenenbaum  
[www.chemicalpeeling.com](http://www.chemicalpeeling.com)



# 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**

# IMPORTANT TO KNOW BOTH ARE PEELINGS COMBINATION IS POSSIBLE

**PEEL OFF**

**SLOUGH OFF  
DESQUAMATION**



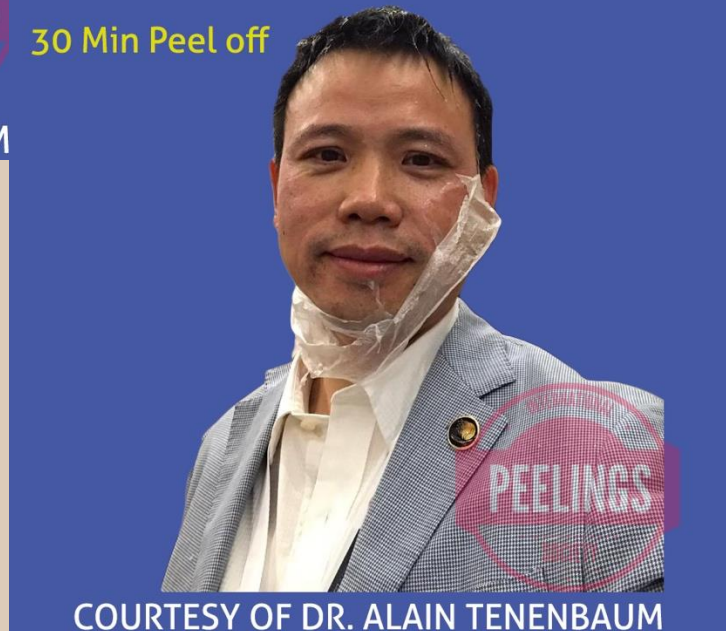
COURTESY OF DR. ALAIN TENENBAUM

**NO COMPLICATION**

**POSSIBILITY OF COMPLICATIONS**

# 30 MIN PEEL OFF

Valid for all skin types at any time of the year





**Chemical  
Peels**

Edited by **Rebecca C Tung**  
**Mark G Rubin**


SAUNDERS  
ELSEVIER



2ND EDITION

2

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



**Exfoliación  
química**

Editado por **Rebecca C. Tung**  
**Mark G. Rubin**



2.<sup>a</sup>  
EDICIÓN



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

Series editors

Jeffrey S. Dover  
Murad Alam



Enhanced  
**DIGITAL**  
VERSION  
Included

PROCEDURES IN COSMETIC DERMATOLOGY

THIRD EDITION

# Chemical Peels

Edited by

Suzan Obagi MD



**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

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



# Anti Aging



**TREATED SKIN**



**UNTREATED SKIN**



# Acne

BEFORE

AFTER 1 WEEK



TCA 10% w/w +PrePeel + Lipoic Acid

Courtesy Mauro Tiziani

# HYPERCHROMY OF THE AXILLARY CAVITY

**BEFORE**

1 SESSION PEELING

**AFTER 10 DAYS**



# HYPERCHROMY OF RIGHT AXILLA

**BEFORE**

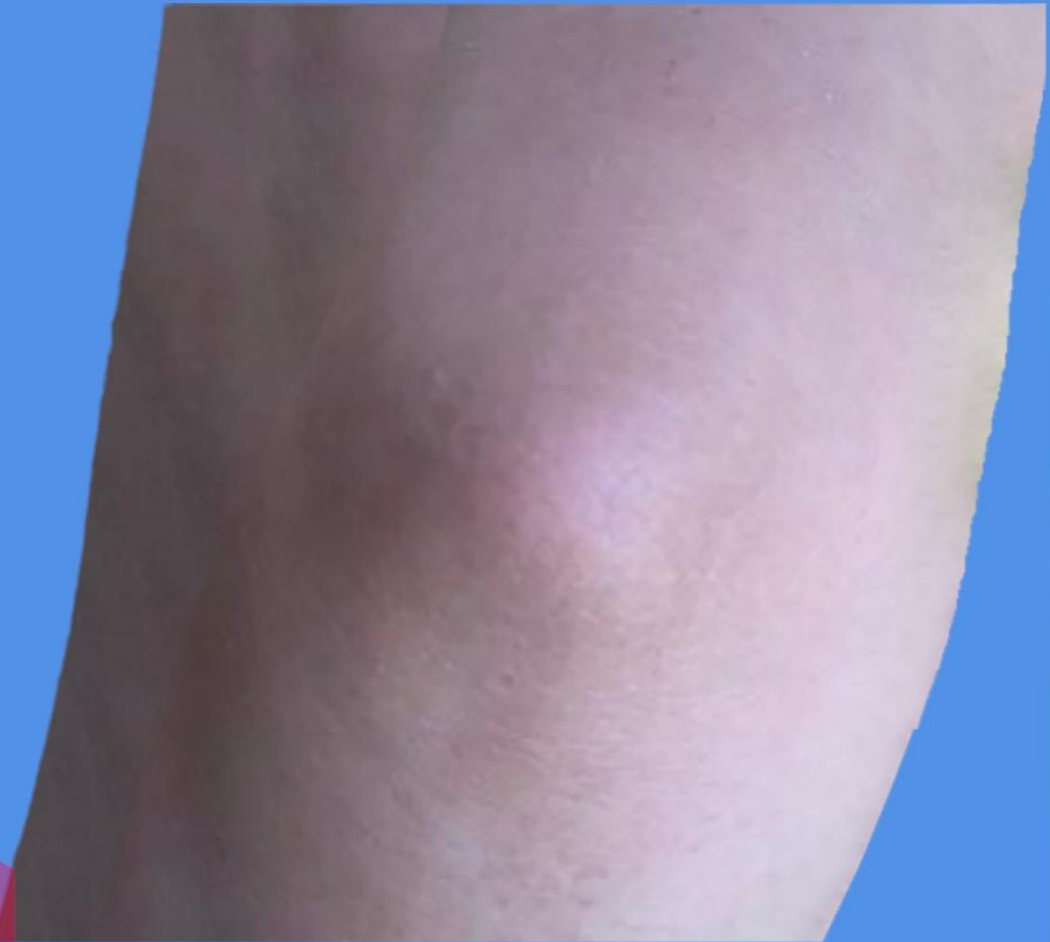
**AFTER 10 DAYS**



# Peeling of Elbow

**BEFORE**

**AFTER 3 sessions**



**Courtesy of Bob Chan**

# Peelings for Feet

TREATED

UNTREATED

Microabrasive Sand Cream



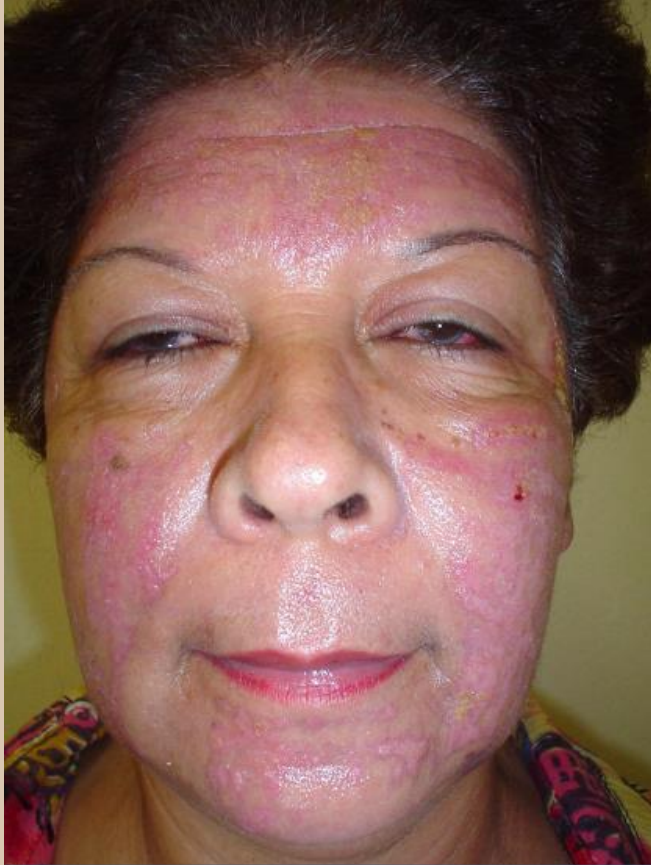
Courtesy of Dr. Alain Tenenbaum

# Treatment hyperchromy complication after a neck chemodermabrasion

After chemodermabrasion

1 month after treatment





3 weeks after peeling made by a colleague in Brazil



4 months after my treatment



Treatment of Complication after glycolic acid + TCA

Copyright Dr. Alain Tenenbaum




Treatment after complication of glycolic acid



3 weeks after a peeling made  
by a colleague



3 months after my treatment



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

---

CE & FDA medical devices are filling the hospitals !  
Lawyers & Burocrats aren't scientists !  
Papers don't mean safety and fill the burocrats pockets  
!

Covid Restrictions linked to  
CE & FDA & Burocrats  
are  
still filling the hospitals !

DIPLOMADO EN **NUTRICIÓN,**  
**ANTI-ENVEJECIMIENTO**  
**Y ESTÉTICA**  
Nº REGISTRO 17DAP04804



Secretaría  
de Educación

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



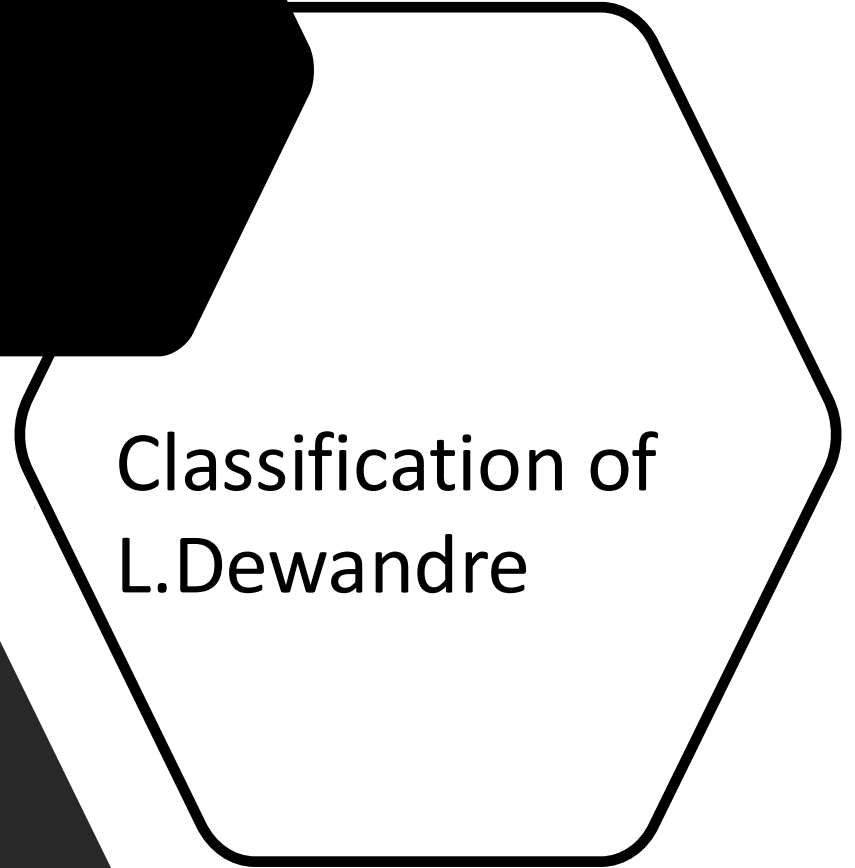
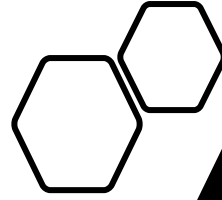
*Trabajo final de los médicos alumnos de la  
17ª generación del Diplomado en Nutrición  
Anti-envejecimiento y Estética 2021*



## GOALS

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



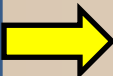


Classification  
of  
A.Tenenbaum

Classification of  
L.Dewandre



CONSTANT



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

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

VARIABLE

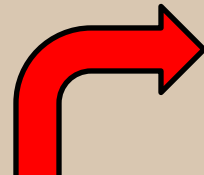


CONSTANT

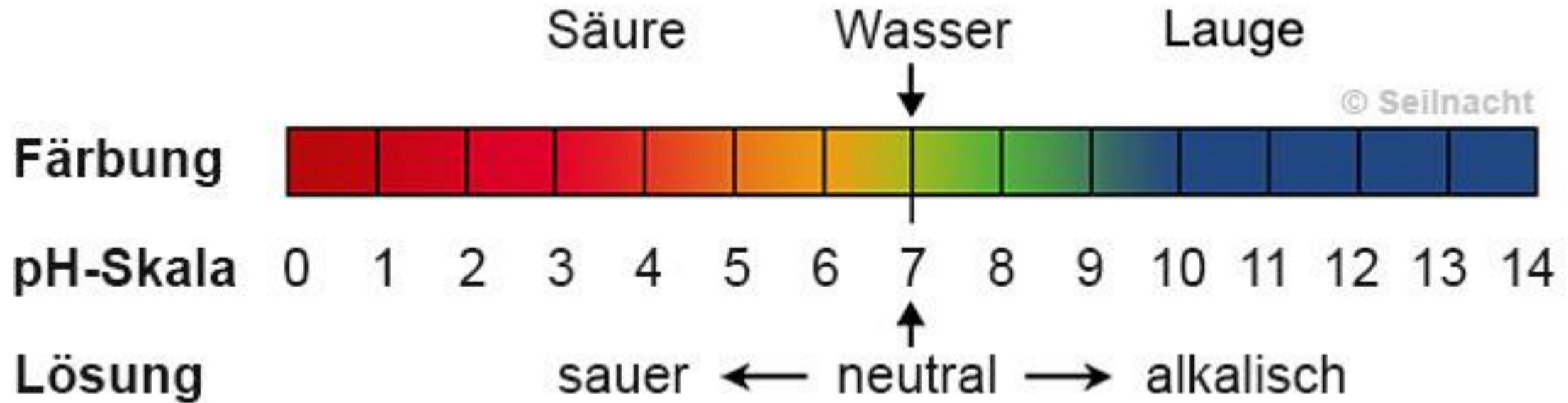


modulate the pH value

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)

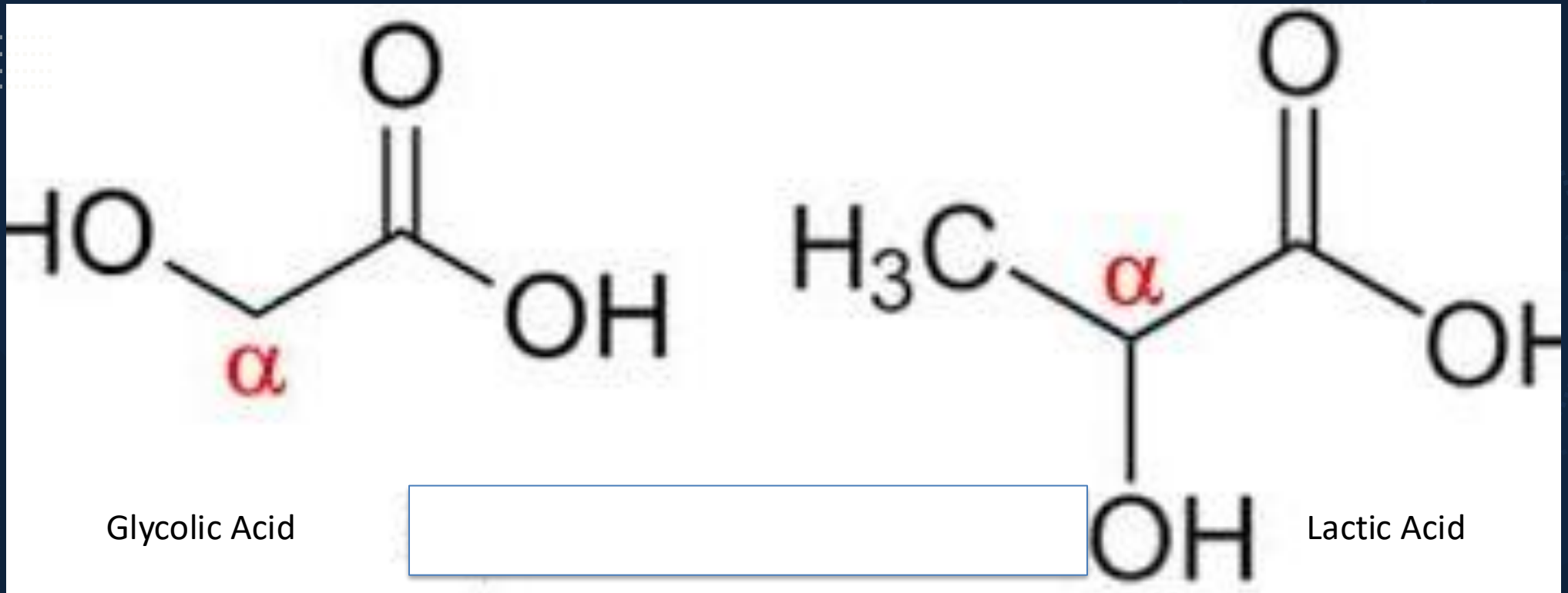
pH is function of temperature, altitude, hygrometry



## 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




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
		<b>Citric A</b>			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


**CHOOSE AN ACID f(pKa)**

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Stupid EU LAW  
Cosmeticians  
cant use any acid  
with pKa <3



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	<b>Aggressiveness</b> <b>e.g. citric A &gt; glycolic A</b> <b>pKa 3.15 &lt; 3.83</b>		Glycol A			3.83			Metabolism
	Aromatic Benzene ring		Almond.A mandelic		3.37			Metabolism	1
Alpha Keto				Grapes Acid (pyruvic)	2.49			Not available	1
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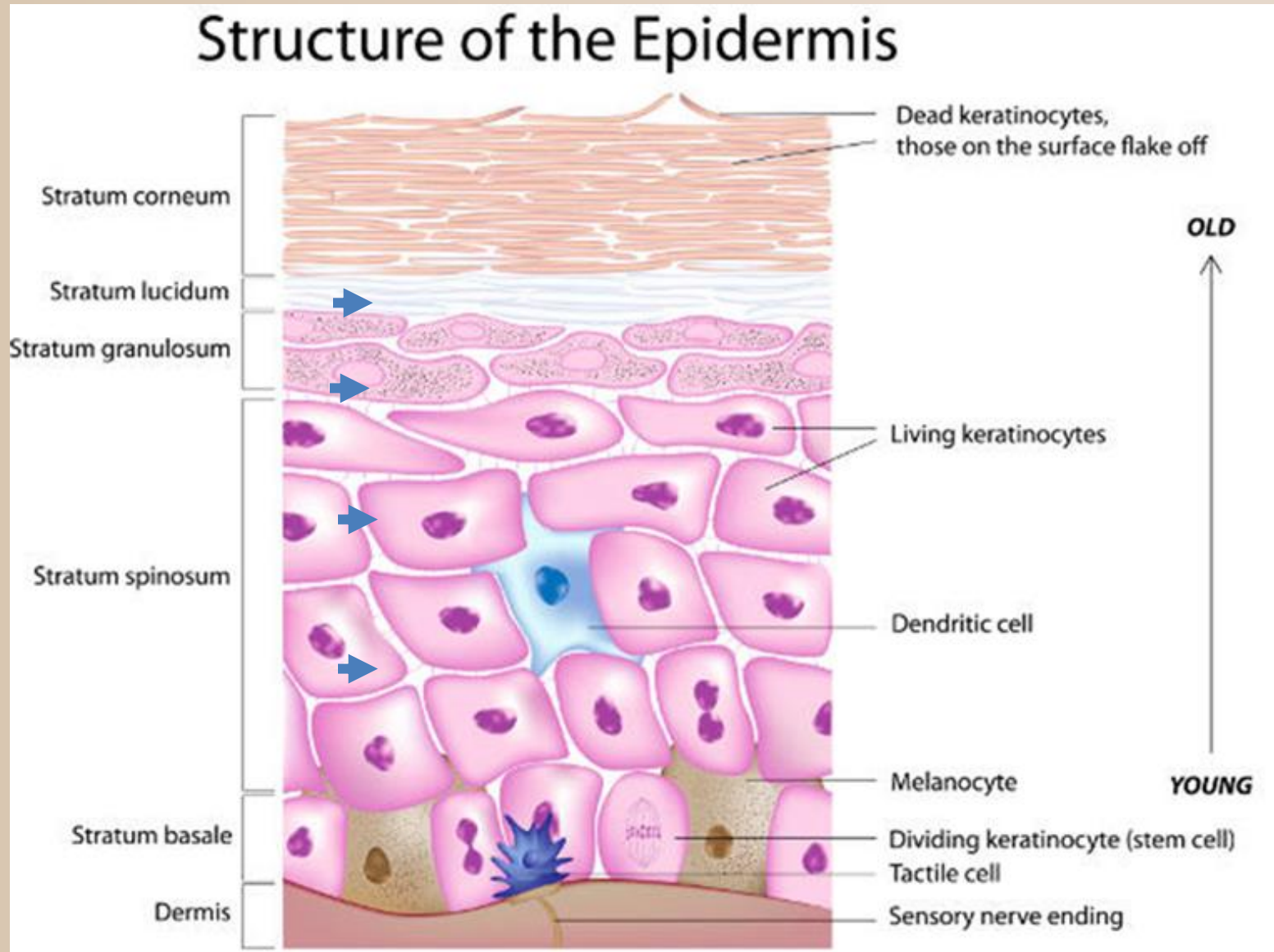
**DANGER**  
 Low Nr of reactions  
 e.g. glycolic A vs citric A  
 Mono vs Triprotic

# TO MEMORIZE

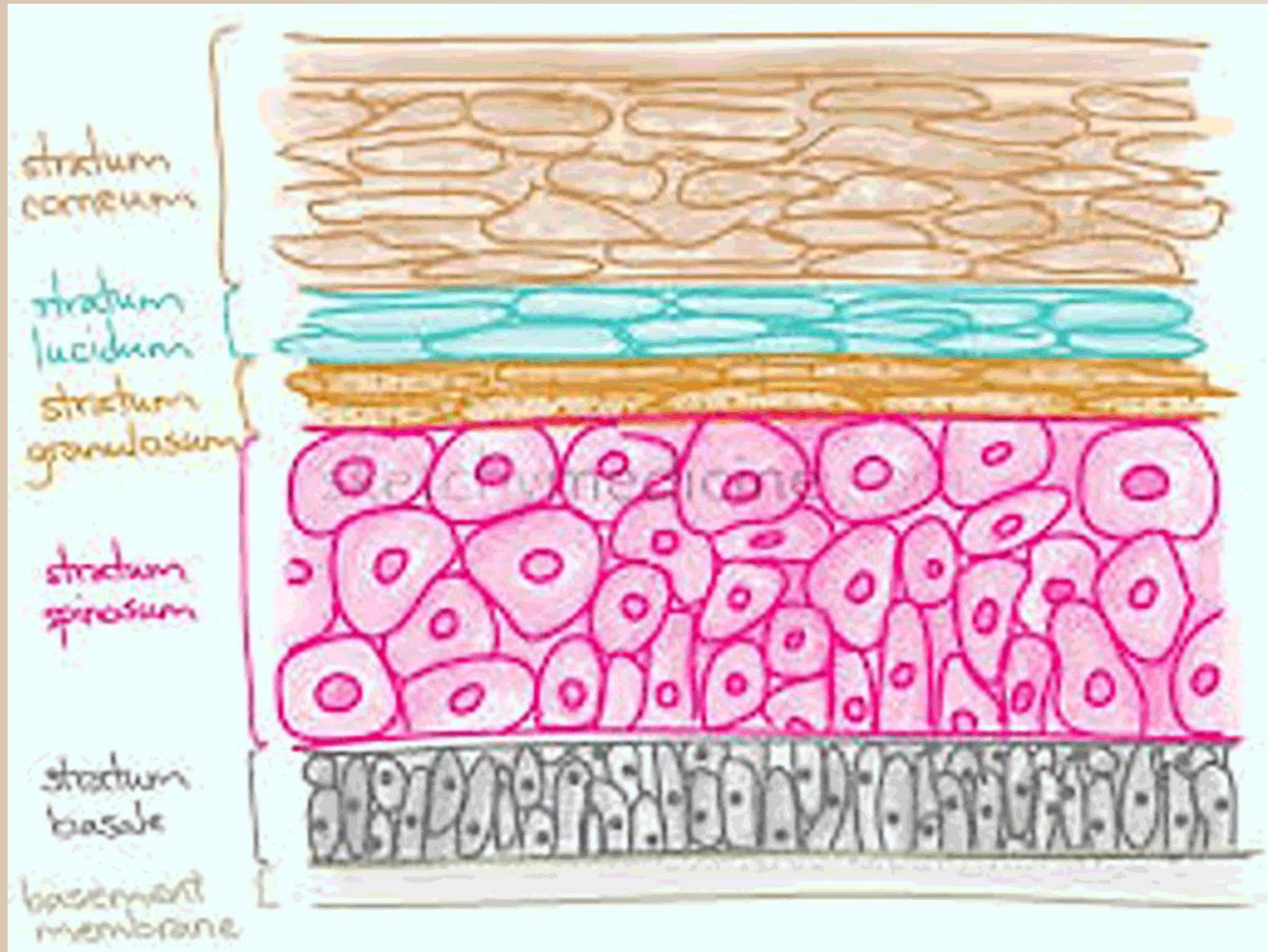
Citric acid is not dangerous at the difference of glycolic acid, but citric acid is more aggressive and cheaper

# Epidermis Histology

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



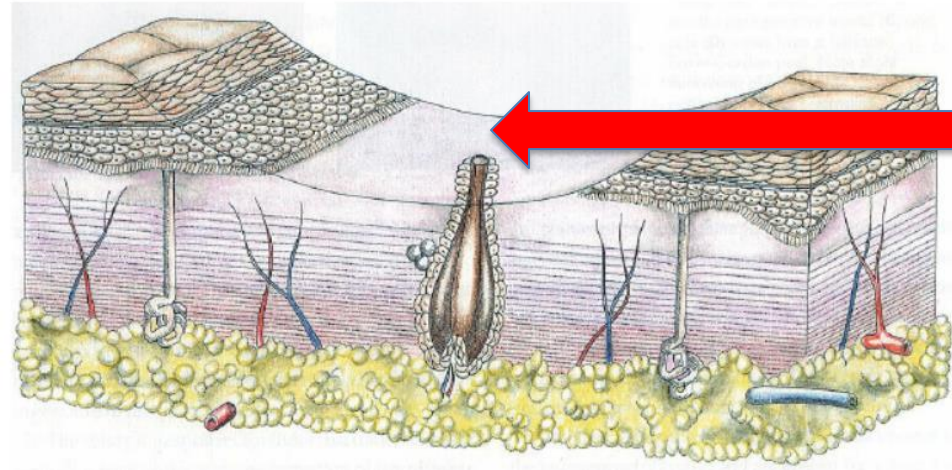
# Exfoliation & Desquamation



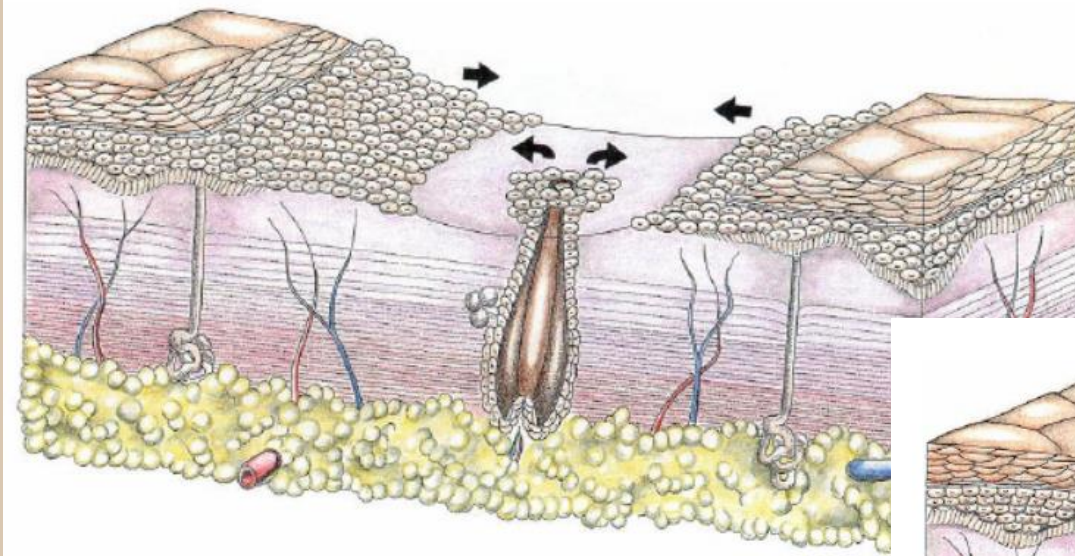


**Acid Aggression**

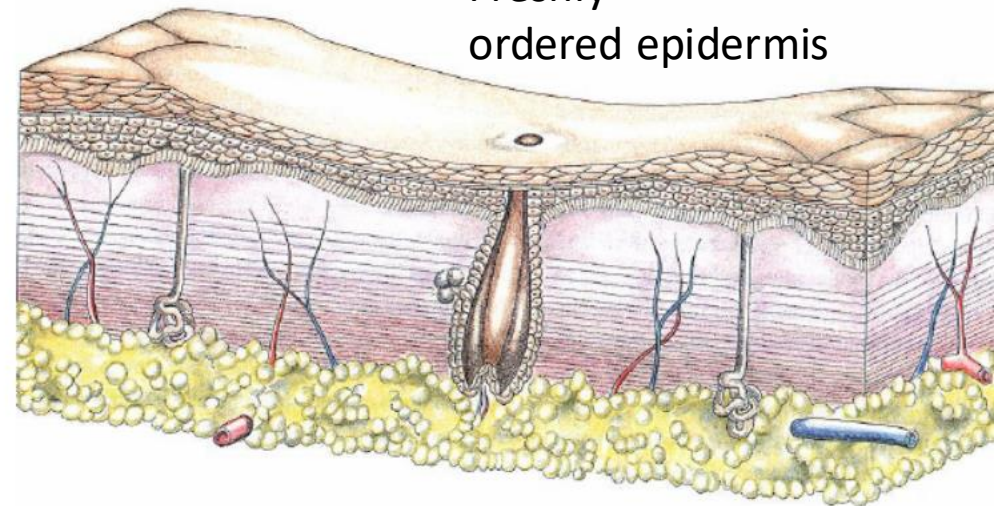
**Burn of the epidermis and superficial dermis**



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



**Freshly ordered epidermis**



**Physiopathology of the The Not Metabolic Acids**



# 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 with the same acid on the skin in 1 session
3. Repeating sessions, especially on flaky skin or skin in desquamation.





## pH and pKa

### Buffer in dermatology- skin hydration


$$\text{pH skin} = 5.5$$


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

Die Haut muss nach einem Peeling mit einer keratoregulatorischen Säure ( $\text{pKa} < 5.5$ ) systematisch mit Feuchtigkeit versorgt werden

Peeling de Luxe is the ideal buffer for any acid that needs 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
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	KERATOREGULATORS		Glycol A			3.83			Metabolism
		Milk.A (lactic)			3.86			Metabolism	1
	Aromatic Benzene ring		Almond.A mandelic		3.37			Metabolism	1
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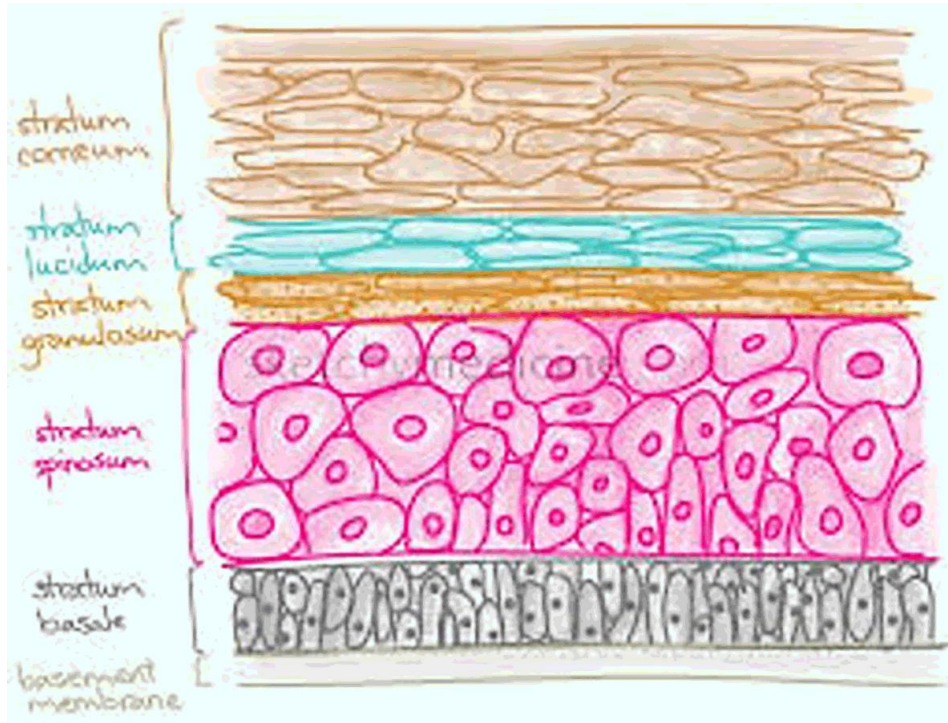
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# Desquamation day = dangerous day



- no cohesion of corneocytes
- easy penetration of chemicals, rays, UVA, UVB ...
- Peeling complications most often occur at this moment, when the patient is at home



**TCA > 15% w/w**

# 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



# Citric Acid + Peeling de Luxe in Cancun



No worries with skin types 5-6, sun, etc



# Peeling on skin in desquamation (Citric Acid + Peeling de Luxe) 15 days



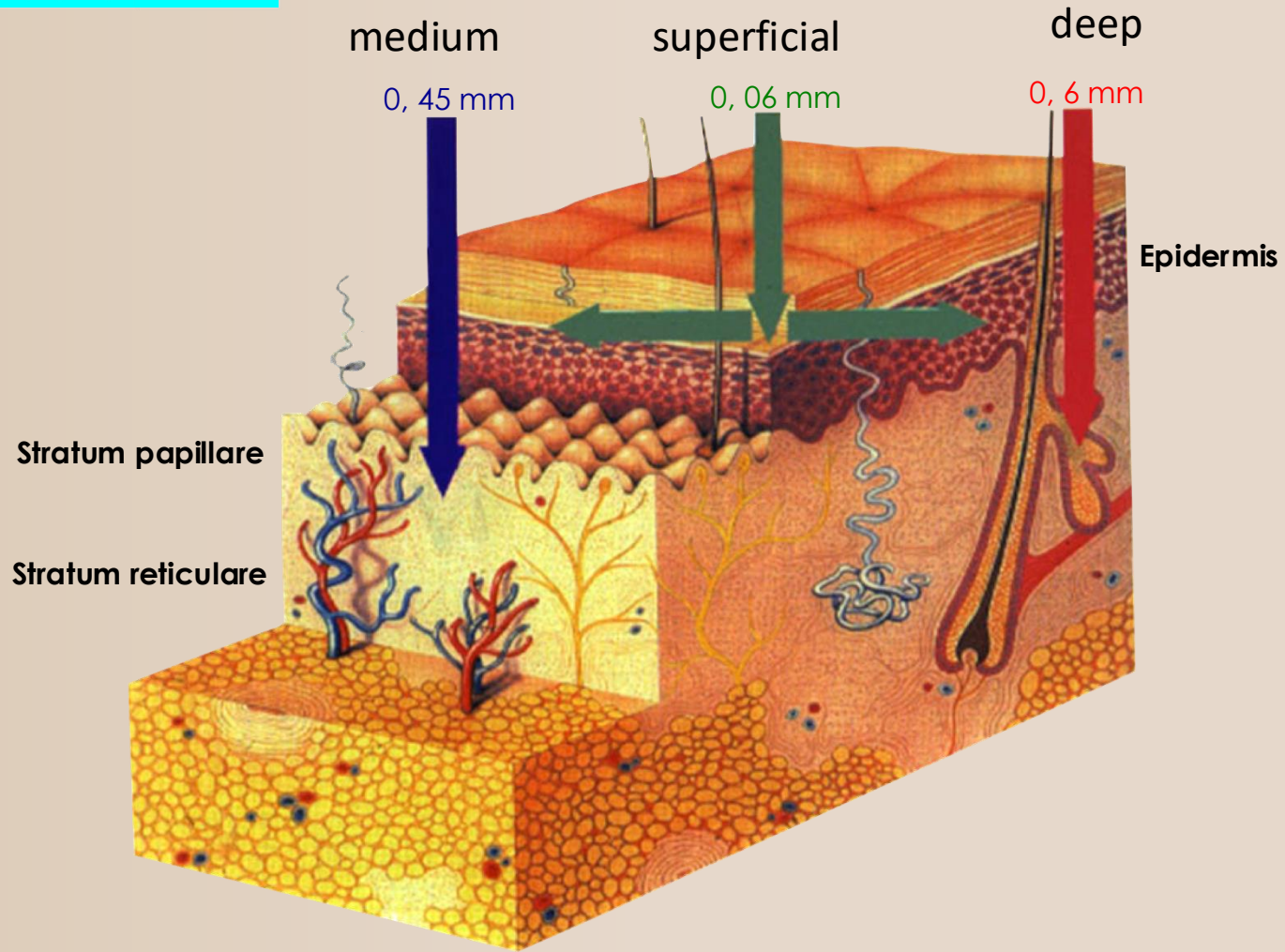
With 15 sessions of citric acid, an identical result is obtained as with 4 sessions of hyper-concentrated TCA, but the benefits are enormous: no risks and the possibility of performing this peeling on phototype > skin 3 in all seasons. Desquamation will be almost invisible, but will take longer



# 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





how to allow an acid to penetrate  
deeply into the skin layers  
Choose an aggressive acid (pKa min) and  
lower the pH

1. higher acid concentration
2. Number of passages 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

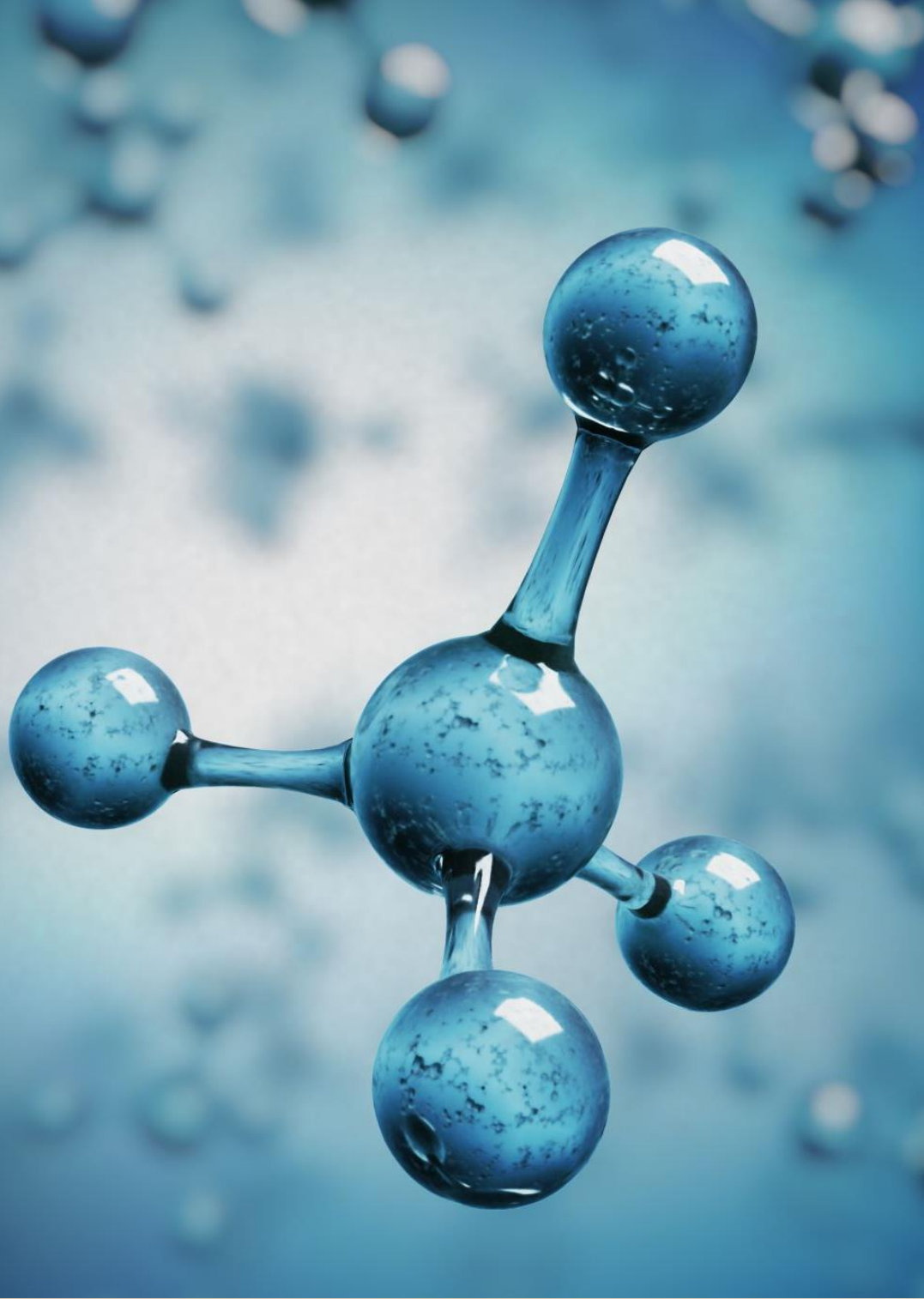


## Recommended methods for helping ingredients to penetrate into the skin

- Q or exothermic reaction  
( Cream 1 + Cream 2 )
- 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





Acid category	Acid subcategory	pKa>3 rising	pKa=3	pKa<3	pKa1	pKa2	pKa3	L. Dewandre Add Retinoic Acid	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
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		Glycol A			3.83			Metabolism	1 monoprotic
CLASSIFICATION DR.L.DEWANDRE		Milk.A (lactic)			3.86			Metabolism	1
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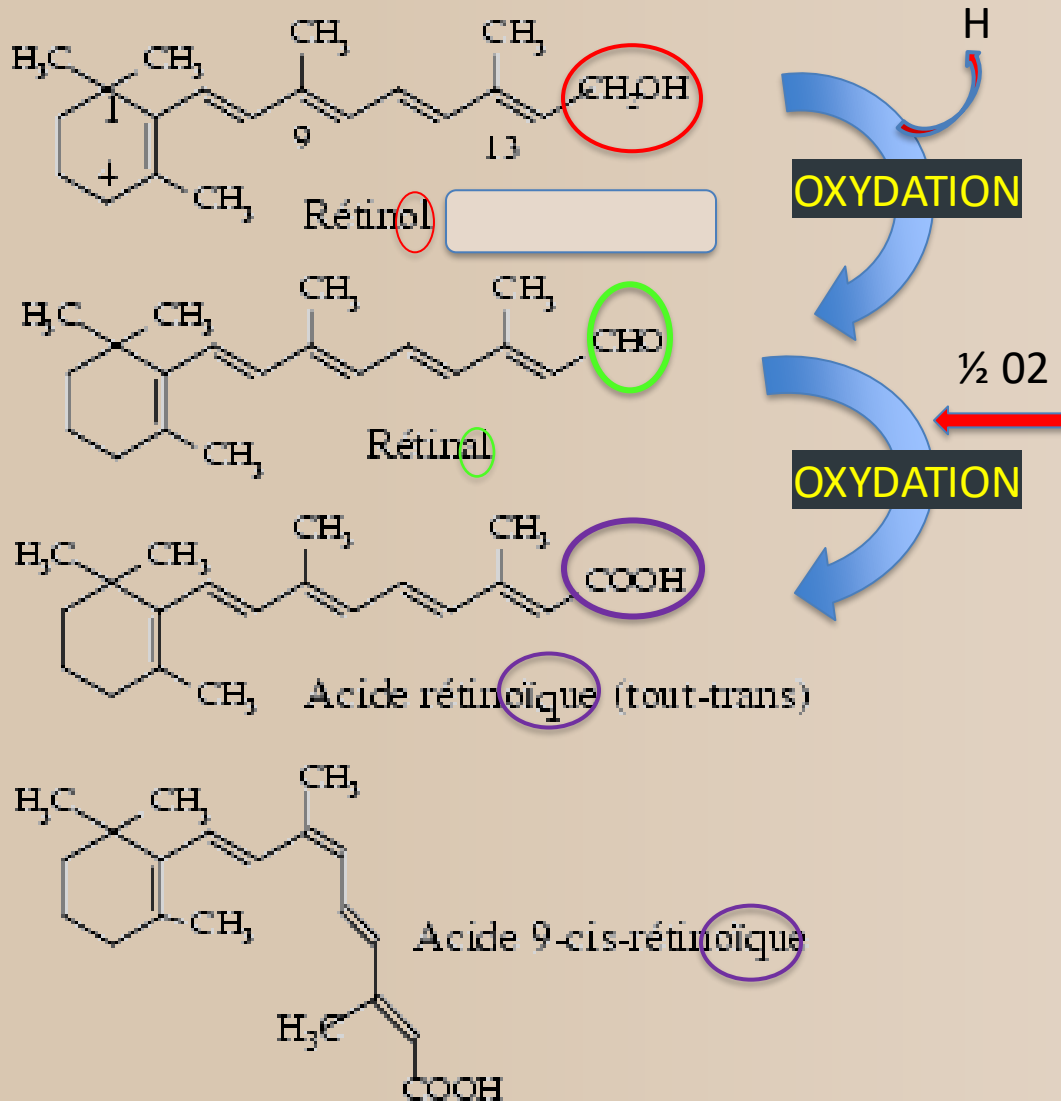
# Metabolic Peels

## Classification of L.Dewandre

- 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

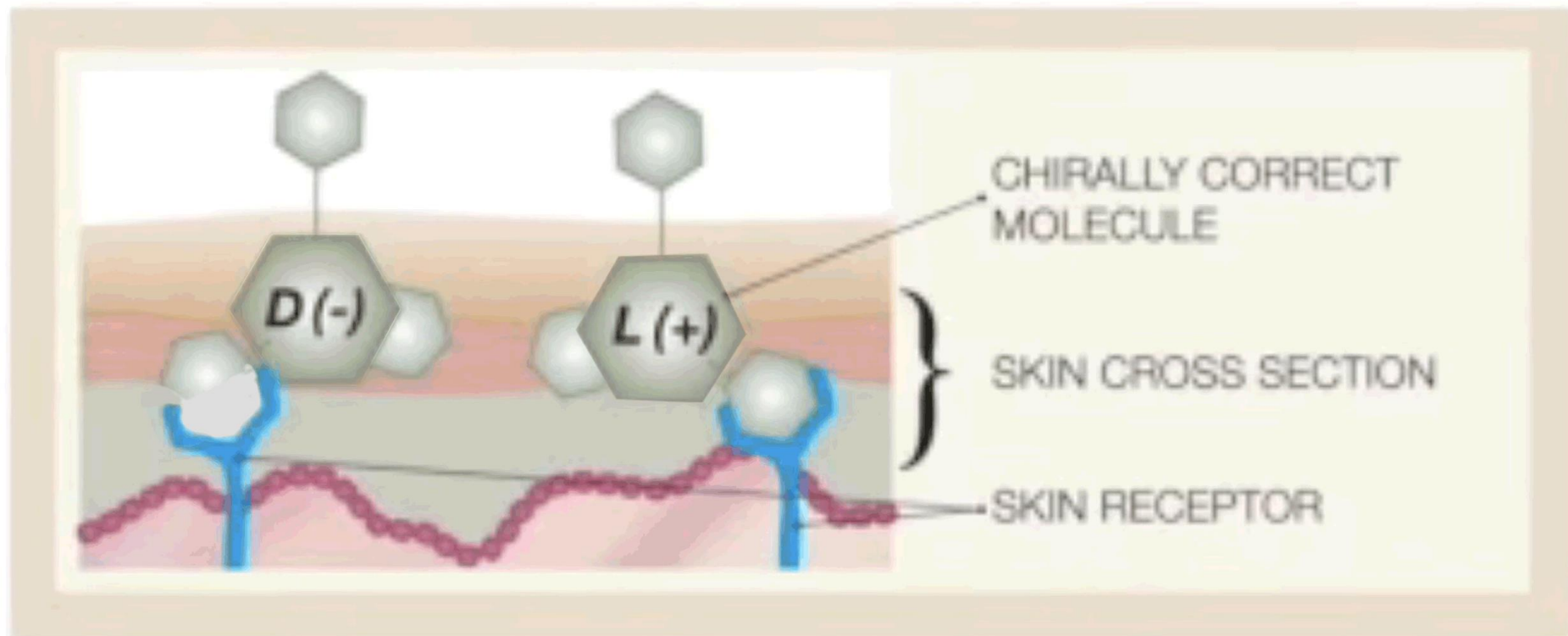
Retinoic acids work best when they are stable  
 Peeling de Luxe contains stable retinoic acids  
 Retinoic acids are more expensive than retinol

# 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.

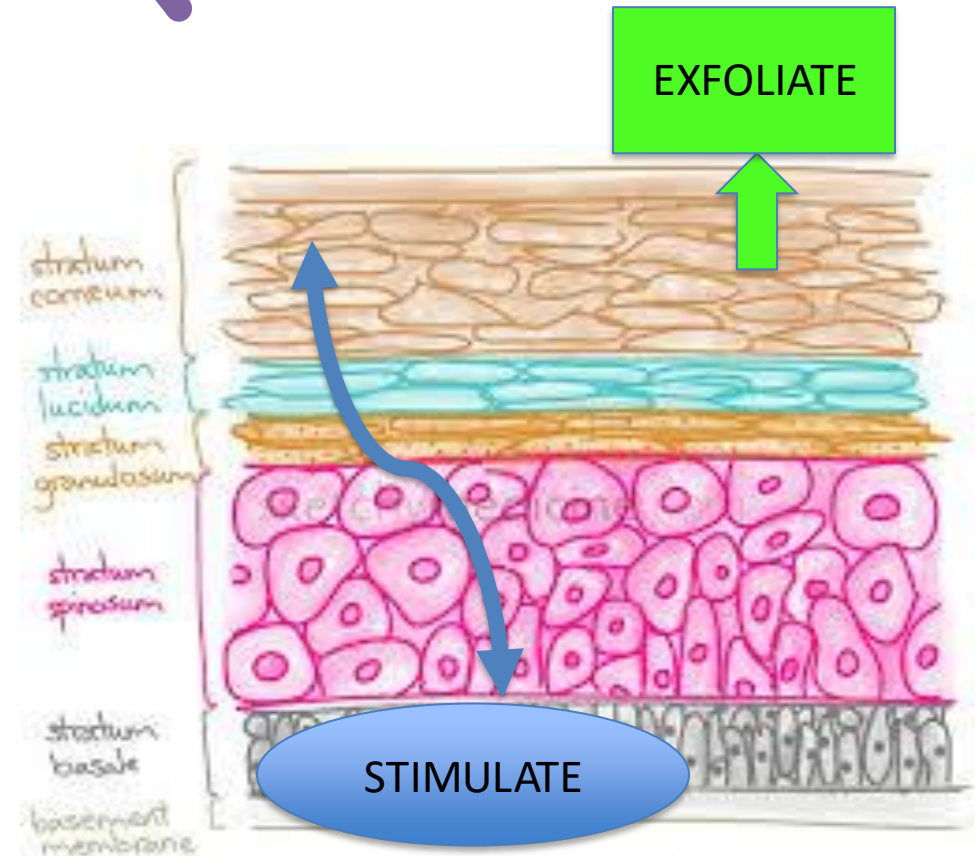
## How a Chiral Molecule Works





# 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
- 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

# Protocol of Mauro Tiziani

## 3 Targets = 3 Products

### Stimulate, Exfoliate, Penetrate SEP



<b>STIMULATE</b> METABOLIC ACID Chirally correct AHA + Encapsulated Retinoic Acid	<b>EXFOLIATE</b>	<b>PENETRATE</b>
<b>PEELING DE LUXE</b> 	<b>30 MIN PEEL OFF</b> 	<b>LIPOIC ACID</b> 

# Protocol of Mauro Tiziani

## 3 Targets = 3 Products

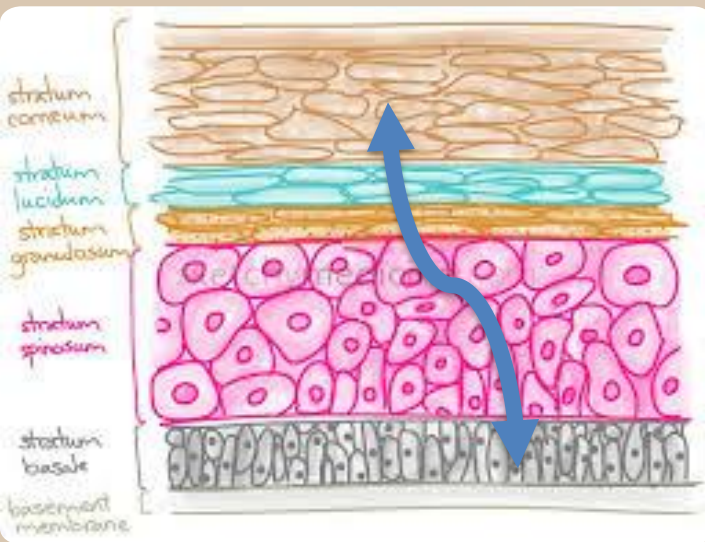
### Stimulate, Exfoliate, Penetrate SEP



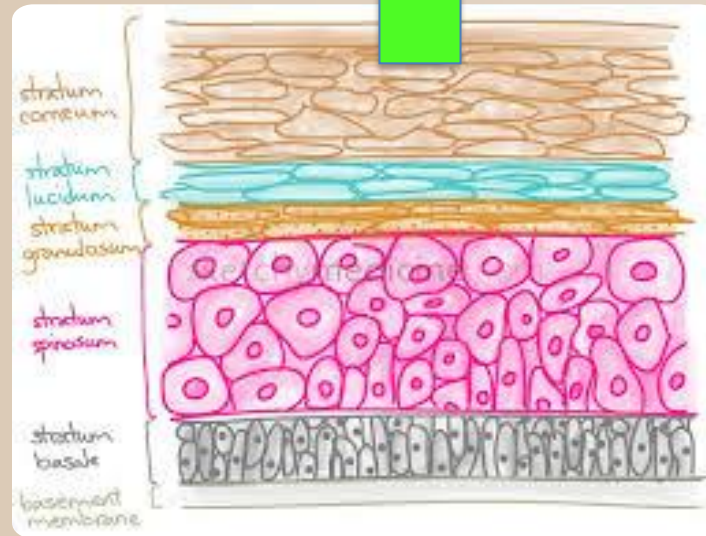
STIMULATE

EXFOLIATE

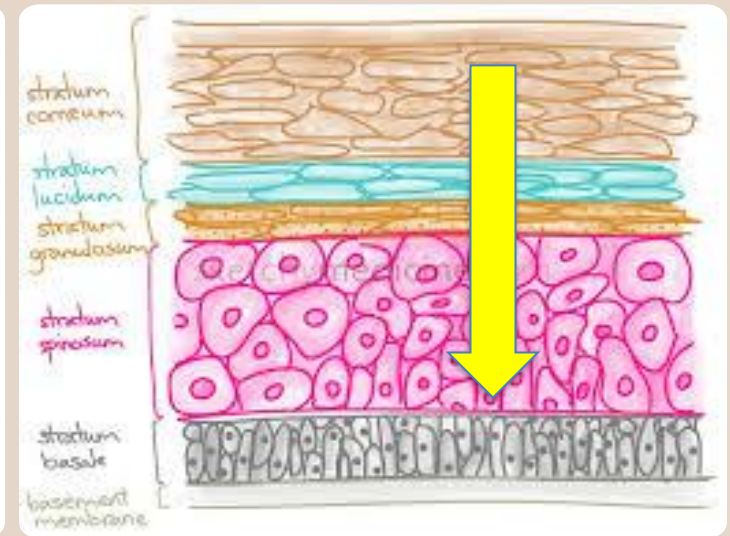
PENETRATE




PEELING DE LUXE



30 MIN PEEL OFF



LIPOIC ACID

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
 <p>CLASSIFICATION DR.L.DEWANDRE modified by A.TENENBAUM (AT)</p>		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
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





# FORBIDDEN COMBINATION CHEMICAL PEELS

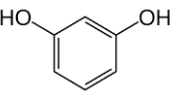
- With not chiral molecules
- With alcohols I, II
- With bases
- With L+D mixed molecules
- With D molecules

ONE MIXTURE  
COMBINATION  
TO KNOW  
JESSNER PEEL

OLD FASHION PEEL

100 mg of 95% ethanol !!

14 g of resorcinol



14 g of salicylic acid

and 14 ml of lactic acid.

NOT SEQUENTIAL COMBINATION



# Esterification reactions

## The esters

Ethanol as Disinfection  
TCA after





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



## 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  
neutralize  
peelings

pH regulation  
(how to  
increase the pH  
value)

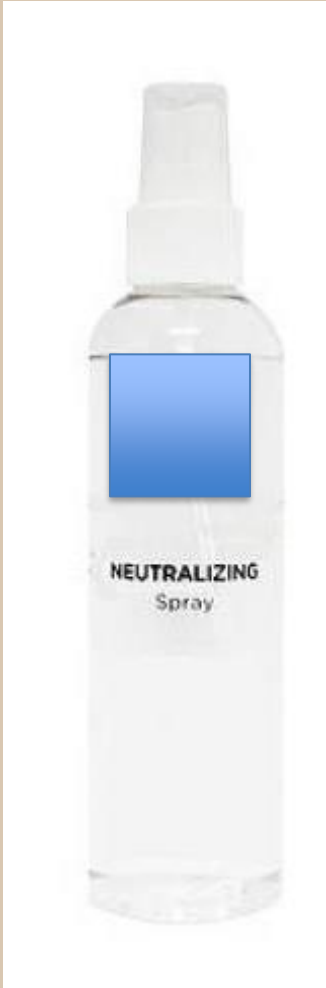
$\text{NaHCO}_3$  (sodium  
bicarbonate salt) instead of  
 $\text{NaOH}$  (base) (IMPORTANT)  
is not a frosting stopper

PEELING DE LUXE ( frosting  
stopper) for your emergency  
equipment

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



# pH regulation and neutralizer



NaHCO<sub>3</sub> ????  
Use for acid with pKa > 3



PEELING DE LUXE  
**FROSTING STOPPER**  
for your emergency equipment  
Use for acid with pKa < 3



H<sub>2</sub>O

# Buffer or tampon

$$\text{pKa} = \text{pH}$$

- A buffer solution is used to **limit fluctuations in pH.**
- If you want to buffer an acid , you need to use a weak acid, and therefore the strong base salt
- **Best : NaHCO<sub>3</sub> 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 to avoid due to pigmentary rebound**



# 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  
anaesthisist and which cant be controlled as surgery

The Real challenge is to convince Armenians as Middle East MD

**BEFORE**

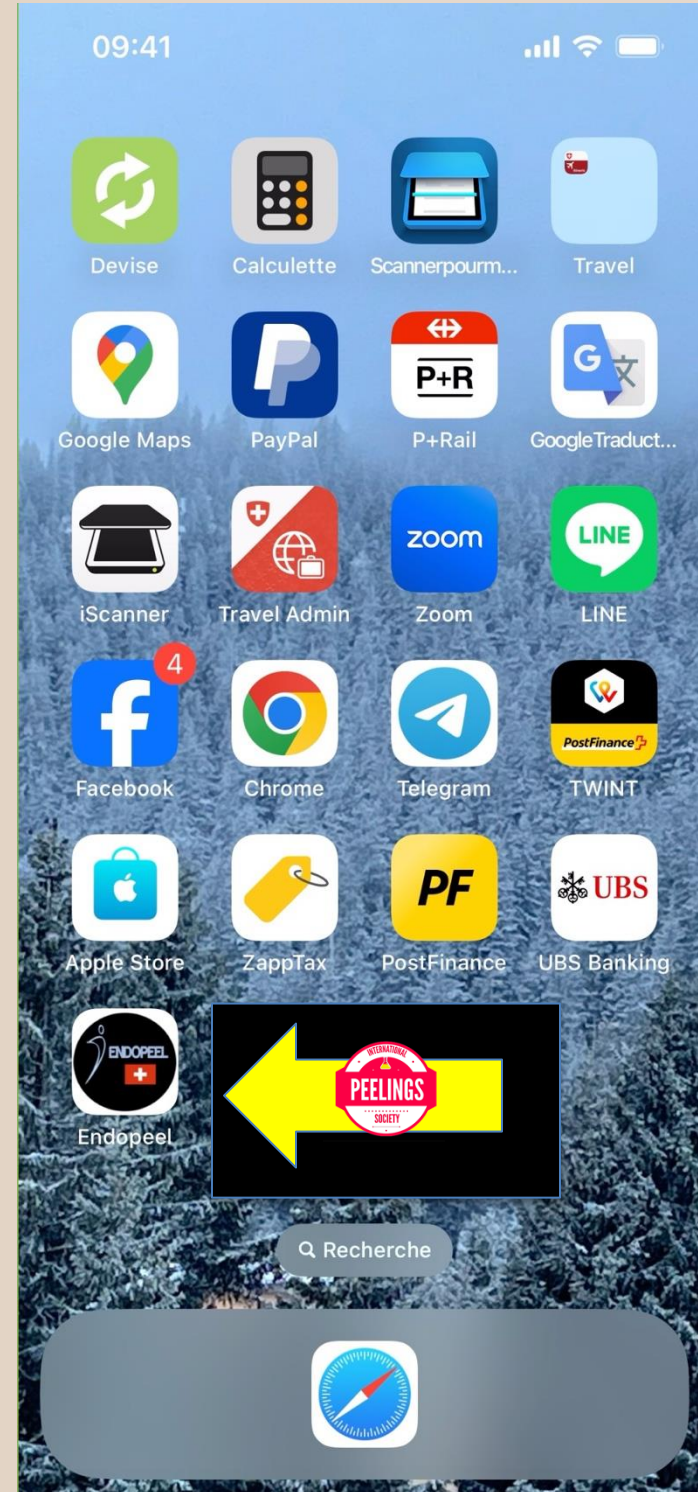


**AFTER 30 min Peel Off**

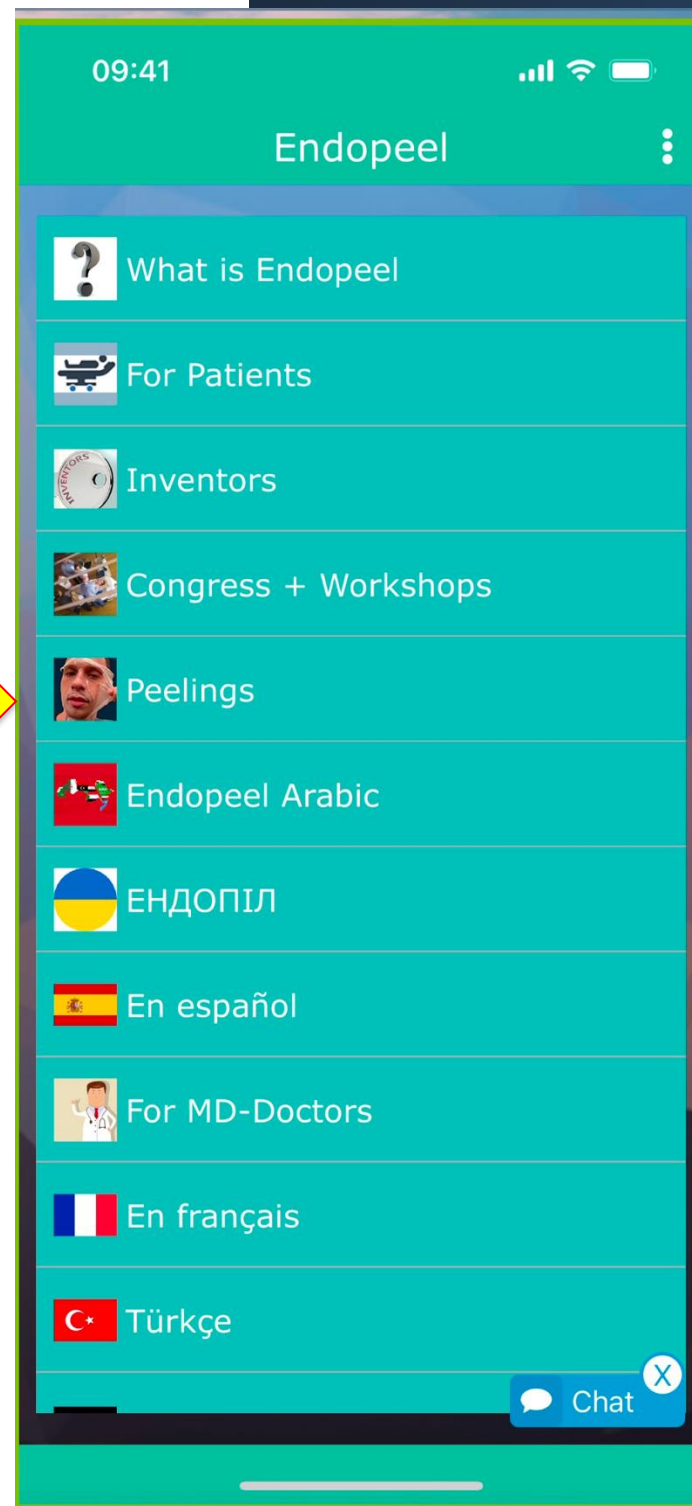


Courtesy of Mr.Samvel Shahnazaryan

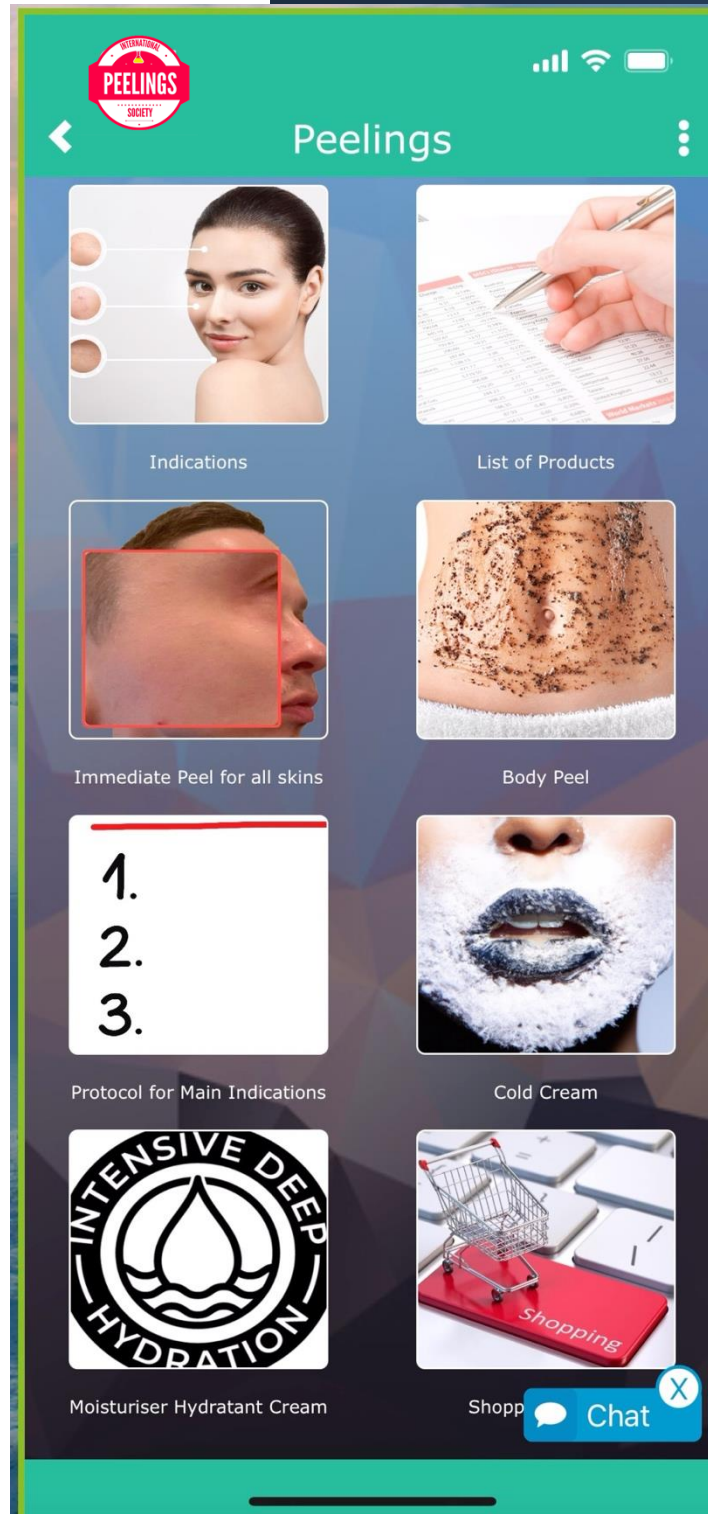
# APP „ ENDOPEEL,,



# APP „ ENDOPEEL,,



# App „Endopeel,,





[www.international-peelings-society.org](http://www.international-peelings-society.org)

# MEMBERSHIP



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### 1. ALAIN TENENBAUM



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## ALAIN TENENBAUM Claimed

22006

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



☆☆☆☆☆

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Research & Development

ALAIN TENENBAUM (+)

Alpenstr. 20, Obwalden, Switzerland

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### 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 ..

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**PEELINGS**  
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**UK 09-2024**



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