



photodamage

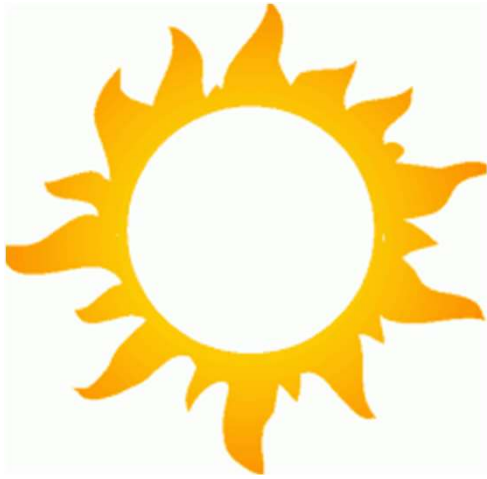
# dermodality

SKIN SOLUTIONS



*Our Philosophy is to support the success of the aesthetician and skin care technician by providing quality clinical skin care technologies and educational opportunities that produce a generous revenue stream and secure client retention, while providing the consumer with state-of-the-art, high performance products.*

*the science...*



*did you know?*

- 90% of aging process is due to the sun
- 80% of sun damage occurs before 18 years of age
- 70% of all sun damage is “casual” exposure
- 250% increased chance of getting skin cancer from regular use of tanning beds between the ages of 18 and 25

# understanding the solar spectrum

## Visible Light (400-760nm)

- Insignificant role in photo damage

## UVA (320-400nm – long wave)

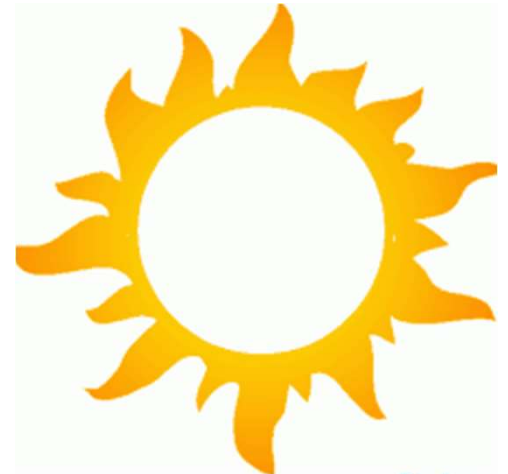
- 1,000x weaker than UVB, but 100x greater in quantity

## UVB (290-320nm – short wave)

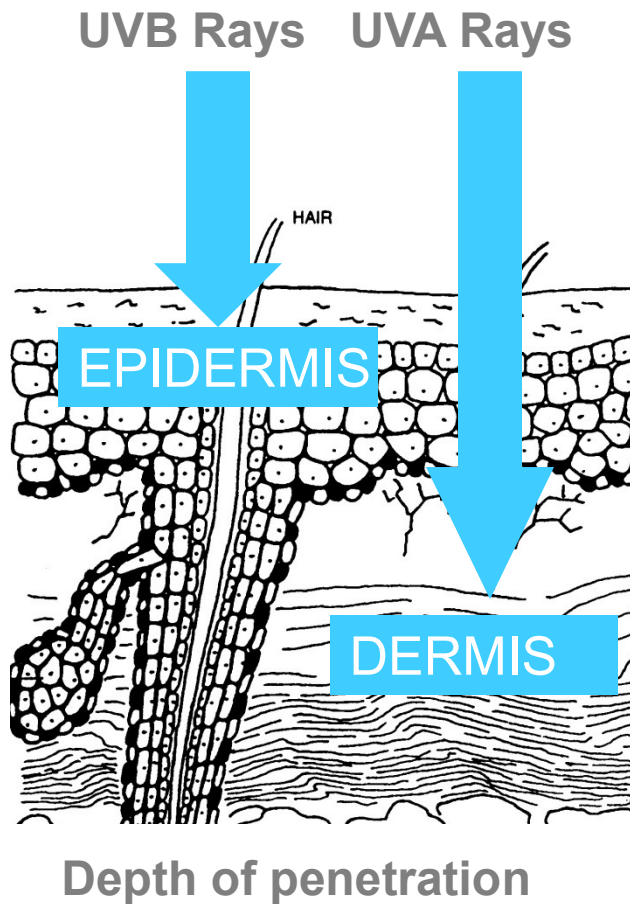
- The most potent to reach the earth's surface
- Thought to cause a majority of photo damage

## UVC (270-290nm)

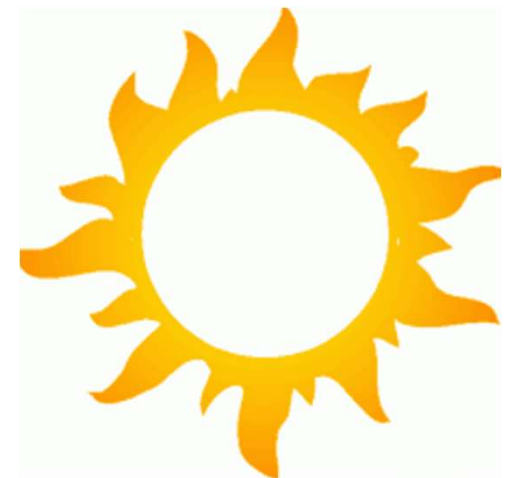
- Absorbed in the earth's atmosphere



# affects of solar radiation



- Epidermis absorbs UVB rays
  - Generates Free Radicals
  - Cells mutate
  - Cells are destroyed
  - Cancers can form
- Dermis absorbs UVA rays
  - Penetrate the skin
  - Destroy collagen
  - Destroy elastin
  - Excite Melanocytes
  - Generates Free Radicals
    - Cells mutate
    - Cells are destroyed
    - Cancers can form



# photodamage

- Damage caused by repeated exposure to ultraviolet radiation
- Process characterized by clinical, histological and biochemical changes that **differ from changes in chronologically aged skin**
- **Dermatoheliosis** - term used for skin changes induced by chronic UVA and UVB exposure
- UVB rays cause sunburns and skin cancer
- UVA rays cause tanning, wrinkles and other signs of aging

# premature aging

- Premature aging due to UV rays is preventable
- Protecting skin from sun keeps skin healthy and postpones wrinkles
- Ozone in the Earth's atmosphere provides some protection
- Cloud cover offers no protective value
- UV rays are more powerful during the summer
- UV rays are stronger at high altitudes
- Geographic factors can increase risk of premature aging



# melanin function

- UV rays reach skin and interact with a natural chemical called melanin
- Melanin is your first line of protection
- Absorbs UV rays to shield skin against sun damage
- UV exposure exceeds melanin protection sunburn occurs
- Repeated overexposure leads to photodamage:
  - Fine lines, wrinkles
  - Age spots, freckles, other discolorations
  - Scaly red patches - actinic keratosis, (pre-cancer)
  - Tough, leathery, dry, rough skin
  - Skin cancer: basal cell, squamous cell, melanoma
  - Eye damage - cataracts
  - Weakened immune system

# melanin

**Melanin** is the pigment primarily responsible for skin color

**Melanocytes** are melanin producing cells located in the basal layer of the epidermis

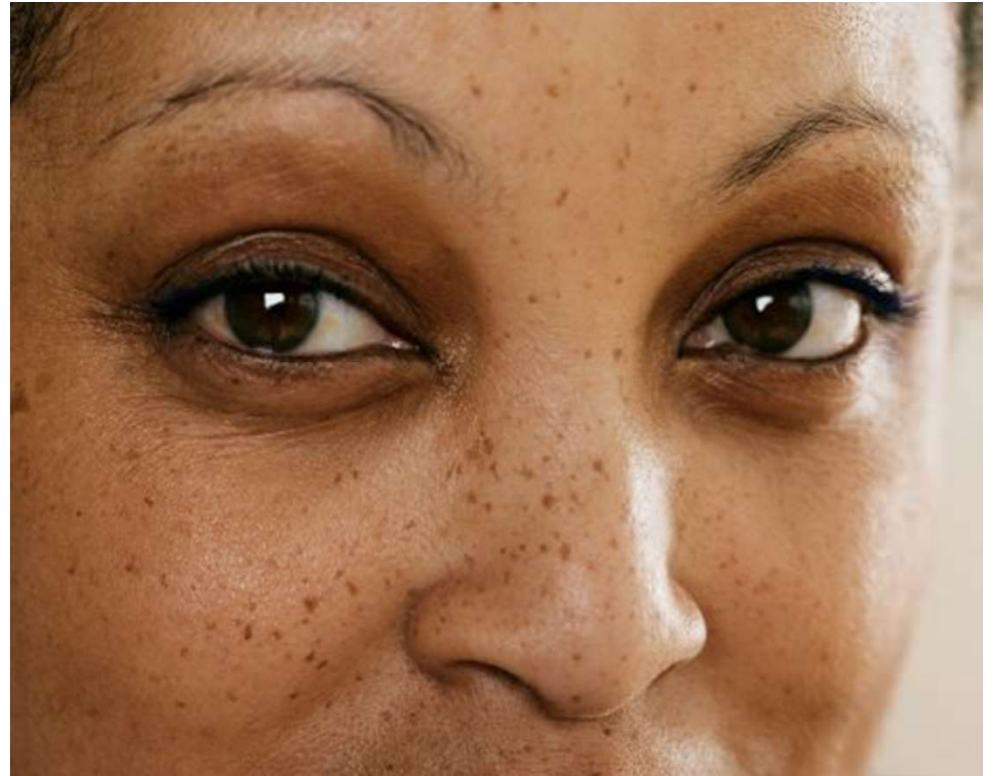
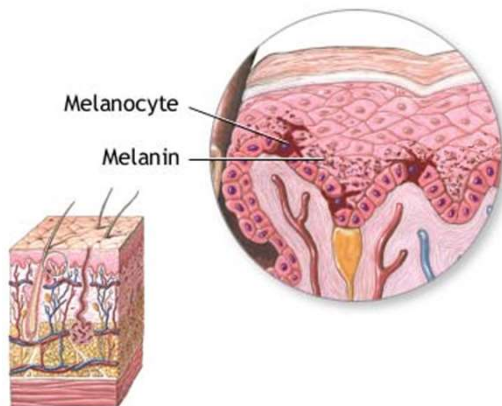
**Melanogenesis** is triggered by inflammation from UV, hormones, stress and injury.

Melanin's primary function is to protect the hypodermis from UV-light that causes DNA photodamage.

**Light and dark pigmented skin** is not due to the quantity of melanocytes but to the amounts of eumelanin and pheomelanin

**Eumelanin**-most abundant type of human melanin, found in brown and black skin

**Pheomelanin**- melanin found in light skin and red hair



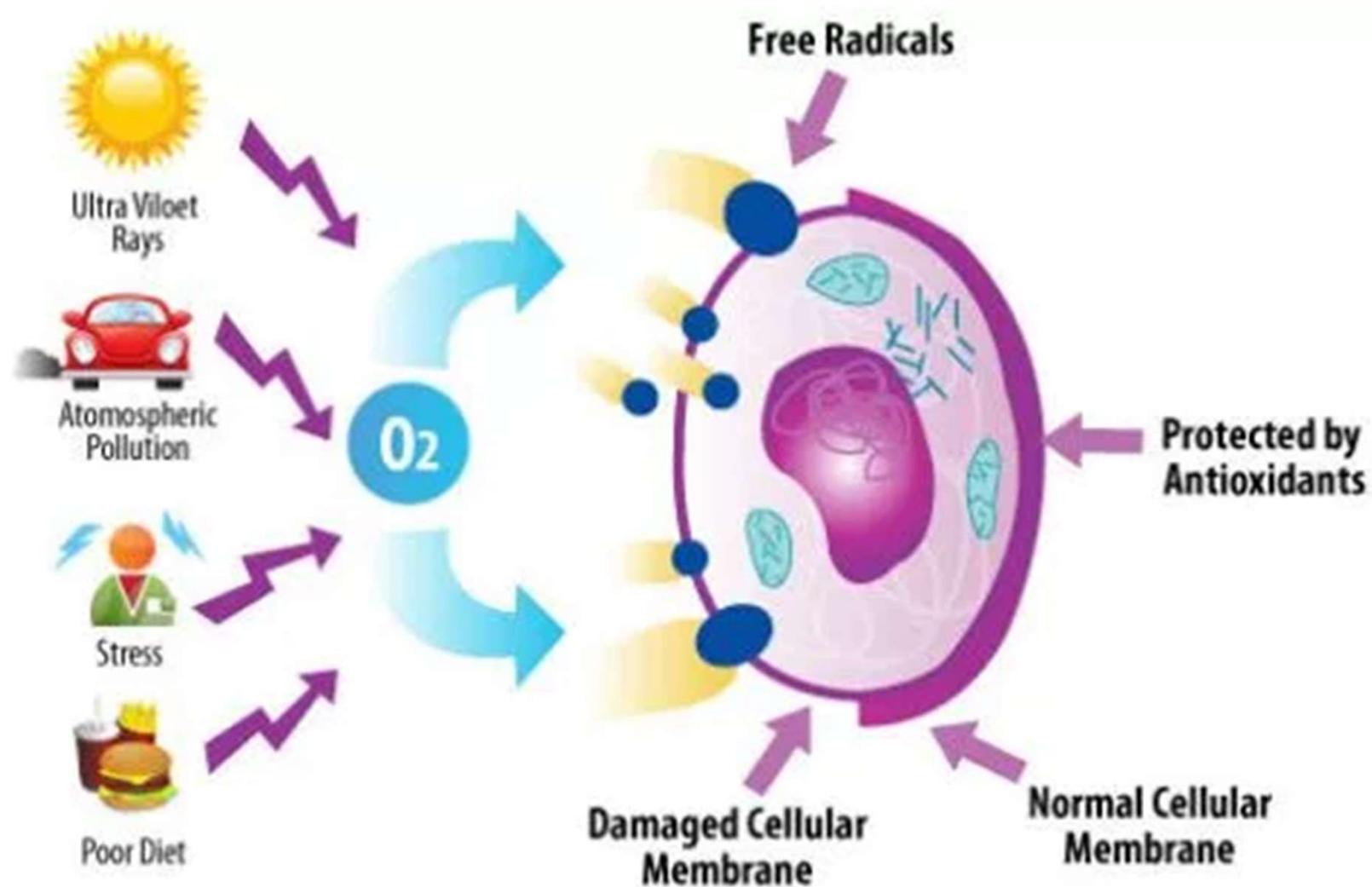
# molecular and genetic changes

- **UVB** rays are mutagens, penetrate epidermis causing DNA mutations
- **Mutations are** related to signs of photoaging as **wrinkling, increased elastin and collagen damage**
- Epidermal layer does not contain blood vessels or nerve endings
- Melanocytes and basal cells are embedded in this layer
- Exposure to UVB, melanocytes will produce melanin
- UVB causes the formation of freckles and dark spots
- Constant exposure to UVB, causes photoaging, precancerous lesions and development of skin cancer

# molecular and genetic changes

- **UVA** rays penetrate deeper
- **Epidermal and dermal** layer will be damaged
- Dermis is second major layer, comprises collagen, elastin, and extrafibrillar matrix for structural support
- Constant UVA exposure, **dermal layer will be reduced**
- Causes the epidermis to **droop**
- Due to blood vessels in the dermis, leads to **dilated/broken blood vessels** on nose and cheeks
- **UVA causes DNA damage** indirectly through the generation of reactive oxygen species (ROS), **free radicals**
- ROS (free radicals) cause DNA damage

# formation of free radicals





# free radicals are:

*Roaming, electrically unbalanced molecules looking to bind with healthy cells, causing cellular and DNA damage.*

## HOW ANTIOXIDANTS STOP FREE RADICALS

### ANTIOXIDANT



Are stable with paired or unpaired electrons.

Antioxidants neutralize free radicals by donating an electron.

### FREE RADICAL

Are unstable molecules that cause cell damage & destruction.

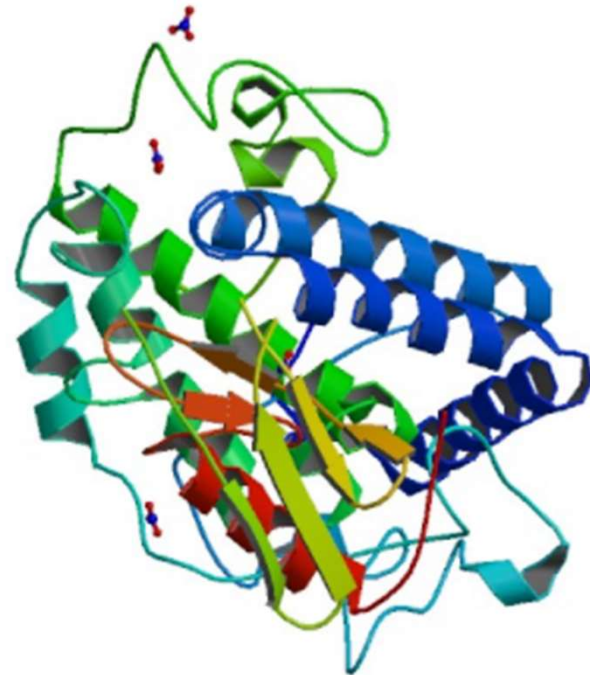


Free radicals have an unpaired electron which is dangerous, because electrons are normally paired.

ELECTRON DONATION

# tyrosinase

- **Tyrosinase** is an enzyme that catalyzes the production of melanin from tyrosine by oxidation
- **Tyrosinase** is required for melanocytes to produce melanin from the amino acid tyrosine
- **Tyrosinase** is stimulated by various factors:
  - UV (sun exposure)
  - Hormones (87% of pregnancies develop melasma)
  - Contraceptive drugs (80% develop melasma)
  - Heredity
  - Heat and chemically based treatments



## ***Tyrosinase Inhibitors***

- Hydroquinone
- Kojic Acid
- Alpha-Arbutin
- Licorice Root

# molecular and genetic changes

## pigmentation

- UV exposure leads to inflammation which is manifested as sunburn
- UV radiation activates the first step in inflammation
- Leads to an increase in oxidative damage through the generation of free radicals
- Inflammation triggers the release of tyrosinase, the precursor to pigment disorders

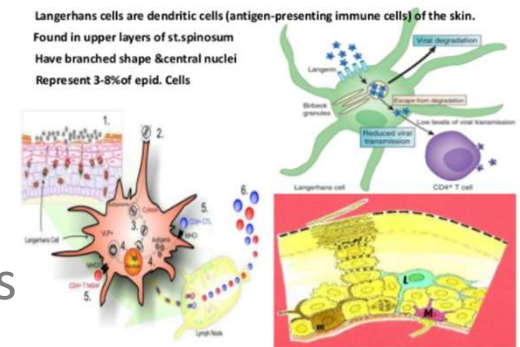
## immunosuppression

- UV radiation leads to local and systemic immunosuppression due to DNA damage
- Langerhans cells undergo changes in quantity, morphology, and function
- Langerhans cells become depleted
- Body is suppressing autoimmune response to inflammation due to UV damage



# langerhans cells

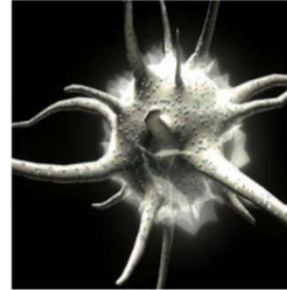
- **langerhans cells** are dendritic cells (antigen-presenting immune cells) of the skin
- They are present in all layers of the epidermis except the stratum corneum and are most prominent in the stratum spinosum
- Sense any kind of danger in the skin
- Located in the epidermis and the dermis
- “Air traffic controllers” of the immune system
- They send out immune cells such as T cells and B cells
- Capture foreign invaders such as bacteria and viruses
- Fight off injuries like cuts and scrapes
- Constantly monitor the environment of the skin for unsafe situations
- Send immune cells to bring back information about any trespasser
- Body decides to amass inflammatory cells to fight off the attacker
- Creates an allergic reaction or forming scar tissue



# dendritic cells

## TYPES OF DENDRITIC CELLS

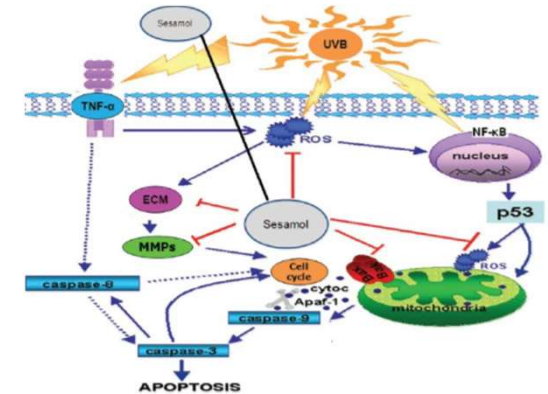
- Langerhans cells
- Dermal dendritic cells
- Melanocytes
- Merkel cells



- *dendritic cells* (DCs) are antigen-presenting cells (also known as accessory cells) of the mammalian immune system
- Their main function is to process antigen material and present it on the cell surface to the T cells (lymphocytes) of the immune system
- *they act as messengers between the innate and the adaptive immune systems.*

# mmp's

- **Matrix metalloproteinase enzymes** break down other proteins into recyclable fragments
- Digest the proteins found in the Extra Cellular Matrix
- Recycle skin matrix-specifically the structural proteins collagen and elastin
- Smoothness, firmness and youthfulness of skin depends on the condition of the matrix
- Depends on the balance of matrix synthesis and breakdown/recycling
- If breakdown/recycling stops, damaged matrix will accumulate, leading to skin imperfections
- MMP levels tend to increase as we age
- Inflammation, irritation and environmental factors elevate MMP levels
- Inhibiting elevated MMPs to normal levels should be a part of optimal skin rejuvenation



# degradation of collagen

- collagenase is a major matrix metalloproteinase (MMP) causing collagen degradation
- Process is aided by the presence of free radicals
- Up-regulation of MMP can occur even after minimal exposure to UV
- UV radiation, not to cause sunburn, causes the degradation of skin collagen
- Collagen is reduced in photoaged skin due to degradation of collagen by MMPs
- Presence of damaged collagen down-regulates the synthesis of new collagen
- Impaired attachment of fibroblasts to degraded collagen inhibits collagen synthesis

# *retinoic acids and photodamage*

- Tretinoin is the best studied retinoid in the treatment of photoaging
- Retinoic acid (RA) needed for epithelial growth, differentiation, maintenance
- UV radiation decreases the expression of retinoid receptors
- Results in complete loss of the induction of RA-responsive genes
- UV increases MMP activity and results in functional deficiency of vitamin A

# Know Your A's C's and E's

## Vitamin A (Retinol)

- Clinically proven to stimulate collagen, elastin and fibroblasts
- Supports cell turnover
- Improves skin density

## Vitamin C (L-Ascorbic/Magnesium Ascorbyl Phosphate)

- Powerful antioxidant
- Brightens and lightens the skin surface
- Stimulates collagen
- Protects cellular DNA from UV damage

## Vitamin E (Alpha-Tocopherol/Tocopherol)

- Powerful antioxidant
- Anti-inflammatory
- Binds moisture





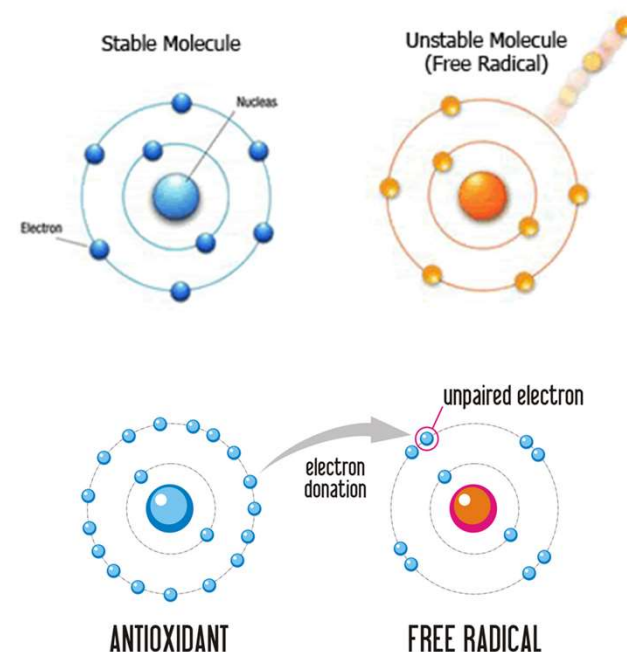
# *the antioxidant barrier*

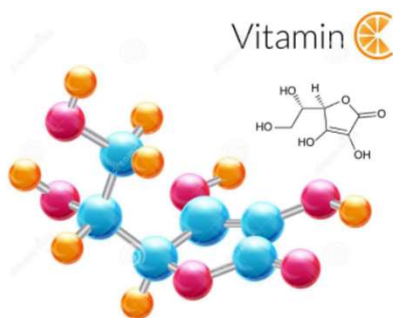
## *antioxidants:*

- **Anti-inflammatory**
- **Reverse FR damage (e.g., photodamage)**
- **Stimulate collagen**
- **Enhance immune functions**
- **Strengthen cell membrane to lessen cell water loss**
- **Greatest concentration stored in epidermis**

*less than 1% of ingested antioxidants get to the skin*

*as we age, antioxidant concentration declines*





# vitamin C

## *L-ascorbic acid*



*“Topical Vitamin C helps offset the effects of sun damage, including wrinkling and changes in cells that may lead to skin cancer.” Mark G. Rubin M.D.*

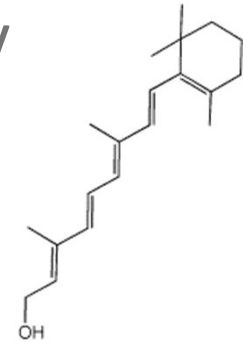
- Integral to the immune system and essential for human life
- Protects the skin from UVA/UVB sun damage
- Can double the production of new collagen
- Stimulates fibroblasts - must be present for collagen
- Only proven form as a co-factor in collagen production
- Strengthens elastin in the skin and blood vessels
- Inhibits the development of skin cancers by reducing FRs



# vitamin A



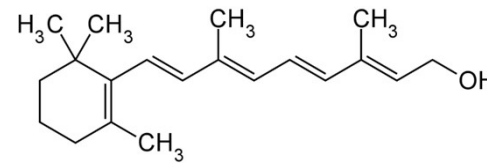
- Vitamin A is a key vitamin skin needs topically
- Oxidizes easily-unstable
- Oral consumption does not address the topical deficiency
- Retinol at high concentration can cause irritation
- Most products do not deliver enough retinol to the skin
- Needs a stabilized delivery system

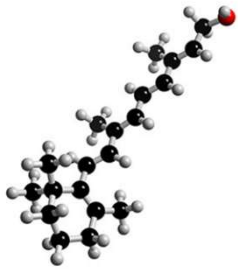




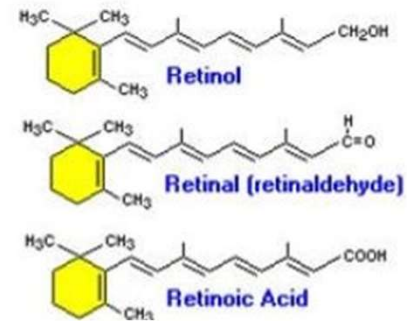
# retinol

- Retinol is considered one of the most effective **anti-aging ingredients**
- Natural form of **Vitamin A**
- **Most effective over-the-counter vitamin** for aging skin
- Improves overall **skin health**
- Able to go inside the cell to **stimulate cellular function at the dermal level**
- **Simultaneously repairs** damage at the epidermal level





# retinol cascade



- The retinol cascade is the process where *special enzymes convert retinol to retinoic acid*
- The majority of over-the-counter skin care products have very low levels of retinol
- Products that have a low concentration of retinol produce less retinol cascade
- *When the conversion rate is low, little retinoic acid becomes bio-available to the cells*
- A high concentration of retinol (.6% -1.0%) increases the conversion rate of retinol-to-retinoic acid

# how sunscreens/blocks work

## Scatter, absorb, or reflect UV rays

### SPF (Sun Protection Factor)

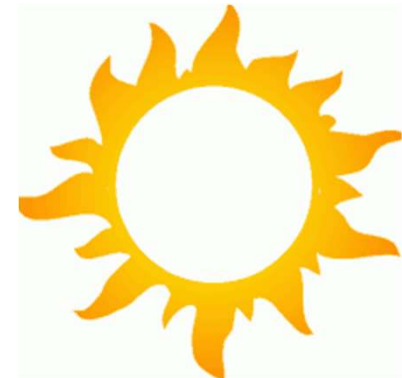
- A measure of UVB protection only (epidermis)!
- Number indicates the amount of time one can stay in the sun without burning
- SPF 15 provides protection 15x longer than no sunscreen application
- Protection does not increase proportionally
  - SPF 15 provides 93% absorption protection
  - SPF 30 provides 97% absorption protection

### Sunblocks - work on top of the skin to deflect and scatter UV rays away from the skin

- Opaque substances
- Zinc oxide
- Titanium dioxide
- Reflect and scatter most UV rays

### Chemical Sunscreens - work by changing UV rays into heat, and release heat from the skin

- Avobenzone first FDA-approved UVA protection
- Oxybenzone
- Homosalate
- Octisalate
- Octocrylene



# *follow the UV index*

- The UV Index is a daily indicator of how much UV radiation is expected to reach the earth
- Developed by the Environmental Protection Agency and the National Weather Service
- Broadcast along with the local weather report
- A rating of 1 to 2 is considered low, over 11 is very high
- The higher the number, the more you risk overexposure

# *break the UV ray cycle*

- Use sunscreen daily
- Wear protective clothing
- Avoid peak sun hours
- Never use tanning beds
- Use sunless tanning products

*UV exposure comes at a cost, protection is the best defense*

*product knowledge*

# our system...

## Anti-Aging



*Corrects* without redness or irritation • Supports collagen production • Minimizes dark spots and brightens skin • helps firm skin, reduce lines and wrinkles

## Brightening



Specific ingredients *minimize dark spots* and brighten skin  
• Mandelic acid helps control inflammation, the potential cause of pigment issues • Vitamin C and Vitamin A brighten skin

## Moisturizing



Exclusive peptide-rich *hydrating formulas* • Replenishes moisture barrier • Light, non-greasy formulations • Skin feels moist, tighter and lifted • Unique penetrating ingredients support moisture levels

## Anti-Blemish



Proven ingredients to *clear blemishes* • Balances oily skin without dryness • Mandelic acid decongests and calms skin  
• Skin is clearer, smooth, and hydrated

## Sensitive Skin



*Minimizes redness* and irritation • Helps soothe and calm sensitive skin • Antioxidants and vitamins restore healthy skin  
• Hydrating agents help skin feel soft and smooth



# peptide plus

## light weight intensive hydration/anti-oxidant

pH-5.0 (am/pm)

- Peptides restore collagen production, stimulating fibroblast cells
- Reduces the appearance of wrinkles
- Marine algae-increases surface hydration
- Vitamin C – stimulates collagen, antioxidant
- Vitamin A – accelerates cell turnover
- Vitamin E – provides hydration, antioxidant
- Green Tea – antioxidant, anti-inflammatory
- Anti-inflammatory (cucumber/melon)
- Brightening – licorice extract
- Ideal for all skin types
- Unique, lightweight, serum based formula
- Layer with SPF, Weightless or Ageless



# ageless moisturizer (anti-aging)

## mega peptide

pH-5.0 (am/pm)

- Ideal for adult and mature skin types
- Diminishes signs of aging
- Stimulates collagen production
- Reduces the appearance of wrinkles and fine lines
- Marine algae - increases surface hydration
- Vitamin C – stimulates collagen, antioxidant
- Vitamin A – accelerates cell turnover
- Vitamin E – provides hydration, antioxidant
- Green Tea – antioxidant, anti-inflammatory
- Brightening – kojic acid, licorice extract



# SunMoist SPF 30 sunblock

## lightweight protection

pH-6.5 (am)

- Lightweight sun block
- 6% zinc oxide
- 1.5% titanium dioxide
- Aloe – hydrating, anti-inflammatory
- Vitamin E – hydrating, antioxidant, anti-inflammatory
- Green Tea - antioxidant
- May replace daily moisturizer for normal/oily skin types
- Skin is moisturized and protected



# vitamin C: intense™ w/l-ascorbic acid

## antioxidant & brightener

pH-3.6 (am)

- Highly concentrated vitamin C
- +21% L-Ascorbic Acid
- Treats aging and environmentally damaged skin
- Enhances collagen production
- Reduces hyperpigmentation
- Alpha-Arbutin - promotes bright, even skin tone
- Provides immediate visual changes
- Reveals younger, brighter, tighter complexion



# vitamin A: intense

## anti-wrinkle & cell stimulation

pH-3.6 (pm)

- Anti-aging, acne, pre-conditioning benefits
- **Vitamin A - retinol activates cell turnover**
- Minimizes fine lines and wrinkles
- Vitamin C - Stimulates collagen production, antioxidant
- Lactic acid – gently promotes cell turnover
- Salicylic acid – controls sebum production
- Breaks up accumulations of dead skin cells
- Visibly reduced signs of aging
- Causes no dehydration or sensitivity
- Helps repair aging and sun damaged skin



# retinol mixer

## max anti-aging cell stimulation

pH-3.6 (pm)

- Retinol – accelerates cell turnover
- 2% hydroquinone - brightener
- 2% kojic acid – brightener
- 1.4% Alpha arbutin - brightener
- 2% niacinamide - brightener
- Lactic acid – refines skin texture
- Provides noticeable improvement in skin texture
- Highly concentrated retinol; well tolerated, less redness
- Minimizes deep and fine lines
- Balances skin tone



*vitality booster super serum*

*intensive antioxidant hydrating serum*

pH-4.0 (am/pm)

- Ideal for adult and mature skin types
- Diminishes signs of aging
- Stimulates collagen production
- Reduces appearance of wrinkles/fine lines
- Marine algae - increases surface hydration
- Vitamin C – stimulates collagen, antioxidant
- Vitamin A – accelerates cell turnover
- Vitamin E – provides hydration, antioxidant
- Green Tea – antioxidant, anti-inflammatory
- Brightening – kojic acid, licorice extract



*professional peels*

*photodamage*



*This System... assists the professional to successfully choose the appropriate peel to address a specific skin condition(s)*

## • Application Key Symbols •

Anti-Aging:



Lightening - Brightening:



Blemish Control:



Pigmentation:



Pre-Condition:

**PC1**

**PC2**

**PC3**

# 50/50 peel prep pads

- Dual Solvent System
- 91% Isopropyl Alcohol
- Effectively cleanses & removes sebum, oils, residues
- Preps skin to provides a more uniform peel



# Pumpkin peel 30%

3.2pH

- 10% Glycolic Acid
- 20% Lactic Acid
- Provides exfoliation
- Allows acids to penetrate clogged pores
- Assists in cell proliferation
- Bilberry extract – vasodilation allows for better penetration
- Can be used alone or with other chemical peels
- Ideal for use with other facial treatments as in micro-dermabrasion



# mandelic 25% peel

## 3.0pH

- 25 % Mandelic Acid
- 10% Lactic Acid
- 2 % Salicylic Acid
- 2% L-Ascorbic Acid

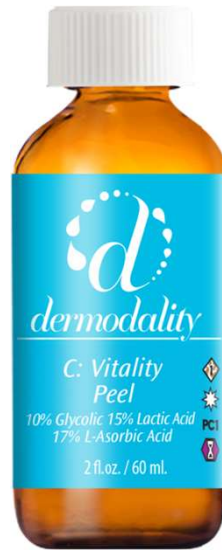


- Highly anti-inflammatory
- Mandelic acid helps remove dull layers of dead skin cells
- AHA's improve the texture of skin
- Decongests skin and unclogs pores
- Reduces the appearance of fine lines and wrinkles
- Helps stimulate collagen and elastin production

# C: vitality peel

3.0pH

- AHA 25 %
- 10% Glycolic
- 15% Lactic Acid
- 17% L-Ascorbic Acid



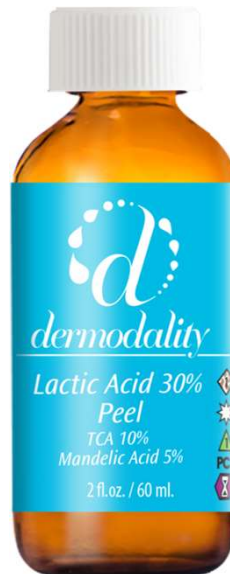
- Highly concentrated vitamins and fruit-driven anti-oxidants
- Contains skin balancing nutrients
- Replaces traditional enzyme scrubs
- Uses highly concentrated distilled extracts
- Bilberry extract – vaso dilation allows for better penetration
- Concentrated anti-inflammatory Ingredients for minimal irritation



# *lactic acid 30%*

*3.0pH*

- 30% Lactic Acid
- Larger molecule
- Slower penetration
- Reduces edema and erythema

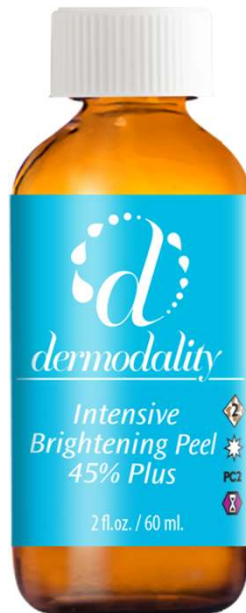


- Lactic Acid complements other chemical Peels to achieve a multiple treatment protocol
- Used alone it is a gentle but effective exfoliant
- Can be used with Pumpkin Peel 30%

# intensive brightening peel 45% plus

## 3.0pH

- Kojic Acid
- Mandelic, Lactic, Glycolic Acids
- Salicylic Acid
- L-Ascorbic Acid
- Bilberry
- Beta-Carotene

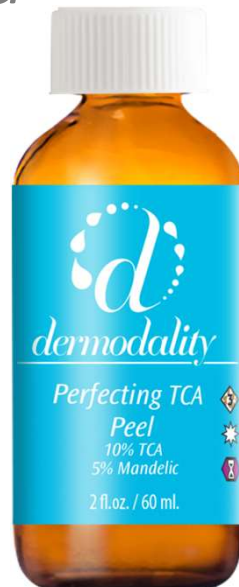


- Visibly lightens and brightens skin
- Skin becomes softer and smoother
- Bilberry extract – vaso dilation allows for better penetration
- Correcting mechanism is immediately visible
- No irritation even when used with Pumpkin peel

# TCA perfecting peel

1.2 pH

- *Trichloroacetic Acid*
- *10% TCA*
- *5% Mandelic Acid*



- Controllable effects when properly administered
- Helps lighten hyper-pigmentation
- Smooths and refines texture
- Helps **corrects acne scarring**
- **Do not** apply on active acne



# retinol 10/10

pH 2.2

- 10% Retinol
- 10% Lactic Acid



- Used over TCA, Salicylic, Modified Jessner, Jessner Peels
- Instantly reduces irritation and discomfort
- Last step in peel process
- Do not remove, client wears home
- Follow with SunMoist

# long island ice tea 15/15

- 15% Retinol
- 15% Lactic Acid
- Aloe Vera



- Used over TCA, Salicylic, Modified Jessner, Jessner Peels
- Instantly reduces irritation and discomfort
- Highly concentrated retinol & lactic acid formula
- Enhances natural rejuvenation process
- Last step in peel process
- Do not remove, client wears home
- Follow with SunMoist

# pure retinol 20/20

- 20% Retinol
- 10% Lactic Acid
- 10% Mandelic Acid



- Used over TCA, Salicylic, Modified Jessner, Jessner Peels
- Reduces irritation and discomfort
- Highly concentrated retinol, lactic & mandelic acid formula
- Minimizes pore size
- Last step in peel process
- Do not remove, client wears home
- Follow with SunMoist

Thank You!

 *dermodality*  
**SKIN SOLUTIONS** 