



Overview of Microneedling Treatment

Contents

- What is Microneedling?
- Conditions of a good roller
- Different length for different target
- Indications and Contraindications
 - Manual or Device?
 - Ingredients to avoid
 - Provide a system!
- Combination treatment options



Different Terms of Skin Needling

- Dermal needling
- Microneedling
- Meso rolling
- CIT(Collagen Induction Therapy)
- PCT(Percutaneous Collagen Induction)

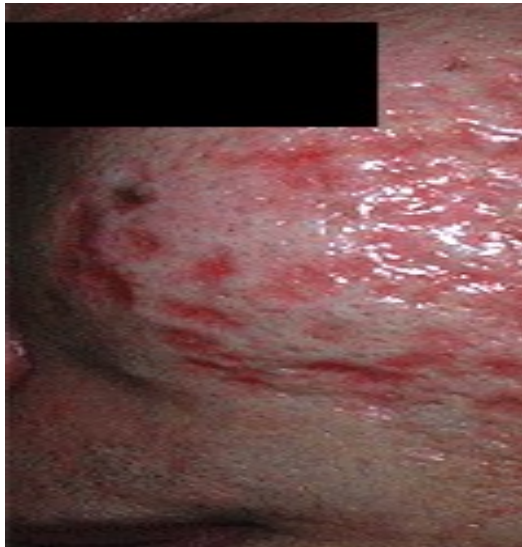
What is Skin Needling

Microneedles penetrate the epidermis and dermis layer of skin. The needles generate micro channels into the skin. This gives a pathway for skin products to penetrate more easily, boosting their effectiveness massively.

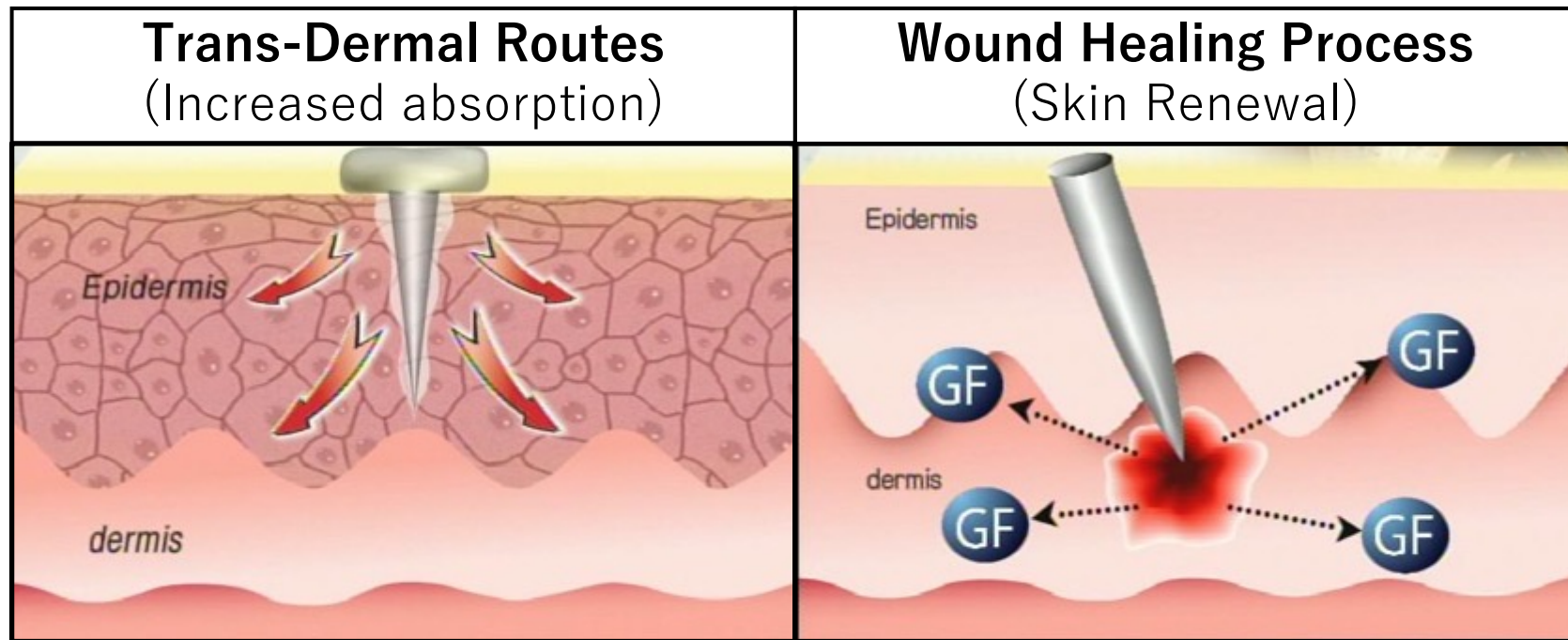
Microneedling also promotes the natural reproduction of collagen and elastin by stimulating the body's natural wound healing reaction to produce natural collagen.

GENOSYS(Diskneedle Therapy System) is the most innovative microneedle roller system which has the unique specialties in terms of manufacturing method, function(with vibration) and design.

Behind Story in Development



Mechanism of Microneedling

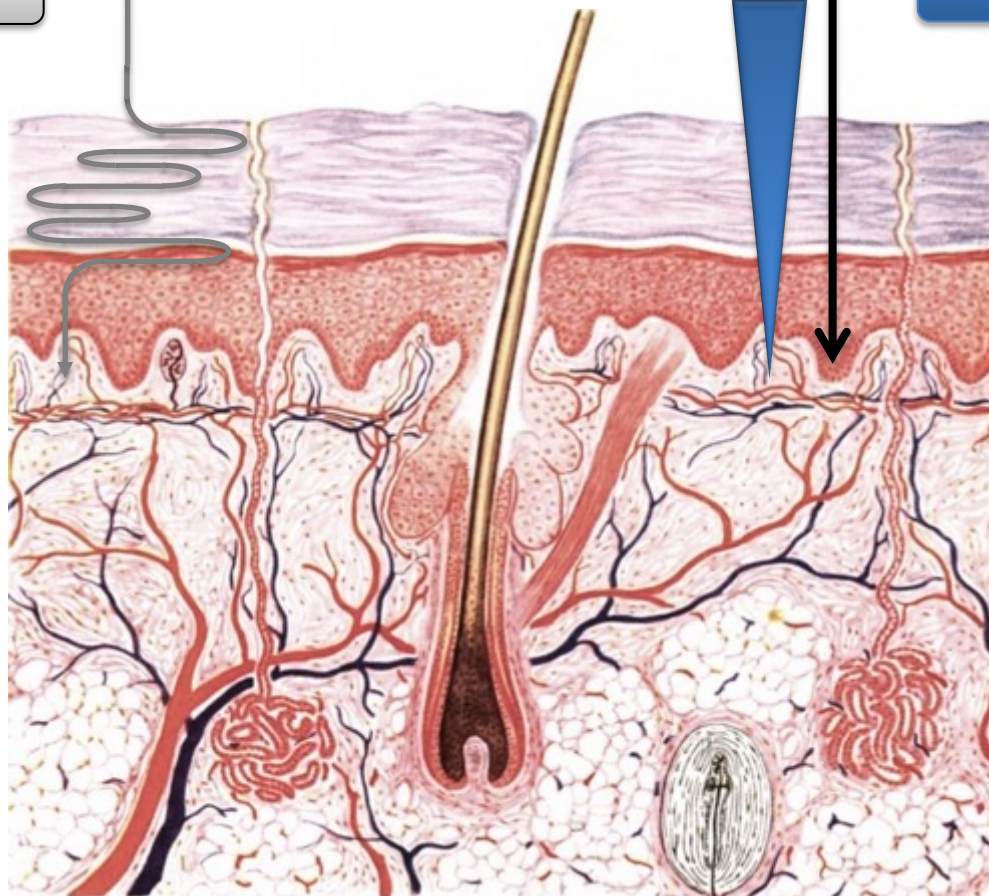


1. Trans Dermal Drug Delivery

Trans-Dermal Routes

Topical Application

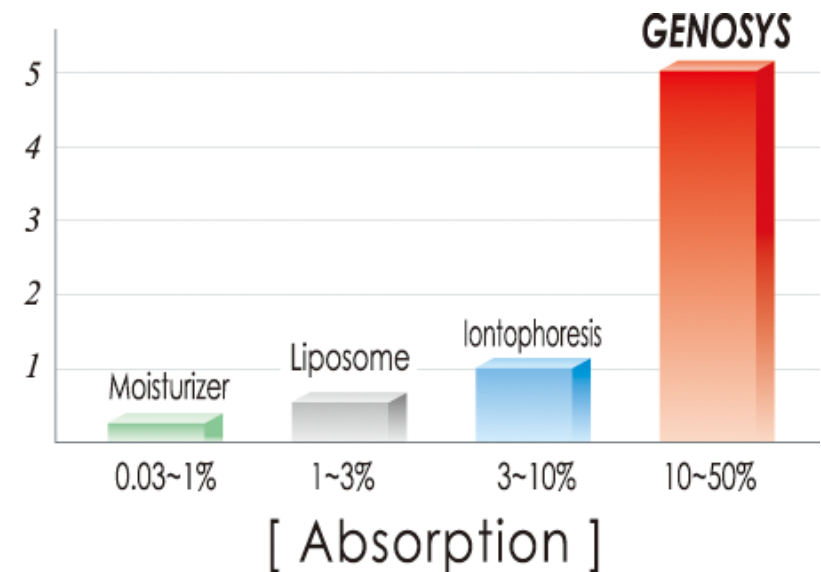
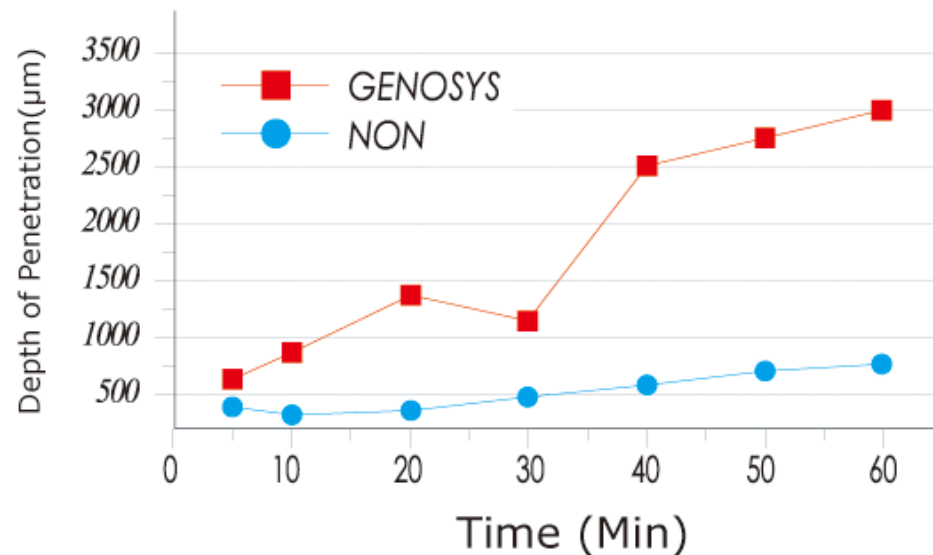
Microneedling



1. Trans Dermal Drug Delivery

Absorption comparison

Micro trans-cellular channels dramatically increases the absorption rate of active ingredients of applied topical products

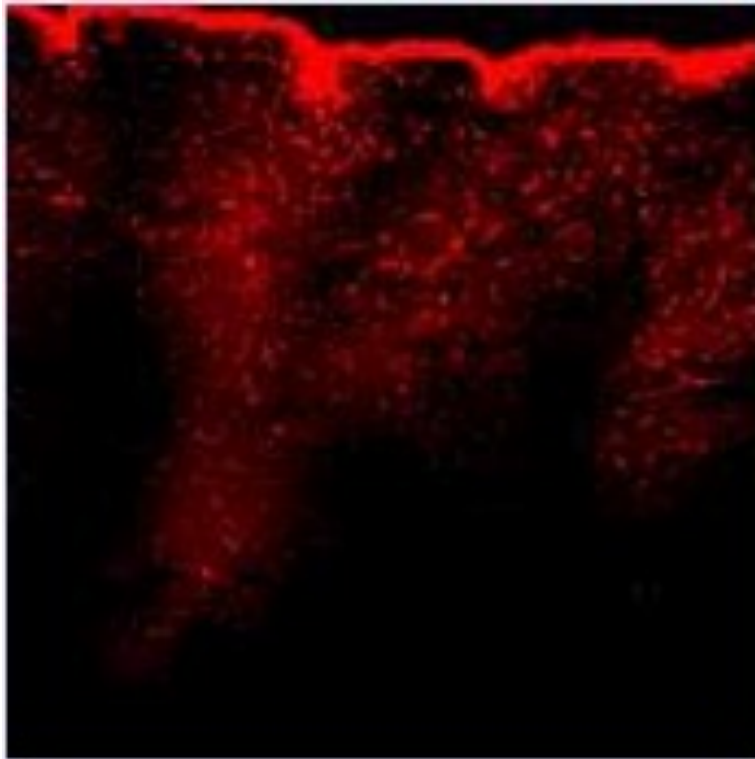


500,000 channels for 10 min rolling

Diskneedle Therapy System

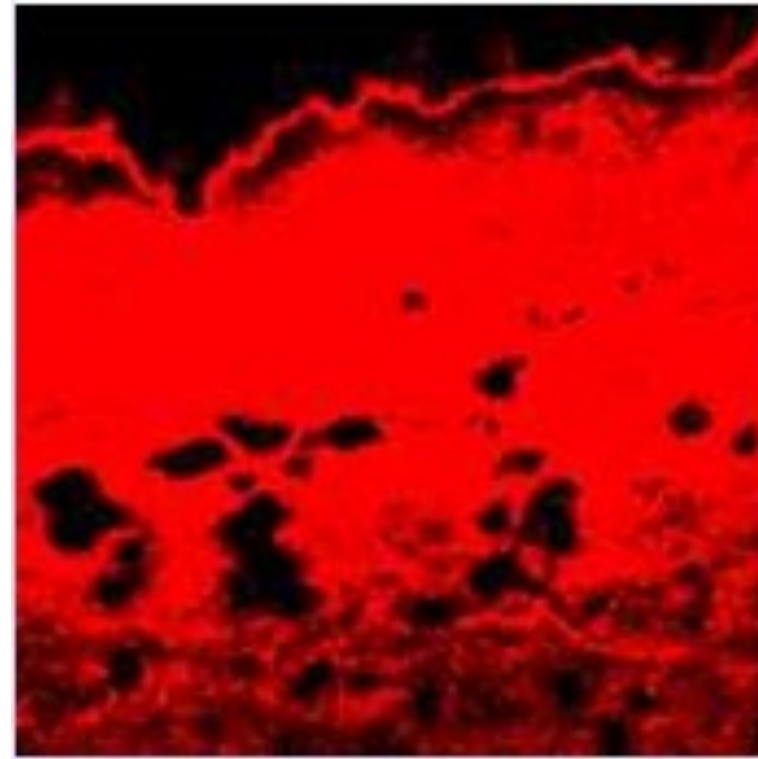
Penetration Study

Topical application



0.03% absorbed

Application with microneedling

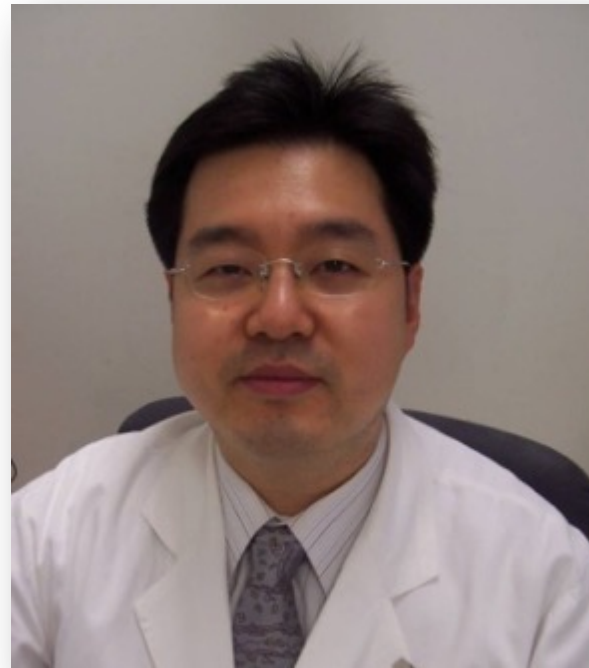


40 times more absorbed

Source:

Prof. Kim Beom Joon, Department of Dermatology, Chung-Ang University International Hospital, Seoul, Korea

Clinical Studies of Professor Beom Joon Kim



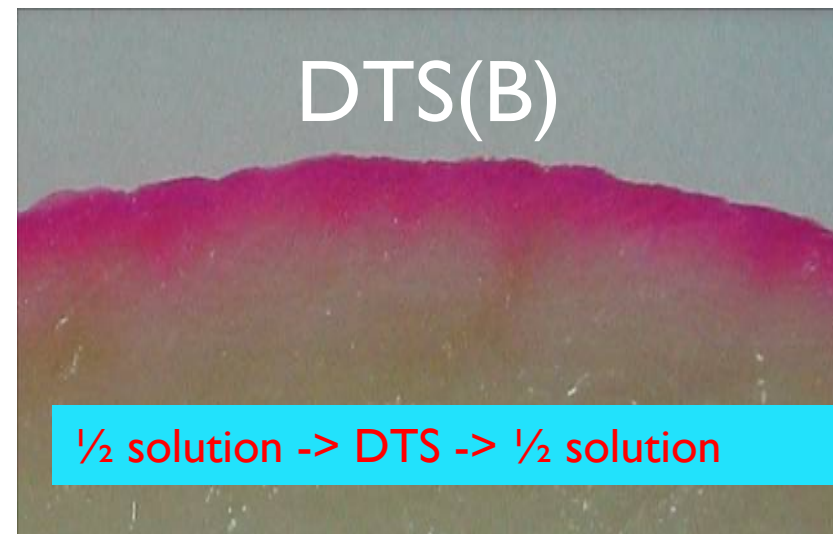
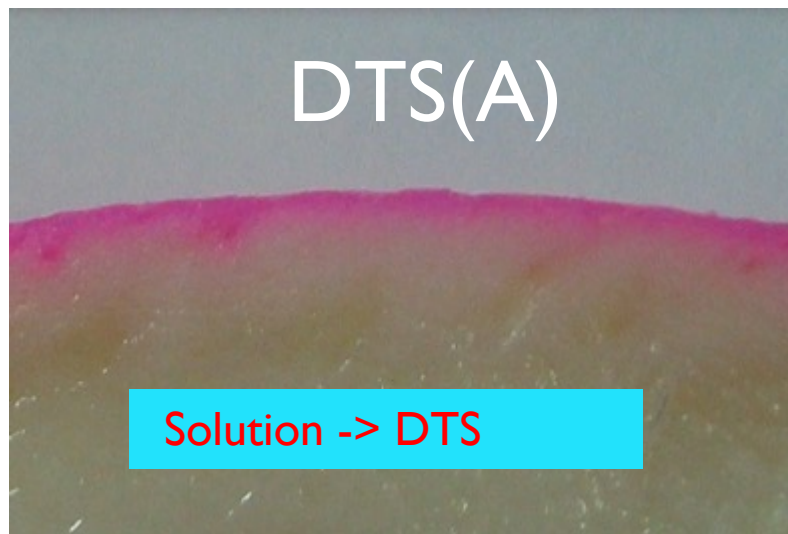
Chung-Ang University Hospital



R&D Center

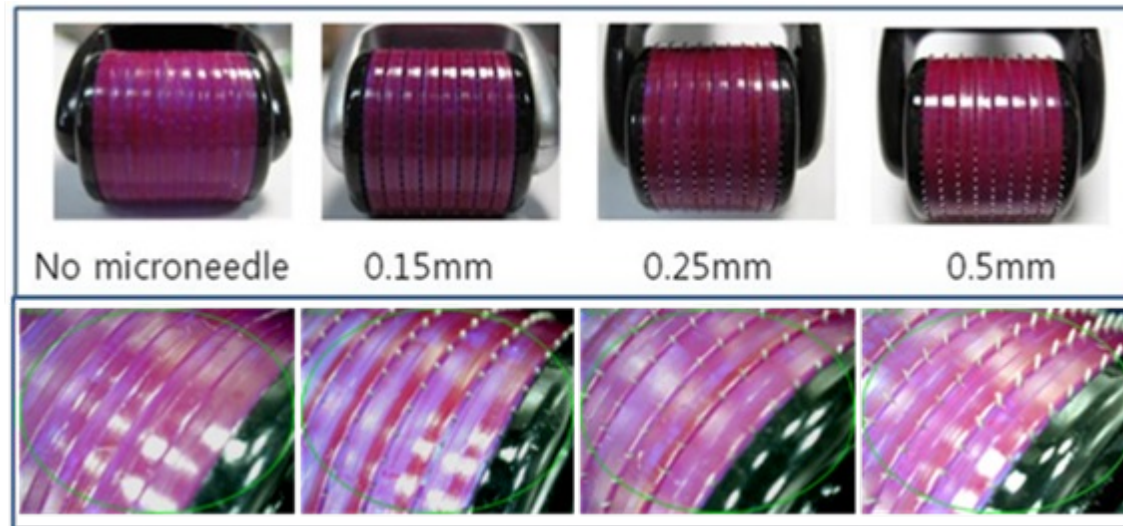


Penetration Study - Rhodamine B base _Pig skin

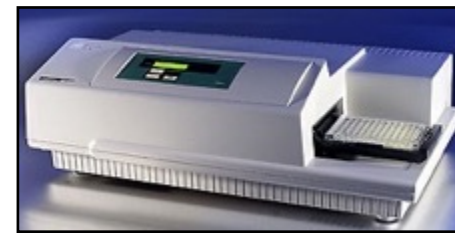
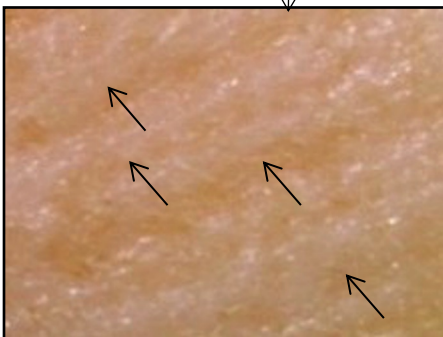
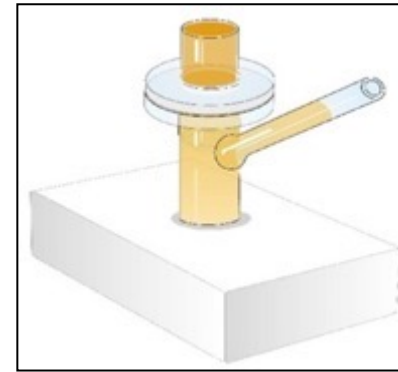
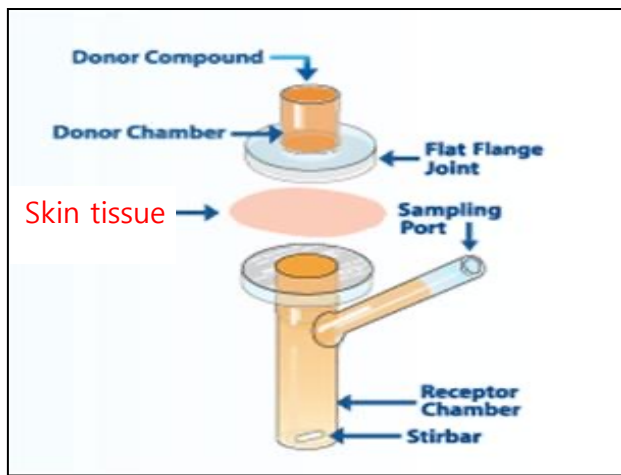


Skin Penetration Study - Materials and method

1. In vitro skin penetration studies
2. Fluorescence microscopic studies
3. In vivo skin penetration studies



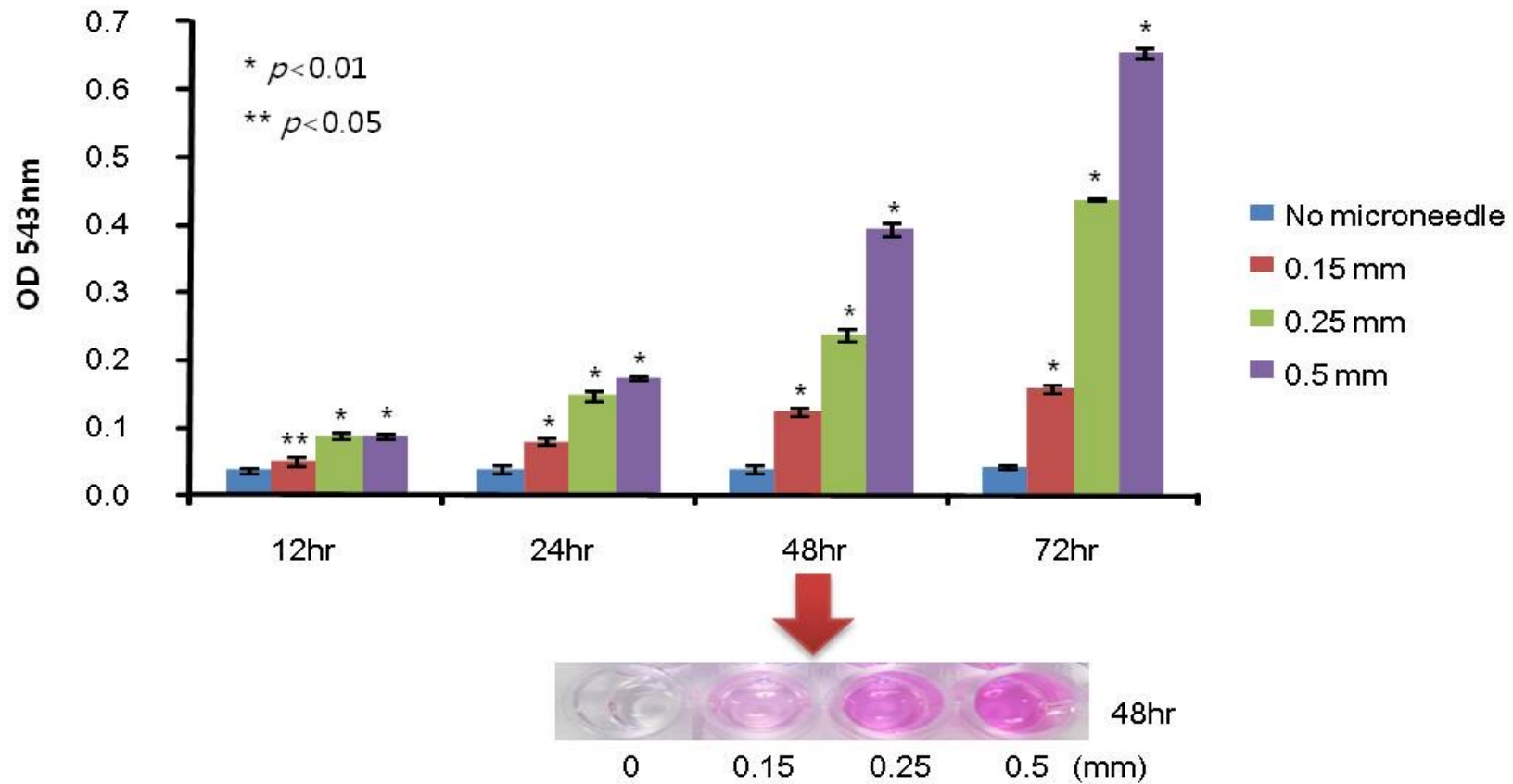
Prof. Beom Joon KIM (Chung-Ang University, Korea)



Prof. Beom Joon KIM (Chung-Ang University, Korea)

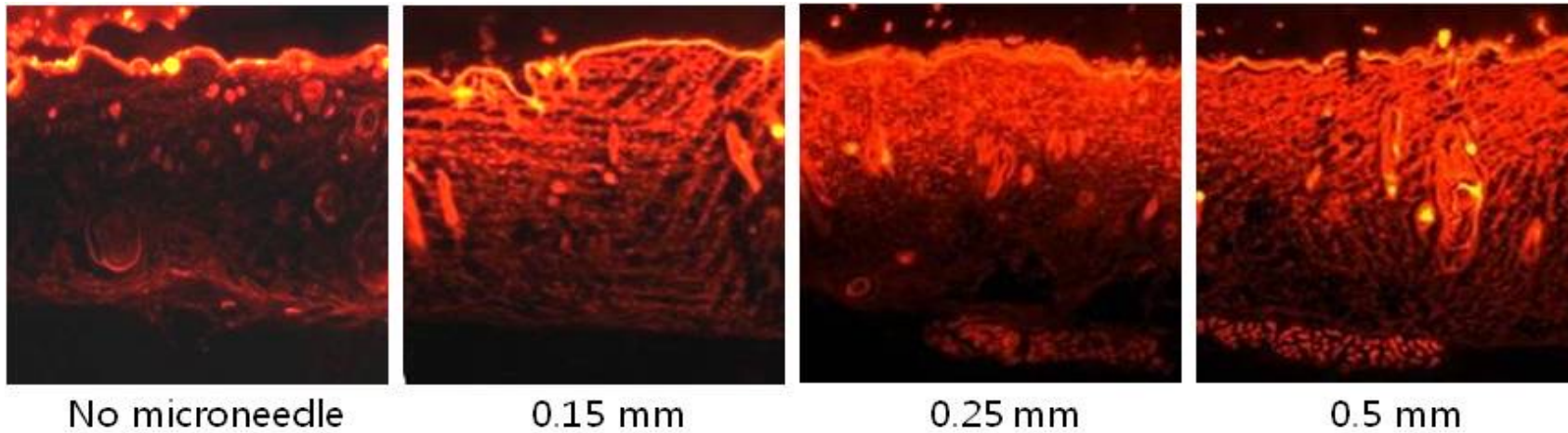
Results

1. In vitro skin penetration studies



Results

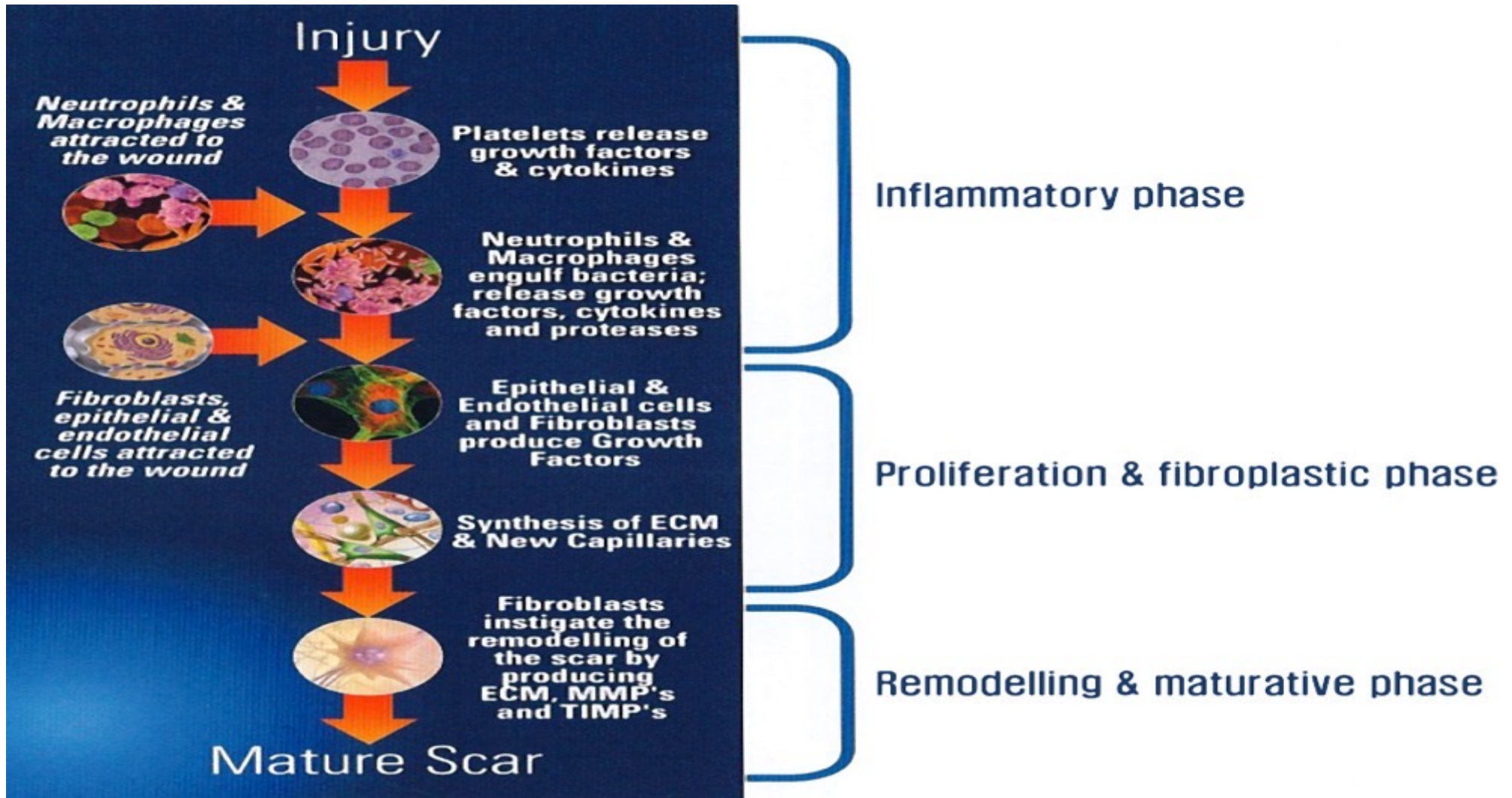
2. Fluorescence microscopic studies



Prof. Beom Joon KIM (Chung-Ang University, Korea)

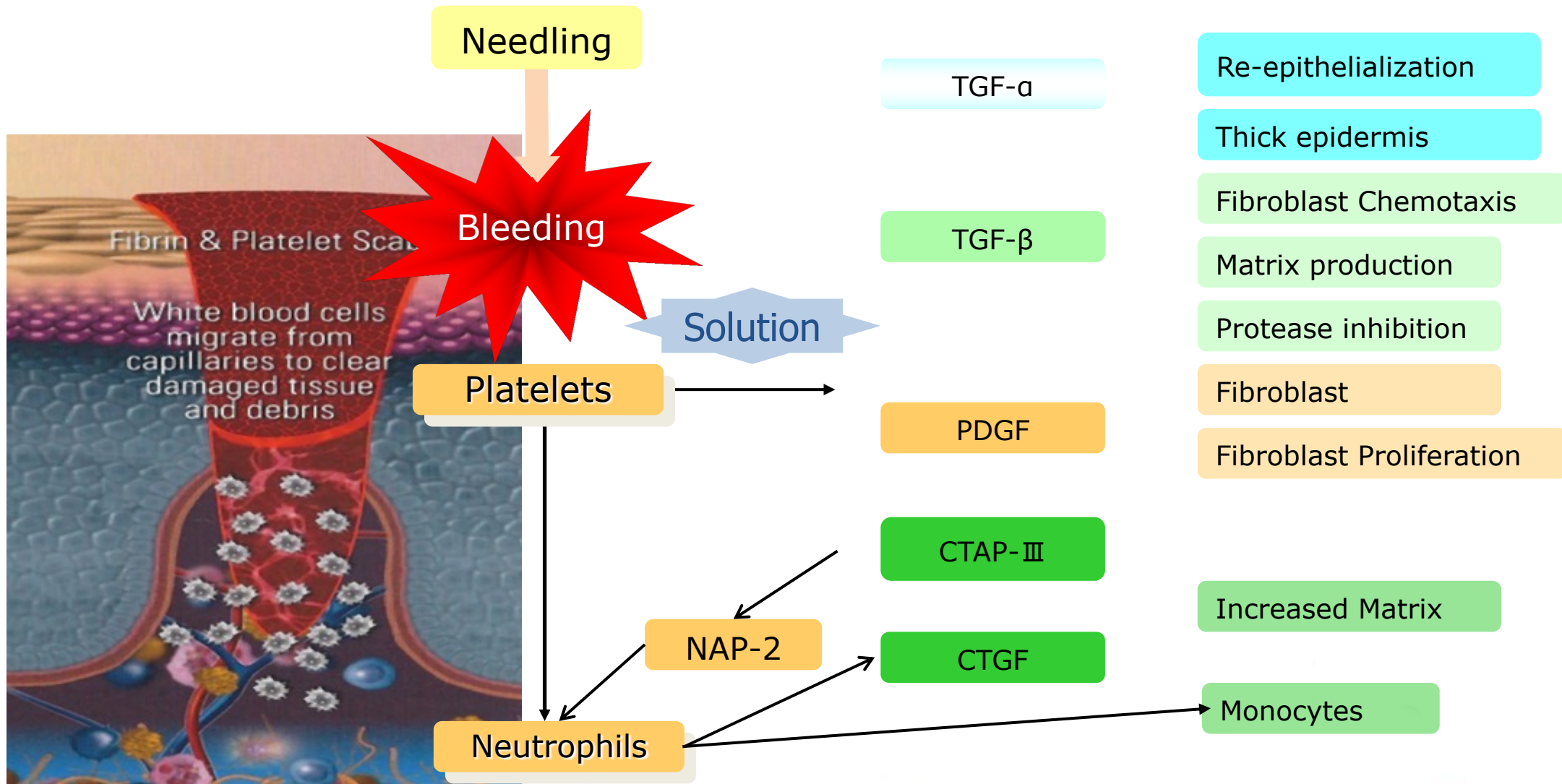
2. Wound Healing Process

Wound Healing Process



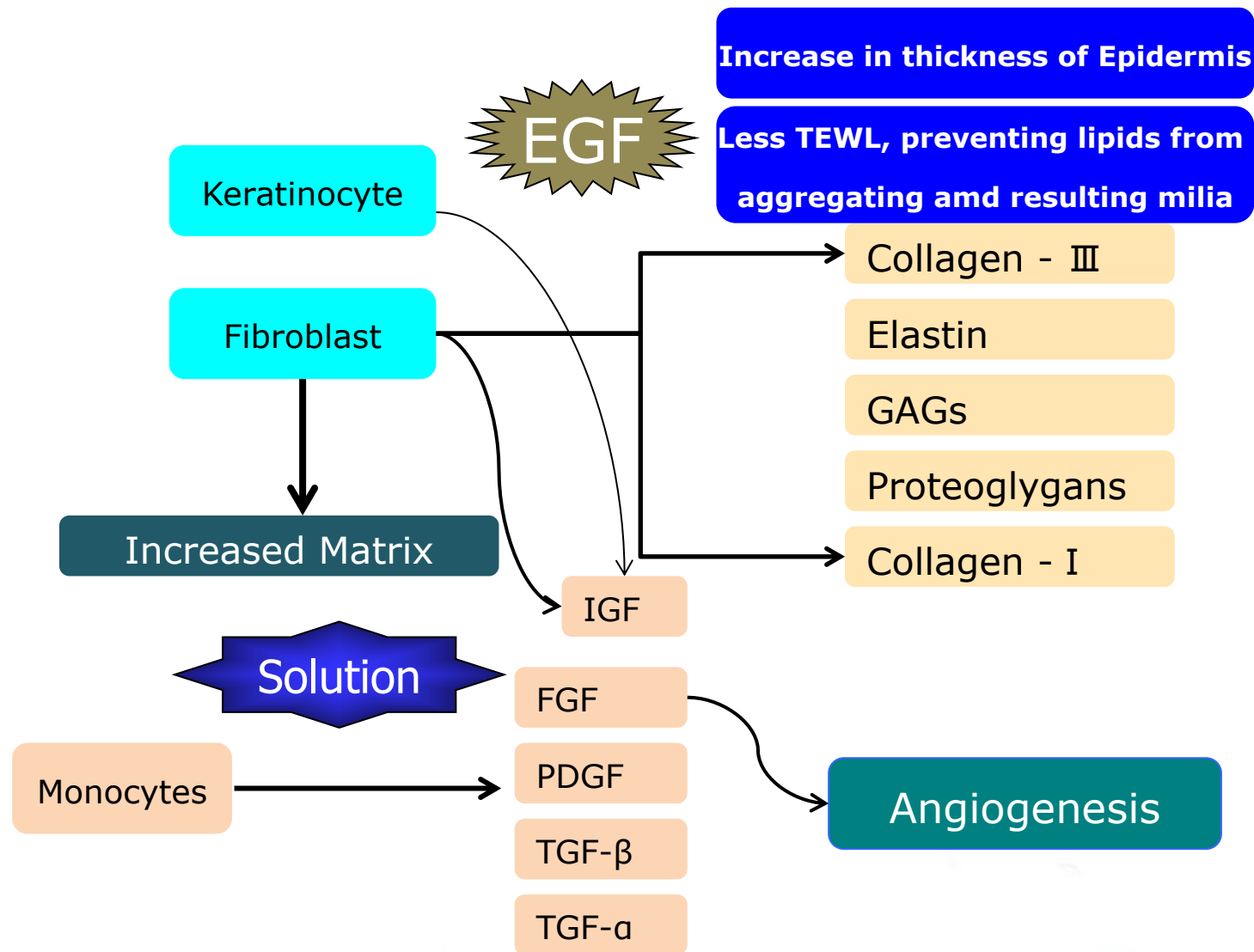
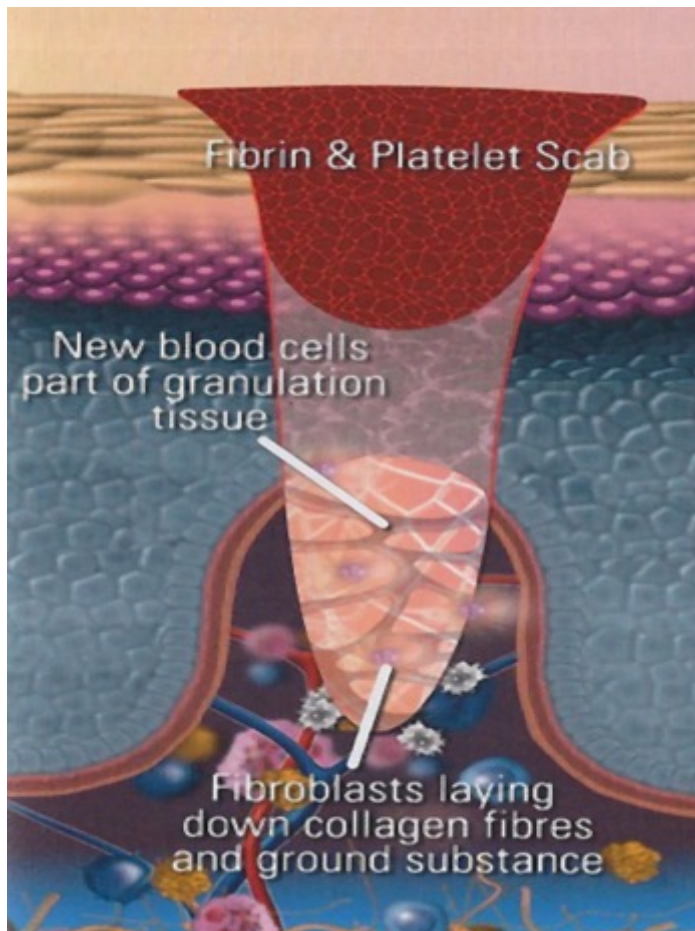
The Phases of Wound Healing

Phase 1 – Inflammatory Phase (24 ~48 hrs)



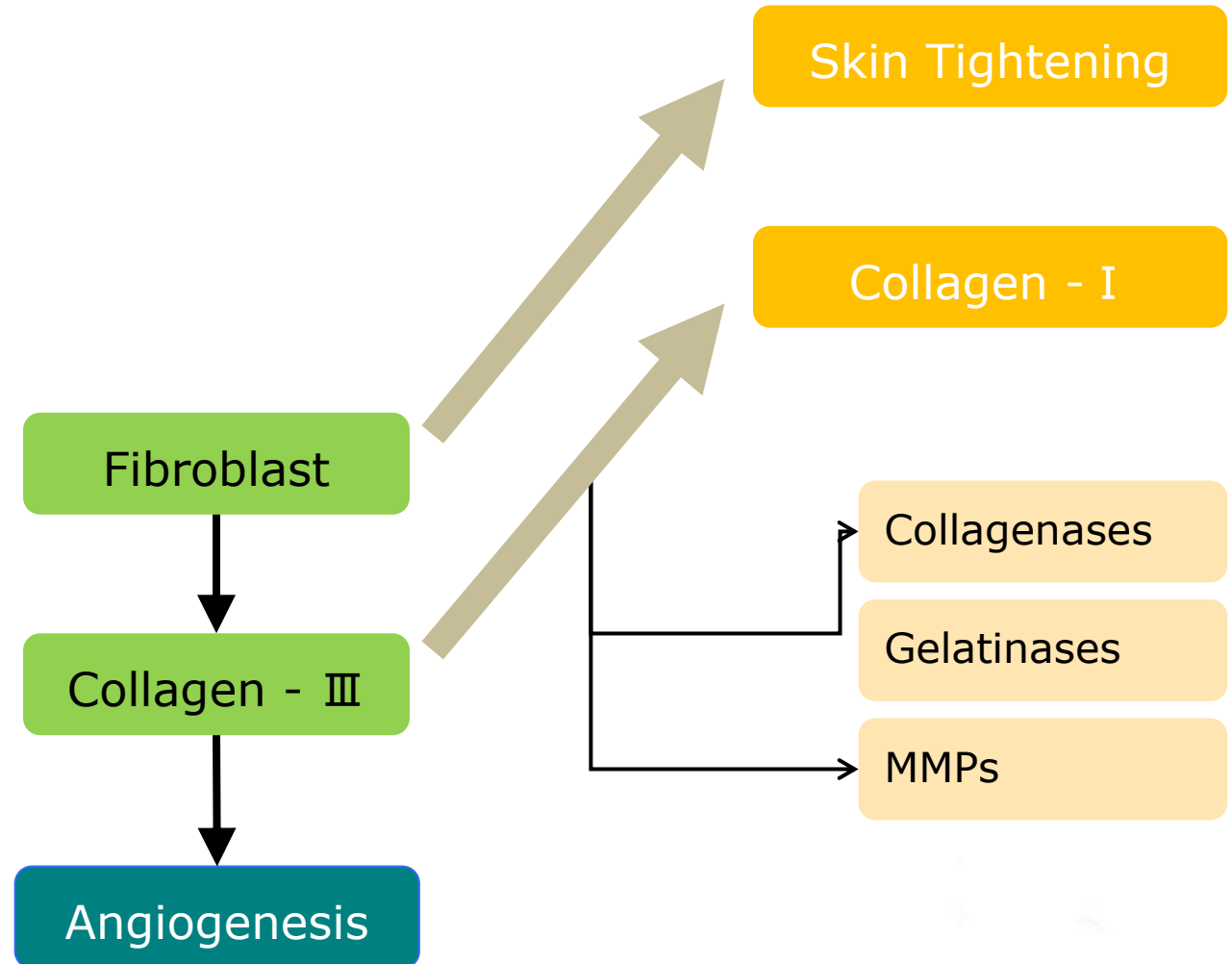
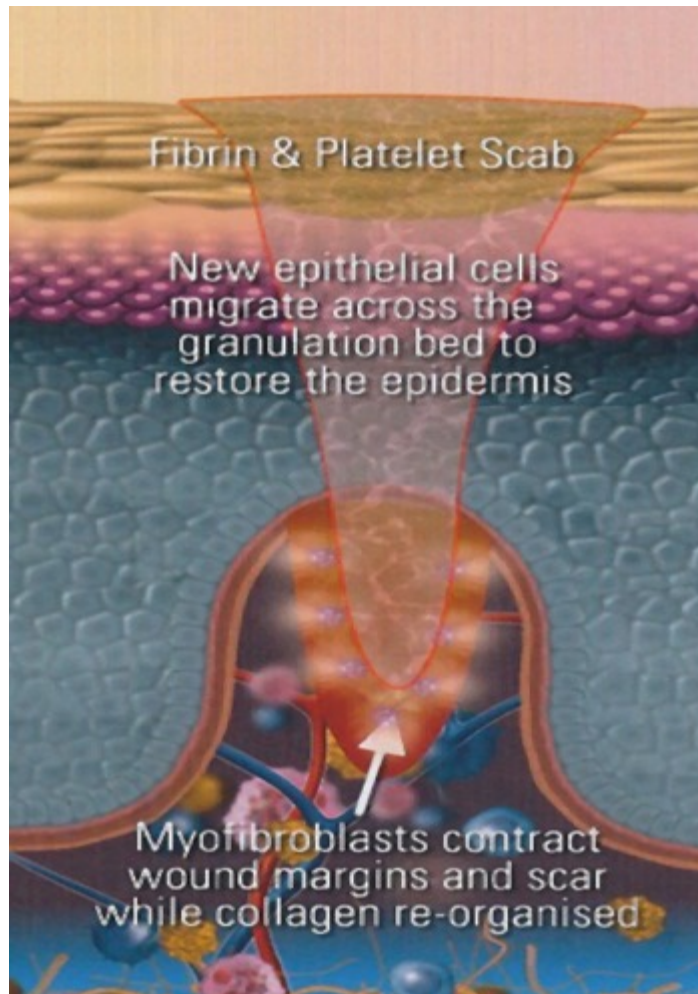
The Phases of Wound Healing

Phase 2 – Proliferation (Tissue Formation) – 5 ~ 21 days



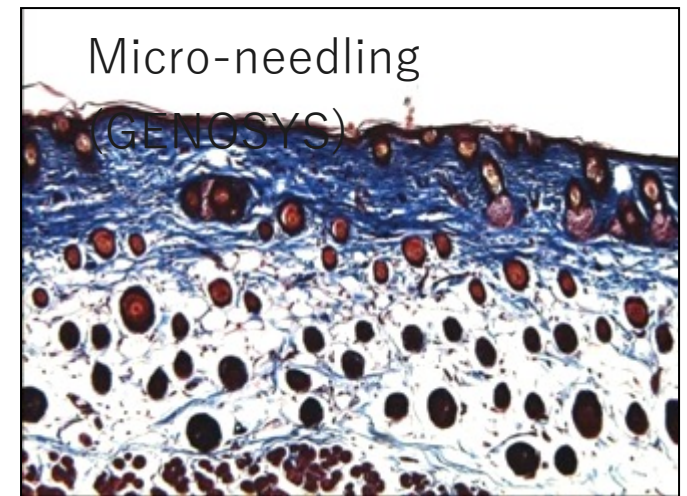
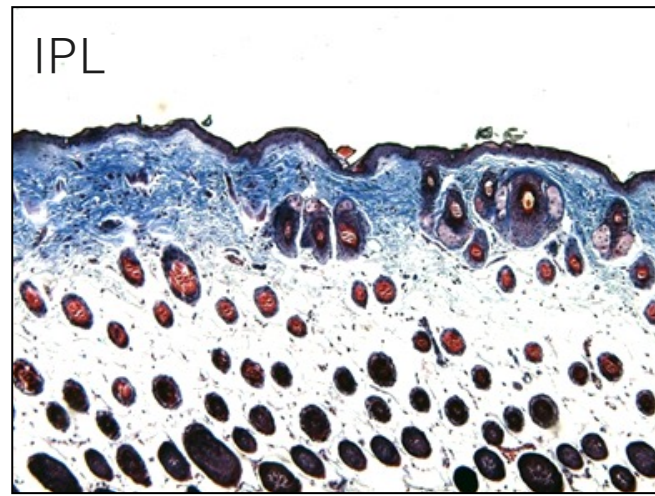
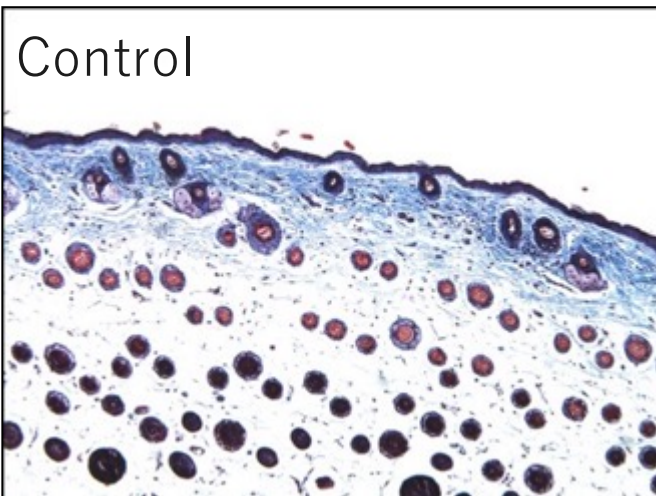
The Phases of Wound Healing

Phase 3 – Tissue Remodeling (2 weeks ~2 years)



Diskneedle Therapy System

Collagen induction



Prof. Beom Joon KIM (Chung-Ang University, Korea)

Studies carried out by DTS MG

- 2009 – Comparative experiment of DTS Microneedle roller and similar type using conventional foreign approaches
- 2009 – Experiment of DTS Microneedle roller on dermatological stability
- 2011 - Transdermal drug delivery using disk microneedle rollers in a hairless rat model(International Journal of Dermatology)
- 2012 - Pain-related Mechanism Analysis by rolling with Microneedle Rollers according to Microneedle Types
- 2012 - Facial Skin Barrier Function Recovery After Microneedle Transdermal Delivery Treatment(Dermatologic Surgery)
- 2020 - MNT+LLLT+PRP Expert opinion -Randomized blinded retrospective
- 2021 - Regenerative Biotechnologies in Plastic Surgery- A Multicentric, Retrospective, Case-Series Study on the use of Mi-cro-needling with Low-Level Light/Laser Therapy as Hair Growth boost in patients affected by Androgenetic Alopecia
- 2022 - Hair Growth Booster Effects of Micro-Needling with Low-Level Led Therapy and Growth Factors on Subjects treated with Finasteride
- 2022 - Preliminary Investigation on Micro-Needling with Low-Level LED Therapy and Growth Factors in Hair Loss Related to COVID-19

The microneedle roller is an effective device for enhancing transdermal drug delivery|

MD, USA). Time-related measurements of the penetration of dye in porcine skin were acquired from biopsy speci-

DTS study data related with efficacy and safety

Pharmacology and therapeutics

Transdermal drug delivery using disk microneedle rollers in a hairless rat model

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Abstract

Background Transdermal drug delivery systems (TDDSs) represent more reliable and consistent methods of drug dosing than oral administration. However, TDDSs can administer only low molecular weight (MW) drugs and require a power source. Disk microneedle rollers facilitate the passage of low and high MW substances through the direct perforation of the stratum corneum and dermis, without stimulating dermal nerves.

Objectives We investigated *in vitro* whether disk microneedle rollers, developed for the Diskneedle Therapy System (DTS) in South Korea, can deliver drugs effectively through the skin of hairless rats.

천식 및 알레르기 제30권 제3호
Vol. 30, No. 3, Sep., 2010

□ 원 저 □

무모생쥐를 이용한 Disk 형태(DTS) 미세침롤러의 피부안정성에 관한 연구

중앙대학교 의과대학 피부과학교실

박귀영 · 이진웅 · 김동하 · 임윤영 · 김범준 · 김명남

The Stability of the Disk-type Microneedle in Skh-hairless-1 (Albino) Mice

Kui Young Park, Jin Woong Lee, Dong Ha Kim, Yun Young Lim, Beom Joon Kim and Myeung Nam Kim

Department of Dermatology, Chung-Ang University College of Medicine, Seoul, Korea

Background: The transdermal drug delivery system has been studied for several decades as an alternative tool. Even though it has many advantages such as stability of drug to the destination, safety to the liver, there are some limitations in crossing the stratum corneum. Microneedle can perforate the skin directly, which make it possible for drugs to penetrate into the subcutaneous tissue.

Objective: The purpose of this study to evaluate the stability of Diskmicroneedle Therapy System (DTS) and directly compare them with conventional Microneedle Therapy System (MTS[®], Clinical Resolution Lab, California, USA).

Method: We used 3 sizes of manual and electric Disk-

microneedle Therapy System (DTS; 0.25 mm, 1.0 mm and 1.5 mm) to perforate the skin. We performed a comparative study of 0.5 mm manual DTS and Microneedle Therapy System (MTS[®]). To evaluate the stability, visual inspection and biopsy were conducted.

Result: Manual and electric DTS of all 3 sizes did not induce significant abnormalities of the skin on visual inspection and biopsy. DTS and MTS produced similar results on the stability for the skin.

Conclusion: Similar to the preexisting MTS, DTS is a safe transdermal delivery system, and the size should be chosen carefully. (Korean J Asthma Allergy Clin Immunol 2010; 30:222-227)

Key words: Diskmicroneedle therapy, Stability

Facial Skin Barrier Function Recovery After Microneedle Transdermal Delivery Treatment

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HYE J. JUNG, MD,[‡] AND BEOM J. KIM, MD, PHD[†]

BACKGROUND Microneedle treatment is currently used in the cosmetic industry for several skin conditions. Despite their extensive use, there is lack of sufficient data on the safety of microneedles.

OBJECTIVE To investigate the degree of acute skin damage and the time required for facial skin barrier function to recover using different microneedle lengths and numbers of applications.

MATERIALS AND METHODS Each side of a volunteer's face was randomly treated with one of the following treatments: five applications of 0.15-mm microneedles, five applications of 0.25-mm microneedles, 10 applications of 0.15-mm microneedles, or 10 applications of 0.25-mm microneedles. Transepidermal water loss, stratum corneum hydration, and skin erythema were measured at baseline, immediately after treatment, 4 hours after treatment, and 8 hours after treatment and at 24-hour intervals for 3 days.

RESULTS Prompt recovery of barrier function (within 72 hours) was observed after microneedle treatment.

CONCLUSION Microneedle treatment is simple and inexpensive, and the skin barrier disruption it causes resolves quickly. Therefore, it can serve as an effective physical method of enhancing transdermal delivery of medications for the treatment of many cosmetic and dermatological conditions.

The authors have indicated no significant interest with commercial supporters.

Treatment of Striae Distensae Using Needling Therapy: A Pilot Study

KUI YOUNG PARK, MD, PHD,* HYUN KYU KIM, MD,* SUNG EUN KIM, MD,†
BEOM JOON KIM, MD, PHD,* AND MYEUNG NAM KIM, MD, PHD*

BACKGROUND Striae distensae are dermal scars characterized by flattening and atrophy of the epidermis. Although many treatment modalities have been attempted with variable results, there is no criterion standard treatment modality for striae distensae.

OBJECTIVES To evaluate the effectiveness and safety of a disk microneedle therapy system (DTS) in the treatment of striae distensae.

MATERIALS AND METHODS Sixteen Korean volunteers with striae distensae alba or rubra were enrolled. Patients received three treatments using a DTS at 4-week intervals. Clinical response to treatment was assessed by comparing pre- and post-treatment clinical photographs, skin biopsies, and patient satisfaction scores. Clinical improvement was assessed using the quartile grading scale.

RESULTS Marked to excellent improvement was noted in seven (43.8%) patients, with minimal to moderate improvement in the remaining nine. Patient satisfaction scores showed that six (37.5%) patients were highly satisfied, eight (50.0%) were somewhat satisfied, and two (12.5%) were unsatisfied. There were no significant side effects except mild pain, erythema, and spotty bleeding.

CONCLUSION Disk microneedle therapy system (DTS) can be effectively and safely used in the treatment of striae distensae.

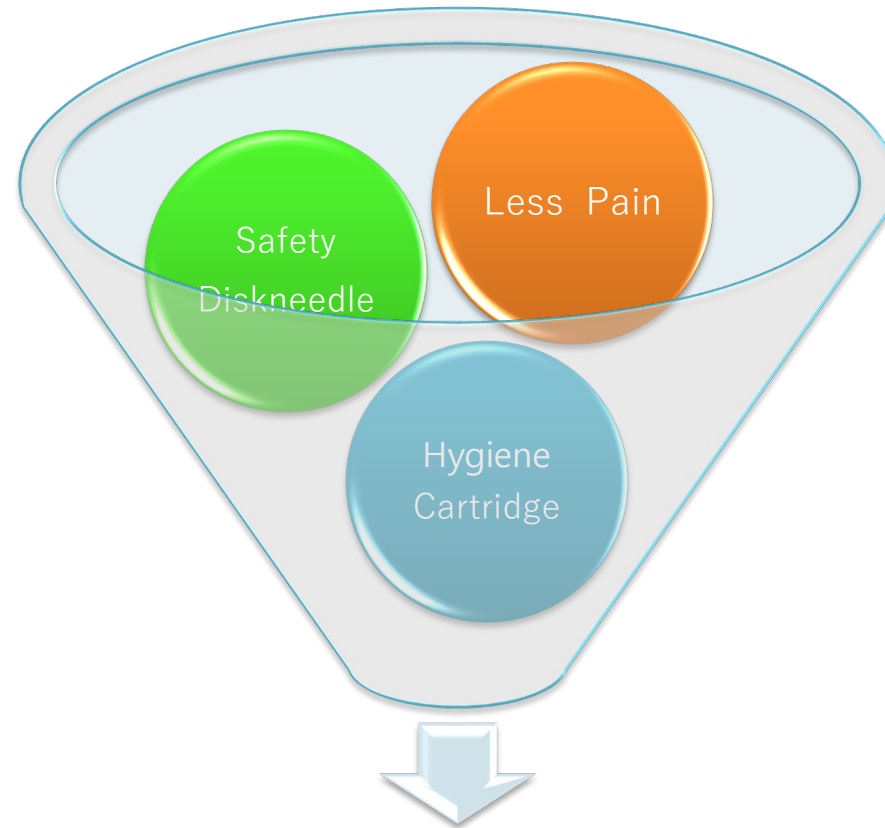


Advantages and Disadvantages of Microneedling

Advantages	Disadvantages
<p>The epidermis is intact</p> <p>Leads to regenerative healing</p> <p>Can be used in most areas of body</p> <p>Doesn't cause photosensitivity</p> <p>Rapid healing and minimum downtime</p> <p>No limit to the number of treatments</p>	<p>Necessity of anaesthesia</p> <p>Temporary TEWL after treatment</p> <p>It takes time to see results</p> <p>Result can depend on the regenerative ability of the client(may not work on some)</p>

*** Referred to "The Concise Guide to Dermal Needling, Dr. Lance Setterfield"

Conditions of good roller



Make GENOSYS Roller Different

Sterilization



Expiry : 3 years

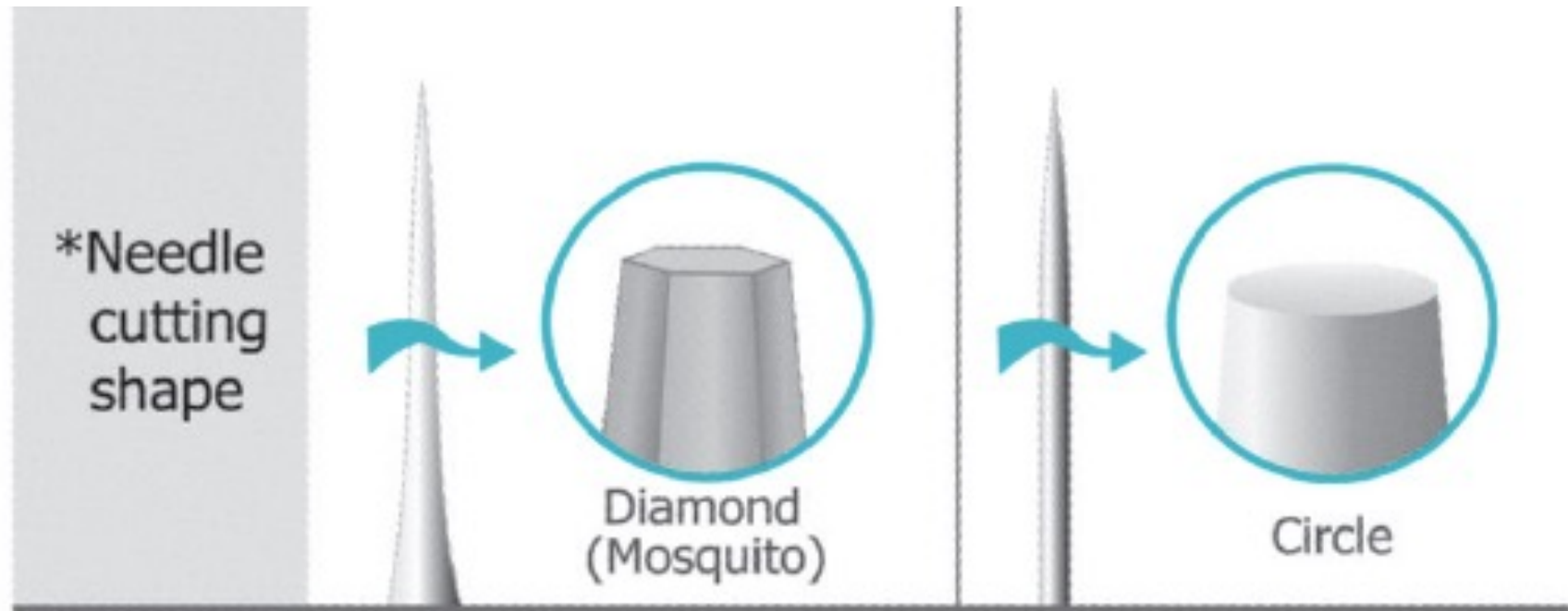
- Gamma ray sterilization
- Yellow sticker becomes red  after exposure of gamma ray
- Important factor which differentiates GENOSYS ROLLER from low quality products

Diskneedle Therapy System

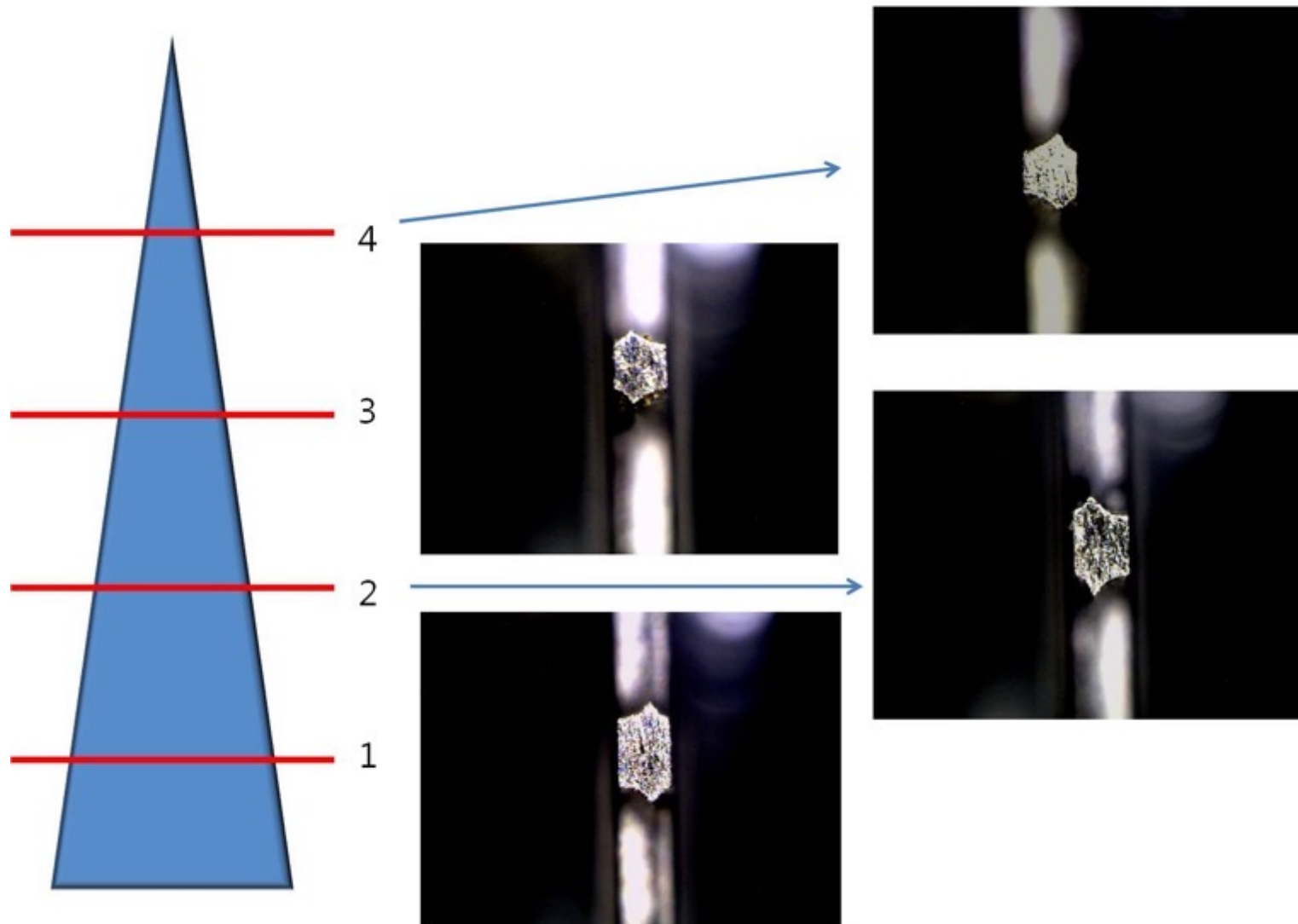
Comparison Chart

Classification	GENOSYS Roller	Other Rollers
Number of needle	0.25mm : 540 (60 x 9 disks) 0.50~1.00mm : 450 (50 x 9 disks) 1.50~2.00mm : 405 (45 x 9 disks)	192(24 x 8 column)
Thickness of needle	0.2mm	0.25~0.3mm
Material of needle	SUS 304(H)	SUS 304(H)
Type of needle	Disk type	Wire needle type
Needle drop out during treatment	None	Sometimes happen
Pain	Little	Much
Erythema, redness	Short(1/2 ~ 1 day)	Long(1~2 Days)
Chemical bond	None	Use

Diskneedle Therapy System



Cutting shape of DTS needle

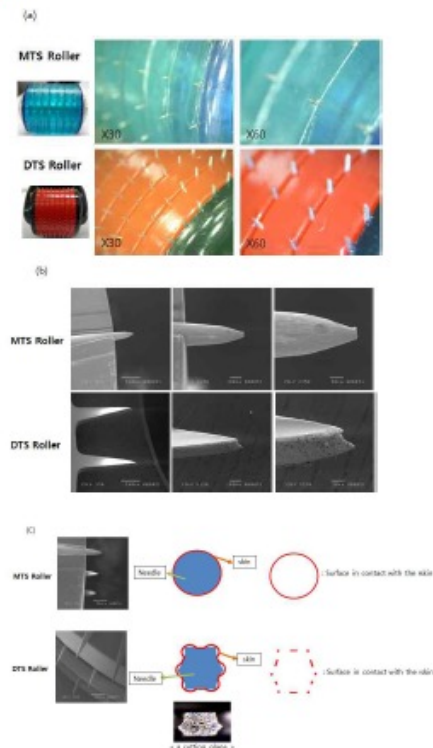


<Cutting shape of different position of DTS needle>

Clinical Studies

Pain-related Mechanism Analysis by rolling with Microneedle Rollers according to Microneedle Types

tapered at the end than MTS microneedle as hexagon. But, we expect that when rolling with microneedle roller, cross sectional areas of microneedle of MTS microneedle roller are in contact with the skin in a moment are more bigger than which of DTS microneedle roller(Fig.3(c)).

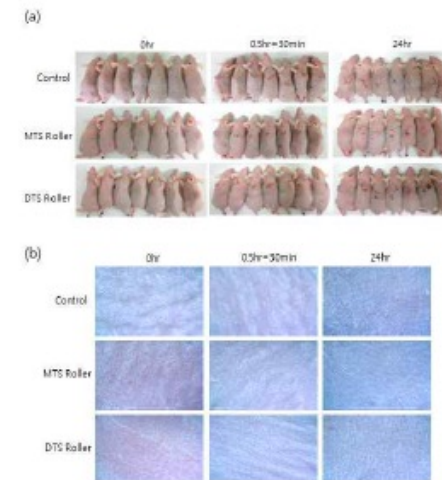


(Fig 3. microneedle analysis of microneedle rollers with various types)

(1) Visual evaluation

: All evaluation is performed through the skins after rolling with various microneedle roller according to time such as 0, 0.5(30minutes), and 24hours.

: The results of skin surface photograph using folliscope are confirmed that cutaneous adverse reactions including skin surface damage, erythema, and heat injury reaction by rolling with microneedle roller aren't verified(Fig. 4).





(Fig 4. (a) group photograph and (b) photograph for cutaneous adverse reactions before and after rolling of microneedle rollers using folliscope. Overall, cutaneous adverse reactions aren't verified.)

(2) Histological evaluation using hematoxylin & eosin (H&E) staining

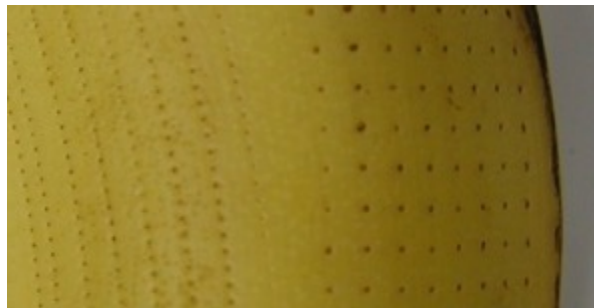
: After rolling with various microneedle roller on skin, each skin tissues are prepared according to time. All skin tissues are incubated in 10% formalin solution(fixing solution). And then, paraffin blocks using the skin tissues are prepared. We are confirmed through H&E staining that cutaneous adverse reactions of the skin tissues aren't verified(Fig.5).

Diskneedle Therapy System

Comparison Chart

GENOSYS Roller	Other Rollers
 A white, circular roller with a central hub and a dense, uniform ring of fine, sharp needles around its perimeter.	 A white, circular roller with a central hub and a ring of sharp needles, but the needles are significantly longer and more widely spaced than those of the GENOSYS roller.

GENOSYS



Others

Holes made by each roller



GENOSYS Roller

GENOSYS Roller



GENOSYS Roller

GENOSYS Manual Roller



▲ Standard



Narrow ▶

GENOSYS Roller

GENOSYS Detachable Roller



GENOSYS Roller

GENOSYS Vibrating Roller



GENOSYS Roller

GENOSYS Body Roller



GENOSYS Roller

GENOSYS Replacement Head



Standard



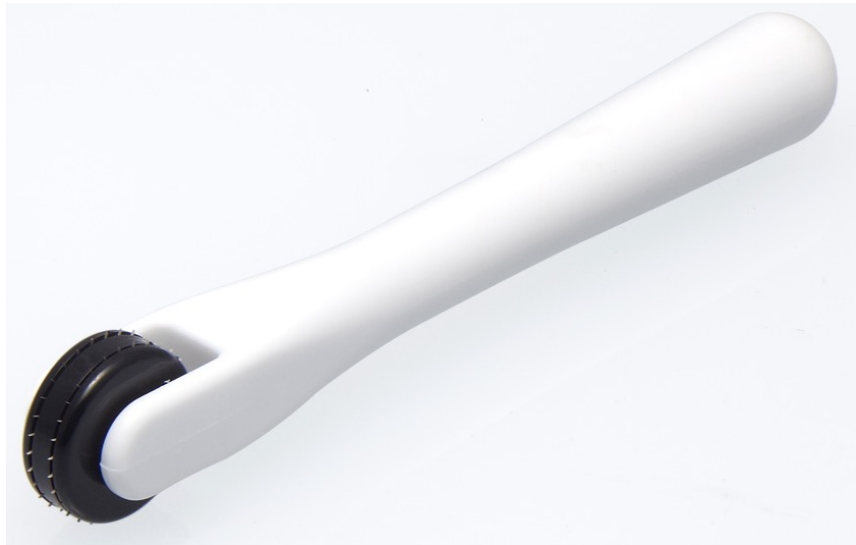
Twin Head for Body



Narrow

GENOSYS Roller

GENOSYS Eye Roller and Stamp



◀ Eye roller

Number of needles: 60 needles

(2 disks of 30

needles)

Ideal for eye contour treatment – dark circle, crow's feet, eye bag and wrinkles around eye and mouth



Stamp ▶

Number of needles: 140 needles per stamp

Ideal for scalp treatment

Rollers with different brands



Manufactured by DTS MG.

Intellectual Properties – Russian Patent



RUSSIAN FEDERATION

PATENT

FOR INVENTION

No 2477119

SKIN STIMULATOR

Patentee(s): *DTS LAB CO., LTD (KR)*

Author(s): *HAN Ki-Soo (KR)*

Application No. **2011112319**

Priority dates of the inventions: **see overleaf.**

Registered in the State register for inventions of the Russian Federation on **March 10, 2013.**

Term of validity of the patent expires on **September 02, 2029.**

Head of Federal Service for Intellectual Property

B.P. Simonov

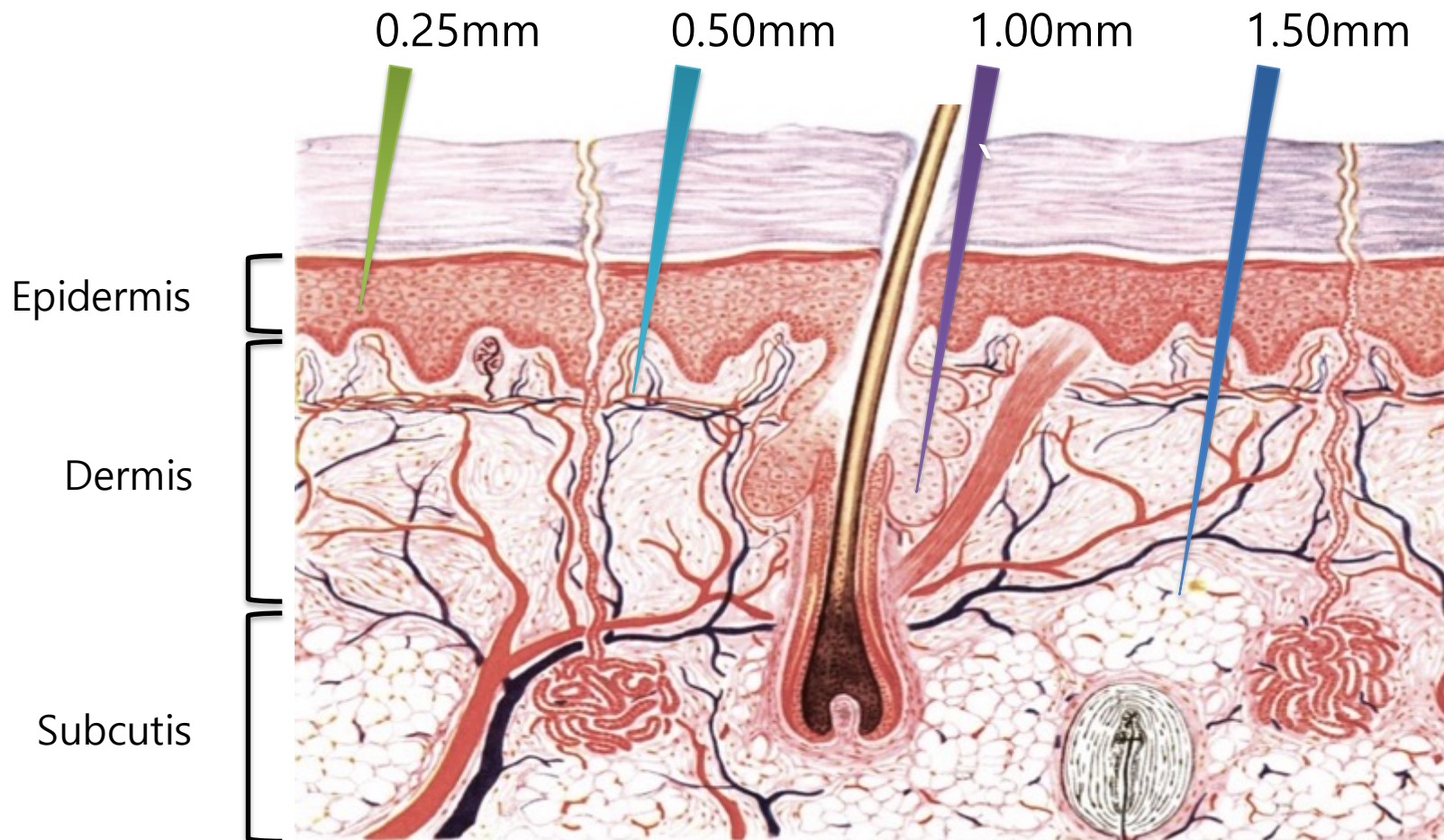
Intellectual Properties

Europe-Design

- Acquired the Registered Community Design certificate in November 2011
- > With Registration of Design, rollers which copy the design of DTS rollers can be blocked.



Different length for Different target



0.25mm – Granular area / Mid spinosum

0.5mm – D/E junction

1.0mm / 1.5mm – Papillary dermis

2.0mm – Reticular dermis

3.0mm – Subcutaneous layer

Different length for Different target

Needle length	Mechanism	Application
1.5/2.0mm 1.0mm	Increase absorption Natural Collagen Induction	Wrinkle, Acne scar, scar, lifting, body lifting, firming, burn scar, stretch mark, tone and texture, pore
0.5mm	Increase absorption Natural Collagen Induction (mild)	Pigmentation, fine wrinkle, hair loss
0.25mm	Increase absorption	Maximize the function of cosmetics

Different length for Different target

- Epidermis

Micro injury to keratinocytes to release EGF

Cellular cross-talk between keratinocytes and melanocytes
leads to better distribution of melanin pigment

- Dermis

Delivery of right ingredients to depth of fibroblasts

Fibroblast response due to growth factors

Diskneedle Therapy System

Indications of Microneedling

Skin Barrier Permeation

- Create permeable stratum corneum micro channels to improve skin absorption (Approximately 100 times more)

Lifting / Wrinkle

- Lifting the loosed skin and Anti-aging benefits are the result of creating derma particle in the tissue.

Scar / Stretch Mark

- Collagen induction in the dermal and basal layers. Improve and repair scar and stretch mark by stimulating dermis.

Pore

- Follicles shrink due to increase of dermis elasticity.

Exfoliation / Skin Tone

- The result of stimulating dermis improves targeted skin tone and reduce the cycle of cornification.

Acne

- Bactericidal action on the anaerobic acne.



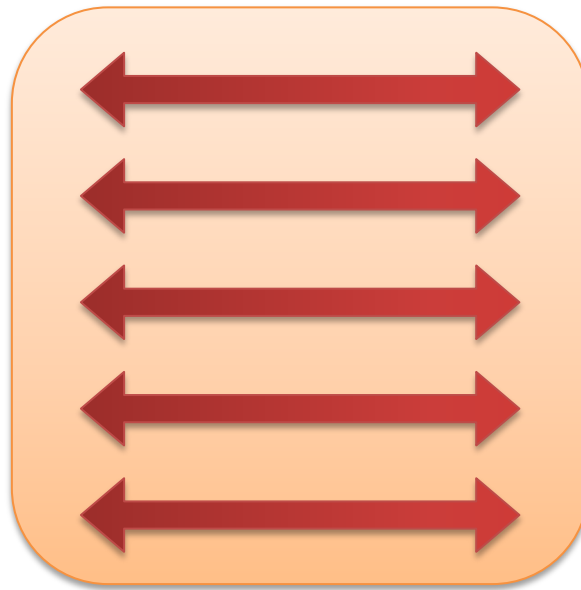
Contraindications

- ✓ Skin allergic to metal (regardless the needle lengths)
 - ✓ Keloidal skin
 - ✓ Severe atopic skin / Rosacea / Couperose
 - ✓ Psoriasis
 - ✓ Patients with diabetes or serious high blood pressure
 - ✓ Asthma, Hay fever and allergies
 - ✓ Drugs associated with photosensitivity
 - ✓ A blood clotting disorder (hemophilia)
- ※ Usage should be decided by judgment of practitioner.

How to Roll



Vertically

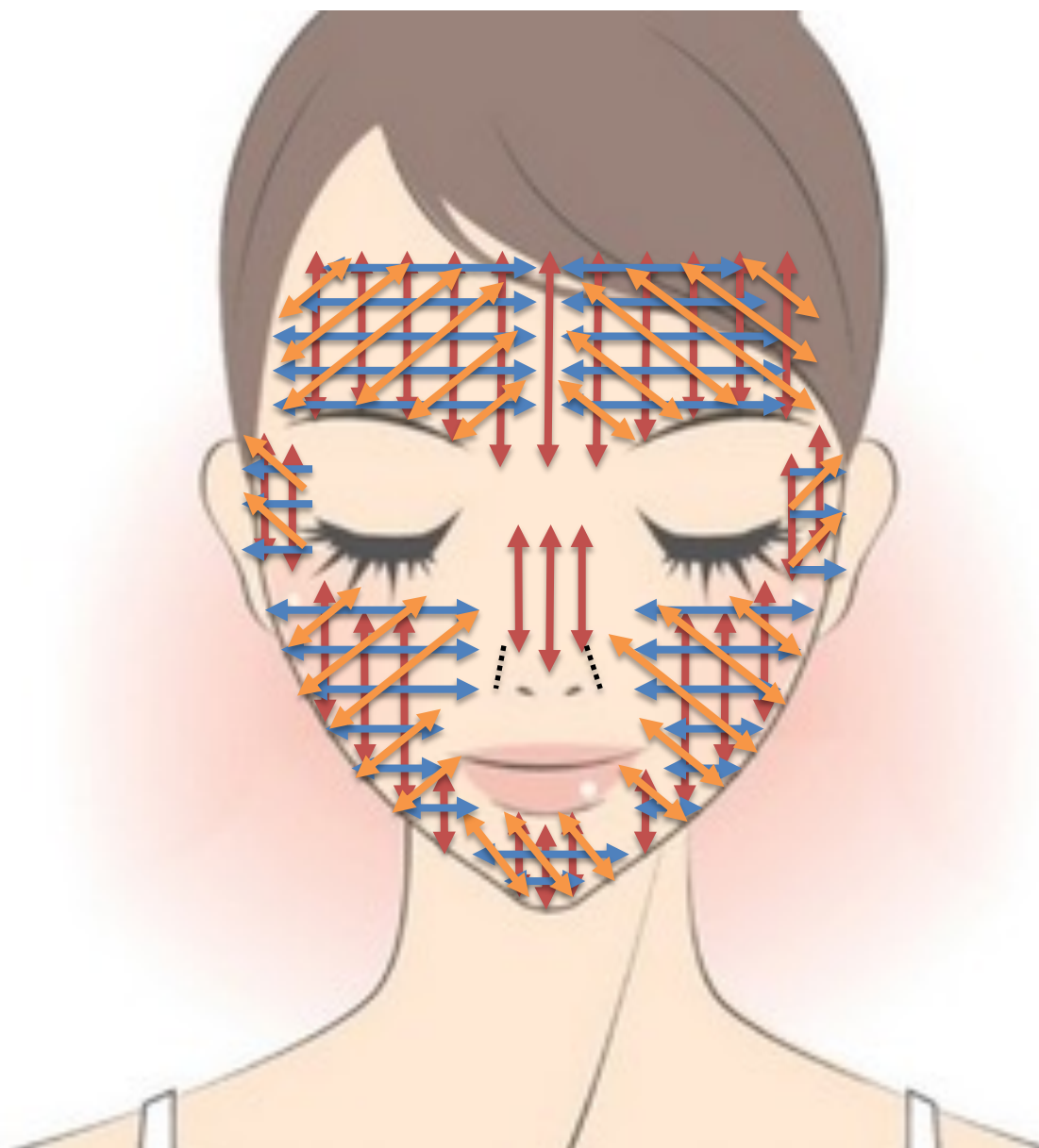


Horizontally



Diagonally

How to Roll



Notice on Practitioners

1. Low Pressure - forehead, around the eye and philtrum, where there are many pain sensing points.
2. Rolling – 10 minutes rolling is recommended
3. Slow rolling- helps reduce pain for patient and prevent scratching
※ zigzag, jumpy and curving rolling should be avoided.

4. Treatment interval

Needle length	Interval
0.25mm	Once a week
0.50mm	Once every 2 weeks
1.00mm	Once a month
1.5mm ~ 2.00mm	Once every 6 weeks to 2 months

GENOSYS Roller is for a single use.

Notice on Clients

1. Everyday **Sun block cream** should be applied on the skin.
2. The importance of **Hydration** must be emphasized to patient.
With 2.0mm roller treatment → maximum 1 week.
With 0.5mm roller treatment → 2~4 days.
3. When using post-care products, tingling sensation can be felt. (for 1~2 days)
4. For a day or two after treatment, artificial heat (hot bath, sauna etc.) should be avoided.
5. The importance of Hydration must be emphasized to patient as home care.
(For max. 1 week, double the quantity of moisturizing cream being used.)
※ Refrain from swimming for 1~2 days.



GENOSYS
Needle Pen-K

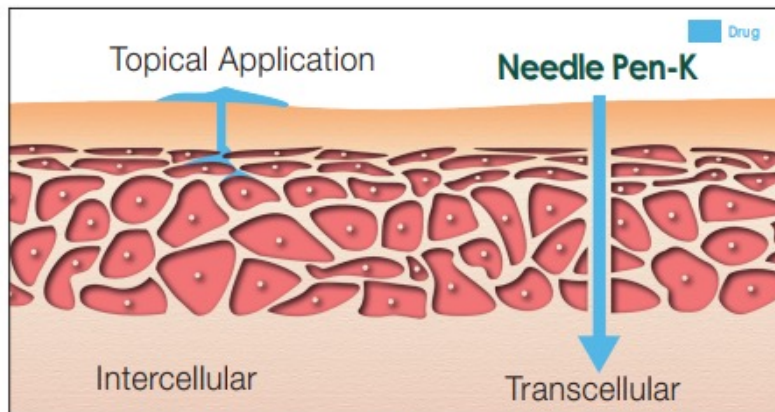
*GENOSYS Needle Pen-K is
an automatic device for microneedling therapy.*

GENOSYS

GENOSYS NEEDLE PEN-K

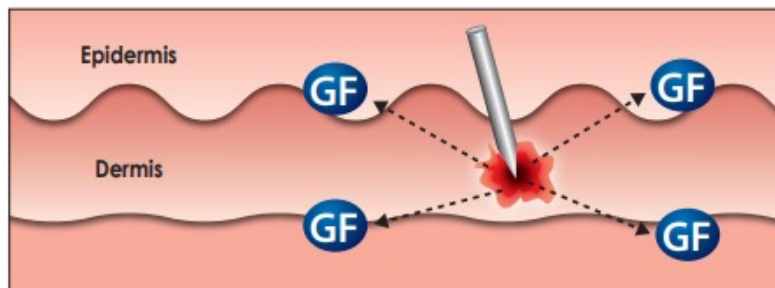
GENOSYS NEEDLE PEN-K is an **automatic device for microneedling** therapy.

It increases the absorption rate of active ingredients of skin care products by creating physical pathways through skin. And it promotes collagen and elastin induction through natural wound healing process of skin.



[Transdermal Drug Delivery]

- ▶ Promotes penetration of active ingredients directly into skin by making micro-channels

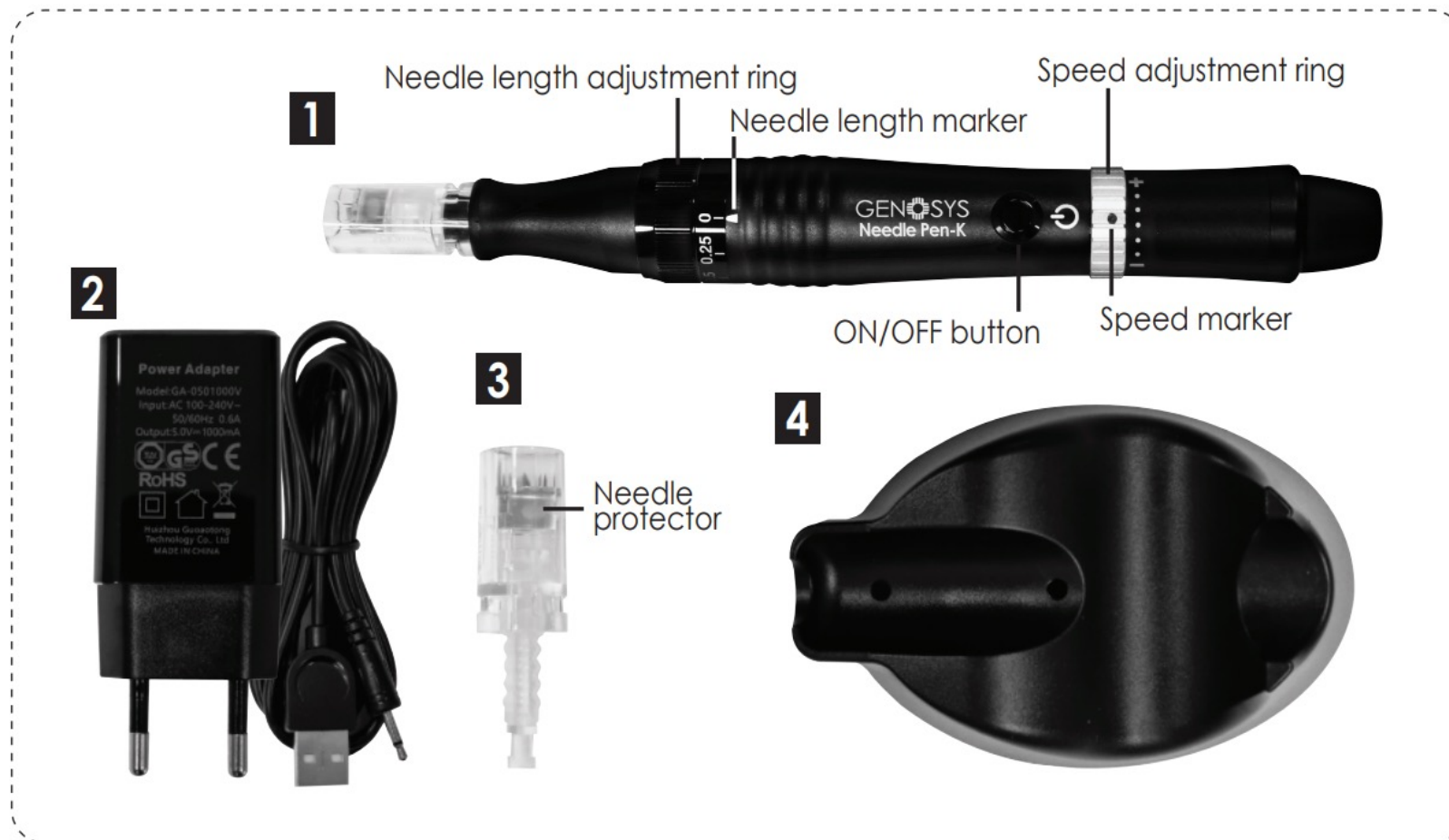


[Natural wound healing process and collagen induction]


- ▶ Promotes collagen induction by inducing skin's natural wound healing

Components

1. Needle Pen-K
2. Adapter
3. Needle Cartridge (2pcs)
4. Cradle



Specifications

	Specifications	GENOSYS Needle Pen-K
	- Type of Needle	Disk type
	- Thickness of Needle	0.2mm
	- Number of Needle	16ea
	- Material of Needle	SUS 304(H)
	- Sterilization of Needle	EO sterilization
	- Adjustable Speed	5,500 RPM ~ 7,500 RPM
	- Breakage/falling out of Needles during Treatment	None
	- Use of Chemical Glue	Not used
	- Country of Origin	Made in Korea

Features



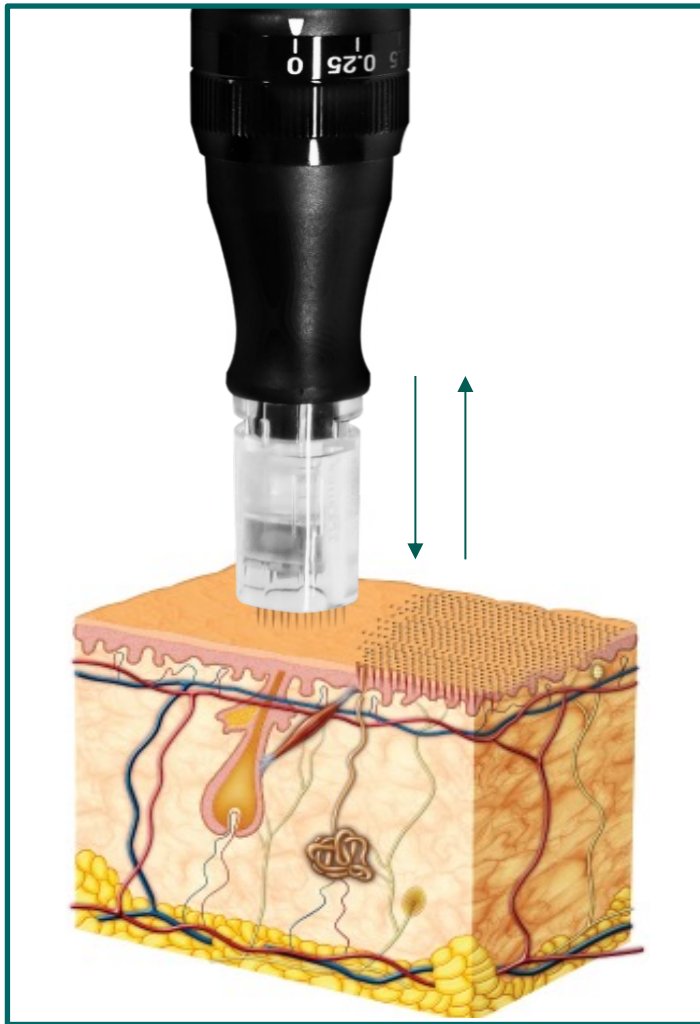
Disk type needle:

Each metal disk has four needles. And four disks compose one needle cartridge. When pricking the skin with the disk needles, the needles do not give severe damage to the skin and can be prevented from being broken.



Cutting shape of needle – hexagon: The circumferential surface of the drum is configured to form a polygonal cross-section of at least six sides instead of a circular cross section, so that, when pricking the skin with the needles, the contact surface of each needle relative to the skin can be reduced, thus minimizing the pain.

Features



Sterilized needles: hygiene, safety

Adjustable needle length-0.25mm~2.00mm: According to the purpose of treatment, needle length can be adjusted, which allows for more effective and affordable treatment for a patient with a multitude of skin conditions requiring different length needles.

Rubber spring of needle cartridge: It prevents fluids from flowing into the device during the treatment.

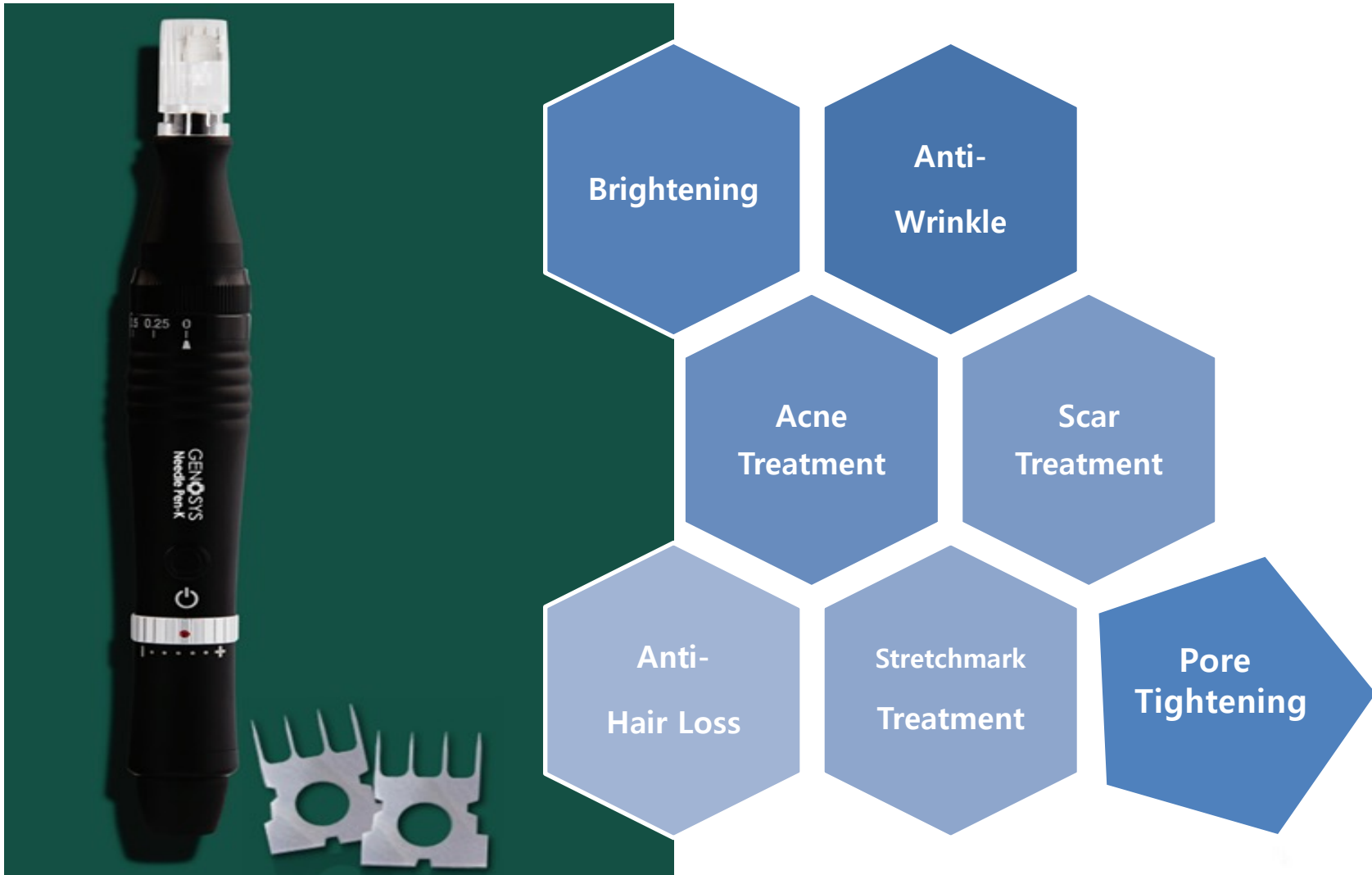
Features

Automatic pause:

If you put the device on the cradle while in use, the device will stop working for a while, and it will start working automatically when you remove it from the cradle. This enables the convenient use of the device without having to turn the device on/off during the treatment.

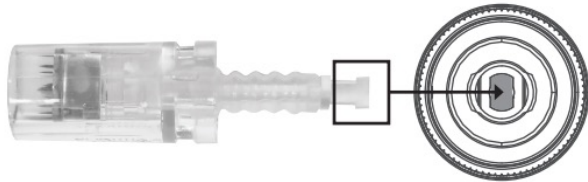


Effects



How to Operate

1. Open the sterilized pouch of needle cartridge.
2. Align the bottom of the needle cartridge with the groove inside the device, and then press the needle protector down.



3. Turn the needle cartridge counterclockwise to fasten it to the device.



4. Choose the proper needle length.
5. Power ON/OFF
Press the power button to start or stop the device.

How to Operate

6. Adjustable speed and needle length

1) Speed

Adjust the speed of the device by turning it clockwise or counterclockwise using the speed adjustment ring. The speed varies according to the position of the red dot on the speed control ring. If the red dot is located at '|', it operates at the slowest speed, and if it is located at '+', it operates at the fastest speed.

2) Needle Length

Adjust the needle length by turning the needle length adjustment ring clockwise or counterclockwise to position the needle length marker at the desired needle length. Needle length can be adjusted while the device is operating.

7. Automatic pause

If you put the device on the cradle while in use, the device will stop working for a while, and it will start working automatically when you remove it from the cradle. To use the 'pause' function, place the device on the cradle frame as shown in the image below.

Guide on Treatment Technique

Aesthetic purpose (0.25~0.5mm)

When using the device to increase the skin absorption of active ingredients with rather short needles, one-way gliding technique is recommended.

* It may appear that there are scratches on the skin after treatment, but these wounds will be recovered through a normal regeneration process.

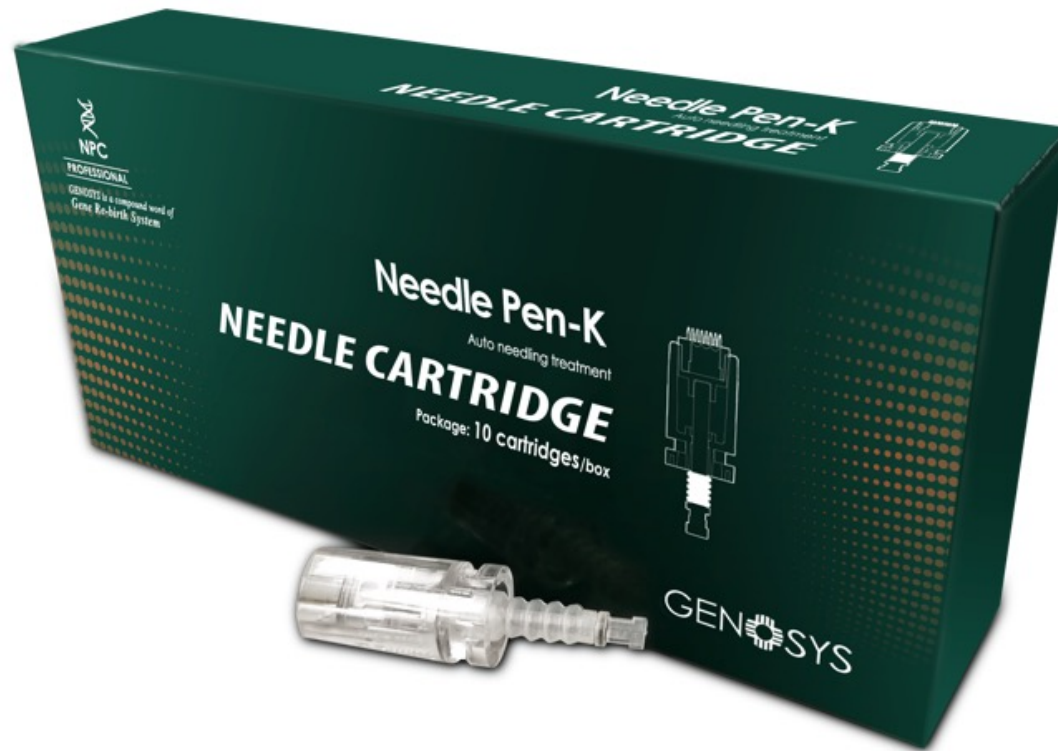
Medical Purpose (1.0~2.0mm)

When using the device for medical treatment such as scar and wrinkle treatment with rather longer needles, stamping technique is recommended.

Guide on Needle Length and Speed

Treatment Area		Needle Length	Speed
Forehead		0.25mm ~ 0.5mm	3~4
Glabella		0.25mm ~ 0.5mm	3~4
Around Eyes		0.25mm	2~3
Nose	Ala	0.25mm ~ 0.5mm	1~3
	Apex, Nasal Bridge	0.25mm	3~4
Philtrum		0.25mm	3~4
Cheek Bone		0.5mm	5~7
Cheek		0.5mm ~ 1.5mm	3~7
Scar		1.0mm ~ 1.5mm	5~7
Stretch Mark, Cellulite		1.0mm ~ 2.0mm	5~7

Needle Cartridge



Components:
Needle Cartridges of Needle Pen-K
(10pcs)

Manual or Device?

Advantages of Manual Roller

Single Use
Faster treatment
Needles do not hook scar tissue
Pressure can be adjusted depending on area

Advantages of Device

Variable depth adjustment
Easier to treat small area
Tips cost less than rollers



*** Referred to "The Concise Guide to Dermal Needling, Dr. Lance Setterfield"

Myths

1. Needles tear skin while devices are less traumatic?
 - With device, maceration of skin can occur
 - Gliding or Stamping technique cause both trauma
2. With device, treatment is faster?
3. Only with device, 90° penetration is available?
 - Needles in a roller come around into a 90° position during rotation as well
 - The device should be held perpendicular to the skin

*** Referred to “The Concise Guide to Dermal Needling, Dr. Lance Setterfield

Clinical Trial

Comparative Study to Evaluate the Efficacy of Two Microneedling Therapies for Acne Scar Treatment

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CONCLUSIONS

The manual microneedle roller and automated microneedle stamp are comparably helpful in reducing the appearance of acne scars.

Treatment protocol

The research subjects were instructed to discontinue using any cosmetic products on their face 48 hours before the start of the study. They were subjected to four months of treatment (4 sessions with a microneedling procedure at 28-day intervals). Skin firmness, elasticity, texture, and erythema were monitored during each visit. The face was thoroughly cleansed with a cleanser, and a topical anaesthetic cream (EMLA® lidocaine and prilocaine, AstraZeneca, U.K.) was applied to the treatment area. Microneedle devices (GENOSYS, DTS MG Co., Ltd., Republic of Korea) with 1.5mm-long needles were applied in 3 directions with a solution for 10 min. (Fig. 2). During the study, research subjects were instructed to apply moisturizing cream and sunscreen products at home daily.

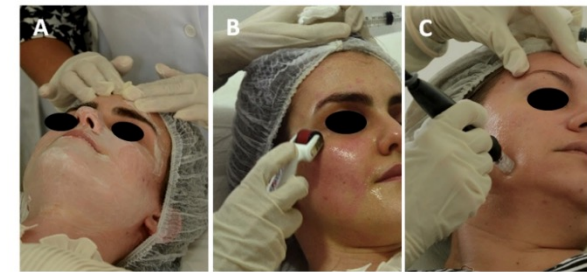


Fig. 2. Representative photographs of a subject treatment protocol. (A) Topical anaesthetic application, (B) manual microneedle roller application, and (C) automated microneedle stamp application.

Cutometry measurement

Before the beginning of the measurements, the research subjects remained for 20 minutes in a climate-controlled room at $22 \pm 2^\circ\text{C}$ and $55 \pm 5\%$ relative humidity. Skin firmness and elasticity were carried out using a Cutometer MPA 580-probe, with an opening of 2 mm in diameter, attached to the Multi Probe Adapter MPA-580 (CKeletecronic, Germany). The measures were performed using 5 cycles of 5 seconds of suction, followed by 5 seconds of relaxation and pressure of 400 mbar. Three cutometry measurements were carried out on the site each evaluation time.

How to differentiate Genuine from Fake

Disassembled image of Chines Copy Product



Disassembled image/analysis of Chines Copy Product



Hook like needles

– can cause skin scratch

Thick triangle needles

– can create crevas like woond

Long healing period

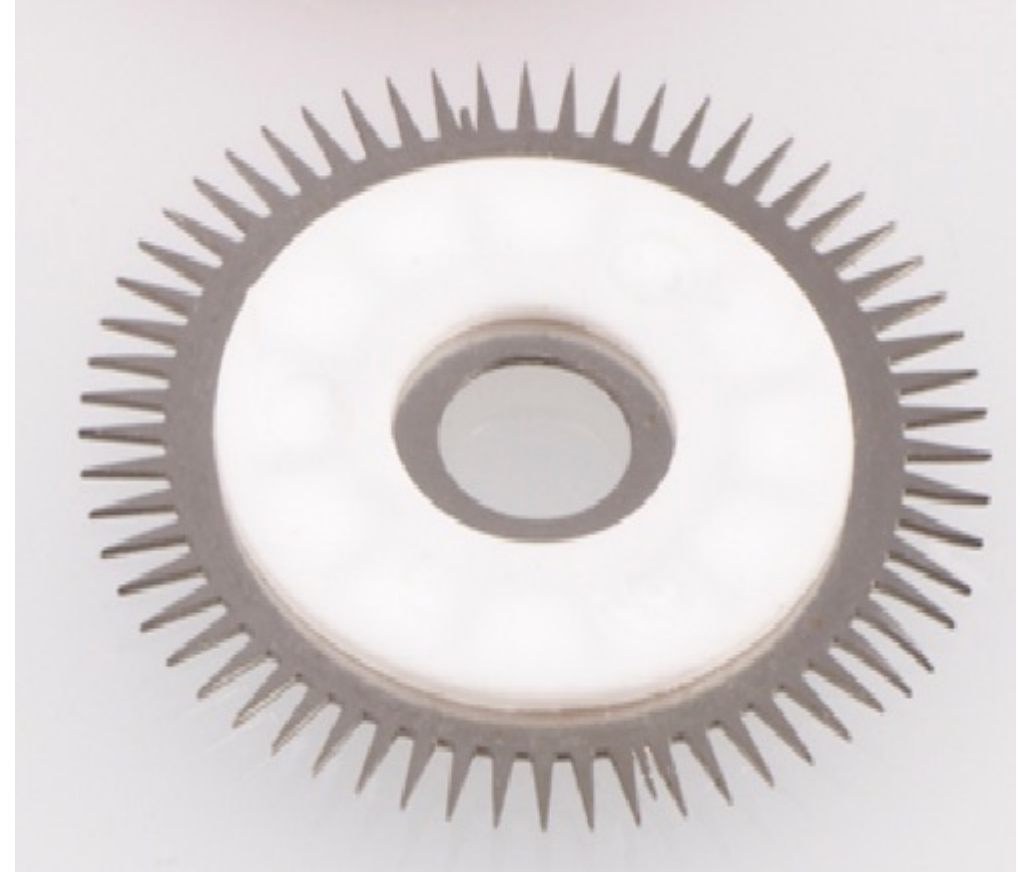
-Maybe no healing!!!

Regularity of needle is not stable

Comparison of Disks- Original vs Copy



Original Disk of DTS



Copy Disk of Chinese
manufacturer

Product Image- DTS



Product Image- Copy product



Comparison of Packaging- DTS vs Copy



<DTS>

- Sterilized blister packaging
- With user`s guide



<Copy>

- Plastic case without sterilizing
- No user`s guide -> if the product is CE & FDA certified, without user`s guide, products cannot be sold

Ingredients to avoid

- ✓ Parabens – linked to skin sensitivity and allergies
- ✓ Fragrance – low molecular, allergenic
- ✓ Surfactants – irritation
- ✓ Pigments – allergies and skin irritations

*** Referred to “The Concise Guide to Dermal Needling, Dr. Lace Setterfield

Provide a System!

* Before Needling

- Prepare the skin prior to damage
- Do not increase infection risk

* During Needling

Avoid ingredients which are not meant to be penetrated into the skin

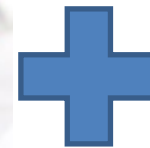
* After Needling

- Prevent excessive inflammation
- Moisturize to prevent TEWL
- Nourish the skin to help healing
 - Prevent bruising



Treatment System Options

✓ Facial treatment – wrinkle / pigmentation / acne scar



Diskneedle Therapy System

Before and After – Acne Scar

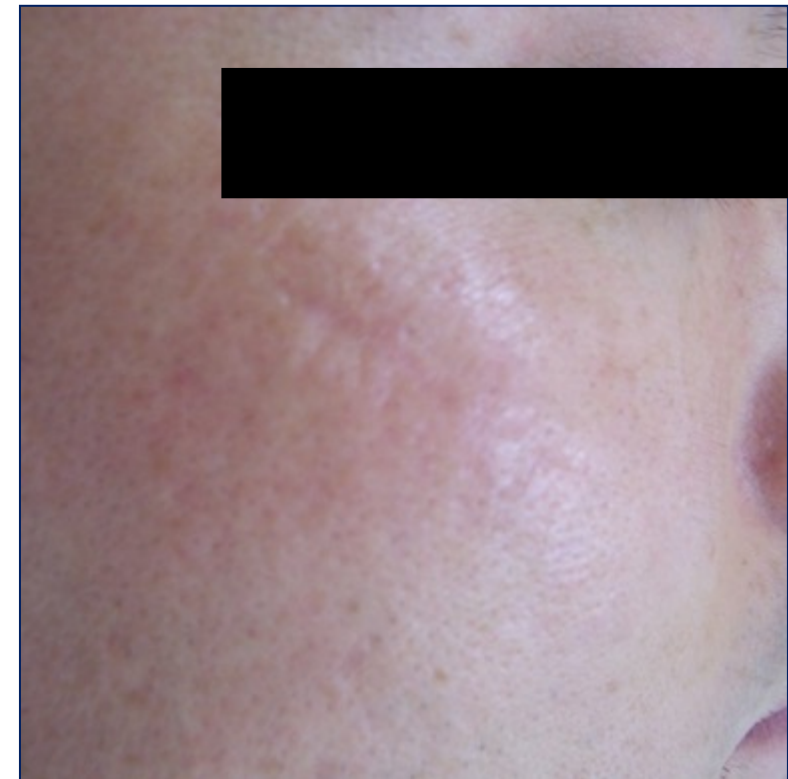
Sex: F
Age: In mid-20
Application: Acne Scar



Diskneedle Therapy System

Before and After – Scar

Sex: M
Age: In early 20
Application: Scar



Acne&Pore(with Roller)



Sex: F, Age: in mid-20

Needle Length: 1.0mm, Time: 4 times (12 weeks)

Treatment System Options

- ✓ Eye Zone treatment – Dark Circle / Crow's feet / Pigmentation



Treatment System Options

- ✓ Alopecia treatment



Combination Treatment Options

MDA

Chemical Peel

Laser / IPL

RF / HIFU

Micro current / Iontophoresis

Meso Lifting Thread

PRP



Recommended brand – Medical / Professional

GENOSYS[®]
professional



Thank You