WONTECH

V-LASER

LONG-PULSED

532NM KTP & 1064NM ND:YAG

LASER SYSTEM

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SPECIFICATIONS

V·Laser

Irradiation Type	Long-pulsed 532nm & 1064nm		
Wavelength	532nm	1064nm	Genesis
Max. Energy	10J	50J	4J
Pulse Duration	1~40ms	5~60ms	0.3ms
Repetition Rate	Up to 3Hz	Up to 5Hz	Up to 10Hz
Spot Size	2,3,4,5,6,8,10,12mm		
Cooling	Sapphire Contact Window		
Dimension	420W x 793.2D x 912.5H mm		
Weight / Power	80kg / 4kVA		

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SMART HANDPIECE

8 Different Cartridges
: 2, 3, 4, 5, 6, 8, 10, 12mm

- De/attachable cartridges for different spot sizes
- Small size : for small sized lesions
- Large size : for bulk heating and shortening procedure time

Contact Cooling System in 4 Steps

: 5˚C, 10˚C, 15˚C, 20˚C

- 5˚C ~ 10˚C : for pigmented lesions
- 15˚C ~ 20˚C : for vascular lesions
- 16mm Sapphire Window
- No Consumables

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MAIN FEATURES

- Dual Wavelengths : 532nm & 1064nm
- Larger Sapphire Window & Adjustable Cooling Temperature
- Flexibility in parameter settings

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LASER PHYSICS

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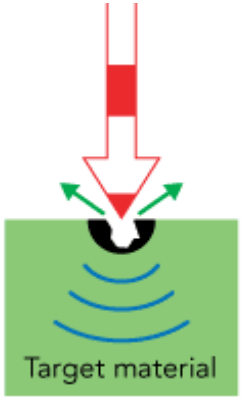
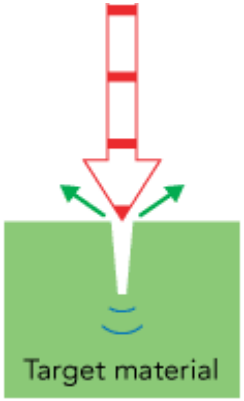
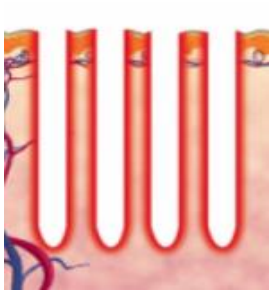
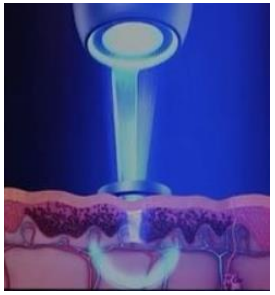
SELECTIVE PHOTOTHERMOLYSIS

- Energy must penetrate skin and absorbed by target tissue
- Pulsing of energy must match or be lower than the Thermal
- Relaxation Time (TRT) of the target
- Must have sufficient energy to have desired effect on target

Target	Thermal Relaxation Time
200-300㎛ Hair Follicle	40-100 msec
capillary	1–10 ms
20-50㎛ of epidermis	5-10msec
1㎛ melanosome	I usec
Basal layer	1.6-2.8ms

MECHANISMS

			
Long-pulsed Lasers	**Fractional Lasers**	**Q-switched Lasers**	**Picosecond Lasers**
			
Coagulation Denaturation	**Ablation Vaporization**	**Photodisruption Photoablation**	**Plasma induced ablation**

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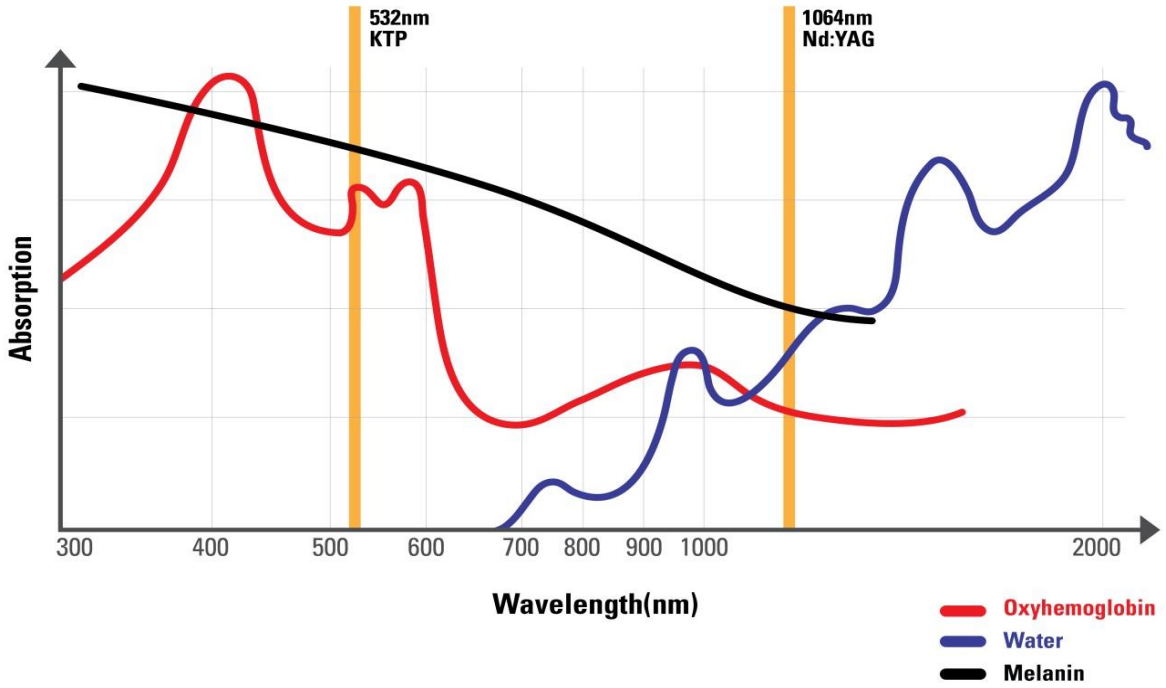
532NM & 1064NM



532nm	1064nm
• High absorption in melanin • High absorption in Hb • Low penetration depth → Superficial reddish vascular lesions → Epidermal pigmentation	• Low absorption in melanin • Low absorption in Hb • Low absorption in water • Greater penetration depth → Deep bluish vascular lesions → Skin Rejuvenation

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INDICATIONS

V·Laser

Vascular Lesions

- Telangiectasia
- Spider Veins
- Leg Veins
- Port Wine Stains
- Venous Lake
- Rosacea

Pigmented Lesions

- Lentigines
- Freckles
- Age Spot
- Poikiloderma
- PIH
- Melasma

Skin Rejuvenation

- Uneven Skin Texture
- Dull Skin Tone
- Large Pores
- Fine Lines
- Diffuse Redness
- Collagen Remodeling
- Skin Tightening

Others

- Hair Removal
- Acne
- Onychomycosis
- Wart

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01 V-LASER FOR VASCULAR LESIONS

V·Laser

Indications

Telangiectasia

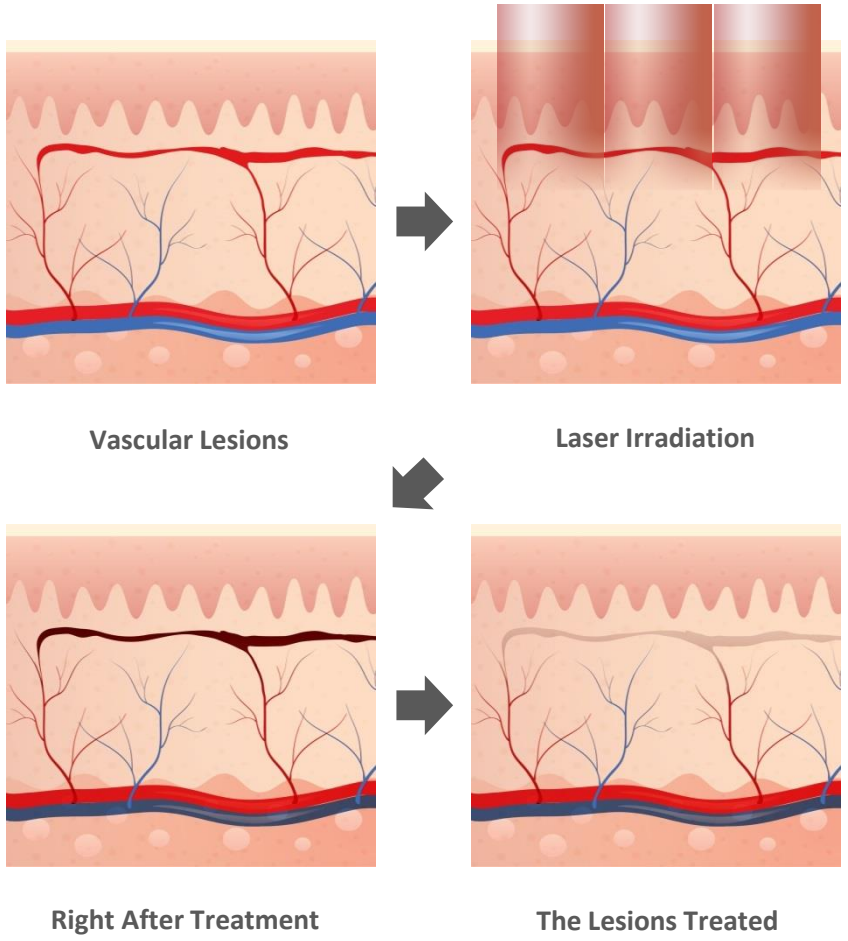
Spider Veins

Leg Veins

Port Wine Stains

Venous Lake

Rosacea



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PULSE DURATION FOR VASCULAR LESIONS

V·Laser

- **532nm**

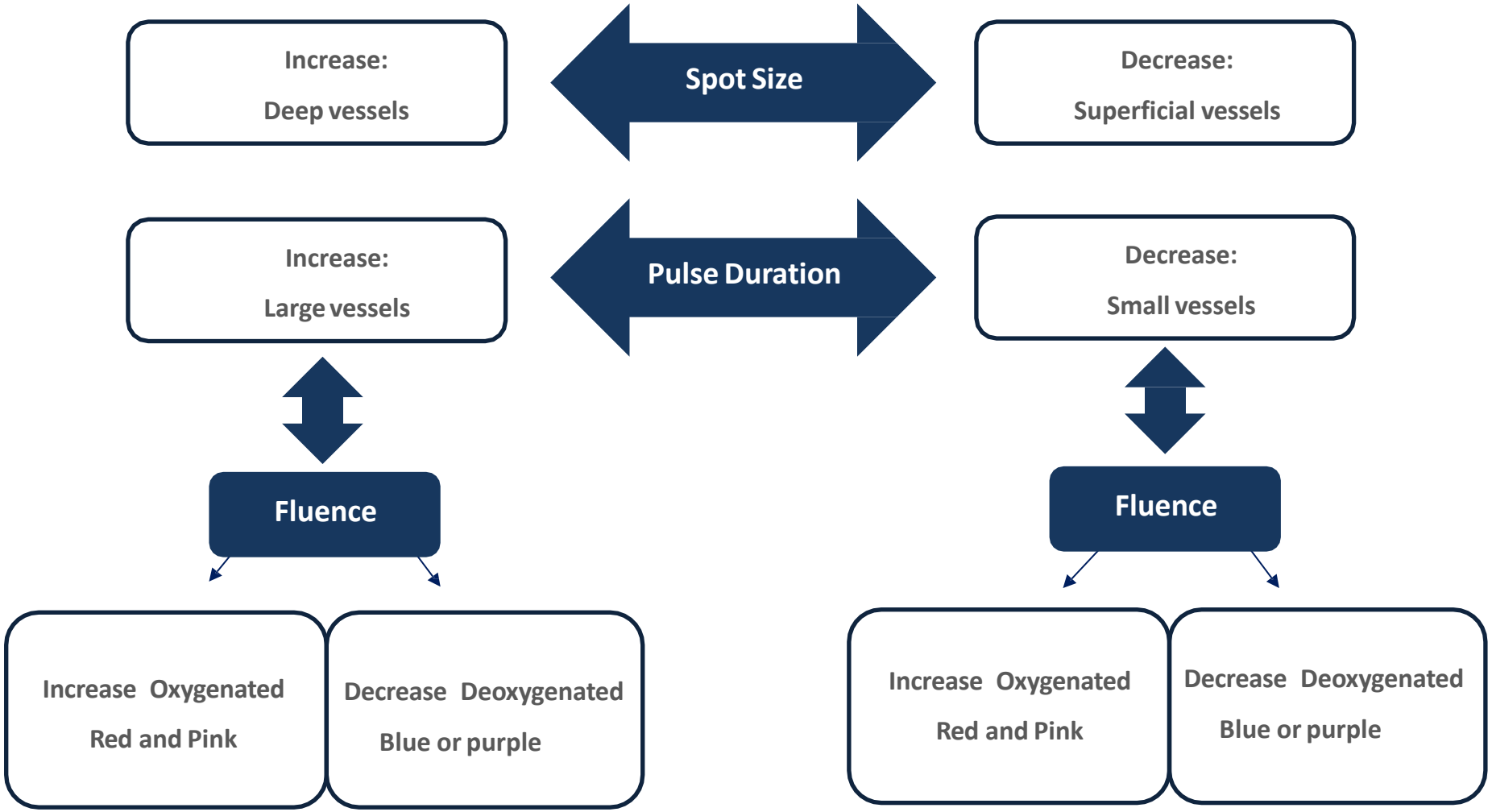
Lesions	Fluence [J/cm^2]	Duration [ms]	Spot [mm]
Teleangiectasia (less than 1 mm)	150-200	5-10	2
Venulectasia (1-2 mm diameter)	150-180	20	3-4
Reticular vein (more than 2 mm)	120-160	30-40	5
Cherry angioma	150-170	10	3-4

- **1064nm**

Lesions	Duration
Teleangiectasia (about 1mm)	10-12ms
Diffuse Redness	10ms and less
Acne Redness	About 5 ms
Hemangioma	1-3ms (needs purpura)

VASCULAR LESION TREATMENT GUIDELINE

V·Laser



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02 V-LASER FOR PIGMENTED LESIONS

V·Laser

Indications

Lentigines

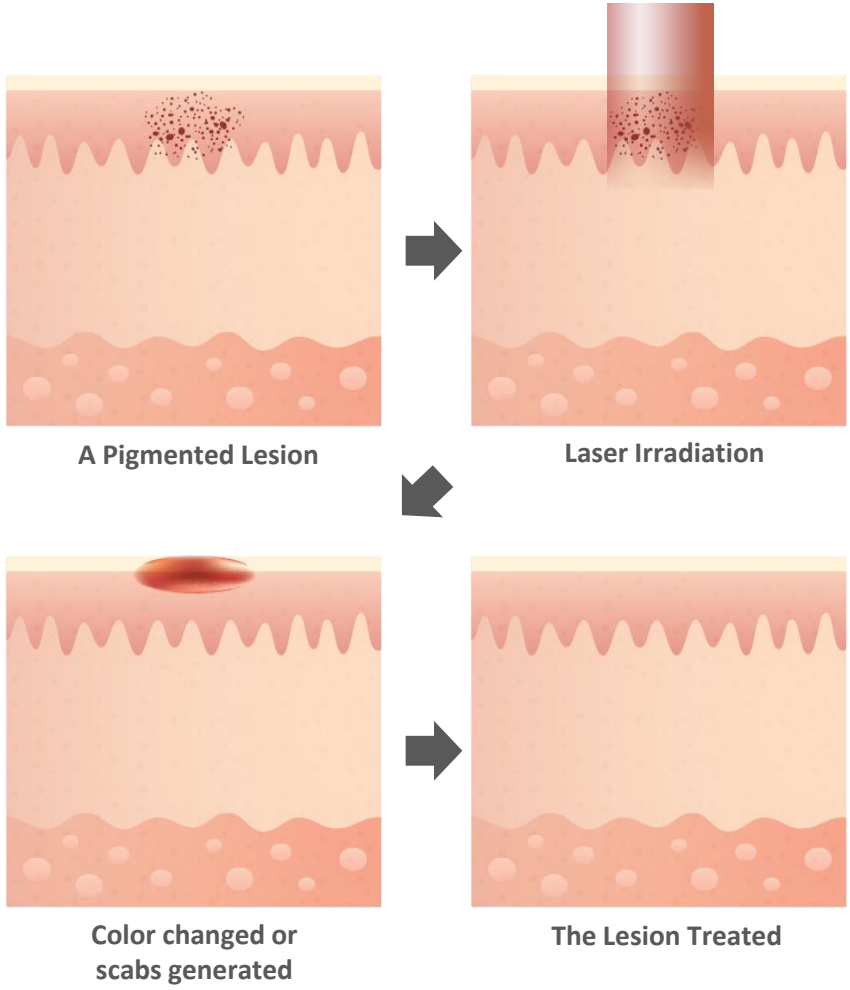
Freckles

Age Spot

Poikiloderma

PIH

Melasma



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PULSE DURATION FOR PIGMENTED LESIONS

V·Laser

Lesions	Fluence [J/cm^2]	Duration [ms]	Spot [mm]
Freckles	2-4	9-10	3
Solar Lentigines	3-5	10	10
Melasma / PIH	8-10	5-9	10-20
Poikiloderma	8	7-11	8-15

03 V- LASER FOR SKIN REJUVENATION

V·Laser

Indications

Uneven Skin Texture

Dull Skin Tone

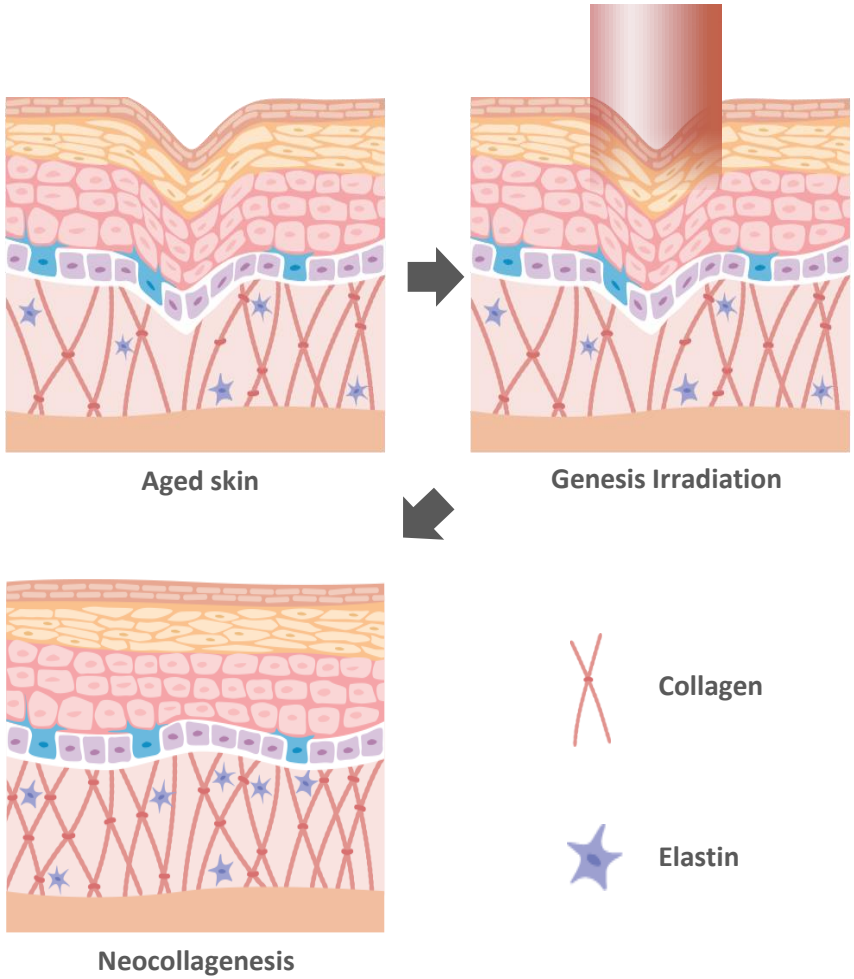
Large Pores

Fine Lines

Diffuse Redness

Collagen Remodeling

Skin Tightening



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GENESIS

What is Genesis?

- Bulk heating using a 300-microsecond 1064 nm
- Gentle heating to the dermis and stimulating fibroblasts for neocollagenesis
- Skin revitalization and skin rejuvenation
- Improvements in skin tone, texture, large pores and fine wrinkles
- In addition, improvements in scars and diffuse redness

Benefits with Genesis?

- Powerful and stable energy output allows bulk heating up to 42°C
- 12mm spot size helps to reduce procedure time
- Return to daily activities without pain or downtime
- Synergy effects when combined with 532 nm or/and 1064 nm treatments

04 V-LASER FOR ACNE VULGARIS

532 nm inflamatory reaction

- Selective phototermolisis of blood vessels in inflamatory area
- Photodynamic effect on Propionibacterium acnes (P.acnes)
- Photodynamic effect on sebaceous glands

1064nm Deep dermis penetration

- fluence 30-50 J/cm^2

  duration 10-15 ms

  spot 5-6 mm

CLINICAL BENEFITS

V·Laser

1. Dual wavelength & Genesis

- Both epidermal lesions and dermal lesions can be targeted and treated by dual wavelength
- Skin rejuvenation can also be done by Genesis

2. Appropriate Pulse Width

- Selective photothermolysis can be done by matching the pulse width with TRT (Thermal Relaxation Time) of the lesion

Target	Thermal Relaxation Time
200-300㎛ Hair Follicle	40-100 msec
100㎛ PWS Blood	5msec
20-50㎛ of epidermis	0.2-1msec
1㎛ melanosome	I usec (1000ns)

3. Variable Spot Size up to 12mm

- A number of spot sizes assurances effective treatments of lesions with various sizes

4. Repetition rate up to 3Hz in 532nm, 5Hz in 1064nm and 10Hz in Genesis

- Different repetition rates guarantee effective and fast treatments of various types of lesions

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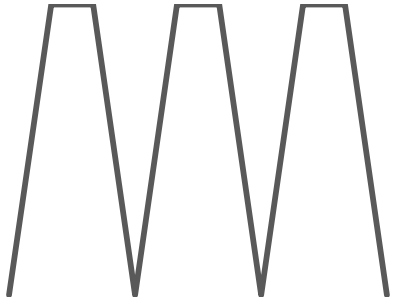
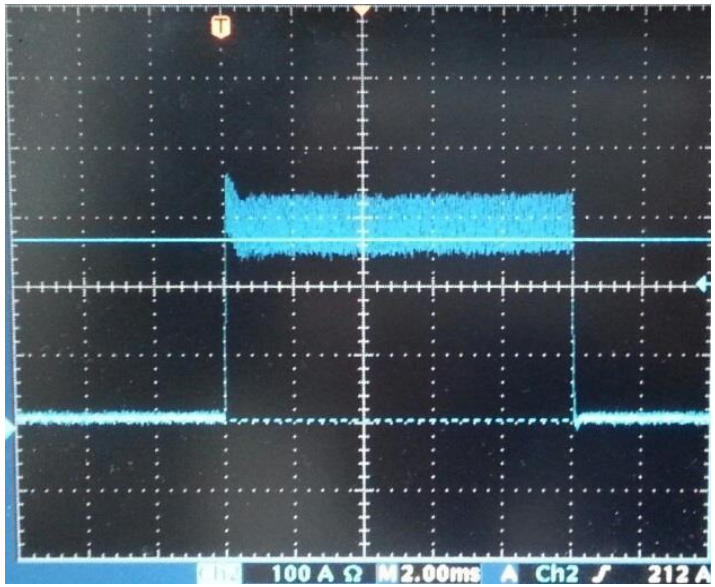
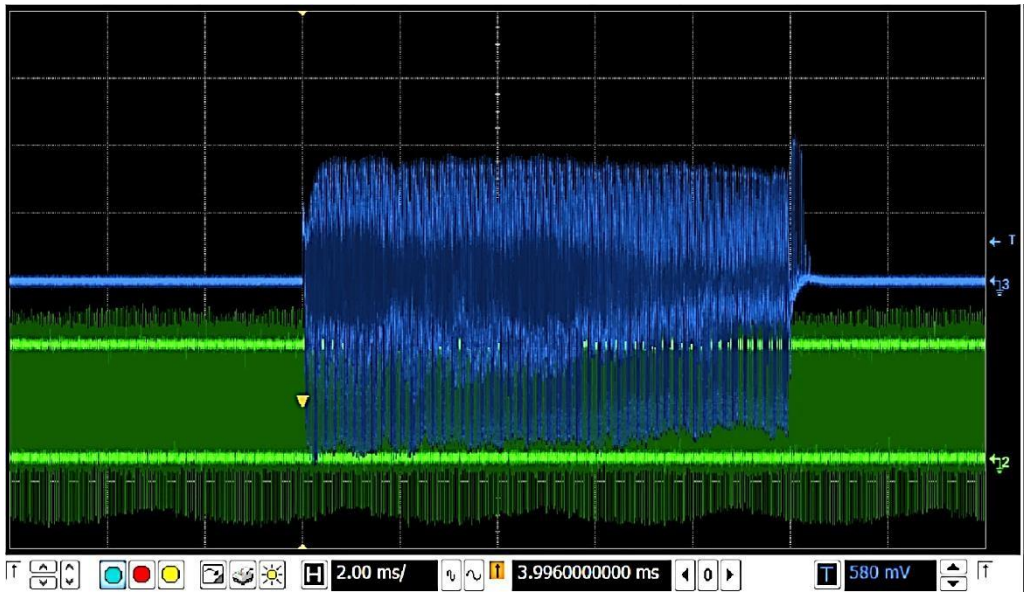
PDL VS KTP

Pulsed Dye Laser (PDL)	KTP
• 585nm : high absorption in Hb02 → effective in vascular lesion treatment	• **532nm : high absorption in Hb02** → effective in vascular lesion treatment
	
• 450µs : high peak power → pulse train (a series of micro pulses) → purpura by photoacoustic shattering of capillary walls, causing red blood cells to leak into the extravascular tissue.	• **1-40ms** → true long pulse → less purpura with minimizing photoacoustic effect on capillary walls of red blood cells leak less

TRUE LONG PULSE



Current waveform entering lamp
10ms



Actual laser output of current waveform
10ms

“V-laser delivers consistent levels of long pulse energy, not a composite pulse”

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WONTECH WEBINAR

V·Laser

W-Webinar 6th

V·Laser,
Main Capabilities of Long-Pulsed 532nm KTP & 1064nm Nd:YAG Laser

SPEAKER

Dr. Zbigniew Matuszewski

Dermatologist, M. D.

Laser Studio in Poland

Medical practice since 1998, with the use of high energy and biostimulating lasers as well as treatments of aesthetic medicine.

MEDYCYNA ESTETYCZNA LASER STUDIO ZBIGNIEW MATUSZEWSKI

VASCULAR LESIONS - FACE

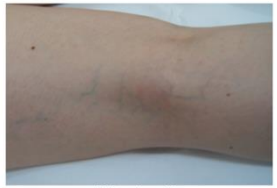

Before


Right After

MEDYCYNA ESTETYCZNA LASER STUDIO ZBIGNIEW MATUSZEWSKI

VASCULAR LESIONS – LEGS – LONG-TERM EFFECTS


Before


3Months After

MEDYCYNA ESTETYCZNA LASER STUDIO ZBIGNIEW MATUSZEWSKI

PHOTOREJUVENATION – LONG-TERM EFFECT


Before


3Months After

MEDYCYNA ESTETYCZNA LASER STUDIO ZBIGNIEW MATUSZEWSKI

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CLINICAL CASE

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CLINICAL CASE

Before & After : Telangiectasia

Before	After 1 Tx Time

532nm, 10mm, 10ms, 6J/㎠, 2Hz

Photographs Courtesy of Widwin Dermatology, Korea

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CLINICAL CASE

Before & After : Telangiectasia

Before	After 1 Tx Time

532nm, 10mm, 10ms, 6J/㎠, 2Hz

Photographs Courtesy of Widwin Dermatology, Korea

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11 CLINICAL DATA

Before & After : Telangiectasia

Before	After 1 Tx Time

532nm, 10mm, 10ms, 6J/㎠, 2Hz

Photographs Courtesy of Widwin Dermatology, Korea

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CLINICAL CASE

Before & After : Cherry Angioma

Before	After 1 Tx Time

532nm, 3mm, 3ms, 10J/㎠, 1Hz

Photographs Courtesy of Widwin Dermatology, Korea

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CLINICAL CASE

Before & After : Diffuse Redness

Before	After 1 Tx Time

532nm, 10mm, 10ms, 6J/㎠, 2Hz

Photographs Courtesy of Widwin Dermatology, Korea

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CLINICAL CASE

Before & After : Acne Redness & Skin Rejuvenation

Before	After 1 Tx Time

532nm, 10mm, 20ms, 7.5J/㎠, 2Hz

Photographs Courtesy of Widwin Dermatology, Korea

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CLINICAL CASE

Before & After : Acne Redness

Before	After 1 Tx Time

532nm, 5mm, 5ms, 5J/㎠ , 1Hz

Photographs Courtesy of Widwin Dermatology, Korea

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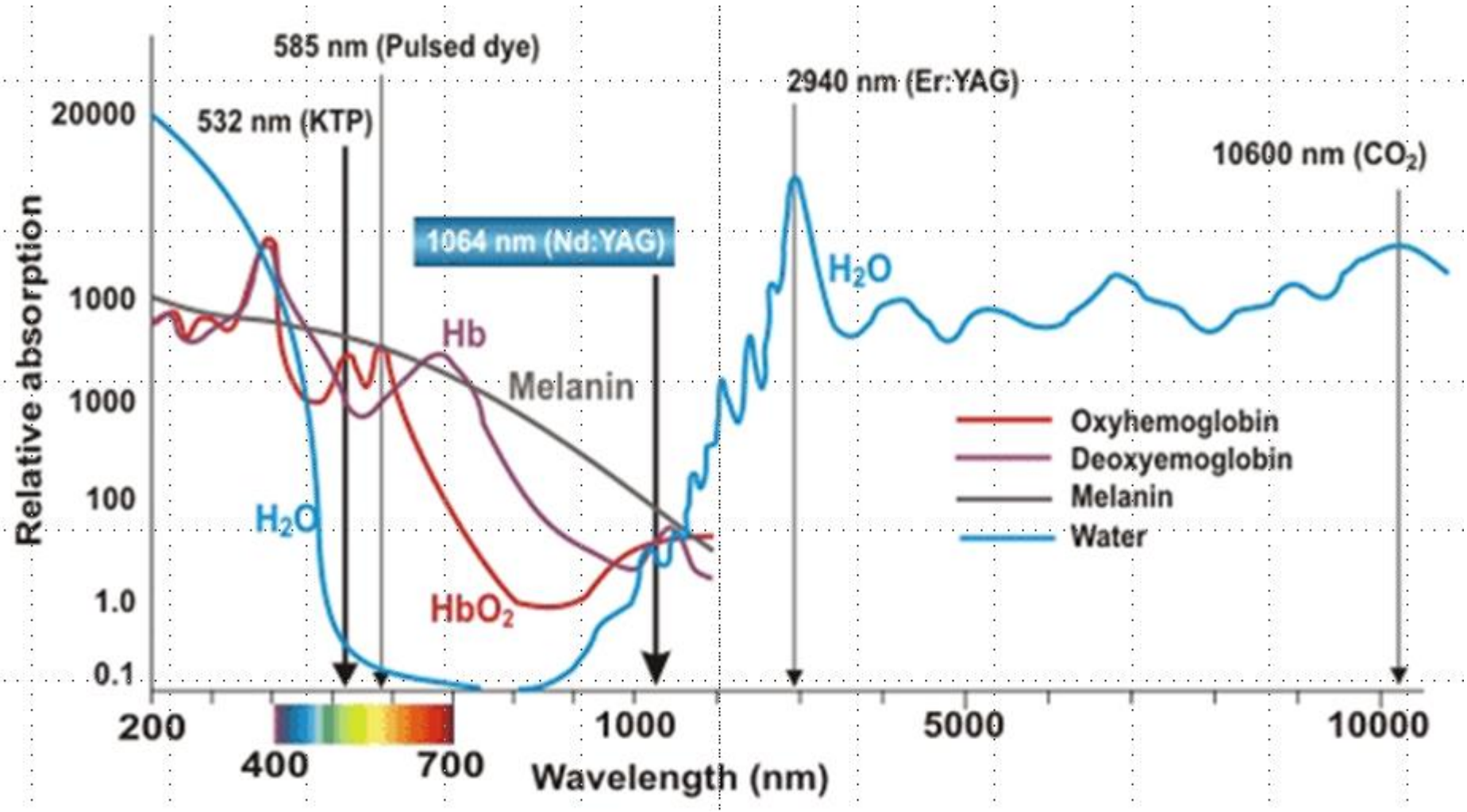
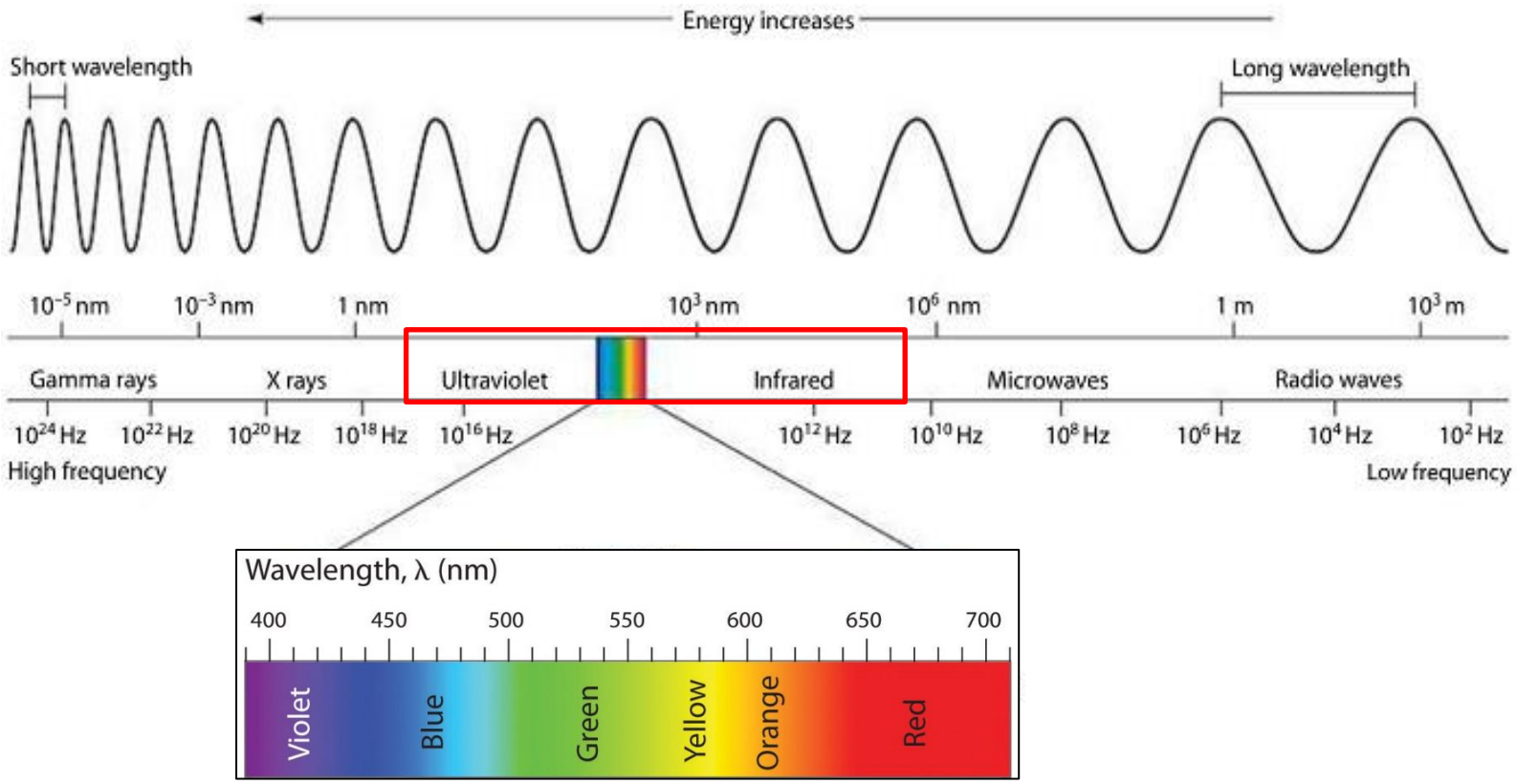
WAVELENGTHS



ELECTROMAGNETIC SPECTRUM



Abbreviation	Full Name	Range
LASER	Light Amplification by the Stimulated Emission of Radiation	Ultraviolet – Ifrared – Near-Infrared Ray
RF	Radio Frequency	3kHz – 300MHz
HIFU	High Intensity Focused Ultrasound	60kHz – 7MHz

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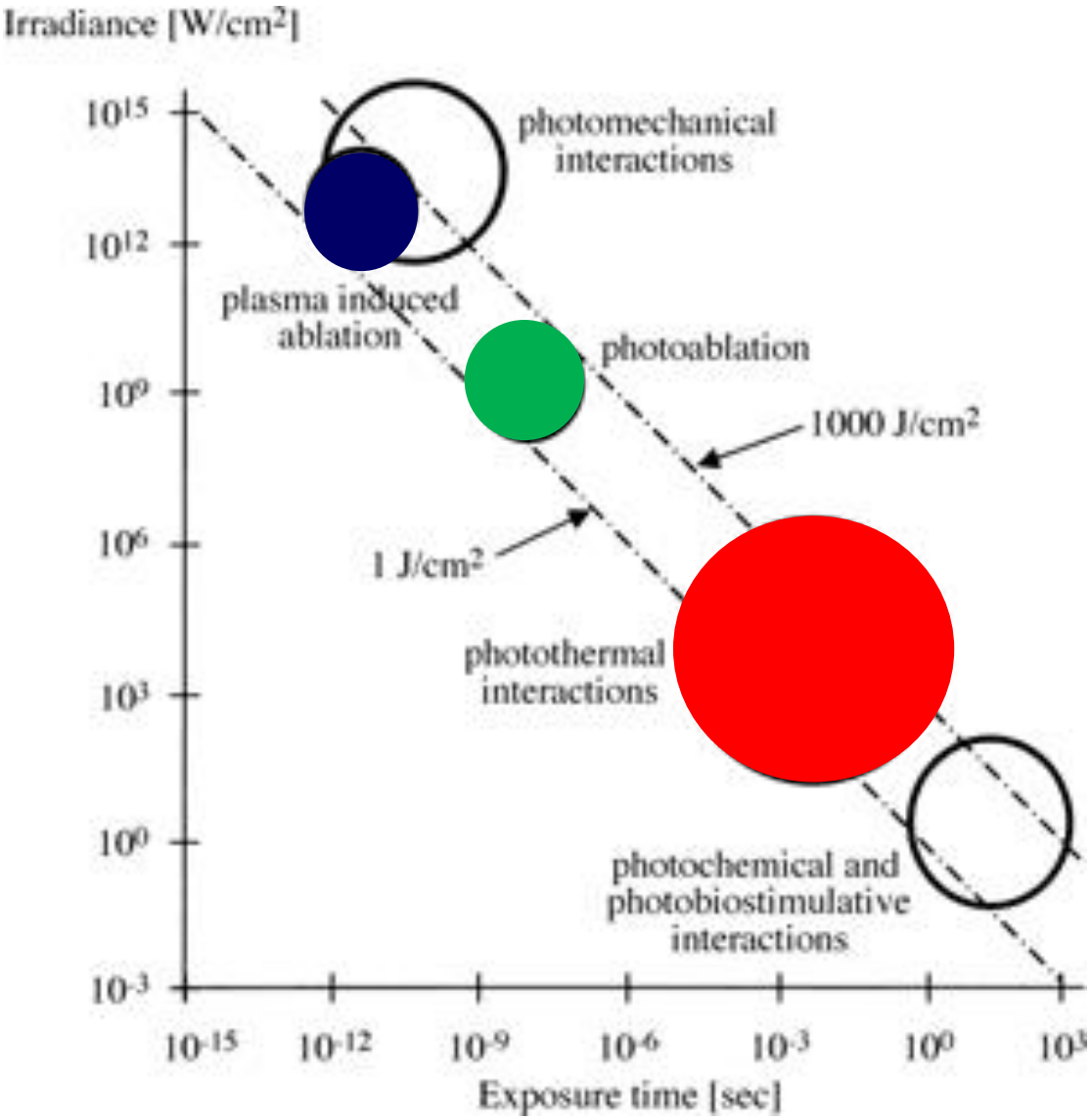
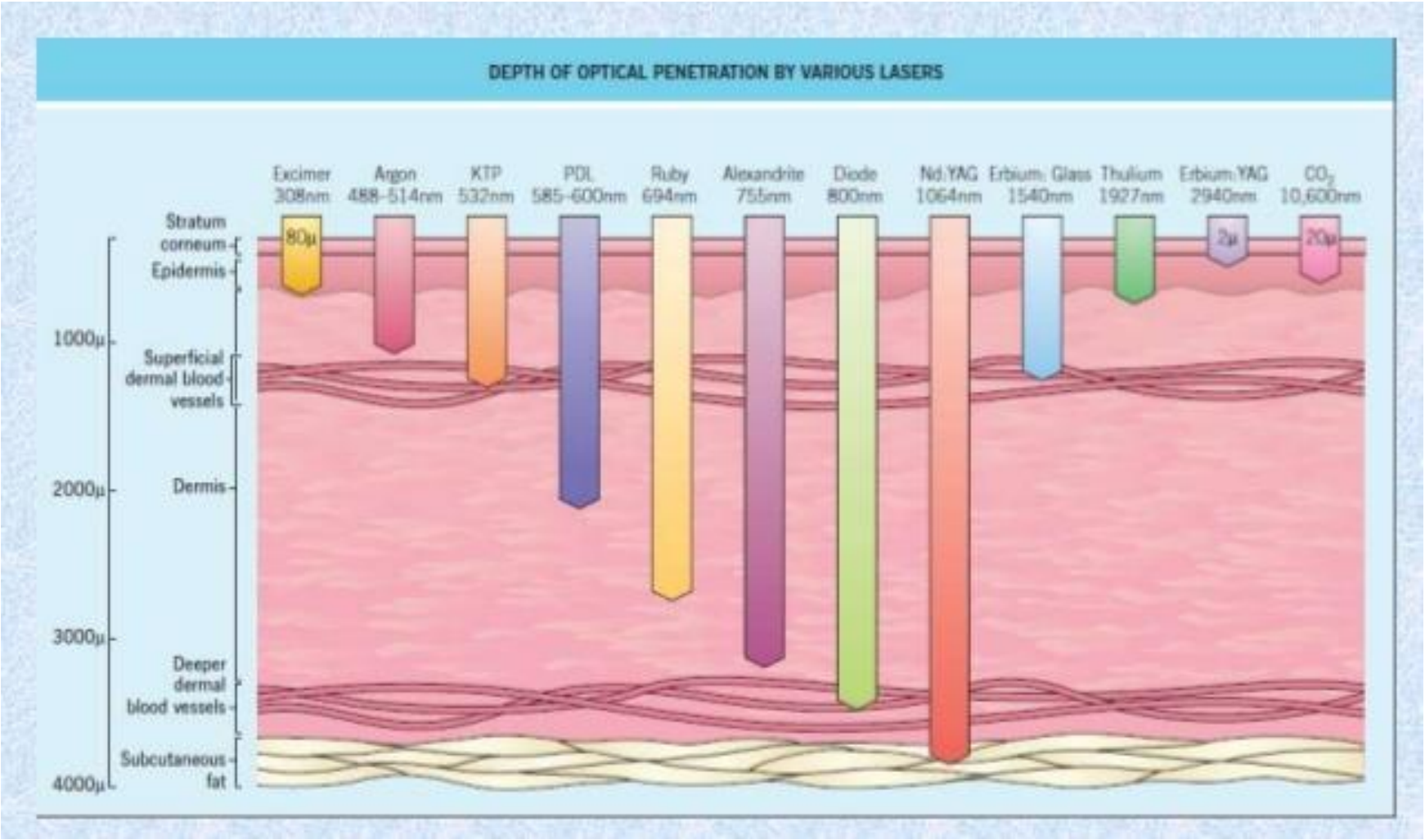
LASER CLASSIFICATION



OPTICAL PENETRATION DEPTH



THANK YOU

Cryomed Education

WONTECH Co., Ltd.

Headquarters
64 Techno 8-ro, Yuseong-gu, Daejeon, Korea

Pangyo-Branch
22, Daewangpangyo-ro 712 beon-gil, Seongnam-si, Gyeonggi-do, Korea

Wontech LLC
200 Lakeside Dr., Suite 260. Horsham, PA 19044

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