

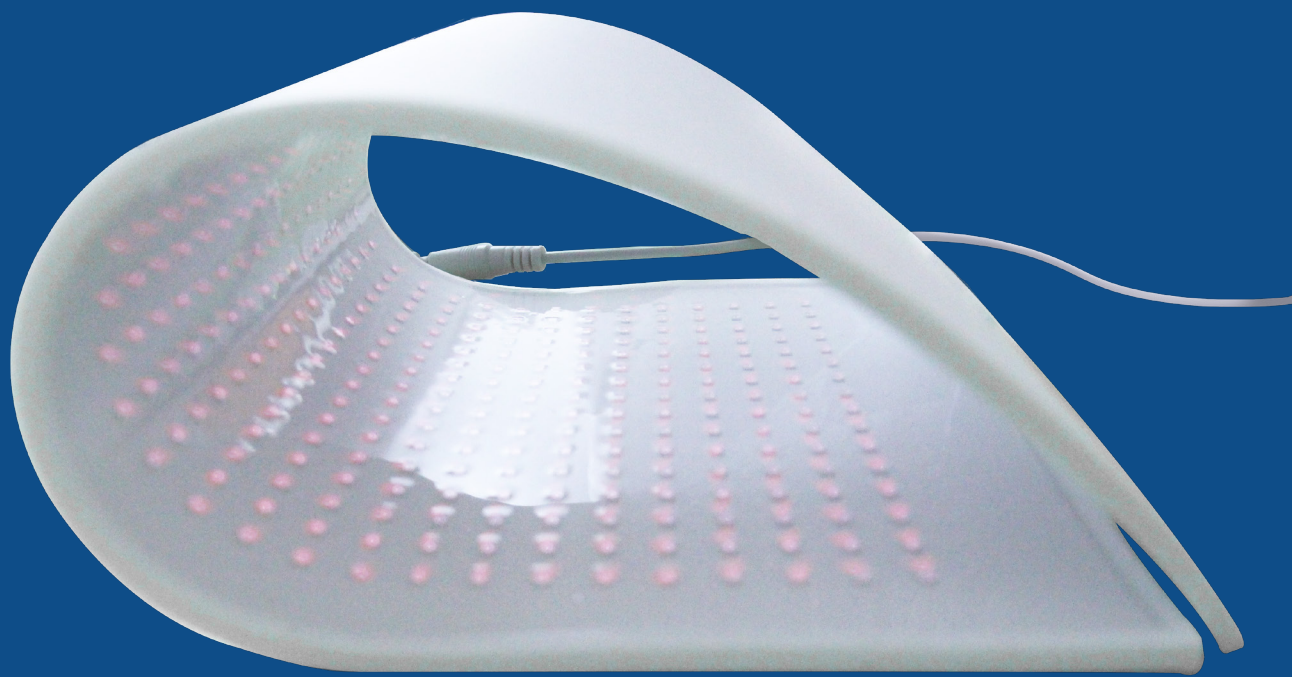
Abdomen PBM Irradiator

HA-P01

Photobiomodulation
(PBM) Technology
Homecare Device



Near-Infrared High-technology for your Health



Portable Photobiomodulation (PBM) Technology

Photobiomodulation (PBM) refers to a term in which particular wavelength of light penetrates to the mitochondria in the cells to activate ATP, NO, and ROS production. PBM has been acknowledged as a primary keyword as the future clinical method in the medical subject headings (MeSH) of the research papers published by the US National Institute of Health (NIH).

Product Specifications

Device: Abdomen PBM Irradiator

Irradiation Power: Customizable 7 levels

Power: Input 110V~230V / 50~60Hz

Output 12V 5A max 60W

Applicable region: All parts of the body

Time: Selectable, 30-min or 60-min

Weight: Total 420g

Wavelength: 840-860nm; 930-950nm

Dimension: 400 x 200mm, thickness 6mm

Amount of Chips: Total 544 chips

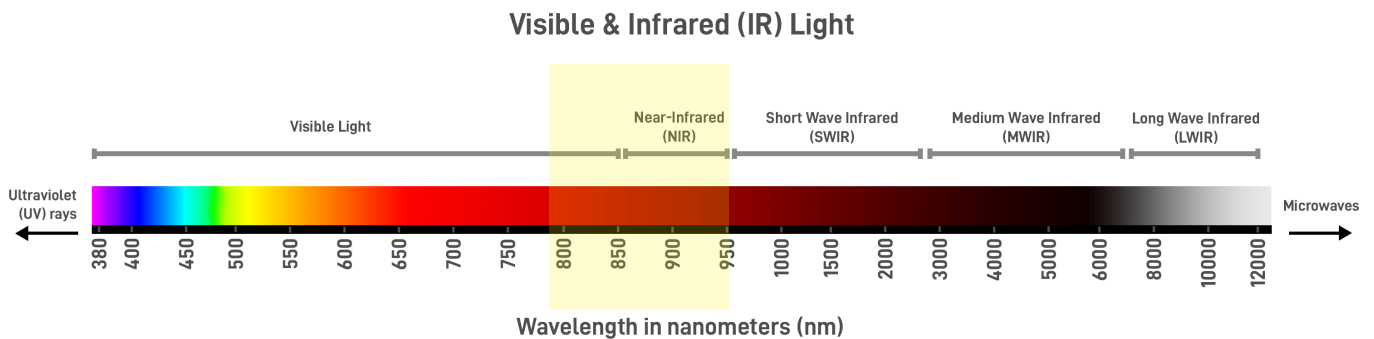
Customizable modes: 8-level Nogier Frequencies



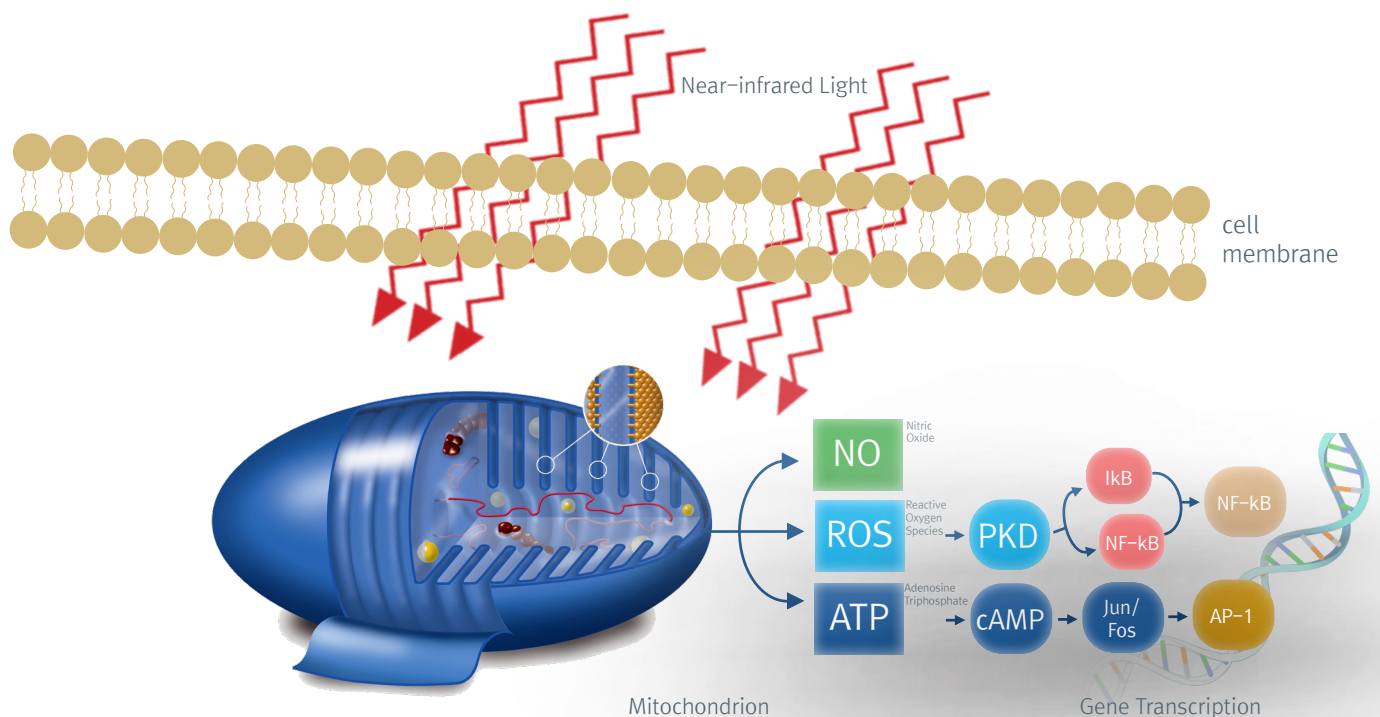
What is PBM?

PBM technology is characterized by the absorption of light absorbers called cytochrome oxidase (CCO enzyme) in cells when tissues are irradiated with specific wavelengths of force, which produce much more ATP.

At the same time, nitrogen oxide (NO) is produced from endothelial cells of blood vessels, which improve blood circulation by increasing the elasticity of blood vessels, and as a result, nutrients and oxygen can be transferred smoothly to cells.

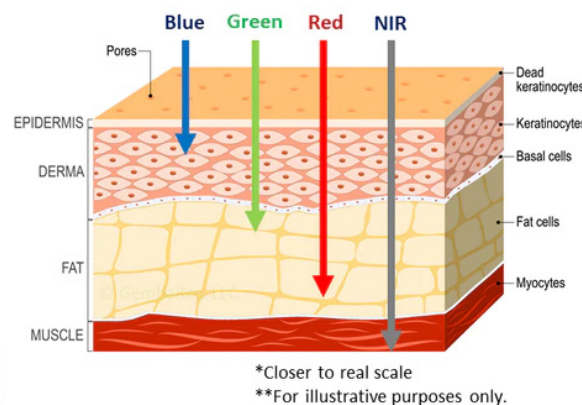
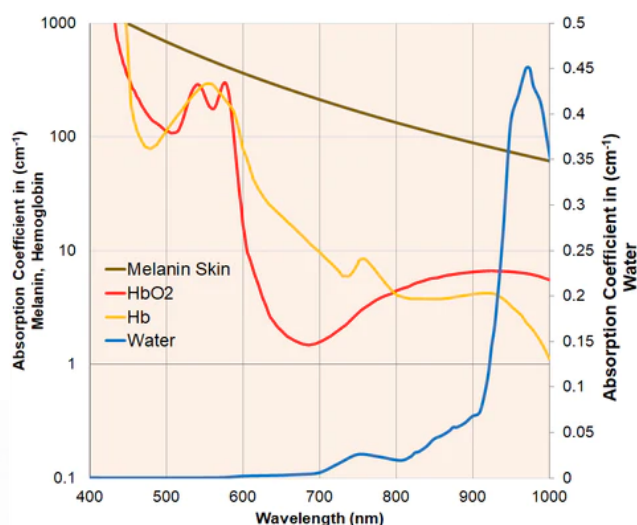


PBM THERAPY MECHANISM



Powerful Healing of Low-level Laser Therapy (LLLT)

Low-level laser therapy typically includes light wavelengths of visible light, generally red light, to near-infrared (NIR) light spectrum. Typically, most studies agree that NIR penetrates much deeper into the skin more than red wavelengths. A review article by Dr. Hamblin stated that red wavelengths (600–700nm) penetrated up to 1mm while NR (780–980nm) penetrated more to 2mm with 63% intensity reaching those depths (Zein, Selting & Hamblin, 2018). Most studies agree that around 810nm offers the best penetration as it is the lowest interesection point of absorption factors (water, hemoglobin and melanin). Our Abdomen PBM Irradiator is equipped with LED chips ranging from 840–950nm.



Optical Window for Skin Absorption Spectrums for Water, Hemoglobin and Melanin

Penetration is mostly wavelength dependent due to the optics of the skin. Optical window is the least absorption by melanin, hemoglobin and water between 600nm to 900nm. (Image retrieved from <https://gembared.com/blogs/musings/how-deep-does-red-and-near-infrared-wavelengths-penetrate-into-the-body-marketing-vs-science>)

Relative Penetration in the Skin

Attenuation down to 1% occurs for light wavelengths of 250–280 nm at around 40 μm depth; for 300 nm at 100 μm ; for 360 nm at 190 μm ; for 400 nm at 250 μm ; for 700 nm at 400 μm ; for 1.2 μm at 800 μm * similar diagram from the following study (Ash, Dubec, Donne & Bashford, 2017). (Image retrieved from <https://gembared.com/blogs/musings/how-deep-does-red-and-near-infrared-wavelengths-penetrate-into-the-body-marketing-vs-science>)

References

- Ash, C., Dubec, M., Donne, K., & Bashford, T. (2017). Effect of wavelength and beam width on penetration in light-tissue interaction using computational methods. *Lasers in medical science*, 32(8), 1909–1918. <https://doi.org/10.1007/s10103-017-2317-4>
- Zein, R., Selting, W., & Hamblin, M. R. (2018) Review of light parameters and photobiomodulation efficacy: Dive into complexity. *Journal of Biomedical Optics*, 23(12), 120901.

PBM THERAPY BENEFITS

Enhancement in the blood & lymph circulation

Blood vessels in healthy young people are elastic. However, as you get older, your blood vessels become less elastic. Therefore, improving blood circulation is the elasticity of capillaries. Cytochromecoxidase (cytochromecoxidase.CCO enzyme) produces NO through a specific parameter source. Nitrogen oxide (NO) produced in mitochondria of vascular endothelial cells improvSes vascular elasticity.



Blood Circulation

Lymph Circulation

Faster Injury Recovery

Pain Relief

Hormonal Balance

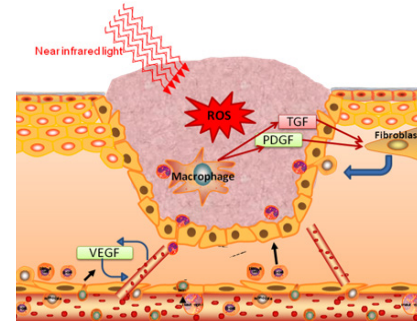
Wound Healing

How PBM therapy works inside the body:

- ✓ Increase in oxygen consumption
- ✓ Increased activity of the mitochondria
- ✓ Increase in ATP and cAMP
- ✓ Release of Nitric Oxide (NO)
- ✓ Short occurrence of ROS
- ✓ Molecular change to the calcium

Wound Healing

Wounded cells exposed to light induce reactive oxygen species (ROS) in which leads to the growth factor expression, including platelet derived growth factor (PDGF) and transforming growth factor as shown in the image. This process fosters increased collagen synthesis, increased blood vessel development, and less inflammation. Such reactions enhances the wound healing.¹



¹Reference: Huang, Y. Y., Mroz, P & Hamblin, M. R. (2009). Basic Photomedicine. <http://www.photobiology.info/Photomed.html>.

Recover from hair loss **Immunity Care**
COVID-19 Prevention & Treatment
Teeth & gum care **Wellness care**

- ✓ Generation of the growth factors
- ✓ Extracellular matrix deposition
- ✓ Increase in the cellular activity
- ✓ Increase in the cell multiplication
- ✓ Suppression of anti-apoptosis
- ✓ Active signaling of the mitochondria

**80% of the
immune cells are
concentrated in
our guts.**





**So, boost your
immune system
through daily
abdomen PBM
therapy**



Flexible + Wide Pad for more versatility

Other Applicable Parts



Tense shoulders

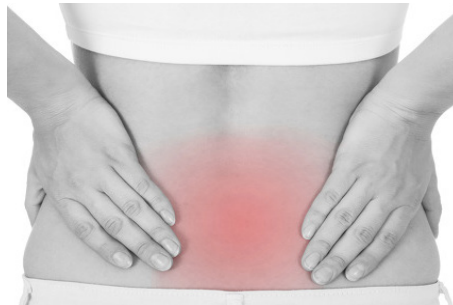


Sore Back

and more!

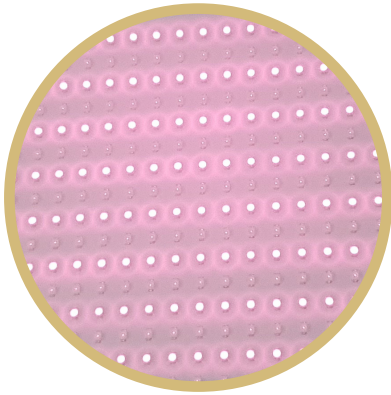


Sports Injury/Swollen legs



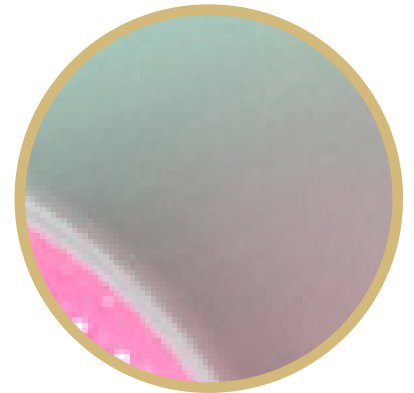
Stiff Waist

Highlighted Features



Top quality & Effective
544 LED chips

Flexible Medical-grade
Silicone pad

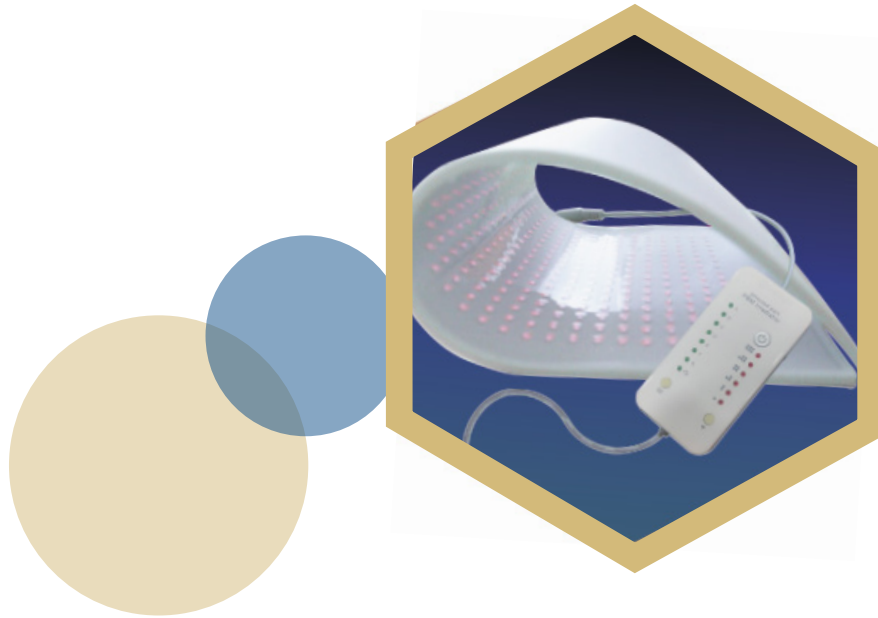


Full Abdomen Coverage
40x20cm wide pad



Customizable modes
Dr. Nogier Frequency System





Hue Light

IMMUNITY CARE SYSTEMS

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