Medical UVB device for skin treatment

Quality Management
ISO 9001 ISO 13485
European Certified
GMP
CE
G410 Electrical Safety Certified
Hello,

We are SEMYEONG Biotech Co. a manufacturer specializing in the production of “PANOS”, an Ultraviolet B phototherapy device for skin treatment.

SEMYEONG Biotech Co. was established to brighten the world and promote human health. “PANOS”, an Ultraviolet B phototherapy device, was scientifically designed through special processing by developing the substance producing the most stable wavelength range (280 - 320 nm) of ultraviolet light, without any harm to the human body.

SEMYEONG Biotech Co. is becoming a company specializing in the manufacture of ultraviolet medical equipment by researching and developing a wide range of therapeutic devices and medical equipment related to ultraviolet light.

Thank you.

SEMYEONG Biotech Co.
History

2002 Developed a UV-B lamp with a specific wavelength range as medical equipment for treatment of the human body

2003 Established N/B Tech Inc.

2004 Developed, produced and distributed level 2 medical equipment OMI 1000, 2000 and 3000 (for hospital use)

2005 Acquired a patent for a UV-B lamp with a specific wavelength range as medical equipment for treatment of the human body

2007 SEMYEONG Biotech Co. became an individual business
Registered a trademark for an ultraviolet B (UV-B) phototherapy device for skin treatment, PANOS KPA-01 (patent number: 2007-0057124)

2008 Developed an ultraviolet B (UV-B) phototherapy skin treatment device for home use
Acquired safety certification for electrical appliances from the Korea Testing Certification (certification number: HC07120-8001A)
Developed, produced and distributed an ultraviolet (UV-B) phototherapy skin treatment device, PANOS KPA-01 (for general public use)
Registered a design for an ultraviolet (UV-B) phototherapy skin treatment device, PANOS KPA-01 (patent number: 2008-0015699)
Acquired certification from the Korea Institute of Atopy (2008-10-13)

2009 Registered the product with the Public Procurement Service (national organization for electronic procurement) (2009-12-24)

2010 Acquired European certification for CE 0470 KPA-01 UV-B level 2 light treatment device
Acquired (NEMKO), (IQNET) ISO 13485: 2003 ISO 9001: 2008 certification
Chosen as HIT500 by the Small and Medium Business Corporation
Received manufacturing license for medical equipment from the KFDA
KPA-01 granted Received item license for medical equipment from the KFDA
Received GMP certificate from the KFDA

2011 Registered with Saudi Arabia, Sri Lanka, Thailand FDA

2012 KPA-02 granted item license for medical equipment from the KFDA

2013 Registered with Indonesia FDA

2014 Developed HEALING LIGHT HR-UVD (personal use)
HEALING LIGHT HR-UVD granted item license for medical equipment from the KFDA
PANOS?

The ultraviolet B phototherapy device “PANOS” sterilizes all kinds of bacteria on the skin by irradiating them with ultraviolet light B (UV-B), which is a ray associated with life and health through the chemistry of the human body. Also, PANOS is a UV-B phototherapy skin treatment device with a highly stable ultraviolet lamp that produces the wavelength range of 280 nm - 320 nm, boosting immunity by creating vitamin D3 in the human body. It is recognized as the world’s best technology.

* Ultraviolet light B cannot penetrate glass or fibers. Even with sunlight, cold winter or areas that are at over 35° in latitude lack enough ultraviolet light B to produce as much vitamin D3 as the body needs.

Manufacturing technology

Measuring ultraviolet light
Glowing material (boronic acid strontium) is mixed for 24 hours and then plasticized for 3~6 hours at the temperature of 500 - 1000°C in an electric furnace.

Measuring negative ions
The UV-B lamp has plentiful negative ions that are beneficial to health.

The ultraviolet detector can measure ultraviolet light from a UV-B lamp while normal lamps cannot.

Creates a UV-B lamp with a special glass tube that can permeate ultraviolet light well but blocks the wavelength range below 280 nm that is harmful to the human body.

KPA-01 PANOS spectrum

Peak wavelength : 311.7nm
good for Psoriasis, Leukoderma treatment wavelength
295-300nm : vitaminD make wavelength
KRISS(Korea Research Institute of Standards and Science) NO : 1001-01295-001
**Model**

Panos KPA-01

*Ultraviolet light (UV-B) exposure for skin therapy*

- Country of manufacturer: Korea
- Name of manufacturer: SEMYEONG Biotech
- Wave length: 280mm~320mm
- Intensity of illumination: 10[J/cm²·cm²]
- Voltage: 220V/70W
- Dimension: H 90cm, L 70cm, W 90kg

Domestic accreditation: (KPDA) Ultraviolet light exposure machine-Level 2

Use: Skin disease treatment

Accredited in Europe: Class II A, UV-B radiation Level 2 medical equipment

Use: Effective for skin diseases such as atopic, psoriasis, eczema

Panos KPA-02

*Ultraviolet light (UV-B) exposure*

- Country of manufacturer: Korea
- Name of manufacturer: SEMYEONG Biotech
- Wave length: 280mm~320mm
- Intensity of illumination: 10[J/cm²·cm²] x 2
- Voltage: 220V/45W
- Dimension: H 90cm, L 70cm, W 90kg

Domestic accreditation: (KPDA) Ultraviolet light exposure machine-Level 2

Use: Skin disease treatment

HR-UVD

*Healing light*

- Country of manufacturer: Korea
- Name of manufacturer: SEMYEONG Biotech
- Stand size: 790mm(H) X 1,270(L) X 124mm
- Fold size: 763 X 124 X 113mm
- Box size: 810 X 160 X 140mm, 9kg
- Weight: 8kg

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### Production Technology

1. Press On/Off button.
2. Choose setting time: 1, 5, 10, 15, 20 minutes.
3. Press On/Off button once more.

※Feature
1. Anyone can assemble simply.
2. Foldup design can keep small space.
3. For personal & for use living aptment pet.

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>Display</td>
<td>displaying operation time</td>
</tr>
<tr>
<td>②</td>
<td>ON/OFF</td>
<td>power on/off button</td>
</tr>
<tr>
<td>③</td>
<td>Setting for operation time</td>
<td>setting time : 1, 5, 10, 15, 20 minutes.</td>
</tr>
</tbody>
</table>
Test reports on the effects of the UV-B lamp in sterilizing yellow staphylococcus that aggravates atopic dermatitis and various other skin diseases

Yellow staphylococcus in a closed space
Yellow staphylococcus that has been irradiated by “UV-B” light

(Feb. 2001 Ulsan Goodmorning Hospital)

Ulsan Goodmorning Hospital, Preventive medicine specialist Dr. Cho, Gyu-il

UV-B Related Research Institutions

**Testing institutions** Kyungpook National University, Catholic University of Korea (orthopedics)
- Study on the bone formation of ultraviolet medical equipment
- Effectiveness as osteoporosis medical equipment through a serum and radiation testing
- Analysis of active vitamin D, 25 (OH) vitamin D after UV-B irradiation indicated that the vitamin D in the experimental group had increased significantly compared to the control group.

**Testing institutions** Physical Therapy Department, Daegu University
- Study on the feature of red spots and safety features of a UV-B irradiator
- The generation and safety of an electromagnetic wave passed technical requirements for electromagnetic inference (notification no. 2000-79 of the Ministry of Information and Communication) and the safety of electrical and mechanical features was approved by the KFDA
- A research paper was published in the Journal of the Korean Physics Society in 2006

**Testing institutions** Women’s Medical Center at KyungHee University Oriental Medicine Hospital in Gangnam
- Study on the effects of Ultraviolet-B(UV-B) radiation on calcium, vitamin D3 and cholesterol level in postmenopausal women.
- The results showed that blood calcium levels in both the UV-B group and the control group increased significantly after UV-B irradiation.
- Blood vitamins in both the UV-B group and the control group increased significantly after UV-B irradiation.
- Total blood cholesterol levels in both UV-B group and the control group decreased significantly after UV-B irradiation.

Mass Media Promotion
Effects of Ultraviolet-B (UV-B) radiation on calcium, vitamin D₃ and cholesterol level in postmenopausal

Object of study: postmenopausal women (UV-B Group: 70.6 ± 5.8 age / Combined Group: 69 ± 8.5)

UV-B Group (no calcium therapy): UV B Device (NB Tech, senia) phototherapy
Combined Group (calcium therapy): UV B Device (NB Tech, senia) phototherapy + Calcium supplement (HealthCal/ Donghwa drug)

* 20 minutes/1 time per one day, 2 weeks (Total 12 times).
* Before & after therapy, checking for calcium, Vitamin D₃ & total cholesterol level in blood.
* After 3 months, checking for side effect, but they have not side effects.

### Table 1. The change of serum calcium level by UV-B TX

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>UV-B group</td>
<td>8.64 ± 0.32</td>
<td>9.15 ± 0.34**</td>
</tr>
<tr>
<td>Combined group</td>
<td>8.62 ± 0.28</td>
<td>9.11 ± 0.29**</td>
</tr>
</tbody>
</table>

** : P < 0.01

![Fig 1. The change of serum calcium level by UV-B TX](image1.png)

### Table 2. The change of serum Vitamin D₃ level by UV-B TX

<table>
<thead>
<tr>
<th>Vitamin D₃ (ng/ml)</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>no calcium therapy</td>
<td>21.80 ± 8.02</td>
<td>27.52 ± 7.14**</td>
</tr>
<tr>
<td>calcium therapy</td>
<td>25.40 ± 8.39</td>
<td>30.58 ± 8.01**</td>
</tr>
</tbody>
</table>

** : P < 0.01

![Fig 2. The change of serum Vitamin D₃ level by UV-B TX](image2.png)

### Table 3. The change of T-cholesterdo level by UV-B TX

<table>
<thead>
<tr>
<th>Vitamin D₃ (ng/ml)</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>no calcium therapy</td>
<td>196.82 ± 30.43</td>
<td>187.43 ± 32.02**</td>
</tr>
<tr>
<td>calcium therapy</td>
<td>200.40 ± 31.18</td>
<td>187.96 ± 32.29**</td>
</tr>
</tbody>
</table>

** : P < 0.01

![Fig 2. The change of T-cholesterdo level by UV-B TX](image3.png)
The Generating Process of Vitamin D3 and the Effect of Vitamin D3 on the Human Body

UV-B ray » Skin » Dissolving 7-DHC (dehydrocholesterol) » Converting to previtamin D3 in blood » Transporting vitamin D3 into blood vessel » Liver (the 1st chemical reaction: OH radical) » Kidneys (the 2nd chemical reaction: forming OH radical) » Completing active vitamin D3 » Small intestine » Storing in other body cells (repairing and maintaining cells)

Vitamin D deficiency

**Causes**
- Sun
- Sunscreen
- Melanin
- Latitude
- Winter
- Medications and supplements
  - Antiseizure drugs
  - Glucocorticoids
  - Rifampin
  - Highly active antiretroviral treatment
  - St. Jhon’s wart
- Malabsorption
  - Crohn’s disease
  - Whipple’s disease
  - Cystic fibrosis
  - Coeliac disease
  - Liver disease

**Consequences**
- Infections
  - Tuberculosis
  - Influenza
  - Upper respiratory tract infections
- Lung disease
  - Forced expiratory volume in one second
  - Asthma and wheezing diseases
  - Hypertension
  - Cardiovascular disease
- Autoimmune diseases
  - Type 1 diabetest
  - Multiple sclerosis
  - Crohn’s disease
  - Rheumatoid arthritis
- Cancer
  - Breast
  - Colon
  - Prostate
  - Pancreas
  - etc.

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Effect

Medical UVB device for skin treatment

Experiential Case for Skin Disease

Allergic Patient’s

Psoriasis

Atopic dermatitis

Bedsore

Before irradiation
One irradiation
Five irradiations
Ten irradiations

Three irradiations
Five irradiations
Ten irradiations

Before irradiation
One irradiation
Five irradiations
Ten irradiations

Before irradiation
One irradiation
Five irradiations
Ten irradiations

One irradiation
Three irradiations
Seven irradiations
Ten irradiations
**Gardenia seeds poison**

1st day  
2days after  
25days after

**Atopy**

1st day  
10days after  
20days after

**Bedsore**

1st day  
10times after  
19times after

**Bedsore**

1st day  
33days after  
88days after
Korean clinic

Hospital users

Medical UVB device for skin treatment
Hospital & Long term hospital

Wellnis1004 Hospital - Daegu

Heeyeon hospital - Changwon

Yeonse hospital - Daegu

New seongmo hospital - Seoul

Yunseong hospital - Cheongdo

Eden adventist hospital - Namyangju
dermatology & clinic

Medical UVB device for skin treatment

Marin-J clinic (dermatology) - Seoul
NSP Medical (dermatology) - Gwacheon
all 4 skin (dermatology) - Daegu
AK clinic (orthopedics) - Seoul
Hanseo pediatric clinic - Daejeon
Sung Ji Internal Medicine ENT clinic - Suwon
overseas

The Son La rehabilitation hospital in Vietnam

Hollidge Medicalcenter in Canada

General Hospital Colombo, Sri Lanka

Vichaivej international hospital in Thailand

Neo salon in Tokyo Japan

skin shop

Animal Hospital

Atopy school

Public health center

Medical UVB device for skin treatment
2013.3. Kimes                                                                   2013.4 Thai skin show                                                       2013.6. Qingdao Korean show

2011.07. 60th CIDESO in Seoul                                                  2011.09. Medical fair Thailand


2011.10. Korean Med show in Daegu                                             2012.03. 3rd Sri Lanka Medicare show


2011.11. Indonesia Health show                                               2011.07. 60th CIDESO in Seoul


Exhibition


2011.10. Korean Med show in Daegu                                             2012.03. 3rd Sri Lanka Medicare show

2012.11 Indonesia Health show                                               2012.11 Jedda korean show

2012.08. Sendex in Kintex                                                     2013.1 Arab Health


2012.11 Indones Health show                                                 2012.11 Jedda korean show

2013.3. Bankok DST                                                            2013.3. Bankok DST

2013.3. Kimes                                                                 2013.4 Thai skin show

2013.4 Thai skin show                                                        2013.6. Qingdao Korean show

2013.3. Kimes                                                                 2013.4 Thai skin show

2014.3. Bangkok DST                                                           2014.4, Daegu Korean Doctor

2014.3, Bangkok DST                                                           2014.4, Daegu Korean Doctor

Medical UVB device for skin treatment
How to Use?

for make VitaminD & VitaminD related disease

- It is recommended to expose your back or abdomen.
- Case by rhinitis, expose your abdomen or back to the lamp not nose.
- If the symptom is severe (cancer etc.), you can expose the affected part as much as you can (for 1-2 hours as one time and by turns: abdomen, back, leg, arm, side etc.)
- Apart from the lamp about 50-70cm
- 2-3 times a week 20minutier/time (Normal person)
- You can see the effect of various diseases like Rhinitis, cancer, thyroid nodules, diabetes, incontinence, osteoporosis, prostate disease, kidney pruritus.

Detoxification

- At first, adjust settings as 5 min for under 13 years old, 10 min for under 20 years old, and 20 min over 20 years old. If there is no problem, you can add the number of lamps.
- Directly take the light to the affected part.
- Psoriasis and atopy need to be closer as much as you can.
- Squeeze a pimple & try Panos can good effect
- Case by Atopy (Immunity skin), Apply affected part & your abdomen
- Case by Vitiligo, hand part is fast effect, face is slow effect.
- Case by tery face, please wear goggles or put towel
- If Erythema makes your skin smart, you can take a rest for a couple of days. However, if you can endure it, it is recommended to continue it.

Skin disease treatment

- At first, adjust settings as 5 min for under 13 years old, 10 min for under 20 years old, and 20 min over 20 years old. If there is no problem, you can add the number of lamps.
- Directly take the light to the affected part.
- Psoriasis and atopy need to be closer as much as you can.
- Squeeze a pimple & try Panos can good effect
- Case by Atopy (Immunity skin), Apply affected part & your abdomen
- Case by Vitiligo, hand part is fast effect, face is slow effect.
- Case by tery face, please wear goggles or put towel
- If Erythema makes your skin smart, you can take a rest for a couple of days. However, if you can endure it, it is recommended to continue it.
Instruction for Use

- Use 2–3 times a week
- Keep a certain distance during the irradiation (about 50–70cm from the lamp)
- Irradiate the affected skin directly.
- Irradiate the abdomen & back after taking off the clothes to create Vitamin D3.
- It is recommended to irradiate the affected part for 5 minutes for children under 10, 10 minutes for people under 20 and 20 minutes for adults for first-time user (using 1 bulb light).
- Gradually increase the lux to 1 bulb light lux, 2 bulb light lux and 3 bulb light lux.

Product specification

- Country of manufacture: The Republic of Korea
- Manufacturer: SEMYEONG Biotech Co.
- Use: Ultraviolet (UV-B) phototherapy device for skin treatment
- Wavelength range: 280nm–320nm
- Intensity of illumination: 10μW/cm² x 3
- Voltage: 80-250V / 70W
- Dimensions: 90cm (H) 70cm (L) 9kg (W)

No. | Name                          | Function                        |
--- | ----------------------------- |---------------------------------|
1   | Display                      | Operation time display          |
2   | On/Off button                | Power/Off button                |
3   | Operation time selection display | 5-minute setting button/Operation |
4   | Operation time selection display | 10-minute setting button/Operation |
5   | Operation time selection display | 15-minute setting button/Operation |
6   | UV lamp On/Off button        | 2 UV lamps On/Off               |
7   | UV lamp On/Off button        | 1 UV lamp On/Off                |

※This catalogue for internal training can be some different in the context from efficacy and effect permitted by the KFDA.