

Delta BABG Lighting Solutions

Delta M+ BrainCare light

Dr. Cheng

LSBU | 09/12/2022



The global impact of dementia

· There is one more dementia patient in the world every 3 seconds.

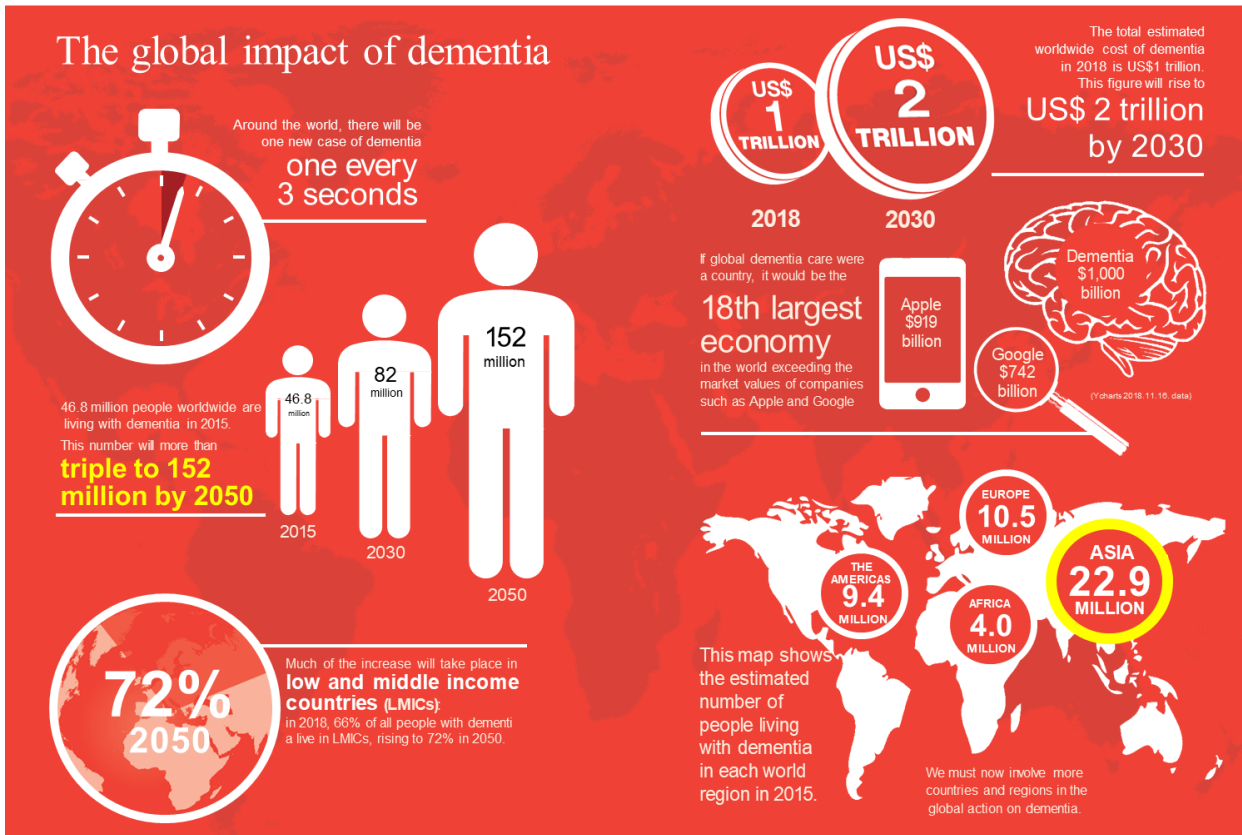
· In 2015, there were 46.8 million dementia patients in the world, and it is expected to reach 152 million people in 2050 (triple).

· In 2015, there were 22.9 million people in Asia suffering from dementia.

· Estimated by the Taiwan Dementia Association: By the end of December 2021, the number of people with dementia in Taiwan will exceed 300,000, accounting for 1.34% of the total population.

· In 2031, the population of dementia will be nearly 460,000, and there will be **2 dementias for every 100 Taiwanese** by then.

· In the next 20 years, the number of people with dementia in Taiwan will increase nearly 48 people per day. **It means one person with dementia will increase every 30 minutes**, and the ratio of the total population with dementia to the total population will increase year by year.



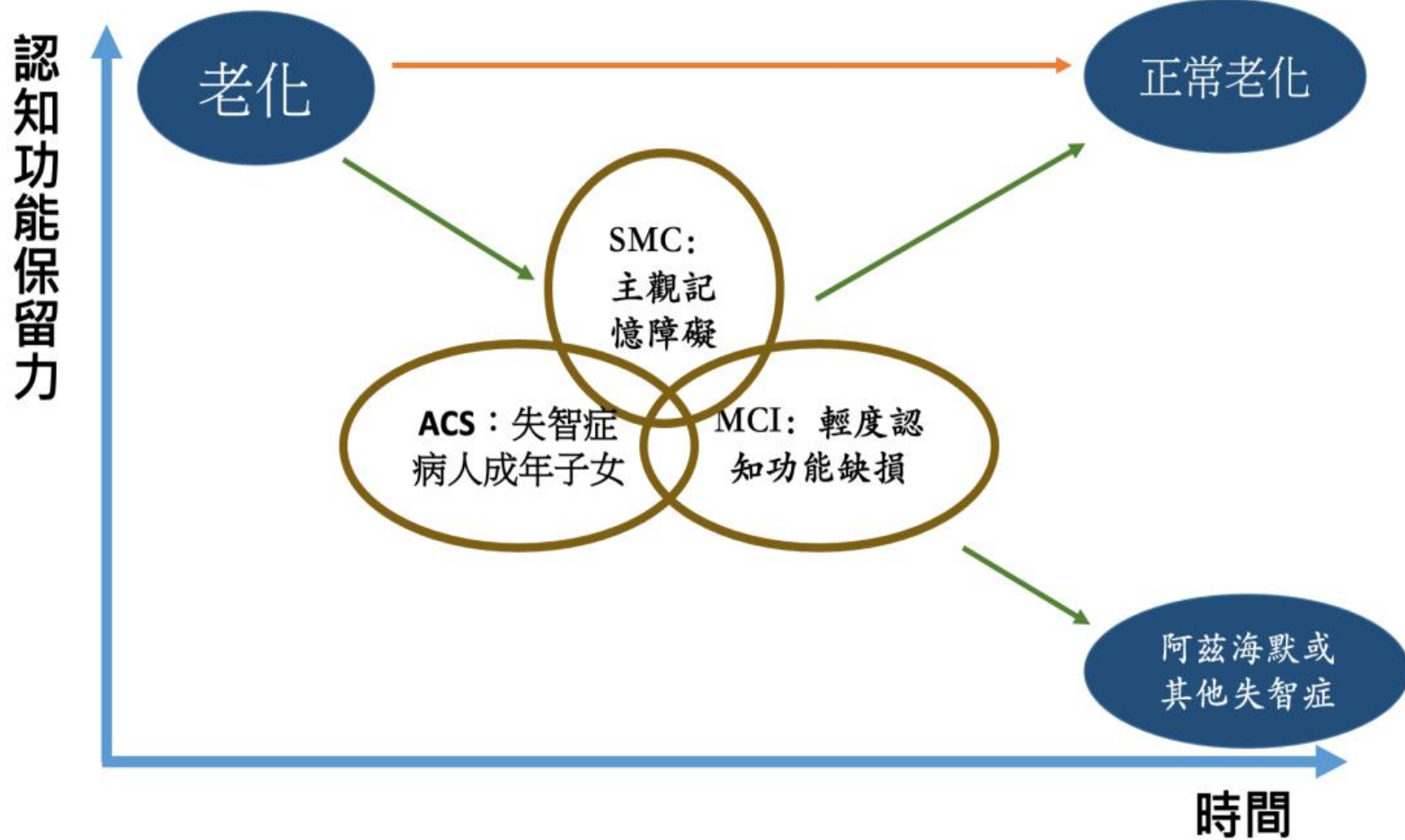
[Source: World Alzheimer Report 2018,台灣失智症協會]

Top 10 warning signs of dementia

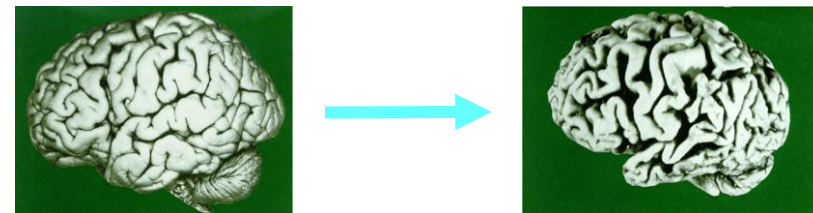


- Dementia is a symptom.
- In addition to memory loss, at least one other brain function is also affected, such as language expression, spatial recognition, arithmetic, abstract thinking, etc.

Brain Aging



brain atrophy, degeneration



圖片來源：shutterstock

40Hz sound and light stimulation therapy

臺裔科學家蔡立慧研發阿茲海默聲光刺激療法！臨床2期顯著延緩記憶、認知退化、腦萎縮

撰文 | 記者 李林瓊

日期 | 2021-03-10



COGNITO
THERAPEUTICS

臺裔科學家蔡立慧研發阿茲海默聲光刺激療法！臨床2期顯著延緩記憶、認知退化、腦萎縮(圖片來源：官網)

· The 40Hz therapy for Alzheimer's disease was proposed by the research team of Li-Huei Tsai, a professor in the Department of Brain and Cognitive Sciences at the Massachusetts Institute of Technology (MIT).

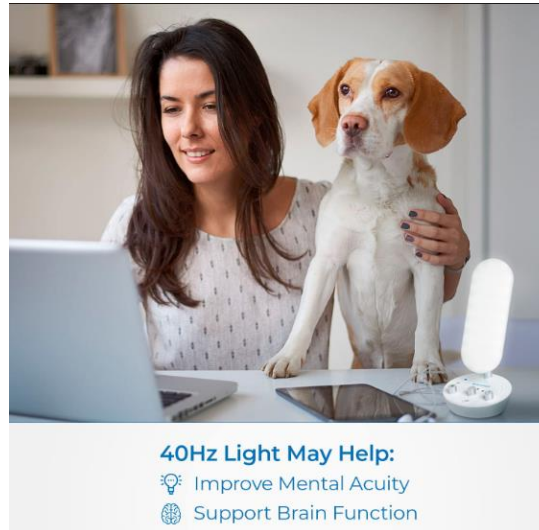
In December 2016, the research team published a research paper entitled: "Gamma frequency entrainment attenuates amyloid load and modifies microglia" on "Nature", revealing that "40Hz flickering light" can stimulate Gamma waves in brain of mice with Alzheimer's disease, reduced amyloid beta in the brain, and improved microglial function.

· Announced at the 2021 Alzheimer's and Parkinson's Disease Conference (2021 AD/PD), its phase 2 clinical results of treating Alzheimer's patients with innovative sound and light stimulation of brain neuron digital therapy, the patient **The rate of decline in memory and cognitive ability scores was reduced by 83%, and brain atrophy was reduced by 61%.**

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· A total of 76 patients with mild to moderate Alzheimer's disease over the age of 50 were included in the study. During the 6-month treatment period, the patients were randomized to receive visual and auditory stimulation at 40Hz for 1 hour a day at home.

40Hz products and equipment for now



**Flickering
expensive**

Flickering

**Vibrating
expensive**

expensive

Delta M+ BrainCare light

Normal 40Hz products:
flickering causes discomfort



Delta M+ :
Combining comfort and health care



**Delta multi-frequency
technology (40Hz built-in)**

The early cause of Alzheimer's dementia is the sequential action caused by abnormal beta-amyloid deposition in the brain, leading to the apoptosis of nerve cells, which in turn affects the cognitive function of the brain.

Delta M+ multi-frequency technology have been verified by cell experiments to reduce the secretion and aggregation of abnormal amyloid proteins.

Delta M+ BrainCare light

Is your brain having a "senior moment"?

There is research that found the activity of human brain cells peaks around the age of 20, and may begin to decline between the ages of 45 and 60, or even as early as 40...

Delta M+ BrainCare Light
Slows brain degeneration and resists decline in memory

MIND PLUS

Delta M+ BrainCare Light

High color rendering LED, 40Hz light wave light source, protect eyes and the brain!
Light frequency neuromodulation was safe and well tolerated.

Delta M+ BrainCare Light uses patented multi-frequency lighting technology, so that human eyes are not disturbed by 40Hz flicker and can be stimulated by 40Hz light wave while reading comfortably and cultivating the brain.

- 40Hz light wave
- High color rendering comparable to sunlight
- Brightness adjustable via Bluetooth
- Automatic locking bracket

40Hz light wave, a source for stimulating the brain

Authoritative experimental results confirmed that patients receiving 40Hz light wave noninvasive audio-visual treatment over a six-month period exhibited a significant 83% slowing in the rate of decline in memory, cognition, and reductions in brain atrophy and volumetric loss. Identified by the academic community, amyloid plaques in the brain form one of the defining features of Alzheimer's disease such as dementia, and 40Hz light wave can significantly reduce amyloid plaques.

*Source <https://news.gblmonthly.com/tw/article/show.php?sum=37200>

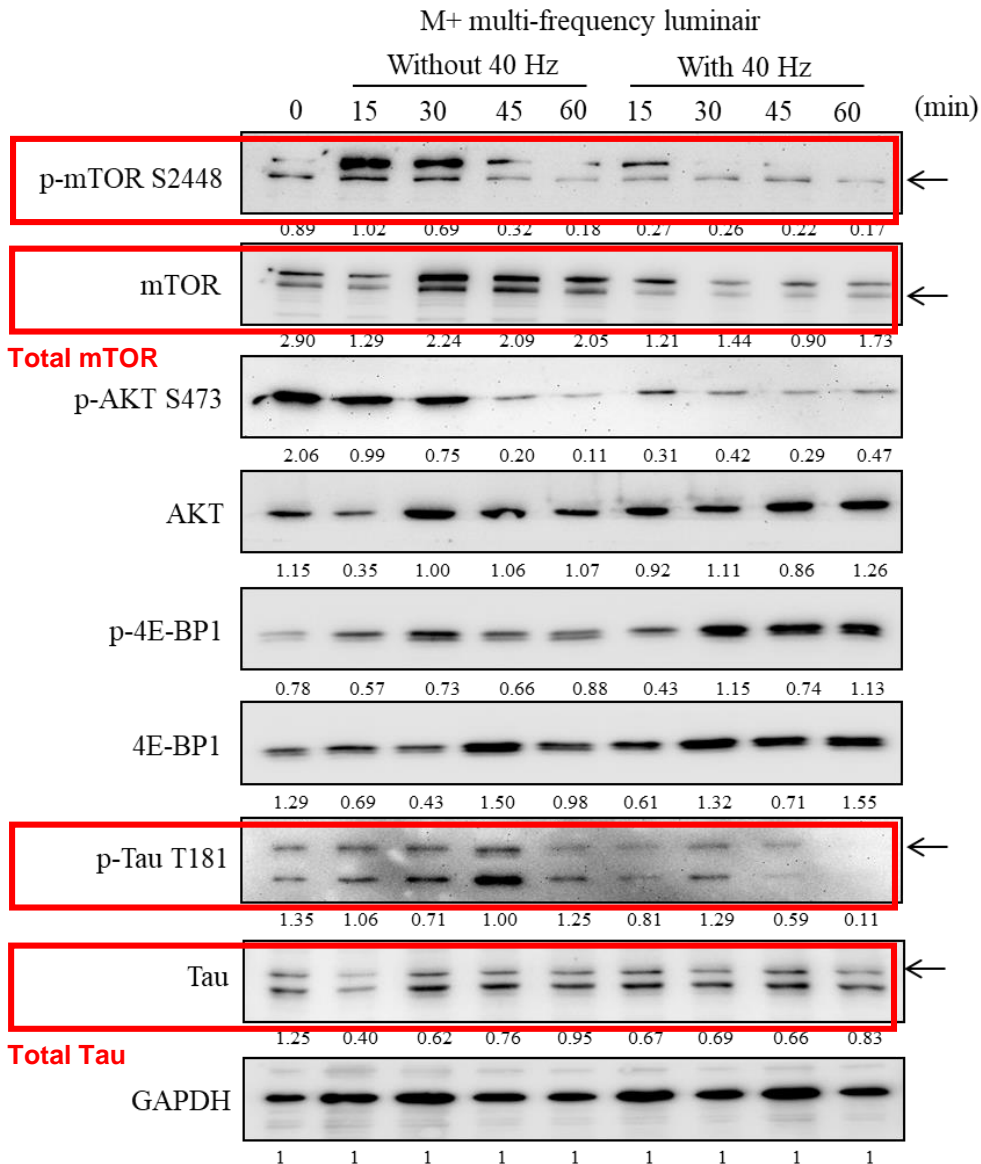
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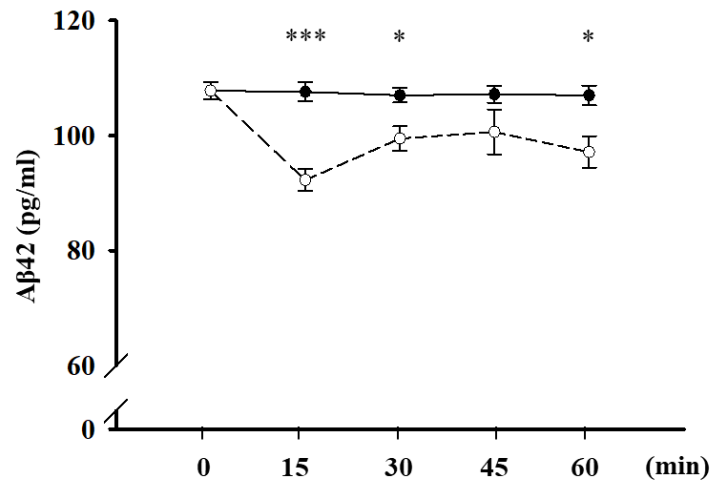
Delta M+ BrainCare light – Experimental results



- SH-SY5Y cells are commonly used as an in vitro model of neuronal function and cell differentiation. It has been used to study many fields of neuroscience, including Parkinson's disease, **Alzheimer's disease**, neurotoxicity, ischemia or amyotrophic lateral sclerosis, and can even be used to study brain cellular and other features of neurogenesis.
- In this experiment, Delta M+ composite frequency lamps were used to irradiate SH-SY5Y cells, and compared with cells that were not irradiated, to observe the changes of internal proteins.
- The picture on the left shows the change of protein quantity observed by western blot test. Darker colors indicate higher amounts of protein, and lighter colors indicate lower amounts of protein.
- **According to the experimental results, in the cells irradiated with Delta multi-frequency technology, the expression quantity of the two phosphorylated proteins of Tau protein and mTOR protein was significantly reduced, indicating that the light source can inhibit their phosphorylation.**
- Tau protein and mTOR protein, two bad proteins, are considered to be the main cause of dementia if they accumulate.

Note: ① p-mTOR S2448 is a protein produced during cell division, and its quantity decreases after being irradiated with M+ light from the experimental results, Indicates that the M+ light can stabilize it and not allow the cells to divide excessively. ② p-Tau T181 is the product of cell death. According to the experimental results, the number of cell death can be reduced after irradiation with M+ light.

Delta M+ BrainCare light – Experimental results

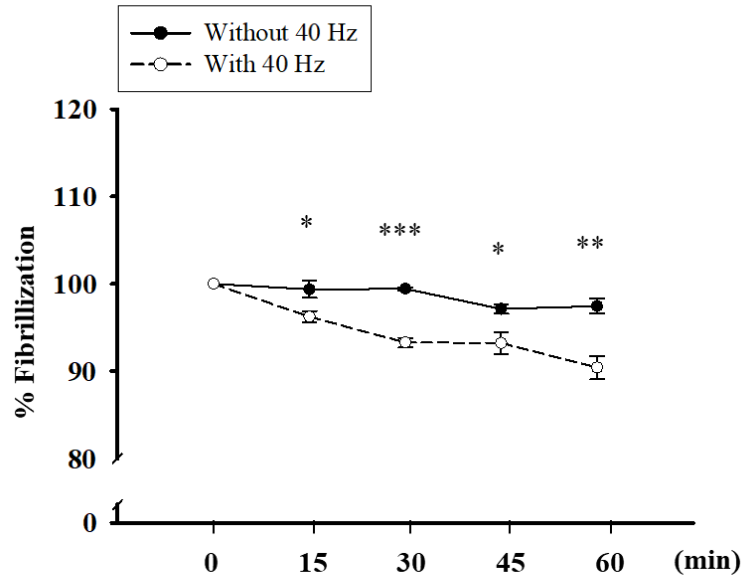


- Aβ40, Aβ42 and tau proteins in cerebrospinal fluid are considered to be potential pathogenesis of dementia Pathological indicators.

- From the experimental results on the left, it can be concluded that the secretion of Aβ42 in SH-SY5Y cells is inhibited.

→ Aβ42 is a bad starch-like protein, which was significantly reduced after being exposed to M+ light.

- From the results on the left, it can be concluded that the aggregation of Aβ42 amyloid proteins can be inhibited in the M+ light source.



- The result of the upper part is to reduce the secretion of amyloid protein. In the pathological mechanism of dementia, the secretion of amyloid protein Aβ42 will increase. After the secretion is increased, these proteins will aggregate, and once aggregated, they will precipitate on the brain As long as pathological changes can be reduced, the two mechanisms of reduction and aggregation are good things for patients.

Smarter, Greener, Together



To learn more about Delta,
please visit www.deltaww.com
or scan the QR code

