Brain Health from a Jellyfish

Madison, Wisconsin-A protein originally found in a jellyfish has been shown to help maintain healthy brain function. Apoaequorin, the active ingredient in a new dietary supplement Prevagen Professional, helps maintain brain health via the maintenance of calcium levels in aging brains.

Patients often have concerns about memory loss, forgetfulness, or what might be described, tongue-in-cheek, as “early-onset senior moments.” As the media and researchers give more attention to topics like the difference between normal age-related cognitive decline and dementia, patients may be more willing to talk about mental lapses. The sheer numbers of aging baby boomers will make the subject of age-related cognitive decline an increasingly frequent topic of conversation between healthcare providers and their patients.

Quincy Bioscience is a biotechnology company dedicated to facilitating these conversations and providing healthcare providers with an innovative approach towards brain health in the supplement Prevagen® and the professional strength version, Prevagen Professional. Quincy Bioscience is located in the University Research Park in Madison, Wisconsin.

Prevagen contains the active ingredient apoaequorin, a calcium-binding photoprotein first discovered in the jellyfish Aequorea Victoria. Apoaequorin is part of a class of compounds called EF hand proteins and is very similar to endogenous human calcium-binding proteins, which participate in maintaining intracellular calcium balance/homeostasis.

Calcium ions are required for the transmission of signals within the nervous system [1]. Calcium has also been labeled as a “second messenger” because when chemical signals arrive at a brain cell, calcium may be released and trigger events inside the cell [2, 3]. When released into the interior of cells, calcium “carries” the message by binding to certain proteins. These proteins, now “activated”, can induce changes in cell function by calcium and cause changes in the cell including turning on the expression of specific genes.

The concentration of calcium inside cells is closely regulated because of calcium’s importance to proper cell function. Calcium levels are 10,000 times lower on the inside than on the outside of brain cells [4]. Even a tiny flux of calcium into the cell may cause huge changes in cellular activity. For this reason, brain cells have the ability to regulate calcium levels through pumps and an elaborate network of proteins that buffer excess calcium. When the production of these proteins diminish, the regulation of calcium levels is reduced and elevated calcium can lead to chronic activation and ultimately, cell death [5].

Studies have implicated calcium as a mediator of the normal aging process [6]. The levels of calcium-binding proteins, vital to buffering excess calcium, are not as abundant in the cells of older brains [7-11]. Calcium pumps, also part of the calcium regulatory apparatus may not be as active in older brain cells [5, 12, 13]. As a result, each time a brain cell fires, calcium enters the cell as usual, but in older brains, calcium concentrations rise for longer periods of time before they return to normal. These elevated calcium levels are a stress on the cell and eventually can cause permanent

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damage. This damage can be measured as a slower response times and poorer memory. This damage may also make the individual more susceptible to other neurodegenerative conditions [6].

Research conducted at the University of Wisconsin-Milwaukee demonstrated the ability of apoaequorin to protect neurons and reduce cell death in an ischemic protocol [14]. Ischemic models are frequently used to replicate neurodegenerative diseases.

In an open-label human study of fifty-six individuals using a validated Quality of Life survey instrument, Prevagen improved cognitive function in a majority of the participants in areas such as the ability to find words in conversation, recall events, and remember driving directions over the ninety days of the study [15]. Additionally, there were no drop-outs in the study due to adverse events.

Prevagen Professional is available exclusively to healthcare practitioners for their patients. Interested practitioners in carrying Prevagen Professional can visit www.prevagenpro.com or call 888 895-6463 for more information.

References


*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.*