Prevention of Ageing-associated Neurodegeneration in Alzheimer's Disease and Glaucoma with a Wolfberry Extract

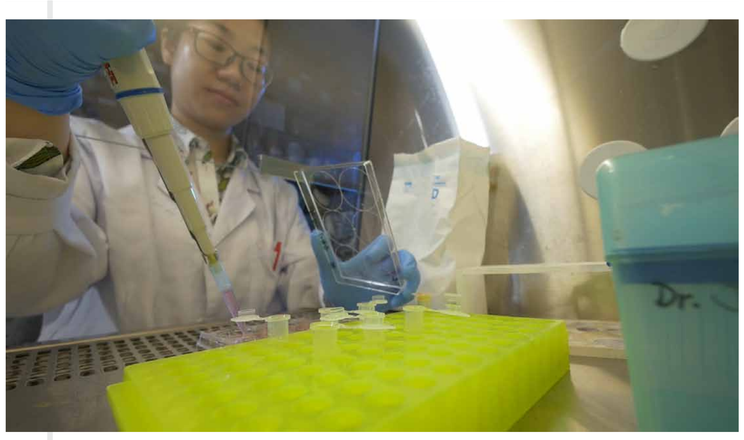
We have found that wolfberry not only can protect the retinal ganglion cells on the retina against glaucoma, but also can inhibit neuronal apoptosis to prevent neurodegeneration in Alzheimer's disease.

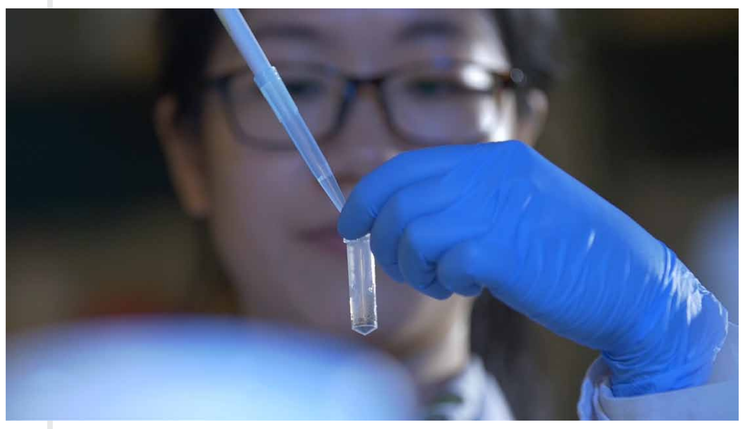
THE NEED

Cognitive decline in Alzheimer's disease is one of the ageing-associated neurodegenerative diseases. Neurodegeneration is the major cause in Alzheimer's disease, which is not a normal ageing process. However, there is still **no effective therapeutic treatment** to cure the disease, let alone medications to prevent it.

About 360,000 new cases are diagnosed with Alzheimer's disease each year in the world and about 190,000 people die each year as a result of the disease. It is estimated that in 2050, there will be 115 million people in the world suffering from Alzheimer's disease. In Hong Kong, currently about **6%** of those aged over 70 suffer from Alzheimer's disease. Twenty years later, one out of every four people in Hong Kong will be over 60 years old.

The clinical symptoms of Alzheimer's disease include deterioration of memory, and decline of cognitive functions and language functions. Patients might have depression, psychosis, hallucination, behavioral problem, and personality change. Some patients have deterioration of vision.





TRADITIONAL CHINESE MEDICINE: CHINESE WOLFBERRY

Chinese wolfberry tastes sweet and has high nutritional value. Traditionally, it is considered as one of the herbs that has the effect of nourishing *Yin* and is often used in Chinese dishes, soup and desserts. Chinese wolfberry is also used for medicinal purposes in traditional Chinese medicine. It helps nourishing and improving the functions of liver and kidney as well as the visual abilities. It is also prescribed for treatment of diabetes and glaucoma.

Pharmacological effects of Chinese wolfberry:

- Immune modulation and enhancement
- Delay ageing process
- Anti-tumor formation
- Reduce blood lipid to protect liver and anti-nonalcoholic fatty liver
- Reduce blood glucose
- Modulate haematopoiesis

OUR SCIENTIFIC DISCOVERY

A research team led by **Dr Raymond Chuen Chung Chang**, Associate Professor in the Laboratory of Neurodegenerative Diseases, School of Biomedical Sciences, HKU Li Ka Shing Faculty of Medicine, has been investigating the biological mechanisms of anti-ageing properties of wolfberry and its effects to prevent or even to treat Alzheimer's disease.

In patients with Alzheimer's disease, the prevalence rate of glaucoma is high leading to deterioration of vision. Dr Chang's team has found that wolfberry can protect the retinal ganglion cells on the retina against glaucoma. Wolfberry can also **attenuate neuronal apoptosis** to prevent progressive deterioration of neurodegeneration in Alzheimer's disease. In the initial stage of neurodegeneration, there is usually an increased level of bad unfolded proteins that can give stress signals to neurons to initiate neuronal apoptosis. The extract from wolfberry can inhibit these signal transductions and stimulate survival/protective signals to keep the survival of neurons.

The cause of Alzheimer's disease is complicated with different risk factors. One of the risk factors is depression. Dr Chang's team has discovered in laboratory studies that the extract in wolfberry can **attenuate depression** and may be considered for therapeutic treatment against depression.

The team will conduct further research to verify that the anti-ageing Chinese medicine, which can mildly boost up immunity in the body, can also protect neurons against neurodegeneration in Alzheimer's disease.

FIND OUT MORE

Laboratory of Neurodegenerative Diseases: https://www.facebook.com/Neurodeglab

以枸杞子提取劑防治認知障礙症和青光眼

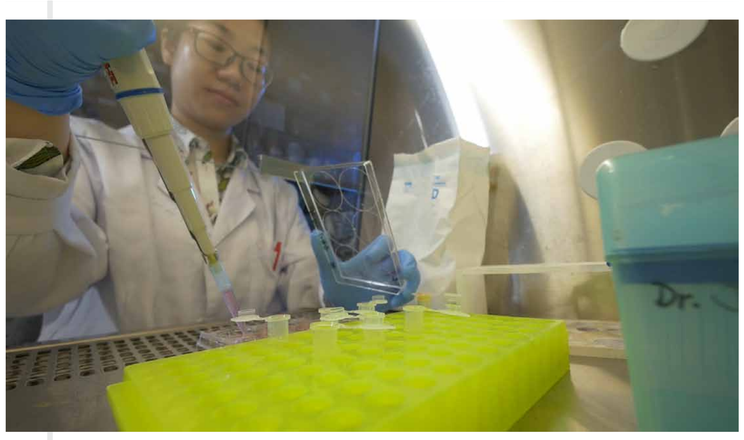
我們發現杞子除可保護視網膜上的視神經節細胞以對抗青光眼外，它亦可防止大腦的神經細胞凋亡以阻止腦退化症的發生。

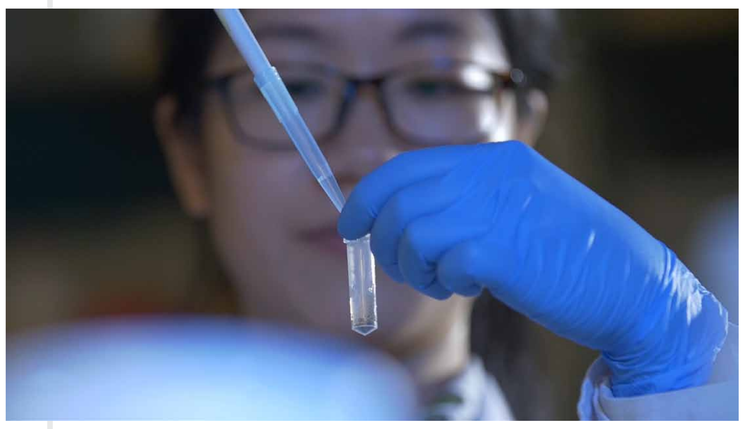
當前需要

認知障礙症(阿爾茨海默氏病)是其中一種腦退化症，是與衰老相關的神經退行性疾病，亦是引致痴呆的主因。認知障礙症並不是正常老化過程，直至現時為止，認知障礙症並**無根治方法**，亦未有有效預防的藥物。

全球每年約有36萬個新症診斷為認知障礙症的個案，導致約19萬人死亡。預計在2050年，全世界將有1億1千5百萬名認知障礙症患者。香港現時70歲以上的人口約有**百分之六**患有認知障礙症。二十年後，每四個香港人中, 就有一個達60歲以上。

認知障礙症的臨床症狀包括記憶力衰退、認知能力下降、語言能力下降、有抑鬱症先兆，部分患者可能會有情緒波動、疑心、幻覺、行為問題，或明顯的性格改變，部分病人視力衰退。





傳統中藥 : 枸杞子

紅彤彤的杞子，味道清甜，營養價值高，傳統視為滋陰草本，很多菜餚、湯水，甚至甜品也可找到杞子的踪影。中醫理論認為杞子養肝明目，補腎益精，長久以來也用杞子作治療糖尿病及青光眼。

枸杞子的藥理作用:

- 對免疫功能的作用 (免疫調節和免疫增強)
- 延緩衰老作用
- 抗腫瘤作用
- 降血脂與保肺、抗脂肪肝作用
- 降血糖作用
- 對造血系統的影響

港大科研發現

由香港大學李嘉誠醫學院生物醫學學院神經退化病實驗室副教授**鄭傳忠博士**領導的團隊致力研究杞子抗衰老特性背後的機理，期望找出如何用杞子來防治認知障礙症。

認知障礙症中青光眼的出現會引致患者視力衰退。鄭博士的研究團隊發現杞子除可保護視網膜上的視神經節細胞以對抗青光眼外，它亦可**防止大腦的細胞凋亡**以阻止腦退化症的發生。當神經退化開始時，壞蛋白會發放不良訊號去影響神經細胞進行自毀。杞子的提取劑可阻止這些壞細胞傳達訊息，更可發放良好的訊號保持神經細胞生存。

認知障礙症的病因複雜，例如抑鬱會增加腦退化及認知障礙的風險。鄭博士的研究團隊發現枸杞子提取物在實驗抑鬱大鼠中有治療作用，可以**改善抑鬱**症狀。

研究團隊希望證明具抗衰老成分的中藥，除了能提高機能免疫力，亦對細胞及退變的神經起保護作用，從而能預防認知障礙症中的神經退化問題。

了解更多

神經退化病實驗室: https://www.facebook.com/Neurodeglab