

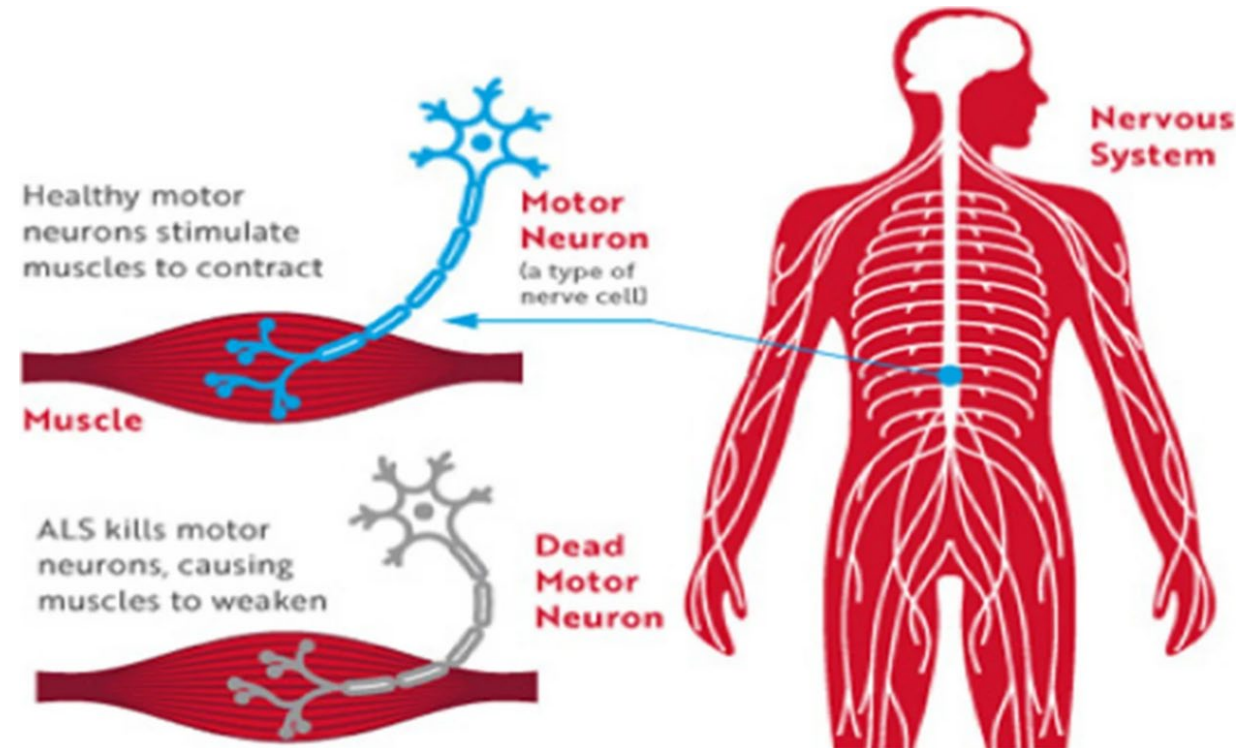
中大研究發現肌萎縮性脊髓側索硬化症的新疾病機制 CUHK research unveils novel disease mechanisms of amyotrophic lateral sclerosis

香港肌健協會發布全港首個「漸凍人症患者資料庫」調查結果 HKNMDA releases survey results of Hong Kong's first ALS patient registry

8 / 1 / 2024

運動神經元疾病 (Motor Neuron Disease)

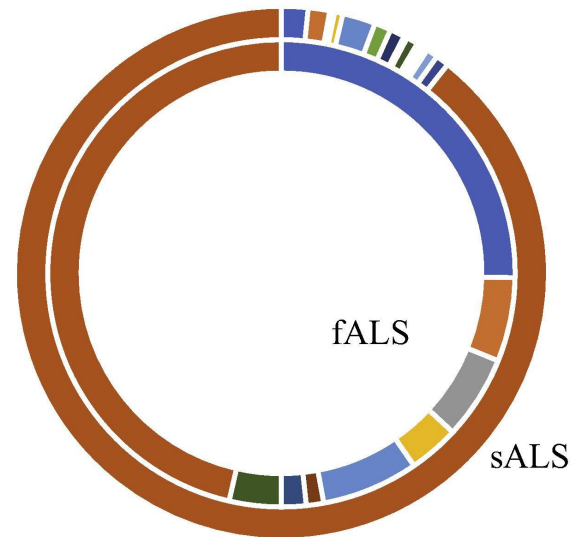
- ALS 俗稱「漸凍症」是 MNDs 中的一種
- Symptoms 症狀
- Muscle weakness 肌肉無力
 - Upper limb 上肢 30%
 - Lower limb 下肢 35%
 - Speech muscles 言語肌 30%
- symptoms are progressive 症狀是進行性的



More than 90% of ALS cases are sporadic

超過90%的ALS病例是散發性的

中國人
Chinese



- | | | | |
|----------------|------------------|------------------|----------------------------|
| ▪ <i>SOD1</i> | ▪ <i>FUS</i> | ▪ <i>TARDBP</i> | ▪ <i>C9ORF72</i> |
| ▪ <i>ATXN2</i> | ▪ <i>SQSTM1</i> | ▪ <i>OPTN</i> | ▪ <i>VAPB</i> |
| ▪ <i>ANG</i> | ▪ <i>VCP</i> | ▪ <i>UBQLN2</i> | ▪ <i>DCTN1</i> |
| ▪ <i>PFN1</i> | ▪ <i>HNRNPA1</i> | ▪ <i>CHCHD10</i> | ▪ <i>MATR3</i> |
| ▪ <i>TBK1</i> | ▪ <i>TUBA4A</i> | ▪ <i>CCNF</i> | ▪ <i>Other and Unknown</i> |

本研究項目是2017年6月在牛津大學舉行的一次學術會議後構思的

This research project was conceived following an academic conference held at the University of Oxford in June 2017

nature communications



Article

<https://doi.org/10.1038/s41467-023-44215-w>

Mutant GGGCC RNA prevents YY1 from binding to *Fuzzy* promoter which stimulates Wnt/ β -catenin pathway in C9ALS/FTD

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香港中文大學-牛津大學研究團隊 CUHK-Oxford research team

Professor Edwin Chan

Dr. Stephen Chen



June 2019

Miss Mingxi Ou

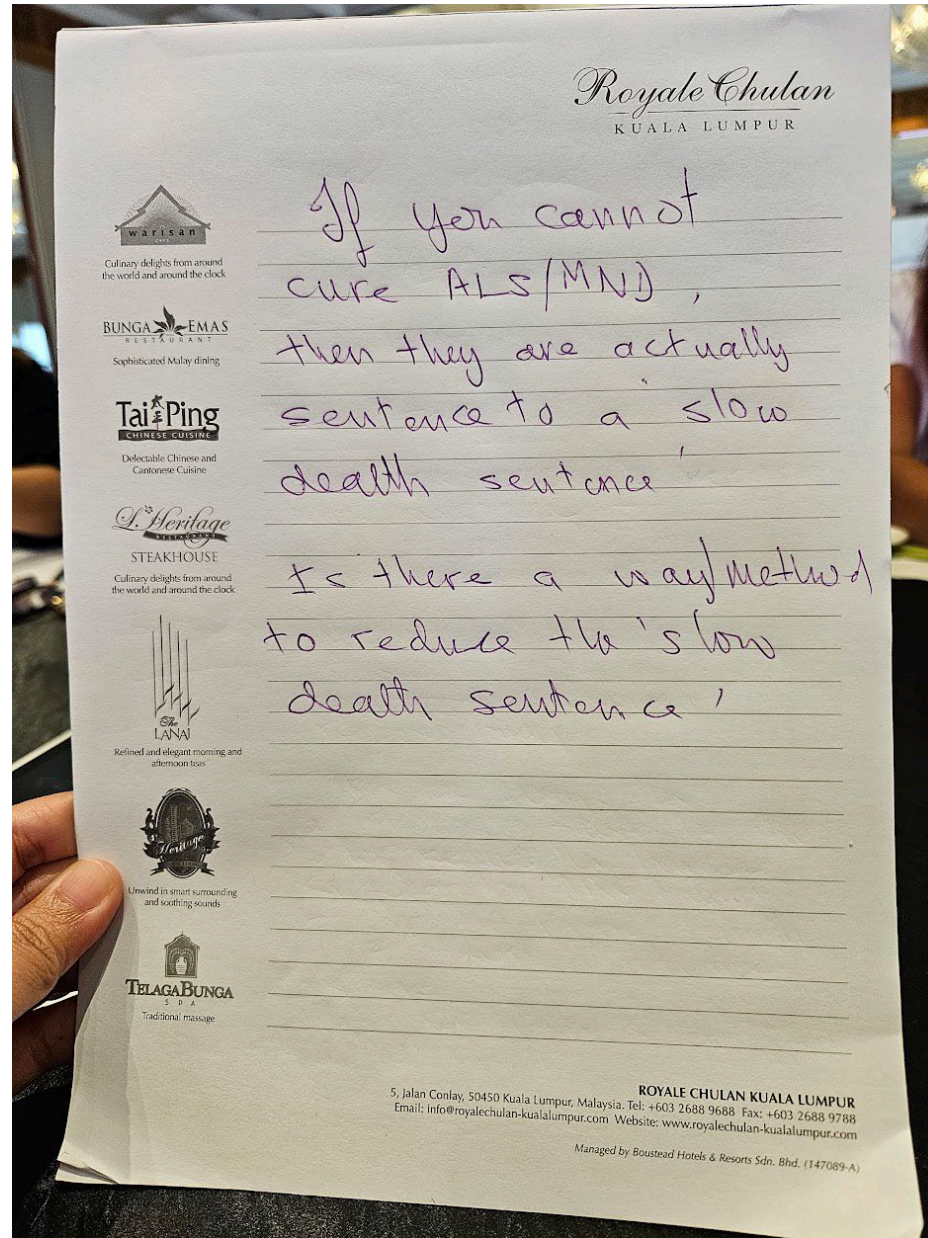
Professor Kevin Talbot

December 2023

2023年泛亞洲肌萎縮性脊髓側索硬化症（PACTALS）大會
牆報展示獎——基礎科學一等獎。



如果不能治癒ALS/MND，那麼他們（我們）實際上就被判了「緩慢死刑」。有沒有辦法減少「緩慢死刑」？

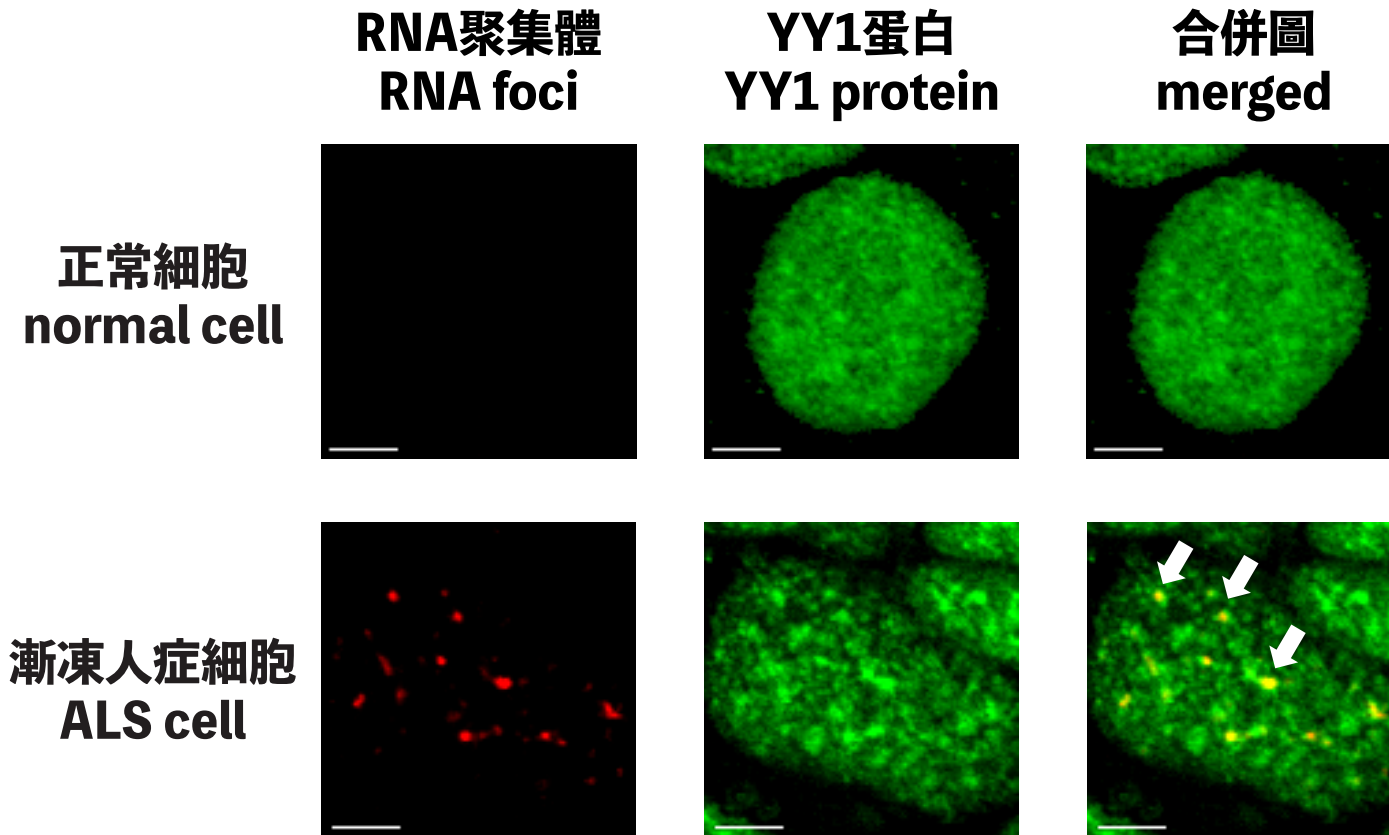




Company introduction
公司介紹

公司旨在通過3個“C”：檢查、關愛和治療，為罕見病患者提供卓越的服務

Rare Power Limited provides exceptional services to rare disease patients through the 3 “C”s: Check, Care and Cure.



RNA聚集體的招募導致YY1蛋白的定位改變

The RNA foci recruit and cause mis-localization of YY1 protein

YY1蛋白的定位改變是否導致其功能紊亂？

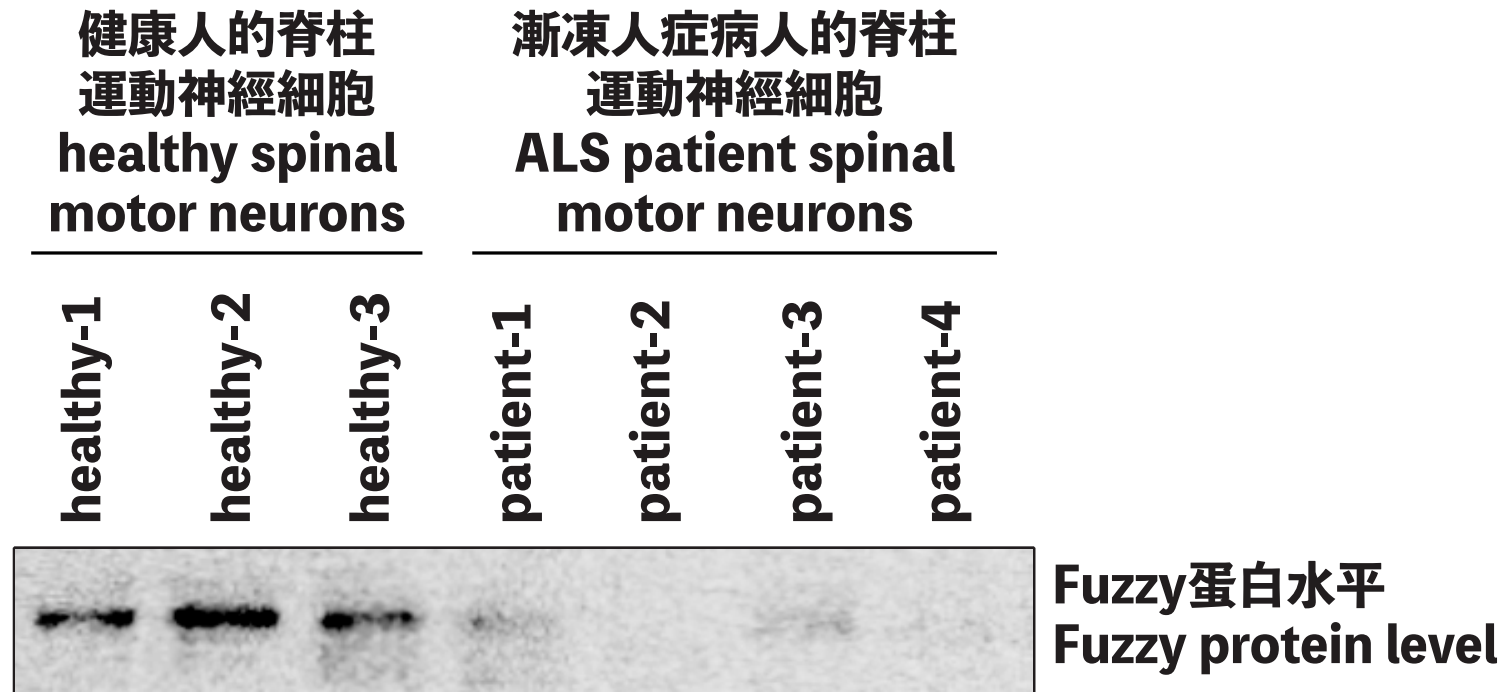
Will YY1 mis-localization lead to its dysfunction?

1. YY1在神經細胞中調控Fuzzy表達水平

YY1 regulates Fuzzy level in neurons

2. Fuzzy表達水平對於神經細胞功能至關重要

Fuzzy level is crucial for the functions of neurons

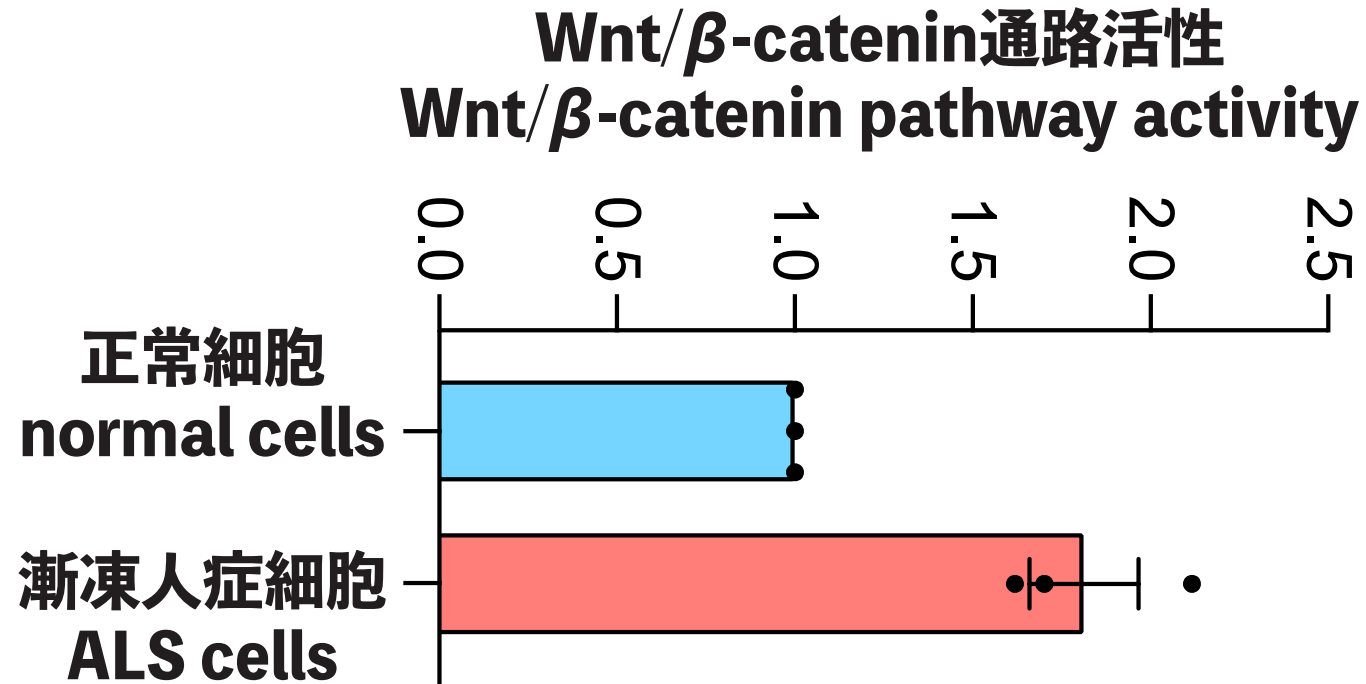


Fuzzy蛋白的表達水平在漸凍人症脊柱運動神經細胞中下調

Fuzzy protein level is downregulated in ALS patient spinal motor neurons

Fuzzy對Wnt/ β -catenin通路具有抑制作用

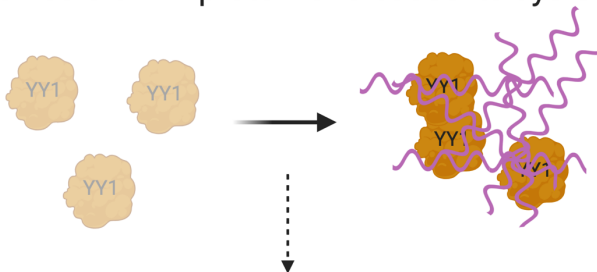
Fuzzy inhibits Wnt/ β -catenin pathway activity



Wnt/ β -catenin通路在漸凍人症細胞中被激活

Wnt/ β -catenin pathway is activated in ALS cells

RNA聚集體招募YY1蛋白導致其功能紊亂
RNA foci recruit YY1 protein and cause its dysfunction



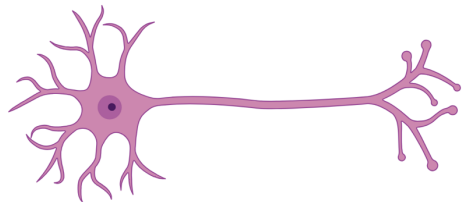
Fuzzy蛋白表達水平下調
Downregulation of Fuzzy protein level



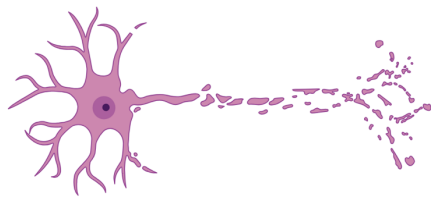
Wnt/ β -catenin信號通路激活
Activation of Wnt/ β -catenin pathway



健康的脊柱運動神經細胞
Healthy spinal motor neuron



漸凍症病人脊柱運動神經細胞死亡
Death of ALS patient spinal motor neuron



研究意義 Significance of the findings

YY1-Fuzzy-Wnt/ β -catenin信號通路的發現為漸凍人症病理過程提供了新的理解。

YY1-Fuzzy-Wnt/ β -catenin signalling offers additional mechanistic insights into ALS pathogenesis.

研究成果揭示了漸凍人症治療發展的新靶點。

The findings unveil new targets for ALS therapeutic developments.