



實驗室主持人學經歷

詳細著作與計畫
請掃QR code



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教授科目：醫學分子檢驗學、微生物學

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Academic expertise: *C. elegans* model and G6PD deficiency
Teach subjects: Molecular Diagnosis and Microbiology

實驗室簡介

本實驗室利用秀丽線蟲動物模型與人類細胞探討 GSPD-1/G6PD 對細胞存活與個體生長發育以及免疫反應的影響。目前已有新型專利及28篇國際論文發表。近期專注在RNAseq 與miRNAseq 技術，全面性地分析篩選出GSPD-1 缺乏線蟲顯著影響的基因與微小RNA。我們的目標是解開GSPD-1 如何調控線蟲生理現象的謎題，特別是探討GSPD-1在宿主與致病菌關係中的角色。

核心技術

細胞培養技術、秀丽線蟲動物行為分析、RNAi技術、螢光顯微鏡技術、基因與蛋白表現分析、G6PD活性分析。

Laboratory profile

Our laboratory employs *Caenorhabditis elegans* animal model and human cells to investigate the effects of GSPD-1/G6PD on cell survival, organism growth and development, as well as immune response. We have obtained a new patent and published 28 international research articles. Currently, we focus on RNAseq and miRNAseq technologies, in order to comprehensively analyze altered genes and microRNAs in GSPD-1-deficient *C. elegans*. Our objective is to unravel the mystery of how GSPD-1 regulates the physiological phenomena and delineate the role of GSPD-1 in the host and pathogen relationship.

Core Technologies

Cell culture technique, *C. elegans* behavior analysis, RNAi technology, fluorescence microscopy, gene and protein expression analysis, G6PD activity assay.

Selected publications

- [Impaired immune response and barrier function in GSPD-1-deficient *C. elegans* infected with *Klebsiella pneumoniae*.](#) Yang WH, Chen PH, Chang HH, Kwok HL, Stern A, Soo PC, Chen JH, Yang HC. *Curr Res Microb Sci.* 2023 Jan 27;4:100181. PMID: 36798906
- [Epidemiological profiles and pathogenicity of Vancomycin-resistant *Enterococcus faecium* clinical isolates in Taiwan.](#) Lin PY, Chan SY, Stern A, Chen PH, Yang HC. *PeerJ.* 2023 Feb 23;11:e14859. PMID: 36855433
- [Glucose-6-Phosphate Dehydrogenase, Redox Homeostasis and Embryogenesis.](#) Chen PH, Tjong WY, Yang HC, Liu HY, Stern A, Chiu DT. *Int J Mol Sci.* 2022 Feb 11;23(4):2017. PMID: 35216131

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中華民國專利證書

新型第 M614588 號

新型名稱：線蟲老化偵測裝置

專利權人：光宇學校財團法人元培醫事科技大學

新型創作人：楊宏基

專利權期間：自2021年7月21日至2030年12月30日止

上開新案係依專利法規定通過形式審查取得專利權
行使專利權如未提示新案專利技術報告不得進行警告

經濟部智慧財產局局長

洪淑敏

中華民國 110 年 7 月 21 日

注：專利權人應依專利法規定，於專利權公告後，依規定格式，向專利權人專責機構申請專利技術報告。

科技部產學研究計畫開發線蟲老化偵測裝置並申請新型專利(2021年)。

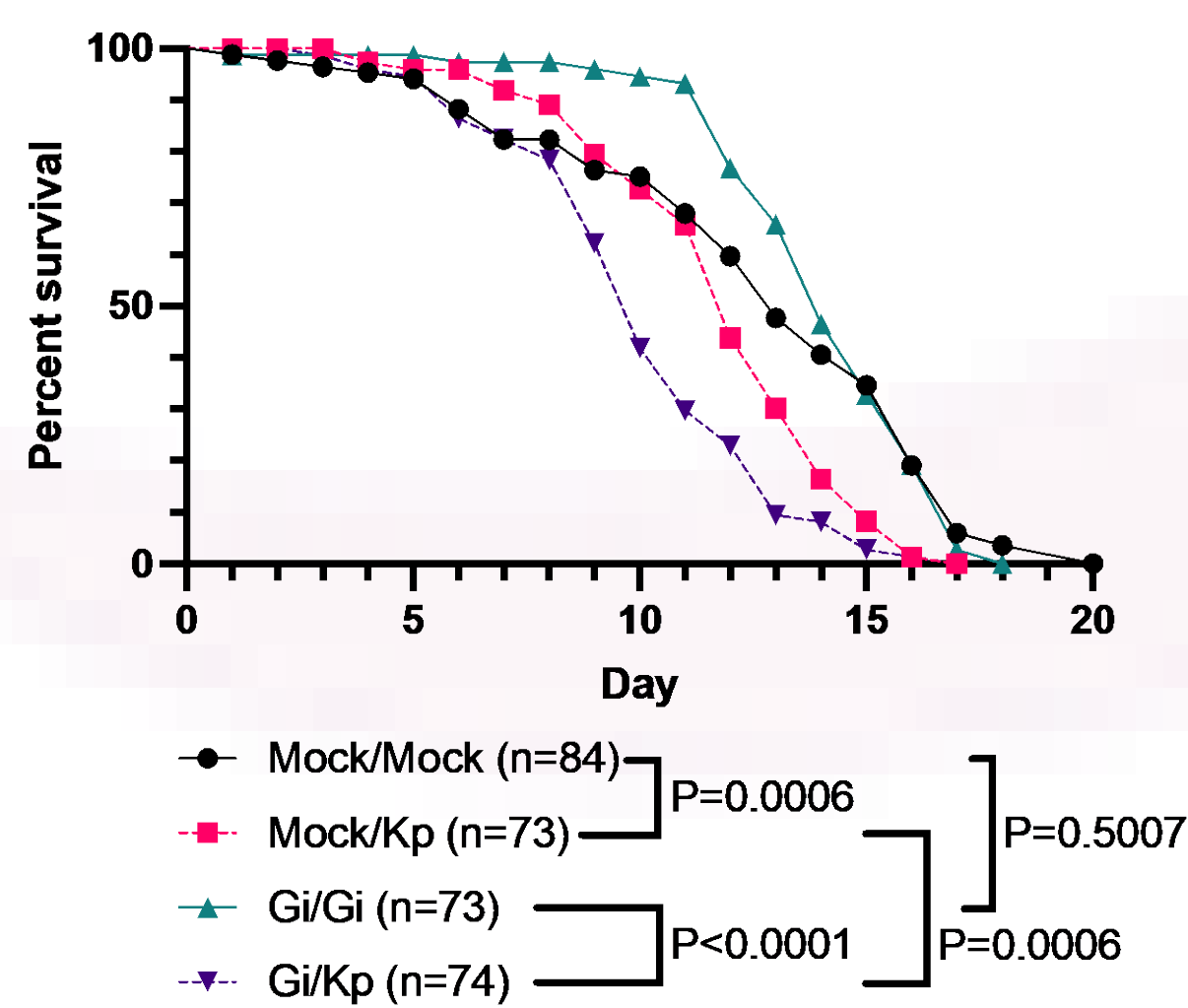


Figure 1. The lifespan of *gspd-1*-knockdown (Gi) *C. elegans* infected with *K. pneumoniae* (Kp) was significantly reduced compared with the Mock control infected with *K. pneumoniae*. The shortened lifespan caused by *gspd-1*-knockdown was not observed with *E. coli*.

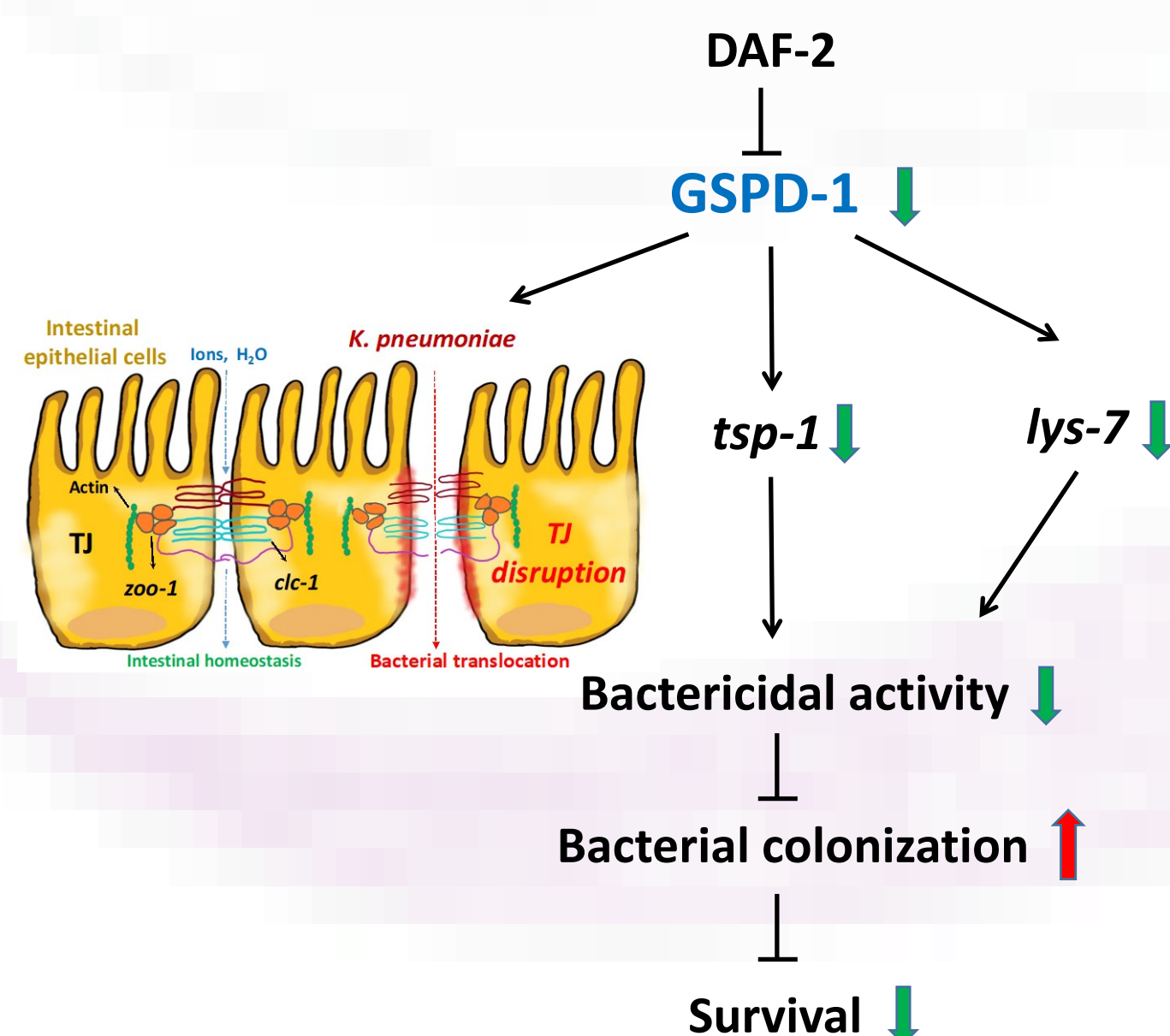


Figure 2. Schematic diagram of how GSPD-1 status modulates innate immunity and survival in *C. elegans* infected with *K. pneumoniae* through the maintenance of barrier function (*clc-1* and *zoo-1*), innate immunity (*tsp-1*), and anti-microbial peptides (*lys-7*).