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Function and structure of a novel anti-diabetes agent from *Ganoderma lucidum*

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Inhibition of protein tyrosine phosphatase 1B (PTP1B) activity has been considered as a promising therapy approach to treat type 2 diabetes. In this work, a novel PTP1B activity inhibitor, named *FYGL* (Fudan-Yueyang-*G. lucidum*), was screened from the fruiting bodies of *Ganoderma lucidum*, and showed an efficient PTP1B inhibitory potency with $IC_{50}=5.12\pm 0.05\mu\text{g/mL}$. The type 2 diabetic animals treated orally by *FYGL* showed an obvious decrease in the plasma glucose level, and comparable with those treated by metformin, a clinic drug. The toxicity of *FYGL* is very low. *FYGL* is a water soluble hyperbranched proteoglycan with molecular weight (M_n) of 10^5 . In addition, it was also found that *FYGL* could protect against the renal functional and morphologic injuries by increasing the activities of antioxidants and inhibiting the accumulation of oxidation. The results indicate that *FYGL* may serve as a drug candidate or a health-care food for the diabetic therapy and renal functional protection.

Biography

Ping Zhou has completed her BS degree study from Fudan University, China, and PhD degree and Post-doctoral studies from The Chinese University of Hong Kong. She was appointed as a staff member at Fudan University and promoted to full Professor in 2005. She has focused on the research of biomedicine materials and developed new drugs from natural herbs for diabetes treatment. She has published more than 100 scientific papers and got First Prize of Science and Technology Award (Natural Science), Ministry of Education of China (2004), Wang Tianjuan Award for Magnetic Resonance Spectroscopy in China (2006), and First Prize of Shanghai Natural Science Award (2011).

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