Author's response to reviews

Title: Extracellular polysaccharides produced by Ganoderma formosanum stimulate macrophage activation via multiple pattern-recognition receptors

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Dear Editorial Board of BMC Complementary and Alternative Medicine,

We are submitting the attached manuscript entitled “Extracellular polysaccharides produced by *Ganoderma formosanum* stimulate macrophage activation via multiple pattern-recognition receptors” by Cheng-Li Wang, Chia-Chen Pi, Yu-Jing Zhuang, Ching-Liang Chu, Wen-Hsiung Liu, and Chun-Jen Chen for consideration for publication in BMC Complementary and Alternative Medicine. All co-authors have seen and agreed with the contents of the manuscript and there is no financial interest to report. We certify that the submission is original work and is not under review at any other publication.

This manuscript provides detailed characterization of the immunostimulatory mechanisms of PS-F2, a polysaccharide fraction purified from the submerged culture of *G. formosanum*. The fungus of *Ganoderma* is a traditional medicine in Asia and exhibits various pharmacological functions including anti-cancer activities. We previously showed that PS-F2 could stimulate the activation of macrophages and protect mice against *Listeria monocytogenes* infection (Biotechnology Letters, 2011, 33:2271-2278). In the present report we identify that PS-F2 recognition by macrophages is mediated by three pattern recognition receptors: Dectin-1, CR3, and TLR4. We also show that PS-F2 stimulates the activation of mitogen-activated protein kinases (JNK, p38, and ERK) and NF-κB. Signaling pathways involving Syk, JNK, p38, ERK and NF-κB all played essential roles in PS-F2-stimulated TNF-α expression in macrophages. These results should be of interest to the readership with interests in the immunomodulatory constituents of medicinal fungi. The writing in the submitted manuscript has been edited by a professional English editor.

We hope that the editorial board will agree on the interest of this study.

Sincerely yours,

Chun-Jen Chen, Ph.D.
Assistant Professor