Seung Yeon Chung, J Glycobiol 2015, 3:3
http://dx.doi.org/10.4172/2168-958X.S1.003

OMICS International
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Glycobiology World Congress

August 10-12, 2015 Philadelphia, USA

Analysis of glycosylation pattern of secretory pathogenesis-associated mannoproteins in the human fungal pathogen *Cryptococcus neoformans*

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The human fungal pathogen *Cryptococcus neoformans* causes life-threatening meningitis in immunocompromised patients. The virulence of *C. neoformans* depends on production of a polysaccharide capsule and deposition of melanin in the cell wall along with an ability to secrete various proteins. Secreted phospholipase B1 (PLB1) with high levels of N-linked glycosylation is one of fungal virulence determinants. Several mannoproteins such as chitin deacetylase 2(MP98) are also known as key antigens stimulating T-cell response. Here, we report secretory expression analysis of PLB1 and MP98 by constructing His-tagged and GPI anchorless PLB1 (PLB1-His^{GPI-}) and MP98 (MP98-His^{GPI-}) proteins and expressing them in the wild-type and several glycosylation mutant strains of *C. neoformans*. The apparent molecular weights of PLB1-His^{GPI-} and MP98-His^{GPI-} were decreased in the mutant strains such as alg3Δ, mnn2Δ and och1Δ strains respectively which have defects in biosynthesis of N-linked glycans. Unexpectedly, the molecular weight of MP98-His^{GPI-} secreted from the O-glycosylation mutants was identical to that secreted from the wild type suggesting that ser/thr-rich regions in C-terminus of MP98 might not be O-glycosylated. Moreover, we observed that MP98 was secreted as more heavily glycosylated forms in synthetic complete medium compared to the cultivation with rich medium. The purified mannoproteins with different degree of glycosylation would be valuable tools to investigate the role of glycans assembled on mannoproteins in the interaction of *C. neoformans* with host cells.

Biography

Seung Yeon Chung completed Bachelor of Science at the age of 22 years from Suwon University. I am a graduate student in the master course of molecular biology under the supervision of Professor H. A. Kang at Department of Life Science, Chung-Ang University in Seoul, Korea.

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