Identification and functional characterization of *Acanthamoeba* secretory M28 peptidase for using as a potential diagnostic marker

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Background: *Acanthamoeba* keratitis (AK) is a serious disease caused by pathogenic *Acanthamoeba* through wounds of cornea; by and large, most high-risk patients catching AK wear contact lens generally over a long period of time. However, microscopic examination and polymerase chain reaction following the culture that they are traditional diagnostic tests for pathogenic *Acanthamoeba* need long time to confirm AK. Hence, we purpose to develop a rapid and sensitive antibody-based assay to improve the diagnostic procedure.

Objective: Comparing with proteomic analysis of extracellular secreted proteins expressed by two pathogenic *Acanthamoeba castellanii* clinical isolates and a non-pathogenic ATCC strain, we will evaluate the efficiency of *Acanthamoeba* M28 aminopeptidase (M28_AAP) as a diagnostic target for developing a rapid and sensitive antibody-based assay and investigate molecular and characteristics of the M28_AAP.

Methods: The M28_AAP antibody was produced to detect *Acanthamoeba* isolates through an antibody-based diagnostic test such as a western blot or an enzyme-linked immunosorbent assay (ELISA).

Results: We have produced successfully M28_AAP antibody to detect *Acanthamoeba* isolates through a western blot, an immunofluorescence assay (IFA) and an ELISA. Furthermore, the complement can be degraded by M28_AAP in the human innate immunity. We believe that M28_AAP will be the opportunity to develop a rapid diagnostic marker and newer target to decrease the AK patient cases. To evaluate the sensitivity and specificity of the *Acanthamoeba* M28_AAP antibody, we will plan to develop rapid diagnostic tests such as test strips on clinical diagnosis.

Biography

Jian-Ming Huang is currently studying in National Cheng Kung University. His major project is to study the protein expression in the parasitic protozoan Acanthamoeba. He also developed antibody to identify a rapid and sensitive antibody-based assay and investigate molecular and characteristics of the M28_AAP. A total of 2 papers were published by him based on his worke.

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