

3<sup>rd</sup> World Conference on

## PARASITOLOGY &amp; PATHOGENESIS

July 12-13, 2017 Chicago, USA

**Advanced enzymology, expression profile and immune response of *Clonorchis sinensis* hexokinase show its application potential for prevention and control of clonorchiasis****Tingjin Chen**

Sun Yat-sen University, China

Clonorchiasis, caused by *Clonorchis sinensis* infection, is a kind of neglected tropical disease. Approximately 35 million people are infected with *C. sinensis* globally, of whom 15 million are in China. Glycolytic enzymes are recognized as crucial molecules for trematode survival and have been targeted for vaccine and drug development. Hexokinase of *C. sinensis* (CsHK), as the first key regulatory enzyme of the glycolytic pathway, was investigated in the current study. CsHK possesses typical characteristics of non-mammalian HKs regarding the amino acid sequence and spatial structure. *r*CsHK is a homotrimer and a distinct 50 kDa G6P-sensitive allosteric HK. There were differences in spatial structure and affinities for hexoses and phosphate donors between CsHK and HKs from humans or rats, the definitive hosts of *C. sinensis*. Effectors (AMP, PEP and citrate) and a small molecular inhibitor (2-phenyl-1, 2-benzisoxazol-3(2H)-one, EbSe) regulated the enzymatic activity of *r*CsHK and various allosteric systems were detected. CsHK was distributed in the worm extensively as well as in liver tissue and serum from *C. sinensis* infected rats. Furthermore, high-level specific IgG1 and IgG2a were induced in rats by immunization with *r*CsHK. The enzymatic activity of CsHK was suppressed by the antibody *in vitro*. Additionally, the survival of *C. sinensis* was inhibited by the antibody *in vivo* and *in vitro*. Due to differences in putative spatial structure and enzymology between CsHK and HK from the host, its extensive distribution in adult worms and its expression profile as a component of excretory/secretory products, together with its good immunogenicity and immunoreactivity, as a key glycolytic enzyme, shows potential as a vaccine and as a promising drug target for clonorchiasis.

**Biography**

Tingjin Chen has obtained his PhD degree from Department of Parasitology at Sun Yat-sen University in 2015. He has developed a research program that provides new ideas for vaccine development against *C. sinensis* infection.

chentj7@mail.sysu.edu.cn

**Notes:**