

## Finding for epitope within egg shell protein of human liver fluke: A clue for cholangiocarcinoma vaccine development

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Dear Editor,

Cholangiocarcinoma is a deadly cancer occurring within the biliary tract. This cancer usually presents at late stage with severe jaundice and hyperalkalinephosphatasemia. The disease is usually unresectable at the first visit to the physician. This cancer is still a present public health threat in southeast Asia with its very high prevalence in Indo-China region. It is approved that human liver fluke infestation is an important cause of this cancer. At present, control of the fluke infestation is being widely promoted. Routine stool examination is recommended, however, this practice is usually ineffective since not all infested patients pass parasitic egg into their stool and the chance of reinfestation is very high. In addition, the coverage of stool examination is still not favorable. An effective way for controlling of disease is expected to be the use of vaccine; however, there is still no effective vaccine till now. The recent research showed that glycoproteins of human liver fluke took important role in immunopathological process. One of interesting proteins of human liver fluke is glycine/tyrosine-rich eggshell protein which is reported to be specific and immunogenic.<sup>[1]</sup> The present focus interest of the scientist is to develop vaccine based on the identified glycoprotein. In this report, the authors reports the finding from a preliminary study to find B cell epitope of egg shell protein of human liver fluke that can be a clue for further cholangiocarcinoma vaccine development.

In the present work, the author uses standard bioinformatics approach for determination of B cell epitopes within the glycoprotein glycans of human liver fluke. In this work, potential B cell epitopes searching on glycoprotein glycans of human liver fluke was done using a standard immunoinformatics tool. The protocol

for this immunoinformatics research is the same standard published protocol in the previous studies on cancer vaccine searching by the author's laboratory.<sup>[2]</sup> The input sequence in this work was "glycine/tyrosine-rich eggshell protein (*Opisthorchis viverrini*): Accession ABF13207", which was directly taken from PubMed (www.pubmed.com). Here, the best epitope with the highest immunogeneticity was 17HGYGYGGYGYGYGYGP followed by 123GGYGYGHGHHGNGNGN and 84GGYGGYGGYGGYGGNG.

To find out effective vaccine for cholangiocarcinoma is the present topic for cholangiocarcinoma research. Recently, Lange *et al.*, proposed for the use of a novel armed oncolytic measles vaccine virus as cholangiocarcinoma vaccine.<sup>[3]</sup> Shimizu *et al.*, and Kotera *et al.*, also noted for successful use of dendritic vaccine for cholangiocarcinoma.<sup>[4,5]</sup> However, these reports are not about preventive, rather therapeutic vaccination. In the present report, the author uses a standard immunoinformatics technique<sup>[2]</sup> for finding of epitope within egg shell protein of human liver fluke. The identified epitopes can be useful for further cholangiocarcinoma vaccine development.

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