Research Title Inhibition of Ubiquitin-Specific Protease14 by RNA Interference (RNAi) in Cholangiocarcinoma Cell
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Year 2013

Intrahepatic cholangiocarcinoma (ICC), a malignant neoplasm of the biliary epithelium in the liver is a major health problem in Northeast Thailand. At present, the molecular marker finding of the disease has been elucidated. Previously, the genomic instabilities of Thai patients with ICC were studied by arbitrarily primed-polymerase chain reaction (AP-PCR). Specific region of *Ubiquitin- Specific Protease 14* or *usp14* gene on chromosome 18 giving gene variation 52% was found. In this study, we intended to inhibit the gene expression using RNA interference or RNAi technique. The 3 sets of oligoduplex RNAi were designed and used for transfection to cell lines including KKU-100 and M213 cells. The results showed that almost 90% of the cell lines were transfected with the RNAi compared with RNAi negative control. Gene expression (RNA level) was then studied using quantitative real-time PCR. The results showed that RNAi set no.1 has the highest efficiency in KKU-100 cell in 24 hour (93.35%). As well as, RNAi set no.3 has the highest efficiency in M213 cell in 72 hour (93.84%). The conclusion is that the designed RNAi (s) can be used to inhibit *usp14* gene expression. However, invasion assay of this inhibited gene in M213 was shown no different. Nevertheless, Ubiquitin specific protease 14 (USP14) plays role to control the length of Ubiquitin, that is the internal cell controller. This study provided information of medical application especially a prevention from invaded cancer cells.