Daraporn Chua-on et al., J Cancer Sci Ther 2017, 9:4 (Suppl)
http://dx.doi.org/10.4172/1948-5956-C1-099

High expression of apoptosis-inducing factor, mitochondrion-associated 3 (AIFM3) in human cholangiocarcinoma

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Diagnostic biomarker of cholangiocarcinoma (CCA) patients is absolutely poor in spite of extensive efforts for the improvment of diagnosis. Mitochondial proteins play key roles in carcinogenesis of various cancer. Therefore, mitochondria are considered as the target organelles for discovering biomarkers of several cancers including CCA. The purpose of this study is to identify potential candidate proteins for diagnosis using mitochondrial proteome analysis for CCA tissues. A shotgun proteomic approch using SDS-PAGE coupled with LC-MS/MS was applied to compare the expression of mitochondrial proteins in CCA and the adjacent non-cancerous tissues. Using the proteomic analysis for the pooled mitochondrial proteins purified from three each of papillary and non-papillary types of CCA and their adjacent tissues, 281 proteins were identified as mitochondrial proteins, and 105 of them showed significantly different expression compared with the corresponding counterparts. Among 105 proteins, apoptosis-inducing factor, mitochondrion-associated 3 (AIFM3) was a unique protein commonly over-expressed in both papillary and non-papillary types ot CCA tissues but not in the adjacent non-cancerous tissues. Immunohistochemistry showed expression of AIFM3 staining was significantly higher in CCA than in the corresponding adjacent non-cancerous tissues. Furthermore, high expression of AIFM3 was also significantly expressed in human serum CCA. In conclusion, AIFM3 was aberrantly expressed in both CCA tissues and serum. This finding suggeests that AIFM3 could be a potential biomarker for CCA diagnosis.

Biography

Daraporn Chua-on is currently pursuing a Doctoral degree in Medical Sciences at the Faculty of Associated Medical Sciences, Khon Kaen University, Thailand. She is interested in cancer biomarkers and chemotherapeutic target.

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