

Title: Promising biomarker for early detection of colorectal cancer on *S. mansoni* Patients

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Introduction and Objective: An estimated 18% of cancer cases worldwide are related to infectious diseases, Schistosoma parasites, are often associated with human cancers. The aim of this study is to identify a specific biomarker for the detection of the early development of colorectal cancer on *schistosoma mansoni* infected patients.
Methods: The study included 93 patients with colorectal cancer and/or *S. mansoni* infection. The proteins extracted from serum samples of patients and separated on SDS-PAGE. Specific protein band was then subjected to MALDI-TOF analysis. The level of specific protein was detected in the serum samples by ELISA. The role of a specific protein in colorectal cancer cells by performing specific gene silencing (siRNA) in the cancer cells was determined and the cell proliferation, apoptosis induction and cell migration by LDH Assay, Flow Cytometry, and Wound Healing Assay respectively.
Results: Specific protein band (40 kDa) was identified from the serum samples of colorectal cancer patients with *S. mansoni* infection, and identified as a Clusterin protein. Moreover, high level of Clusterin was measured in the serum of patients who were diagnosed with colorectal cancer with *S. mansoni* infection. Silencing Clusterin gene on colorectal cancer cell lines revealed that the percentage of cytotoxicity in the gene-specific silenced colorectal cancer cells were increased significantly. In addition, cell migration in Clusterin-silenced cells were decreased significantly. Nevertheless, no apoptosis induction was recorded in this study.
Conclusion: The study showed that the colorectal cancer patients infected with *S. mansoni* expressed a high level of Clusterin protein, moreover, silencing Clusterin gene in colorectal cancer cells provide useful information about the role of Clusterin in colorectal cancer cells proliferation and invasion, whereby this could be a potential biomarker for early detection, and aid cost-effective therapeutic agent for the treatment of colorectal cancer patients infected with *S. mansoni* in the future.
Challenges and recommendation: Further studies are needed on the role of Clusterin in the development of colorectal cancer on *S. mansoni* patients, to aid of early detection and treatment of colorectal cancer patients, who are infected with *S. mansoni*.

Biography

Eshtiyag Abdalla Abdalkareem has completed her PhD at Molecular Medicine (cancer research) from the Institute for Research on Molecular Medicine (INFORMM) – University Science Malaysia (USM) in 2016, and she have MSc degree in Immunology from Sudan Academy for Science. She working as Scientific researcher at Sumitomo Foundation (small project) in 2017. Since 2018 she is a head of the Department of Immunology and Biotechnology at Tropical Medicine Research Institute (TMRI) – Sudan and Part-time lecturer at the Department of Biology - Faculty of Science

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