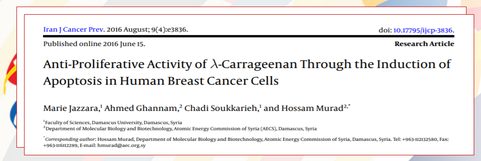

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Anti-Proliferative Activity of λ-Carrageenan Through the Induction of Apoptosis in Human Breast Cancer Cells

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Fibrin deposits on peritoneal carcinomatosis serves as a niche for cancer cell implantation and dissemination. A scanning electron microscopy analysis

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INTRODUCTION

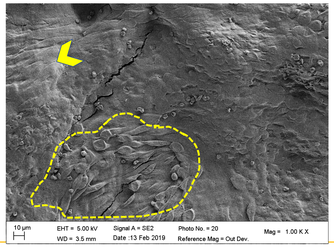
Peritoneal carcinomatosis (PC) is a very serious complication of gastrointestinal and gynecological malignancies which is poorly documented. On the peritoneal cavity, modified mesothelial cell layer and their microenvironments can favor fibrin deposition for cancer cell adhesion.

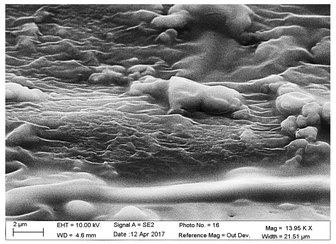
METHOD

Scanning and transmission electron microscopy of peritoneal surface and cancer cell clusters from cancer patients as well as mouse induced carcinomatosis was done. For *in vitro* studies, several post-operative peritonea from digestive and ovarian cancer were collected. In mouse models, carcinomatosis is induced by CT26 colon cancer and D8, a mouse ovarian cancer cell lines. The samples were destined for immunohistochemistry (IHC) and scanning electron microscopy analysis. For the first method, tissues were fixed with paraformaldehyde (PFA) and paraffin embedded. For the second method, tissues were fixed with PFA and then with glutaraldehyde. Anti-fibrin F1E1 monoclonal antibody was used for fibrin detection in IHC. For *in vivo* studies, mice carcinomatosis induced by pilling of peritoneal surface before intraperitoneal CT26 cells injection, the presence of fibrin on the peritoneum surface was identified by bioluminescence apparatus. The fibrin deposit detected using an anti plasmin peptide that binds to fibrin: F13P peptide 1mg/ml (GNQEQVSPLTLLKC) labelled with either Alexa 488 or 560 fluorochromes (Thermofisher- France).

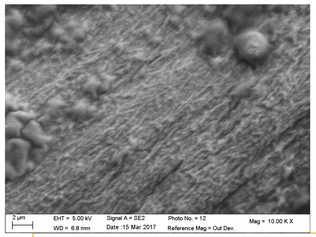
RESULTS:

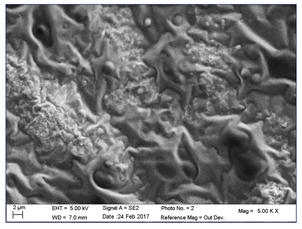
i) in carcinomatosis peritoneum, mesothelial cell shape were modified and the cells were detached from basal membrane

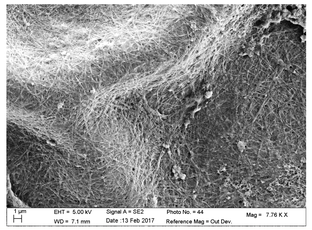




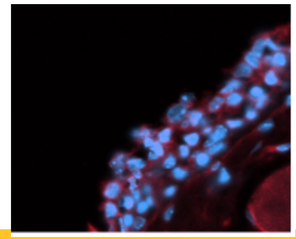
ii) fibrin deposit was identified in the intercellular space,

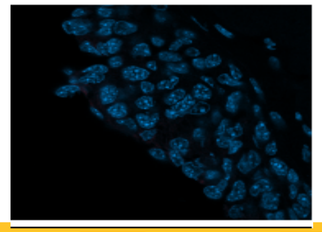




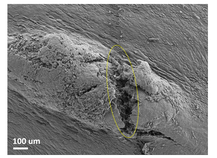


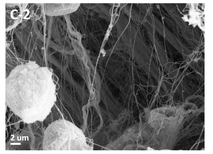
iv) by immunohistochemistry using F1E1, fibrin deposit was detected in carcinomatous peritoneum.

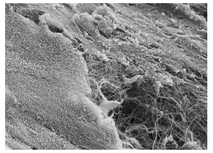




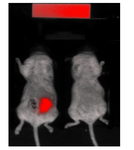
iii) cancer cells interact with fibrin network on the peritoneum.

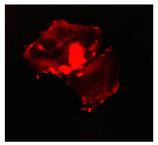






v) in animal model, the co-localization of fibrin deposit with the cancer nodules was demonstrated on the peritoneum using fluorescent F13





CONCLUSIONS

Fibrin deposition in the peritoneal cavity can serves as a niche for cancer cell implantation and dissemination.