

Effect of Engineered Low Glycemic Foods on Cancer Progression and Healthy State

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Abstract : Background/Aims: Despite recent advances in treatment options, a modest impact on the outcome of the pancreatic cancer (PC) is observed so far. Short-term fasting cycles have the potential to improve the efficacy of chemotherapy against PC. However, diseased people may refuse to follow the fasting regimen and fasting may worsen the weight loss often occurring in cancer patients. Therefore, alternative approaches are needed. The aim of this study was to assess the effect of Engineered Low glycemic food ELGIF mimicking diet on growth of cancer cell lines in vitro and in an in vivo pancreatic cancer mouse xenograft model. Materials and Methods: BxPC-3, MiaPaca-2 and Panc-1 cells were cultured in control and ELGIF mimicking diet culturing condition to evaluate the tumor growth and proliferation pathways. Pancreatic cancer xenograft mice were subjected to ELGIF to assess the tumor volume and weight as compared to mice fed with control diet. Results: Pancreatic cancer cells cultured in ELGIF mimicking medium showed decreased levels of proliferation as compared to those cultured in the standard medium. Consistently, xenograft pancreatic cancer mice subjected to ELGIF diet displayed a significant decrease in tumor growth. Conclusion: A positive effect of ELGIF diet on proliferation in vitro is associated with the decrease of tumor progression in the in vivo PC xenograft mouse model. These results suggest that engineered dietary interventions could be supportive as synergistic approach to enhance the efficacy of existing cancer treatments in pancreatic cancer patients.

Keywords : functional food, microbiota, mouse model, pancreatic cancer

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