E-cadherin Expression as a Predictor of Epithelial to Mesenchymal Transition in Early Onset Colorectal Cancer

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Colorectal Cancer (CRC) is the second leading cause of cancer death. This is because during early stages, CRC is difficult to catch, which means that treatment can only be offered after the cancer has progressed. Usually, people over the age of 50 have to worry about CRC. However, data has been showing that cases of Early Onset CRC are becoming significantly more frequent. In order to solve this, E-cadherin, a protein meant to support cell structure, was studied. This experiment tested whether E-cadherin expression could be used as a predictor of Epithelial to Mesenchymal Transition (EMT), which is a process that heavily contributes to cancer metastasis. For this experiment, tissue sections of various cancer stages underwent a rehydration process, an antigen retrieval process, fluorescence-linked immunoassay, and exposure to primary and secondary antibodies. All of these steps were meant to stain the E-cadherin within the tissue, so that after it had been processed, you could visualize how E-cadherin expression changed based on cancer progression. After analyzing the data, it's safe to say E-cadherin expression can be used to predict EMT, as the photos taken of the slides support that hypothesis. They depict how the E-cadherin expression decreased as the cancer metastasized. This data is vital for patients because their E-cadherin can tell them how advanced their cancer is, and make getting treatment easier. While there isn't a cure for cancer yet, this experiment will allow for efficient diagnosis and treatment for the cancer that no one should have.

Awards Won:

NC State College of Engineering: Alternates (not read aloud)