Investigating the Interactions between LINGO1, EGFR, and the Trefoil Factor Family and Their Relation to Colorectal Cancer

Worth, Joshua (School: Kamehameha Schools Maui)

Background: EGFR is a type of cell surface receptor that is responsible for cell growth, especially in epithelial tissues. Studies show that in some tumors, EGFR is overexpressed, especially in colorectal tumors. One possibility of regulating EGFR is through LINGO1. LINGO1 is a transmembrane signaling protein and studies have shown that the LINGO1 interacts with EGFR as LINGO1 inhibits the intracellular signaling pathways of EGFR. Since, LINGO1 is a negative regulator of EGFR it could prevent EGFR overexpression and tumor growth. While LINGO1 and EGFR may interact, the trefoil factor family could affect their interaction. Methodology: The purpose of this research was to test whether TFF peptides affect the interaction between LINGO1 and EGFR. It was hypothesized that TFF peptides regulate the binding between LINGO1 and EGFR. Results: We were unable to obtain results concerning the interactions between LINGO1, EGFR, and the Trefoil Factor family and their relation to Colon cancer, gels ran throughout the experiments show the sizes of the products. It was confirmed that the LINGO1 PCR product was1845 bases. The GFP vector is 6159 base pairs and the RFP vector is 6117 base pairs. The several attempts to create successful constructs all fell short. Conclusion: To restate the hypothesis; It was hypothesized that LINGO1 is a negative regulator of EGFR by TFF 2/TFF 3. The hypothesis is pending because the LINGO1:GFP and LINGO1:RFP plasmid vectors were not successful, therefore, the analysis of colocalization of LINGO1 and EGFR through TFF2/TFF3 could not be performed.

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