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Methylation of DNA in colitis-associated colorectal cancer

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Title: Methylation of DNA in colitis-associated colorectal cancer

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Colorectal cancer, the third most common cancer globally, is a serious complication of inflammatory bowel disease (IBD), a chronic inflammatory disease of the intestine leading to colitis-associated colorectal cancer (CAC). Studies show that CAC can arise from a rare cell in the intestine called a tuft cell. DNA methylation changes that can affect gene expression have previously been detected in CAC. In this study, I will test the hypothesis that inhibition of DNA methylation inhibits CAC formation. This will be investigated using the tuft cell derived CAC mouse model. In this model, a genetic and a pharmacologic approach will be used to inhibit DNA methylation. I will then further investigate the mechanism by which inhibition of DNA methylation decreases tumor formation. This study will provide insight into the role of DNA methylation in tuft cells on CAC formation and shed light on whether modulating DNA methylation can affect CAC.