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Grant awarded £5,947 (1 Year)

***Phosphoinositide-3-kinase γ expression in colorectal carcinoma
Associated with inflammatory bowel disease***

Bowel cancer is one of the commonest cancers in the general population and in some people with inflammatory bowel disease (IBD), the risk of bowel cancer can be even higher. Currently, in order to detect these cancers at an early and curable stage, yearly or at least two-yearly colonoscopy is necessary. Unfortunately, in addition to the small risk associated with colonoscopy, many patients also find it difficult to undergo such regular colonoscopy. Another option is to remove the entire large bowel in patients at high risk as a preventative measure, but this approach also has obvious disadvantages. Alternative ways of identifying patients with very early bowel cancer, or abnormalities that may lead to cancer would therefore be extremely valuable.

It is not known why the risk of bowel cancer is increased in some patients with IBD, but recent exciting experiments have shown that a deficiency of the protein phosphoinositide-3-kinase γ PI(3)K γ results in profound abnormalities of the inflammatory response, and an increased risk of bowel cancer. Furthermore, other proteins in the same pathway are known to be involved in bowel inflammation and cancer. Preliminary testing has also demonstrated that PI(3)K γ is deficient in about a quarter of colon cancer samples taken from patients.

If this pilot study confirms the importance of PI(3)K γ in bowel cancer, and particularly bowel cancer associated with ulcerative colitis, we propose to go on to more extensive clinical and molecular studies. Identifying the role of PI(3)K γ in bowel cancer may provide us with a sensitive tool to detect early bowel cancer, and medicines that modify the function of PI(3)K γ could provide new forms of treatment and prevention for bowel cancer and IBD.