Medical Xpress

New type of molecular switch could turn up the volume on bowel cancer treatment

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(Medical Xpress)—A new type of molecular switch can boost common chemotherapy drugs to destroy bowel cancer cells, according to research presented today (Monday) at the NCRI Cancer Conference in Liverpool.

Scientists at the University of Dundee examined hundreds of molecules which may help to predict whether bowel cancer patients can be successfully treated with chemotherapy.

Many bowel cancer patients are treated with a drug called 5-fluorouracil, or 5-FU, but not all patients respond well. It is difficult to predict which patients will be successfully treated.

The team revealed in laboratory experiments that blocking a molecular switch called miR-224 'tricks' bowel cancer cells containing a healthy gene called K-RAS into behaving like cells with a damaged form of the gene.

K-RAS usually controls the normal growth of healthy bowel cells. But faulty versions of K-RAS are found in one third of bowel cancers, particularly in fast-growing cancers with poor survival.

The research showed that common drugs, 5-FU and oxaliplatin, were more effective in treating bowel cancer cells with damaged forms of K-RAS, and bowel cancer cells with healthy K-RAS in which the miR-224 switch had been blocked.

Lead author, Dr Gillian Smith, at the University of Dundee, said: "Our research reveals that changing the behaviour of K-RAS boosts the effect of certain drugs to kill bowel cancer cells.

"This research is at an early stage, but if we're able to prove these results in larger studies, the findings could provide new scope for bowel cancer treatments targeting the K-RAS gene. Our findings are particularly interesting because there is already a test available in the clinic that can identify which patients have a faulty version of K-RAS."

Bowel cancer is one of the most commonly diagnosed cancers in the UK with more than 41,000 people diagnosed with the disease in the UK each year.

Dr Jane Cope, director of the NCRI, said: "This is exciting research that adds to the dramatic progress made over the past thirty years in tackling bowel cancer.

"People diagnosed today are twice as likely to survive for at least ten years as those diagnosed in the 1970s and we hope that these findings will one day help scientists develop better ways to treat and monitor the disease in the future - ultimately increasing survival from cancer."

Provided by University of Dundee

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