

New regions of genetic material are involved in the development of colon cancer

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Most research on human cancer genes have been focused on the regions of the coding genome (exons) that are to be translated in the form of amino acids thus proteins. But just before each gene, there is a regulatory region or activator which controls the expression and activity of the adjacent gene. Until now, very little was known of the role exerted such DNA fragment in tumor development.

An article published today in *Nature* in collaboration with the group of Manel Esteller, Director of Epigenetics and Cancer Biology, Bellvitge Biomedical Research Institute (IDIBELL), ICREA researcher and Professor of Genetics at the University of Barcelona, shows that these regions are also altered in cancer.

"The results of the *Nature* study reveal that regulatory regions preceding the gene as such, are variable, can mutate and be chemically modified, such as with DNA methylation in the cells of the tumor transformation" declares Esteller, co -author of the study.

"By studying a large cohort of patients with [colon cancer](#), a tumor type very common in our society, we realized that these areas of control genes were so injured as genes and caused an altered function of the target gene. Our work shows a new list of genes involved in cancer development, hitherto unknown, which are abhorrent simply by poor control of these promoter regions. "

These findings may have a profound importance in understanding the

biology of cancer and stress the need not only to focus on the region of the classical genes (exome), but also wonder about the regulatory regions of oncogenes and [tumor suppressor genes](#) .

More information: Ongen H, Andersen CL, Bramsen JB, Oster B, Rasmussen MH, Ferreira PG, Sandoval J, Vidal E, Whiffin N, Planchon A, PADIOLEAU I, Bielser D, Romano L, Tomlinson I, Houlston RS, Esteller M, Ørntoft TF, Dermitzakis ET. Putative cis-regulatory drivers in colorectal cancer. *Nature*, [DOI: 10.1038/nature13602](#), 2014

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