

RELATIONSHIP BETWEEN OBESITY AND COLON CANCER EXPLORED AT THE MOLECULAR LEVEL

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Ministry of Science & Technology

Relationship between obesity and colon cancer explored at the molecular level

Posted On: 13 MAR 2020 3:51PM by PIB Delhi

Obesity per se does not cause cancer. But, the behaviour and prognosis of cancer can vary depending on whether or not the cancer patient is co-morbidly obese. Many different factors can cause obesity. One of the major reasons is genetic in nature. A mutations or small changes in the DNA can make one obese by making an important signalling pathway called the leptin signalling pathway non-functional. Leptin signalling pathway is involved in regulating food intake, energy consumption and body fat content, by mediating communication of the gut and fat cells with the brain.

To determine whether obesity resulting from leptin deficiency could have any influence on cancer, Dr. Manoj Kumar Bhat and his research team at the National Centre for Cell Science (NCCS) in Pune studied the differences in the incidence and progression of colon cancer when it occurs in association with genetically-linked obesity, vis-a-vis when it occurs in association with diet-induced obesity.

Their studies in laboratory-bred mice revealed significant differences between these two groups. Further, these differences were found to be strongly correlated with the balance between two important molecules, leptin and TNF alpha, which influence the growth of cancer cells. These studies were carried out with approval from the Institutional Animal Ethics Committee, following humane and ethical procedures as per the applicable rules. They have provided valuable insights into the molecular connections underlying the relationship of diet-induced and genetics-associated obesity with colon cancer. These findings warrant further exploration through more in-depth clinical studies, to determine if they have any implications in and relevance to the management of cancers.

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