

Researchers at IGIB devise a new way of controlling cancer

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Researchers at Delhi's CSIR-Institute of Genomics and Integrative Biology (CSIR-IGIB) have found the mechanism by which controlling the levels of telomerase can help in reining in the growth of cancer cells and probably prevent cancer metastasis.

In normal cells the telomerase is kept under tight control. But in about 85 per cent of all cancers the telomerase levels are more than normal leading to malignant transformation and aggressive metastasis in many cases.

The team of researchers used proteomics based analysis to study interactions of a protein called nonmetastatic 2 or NME2 protein, that was found to control the levels of telomerase.

The researchers found that NME2 binds to a DNA structure (G-quadruplex) found in the telomerase promoter. Once bound, the NME2 facilitates a well-known suppressor of gene expression (REST complex) to bind to the telomerase promoter and control the production of telomerase.

Since the amount of NME2 is low in many metastatic cancerous cells, the researchers used small molecules that were able to function like NME2 by recognising and binding to the DNA structure.

Based on the initial lead from the small molecules, the researchers are planning to synthesise new molecules to optimise for drug-like characteristics for therapeutic use. The molecules will then be tested on animals.