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Study of Kindlins proteins reveal novel pathways for cancer treatment

30 July 2024 | News

To open a new strategy in the 4000 years old war against cancer



A new study has investigated the influence of Kindlins, adapter proteins that exist inside cells of vertebrates, in various cancers. Since this protein is central to many signaling pathways, targeting it could lead to new cancer treatments that address multiple aspects of the disease at once.

A team from S. N. Bose National Centre for Basic Sciences in Kolkata, an autonomous institute of the Department of Science and Technology (DST), collected data of 10,000 patients with 33 cancer types from The Cancer Genome Atlas, to understand the role of Kindlins in turning normal cells into cancerous ones.

The researchers found that Kindlin 1 (belonging to Kindlin family) regulates the immune microenvironment in breast cancer and that cancer-specific metabolic regulation, such as TCA cycle and glycolysis, is governed by Kindlin 2.

Kindlin family of proteins contains three members: Kindlin 1, 2, 3 with distinct amino acid sequences and tissue distribution. “Hippo signaling is a kind of signal in cancer cells that tells the cell to migrate and invade other tissues. Kindlin 2 can also regulate Hippo signaling,” explained the researchers.

The researchers employed structural and functional genomics tools on this data to investigate the influence of Kindlin family proteins on mechano chemical signaling in various cancers.

The study strongly suggests that Kindlins participate in essential mechano sensitive pathways. This study also suggests a potential link between Kindlin dysfunction and adverse survival outcomes.

Chemoresistance and tumor relapse are two major challenges faced by oncologists. The present study will serve as a beacon for developing future therapeutic strategies, targeting the roles of Kindlins in cancer treatment.