INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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Programme of Study	:	Ph.D.
Thesis Title:	:	Targeting Notch Signalling in the EMT Dynamics of Triple-Negative Breast Cancer cells
Name of Thesis Supervisor(s)	:	Prof. Siddhartha Sankar Ghosh
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SHORT ABSTRACT

The thesis work describes the identification and targeting the pivotal molecules of the Notch signalling pathway to combat the aggressive characteristics of TNBC cells (such as EMT, drug resistance and stemness). Initially, the identification of the nodes was carried out, which provided us with the major proteases. They were further targeted using a Polypharmacology approach by a repurposed drug, selected from extensive *in silico* screening. Furthermore, an effective combination therapy was established, which aimed in targeting the Notch signalling pathway along with the VEGF pathway. Finally, a combination therapeutic module was established, which aimed in increasing the effectiveness and outcome of an HDAC inhibitor (SAHA), thereby inhibiting EMT, stemness and survival of the TNBC cells. The effectiveness of combination treatment on monolayer cultures, and complex tumour spheroids illustrates the therapeutic significance of combination treatment as an attractive alternative in cancer therapeutics.