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Novel cell lines enriched in cancer stem cells as tools for biomarker identification and drug development in breast cancer

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Increasing evidence indicates that most rational therapeutic strategies fail to eradicate a subset of cells that are exclusively responsible for tumor initiation and propagation of breast cancer. These cells are termed cancer stem cells (CSCs) or tumor initiating cells (TICs). Clinical success for any therapeutic approach requires that the TICs be eradicated effectively and expeditiously. Many laboratories across the world are intensively characterizing these cells to identify novel treatment modalities to fight cancer. My talk will focus on our recently developed breast cancer cell lines that are enriched in breast cancer stem cells. I will demonstrate through examples the potential use of these cells in identifying biomarkers that are differentially expressed in cancer stem cells and the consequent pre-clinical testing to demonstrate their utility for drug screening assays. We have shown that these cell lines reproduce many of the characteristic features of breast cancer stem cells thus indicating distinct advantages in using these cell lines to monitor the activity of the CSCs instead of the 1% cells isolated from breast cancer biopsies currently being used in many laboratories.

Biography

Dr. Geetika Chakravarty's research is geared towards the identification and evaluation of new cancer stem cell biomarkers and novel strategies to target them using breast cancer as the model system. Her research has resulted in patents, invited book chapter and several first and co-authored publications. She is also dedicated to help maintain the most rigorous standards of scientific inquiry and progress and as such serves as the editorial board member and journal reviewer of cancer related journals.

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