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The telomerase inhibitor imetelstat perturbs key signaling pathways in cancer stem cells

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The reverse transcriptase telomerase is one of the hallmarks of cancer and an excellent candidate for targeting cancer. Imetelstat is a potent inhibitor of telomerase with demonstrated anti-tumor effects in several pre-clinical studies. Imetelstat is currently in Phase II clinical trials. Cancer stem cells (CSCs) are typically resistant to conventional therapeutic approaches, and targeting them remains a largely unmet clinical need. Imetelstat was recently shown to deplete cancer stem cells in several in-vitro and in-vivo cancer models. We investigated the mechanisms through which imetelstat acts on cancer cells and CSC subsets in glioblastoma cell lines. We find that key signaling pathways required for cancer and CSC maintenance are down regulated by imetelstat treatment. We are leveraging on our current observations to discover approaches that may provide clinical synergy with telomerase inhibition.

Biography

Dr. Immanual Joseph graduated with a Ph.D. in Biochemistry from Tulane University, New Orleans, LA. He completed postdoctoral studies at Geron Corporation, CA, where he now works as a scientist in Oncology research and as a team leader of microRNA therapeutics. Dr. Joseph's key areas of interest include developing strategies to target cancer stem cells, understanding the consequences of telomerase inhibition in cancer and developing anti-cancer therapies using microRNA targets.