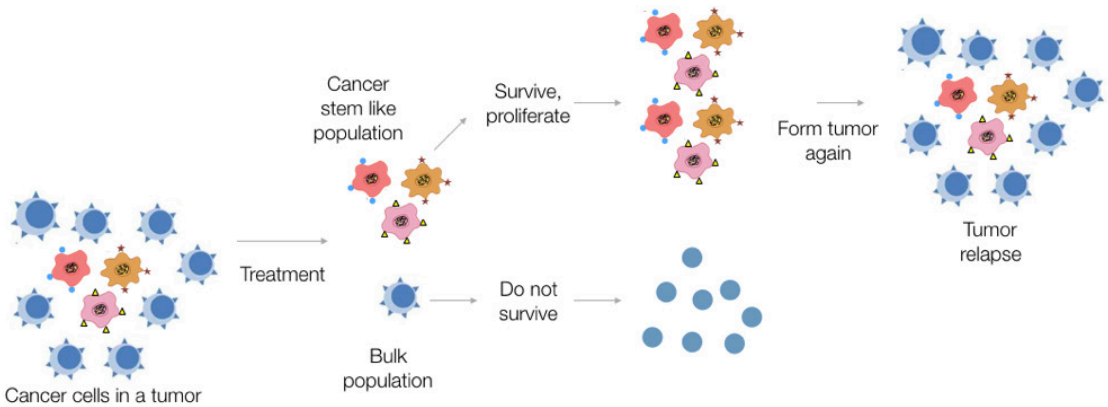
Cancer stem cells: The seeds of cancer and their roles in cancer progression

Cancer stem like cells are a heterogeneous population that have been identified in several cancers. They are considered to be the seeds through which cancer progresses and survives in the body. Since these cells are very different from the bulk population in the tumour, they also show differential behavior towards various treatment options. They are resistant to most treatments and give rise to tumour relapse. Our aim is to identify



how these cells are different from the bulk tumour population by studying their mechanical properties, regulated by the myosin pathway, such as their stiffness and contractility. The myosin pathway is a major regulator in several cellular functions and works by phosphorylation by several kinases. We are also interested in dissecting the exact mechanism by which these kinases regulate the function of myosin not only in the cancer stem like population, but also in the bulk population. The different behavior of these cancer stem like cells hold the key to solving the enigma of targeting them, leading to complete tumour remission. Our ultimate aim is to identify the properties (physical and molecular) which are common in cancer stem cells (CSCs) and cancer bulk population to eradicate the tumor.

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