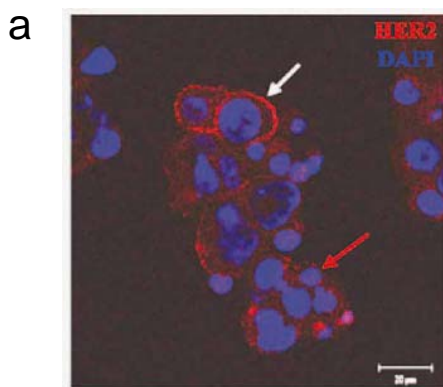
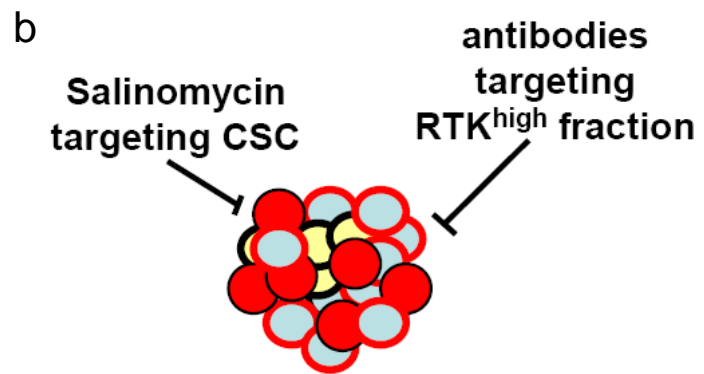


## Combinatorial Treatment - Targeting Cancer Stem Cells

One of the reasons for chemoresistance of breast tumors is their great degree of heterogeneity as they are composed of various histological subtypes and have variable clinical manifestations and underlying molecular signatures. In this context, one of the models we utilize are 3-dimensional multicellular tumor spheroids as it mimics the *in vivo* tumor architecture and physiology better than the 2D monolayer cell culture model. Moreover this spheroid model system has been associated with certain stem cell markers hence enriching the cancer stem cell fraction which is one of the causes of chemoresistance.



a) Her2 expression of a breast cancer spheroid



b) Model of combinatorial treatment of a heterogeneous tumor

One step forward in the treatment of cancer stem cells was the discovery of salinomycin that significantly reduces the cell viability of this populations which is otherwise resistant to classical chemotherapeutics. In a previous report we demonstrated efficient killing of most of the heterogeneous population (along with cells showing stem cell-like phenotype) of a tumor (Oak *et al.*). This opens up possibilities for new combinatorial treatment strategies. These treatment strategies can be further developed to treat the cell population which otherwise skip chemotherapy and cause chemoresistance.