



Cellular and molecular mechanobiology group

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Targeting mechanotransduction for cancer therapies

Despite recent advances, cancer treatments unfortunately often fail in the long run, reducing life expectancy. To solve this problem, there is a pressing need for new treatments that operate through novel mechanisms and that can therefore be used in combination or independently from current approaches. In our group, we aim to do this by targeting a novel aspect of cancer: tumor stiffness. As exemplified by the hard lumps characteristic of breast cancer, solid tumors of many different origins are systematically stiffer than healthy tissue, and this stiffening per se promotes tumor progression. We have identified a family of drugs that inhibits cell response to increased stiffness, and that therefore have a high potential to inhibit tumor growth. Within this project, the selected student will develop the drugs, characterize their operating mechanism, and evaluate their potential efficacy in in vitro and in vivo models. The work will combine molecular biology, biophysical approaches, theoretical modelling, and very close collaboration with leading cancer groups in the Barcelona area.

