

How does the physical stiffness of a tumor cell affect not just its growth, but also how it responds to treatment?

A tumor's stiffness plays a critical role in cancer progression and influences how cancer cells spread, interact, and respond to therapies. By measuring tumor cell stiffness, we can uncover valuable information about cancer behavior, which can lead to earlier, more accurate diagnoses and help optimize and personalize treatment decisions.

Cancer cell stiffness matters

Cancer isn't just about abnormal cell growth - it's also about changes in the physical properties of cells and tissues.

How does stiffness affect cancer cells and treatment responses?

Cancer Aggressiveness:

Tumor cells have different stiffness profile than healthy cells. Softer cells are more likely to spread and metastasize which may warrant more aggressive treatment. Firmer cells can be considered slower growing or indolent.

Therapy Resistance:

Stiffness of the tumor microenvironment can limit the effectiveness of some treatments, especially immunotherapies. Measuring stiffness can help us predict and possibly overcome resistance, making treatments more effective.

Treatment Optimization:

Some therapies may work better when combined with approaches that affect tumor stiffness, helping drugs reach their targets more effectively and improving outcomes.





Deliver benign vs. malignant diagnosis immediately after biopsy is taken

Cancer cells



TME heterogeneity results in treatment resistance



Predict the risk of metastasis based on cell stiffness through the Imminent Aggressiveness assessment (indolent vs. aggressive cancer differentiation)



Provide treatment recommendation tailored to Aggressiveness and Tumor Microenvironment (TME) stiffness profile



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