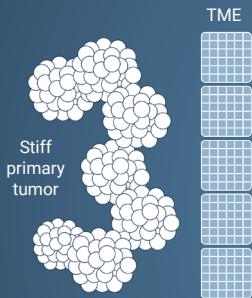




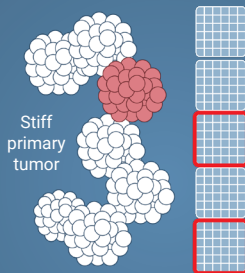
What is **Cell Stiffness** and **Why is it Important?**

Complex structural remodeling of tumor cells and tumor microenvironment (TME) leads to biomechanical alterations at subcellular, cellular, and extracellular levels



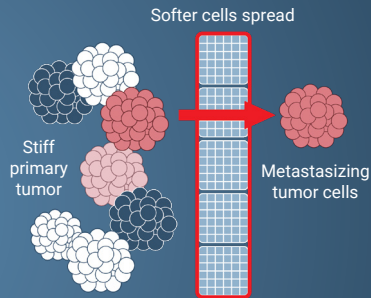
Cancer Initiation & Early Progression

- Stiff and dense cancer cells in primary tumor
- Tumor microenvironment (TME) slowly being built around



Cancer Progression & Aggressiveness

- Some of the stiff cancer cells become softer (aggressive phenotype), mainly due to hypoxia
- In contrast, TME is becoming denser and mechanically heterogenous (mixture of soft and stiff components)



Advanced & Treatment Resistant Cancer

- Tumor becomes mechanically heterogenous: stiff cancer cells stay packed, while softer, deformable cells start to migrate outwards, leading to metastasis
- The TME heterogeneity also acts as a barrier to drug and immune cell penetration



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