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Jamming and liquidity in 3D cancer cell aggregates LINDA OSWALD, STEFFEN GROSSER, JRGEN LIPPOLDT, STEVE PAWLIZAK, University of Leipzig, ANATOL FRITSCH, Max Planck Institute of Molecular Cell Biology and Genetics Dresden, JOSEF A. KS, University of Leipzig — Traditionally, tissues are treated as simple liquids, which holds for example for embryonic tissue. However, recent experiments have shown that this picture is insufficient for other tissue types, suggesting possible transitions to solid-like behavior induced by cellular jamming. The coarse-grained self-propelled Voronoi (SPV) model predicts such a transition depending on cell shape which is thought to arise from an interplay of cell-cell adhesion and cortical tension. We observe non-liquid behavior in 3D breast cancer spheroids of varying metastatic potential and correlate single cell shapes, single cell dynamics and collective dynamic behavior of fusion and segregation experiments via the SPV model.

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