1. What are the main areas of cell- and rule-based applications?

Cell-based and rule-based modeling approaches are commonly used to study multi-cellular biological systems (MCBS). These models simulate the behavior of individual cells, their functions within MCBS, and their interactions with other cells and the environment. Rule-based approaches are often employed in agent-based modeling (ABM), where each cell acts as an independent agent governed by specific rules. Cell-based approaches can also include grid-based methods like cellular automata. Both modeling techniques are used to investigate processes such as cell division, migration, apoptosis, differentiation, proliferation, and tissue organization. Applications include studying angiogenesis, tumor growth, and epithelial morphogenesis.

1. What is the phenomenon of self-metastases shown in Module 4 and its role in tumor migrations?

Self-metastasis refers to the process known as self-seeding where cancer stem cells migrate away from the primary tumor; seed independent clusters elsewhere and reappear at the periphery of the primary site. Cells in the tumor core are mostly quiescent, while those at the periphery are more proliferative contributing to tumor expansion.

1. What is the meaning of quorum sensing in the tumor?
2. What are the major features of the cell- and rule-based methods?

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| Focus on cell | Model |

1. What is the novel treatment discussed in Modules 2 & 3?
2. What are the groups of cells involved in tumor evolution (Module 2 & 3)?