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Cancer Modeling: Frameworks, Approaches, and Insights

As biomedicine becomes increasingly quantitative in scope and content and various challenges are encountered in the prevention, detection, treatment, and management of the cancers, mathematical models correspondingly assume importance in synthesizing and comprehending some of the dynamics underlying the behavior of cell aggregates and systems. Within this framework, diverse approaches are adopted for obtaining some models that describe the development and propagation of malignancy in the disease state. Various techniques are employed in analyzing the models and biomedical insights that they engender are discussed and placed in relevant context. Predictions offered by the models are then considered and conclusions are drawn.