

MATHEMATICAL MODELING of CANCER TUMOR ANGIOGENESIS



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Research Areas

Machine Learning in Healthcare
Quantitative methods, techniques and software tools in the field of MRI
Mathematical modeling

Research Areas

Computational methods for Partial Differential Equations
Computational Plasma Flows
Multi-phase Flows



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Fact!

Unless furnished with an adequate blood supply and a means of disposing of waste products by a mechanism other than diffusion, a solid tumor cannot grow beyond a few millimetres in diameter and remains in an “*avascular*” state. This type of tumor cannot metastasize

Definition

Transition from this dormant avascular state to the vascular state, wherein the tumor possesses the ability to invade surrounding tissue, induce new blood vessels from the surrounding blood vessels to sprout towards it and then gradually penetrate the tumor, thus providing it with an adequate blood supply and microcirculation, is called “Angiogenesis”

Mathematical Models of Angiogenesis

1-D PDE Models

