## A Multi-Phase Model for Tumour Growth

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The growth of a tumour involves complex chemical and mechanical interactions. This current study is particularly aimed at investigating such interactions by considering the feedback of solid stress induced both within the tumour and in its surrounding medium by the continuous tumour expansion using uterine leiomyomata as a paradigm. We employ a continuum approach and focus our attention on the growth of vascularized tumours (>4mm in diameter). A multi-phase model is proposed including a fluid phase for the extracelluar water, a solid phase consisting mainly of myocytes, fibroblasts and collagen fibrils, and another two separate phases for arteries and veins. As a first example, incompressibility of the tissue is assumed and the feedback of stress is incorporated through a volume growth rate function.