1038-00-62   **Yangjin Kim*** (`ykim@mbi.osu.edu`), Mathematical Biosciences Institute, OSU, Jennings Hall, 3rd Floor, 1735 Neil Avenue, Columbus, OH 43210, **Hans G. Othmer** (`othmer@math.umn.edu`), School of Mathematics, 270A Vincent Hall, University of Minnesota, Minneapolis, MN 5545, and **Magdalena Stolarska** (`mastolarska@stthomas.edu`), University of St. Thomas, Department of Mathematics, Mail OSS 201, 2115 Summit Avenue, St. Paul, MN 55105. *A multi-scale model for avascular tumor growth.*

Multicellular tumor spheroids are made of three layers with different mechanical properties, i.e. proliferating outer layer, quiescent middle zone, and necrotic zone. Helmlinger et al (1997)'s experiment showed that tumor growth can be regulated by stress and that mechanical properties of the outer gel, such as stiffness, can inhibit tumor growth in vitro. Using the cell-based model on the proliferating zone, continuum model on other regions, and reaction-diffusion model for nutrients on whole domain, I investigate the stress effect on tumor growth. (Received January 23, 2008)