



Biomaterials for Angiogenesis Study

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Date: Tuesday, February 22, 2011

Time: 12:00 – 1:00 p.m.

Location: 1000 MNTL

Abstract:

Angiogenesis is one of key biological events involved in development, tissue regeneration, and various malignant diseases including cancer. Various growth factors, cytokines and cells are extensively being studied to understand their roles in both therapeutic and pathologic angiogenesis. Successes in these studies greatly rely on the ability to tune the bioactivities of angiogenic factors and cells, but the required tools are still lacking. This seminar will present biomaterials developed to control the molecular and cell activities, and ultimately the quality of blood vessels (i.e., maturity, area density, etc). First, I will discuss a colloidal microgel system which enabled us to control the spatial distribution of angiogenic factors at implant sites. Second, I will show a cell-encapsulating hydrogel which can regulate cellular expression of angiogenic factors with matrix properties including mechanics and permeability.

References:

1. J.J. Schmidt, J. Rowley, H.J. Kong , "Hydrogels used for cell-based drug delivery," *Journal of Biomedical Materials Research* 87A 1113-1122 (2008)
2. Devolder, R. & Kong, H.J. Three-dimensionally flocculated proangiogenic microgels for neovascularization, *Biomaterials* 31, 6494-6501 (2010).
3. Cha, C., Kim, S., Cao, L. & Kong, H.J. Decoupled control of stiffness and permeability of cell-encapsulated poly(ethylene glycol) hydrogel. *Biomaterials* 31, 4864-4871 (2010).

Seminar Presented by:

