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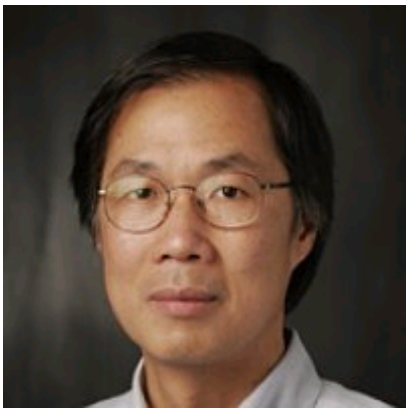
KAM W LEONG, JAMES B. DUKE PROFESSOR



Professor Leong's research interest focuses on biomaterials design, particularly for synthesis of nanoparticles for gene and immunotherapy, and nanofibers for regenerative medicine applications.

Biomaterials Design:

- design of self-assembled fibers for tissue engineering
- synthesis of new biodegradable polymers and new polyelectrolytes for drug and gene delivery applied to tissue engineering
- synthesis of thermosensitive hydrogels for tissue engineering

Controlled Drug and Gene Delivery:

- oral gene delivery for hemophilia A and B
- non-viral gene delivery to the GI tract, bladder, and CNS
- oral delivery of antigen genes for vaccination

Tissue Engineering:

- study of interaction of stem cells with biofunctional polymeric surface
- expansion of hematopoietic stem cells
- nerve guidance channels with drug and gene delivery functions
- microencapsulation of stem cells and genetically-engineered cells
- development of bioartificial nucleus pulposus device
- study of interaction of SMC and neuronal stem cells with synthetic nanostructured biomaterials

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Teaching (Spring 2010):

- BME 265.03, *BIOMEDICAL POLYMERS* Synopsis

Education:

PhD, University of Pennsylvania, 1987
Postdoc, Massachusetts Institute of Technology (MIT), 1985
BS, University of California, 1977

Specialties:

Biological Materials
Drug Delivery
Tissue Repair, Tissue Engineering

Research Interests:

Leong's research interest focuses on biomaterials design, particularly for synthesis of nanoparticles for gene and immunotherapy, and nanofibers for regenerative medicine applications.

Awards, Honors, and Distinctions

3M Pharmaceuticals Recognition Award, Controlled Release Society, 1996
Award for Recognition of Pioneering Contribution in Polymer chemistry and Bioomedical Engineering, Chinese-American Chemical Society, 1995
Capsugel Award on Innovative Aspects of Controlled Release Research, Controlled Release Society, 1996, 1997, 1998, 2000, 2001
Cygnus Recognition Award, Controlled Release Society, 1997
Excellence in Guidance of Graduate Student Research, Controlled Release Society
Fellow, American Institute for Medical & Biological Engineering, 1998
Jorge Heller Award, Journal of Controlled Release, 2007
Proctor & Gamble Recognition Award, Controlled Release Society, 1993
Young Investigator Research Achievement Award, Controlled Release Society, 1994

Recent Publications (More Publications)

1. T. W. Prow and I. Bhutto and S. Y. Kim and R. Grebe and C. Merges and D. S. Mcleod and K. Uno and M. Mennon and L. Rodriguez and K. Leong and G. A. Lutty, *Ocular nanoparticle toxicity and transfection of the retina and retinal pigment epithelium*, Nanomedicine-nanotechnology Biology And Medicine, vol. 4 no. 4 (December, 2008), pp. 340 -- 349 [abs].
2. N. Bursac and Y. H. Loo and K. Leong and L. Tung, *Novel anisotropic engineered cardiac tissues: Studies of electrical propagation*, Biochemical And Biophysical Research Communications, vol. 361 no. 4 (October, 2007), pp. 847 -- 853 [abs].
3. Chen, Beiyi and Dang, Jiyoung and Tan, Tuan Lin and Fang, Ning and Chen, Wei Ning and Leong, Kam W. and Chan, Vincent, *Dynamics of smooth muscle cell deadhesion from thermosensitive hydroxybutyl chitosan*, Biomaterials, vol. 28 no. 8 (2007), pp. 1503 - 1514 [027] [abs].
4. Zhang, Yue and Chai, Chou and Jiang, Xue Song and Teoh, Swee Hin and Leong, Kam W., *Fibronectin immobilized by covalent conjugation or physical adsorption shows different bioactivity on aminated-PET*, Materials Science and Engineering C, vol. 27 no. 2 (2007), pp. 213 - 219 [013] [abs].
5. Yim, Evelyn K.F. and Liao, I-Chien and Leong, Kam W., *Tissue compatibility of interfacial polyelectrolyte complexation fibrous scaffold: Evaluation of blood compatibility and biocompatibility*, Tissue Engineering, vol. 13 no. 2 (2007), pp. 423 - 433 [0113] [abs].

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