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BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
Jingjia Han	Ph.D. Candidate
eRA COMMONS USER NAME (credential, e.g., agency login)	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Sichuan University, Chengdu, P.R.China	BSc	07/2004	Biomedical Engineering
Drexel University, Philadelphia, U.S.A	PhD	07/2010 (expected)	Biomedical Engineering

A. Positions and Honors

Positions

09/2005—Present
Ph.D. Drexel University, School of Biomedical Engineering, Science & Health Systems

Other Experiences

Research Experiences
Sep. 2005-present
Drexel University, School of Biomedical Engineering, Science & Health Systems
Cellular Tissue Engineering Lab Philadelphia, PA, USA
Co-electrospun PLGA-gelatin-elastin (PGE) scaffold as a non-thrombogenic scaffold for vascular tissue engineering

By systematically adjusting the relative ratio of PLGA and gelatin, I co-electrospinned tertiary blends of poly-(lactide-co-glycolide) (PLGA), gelatin, and elastin (PGE). The morphology and mechanical properties of the blend PGE fibers was characterized by scanning electron microscopy (SEM) and tensile tests (Instron) respectively. The suitability of the composites as vascular scaffolds was assessed *in vitro* by evaluating their interactions with human endothelial cell line (EA.hy926, ECs), and bovine aortic smooth muscle cells (SMCs) in terms of cell morphology and cellular in-growth. My data indicate that PGE blend fibers supported ECs and SMCs attachment and proliferation with small variances in cell morphology and cytoskeletal spreading for different PGE compositions initially but no differences upon confluence. In addition, histology data demonstrated the unique ability of PGE scaffolds to support EC monolayer formation on the surface while concomitantly fostering penetration of SMC cells into the PGE scaffold. To genetically understand how PGE scaffold interacts with ECs as a prerequisite for a non-thrombogenic endothelium formation, I used a focused PCR array (SA Bioscience/Qiagen) to compare differential genes expression of extracellular matrix (ECM) and adhesion related genes in human aortic endothelial cell (HAEC) monolayer cultured on PGE321 with that on gelatin-coated surface. My results indicate that HAECs seeded on PGE321 and on gelatin shared a similar expression pattern of ECM and adhesion

molecules and HAEC monolayer has a significant lower E-selectin gene expression on PGE321 upon confluence. Further, the mRNA expression level of tissue factor (TF) on HAEC monolayers cultured on various natural proteins and synthetic biomaterials were compared using qRT-PCR. HAEC monolayers (24hr post-seeding) on PGE321 expressed the same TF mRNA level as on both gelatin and fibronectin (FN) coated surfaces, at both basal level and TNFα-induced level respectively. This demonstrates that PGE321 is a potential non-thrombogenic substrate for endothelium formation thus may be useful scaffold for application in small diameter vascular graft.

Aug.2004-Jun.2005
Sichuan University, College of Polymer Science & Engineering
Research Assistant, Biomaterial & Artificial Organ Lab Chengdu, Sichuan, China
Fabricated nano-hydroxyapatite (HAp) and polylactide (PLA) *in vitro* using wet solution method as a potential artificial biomimetic bone material.
(*Co-Project with DIKANG Base of Biomaterials, DIKANG Group, China)*

Sep.2003-Jun.2004
Sichuan University, College of Polymer Science & Engineering
Research Assistant, Biomaterial & Artificial Organ Lab Chengdu, Sichuan, China
Synthesize high molecular weight polyurethane hydrogels with creation of a new type of chain extender: O, O- Bis (2-hydroxy ethyl)-ethylenedicarbamate (EC-DE) in application of wound dressing. A series of polyurethanes (PU) by methods of two-shot process or one-shot process by using EC-DE or Bis (2-hydroxy ethyl) carbamate (EC-AE) as chain extender, 4,4'-diphenylmenthane diisocyanate (HDI) as hard segment and Polyethylene glycol (PEG) or poly(tetrahydrofuran) (PTMG) as soft segment were synthesized and characterized with Fourier Transform Infrared Spectroscopy (FTIR) and Gel Permeation Chromatography (GPC).
(Co-Project with Baikang Medical Products Ltd. Conba Group, China)

Teaching Experiences
Drexel University, School of Biomedical Engineering, Science & Health Systems
01/2006-03/2006, Teaching Assistant, Introduction of Polymers
01/2007-03/2007, Teaching Assistant, Introduction of Polymers
04/2007-06/2007, Teaching Assistant, the Body Synthetic
01/2008-03/2008, Teaching Assistant, Tissue Engineering II
04/2008-06/2008, Teaching Assistant, Biomaterials and Tissue Engineering III
06/2008-09-2008, Teaching Assistant, the Body Synthetic
09/2008-12/2008, Teaching Assistant, Tissue Engineering I
01/2009-03/2009, Teaching Assistant, Tissue Engineering II
04/2009-06/2009, Teaching Assistant, Biomaterials and Tissue Engineering III
09/2009-12/2009, Teaching Assistant, Tissue Engineering I
01/2010-03/2010, Teaching Assistant, Tissue Engineering II

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Jingjia Han

Honors

2000-2003	Consecutive Scholarship (First-class) from Sichuan University
2000-2003	Consecutive Awards of "Sichuan University Excellent Student"
2004	Award of "Excellent Graduate of Sichuan Province"
2005-2007	Provost Fellowship, Drexel University
2005-present	Calhoun Fellowship, Drexel University

B. Peer-reviewed publications

1. Han J, Li M, Chen X, Lelkes PI, Co-electrospun of PLGA, gelatin and elastin blend nanofibers as potential scaffolds for vascular grafts. In preparation.
2. Han J, Lelkes PI. Electrospun fibrous scaffold as a non-thrombogenic substrate for endothelium formation. In Preparation.
3. Guo Y, Li M, Mylonakis A, Han J, MacDiarmid AG, Chen X, Lelkes PI, Wei Y, Electroactive oligoaniline-containing self-assembled monolayers for tissue engineering applications, *Biomacromolecules,* 2007, 8(10), pp. 3025-34.

Book Chapter

1. Lelkes, PI, Li, M, Perets, A, Lin, L, Han, J, and Woerdeman, DL. (2008) Electrospinning of natural proteins for tissue engineering scaffolding in: Handbook of Natural-based Polymers for Biomedical Applications Rui L.Reis editor), Woodhead Publishing Ltd.

C. Research Support

Title: Co-electrospun of PLGA, Gelatin and Elastin Blend Nanofibers as Non-thrombogenic Scaffolds for Vascular grafts

This project focuses on testing the feasibility of developing a non-thrombogenic scaffold for small diameter vascular grafts based on electrospun tertiary blend scaffolds.

Sources: a Calhoun Fellowship (JH) and a Provost Fellowship (JH)

Partial Support by:

Title: *LCL Grafts* (P.I. Lelkes, PI) *$ 100, 000 direct cost*

Source: Coulter Foundation, Feasibility Study application, Dates: 04/1/2007-03/31/2008

This grant focuses on testing the feasibility of developing novel small diameter vascular grafts.

D. Hobbies

(Additionally, though this is not supported by the NIH biosketch format), I like travelling, cooking, gymnatstics, calligraphy and photography as the coming one…