

Jun Yan, Ph.D.

CONTACT INFORMATION

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EDUCATION

- March 2011 **Ph.D.** Biomedical Engineering, University of California, Davis, CA
Thesis: Miniature Hydrogel-Based Biosensors for Monitoring of Extracellular Metabolites.
Advisor: Prof. Alexander Revzin
- June 2006 **M.S.** Biomedical Engineering, The University of Tennessee Health Science Center,
Memphis, TN
Thesis: A Computer Simulation Model of the Human Head-Neck Musculoskeletal System.
Advisor: Prof. Denis DiAngelo
- June 2000 **B.S.** Mechanical Engineering, Southeast University, Nanjing, P. R. China

ACADEMIC EXPERIENCE

- May 2011-
Present **Research Fellow**, Massachusetts General Hospital and Harvard Medical School
Boston, MA
Advisor: Dr. Mehmet Toner and Dr. Daniel Irimia
- Develop microfluidic techniques for studies on cancer cell migration
- August 2006-
March 2011 **Graduate Researcher**, University of California, Davis, CA
Advisor: Dr. Alexander Revzin
- Developed biosensors (electrochemical or optical) for glucose, lactate, and H₂O₂ detection based on enzyme-containing hydrogel.
 - Developed solid-phase “ELISA” platform for multi-cytokine detection by employing microarraying technique.
 - Micropatterned biosensors on cell culture surfaces to detect cellular communication during a model injury. Techniques employed include photoresist/hydrogel lithography, microfluidics, biomaterials, and surface modification.
 - Microfabricated and modified electrodes for capture and release of T cells.
 - Mentored and supervised undergraduate students; Trained new lab members.
 - Managed laboratory instrument maintenance, ordering, and chemical inventory.
- Aug 2003-
Jul 2006 **Graduate Researcher**, The University of Tennessee Health Science Center and The
University of Memphis, Memphis, TN
Advisor: Dr. Denis DiAngelo

- Developed computational model of muscular systems of the human spine using Visual Nastran 4D. Defined properties of soft tissues (ligament, intervertebral disc) of spines with mechanical elements and realized muscle-driven movements of human spines.
- Assisted mechanical property testing of new products on spine tissues; helped analyzed data and write reports to spinal therapy companies.

TEACHING EXPERIENCE

Jan 2009- June 2009	Teaching Assistant , University of California, Davis, CA Course: Senior Projects Mentored 30+ undergraduate students with their senior design projects
Jan 2008- Mar 2009	Teaching Assistant , University of California, Davis, CA Course: Biomaterials Presented and organized several lectures of a Biomaterials senior level class, graded homework for 60 students and led biweekly office hour to explain class material and homework to students
Apr 2008- Dec 2010	Teaching Assistant , University of California, Davis, CA Gave several lectures in Biomaterials or Biosensor senior level class

AWARDS

- BMES annual meeting travel award, October, 2009
- 2nd place in the poster competition at the 14th Annual Cancer Research Symposium, UC Davis Cancer Center, September, 2008.
- UC Davis graduate student summer research award, Summer, 2008

PUBLICATIONS

1. **Yan, J.**, Enomoto, J., Liu, Y., Revzin, A. “Detecting Heterotypic Cellular Interactions Using Micropatterned Sensing Surfaces” in preparation
2. **Yan, J.**, Pedrosa, V., Enomoto, J., Simonian, A., Revzin, A. “Micropatterned Electrochemical Biosensors for Detecting Hydrogen Peroxide Release from Macrophages” submitted to *Biomicrofluidics*
3. Pedrosa, V., **Yan, J.**, Simonian, A., Revzin, A. “Miniature Electrochemical Biosensors Based on Micropatterned Nanocomposite Hydrogels” accepted to *Electroanalysis*
4. **Yan, J.**, Pedrosa, V., Simonian, A., Revzin, A. “Miniature Electrochemical Biosensors for Simultaneous Detection of Glucose and Lactate” *ACS Applied Materials & Interfaces*, 2(3), 748–755, 2010
5. Tuleuova, N., Jones, C., **Yan, J.**, Ramanculov, E., Revzin, A. “Design of an Aptamer Beacon for Real-Time Detection of Interferon-Gamma” *Analytical Chemistry*, 82(5), 1851–1857, 2010
6. **Yan, J.**, Sun, Y., Zhu, H., Marcu, L., Revzin, A. “Enzyme-containing hydrogel micropatterns serving a dual purpose of cell sequestration and metabolite detection” *Biosensors and Bioelectronics*, 24(8), 2604-2610, 2009

7. Lee, J.Y., Shah, S., **Yan, J.**, Howland, M. C. , Parikh, A. N. , and Revzin A. “Integrating Functional Hydrogel Microstructures into Micropatterned Hepatocellular Co-Cultures” *Langmuir*, 25(6), 3880–3886, 2009
8. Zhu, H., Stybayeva, G., Silangcruz, J., **Yan, J.**, George, M., Ramanculov, E., Dandekar, S., Revzin, A. “Detecting Cytokine Release from Single Human T-cells” *Analytical Chemistry*, 81(19), 8150–8156, 2009
9. **Yan, J.**, Zhu, J., Revzin, A. “Catch and release cell sorting: electrochemical desorption of T-cells from anti-body modified microelectrodes” (co-first author) *Colloids and Surfaces B: Biointerfaces*, 64(2), 260-268, 2008
10. Shah, S, Zhu, H, **Yan J.**, and Revzin, A. “Designing Electroactive Biointerface for Spatiotemporal Control of Cell Attachment and Release” *ECS transactions*, 13(22),17-25, 2008

PROCEEDINGS

Yan, J., Lee, J.Y. and Revzin, A. “Cellular micropatterns with built-in biosensors for detection of extracellular metabolites” Proceeding of MicroTAS International Conference, 2008.

BOOK CHAPTER

Yan J. and Revzin, A. “Micropatterned Biosensing Surfaces for Detection of Cell-Secreted Inflammatory Signals” Book chapter in Biosensors for Cancer Detection and Diagnostics. Ed. Rasooly and Herold, CRC publisher, to appear in 2011

SELECT CONFERENCE PRESENTATIONS

1. **Yan, J.**, Pedrosa, V., Simonian, A., Revzin, A. “Miniature Biosensors for Simultaneous Detection of Oxidative Stress and Cytokine from Few Cells” *Biomedical Engineering Society (BMES) Annual Meeting*, Austin, TX, October 2010
2. **Yan, J.**, Pedrosa, V., Simonian, A., Revzin, A. “Using Hydrogel Photolithography to Fabricate Multi-Analyte Biosensor” *Biomedical Engineering Society (BMES) Annual Meeting*, Pittsburg, PA, October 2009
3. **Yan, J.**, Lee, J.Y., Revzin, A. “Miniature Biosensors for Detection of Metabolites in Micropatterned Cell Cultures” *Biomedical Engineering Society (BMES) Annual Meeting*, St. Louis, MO, October 2008
4. **Yan, J.**, Zhu, H, Sun, Y, Marcu, L, Revzin, A. “Hydrogel Microstructures Serving a Dual Role of Sequestering Cells and Detecting Extracellular Metabolites” *Material Research Society (MRS) Annual Meeting*, San Francisco, CA, March 2008
5. Lee, JY, Shah, S, **Yan, J.**, Revzin, A. “Fabrication of Micropatterned Triple Cell Cultures by Merging Photoresist and Hydrogel Photolithography” *American Institute of Chemical Engineer (AIChE) Annual Meeting*, Salt Lake City, UT, November 2007
6. **Yan, J.**, Zhu, H, Simonian, A, Revzin, A. “Sorting of T-Cells by Electrochemical Desorption from Microelectrodes” *Biomedical Engineering Society (BMES) Annual Meeting*, Los Angeles, CA, September 2007
7. Lee, JY, Shah, S, **Yan, J.**, Revzin. A. “Designing Hepatic Interactions with Micropatterned Triple

Cell Cultures” *Biomedical Engineering Society (BMES) Annual Meeting*, Los Angeles, CA, September 2007

8. **Yan, J.**, Shah, S, Zhu, H, Revzin, A. “Microfabricated Electroactive Surfaces for Cell Manipulation and Cell Sorting” *UC Systemwide Bioengineering Symposium 2007 8th Annual Meeting*, San Francisco, CA, June 2007
9. Zhu, H, **Yan, J.**, Revzin, A. “Use of Poly(ethylene glycol) (PEG) Photolithography for Integration of Cells and Microdevices” *Material Research Society (MRS) Annual Meeting*, San Francisco, CA, March 2007

AWARDS

- BMES annual meeting travel award, October 2009
- 2nd place in the poster competition at the 14th Annual Cancer Research Symposium, UC Davis Cancer Center, September 2008.
- UC Davis graduate student summer research award, Summer 2008

QUALIFICATIONS

- Extensive experience with microfluidic device development, photolithography, PEG hydrogel lithography, and other clean room technology
- Knowledge and experience with lab-on-chip device development
- Experience with electrochemistry, CHI instrumentation
- Experience with molecular biology and cell culture (confocal/epi microscopy, spectrofluorometry, immunostaining)
- Computer skills: Visual Nastran 4D, Auto CAD, Google Sketchup, WORD, EXCEL, ORIGIN
- Language: English, Mandarin, Cantonese

REFERENCES

Provide upon requested