Ma Bo PhD

Associate Professor, Microfluidics Team Lead
Functional genomics group
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General Research Interests

Microfluidics (lab on a chip) for bioenergy application

- Single cell level industrial microorganism sorting, high throughput culture, gene sequencing and functional genomics
- High yield biofuel product microorganism high throughput screening

Optofluidics for bioenergy application

- Optofluidics photobioreactors
- Optofluidics photocatalytic systems

Biosensor, Portable analytical system

Education

Ph.D 2003.9-2008.5 Analytical Chemistry, Dalian Institute of Chemical Physics, CAS, China,
Advisor: Prof. Bingcheng Lin,Thesis: Microfluidic UV detection system and application on drug metabolism

M.Sc. 1998.9-2001.7 Analytical Chemistry, Sichuan University, China,
Advisor: Prof. Li Menglong, Thesis: QSAR study on traditional Chinese medicine

B.Sc. 1994.9-1998.7 Chemistry, China West Normal University, China

Work experiences

2012.8-present Associate Professor, Microfluidics team lead, Functional Genomics Group,
Qingdao Bioenergy & Process Institute, CAS

2010.12-2012.7 Postdoctorate Research associate, Department of Biochemistry & Cell Biology, Rice University

- Microfluidic device based bacteria drug resistance mechanism study and drug screening funded by NI
  - A novel platform was developed to study bacteria cell-cell communication and quorum sensing
  - Potential application for antibody drug screening
- Single cells system & synthetic biology on microfluidic device
  - Single cells level gene expression dynamics
  - Single cell genomics

2009.6-2010.11 Postdoctorate research associate, NanoBio systems lab, Department of Electrical & Computer Engineering, Department of Biomedical Engineering. Texas A&M University.

- Development of prototype Pathogen Detection Lab-On-a-Chip system for real-time on-field plant disease diagnostics funded by USDA
  - A portable real-time PCR microsystem integrated with PCR temperature control module and minimized fluorescent detector was developed for in field plant pathogen detection

2008.6-2009.6 Postdoctorate research associate, Crump Institute for Molecular imaging, University of California, Los Angeles

- Real Time Plasma Separation from small Animal for quantities microPET imaging study on A Microfluidic Chip funded by NIH
  - A highly integrated microfluidic device was developed for minim blood plasma separation &collection from small animal for quantitative microPET

2001.9-2003.7 Lecturer, Chemistry Department, Western China Normal University

Publication list

1, **Bo Ma**, Guohao Zhang, Jianhua Qin and Bingcheng Lin, Characterization of drug metabolites and cytotoxicity assay simultaneously using an integrated microfluidic device, Lab Chip, 2009, 9, 232–238 (**cover page**)

2, **Bo Ma,** Sima Ghavim, Richard L Sutton, Neil G Harris, Michael Phelps and Hsiao-Ming Wu, Real time blood plasma separation in a microfluidic chip, J Nucl Med. 2009; 50:473

3, **Bo Ma**, Dai,Jianhua Qin,Bingcheng Lin, Integrated isotachophoretic preconcentration with zone electrophoresis separation on a quartz microchip for UV detection of flavonoids, *Electrophoresis* 2006, *27,* 4904–4909

4, **Bo Ma**, Xiaomian Zhou, Gang Wang, Jianhua Qin, Bingcheng Lin, A hybrid microdevice with a thin PDMS membrane on the detection window for UV absorbance detection, e*lectrophoresis*, 2007, 28, 2474-2477

5, Guohao Zhang, **Bo Ma**, Jianhua Qin and Bingcheng Lin, A metabolism microfluidic chip, Chemical Research In Chinese Universities, 2008, 12, 646-651

6, Hui Wang, Huaiqing Huang, Zhongpeng Dai, Yan Gao, **Bo Ma**, Li Wang, Jiling Bai, Bingcheng Lin, Performance Evaluation of Home-made Glass Microfluidic Glass Chips, Chemical Research In Chinese Universities, 2005, 11, 578-582

7**, Bo Ma** , Menglong Li , Zaide Zhou , Fang Cheng, Quantum chemistry study on the anti-tumor activity of flavonoids compounds, Chemical Research and Application, 2002, Vol. 14, 2,149-152

8**, Bo Ma** , Menglong Li , Fang Cheng, Zaide Zhou ,The construction of Sichuan University botanical specimen database, Journal of Sichuan University (Natural Science Edition), 2001, vol 38, 6, 839-843

9, **Bo Ma** , Zaide Zhou , Menglong Li, The application of the artificial neural networks in the chromatography, Chemical Research and Application, 2000, Vol. 12 , 4, 375-378

Refereed Conference Talks and Posters

12, Microfluidic based real time PCR for plant pathogen detection, 2010,4, *American Phytopathologica*l *Society*, Charlotte, NC (2010) （Oral presentation）

13, Real time blood plasma separation in a microfluidic chip, SNM annual meeting. June13-17, 2009, Toronto, Cananda（Oral presentation）

14, **Bo Ma**, Guohao Zhang, Zhongpeng Dai, Jianhua Qin, Bingcheng Lin, Development of integrated UV microfluidic system and it's applications for drug metabolism, μ-TAS 2007 of china, Dalian, China, June 23-25,2007 （Poster presentation）

15, **Bo Ma**, Zhongpeng Dai, Jianhua Qin, Bingcheng Lin, Development of integrated UV microfluidic system, CCE 2006, Shanghai, China, October 20-22,2006 （Oral presentation）

16, Jikun Liu , Menglong L i, **Bo Ma** , Fang Chen, The construction of a multi – aspect Chinese traditional medicine database, south western and middle southern china symposium on analytical chemistry, Nanning,China, August 15-18,2000 (Poster presentation)

Book Chapters

Small molecules analysis on microfluidic device, Microfluidics Lab on Chip, science press,2006

Patents

1, Zhongpeng Dai, **Bo Ma,** Bingcheng Lin, Developing of a bonding method and it's multi-point pressure device for quartz microchip on normal temperature, 200510046835.1

2, Bingcheng Lin, **Bo Ma**, Guohao Zhang, Jianhua Qin, Developing of drug metabolism and cytotoxicity research method on a 3-demension microfluidic chip, 200710012625.X

3, Bingcheng Lin, **Bo Ma**, Chunqi Ni, Xin Wang, Jianhua Qin, A monolith integrative microfluidic platform with array microchannel UV detection , 200710012937.0

Awards and Honors

2008 Award of Dalian excellent Journal paper

2001 Awards of excellent postgraduate of Sichuan University, Sichuan University

1998~2001 Graduate Fellowship, Sichuan University

1998 Awards of excellent graduate of Sichuan province, Xihua Normal University

1994-1998 Academic Excellent Scholarships, Xihua Normal University

1994-1998 Honorary Awards, Xihua Normal University