

**XU Jian (徐健), Ph.D.****ACADEMIC APPOINTMENT**

- 2013-present Director, Single-Cell Center, Qingdao Institute of Bioenergy and Bioprocess Technology, Chinese Academy of Sciences (CAS-QIBEBT)
- 2008-2013 Professor and Director, BioEnergy Genome Center (BEGC), CAS-QIBEBT
- 2008-present Professor and Group Leader, Functional Genomics Group, CAS-QIBEBT
- 2009-present Director, Shandong Key Laboratory for Energy Genetics, Administration of Science and Technology, Shandong Province, China
- 2004-2008 Research Instructor, Department of Genetics, Washington University School of Medicine, St. Louis, MO, USA
- 2004-2006 Team Lead, Assembly and Analysis, Genome Institute, Washington University, St. Louis, MO, USA

**EDUCATION**

- 2003-2004 Washington University in St. Louis, School of Medicine, St. Louis, MO.  
Postdoctoral Scholar, Center for Genome Sciences
- 1997-2003 Washington University in St. Louis, School of Medicine, St. Louis, MO.  
Ph.D., Biochemistry (Thesis Advisor: Jeffrey I. Gordon)
- 2000-2003 Washington University in St. Louis, School of Engineering, St. Louis, MO.  
M.S., Computer Science
- 1993-1997 Peking University, Beijing, China.  
B.S., Biotechnology

**RESEARCH EXPERIENCE**

**Keywords:** single-cell analysis; scientific instrument development, microbiota, ocean carbon cycling, microalgal biofuels, cellulosic biofuels.

**Summary:** XU Jian was born in Zhangzhou, Fujian, China in 1976. He obtained B.S in Biotechnology from Peking University in 1997, and M.S. in Computer Science and PhD in Biochemistry from Washington University in St. Louis in 2003. After serving as Research Instructor at Genome Institute of Washington University, he joined Qingdao Institute of BioEnergy and Bioprocess Technology, Chinese Academy of Sciences in 2008 and has been the founding Director of Single-Cell Center, CAS-QIBEBT. The Center has been developing a new generation of single-cell analysis instruments. Via these innovative research tools, Jian and his colleagues are delineating and designing key metabolic processes, such as microalgal oil production, cellulose conversion and human-microbe symbiosis, at the single-cell level. He has published over 60 research papers on leading journals such as *Science*, *PLoS Biology*, *PLoS Genetics*, *Plant Cell*, *PNAS*, *Biotech Adv*, *ISME J*, *Biotech Biofuels*, *Anal Chem*, *Lab Chip* etc, with the total number of citations exceeding 2000. He has won a number of prestigious career awards from NSFC, MOST and CAS, including the National Distinguished Young Investigator Award (2014, NSFC). Please refer to

<http://www.SingleCellCenter.org/> for more details.

## **RESEARCH GRANTS AND SUPPORT**

### **Active public grants (selected)**

- 2015-2018 National Science Foundation of China (National Distinguished Young Investigator Award; 国家杰出青年基金)  
“*Single-cell Regulatory Model of Biofuel Production*”; Principle Investigator (PI); RMB 2.0M for 4 yrs
- 2014-2017 National Science Foundation of China (Scientific Instrument Development Program)  
“*Instrument development of Single-cell Genetic Analyzer*”; PI; RMB 3.0M for 4 yrs
- 2013-2015 Central Government of China (中组部)  
“*Research Funding for Exceptional Young Talent Award*”(青年拔尖人才计划); PI; RMB 2.4M for 3 yrs
- 2014-2016 Ministry of Science and Technology of China  
“*Leadership in Scientific Innovation Award*”(中青年科技创新领军人才计划); PI
- 2012-2015 National Science Foundation of China (Major Research Plan for Microevolution)  
“*Microevolution of ethanol tolerance in thermophilic bacteria*”; PI; RMB 3.2M for 4 yrs
- 2012-2015 Ministry of Science and Technology of China (863)  
“*Synthetic biology technology for photosynthetic organisms*”; Co-PI; RMB 3M for 4 yrs
- 2012-2016 Ministry of Science and Technology of China (973)  
“*Design and construction of parts and modules for synthetic biology*”; PI (Sub-Project); RMB 2M for 5 yrs

### **Past government grants**

- 2011-2013 National Science Foundation of China  
“*Establishment of a novel Nannochloropsis-based research model and platform technology for algal biofuel production*”; PI; RMB 2M for 3 yrs
- 2010-2013 Chinese Academy of Sciences (International Partnership for Innovation Program)  
“*Microalgal energy and biorefinery*”; PI; RMB 3M for 3 yrs
- 2011-2012 Ministry of Science and Technology of China  
“*Technical Platform for Raman-activated Cell Sorting*”; PI; RMB 4.6M for 1 yr
- 2009-2010 Chinese Academy of Sciences (Solar Energy Action Plan)  
“*Discovery and mining of oil-producing algae through high-throughput genomics approaches*”; Co-PI; RMB 0.88M for 2 yrs
- 2010-2012 Ministry of Science and Technology of China (China-Israel Research Collaboration)  
“*Development of designer cellulosome systems in Clostridia for enhanced cellulosic biomass conversion*”; PI on Chinese side (PI on Israel side: Ed Bayer of Weizmann Institute of Science); RMB 0.5M for 3 yrs

- 2009-2011 National Science Foundation of China  
*“Uncovering the genetic factors underlying ethanol tolerance in ethanogenic thermophile Thermoanaerobacter”*; PI; RMB 0.3M for 3 yrs
- 2009-2011 Ministry of Science and Technology of China (863)  
*“Algorithm and tool development for analyzing metagenome data produced by second-generation DNA sequencers”*; Co-PI; RMB 1.6M for 3 yrs
- 2008-2011 Chinese Academy of Sciences  
*“Construction of a genetic manipulation system for Clostridia and Thermoanaerobacter”*; PI; RMB 2.0M for 4 yrs
- 2008-2011 Chinese Academy of Sciences, Hundred Talent Award Program  
*“The diversity and molecular mechanism of bacterial degradation of cellulose”*; PI; RMB 2.0M for 3 yrs
- 2009-2010 Chinese Academy of Sciences  
*“An E-Science Environment for the integrated analysis of the new-generation metagenomes of microbial communities”*; PI; RMB 0.9 M for 1.5 yrs
- 2008-2011 Outstanding Young Investigator Award of Shandong  
*“A systems biology approach in understanding cellulolytic and ethanogenic Clostridia”*; PI; RMB 0.5M for 3 yrs
- 2006-2009 National Human Genome Research Institute (NHGRI), USA  
*“Extending our view of self: the Human Gut Microbiome Initiative”*; Co-Investigator, with Richard Wilson (PI), Elaine Mardis, Ruth Ley, Jeffrey Gordon; USD 2.85M for 3 years
- 2004-2007 National Science Foundation, USA  
*“Comparative microbial genome analysis of the human-Bacteroides symbiosis”*; Co-Investigator, with Jeffrey Gordon (PI), Richard Wilson, Sandra Clifton; USD 1.99M for 3 years
- 2005-2007 W. M. Keck Foundation, USA  
*“Beyond the human genome - mining the microbiome for contributions to health and the next generation of therapeutics”*; Co-Investigator, with Jeffrey Gordon (PI), Sean Eddy, Reid Townsend, Richard Wilson. USD 1.45M for 2 years
- 2004-2008 National Human Genome Research Institute (NHGRI), USA  
*“Large scale genome sequencing”*, Member of research faculty; PI: Richard Wilson.

**Industrial grants and partners:** State Development & Investment Corporation (SDIC), Procter & Gamble, ENN, TOTAL, COFCO, Solix Biosystems, etc.

## **PUBLICATIONS**

### **Representative Publications**

1. Li Jing, Han Danxiang, Wang Dongmei, Ning Kang, Jia Jing, Wei Li, Jing Xiaoyan, Huang Shi, Chen

- Jie, Li Yantao, Hu Qiang, Xu Jian: **Choreography of Transcriptomes and Lipidomes of *Nannochloropsis* Reveals the Mechanisms of Oleaginousness in Microalgae.** *Plant Cell* 2014. 10.1105/tpc.113.121418.
2. Lu Yandu, Danuše Tarkowská, Veronika Turečková, Luo Tingwei, Xin Yi, Li Jing, Wang Qintao, Nianzhi Jiao, Strnad Miroslav, Xu Jian: **Antagonistic roles of abscisic acid and cytokinin during response to nitrogen depletion in oleaginous microalga *Nannochloropsis oceanica* expand the evolutionary breadth of phytohormone function.** *Plant J*, 2014, DOI: 10.1111/tpj.12615.
  3. Wang Tingting, Ji Yuetong, Wang Yun, Li Jing, Huang Shi, Jia Jing, Han Danxiang, Hu Qiang, Huang Wei E, Xu Jian: **Quantitative Dynamics of Triacylglycerol Accumulation in Microalgae Populations at Single-Cell Resolution Revealed by Raman Spectrometry.** *Biotech Biofuels*, 2014, 7:58. DOI: 10.1186/1754-6834-7-58.
  4. Wang Dongmei, Ning Kang, Li Jing, Hu Jianqiang, Han Danxiang, Wang Hui, Zeng Xiaowei, Jing Xiaoyan, Zhou Qian, Su Xiaoquan, Chang Xingzhi, Wang Anhui, Wang Wei, Jia Jing, Wei Li, Xin Yi, Qiao Yinghe, Huang Ranran, Chen Jie, Han Bo, Yoon Kangsup, Hill Russell T., Zohar Yonathan, Chen Feng, Hu Qiang, Xu Jian: ***Nannochloropsis* Genomes Reveal Evolution of Microalgal Oleaginous Traits.** *PLoS Genet* 2014, **10**(1):e1004094.
  5. Lin Lu and Xu Jian: **Dissecting and Engineering Metabolic and Regulatory Networks of Thermophilic Bacteria for Biofuel Production.** *Biotechnol Adv* 2013, **31**(6):827-837.
  6. Lin Lu, Song Houhui, Tu Qichao, Qin Yujia, Zhou Aifen, Liu Wenbin, He Zhili, Zhou Jizhong, Xu Jian: **The *Thermoanaerobacter* Glycobiome Reveals Mechanisms of Pentose and Hexose Co-Utilization in Bacteria.** *PLoS Genet* 2011, **7**(10):e1002318.
  7. Huang Shi, Li Rui, Zeng Xiaowei, He Tao, Zhao Helen, Chang Alice, Bo Cuipei, Chen Jie, Yang Fang, Knight Robin D., Liu Jiquan, Davis Catherine, Xu Jian: **Oral Microbial Structure Predicts Gingivitis Susceptibility and Severity.** *ISME J*, 2014.
  8. Yang Fang, Zeng Xiaowei, Ning Kang, Liu Kuan-Liang, Lo Chien-Chi, Wang Wei, Chen Jie, Wang Dongmei, Huang Ranran, Chang Xingzhi, Chain Patrick S., Xie Gary, Ling Junqi, Xu Jian: **Saliva Microbiomes Distinguish Caries-Active from Healthy Human Populations.** *ISME J* 2012, **6**(1):1-10.
  9. Xu Jian, Mahowald Michael A., Ley Ruth E., Lozupone Catherine A., Hamady Micah, Martens Eric C., Henrissat Bernard, Coutinho Pedro M., Minx Patrick, Latreille Philippe, Cordum Holland, Van Brunt Andrew, Kim Kyung, Fulton Robert S., Fulton Lucinda A., Clifton Sandra W., Wilson Richard K., Knight Robin D., Gordon Jeffrey I.: **Evolution of Symbiotic Bacteria in the Distal Human Intestine.** *PLoS Biol* 2007, **5**(7):e156.
  10. Xu Jian and Gordon Jeffrey I.: **Honor Thy Symbionts.** *Proc Natl Acad Sci USA* 2003, **100**(18):10452-10459.
  11. Xu Jian, Bjursell Magnus K., Himrod Jason, Deng Su, Carmichael Lynn K., Chiang Herbert C., Hooper Lora V., Gordon Jeffrey I.: **A Genomic View of the Human-*Bacteroides Thetaiotaomicron* Symbiosis.** *Science* 2003, **299**(5615):2074-2076.

### Full List of Publications

**(I). Microalgal and cellulosic biofuels: cellular networks regulating photosynthetic production of oil and microbial degradation of cellulose**

1. Xu Chenggang, Huang Ranran, Teng Lin, Jing Xiaoyan, Hu Jianqiang, Cui Guzheng, Cui Qiu, Xu Jian: **Genome-wide post-transcriptional processed-site map revealed mechanism controlling *in vivo* stoichiometry of cellulosomes in bacteria.** *Nature Commu.* Under revision.
2. Lu Yandu and Xu Jian: **Phytohormones in microalgae: a new opportunity for microalgal biotechnology?** *Trends Plant Sci*, Under review.
3. Jia Jing, Han Danxiang, Gerken Henri, Li Yantao, Sommerfeld Milton, Hu Qiang, Xu Jian: **Links between carbohydrate and lipid metabolisms during nitrogen-depletion induced oil accumulation in *Nannochloropsis oceanica*,** Under review.
4. Zhou Qian, Liu ZL Lewis, Ning Kang, Wang Anhui, Zeng Xiaowei, Xu Jian: **Genomic and transcriptome analyses reveal that MAPK- and phosphatidylinositol-signaling pathways mediate tolerance to 5-hydroxymethyl-2-furaldehyde for industrial yeast *Saccharomyces cerevisiae*,** *Sci Rep*, 2014, in press.
5. Lu Yandu, Danuše Tarkowská Veronika Turečková, Luo Tingwei, Xin Yi, Li Jing, Wang Qintao, Nianzhi Jiao, Strnad Miroslav, Xu Jian: **Antagonistic roles of abscisic acid and cytokinin during response to nitrogen depletion in oleaginous microalga *Nannochloropsis oceanica* expand the evolutionary breadth of phytohormone function.** *Plant J*, 2014, DOI: 10.1111/tpj.12615.
6. Hu Jianqiang, Wang Dongmei, Li Jing, Jing Gongchao, Ning Kang, Xu Jian: **Whole-Genome Identification of Transcription Factors and Transcription-factor Binding Sites in oleaginous microalgae *Nannochloropsis*.** *Sci Rep*, 2014, 4: 5454|DOI:10.1038/srep05454.
7. Ji Yuetong, He Yuehui, Cui Yanbin, Wang Tingting, Wang Yun, Li Yuanguang, Huang Wei E, Xu Jian: **Raman Spectroscopy Provides a Rapid, Non-invasive Method for Quantitation of Starch in Live, Unicellular Microalgae.** *Biotechnology Journal*, 2014. DOI: 10.1002/biot.201400165
8. Wang Tingting, Ji Yuetong, Wang Yun, Li Jing, Huang Shi, Jia Jing, Han Danxiang, Hu Qiang, Huang Wei E, Xu Jian: **Quantitative Dynamics of Triacylglycerol Accumulation in Microalgae Populations at Single-Cell Resolution Revealed by Raman Spectrometry.** *Biotech Biofuels*, 2014, 7:58. DOI: 10.1186/1754-6834-7-58.
9. Lu Yandu, Zhou Wenxu, Wei Li, Li Jing, Jia Jing, Li Fei, Smith Steven, Xu Jian: **Regulation of the Cholesterol Biosynthetic Pathway and Its Integration with Fatty Acid Biosynthesis in the Oleaginous Microalga *Nannochloropsis oceanica*.** *Biotech Biofuels*, 2014, 7:81. doi:10.1186/1754-6834-7-81.
10. Li Jing, Han Danxiang, Wang Dongmei, Ning Kang, Jia Jing, Wei Li, Jing Xiaoyan, Huang Shi, Chen Jie, Li Yantao, Hu Qiang, Xu Jian: **Choreography of Transcriptomes and Lipidomes of *Nannochloropsis* Reveals the Mechanisms of Oleaginousness in Microalgae.** *Plant Cell* 2014. 10.1105/tpc.113.121418.
11. Wang Dongmei, Ning Kang, Li Jing, Hu Jianqiang, Han Danxiang, Wang Hui, Zeng Xiaowei, Jing Xiaoyan, Zhou Qian, Su Xiaoquan, Chang Xingzhi, Wang Anhui, Wang Wei, Jia Jing, Wei Li, Xin Yi, Qiao Yinghe, Huang Ranran, Chen Jie, Han Bo, Yoon Kangsup, Hill Russell T., Zohar Yonathan, Chen

- Feng, Hu Qiang, Xu Jian: **Nannochloropsis Genomes Reveal Evolution of Microalgal Oleaginous Traits.** *PLoS Genet* 2014, **10**(1):e1004094.
12. Wei Li, Xin Yi, Wang Dongmei, Jing Xiaoyan, Zhou Qian, Su Xiaoquan, Jia Jing, Ning Kang, Chen Feng, Hu Qiang, Xu Jian: **Nannochloropsis Plastid and Mitochondrial Phylogenomes Reveal Organelle Diversification Mechanism and Intragenus Phylotyping Strategy in Microalgae.** *BMC Genomics* 2013, **14**(1):534.
  13. Wang Dongmei, Lu Yandu, Huang He, Xu Jian: **Establishing Oleaginous Microalgae Research Models for Consolidated Bioprocessing of Solar Energy.** *Adv Biochem Eng Biotechnol* 2012, **128**:69-84.
  14. Dai Xin, Zhu Yaxin, Luo Yingfeng, Song Lei, Liu Di, Liu Li, Chen Furong, Wang Min, Li Jiabao, Zeng Xiaowei, Dong Zhiyang, Hu Songnian, Li Lingyan, Xu Jian, Huang Li, Dong Xiuzhu: **Metagenomic Insights into the Fibrolytic Microbiome in Yak Rumen.** *PLoS ONE* 2012, **7**(7):e40430.
  15. Xu Chenggang, Huang Ranran, Teng Lin, Wang Dongmei, Hemme Christopher, Borovok Ilya, He Qiang, Lamed Raphael, Bayer Edward, Zhou Jizhong, Xu Jian: **Structure and Regulation of the Cellulose Degradome in Clostridium cellulolyticum.** *Biotechnol Biofuels* 2013, **6**(1):73.
  16. Lin Lu, Xu Jian: **Dissecting and Engineering Metabolic and Regulatory Networks of Thermophilic Bacteria for Biofuel Production.** *Biotechnol Adv* 2013, **31**(6):827-837.
  17. Lin Lu, Ji Yuetong, Tu Qichao, Huang Ranran, Teng Lin, Zeng Xiaowei, Song Houhui, Wang Kun, Zhou Qian, Li Yifei, Cui Qiu, He Zhili, Zhou Jizhong, Xu Jian: **Microevolution from Shock to Adaptation Revealed Strategies Improving Ethanol Tolerance and Production in Thermoanaerobacter.** *Biotechnol Biofuels* 2013, **6**(1):103.
  18. Lin Lu, Song Houhui, Tu Qichao, Qin Yujia, Zhou Aifen, Liu Wenbin, He Zhili, Zhou Jizhong, Xu Jian: **The Thermoanaerobacter Glycobiome Reveals Mechanisms of Pentose and Hexose Co-Utilization in Bacteria.** *PLoS Genet* 2011, **7**(10):e1002318.
  19. Xu Chenggang, Qin Yong, Li Yudong, Ji Yuetong, Huang Jianzhong, Song Houhui, Xu Jian: **Factors Influencing Cellulosome Activity in Consolidated Bioprocessing of Cellulosic Ethanol.** *Bioresour Technol* 2010, **101**(24):9560-9569.
  20. Lin Lu, Song Houhui, Ji Yuetong, He Zhili, Pu Yunting, Zhou Jizhong, Xu Jian: **Ultrasound-Mediated DNA Transformation in Thermophilic Gram-Positive Anaerobes.** *PLoS ONE* 2010, **5**(9):e12582.
  21. Hemme Christopher L., Fields Matthew W., He Qiang, Deng Ye, Lin Lu, Tu Qichao, Mouttaki Housna, Zhou Aifen, Feng Xueyang, Zuo Zheng, Ramsay Bradley D., He Zhili, Wu Liyou, Van Nostrand Joy, Xu Jian, Tang Yinjie J., Wiegel Juergen, Phelps Tommy J., Zhou Jizhong: **Correlation of Genomic and Physiological Traits of Thermoanaerobacter Species with Biofuel Yields.** *Appl Environ Microbiol* 2011, **77**(22):7998-8008.
  22. McBride Mark J., Xie Gary, Martens Eric C., Lapidus Alla, Henrissat Bernard, Rhodes Ryan G., Goltsman Eugene, Wang Wei, Xu Jian, Hunnicutt David W., Staroscik Andrew M., Hoover Timothy R., Cheng Yi-Qiang, Stein Jennifer L.: **Novel Features of the Polysaccharide-Digesting Gliding Bacterium Flavobacterium Johnsoniae as Revealed by Genome Sequence Analysis.** *Appl Environ Microbiol* 2009, **75**(21):6864-6875.

23. Feng Xueyang, Mouttaki Housna, Lin Lu, Huang Rick, Wu Bing, Hemme Christopher L., He Zhili, Zhang Baichen, Hicks Leslie M., Xu Jian, Zhou Jizhong, Tang Yinjie: **Characterization of the Central Metabolic Pathways in *Thermoanaerobacter* Sp. Strain X514 Via Isotopomer-Assisted Metabolite Analysis.** *Appl Environ Microbiol* 2009, **75**(15):5001-5008.

## (II). Human Microbiota and Health:

24. Huang Shi, Li Rui, Zeng Xiaowei, He Tao, Zhao Helen, Chang Alice, Bo Cupei, Chen Jie, Yang Fang, Knight Robin D., Liu Jiquan, Davis Catherine, Xu Jian: **Oral Microbial Structure Predicts Gingivitis Susceptibility and Severity.** *ISME J*, 2014.
25. Tu Qichao, He Zhili, Li Yan, Chen Yanfei, Deng Ye, Lin Lu, Hemme Christopher, Tong Yuan, Nostrand Joy Van, Wu Liyou, Zhou Xuedong, Shi Wenyuan, Li Lanjuan, Xu Jian, Zhou Jizhong: **Development of Humichip for Functional Profiling of Human Microbiomes.** *PLoS ONE* 2014, DOI: 10.1371/journal.pone.0090546
26. Yang Fang, Ning Kang, Chang Xingzhi, Yuan Xiao, Tu Qichao, Yuan Tong, Deng Ye, Hemme Christopher L., Van Nostrand Joy, Cui Xinping, He Zhili, Chen Zhenggang, Guo Dawei, Yu Jiangbo, Zhang Yue, Zhou Jizhong, Xu Jian: **Saliva Microbiota Carry Caries-Specific Functional Gene Signatures.** *PLoS ONE* 2014, **9**(2):e76458.
27. Yang F., Huang S., He T., Catrenich C., Teng F., Bo C., Chen J., Liu J., Li J., Song Y., Li R., Xu J.: **Microbial Basis of Oral Malodor Development in Humans.** *J Dent Res* 2013, **92**(12):1106-1112.
28. Lee Yong-Jin, Van Nostrand Joy D., Tu Qichao, Lu Zhenmei, Cheng Lei, Yuan Tong, Deng Ye, Carter Michelle Q., He Zhili, Wu Liyou, Yang Fang, Xu Jian, Zhou Jizhong: **The Pathochip, a Functional Gene Array for Assessing Pathogenic Properties of Diverse Microbial Communities.** *ISME J* 2013, **7**(10):1974-1984.
29. Yang Fang, Zeng Xiaowei, Ning Kang, Liu Kuan-Liang, Lo Chien-Chi, Wang Wei, Chen Jie, Wang Dongmei, Huang Ranran, Chang Xingzhi, Chain Patrick S., Xie Gary, Ling Junqi, Xu Jian: **Saliva Microbiomes Distinguish Caries-Active from Healthy Human Populations.** *ISME J* 2012, **6**(1):1-10.
30. Huang Shi, Yang Fang, Zeng Xiaowei, Chen Jie, Li Rui, Wen Ting, Li Chun, Wei Wei, Liu Jiquan, Chen Lan, Davis Catherine, Xu Jian: **Preliminary Characterization of the Oral Microbiota of Chinese Adults with and without Gingivitis.** *BMC Oral Health* 2011, **11**(1):33.
31. Xu Jian, Mahowald Michael A., Ley Ruth E., Lozupone Catherine A., Hamady Micah, Martens Eric C., Henrissat Bernard, Coutinho Pedro M., Minx Patrick, Latreille Philippe, Cordum Holland, Van Brunt Andrew, Kim Kyung, Fulton Robert S., Fulton Lucinda A., Clifton Sandra W., Wilson Richard K., Knight Robin D., Gordon Jeffrey I.: **Evolution of Symbiotic Bacteria in the Distal Human Intestine.** *PLoS Biol* 2007, **5**(7):e156.

Selected peer commentaries: Walker A, Say hello to our little friends, *Nature Reviews Microbiology*, 5:572-3 (2007).

32. Oh Jung D., Kling-Bäckhed Helene, Giannakis Marios, Xu Jian, Fulton Robert S., Fulton Lucinda A., Cordum Holland S., Wang Chunyan, Elliott Glendoria, Edwards Jennifer, Mardis Elaine R., Engstrand Lars G., Gordon Jeffrey I.: **The Complete Genome Sequence of a Chronic Atrophic Gastritis *Helicobacter Pylori* Strain: Evolution During Disease Progression.** *Proc Natl Acad Sci USA* 2006,

103(26):9999-10004.

33. Chen Swaine L., Hung Chia-Seui, Xu Jian, Reigstad Christopher S., Magrini Vincent, Sabo Aniko, Blasiar Darin, Bieri Tamberlyn, Meyer Rekha R., Ozersky Philip, Armstrong Jon R., Fulton Robert S., Latreille J. Phillip, Spieth John, Hooton Thomas M., Mardis Elaine R., Hultgren Scott J., Gordon Jeffrey I.: **Identification of Genes Subject to Positive Selection in Uropathogenic Strains of Escherichia Coli: A Comparative Genomics Approach.** *Proc Natl Acad Sci USA* 2006, **103**(15):5977-5982.
34. Sonnenburg Justin L., Xu Jian, Leip Douglas D., Chen Chien-Huan, Westover Benjamin P., Weatherford Jeremy, Buhler Jeremy D., Gordon Jeffrey I.: **Glycan Foraging *in Vivo* by an Intestine-Adapted Bacterial Symbiont.** *Science* 2005, **307**(5717):1955-1959.
35. Xu Jian, Chiang Herbert C., Bjursell Magnus K., Gordon Jeffrey I.: **Message from a Human Gut Symbiont: Sensitivity Is a Prerequisite for Sharing.** *Trends Microbiol* 2004, **12**(1):21-28.
36. Xu Jian, Gordon Jeffrey I.: **Honor Thy Symbionts.** *Proc Natl Acad Sci USA* 2003, **100**(18):10452-10459.
37. Xu Jian, Bjursell Magnus K., Himrod Jason, Deng Su, Carmichael Lynn K., Chiang Herbert C., Hooper Lora V., Gordon Jeffrey I.: **A Genomic View of the Human-Bacteroides Thetaiotaomicron Symbiosis.** *Science* 2003, **299**(5615):2074-2076.

Selected peer-reviewed commentaries: Gilmore MS and Ferretti JJ. (2003). Microbiology. The thin line between gut commensal and pathogen. *Science* 299:1999-2002. Comstock LE and Coyne MJ. (2003). Bacteroides thetaiotaomicron: a dynamic, niche-adapted human symbiont. *BioEssays* 10:926-9.

38. Hooper Lora V., Xu Jian, Falk Per G., Midtvedt Tore, Gordon Jeffrey I.: **A Molecular Sensor That Allows a Gut Commensal to Control Its Nutrient Foundation in a Competitive Ecosystem.** *Proc Natl Acad Sci USA* 1999, **96**(17):9833-9838.

### (III). Single-Cell Analysis, Raman-activated Cell Sorting and Metagenomics: Instrument/Tool Development and Technical Platform

39. Zhang Qiang, et al, Xu Jian, Ma Bo, On-demand control of microfluidic flow via capillary-tuned solenoid microvalve suction, *Lap Chip*, in press.
40. Zhang Dayi, Berry James, Zhu Di, Jiang Bo, Wang Yun, Chen Yin, Huang Shi, Langford Harry, Li Guanghe, Xu Jian, Eric Aries and Wei E. Huang: **Cultivating the Uncultured Bacteria *in-Situ*: The Application of Magnetic-Nanoparticle-Mediated Isolation to Recover Functional yet Uncultured Bacteria from Complex Environmental Microbiota.** *ISME J*, 2014, in press.
41. Ren Lihui, Su Xiaoquan, Wang Yun, Xu Jian, Ning Kang: **Qspec: Online Control and Data Analysis System for Single-Cell Raman Spectroscopy.** *Peer J*, in press.
42. Xinwei Cheng, Xiaoquan Su, Xiaohua Chen, Huanxin Zhao, Cunpei Bo, Jian Xu, Hong Bai, and Kang Ning: **Biological Ingredient Analysis of Traditional Chinese Medicine Preparation based on High-throughput Sequencing: the Story for Liuwei Dihuang Wan.** *Sci Rep*, 2014 4:5147, doi:10.1038/srep05147.
43. Wang Yun, Song Yizhi, Zhu Di, Ji Yuetong, Tingting Wang, Mcilvena David, Yin Huabing, Xu Jian,



- Huang Wei E: **Probing and Sorting Single Cells—the Application of a Raman-Activated Cell Sorter**. *Spectroscopy Europe* 2013, **25**:5.
44. Wang Yun, Ji Yuetong, Wharfe Emma S., Meadows Roger S., March Peter, Goodacre Royston, Xu Jian, Huang Wei E.: **Raman Activated Cell Ejection for Isolation of Single Cells**. *Anal Chem* 2013, **85**(22):10697-10701.
  45. Zhou Qian, Su Xiaoquan, Wang Anhui, Xu Jian, Ning Kang: **QC-Chain: Fast and Holistic Quality Control Method for Next-Generation Sequencing Data**. *PLoS ONE* 2013, **8**(4):e60234.
  46. Li Mengqiu, Xu Jian, Romero-Gonzalez Maria, Banwart Steve A., Huang Wei E.: **Single Cell Raman Spectroscopy for Cell Sorting and Imaging**. *Curr Opin Biotechnol* 2012, **23**(1):56-63.
  47. You Na, Murillo Gabriel, Su Xiaoquan, Zeng Xiaowei, Xu Jian, Ning Kang, Zhang Shoudong, Zhu Jiankang, Cui Xinping: **SNP Calling Using Genotype Model Selection on High-Throughput Sequencing Data**. *Bioinformatics* 2012, **28**(5):643-650.
  48. Xu Meiyong, Chen Xingjuan, Qiu Mengde, Zeng Xiaowei, Xu Jian, Deng Daiyong, Sun Guoping, Li Xiang, Guo Jun: **Bar-Coded Pyrosequencing Reveals the Responses of Pbde-Degrading Microbial Communities to Electron Donor Amendments**. *PLoS ONE* 2012, **7**(1):e30439.
  49. Wang Yun, Chen Yin, Zhou Qian, Huang Shi, Ning Kang, Xu Jian, Kalin Robert M., Rolfe Stephen, Huang Wei E.: **A Culture-Independent Approach to Unravel Uncultured Bacteria and Functional Genes in a Complex Microbial Community**. *PLoS ONE* 2012, **7**(10):e47530.
  50. Wang Bao-Zhan, Zhang Cai-Xia, Liu Ji-Liang, Zeng Xiao-Wei, Li Feng-Rui, Wu Yu-Cheng, Lin Xian-Gui, Xiong Zheng-Qin, Xu Jian, Jia Zhong-Jun: **Microbial Community Changes Along a Land-Use Gradient of Desert Soil Origin**. *Pedosphere* 2012, **22**(5):593-603.
  51. Su Xiaoquan, Xu Jian, Ning Kang: **Meta-Storms: Efficient Search for Similar Microbial Communities Based on a Novel Indexing Scheme and Similarity Score for Metagenomic Data**. *Bioinformatics* 2012, **28**(19):2493-2501.
  52. Su Xiaoquan, Xu Jian, Ning Kang: **Parallel-Meta: Efficient Metagenomic Data Analysis Based on High-Performance Computation**. *BMC Syst Biol* 2012, **6**(Suppl 1):S16.
  53. Jian Xiao-Hong, Pan Hai-Xue, Ning Ting-Ting, Shi Yuan-Yuan, Chen Yong-Sheng, Li Yan, Zeng Xiao-Wei, Xu Jian, Tang Gong-Li: **Analysis of Ym-216391 Biosynthetic Gene Cluster and Improvement of the Cyclopeptide Production in a Heterologous Host**. *ACS Chem Biol* 2012, **7**(4):646-651.
  54. Xia Weiwei, Zhang Caixia, Zeng Xiaowei, Feng Youzhi, Weng Jiahua, Lin Xiangui, Zhu Jianguo, Xiong Zhengqin, Xu Jian, Cai Zucong, Jia Zhongjun: **Autotrophic Growth of Nitrifying Community in an Agricultural Soil**. *ISME J* 2011, **5**(7):1226-1236.
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*IEEE Seventh International Conference on eScience*. 2116560: IEEE Computer Society 2011: 7-14.

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59. Ippolito Joseph E., Xu Jian, Jain Sanjay, Moulder Krista, Mennerick Steven, Crowley Jan R., Townsend R. Reid, Gordon Jeffrey I.: **An Integrated Functional Genomics and Metabolomics Approach for Defining Poor Prognosis in Human Neuroendocrine Cancers**. *Proc Natl Acad Sci USA* 2005, **102**(28):9901-9906.
60. Magrini Vincent, Warren Wesley C., Wallis John, Goldman William E., Xu Jian, Mardis Elaine R., Mcpherson John D.: **Fosmid-Based Physical Mapping of the *Histoplasma Capsulatum* Genome**. *Genome Res* 2004, **14**(8):1603-1609.

### White papers

61. Gordon JI, Ley R, Wilson R, Mardis E, **Xu J**, Fraser CM, Relman DA (2005). Extending our view of self: the human gut microbiome initiative. [Submitted to NHGRI](#) July 10, 2005. Approved for funding Sep 12, 2005.

### Patents/Copyrights

1. 籍月彤, 宋厚辉, 徐健。快速筛选嗜热厌氧产乙醇微生物高产乙醇菌株的方法。专利申请号: 201010149123.3
2. 秦勇, 宋厚辉, 黄建忠, 徐健。一种生产纤维素乙醇的方法。专利授权号: 201010149120.X
3. 许成钢, 宋厚辉, 李玉东, 徐健。一种纤维素原料的糖化方法。专利申请号: 201010149132.2
4. 徐健, 杨芳, 凌均荣, 曾晓维, 王玮, 宋厚辉。一种口腔微生物群落数据库及其应用。专利申请号: 201010198224.X
5. 宋厚辉, 林璐, 黄巍, 徐健。一种超声波介导的微生物遗传转化方法及其应用。专利授权号: 201010186403.1
6. 宋厚辉, 黄巍, 林璐, 徐健。一种细胞遗传转化的方法和装置。专利申请号: 201010260311.3
7. 徐健, 秦勇, 李玉东, 宋厚辉, 黄建忠。一种发酵合成气生产有机酸或醇的方法及装置。专利申请号: 201010572549.X
8. 徐健, 林璐, 秦勇, 宋厚辉。一种提高微生物底物利用率的发酵方法。专利申请号: 201110182889.6
9. 宁康, 苏晓泉, 徐健。基于 GPGPU 和多核 CPU 硬件的高性能元基因组数据分析系统。专利申

请号：201210055384.8

10. 周茜, 宁康, 苏晓泉, 徐健。基于多核 CPU 和 GPGPU 硬件的高通量测序数据质量控制系统。专利申请号：201210478392.3
11. 路延笃, 徐健, 辛一, 魏力。一种向微拟球藻叶绿体中导入外源 DNA 的方法及相关的叶绿体基因组序列。专利申请号：201210494514.8
12. 任立辉, 宁康, 马波, 徐健, 黄巍。活体单细胞分选电子控制系统。专利申请号：201210567603.0
13. 任立辉, 宁康, 籍月彤, 王允, 徐健, 黄巍。单细胞表现型数据库系统和搜索引擎。专利申请号：201310105207.0
14. 李春宇, 马波, 徐健。一种基于自供能真空微泵的便携式微液滴发生器。专利申请号：201310382774.0
15. 徐健, 滕琳, 籍月彤, 黄巍。一种快速区分环境中刺激（污染）物质的方法。专利申请号：201310456140.5
16. "马波, 徐健, 张旭。一种捕获采集细胞/颗粒拉曼光谱的微流控芯片及方法。专利申请号：201310613921.0
17. 马波, 徐健, 张旭。一种基于压力吸吮的细胞/颗粒分选系统和方法。专利申请号：201310612205.0
18. 籍月彤, 王婷婷, 王允, 何曰辉, 黄巍, 徐健。一种快速检测微藻产能过程的方法。专利申请号：201310595881.1
19. 宁康, 白虹, 苏晓泉, 程新玮, 赵焕新, 徐健, 陈晓华。一种基于高通量测序技术的中药制剂生物成分分析方法。 专利申请号：201310612193.1

### Software Development

1. 苏晓泉, 宁康, 徐健。基于 GPGPU 和多核 CPU 硬件的元基因组数据分析软件。登记号：2012SR055051
2. 苏晓泉, 宁康, 徐健。元基因组数据库索引与搜索系统。登记号：2013SR000258
3. 任立辉, 宁康, 苏晓泉, 徐健。单细胞拉曼光谱系统控制软件。登记号：2013SR015642
4. 任立辉, 宁康, 苏晓泉, 徐健。单细胞拉曼光谱模拟系统软件。登记号：2013SR079944
5. **Xu J** and Gordon JI. (2005). MetaView, a software suite for in silico metabolic reconstruction from genes, proteins and metabolites. Developed with Perl and SQL.
6. **Xu J** and Gordon JI. (2005). MapLink, a software tool for whole genome assembly based on a physical map. Developed with Perl, Perl/Tk and SQL. Copyrighted.
7. **Xu J** and Gordon JI. (2000). GenomeExplorer, a relational database and analytic tool to guide genome finishing, annotation and comparison. Developed with SQL and SOLID.

## **SELECTED MEDIA REPORTS**

1. 沈春蕾. 慢性病诊断从“口”入手, *中国科学报*, 2014年4月28日
2. 沈春蕾. 小小绿藻产出生物柴油, *中国科学报*, 2014年01月28日
3. 李惠钰. 原创科研仪器遭遇产业“断层”尴尬, *中国科学报*, 2013年07月3日
4. 王建高. 我国首台“活体单细胞拉曼分选仪”样机通过验收, *科技日报*, 2013年06月24日
5. 曾晓维 王玮 徐健. 新一代元基因组技术探秘微生物群落, *科学时报*, 2010年05月30日
6. Gross J (2007). Human Gut Hosts a Dynamically Evolving Microbial Ecosystem, *Public Library of Science*, June 19, 2007.
7. Gorman J (2003). Aliens Inside Us: A (Mostly Friendly) Bacterial Nation, *The New York Times*, April 1, 2003.
8. Roach J (2003). Deciphering the “Bugs” in Human Intestines, *National Geographic*, March 28, 2003.
9. Weitzman J (2003). Members of the Gut Community, *The Scientist*, 2003, 4(1):20030328-01  
doi:10.1186/20030328-01

## **PRESENTATIONS**

### Organized Conferences and Workshops:

- Co-Chair, Single-Cell Analysis Workshop, Qingdao, July 25-26, 2014.
- Chair, Single-Cell Analysis in Medicine Workshop, Qingdao, April 22, 2014.
- Organizer and Chair, 1<sup>st</sup> CAS-P&G Oral Microbiota Mini-Symposium, Qingdao, Nov 7, 2013
- Organizer and Chair, 1<sup>st</sup> Single-cell Analysis and Imaging Workshop, Qingdao, Jan 6, 2013.
- Organizer and Chair, BioEnergy Forum, 31th IUBS General Assembly and Conference on Biological Science and Bioindustry, Suzhou, China, July 5-9, 2012.
- Co-Chair, Marine Bioenergy Session, 9<sup>th</sup> International Marine Biotechnology Conference, Qingdao, China, Oct 8-12, 2010.
- Co-Chair, BioEnergy Session, 2nd International Symposium of Energy and Environment, McDonnell International Scholars Academy, Hong Kong, Dec 08-11, 2008
- Advisory Committee member and Session Head, International Symposium of BioEnergy and Bioprocess Technology, Sept 17-19, 2007, Qingdao, China

### Invited Conference Talks and Research Seminars:

1. *Predictive Modeling of Oral Infections via Oral Microbiota*. 2<sup>nd</sup> International Symposium on Microbial Ecology and Microbial Biofilm. Nanning, Oct 26-28, 2014.
2. *Predictive Modeling of Oral Infections via Oral Microbiota*. Sino-American Frontier of Science Symposium. Beijing, Oct 10-12, 2014.

3. *SAIS-Ocean: Single-Cell Analysis Instrument Series for Ocean Research*. Institute of Oceanography, Qingdao, Aug 28, 2014 (Host: Song Sun).
4. *SAIS-Ocean: Single-Cell Analysis Instrument Series for Ocean Research*. Marine Science Innovation Roadmap Symposium, Qingdao, Aug 9-11, 2014.
5. *The Algal Biofuels International Partnership Innovation Team: Scientific Achievements and Next Steps*. Research Symposium for Algal Biofuels, Qingdao, July 25, 2014.
6. *Single-Cell Analysis Instrument Series: Status and Strategy*. CAS Life Science Instrument Development Symposium, Kunming, July 17-18, 2014.
7. *Single-Cell Science & Technology Service Network*. Symposium for Science and Technology Service Network, Beijing, July 07, 2014.
8. *Development of Single-Cell Technology for Microbiota Research*. Sino-American Microbiology Symposium, Chongqing, June 28-30, 2014.
9. *Application of Single-cell Raman Technology in medical research and drug development*. Qingdao Institute of Bioenergy and Bioprocess Technology, Chinese Academy of Sciences, April 22, 2014 (Host: Qingdao Administration of Science and Technology).
10. *Application of Single-cell Raman Sorting in stem cell research* State Key Laboratory of Reproductive Biology, Institute of Zoology, Chinese Academy of Sciences, Beijing, April 9, 2014 (Host: Qi Zhou).
11. *Genomics-based development of microalgal feedstock for fuels and nutri-chemicals*. State Development and Investment Corporation, Beijing, April 9, 2014 (Host: Qiang Hu).
12. *Microbiota-based diagnosis of oral inflammatory diseases*. Procter & Gamble Beijing Research Center, Beijing, April 8, 2014 (Hosts: Allen Jiang, Peiwen Sun and Jiquan Liu)
13. *Diagnosis of inflammatory diseases using metagenomics approaches*. Donghai Pharmaceuticals, April 6, 2014 (Host: Yunlong Cui)
14. *Oral Microbiota and oral infections – the application of single-cell and metagenomics approaches in human microbiota research*, State Key Laboratory of Oral Diseases, West China School of Stomatology, Sichuan University, March 16, 2014 (Host: Xuedong Zhou).
15. *Application of Single-cell Raman Sorting in cancer research and diagnosis*, Beijing Institute of Genomics, Chinese Academy of Sciences, Beijing, Jan 5, 2014 (Host: Chung-I Wu and Xuemei Lv).
16. *Establishment of a Single-cell Technology Platform for ocean research*, School of Fisheries and School of Biological Sciences, Ocean University of China, Qingdao, Jan 16, 2014 (Host: Kehou Pan and Guanping Yang).
17. *Application of Single-cell Raman Sorting in environmental research*, Guangdong Institute of Microbiology, Guangzhou, Jan 2, 2014 (Host: Meiyong Xu and Jun Guo).
18. *Microbiota-based modeling and prediction of ecosystem function*, School of Earth and Space Sciences, University of Science and Technology of China, Hefei, Dec 14, 2013 (Host: Liguang Sun).

19. *A single-cell model of microbial microevolution*, The 2<sup>nd</sup> Annual NSFC Microevolution Symposium, Shanghai, Dec 11-12, 2013.
20. *Evolution and Function of Oleaginous Traits in Microalgae – and Single-cell Raman screening of microalgae*, The 17<sup>th</sup> Annual Symposium of Chinese Algal Society, Wuhan, Nov 18-20, 2013. (Keynote Speech)
21. *A microbial view of oral infections: dual-lens via consortia and single-cells*, 1<sup>st</sup> CAS-P&G Oral Microbiota Mini-Symposium, Qingdao, Nov 7, 2013 (Host and organizer)
22. *Single-cell Technology and its applications at ocean ecology*, State Key Laboratory of Marine Environmental Science, Xiamen University, Xiamen, Oct 4, 2013 (Host: Nianzhi Jiao).
23. *Single-cell Technology Platform*, Institute of Oceanography, Chinese Academy of Sciences, Aug 22, 2013 (Host: Jianhai Xiang).
24. *From metagenomics to single-cell genomics*, Roche User Conference, Qingdao, China, July 19, 2013.
25. *Single-cell Bioprocess Engineering (SBE): modeling and engineering of bioprocesses at single-cell resolution*, The 7<sup>th</sup> Industrial Biotechnology Summit of China, Tianjin, May 10-12, 2013.
26. *Single-cell Bioprocess Engineering (SBE): modeling and engineering of bioprocesses at single-cell resolution*, Institute of Microbiology, Chinese Academy of Sciences, Beijing, Jan 10, 2013.
27. *Raman-activated Cell Sorter (RACS): an overview of instrument development and applications*, 1<sup>st</sup> Single-cell Analysis and Imaging Workshop, Qingdao, Jan 6, 2013.
28. *Consolidated BioProcessing of Solar Energy (CBP-SE): a synthetic biology approach with Nannochloropsis as a model*, Algae Biomass Summit, Denver, CO, USA, Oct 24-27, 2012.
29. *Consolidated BioProcessing for large-scale biofuel production at single-cell resolution*, Department of Chemistry and Biochemistry and HHMI, University of Colorado at Boulder, Oct 27, 2012 (Host: Rob Knight).
30. *Genomic foundation of oil production in wild microalgae*, 15<sup>th</sup> International Biotechnology Symposium, Daegu, Korea, Sept 16-21, 2012.
31. *Consolidated BioProcessing of Solar Energy (CBP-SE): dissection and design of TAG-producing microalgae Nannochloropsis*. International Symposium of Advanced Bio-resource Research Center, Kyungpook National University, Daegu, Korea, Sept 19, 2012 (Host: Ho-Sung Yoon).
32. *Consolidated BioProcessing of Solar Energy (CBP-SE): From Single-cell to Microbial Consortia*. Sino-USA Chinese Collaborative Workshop – Opportunities and Challenges in Synthetic Biology (SUCC SynBio 2012), Tianjin, Aug 1-3, 2012.
33. *Genetic Foundation for Robust Production of Oil in Microalgae*, 31<sup>st</sup> General Assembly of the International Union of Biological Sciences (IUBS), Suzhou, July 5-9, 2012
34. *Algal Biofuels: Nannochloropsis as a research model for Consolidated BioProcessing of Solar Energy*, the 1<sup>st</sup> Sino-German Symposium on Metabolic Engineering & Advanced Biofuels, Qingdao, June 11-14, 2012.

35. “*Bioprocess Engineering*” guided by *Systems Biology - co-fermentation of pentose (C5) and hexose (C6) by thermophilic bacteria*, 4<sup>th</sup> TOTAL China Scientific Forum, Advanced Biotechnology for Fuel and Chemicals Based on Non-food Biomass, Qingdao, May 29, 2012
36. *Genetic Foundation for Robust Production of Oil in Microalgae*, School of Ocean and Earth Sciences, Xiamen University, May 2, 2012 (Host: Senjie Lin)
37. *Synthetic Biology in Biofuel Development: development of novel algal feedstock for Consolidated Bioprocessing of Solar Energy (CBP-SE)*. College of Life Sciences, University of Science and Technology of China, Hefei, Nov 26, 2011 (Host: Haiyan Liu and Lianhong Sun).
38. *Ecosystem-Wide Association Study (EWAS): whole-ecosystem sequencing for dissecting bioenergy conversions inside our digestive tract*. The 6<sup>th</sup> International conference on Genomics, Shenzhen, China, Nov 12-15, 2011.
39. *Consolidated Bioprocessing of Solar Energy: a phylogenomic approach for systems biology guided engineering of photosynthetic microalgae for biofuel production*, Algal Biotechnology Seminar series, Scripps Institute and UC San Diego, San Diego, CA, USA, Oct 28, 2011 (Host: Greg Mitchell).
40. *Consolidated Bioprocessing of Solar Energy (CBP-SE): the story of Nannochloropsis*, Synthetic Genomics Inc, San Diego, CA, USA, Oct 28, 2011 (Host: Paul Roessler).
41. *The Nannochloropsis Phylogenome and its implications*, Frontier in Algal Biotechnology Section, Algae Biomass Summit, Minneapolis, MN, USA, Oct 24-26, 2011.
42. *Genetic Foundation for Robust Production of Oil in Microalgae*, Frontiers in Biological Sciences Seminar Series, Pacific Northwest National Laboratory (PNNL), Richland, WA, USA, Sept 12, 2011 (Host: Doug Ray).
43. *Algal Biodiesel Resource Potential in China*. APEC Workshop on Algal Biofuels, San Francisco, CA, USA, Sept 12, 2011.
44. *The Nannochloropsis Phylogenome and its implications*. Department of Biochemistry, Michigan State University, East Lansing, MI, USA, May 2, 2011 (Host: Christopher Benning).
45. *Tapping into the host-symbiont conversations in human mouth*, Procter & Gamble Beijing Research Center, Apr 12, 2011 (Host: Jiquan Liu and Rui Li).
46. *Genetic Foundations of Robust Oil Production in Microalgae - new generation genomics technologies for algal feedstock development*. 3rd Algae World Asia conference, Singapore, Oct 19-20, 2010 (delivered by Dr. Dongmei Wang).
47. *Genetic Foundations of Robust Oil Production in Microalgae*, Algae Biomass Summit, Phoenix, AZ, Sept 28-30, 2010.
48. *New-generation metagenomics approaches*. Second-generation Sequencing Workshop (sponsored by NIH-USA), Shanghai, July 26-30, 2010
49. *Establishment of a novel Nannochloropsis-based research model and platform technology for algal biofuel production*. Innovation Seminar Series, Institute of Hydrobiology, Chinese Academy of

Sciences, May 31, 2010

50. *Dissecting the structure and function of complex microbial communities using the new-generation metagenomics approach*. The 4<sup>th</sup> Industrial Biotechnology Summit of China, Huzhou, Apr 26-29, 2010
51. *New-generation genomics and transcriptomics approaches in algal biofuel development*. Bioscience Division, Los Alamos National Laboratory, Los Alamos, NW, April 20, 2010 (Host: Jose Olivares).
52. *The promises and risks of Synthetic Biology in algal-biofuel development*, Risk Governance of Synthetic Biology, International Risk Governance Council, Geneva, Switzerland, Oct 26-27, 2009
53. *New-generation genomics and transcriptomics approaches in algal biofuel development*, US-China BioEnergy Conference and US-China Forum on A Sustainable Future through Bioenergy and Biomass Usage, Beijing, Oct 23-25
54. *New-generation genomics approaches in biofuel development*, Sino-Denmark Joint Research Center Symposium, Beijing, Oct 19-21, 2009
55. *Development of novel microalgae for robust biofuel production*, Department of Mechanical Engineering, Colorado State University, Fort Collins, Oct 16, 2009 (Host: Solix Biosystems Inc).
56. *New-generation genomics approaches in biofuel development*, EMBO World Practical Course: Computational Biology: from (meta)genomes to phenotype and environment, Shanghai, Aug 16-22, 2009
57. *Microbial Communities in Bioenergy*, National Key Laboratory for Development of Microbial Resources, Beijing, June 11-12, 2009
58. *The application of genomic approaches in developing new-generation biofuels*, Department of Plant Biology and Department of Civil and Environmental Engineering, Arizona State University, Tempe, Arizona, Apr 2, 2009 (Host: Qiang Hu).
59. *Genomic approaches in developing reconstructed microbial communities for biofuel development*, Department of Botany and Microbiology, University of Oklahoma, Oklahoma City, Oklahoma, March 28, 2009 (Host: Jizhong Zhou).
60. *High-performance computing in bioenergy research and development*, Sino-US Symposium on High-performance Computing, Beijing, Dec 12, 2008
61. *Genomic approaches in developing thermophilic Clostridia for production of cellulosic ethanol*, McDonnell International Scholars Academy 2nd International Symposium of Energy and Environment, Hong Kong, Dec 08-11, 2008
62. *Genomics approaches in dissecting complex microbial communities in bioenergy conversion*, Sino-USA BioEnergy Forum and the Joint Annual Conference of American Society of Microbiology and Chinese Society of Microbiology, Haikou, Nov 8, 2008
63. *New-Generation Biofuel Research and Development in Chinese Academy of Sciences*, Synthetic Biology 4.0, Hong Kong, Oct 10-12, 2008
64. *Genomics approaches in dissecting complex microbial communities in bioenergy conversion*, 4<sup>th</sup>



SCOPE Workshop on Microbial Environmental Genomics, Changsha, Sept 20, 2008

65. *Genomic Approaches in exploring bioenergy microbial communities*. 454 Life Science, Branford, CT, USA, June 9, 2008
66. *BioEnergy Initiatives in Chinese Academy of Sciences*, Monsanto Inc, St Louis, MO, USA. Apr 23, 2008
67. *Characterization and exploitation of natural complex microbial communities for bioenergy applications*. The 2<sup>nd</sup> Industrial Biotechnology Summit of China, Tianjin, Apr 17-19, 2008
68. *Microbial genome annotation and analysis*. 5<sup>th</sup> Genome Standard Consortium Workshop, European Bioinformatics Institute, Hinxton, United Kingdom. Dec. 12, 2007.
69. *Genome-based modeling of a complex polysaccharide-degrading microbial community*. International Symposium on BioEnergy and Bioprocess Technology, Qingdao, China. Sept. 17, 2007.
70. *Genomic approaches in understanding human gut ecosystem*. Institute of Environmental Genomics, University of Oklahoma, Norman, OK. Aug. 24, 2007.
71. *Genomic approaches to decipher a complex polysaccharide-degrading microbial community*. Central Research Office, Chinese Academy of Sciences, Beijing, China. Apr. 29, 2007.
72. *First steps in sequencing Human Gut Microbiome*. Beijing Genomics Institute, Chinese Academy of Sciences, Beijing, China. Aug. 7, 2006 (Host: Huanming Yang).
73. *Strategy development for high throughput sequencing of Gut Microbiome*. RIKEN Genome Science Center, Yokohama, Japan. July 31, 2006.
74. *Evolution of bacterial symbionts in our intestine*. Institute for Biological Resources and Functions. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan. Dec. 12, 2005.
75. *Human Gut Symbiome*. Whitehead Institute of Biomedical Research (now Broad Institute of Harvard and M.I.T), Boston, MA. Mar. 17, 2004.
76. *From sequencing individual species to assessing attributes of communities*. Joint Genome Institute, US Department of Energy, Walnut Creek, CA. Jan. 26, 2004.
77. *Integrated informatics environment for sequencing, assembly, finishing, annotation and metabolic reconstruction of large and complex genomes*. Infectious Disease Division, Washington University School of Medicine, St. Louis, MO. Dec. 18, 2003.
78. *Comparative genomics approach to study Human-Bacteria symbiosis in our intestine*. Applied Biosystems, Rockville, MD. Dec. 2, 2003.
79. *Software system for automatic integration of physical mapping and whole genome sequence assembly*. Washington University Genome Sequencing Center, St. Louis, MO. Nov. 18, 2003.
80. *A genomic view of our symbiosis with Bacteroides thetaiotaomicron*. 20<sup>th</sup> Annual Conference of Midwest Chinese American Science & Technology Association, St. Louis, MO. Oct. 25, 2003

(Outstanding Paper Award).

### **PROFESSIONAL CONTRIBUTIONS**

- Editorial Board member: *Applied Environmental Microbiology* (2009-2011), *Algal Research* (2011-)
- Journal reviewer for *PNAS*, *Genome Research*, *Bioinformatics*, *AEM*, *PLoS ONE*, etc.
- Member, Committee of Molecular Microbiology and Bioengineering, Chinese Society of Microbiology (2011-16).
- Member, Committee of International Exchange, Chinese Society of Microbiology (2011-16)
- Vice Chair, Academic Degree Committee, Qingdao Institute of BioEnergy and Bioprocess Technology, Chinese Academy of Sciences, 2008-2011
- Member, Academic Committee, Qingdao Institute of BioEnergy and Bioprocess Technology, Chinese Academy of Sciences, 2008-present

### **PROFESSIONAL RECOGNITION**

- “Distinguished Young Investigator Award (基金委杰青)”, 2014, by National Science Foundation of China
- “Exceptional Young Talent Award (青年拔尖人才计划)”, 2012, by Central Government (中组部)
- “Leadership in Scientific Innovation Award” (中青年科技创新领军人才计划), 2013, by MoST
- “Leadership in Entrepreneurship and Innovation Award”(青岛市创业创新领军人才), 2013, by Qingdao Municipal Government
- “The 100 Best Doctoral Thesis Award”, 2013, by CAS.
- Innovation in Research Award, 2012, by National Union of Oversea Chinese
- Outstanding Graduate-Course Lecturer Award, 2012, by CAS-QIBEBT
- Outstanding Young Investigator Award, 2009, by Natural Sciences Foundation of Shandong
- Hundred Talent Award, 2012, by Chinese Academy of Sciences

### **PROFESSIONAL MEMBERSHIP**

- Chinese Society of Microbiology
- American Society of Microbiology
- IEEE Engineering in Medicine and Biology Society
- American Association for the Advancement of Science (A.A.A.S)

### **CONTACT INFORMATION**

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Web: <http://www.singlecellcenter.org/>  
<http://www.qibebt.cas.cn/>