

XU Jian (徐健), Ph.D.



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

Summary: XU Jian currently serves as Director of BioEnergy Division and Director of Single-Cell Center at CAS-QIBEBT. He 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. Together with its collaborators, the Center has been developing and demonstrating 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 CO₂ fixation, cellulose conversion and human-microbe symbiosis, across the biological hierarchy of single-cell, population and consortium. He has published over 80 papers on peer-reviewed journals such as *Science*, *Cell Host Microbe*, *Nature Communications*, *Nature Plants*, *PNAS*, *PLoS Biology*, *PLoS Genetics*, *Plant Cell*, *Trends Plant Sci*, *Biotech Adv*, *ISME J*, *Plant J*, *Biotech Biofuels*, *Anal Chem*, *Lab Chip* etc, with over 3200 citations (for a full list of publications, please see https://www.researchgate.net/profile/Jian_Xu8). He currently serves at the Editorial Boards of *mSystems*, *Scientific Reports* and *Algal Research*. He has won a number of career awards from NSFC, MOST and CAS, including National Distinguished Young Investigator Award (2014). He has mentored nearly 20 doctoral students and postdoctoral scholars, and was recognized for excellence in mentorship via the 2013 CAS 100 Best PhD Thesis Award and the 2014 UCAS-BHPB Mentorship Award. Please refer to <http://www.single-cell.cn/> for more details.

ACADEMIC APPOINTMENT

- 2014-present Director, BioEnergy Directorate, Qingdao Institute of Bioenergy and Bioprocess Technology, Chinese Academy of Sciences (CAS-QIBEBT)
- 2013-present Director, Single-Cell Center, BioEnergy Directorate, 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 GRANTS AND SUPPORT

Active public grants (selected)

- 2015-2018 National Distinguished Young Investigator Fund (国家杰出青年基金), National Science Foundation of China
“*Single-cell Regulatory Model of Biofuel Production*”; Principle Investigator (PI); RMB 4.0M for 4 yrs
- 2014-2017 Scientific Instrument Development Program, National Science Foundation of China
“*Instrument development of Single-cell Genetic Analyzer*”; PI; RMB 3.0M for 4 yrs
- 2013-2015 Exceptional Young Talent Program (中组部万人计划青年拔尖人才), Central Government of China
“*Single-cell omics technology for microbiota*”; PI; RMB 2.4M for 3 yrs
- 2014-2016 Leadership in Scientific Innovation Program (科技部中青年科技创新领军人才计划), Ministry of Science and Technology of China
“*Technology development for single-cell genomics*”; PI
- 2012-2015 Major Research Plan for Microevolution, National Science Foundation of China
“*Microevolution of ethanol tolerance in thermophilic bacteria*”; PI; RMB 3.2M for 4 yrs
- 2012-2015 863 Synthetic Biology Program, Ministry of Science and Technology of China
“*Synthetic biology technology for photosynthetic organisms*”; Co-PI; RMB 3M for 4 yrs
- 2012-2016 973 Program, Ministry of Science and Technology of China
“*Design and construction of parts and modules for synthetic biology*”; PI (Sub-Project); RMB 2M for 5 yrs

Past government grants

- 2012-2014 China-Netherlands Research Collaboration Fund, Chinese Academy of Sciences
“*Molecular mechanism of the switch in energy storage compounds in microalgae*”; PI on Chinese side (PI on Dutch side: Rene Wijffels of Wageningen University); RMB 0.8M for 3 yrs
- 2011-2013 Major International Collaboration Program, 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 International Partnership for Innovation Program, Chinese Academy of Sciences
“Microalgal energy and biorefinery”; PI; RMB 3M for 3 yrs
- 2011-2012 Methodology Innovation Program, Ministry of Science and Technology of China
“Technical Platform for Raman-activated Cell Sorting”; PI (together with Wei Huang);
 RMB 4.6M for 2 yr
- 2009-2010 Solar Energy Initiative Program, Chinese Academy of Sciences
“Discovery and mining of oil-producing algae through high-throughput genomics approaches”; Co-PI; RMB 0.88M for 2 yrs
- 2010-2012 China-Israel Research Collaboration Fund, Ministry of Science and Technology of China
“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 863 Bioinformatics Program, Ministry of Science and Technology of China
“Algorithm and tool development for analyzing metagenome data produced by second-generation DNA sequencers”; Co-PI; RMB 1.6M for 3 yrs
- 2008-2011 Cellulosic Ethanol Major Research Program, Chinese Academy of Sciences
“Construction of a genetic manipulation system for Clostridia and Thermoanaerobacter”;
 PI; RMB 2.0M for 4 yrs
- 2008-2011 Hundred Talent Award Program, Chinese Academy of Sciences,
“The diversity and molecular mechanism of bacterial degradation of cellulose”; PI; RMB
 2.0M for 3 yrs
- 2009-2010 E-Science Program, 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, Shandong Government
“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.

PROFESSIONAL RECOGNITION

1. “National Distinguished Young Investigator Award (国家杰出青年基金)”, 2014, by National Science Foundation of China
2. “Exceptional Young Talent Award (万人计划之青年拔尖人才)”, 2012, by the Central Government of China (中组部)
3. “Leadership in Scientific Innovation Award” (中青年科技创新领军人才计划), 2013, by Ministry of Science and Technology of China (科技部)
4. “UCAS-BHPB Award for Excellence in Research Mentorship” (as mentor of my doctoral student Shi Huang), 2014, by University of Chinese Academy of Science (CAS) and BHP Billiton.
5. “The 100 Best PhD Thesis Award”, as mentor (of my doctoral student Lu Lin), 2013, by CAS.
6. “Leadership in Entrepreneurship and Innovation Award”(青岛市创业创新领军人才), 2013, by Qingdao Municipal Government
7. Innovation in Research Award, 2012, by National Union of Oversea Chinese (中国侨联)
8. Outstanding Graduate-Course Lecturer Award, 2012, by CAS-QIBEBT
9. Distinguished Young Investigator Award, 2009, by Natural Science Foundation of Shandong
10. Hundred Talent Award (百人计划), 2008, by Chinese Academy of Sciences

PUBLICATIONS

Representative Publications

1. Xu Chenggang, Huang Ranran, Teng Lin, Jing Xiaoyan, Hu Jianqiang, Cui Guzheng, Wang Yilin, Cui Qiu, Xu Jian: **Cellulosome stoichiometry in *Clostridium cellulolyticum* is regulated by selective RNA processing and stabilization.** *Nature Communications*. 2015, 6:6900 doi: 10.1038/ncomms7900.
2. 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.
3. 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.
4. 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.

5. 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.
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. Teng Fei, Yang Fang, Huang Shi, Bo Cunpei, Zhengjiang Xu, Amnon Amir, Knight Rob, Ling Junqi, Xu Jian: **Prediction of Early Childhood Caries via Spatial-temporal Variation of Oral Microbiota**, *Cell Host & Microbe*, 2015. <http://dx.doi.org/10.1016/j.chom.2015.08.005>.
8. 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.
9. 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.
10. 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.
11. Xu Jian and Gordon Jeffrey I.: **Honor Thy Symbionts**. *Proc Natl Acad Sci USA* 2003, 100(18):10452-10459.
12. 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). Molecular mechanism of biological carbon cycling: photosynthetic production of oil by marine microalgae and bacterial degradation of cellulose

1. Xu Chenggang, Huang Ranran, Teng Lin, Jing Xiaoyan, Hu Jianqiang, Cui Guzheng, Wang Yilin, Cui Qiu, Xu Jian: **Cellulosome stoichiometry in *Clostridium cellulolyticum* is regulated by selective RNA processing and stabilization**. *Nature Communications*, 2015, 6:6900 doi: 10.1038/ncomms7900.
2. Lin Teng, Kun Wang, Jian Xu, Chenggang Xu, Flavin mononucleotide (FMN)-based fluorescent protein (FbFP) as reporter for promoter screening in *Clostridium cellulolyticum*, *J Microbiol. Methods*, 2015.
3. Bareket Dassa, Sagar Utturkar, Richard Hurt Jr., Dawn Klingeman, Martin Keller, Jian Xu, Harish Kumar Reddy, Ilya Borovok, Inna Rozman Grinberg, Raphael Lamed, Olga Zhivin, Edward Bayer, and

Steven Brown, **Near-Complete Genome Sequence of the Cellulolytic Bacterium *Bacteroides (Pseudobacteroides) cellulosolvens* ATCC 35603**, *Genome Announcement*, 2015

4. Chew Yee Ngan, Chee-Hong Wong, Cindy Choi, Yuko Yoshinaga, Katherine Louie, Jing Jia, Cindy Chen, Benjamin Bowen, Lauriebeth Leonelli, Rita Kuo, Richard Baran, Jos é G. Garc ía-Cerd á, Abhishek Pratap, Mei Wang, Joanne Lim, Hope Tice, Chris Daum, Jian Xu, Trent Northen, Axel Visel, James Bristow, Krishna K. Niyogi, Chia-Lin Wei, **Lineage-Specific Chromatin Signatures Reveal a Master Lipid Switch in Microalgae**, *Nature Plants*, 2015, doi:10.1038/nplants.2015.107.
5. Jianhua Fan, Kang Ning, Xiaowei Zeng, Yuanchan Luo, Dongmei Wang, Jianqiang Hu, Jing Li, Hui Xu, Jianke Huang, Minxi Wan, Weiliang Wang, Daojing Zhang, Guomin Shen, Conglin Run, Junjie Liao, Lei Fang, Shi Huang, Xiaoyan Jing, Xiaoquan Su, Anhui Wang, Lili Bai, Zanmin Hu, Jian Xu and Yuanguang Li, **Genomic Foundation of Starch to Lipid Switch in Oleaginous *Chlorella***. *Plant Physiology*, 2015, DOI:10.1104/pp.15.01174.
6. Lu Yandu and Xu Jian: **Phytohormones in microalgae: a new opportunity for microalgal biotechnology?** *Trends Plant Sci*, 2015. DOI: 10.1016/j.tplants.2015.01.006 (Cover Article).
7. Jia Jing, Han Danxiang, Gerken Henri, Li Yantao, Sommerfeld Milton, Hu Qiang, Xu Jian: **Molecular mechanisms for photosynthetic carbon partitioning into storage neutral lipids in *Nannochloropsis oceanica* under nitrogen-depletion conditions**. *Algal Research* 2014, 7: 66-77. doi:10.1016/j.algal.2014.11.005
8. 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 Oct 9;4:6556. doi: 10.1038/srep06556.
9. 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.
10. 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.
11. 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
12. 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.
13. 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.

14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. Lin Lu, Xu Jian: **Dissecting and Engineering Metabolic and Regulatory Networks of Thermophilic Bacteria for Biofuel Production.** *Biotechnol Adv* 2013, **31**(6):827-837.
20. 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.
21. 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.
22. 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.
23. Xu Chenggang, Qin Yong, Li Yudong, Ji Yuetong, Huang Jianzhong, Song Houhui, Xu Jian: **Factors Influencing Cellulosome Activity in Consolidated Bioprocessing of Cellulosic Ethanol.** *Bioresource Technol* 2010, **101**(24):9560-9569.
24. 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.
25. 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.

26. 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.
27. 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: microbiota-based diagnosis and prediction of diseases

28. Teng Fei, Yang Fang, Huang Shi, Bo Cunpei, Zhengjiang Xu, Amnon Amir, Knight Rob, Ling Junqi, Xu Jian: **Prediction of Early Childhood Caries via Spatial-temporal Variation of Oral Microbiota**, *Cell Host & Microbe*, 2015. <http://dx.doi.org/10.1016/j.chom.2015.08.005>.
29. Fei Teng, Tao He, Shi Huang, Cunpei Bo, Jie Chen, Helen Zhao, Alice Chang, Jiquan Liu, Duane Charbonneau, Jian Xu, Rui Li, Junqi Ling: **CPC mouth rinse perturbs dental plaque maturation and alleviates experimental gingivitis**, under review.
30. Huang Shi, Li Zhen Li, He Tao, Bo Cunpei, Alice Chang, Lin Lin, He Yanyan, Liu Jiquan Liu, Li Rui, Xu Jian, **Microbiota-based Signature of Anti-gingivitis Treatment Regimens**, under review.
31. Zhuang Guo, Jiachao Zhang, Zhanli Wang, Kay Ying Ang, Shi Huang, Xiaoquan Su, Qiangchuan Hou, Jianmin Qiao, Yi Zheng, Lifeng Wang, Eileen Koh, Ho Danliang, Jian Xu, Yuan Kun Lee, Heping Zhang, **Diagnosis of gout diseases via human intestinal microbiota**, under review.
32. Tepper Bruce, Howard Brian, Schnell Daniel, Mills Lisa, Xu Jian, **In Vitro Method for Prediction of Plaque Reduction by Dentifrice**, *J Microbiol. Methods*, 2015. doi: 10.1016/j.mimet.2015.06.017
33. 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.
34. 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
35. 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.
36. 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.
37. 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.

38. 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.
39. 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.
40. 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).

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