

一、教育经历

2002.9-2005.11	南京农业大学	植物营养学	博士
1999.9-2002.6	南京农业大学	植物营养学	硕士
1995.9-1999.6	南京农业大学	生物技术	本科

二、工作经历

2017.7-2017.9	甲南大学	访问学者
2014.12-至今	南京农业大学	教授
2012.12-2013.12	John. Innes.Center	访问学者
2012.1.-2012.4	John. Innes.Center	访问学者
2009.12-2014.12	南京农业大学	副教授
2006.2-2007.2	Rothamsted research	博士后
2005.12-2009.12	南京农业大学	讲师

三、获奖情况

2018 年江苏省及中国植物营养与肥料学会大北农“优秀博士生导师论文导师”；

2016 年度大北农青年学者；

2016 年江苏省杰出青年基金；

2015 年度江苏省科学技术一等奖（第三完成人）；

2015 年度江苏省六大人才高峰；

2015 年南京农业大学“钟山学术新秀”；

2014 年中国产学研合作创新奖；

江苏省青蓝工程骨干教师；

教育部新世纪优秀人才。

四、教学情况

本科教学：主讲本科生课程《植物营养分子生物学基础》

研究生教学：主讲研究生课程《植物营养分子生物学》，参讲研究生课程《农业资源与环境科学前沿》、《植物营养研究法》

五、学术兼职

第 10 届植物营养生物学专业委员

职业教育培训现代农业领域专家

六、主持项目

1. 江苏省杰出青年基金,水稻氮素利用的分子机制,BK20160030, 2016.7-2019.6, 100 万, 已结题, 主持;

2. 农业部转基因专项抗逆转基因水稻新品种培育, 氮、磷高效利用转基因水稻新品种培育, 2016ZX08001003-008, 2016.1-2020.12, 173.99 万, 在研, 主持;

3. 国家自然科学基金面上项目, 解析 OsNAR2.1 提高水稻氮素利用效率的生物学机制, 31372122, 2014.1-2017.12, 80 万, 已结题, 主持;

4. 国家自然科学基金面上项目, 通气组织形成基因 OsLSD2 提高水稻氮素利用效率的分子机制, 201.1-2015.12, 64 万, 已结题, 主持;

5. 国家自然科学基金面上项目(小额支助项目), 水稻硝酸盐运输蛋白 OsNRT2.4 的表达调控与功能分析, 30971854, 2010.1-2010.12,

8 万，已结题，主持；

6. 江苏省自然科学基金面上项目，水稻硝酸盐运输蛋白基因 OsNRT2.3 功能，BK2010440，2010.7-2012.12，10 万，已结题，主持；

7. 农业部转基因水稻新品种培育专项重要性状基因克隆及功能验证，水稻磷转运蛋白基因 OsPT2 和 OsPT6 的克隆及功能鉴定，2008ZX08009-003，2008.7-2010.12，65 万，已结题，主持；

8. 国家自然科学基金青年基金，水稻根系硝酸盐运输蛋白的功能分析与表达调控研究，30500309，2006.1-2008.12，26 万，已结题，主持。

七、发表论文

1. Naz Misbah, Luo Bingbing, Guo Xueya, Li Bin, Chen Jingguang, **Fan Xiaorong***. Overexpression of Nitrate Transporter OsNRT2.1 Enhances Nitrate-Dependent Root Elongation. Genes.10 (4): pii: E290. doi: 10.3390/genes10040290. 2019.

2. Chen Jingguang, Zou Wenli, Meng Lijun *, **Fan Xiaorong***, Xu Guohua, Ye Guoyou. Advances in the Uptake and Transport Mechanisms and QTLs Mapping of Cadmium in Rice. International Journal of Molecular Sciences. 20(14). pii: E3417. doi: 10.3390/ijms20143417. 2019.

3. Chen Jingguang, Qi Tiantian, Hu Zhi, Fan Xiaoru, Zhu Longlong, Iqbal Muhammad Faseeh, Yin Xiaoming, Xu Guohua, **Fan Xiaorong***. OsNAR2.1 Positively Regulates Drought Tolerance and Grain Yield Under Drought Stress Conditions in Rice. Front Plant Sci. 10:197. doi: 10.3389/fpls. 2019.

4. Huang Shuangjie, Liang Zhihao, Chen Si, Sun Huweo, **Fan Xiaorong**, Wang Cailin, Xu Guohua, Zhang Yali. A Transcription Factor, OsMADS57, Regulates Long-Distance Nitrate Transport and Root Elongation. Plant Physiology. 180(2): 882-895. 2019.

5. Wei jia, Zheng Yi, Feng Huimin, Qu Hongye, **Fan Xiaorong**, Yamaji Naoki, Ma Jianfeng, Xu Guohua. OsNRT2.4 encodes a dual-affinity nitrate transporter and functions in nitrate-regulated root growth and nitrate distribution in rice. *Journal of Experimental Botany*. 69(5): 1095-1107. 2019.
6. Luo Le, Wang Hongxuan, Liu Xiaohong, Hu Jinqi, Zhu Xueli, Pan Shou, Qin Ruyi, Wang Yifeng, Zhao Pingping, **Fan Xiaorong**, Xu Guohua. Strigolactones affect the translocation of nitrogen in rice. *Plant Science*. 270: 190-197. 2018.
7. Gao Runhong, Guo Guimei, Fang Chunyan, Huang Saihua, Chen Jianmin, Lu Ruiju, Huang Jianhua, **Fan Xiaorong***, Liu Chenghong*. Rapid Generation of Barley Mutant Lines With High Nitrogen Uptake Efficiency by Microspore Mutagenesis and Field Screening. *Front Plant Sci*. 9: 450. 2018.
8. Luo Bingbing, Chen Jingguang, Zhu longlong, Liu Shuhua, Li Bin, Lu Hong, Ye Guoyou, Xu Guohua, **Fan Xiaorong***. Overexpression of a High-Affinity Nitrate Transporter OsNRT2.1 Increases Yield and Manganese Accumulation in Rice Under Alternating Wet and Dry Condition. *Front Plant Sci*. 9: 1192. 2018.
9. Xu Yonghan, Sechet Julien, Wu Yingbao, Fu Yaping, Zhu Longfei, Li Jincui, Zhang Yinping, Gineau Emilie, Gaertner, Cyril, Zhou Jian, **Fan Xiaorong**, Liu Yu, Zhou Li, Mouille Gregory, Lin Xinchun. Rice Sucrose Partitioning Mediated by a Putative Pectin Methyltransferase and Homogalacturonan Methylesterification. *Plant Physiology*. 174(3): 1595-1608. 2017.
10. Feng Huimin, Li Bin, Zhi Yang, Chen Jingguang, Li Ran, Xia Xiudong, Xu Guohua, **Fan Xiaorong***. Overexpression of the nitrate transporter, OsNRT2.3b, improves rice phosphorus uptake and translocation. *Plant Cell Reports*. 36(8): 1287~1296. 2017.
11. **Fan Xiaorong**, Naz Misbah, Fan Xiaoru, Xuan Wei, Miller Anthony J, Xu Guohua *. Plant nitrate transporters: from gene function to application. *Journal of Experimental Botany*, 68(10): 2463~2475. 2017.
12. Chen Jingguang, Fan Xiaoru, Qian Kaiyun, Zhang Yong, Song Miaoquan, Liu Yu, Xu, Guohua, **Fan Xiaorong***. pOsNAR2.1:OsNAR2.1 expression enhances nitrogen uptake efficiency and grain yield in transgenic rice plants. *Plant*

Biotechnology Journal 15(10): 1273~1283. 2017.

13. Hu Rui, Qiu Diyang, Chen Yi, Miller Anthony J., **Fan Xiaorong**, Pan Xiaoping, Zhang Mingyong. Knock-Down of a Tonoplast Localized Low-Affinity Nitrate Transporter OsNPF7.2 Affects Rice Growth under High Nitrate Supply. *Frontiers in Plant Science*. 7: 1529. 2016.

14. **Fan Xiaorong**, Tang Zhong, Tan Yawen, Zhang Yong, Luo Bingbing, Yang Meng, Lian Xingming, Shen Qirong, Anthony John Miller, Xu Guohua. Overexpression of a pH-sensitive nitrate transporter in rice increases crop yields. *Proceedings of the National Academy of Sciences of the United States of America* 28 113(26):7118-23. 2016.

15. Chen Jingguang, Zhang Yong, Tan Yawen, Zhang Min Zhu Longlong, Xu Guohua, **Fan Xiaorong***. Agronomic nitrogen-use efficiency of rice can be increased by driving OsNRT2.1 expression with the OsNAR2.1 promoter. *Plant Biotechnology Journal* 14(8):1705-1715. 2016.

16. **Fan Xiaorong***, Feng Huimin, Tan Yawen, Xu Yanling, Song Miaoquan, Xu Guohua. A putative 6 trans-membrane nitrate transporter OsNRT1.1b plays a key role in rice under low nitrogen. *Journal of Integrative Plant Biology*. 58(6):590-599. 2016.

17. Castro-Rodríguez V, Assaf-Casals I, Pérez-Tienda J, **Fan Xiaorong**, Concepción Avila, Anthony John. Miller, Francisco M. Cánovas. Deciphering the molecular basis of ammonium uptake and transport in maritime pine. *Plant, Cell and Environment* 39:1669-1682. 2016.

18. Joseph Stephen, Husson Olivier, Graber Ellen Ruth, van Zwieten Lukas, Taherymoosavi Sara, Thomas Torsten, Nielsen Shaun, Ye Jun, Pan Genxing, Chia Chee, Munroe Paul, Allen Jessica, Lin Yun, **Fan Xiaorong**, Donne Scott. The Electrochemical Properties of Biochars and How They Affect Soil Redox Properties and Processes. *Agronomy-Basel*. 5(30):322-340. 2015.

19. Huang Shuangjie, Chen Si, Liang Zhihao, Zhang Chenmin, Yan Ming, Chen Jingguang, Xu Guohua, **Fan Xiaorong***, Zhang Yali*. Knockdown of the partner protein OsNAR2.1 for high-affinity nitrate transport represses lateral root formation in a nitrate-dependent manner. *Scientific Reports* 8;5:18192. doi: 10.1038/srep18192.

2015.

20. Zhan Xinhua, Yi Xiu, Yue Le, **Fan Xiaorong**, Xu Guohua, Xing Baoshan. Cytoplasmic Ph-Stat during Phenanthrene Uptake by Wheat Roots: A Mechanistic Consideration. *Environmental Science & Technology*. 49(10): 6037-6044. 2015.

21. Liu Xiaoqin, Feng Huimin, Huang Daimin, Song Miaoquan, **Fan Xiaorong**, Xu Guohua. Two short sequences in OsNAR2.1 promoter are necessary for fully activating the nitrate induced gene expression in rice roots. *Scientific Reports* 7;5:11950. doi: 10.1038/srep11950. 2015.

22. Zhu Jingwen, Liang Jing, Xu Zhihui, **Fan Xiaorong***, Zhou Quansuo, Shen Qirong, Xu Guohua. Root aeration improves growth and nitrogen accumulation in rice seedlings under low nitrogen. *AoB Plants*. 7 pii: plv131. doi: 10.1093/aobpla/plv131. 2015.

23. Zhan Xinhua, Yi Xiu, Yue Le, **Fan Xiaorong**, Xu Guohua, Xing Baoshan. Cytoplasmic pH-Stat during Phenanthrene Uptake by Wheat Roots: A Mechanistic Consideration. *Environment Science and Technology*. 49(10):6037-44. 2015.

24. Zhang Fang, Sun Yafei, Pei Wenxia, Ajay Jain, Sun Rui, Cao Yue, Wu Xueneng, Jiang Tingting, Zhang Liang, **Fan Xiaorong**, Chen Aiqun, Shen Qirong, Xu Guohua, Sun Shubin. Involvement of OsPht1;4 in phosphate acquisition and mobilization facilitates embryo development in rice. *The Plant Journal* 82(4):556-69. 2015.

25. Xia Xiudong, **Fan Xiaorong**, Wei Jia, Feng Huimin, Qu Hongye, Xie Dan, Anthony John. Miller, Xu Guohua. Rice nitrate transporter OsNPF2.4 functions in low-affinity acquisition and long-distance transport. *Journal of Experimental Botany* 66(1):317-331. 2015.

26. Tong Jun, Chen Jingguang, Zhu Jingwen, **Fan Xiaorong**, Xu Guohua. Effects of Rice C2C2 Zinc Finger Protein Gene OsLSD2 on the Growth and Nitrogen Utilization of Nipponbare. *Chinese Journal of Rice Science*. 28(4): 435-441. 2014.

27. **Fan Xiaorong***, Xie Dan, Chen Jingguang, Lu Haiyan, Xu Yanling, Ma Cui, Xu Guohua. Over-expression of OsPTR6 in rice increased plant growth at different nitrogen supplies but decreased nitrogen use efficiency at high ammonium supply.

Plant Science 227:1-11. 2014.

28. Liu Xiaoqin, Huang Daimin, Tao Jinyuan, Anthony John. Miller, **Fan Xiaorong***, Xu Guohua. Identification and functional assay of the interaction motifs in the partner protein OsNAR2.1 of the two-component system for high-affinity nitrate transport. *New Phytologist* 204(1):74-80. 2014.

29. Feng Huimin, Xia Xiudong, **Fan Xiaorong***, Xu Guohua, Anthony John. Miller*. Optimizing plant transporter expression in *Xenopus* oocytes. *Plant Methods* 9(1):48-53. 2013.

30. Sun Shubin, Gu Mian, Cao Yue, Huang Xinpeng, Zhang Xiao, Ai Penghui, Zhao Jianning, **Fan Xiaorong**, Xu Guohua. A constitutive expressed phosphate transporter, OsPht1;1, modulates phosphate uptake and translocation in phosphate-replete rice. *Plant Physiol* 159(4):1571-1581. 2012.

31. Tang Zhong#, **Fan Xiaorong#**, Li Qing, Feng Huimin, Shen Qirong, Anthony John. Miller, Xu Guohua. Knock Down of a Rice Stellar Nitrate Transporter alters Long Distance Translocation but not Root Influx. *Plant Physiol* 160:2052-2063. 2012.

32. Chen Yingnan#, **Fan Xiaorong#**, Song Weijing, Zhang Yali, Xu Guohua. Over-expression of OsPIN2 leads to increased tiller numbers, angle and shorter plant height through suppression of OsLAZY1. *Plant Biotechnology Journal* 10(2):139-149. 2012.

33. Xu Guohua, **Fan Xiaorong**, Anthony John. Miller. Plant nitrogen assimilation and use efficiency. *Annual Review of Plant Biology*63:153-182. 2012.

34. Feng Huimin#, **Fan Xiaorong#**, Yan Ming, Liu Xiaoqin, Anthony John. Miller, Xu Guohua. Multiple roles of nitrate transport accessory protein NAR2 in plants. *Plant Signaling & Behavior*6(9): 1286-1289. 2011.

35. Yan Ming#, **Fan Xiaorong#**, Feng Huimin, Anthony John. Miller, Shen Qirong, Xu Guohua. Rice OsNAR2.1 interacts with OsNRT2.1, OsNRT2.2 and OsNRT2.3a nitrate transporters to provide uptake over high and low concentration ranges. *Plant cell and Environment* 34:1360-1372. 2011.

36. Feng Huimin#, Yan Mimg#, **Fan Xiaorong**, Li Baozhen, Shen Qirong,

Anthony John. Miller, Xu Guohua*. Spatial expression and regulation of rice high-affinity nitrate transporters by nitrogen and carbon status. *Journal of Experimental Botany* 62(7): 2319-2332. 2011.

37. Ai Penghui, Sun Shubin, Zhao Jianning, **Fan Xiaorong**, Xin Weijie, Guo Qiang, Yu Ling, Shen Qirong, Wu Ping, Anthony John. Miller, Xu Guohua. Two rice phosphate transporters, OsPht1;2 and OsPht1;6, have different functions and kinetic properties in uptake and translocation. *The Plant Journal* 57(5):798-809. 2009.

38. Cao Yun, **Fan Xiaorong**, Sun Shubin, Xu Guohua, Hu Jiang. Shen Qirong. Effect of nitrate on activities and transcript levels of nitrate reductase and glutamine synthetase in rice . *Pedosphere* 18 (5): 664—673.2008.

39. Anthony John. Miller#, **Fan Xiaorong**, Shen Qirong , Susan J. Smith. Amino acids and nitrate as signals for the regulation of nitrogen acquisition. *Journal of Experimental Botany* 59: 111 – 119. 2008.

40. Li Yilin, **Fan Xiaorong**, Shen Qirong. The relationship between rhizosphere nitrification and nitrogen use efficiency in rice plants. *Plant, cell and environment* 31(1): 73-85. 2007.

41. Anthony John. Miller, **Fan Xiaorong**, Mathilde Orsel, Susan J. Smith and Darren M. Wells. Nitrate transport and signaling. *Journal of Experimental Botany* 58(9): 2297-2306. 2007.

42. Duan Yehui, Zhang Yali, Ye Lingtong, **Fan Xiaorong**, Xu Guohua, Shen Qirong. Responses of rice cultivars with different nitrogen use efficiency to partial nitrate nutrition. *Ann Bot.* 99(6): 1153-60. 2007.

43. **Fan Xiaorong**, Jia Lijun, Li Yilin, Susan J. Smith , Anthony J. Miller, Shen Qirong. Comparing nitrate storage and remobilization in two rice cultivars that differ in their nitrogen use efficiency. *Journal of Experimental Botany*58(7):1729-40. 2007.

44. **Fan Xiaorong**, Ruth Gordon-Weeks, Shen Qirong, Anthony John. Miller. Glutamine transport and feedback regulation of nitrate reductase activity in barley roots leads to changes in cytosolic nitrate pools. *Journal of Experimental Botany* 57(6): 1333-1340. 2006.

45. **Fan Xiaorong**, Shen Qirong, Ma Zhengqiang, Zhu Huilan , Yin Xiaoming,

Anthony John. Miller. A comparison of nitrate transport in four different rice (*Oryza sativa* L.) cultivars. *Science in China Ser. C Life Sciences* 48: 897-911. 2005.

46. Yin Xiaoming, **Fan Xiaorong**, Jia Lijun, Shen Qirong. Membrane potential changes of epidermal cells in the root tips of rice cultivars during the uptake of nitrate. *Acta Pedologica Sinica*. 42(2):264-911. 2005.

47. **Fan Xiaorong**, Shen Qirong. Effects of ABA and IAA on the Behavior of Stomata of Rice Crop Cultivated in Aerobic Soil Condition. *Scientia Agricultura Sinica*. 36(12): 1308-1313. 2003.

48. **Fan Xiaorong**, Anthony John. Miller, Shen Qirong. The measurement of membrane potential and NO₃ activity in root cells using ion-selective microelectrodes. *Agricultural Science in China*. 2(10): 1097-1101. 2003.

49. Cui Guoxian, Shen Qirong, **Fan Xiaorong**. Physiological Responses to Rice Plant under Upland Farming with Mulching. *Journal of Hunan Agricultural University*. 29(1): 1-6. 2003.

50. **Fan Xiaorong**, Shen Qirong, Cui Guoxian, Xu Guohua. Effect of soil water regime on dynamic levels of endogenous hormones and relationship between hormones and physio-biochemistry and morphology of rice of different cultivars cultivated in upland soil. *Acta Pedologica Sinica*. 39(2): 206-213. 2002.

八、专利成果

1. 转录因子 OsTBP2.1 的应用, 范晓荣、张勇, 201911113680.7, 2019.11.14, 申请;

2. 水稻控制通气组织形成的关键基因 OsLSD1.1 在减少甲烷排放上的应用, 范晓荣、刘书华、钱开芸, 201911072852.0, 2019.11.5, 申请;

3. Method for increasing nitrogen-use efficiency in plants, 范晓荣、曹林, 16/065,232, 2018.6.22, 申请;

4. 一种水稻基因 OsNAR2.1 及其启动子的重组表达载体及其应

- 用, 范晓荣、陈景光、刘书华, 201810175634.9, 2018.3.2, 申请;
5. 水稻基因 OsNAR2.1 在抗旱方面的应用, 范晓荣、陈景光, 201810175624.5, 2018.3.2, 申请;
 6. 水稻 OsNRT2.1 基因在提高水稻籽粒中的锰元素含量中的应用, 范晓荣、陈景光, 201711463486.2, 2017.12.28, 申请;
 7. Transgenic plants expressing a PH-sensitive nitrate transporter (美国专利), 徐国华、范晓荣、沈其荣、Anthony Miller, US 9738900B2, 2017.8.2, 授权;
 8. Method for increasing nitrogen-use efficiency in plants, 范晓荣、曹林, PCT/CN2015/098633, 2015.12.24, 申请;
 9. 水稻通气组织形成关键基因 OsLSD2 的应用, 范晓荣、徐国华、朱静雯, ZL201110200437.6, 2012.10.3, 授权;
 10. 水稻生长素运输蛋白基因 OsPIN2 的基因工程应用, 范晓荣、徐国华、陈赢男、张亚丽, ZL201010018297.6, 2012.5.16, 授权;
 11. 水稻高亲和硝酸盐运输蛋白基因 OsNAR2.1, 范晓荣、徐国华、严明、沈其荣, ZL200810234983.X, 2011.1.26, 授权;
 12. 水稻硝酸盐运输蛋白基因 OsNRT2.3 的基因工程应用, 范晓荣、严明、徐国华、沈其荣, ZL200810195257.1, 2013.3.13, 授权。

九、农业品种权

1. DFE02, 范晓荣、徐国华, 20184375.5, 2018.12.19;
2. DFE05, 范晓荣、徐国华, 20184376.4, 2018.12.19。