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研究领域：植物营养与逆境

研究方向：1) 植物氮转运的生理与分子机制

2) 植物氯、硝互作的的生理与分子机制

3) 土壤离子电极的开发和应用

### ◆ 教育与工作经历

2021-至今，南京农业大学，资源与环境科学学院生态系，副教授

2014-2020，南京农业大学，资源与环境科学学院生态系，讲师

2011.10-2012.10 英国约翰英纳斯研究中心(John Innes Centre)访问学者

2007-2013，南京农业大学资环学院，植物营养专业，农学博士

2003-2007，南京农业大学资环学院，农业资源与环境专业，农学学士

### ◆ 教学情况

本科生课程：《生理生态学》、《分子生态学》

### ◆ 科研项目

1. 水稻硝酸盐转运蛋白 OsNPF2.1 参与硝酸盐、钾协同吸收利用的功能研究，国家自然科学基金青年基金项目(31401938)，2015.01-2017.12，24万，项目主持人
2. 黄淮海冲积平原半湿润-半干旱区盐碱地植物种质资源调查，国家科技计划项目子课题(2015FY110500)，2015.5-2020.4，70万，研究骨干

## ◆ 发表论文

### 第一作者论文

1. **Feng H**, Fan X, Miller AJ, Xu G. 2020. Plant nitrogen uptake and assimilation: regulation of cellular pH homeostasis. *Journal of Experimental Botany* (15):15.
2. **Feng H**, Tang Q, Cai J, Xu B, Xu G, Yu L. 2019. Rice OsHAK16 functions in potassium uptake and translocation in shoot, maintaining potassium homeostasis and salt tolerance. *Planta* 250: 549 - 561.
3. 冯慧敏\*, 陆宏, 王汉卿, 李昕玥. 2017. 水稻硝酸盐转运蛋白基因 *OsNPF7.9* 在氮素积累和转运中的功能研究. *中国水稻科学* 31 (5) : 457-464. (\*Correspondence author)
4. **Feng H**, Li B, Zhi Y, Cheng J, Li R, Xia X, Xu G, Fan X\*. 2017. Overexpression of the nitrate transporter, OsNRT2.3b, improves rice phosphorus uptake and translocation. *Plant Cell Reports* 36(8):1287-1296.
5. Fan X<sup>†\*</sup>, **Feng H**<sup>†</sup>, Tan Y, Xu Y, Miao Q, Xu G. 2016. A putative 6- transmembrane nitrate transporter *OsNRT1.1b* plays a key role in rice under low nitrogen. *Journal of Integrative Plant Biology* 58(6):590-599. (†Co-first author)
6. Liu X<sup>†</sup>, **Feng H**<sup>†</sup>, Huang D, Song M, Fan X, Xu G\*. 2015. Two short sequences in OsNAR2.1 promoter are necessary for fully activating the nitrate induced gene expression in rice roots. *Scientific Reports* 5:11950. (†Co-first author)
7. **Feng H**, Xia X, Fan X\*, Xu G, Miller AJ\*. 2013. Optimizing plant transporter expression in *Xenopus* oocytes. *Plant Methods* 9(1):48.
8. **Feng H**<sup>†</sup>, Fan X<sup>†</sup>, Yan M, Liu X, Shen Q, Miller AJ, Xu G\*. 2011. Multiple roles of nitrate transport accessory protein NAR2 in plants. *Plant Signal and Behavior* 6 (9):1286-1289. (†Co-first author)
9. **Feng H**<sup>†</sup>, Yan M<sup>†</sup>, Fan X, Li B, Shen Q, Miller AJ, Xu G\*. 2011. Spatial expression and regulation of rice high-affinity nitrate transporters by nitrogen and carbon status. *Journal of Experimental Botany* 62 (7):2319-2332 . (†Co-first author)
10. **Feng H**, Yan M, Li B, Fan X, Xu G. 2009. Expression analysis of the high-affinity nitrate transporters in rice: spatial expression and regulation by nitrate. *6th Progress on Post-genome Technologies*. (oral poster presentation)

### 参与论文

1. Yang T, **Feng H**, Zhang S, Xiao H, Hu Q, Chen G, Xuan W, Moran N, Murphy A, Yu L, Xu G. 2020. The potassium transporter OsHAK5 alters rice architecture via ATP-dependent transmembrane auxin fluxes. *Plant Physiology* 166(2), 945-959.
2. Wei J, Zheng Y, **Feng H**, Qu H, Fan X, Yamaji N, Ma JF, Xu G. 2018. 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.

3. Zeng Y, Li Q, Wang H, Zhang J, Du J, **Feng H**, Blumwald E, Yu L\*, Xu GH\*. 2018. Two NHX-type transporters from *Helianthus tuberosus* improve the tolerance of rice to salinity and nutrient deficiency stress. *Plant Biotechnology Journal* 16(1):310-321.
4. Chen G, **Feng H**, Hu Q, Qu H, Chen A, Yu L, Xu G\*. 2015. Improving rice tolerance to potassium deficiency by enhancing OsHAK16p:WOX11 controlled root development. *Plant Biotechnology Journal* 2015,13:833-848.
5. Xia X, Fan X, Wei J, **Feng H**, Qu H, Xie D, Miller AJ, Xu G\*. 2015. Rice nitrate transporter OsNPF2.4 functions in low-affinity acquisition and long-distance transport. *Journal of Experimental Botany* 66(1):317-31.
6. Tang Z<sup>†</sup>, Fan X<sup>†</sup>, Li Q, **Feng H**, Miller AJ, Shen Q, Xu G\*. 2012. Knock Down of a Rice Stellar Nitrate Transporter Alters Long Distance Translocation but not Root Influx. *Plant Physiology* 160 (4):2052-63.
7. Yan M<sup>†</sup>, Fan X<sup>†</sup>, **Feng H**, Miller AJ, Shen Q, Xu G\*. 2011. Rice OsNAR2.1 interacts with OsNRT2.1, OsNRT2.2 and OsNRT2.3a nitrate transporters to provide uptake over high and low concentration range. *Plant Cell and Environment* 34(8): 1360-1372.
8. 李宝珍, 王松伟, **冯慧敏**, 徐国华. 氮素供应形态对水稻根系形态和磷吸收的影响. *中国水稻科学* 2008, 22 (5) : 665-669.

#### ◆ 获奖情况

冯慧敏 (8/11), 作物高效吸收利用氮磷养分的生理过程和分子调控途径, 江苏省人民政府, 江苏省自然科学技术奖 (基础类), 一等奖, 2016-2-19