

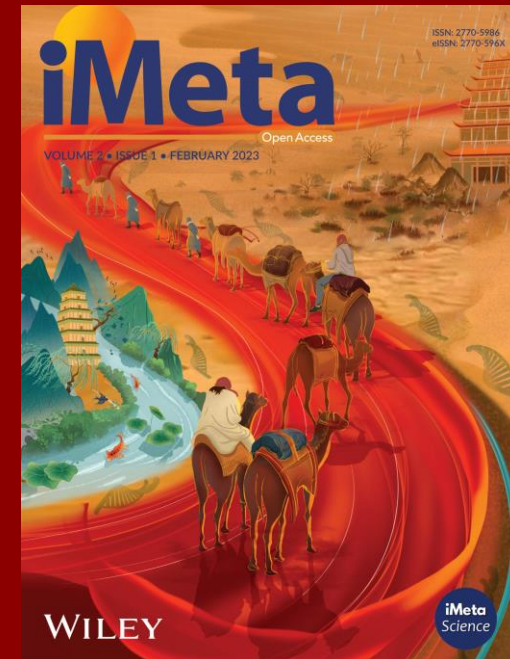


Comammox *Nitrospira*通过潜在的钴胺素共享成为弱酸性土壤中的关键细菌

赵宇翔¹, 胡佳杰¹, 王家骥¹, 姚翔午¹, 张彤², 胡宝兰¹

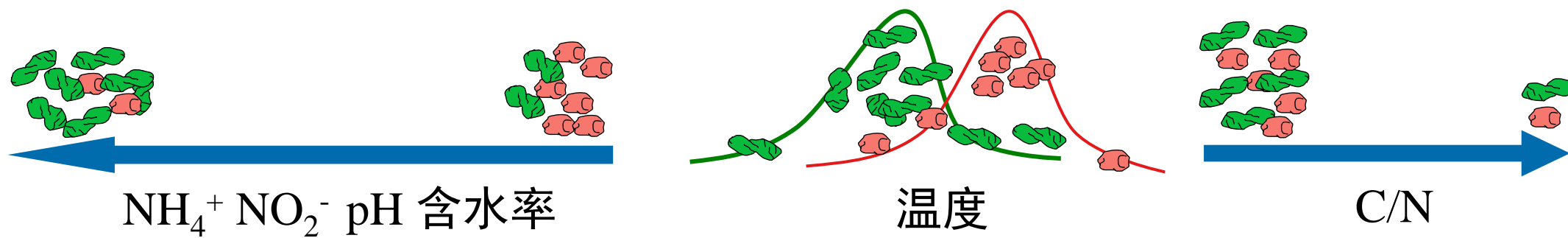
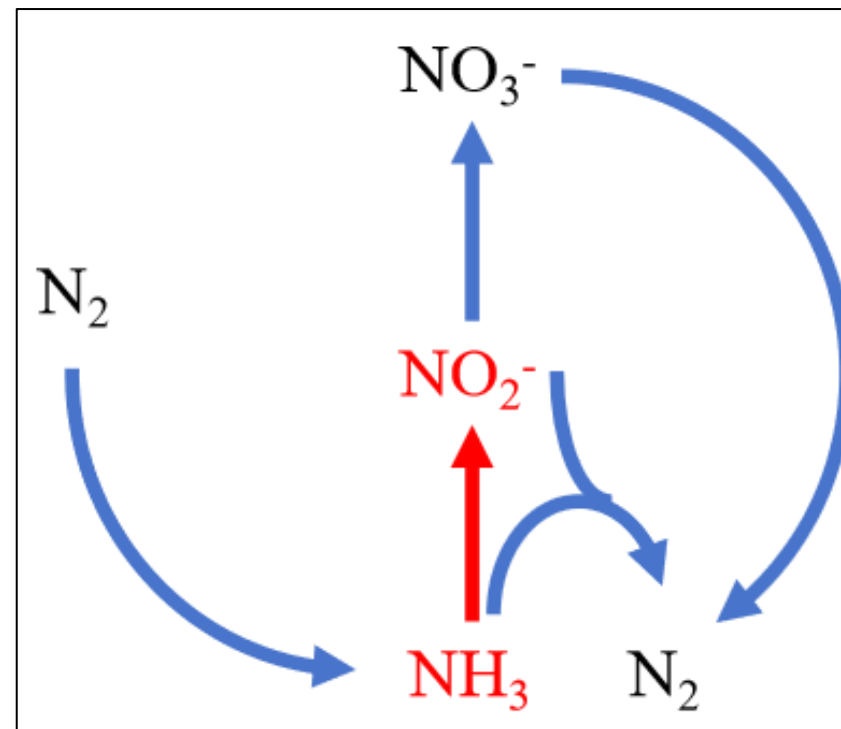
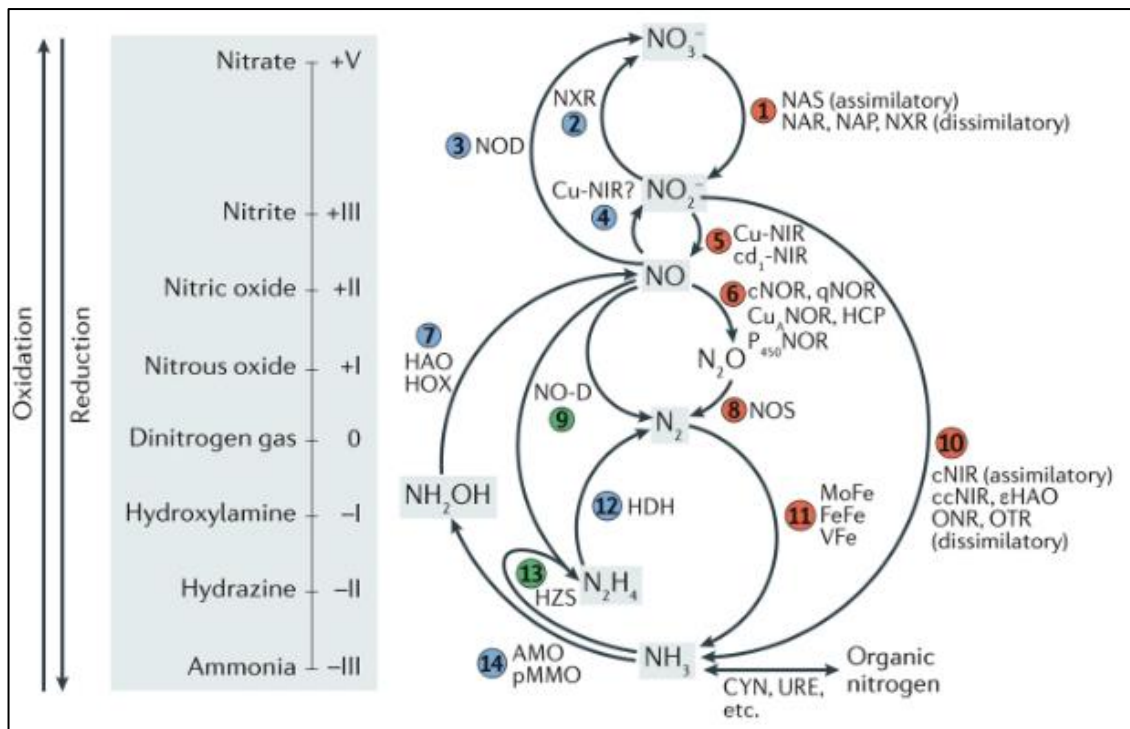
¹浙江大学环境与资源学院

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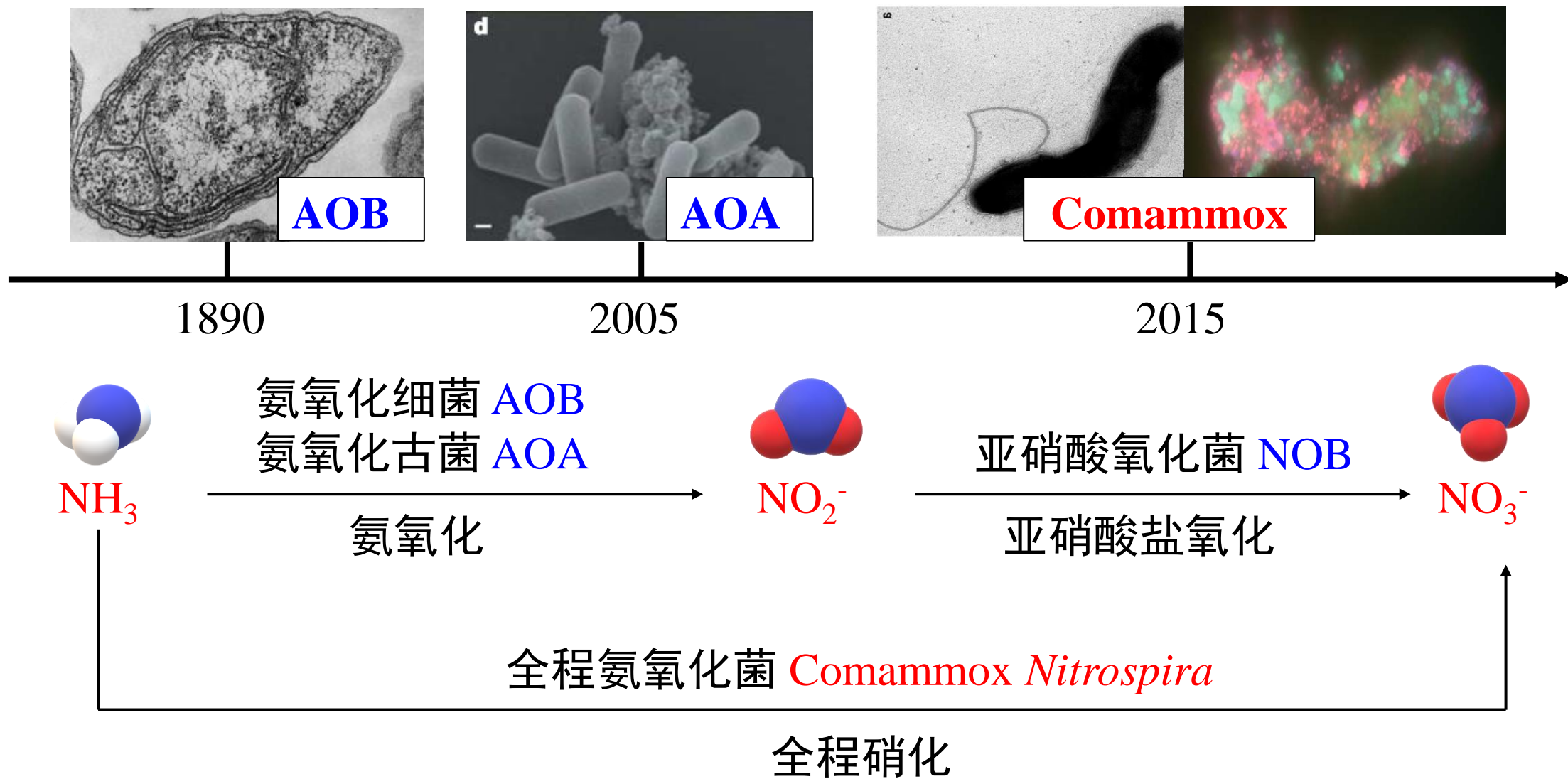
Yuxiang Zhao, Jiajie Hu, Jiaqi Wang, Xiangwu Yao, Tong Zhang, Baolan Hu. 2024. Comammox *Nitrospira* act as key bacteria in weakly acidic soil via potential cobalamin sharing. *iMeta* 3: e175. <https://doi.org/10.1002/imt2.175>

研究背景

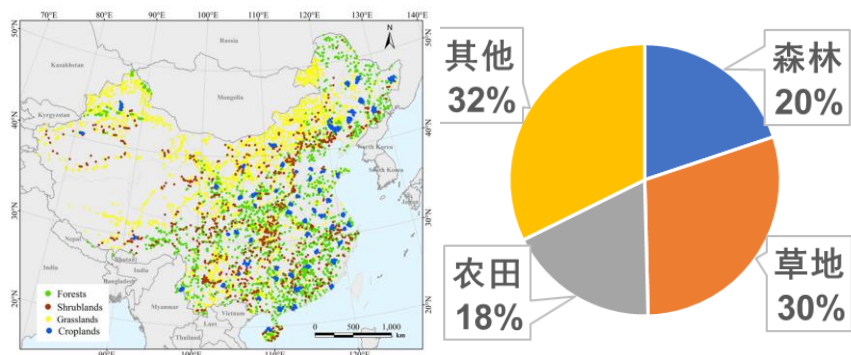


 氨氧化细菌 AOB  氨氧化古菌 AOA

研究背景



材料与amp;方法



● 不同土地利用类型 (3)

● 不同气候类型 (4)

3 (土地利用类型) * 4 (气候类型) * 3 (重复) = 36 个样品



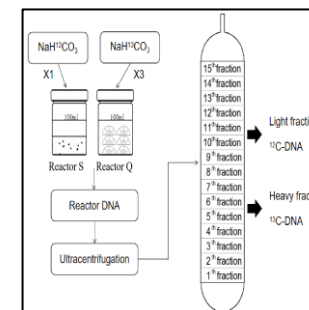
硝化活性



qPCR



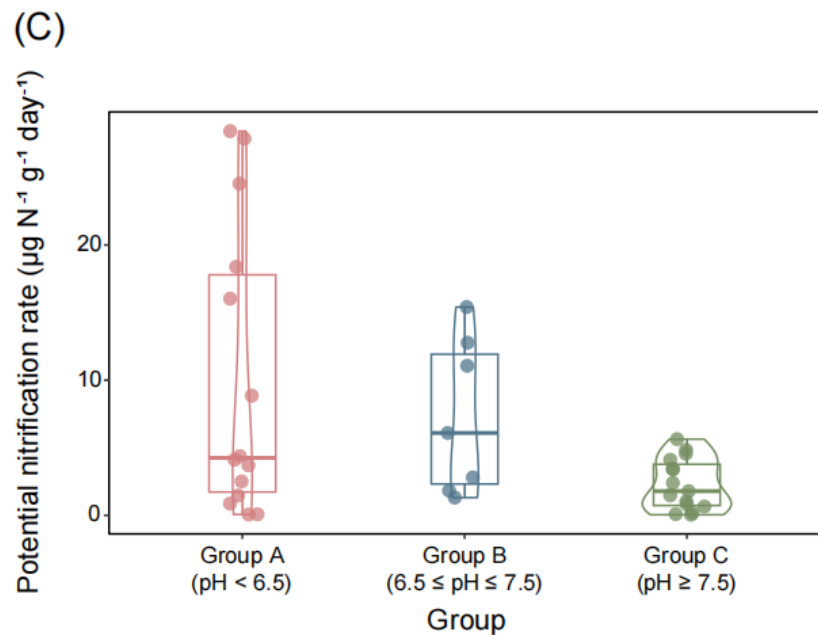
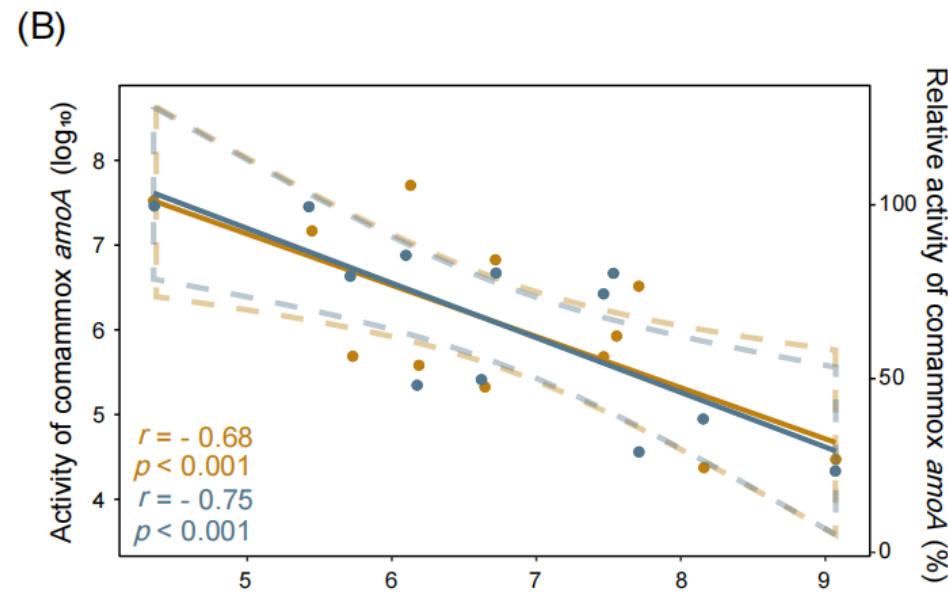
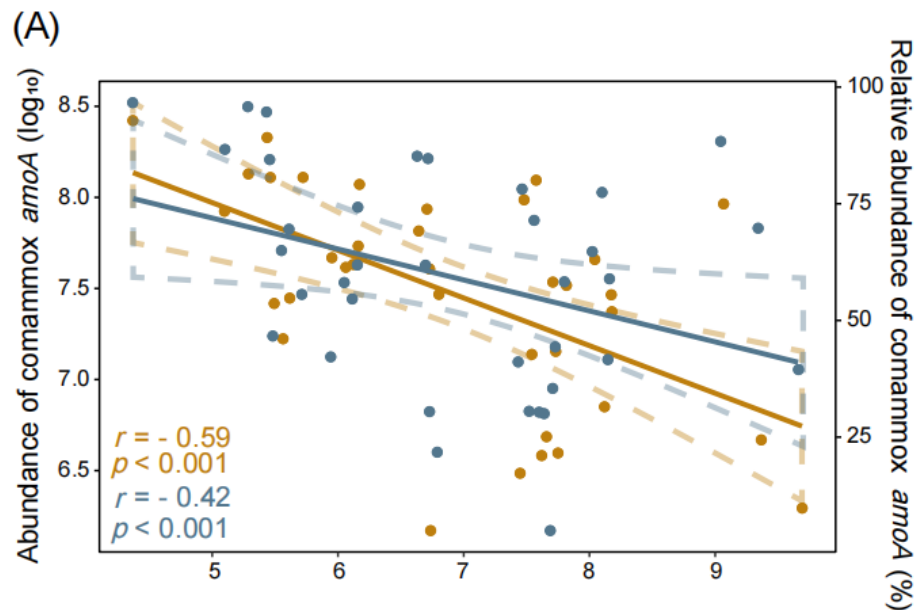
多组学测序



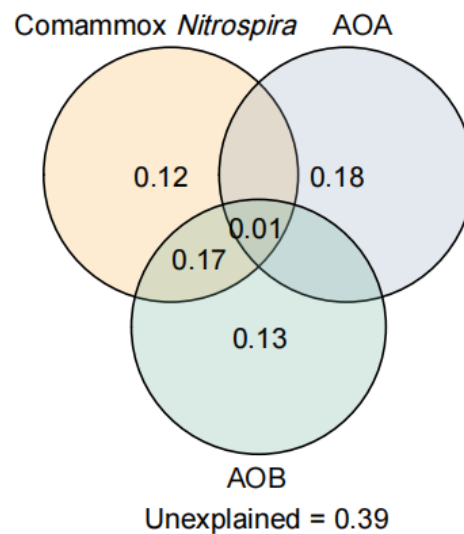
DNA-SIP



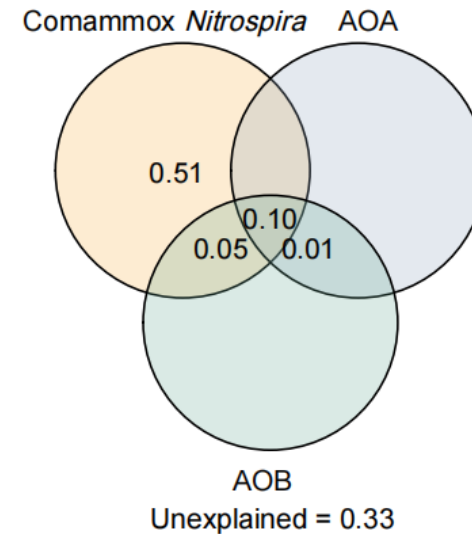
Comammox是弱酸性土壤中丰度和活性最高的氨氧化菌



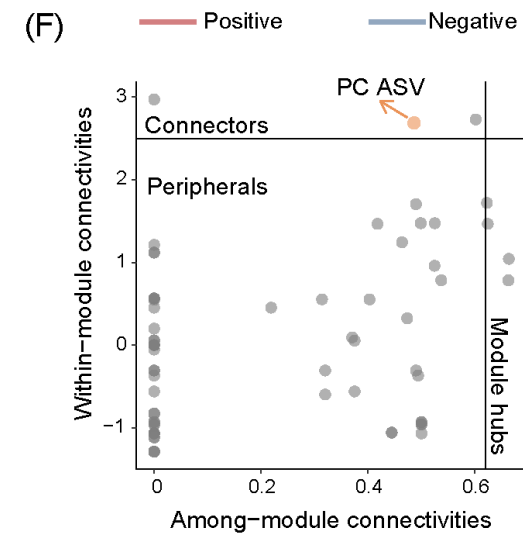
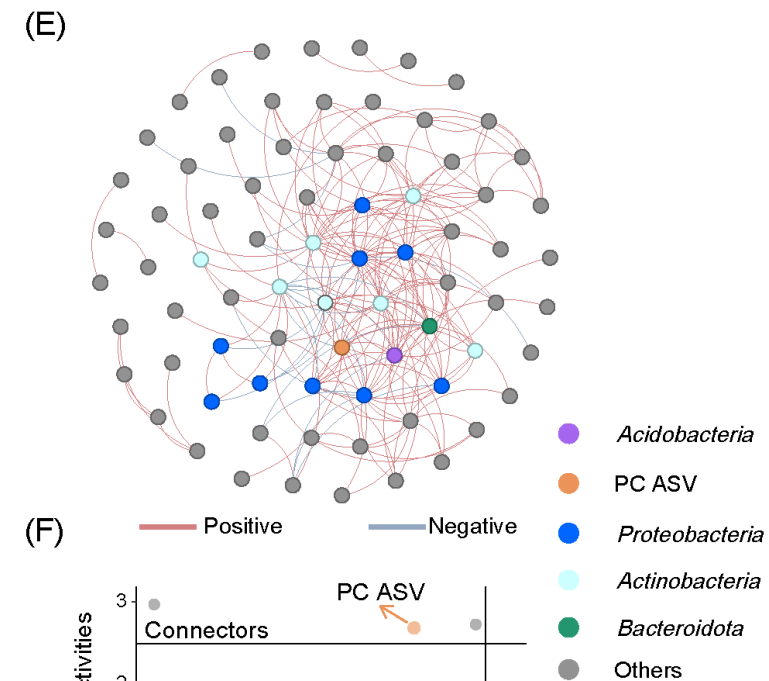
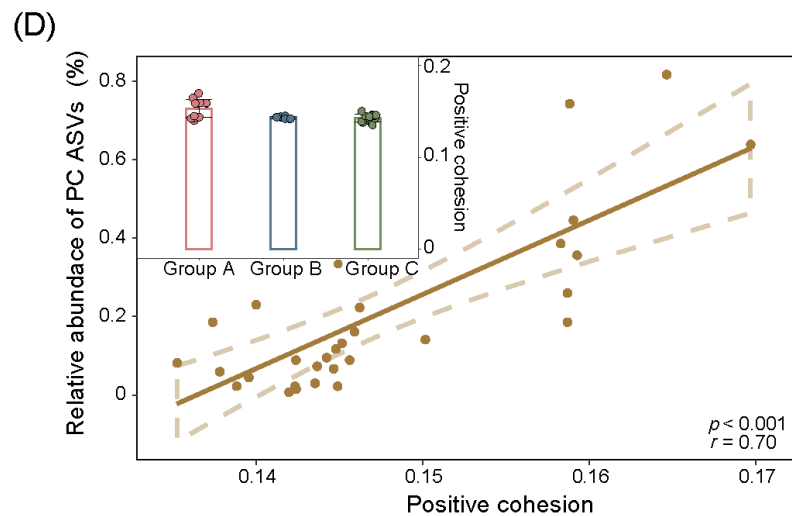
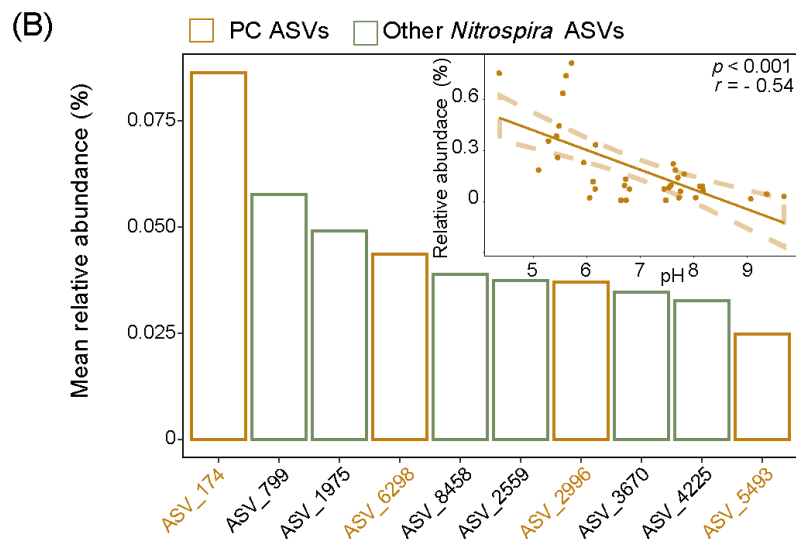
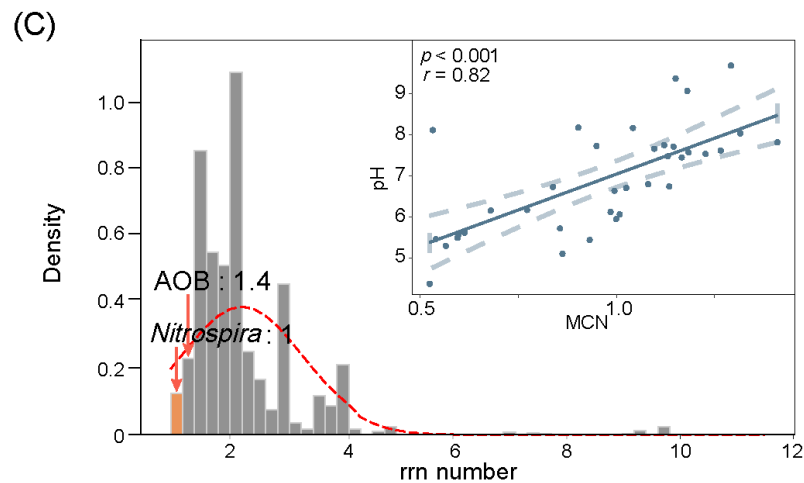
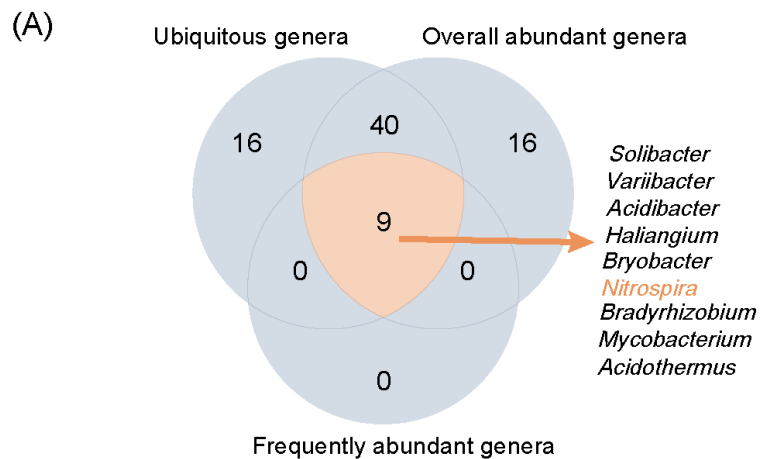
(D) *amoA* gene abundance vs potential nitrification rate



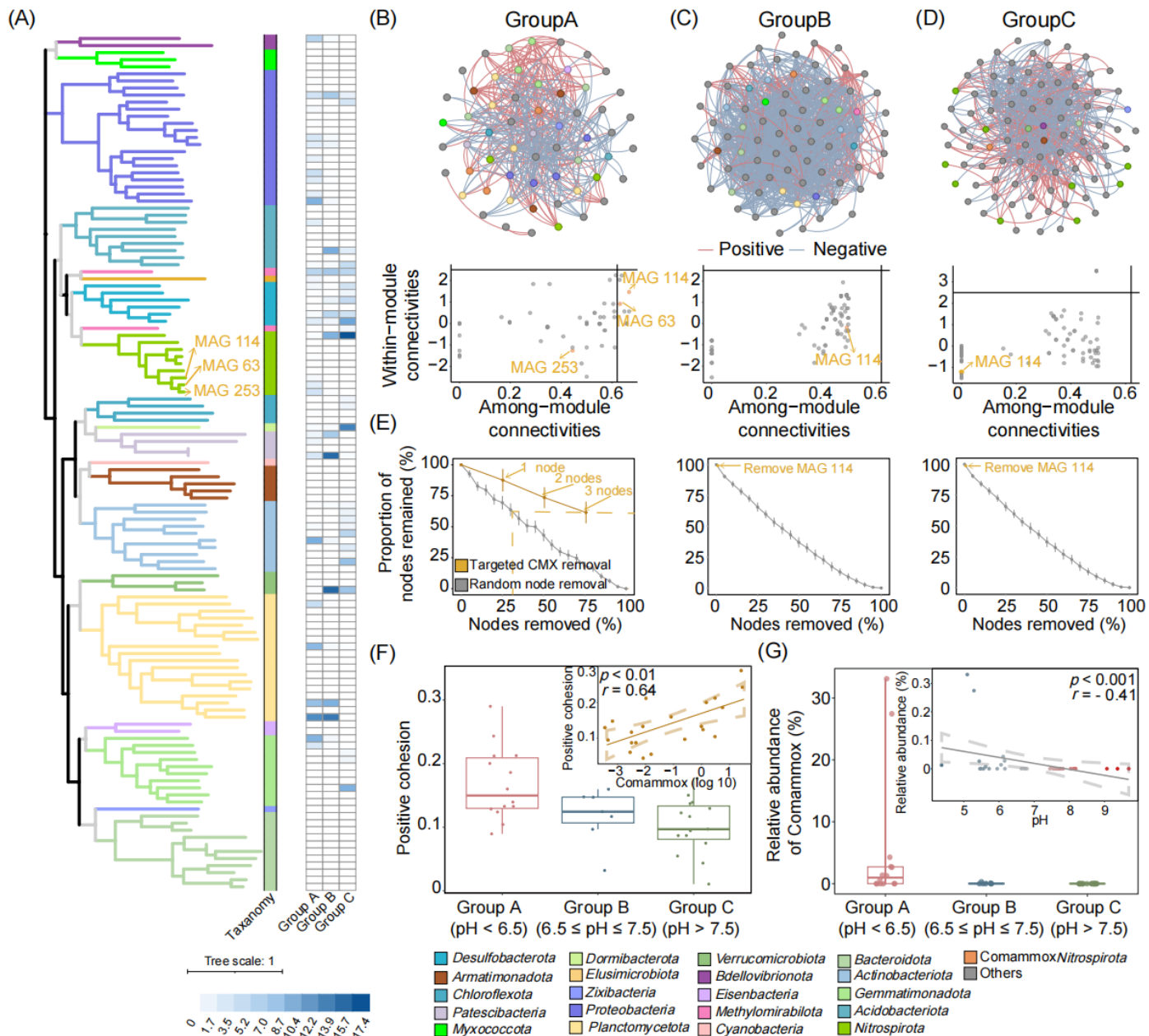
(E) *amoA* gene activity vs potential nitrification rate



Comammox是弱酸性土壤关键物种和核心物种

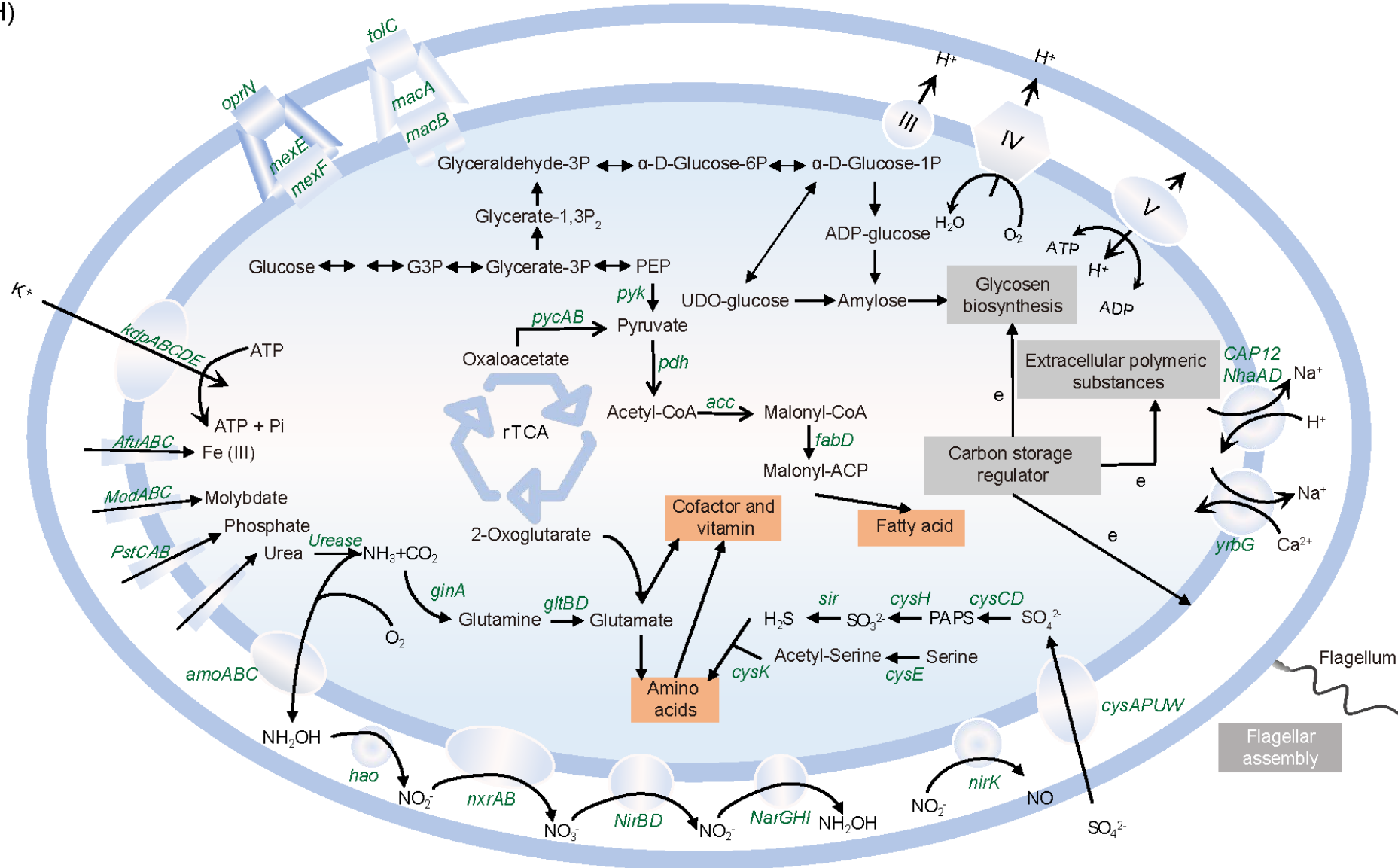


Comammox是弱酸性土壤关键物种和核心物种

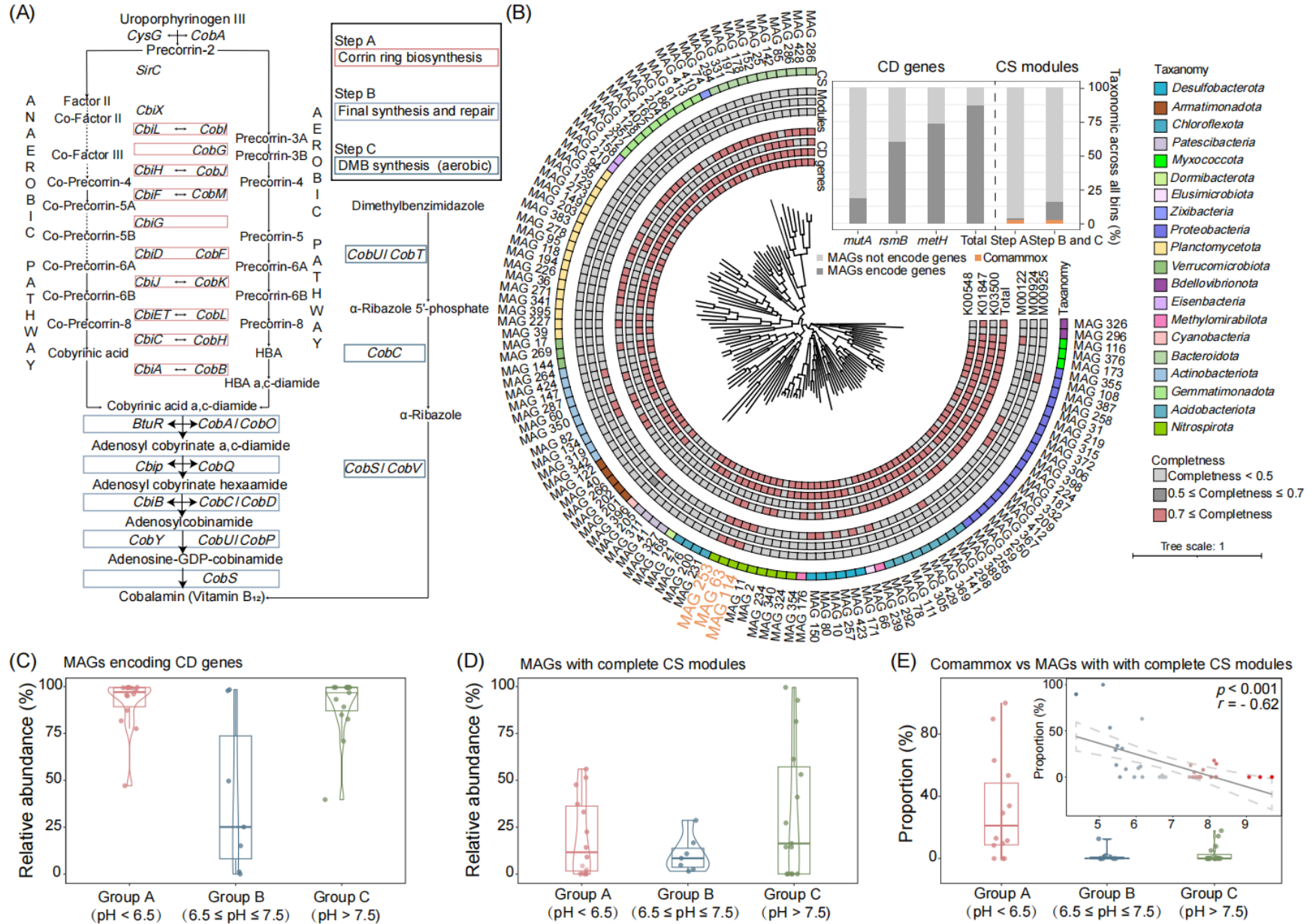


土壤Comammox细胞代谢图

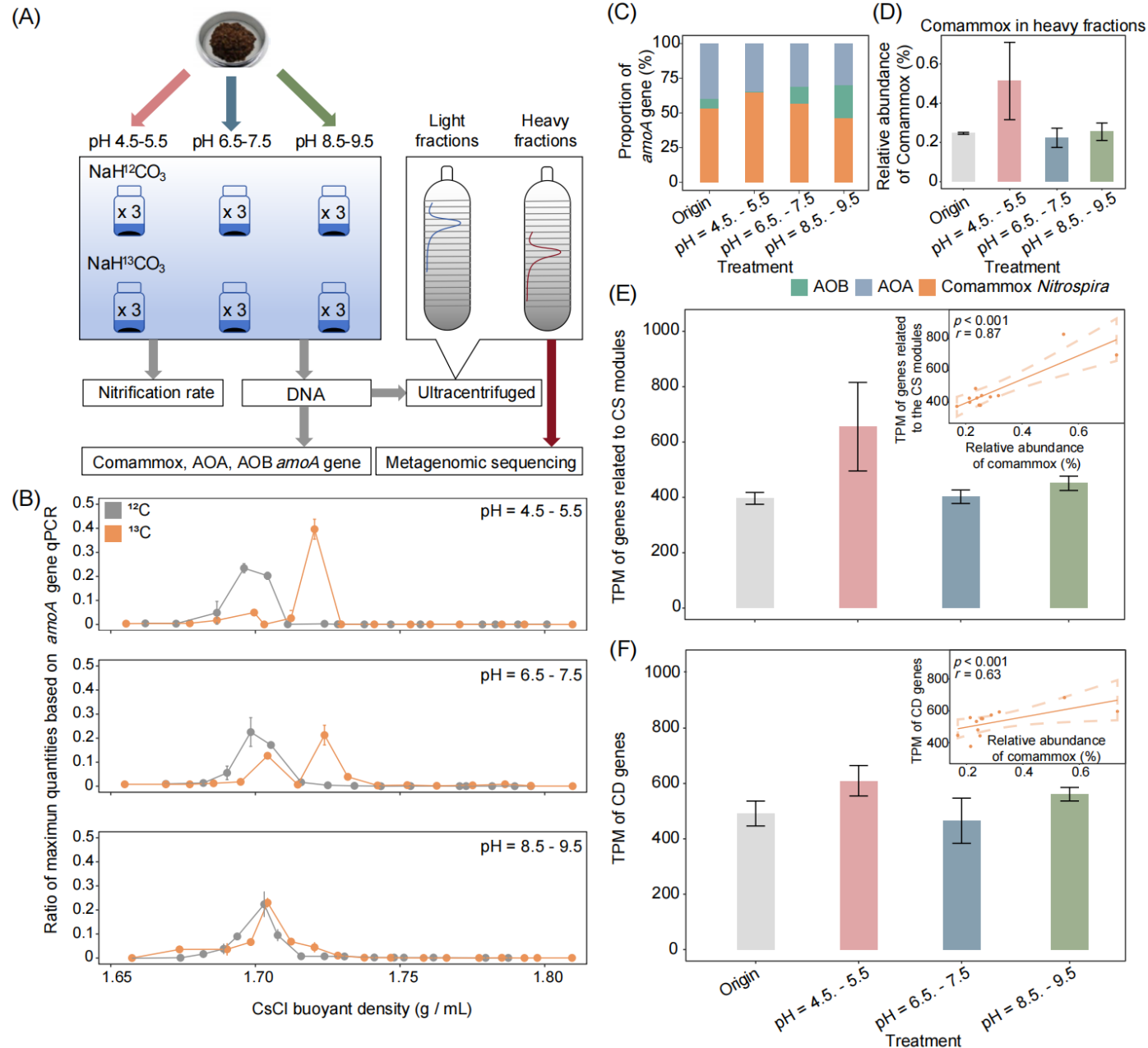
(H)



Comammox是弱酸性土壤中主要的钴胺素生产者



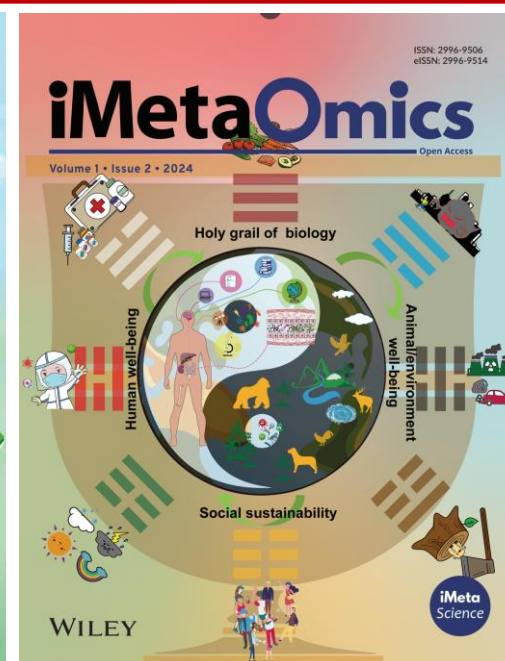
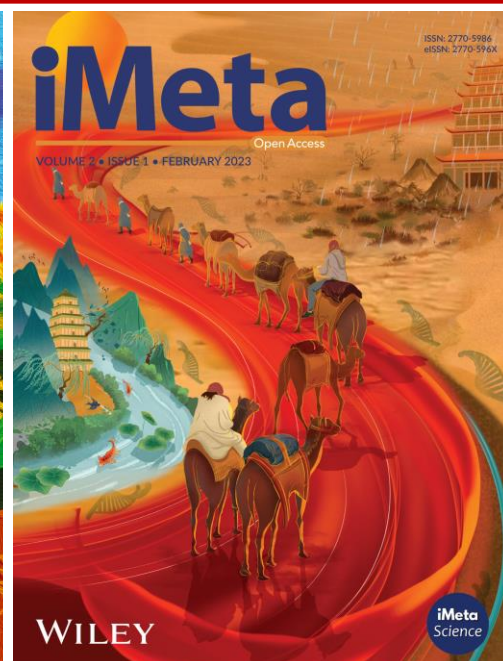
DNA-SIP验证土壤宏基因组结果



总结

- ❑ Comammox *Nitrospira* 是弱酸性土壤中主导的氨氧化菌
- ❑ Comammox *Nitrospira* 是弱酸性土壤中的 K-策略微生物
- ❑ Comammox *Nitrospira* 通过潜在的钴胺素共享促进了低 pH 下细菌间的合作

Yuxiang Zhao, Jiajie Hu, Jiaqi Wang, Xiangwu Yao, Tong Zhang, Baolan Hu. 2024. Comammox *Nitrospira* act as key bacteria in weakly acidic soil via potential cobalamin sharing. *iMeta* 3: e175. <https://doi.org/10.1002/imt2.175>




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