
# Wang Qiyao

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## Profile

RESEARCH INTERESTS

I was interested in using systems biology strategies to investigate the pathogenesis, antibiotics resistance, and environmental survival of bacterial pathogens, such as Vibrio parahaemolyticus, V. alginolyticus and Edwardsiella bacteria causing huge economic losses towards marine aquaculture industry and threatening humans in China. Transposon-based mutant library, Tn-based defined library as well as genomics and proteomics analysis were carried out to define the virulence factors. Their regulation mechanisms were further elucidated in the light of the host and environmental-adaptation processes. The key regulation elements or virulence factors will be used to provide the molecule bio-bricks for design of novel vaccines against pathogens plaguing in the aquaculture industries.

## Research Field

Molecular microbiology

## Research results and selected published papers


1. Wei LF, Qiao HX, Sit Brandon, Yin KY, Yang GH, Ma RQ, Ma JB, Yang C, Yao J, Ma Y, Xiao JF, Liu XH, Zhang YX, Waldor MK, Wang QY*. A bacterial pathogen senses host mannose to coordinate virulence. Cell Reports, submitted.

2. Leung KY*, Wang QY*, Yang ZY, Siame BA. Edwardsiella piscicida: A versatile emerging pathogen of fish and humans. Virulence, accepted.

3. Gu D, Zhang J, Hao Y, Xu RJ, Zhang YX, Ma Y, Wang QY*.Alternative sigma factor RpoX is a part of RpoEregulon and plays distinct roles in stress response, motility, biofilm formation and hemolytic activities in the marine pathogen Vibrio alginolyticus. Applied and Environmental Microbiology, accepted.

4. Ma RQ, Yang GH, Xu RJ, Liu XH, Zhang YX, Ma Y, Wang QY*.Pattern analysis of conditional essentiality (PACE)-based heuristic identification of an in vivo colonization determinant as a novel target for the construction of a live attenuated vaccine against Edwardsiella piscicida.Fish Shellfish Immunol. 2019, 90:65-72.

5. Wei LF, Wu YY, Yang GH, Xu RJ, Liu XH, Liu Q, Zhang YX, Ma Y, Wang QY*. Genome-wide identification of fitness factors in seawater for Edwardsiella piscicida. Applied and Environmental Microbiology. 2019, 85(10): e00233-19.

6. Katharios P*, Kalatzis PG, Kokkari C, Pavlidis M, Wang QY.Characterization of a highly virulent Edwardsiella anguillarumstrain isolated from Greek aquaculture, and a spontaneously induced prophagetherein.Front Microbiol. 2019, 10:141.

7. Yin KY, Guan YP, Ma RQ, Wei LF, Liu B, Liu XH, Zhou XS, Ma Y, Zhang YX, Waldor MK, Wang QY*. Critical role for a promoter discriminator in RpoS control of virulence in Edwardsiella piscicida. 2018, PLoS Pathogens, 14(8): e1007272.

8. Gao XT, Wang XT, Mao QQ, Xu RJ, Zhou XH, Ma Y, Liu Q, Zhang YX, Wang QY*.VqsA, a novel LysR-type transcriptional regulator coordinates quorum sensing (QS) and is controlled by QS to regulate virulence in the pathogen Vibrio alginolyticus. Appl Environ Microbiol, 2018, doi: 10.1128/AEM.00444-18. (Q2)

9. Yang D, Zheng X, Chen S, Wang Z, Xu W, Tan J, Hu T, Hou M, Wang W, Gu Z, Wang QY. Sensing of cytosolic LPS through caspy2pyrin domain mediates noncanonicalinflammasome activation in zebrafish. Nature Communications. 2018, 9:3052.

10. Chen S, Yang D, Wen Y, Jiang Z, Zhang L, Jiang J, Chen Y, Hu T, Wang QY, Zhang Y, Liu Q. Dysregulatedhemolysin liberates bacterial outer membrane vesicles for cytosolic lipopolysaccharide sensing. PLoS pathogens. 2018,14:e1007240.

11. Guan C, Ding Y, Ma A, Wang Y, Li J, Ni Q, Liu X, Wang QY, Mai K, Lin H, Huang B. Flatfish Farming. Aquaculture in China: Success Stories and Modern Trends. 2018 Jun 25:309-28.

12. Yang GH, Wang C, Wang X, Ma R, Zheng H, Liu Q, Zhang Y, Ma Y, Wang QY*. Complete genome sequence of the marine fish pathogen Vibrio anguillarum and genome-wide transposon mutagenesis analysis of genes essential for in vivo infection. Microbiological Research. 2018, 216:97-107.

13. Zhang L, Jiang Z, Fang S, Huang Y, Yang D, Wang Q, Zhang Y, Liu Q. Systematic Identification of Intracellular-Translocated Candidate Effectors in Edwardsiella piscicida. Front Cell Infect Microbiol. 2018. doi: 10.3389/fcimb.2018.00037.

14. Yang Z, Wang XT, Xu WS, Zhou M, Zhang YX, Ma Y*, Wang QY*. Phosphorylation of PppA at threonine 253 controls T6SS2 expression and bacterial killing capacity in the marine pathogen Vibrio alginolyticus. Microbiological Research. 2018, 209:70-78.

15. Yang Z, Zhou XH, Ma Y, Zhou M, Waldor MK, Zhang YX, Wang QY*. Serine/threonine kinase PpkA coordinates the interplay between T6SS2 activation and quorum sensing in the marine pathogen Vibrio alginolyticus. Environ Microbiol. 2018, 20:903-919.

16. Wei L, Wu Y, Qiao H, Xu W, Zhang Y, Liu X, Wang QY*. YebC controls virulence by activating T3SS gene expression in the pathogen Edwardsiella piscicida. FEMS microbiology Letters. 2018,fny137.

17. Yang GH, Billings G, Hubbard TP, Park JS, Leung KY, Liu Q, Davis BM, Zhang YX, Wang QY*, Waldor MK. Time resolved transposon insertion sequencing reveals genome-wide fitness dynamics during infection. mBio. 2017, 8:e01581-17. (editor’ s pick)