

Zebrafish health monitoring and its impact on disease related studies

斑馬魚健康監測及其對疾病相關研究之影響

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Zebrafish (*Danio rerio*) has become one of the most popular animal models used in medical research in recent years. Their observable transparency and highly homologous genes similar to humans make them an ideal model for various research areas. Most zebrafish facilities use recirculating water systems containing housing tanks, biological nitrification tanks and filtered recirculating water, so they are not sterile. Several potential effects by pathogens on zebrafish have been demonstrated. In addition to large mortality caused by pathogenic bacteria, infections in seemingly healthy fish can also lead to reduced fertility and confusion in research endpoints such as behavioral, developmental, and disease research. We demonstrated several negative impacts that caused by pre-infected fish to the research outcomes and further developed a protocol by which 3 most commonly-existing pathogens in zebrafish facilities, *Pseudoloma neurophilia*, *Mycobacterium marinum* and *Pseudoloma tomentosa* can be simultaneously detected with qPCR and dPCR. It provides an easy and convenient way for performing health monitoring to the fish that are used for disease research. Our goal is to establish a lab-friendly and reliable method for the zebrafish community to minimize the usage of health-compromised fish and its effects particularly on diseased-relevant experiments.