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## Open-design recirculating systems for zebrafish culture

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### Abstract

The zebrafish is an established vertebrate-animal model in biomedical research. Currently, their mass culture is mainly done using systems provided by commercial suppliers. Commercial systems are compact, recirculating, and use auto-cleaning tanks. These features minimize space use, labour cost, and water wastage; thus, facilitating maintenance of a large number of zebrafish using minimal resources. However, the often considered costs associated with these systems often impose a barrier to current and prospective researchers, especially those with limited funds or working in labs with no access to institutional centralized zebrafish culture facilities. In contrast to commercial systems, custom-made zebrafish maintenance systems are also described in the literature. To distinguish custom-made system from commercial systems, we termed them as “open-design” systems. Open-design systems are cost-effective, modular, and frequently being improved by zebrafish researchers. However, for further development and to present them as a viable option for zebrafish researchers around the world, a review of their current status and technical understanding is required. Here, we compile the disparate data on the purpose and

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