

Microbotic technology developed for microinjection of zebrafish embryos

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Funded by an NSERC Idea to Innovations grant and an Ontario Early Researcher Award, Prof. Yu Sun's group, the Advanced Micro and Nanosystems Laboratory at the University of Toronto recently developed a microrobotic technology for automated microinjection of zebrafish embryos.

Based on computer vision and motion control, the automated microrobotic system is capable of immobilizing a large number of zebrafish embryos into a regular pattern within seconds and injecting 15 embryos (chorion unremoved) per minute with a success rate, survival rate, and phenotypic rate all close to 100%. The system and performance were reported in the journal PLoS ONE in an article entitled, "A Fully Automated Robotic System for Microinjection of Zebrafish Embryos."

Zebrafish is a model organism widely used in life sciences. High-speed injection of zebrafish embryos is important for screening genes in genetics and drug molecules in drug discovery. The automated microrobotic system proves itself as a reliable tool for determining gene functions and more generally, for facilitating large-scale molecule screening.

Source: Public Library of Science

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