

Aqueous Solvent Facilitates Drosophila Toxicology Assays

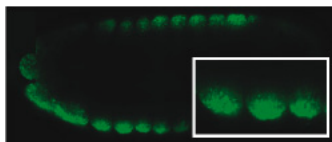
Competitive Advantages

- ☑ Enables higher-throughput, lower-cost toxicology testing than animal model.
- ☑ Averts ethical concerns about traditional animal testing.
- ☑ Compatible with automated sample handling and detection instruments.

A sensitive, rapid assay using *Drosophila* embryos enables high-throughput testing of suspected toxins and potential bioactive compounds.

A Simple, Versatile Technique

The assay is based on a new non-toxic, aqueous solvent that dissolves the waxy layer of *Drosophila* embryo shells. Used with a surfactant that dissolves the shell's vitelline membrane, the solvent allows a suspected toxic agent or bioactive compound to penetrate the shell and contact developing embryonic cells. The course of embryo development is then examined for evidence of toxin-related damage.



Penetration of embryo shell with a fluorescent nuclear stain labels live cells

The assay can also test a combination of agents. For example, a known toxin can be delivered to the embryo along with a potentially protective substance. If no developmental defect is observed, a protective effect may exist.

High-Throughput Animal Testing

This technique offers numerous advantages over traditional *Drosophila* embryo methods and other animal models.

The use of *Drosophila* for toxicology averts ethical concerns and the high costs of mammalian models such as mice and rats.

The aqueous solvent eliminates damage and increases survivorship over prior methods utilizing toxic organic solvents to permeabilize the embryo shell.

Solvent application can be used in an incubation device that processes over 1,000 embryos at once, far exceeding current microinjection methods. High-throughput multiwell applications can be executed with automated sample handling and fluorescence detection equipment.

Commercialization

The technology could be licensed to contract research organizations that test compounds such as pharmaceuticals and environmental contaminants. In addition, assay kits may be sold to academic research laboratories.

Patent / Licensing Status

Patent pending. Exclusive rights available.

Learn More

Drosophila toxicology abstract
www.ncbi.nlm.nih.gov/pubmed/19559084?ordinalpos=2&itool=EntrezSystem2_PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum

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