



## Press Release

National Institute of Environmental Health Sciences

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### Firefly Gene Lights up to Detect Toxic Dioxin

A gene from a firefly has been added to mammalian cells so that they glow when exposed to the toxin dioxin, and the cells glow brighter as the level of dioxin increases, making them a quick and simple test for the chemical in foods, animal feeds, and tissue.

Development of the new technology was supported under a Small Business Innovation Research Grant from the [National Institute of Environmental Health Sciences](#) in [Research Triangle Park, N.C.](#), one of the [National Institutes of Health](#).

The grantee has licensed the use of its unique technique to the Belgium government's [Scientific Institute of Public Health](#) and to Hiyoshi Corporation of Japan. The system is an alternative to gas-chromatography mass-spectrometry, but is more rapid and less expensive, testing up to 50 samples per hour for about \$400 per sample, compared to one sample per hour at \$1,500 per sample. It can be used for air, water, soil, or biological samples. For example, the Belgium lab plans to use the system for feed, food and tissue samples.

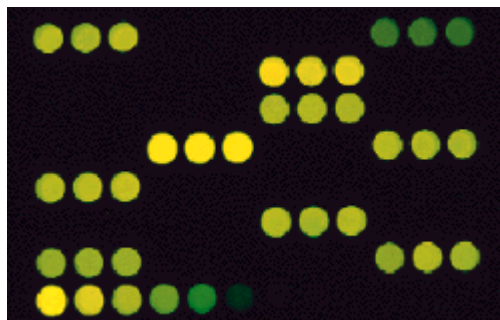
Dioxin was in Agent Orange and was a contaminant at Love Canal. It is a product of some chemical manufacturing and of combustion. It is highly toxic and has been associated with cancers as well as immunotoxic and reproductive effects. The Belgium government is especially interested in dioxin because of an incident of dioxin-contaminated food.

The grantee is [Xenobiotic Detection Systems, Inc.](#), of [Durham, N.C.](#) The Small Business Innovation Research grants are offered by NIEHS on a competitive basis to applicants who are developing products or services that advance the mission of environmental health sciences.

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Reporters: The grantee Xenobiotic Detection Systems, Inc., can be reached at 1-888-D-I-O-X-I-N-S or visit their web site at [www.dioxins.com](http://www.dioxins.com).

The URL for this press release is: <http://www.niehs.nih.gov/oc/news/dioxglo.htm>



#### The glow gives it away.

A new assay uses the firefly luciferase reporter gene, which luminesces in the presence of the Ah receptor, to test for the presence of dioxins in environmental samples.

Photo credit: Michael Dension

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