

# Researchers probe arsenic effects on cells, immune system

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(PhysOrg.com) -- In continuing research on the effects of arsenic on mast cells, which help regulate the body's immune system and organ function, University of Maine biochemist Julie Gosse and a team of student researchers have found a new correlation.

The next phase of the research will look at the [molecular mechanism](#) underlying arsenic's effects on mast cells.

Provided by University of Maine

Using biochemical, molecular and cellular techniques, Gosse and her students from the Department of Molecular and Biomedical Sciences have been studying whether [arsenic](#) affects how [mast cells](#) function.

"We found interesting data, but it was opposite of what we expected," Gosse says. "What we found was that the mast cell function was actually inhibited."

With funding from the PhRMA Foundation and the Maine Agricultural and Forest Experiment Station, the researchers sought to determine if there is a link between arsenic in drinking water and asthma. They found no evidence of that, but Gosse says their data clearly support the conclusion that mast cell function can be disrupted by environmentally relevant levels of arsenic exposure.

Mast cells are key players in allergy, asthma and cancer and are important [immune defense](#) cells in the body, charged with fighting parasitic infections. They contain and release histamine and many other inflammatory mediators, which are needed for fighting parasites. The Gosse lab data suggest that arsenic may inhibit the ability of humans to fight off [parasitic disease](#). Millions of people worldwide are exposed to both arsenic and parasites.

The team used mammalian mast cells commonly used to model human mast cell function.

Results of the research are being published in article in a forthcoming issue of the *Journal of Applied Toxicology*.

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