

Toward a diagnostic blood test for endometriosis

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Endometriosis is a chronic, often painful disease affecting up to 10 percent of women of reproductive age in the U.S. How it develops is not well understood, and detecting it with certainty requires surgery. But now, scientists report in *ACS' Journal of Proteome Research* new insight gained from their study on mice that could ultimately help diagnose the condition with a blood test.

Endometriosis occurs when tissue that normally lines the inside of the uterus grows outside of it. Even when it's displaced, the tissue acts as if it's in the uterus, thickening, breaking down and bleeding with a woman's [menstrual cycle](#). To confirm whether a woman has [endometriosis](#), a surgeon has to perform laparoscopic surgery that involves inserting a lighted tube to look inside the abdomen. Research suggests that the condition is related to a change in [lipid metabolism](#). Mainak Dutta and colleagues wanted to find out whether endometriosis has a specific lipid profile that might lead to a less invasive diagnostic test.

The researchers performed a metabolomics analysis, testing blood samples from a group of mice with the disorder and from a control group. Mice with endometriosis had a lipid profile distinct from the control animals. Although further work would be needed to validate the results in humans, the study suggests that a simple [blood test](#) along with other clinical indicators could potentially be used to diagnose the disease, the researchers say.

More information: Mainak Dutta et al. Metabolomics reveals altered

lipid metabolism in a mouse model of endometriosis, *Journal of Proteome Research* (2016). [DOI: 10.1021/acs.jproteome.6b00197](https://doi.org/10.1021/acs.jproteome.6b00197)

Abstract

Endometriosis is a common chronic estrogen-dependent gynecological disease affecting 10% of women in their reproductive age. It is characterized by proliferation of functional endometrial glands and stroma outside the uterine cavity. In the present study we have used a mass spectrometry-based lipidomics approach to investigate the alterations in serum lipid profiles of mice induced with endometriosis. We have identified several dysregulated lipids such as phosphatidylcholines, sphingomyelins, phosphatidylethanolamines and triglycerides and have shown that triglycerides may be due to a general inflammatory condition in the peritoneum. We have also shown that in addition to phosphatidylcholine alteration there is also an effect in the ratio of phosphatidylcholine/phosphatidylethanolamine in serum of mice induced with the disease, and that this change may be due to increased expression of the phosphatidylethanolamine N-methyltransferase gene. The study provides a new insight to the etiology of endometriosis.

Provided by American Chemical Society

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