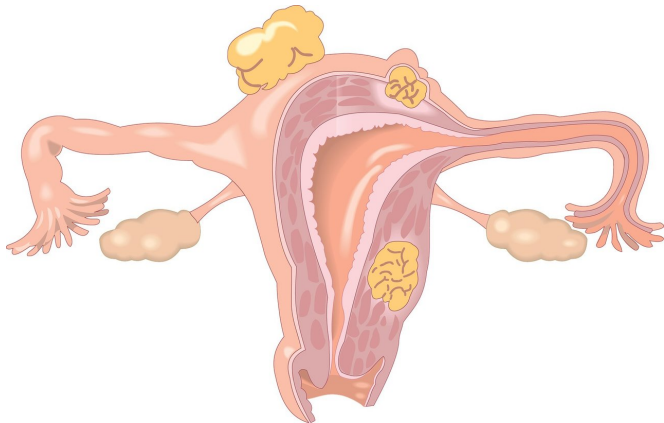


# Study finds a link between lowered levels of HDAC3 and infertility in endometriosis patients

10 January 2019, by Bob Yirka



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A team of researchers from the U.S. and South Korea has found a link between low levels of HDAC3 and infertility in endometriosis patients. In their paper published in the journal *Science Translational Medicine*, the group describes their study of the lining of the uterus in infertile women with endometriosis and what they found.

Endometriosis is a disorder in which the type of cells found in the lining of the [uterus](#) spontaneously appear in other parts of the body. The result is often inflammation and pain, and in approximately half of all cases, [infertility](#). In this new effort, the researchers sought to better understand why women with [endometriosis](#) are more susceptible to infertility.

To learn more, the team collected uterine lining samples from 21 infertile women with endometriosis. Close examination of the tissue revealed lower numbers of a molecule called histone deacetylase 3 (HDAC3) in such women, compared to fertile women who did not have

endometriosis. Prior research has shown that HDAC3 is a molecule that plays a role in controlling the levels of certain proteins in the body.

The researchers found that HDAC3 levels were also low in endometriosis mouse models. They then genetically engineered HDAC3-negative mice that did not have endometriosis, and found that they were infertile. Further investigation showed that low levels of HDAC3 resulted in problems with implantation of embryos, preventing pregnancy.

The researchers also found that mice with low levels of HDAC3 had higher levels of collagen in their uterine lining tissue, which is common in women with endometriosis. Higher collagen levels are believed to interfere with pregnancy by disrupting the changes that normally occur in the uterus lining that allow a pregnancy to proceed.

The researchers note that it is still not known what causes the drop in HDAC3 levels in some endometriosis patients, but point out that this research could lead to the development of therapies to help women with the disorder conceive. They further suggest that measuring HDAC3 levels in endometriosis patients could help with developing a treatment plan for them.

**More information:** Tae Hoon Kim et al. Loss of HDAC3 results in nonreceptive endometrium and female infertility, *Science Translational Medicine* (2019). [DOI: 10.1126/scitranslmed.aaf7533](https://doi.org/10.1126/scitranslmed.aaf7533)

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