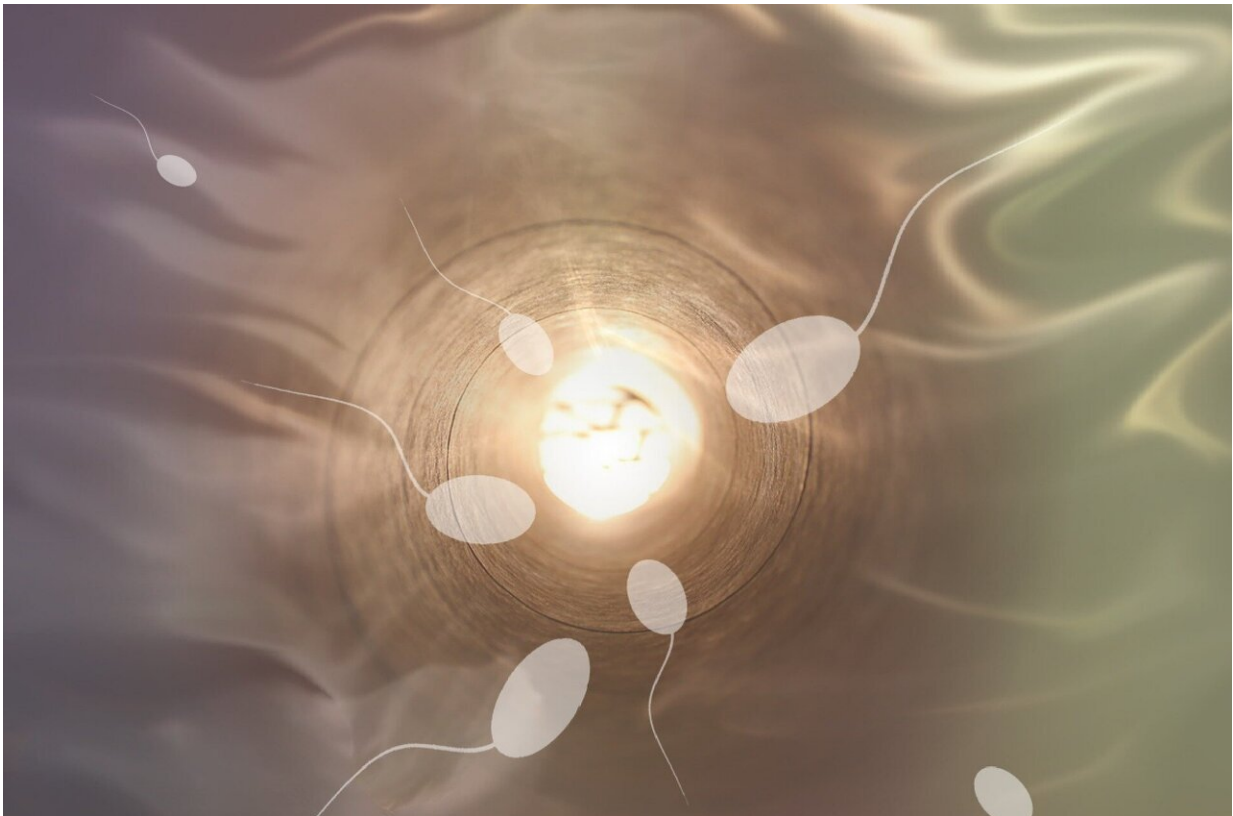


# Creating a female birth control option using antibodies that trap sperm

August 12 2021, by Bob Yirka

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A team of researchers affiliated with a host of institutions in the U.S. has found that an antibody they created was 99.9% effective at trapping human sperm. In their paper published in the journal *Science*

*Translational Medicine*, the group describes how they developed their birth control antibodies as an alternative to hormonal forms of female contraception.

Modern science has given women two basic options for preventing pregnancy: Blocking mechanisms such as condoms or IUDs, and hormones given via injection or a pill. But, as the researchers note, all such options have drawbacks that lead to problems for women. In this new effort, the researchers sought a third alternative—one that involves using [antibodies](#).

Prior research has shown that certain antibodies in the vaginas of some women can make them infertile. Last year, the researchers obtained some of these antibodies from female volunteers and subsequently removed the antigen-binding components. They then used those components to engineer an IgG antibody that showed a propensity for bonding with sperm. More recently, the researchers added staggered amounts of the components to engineered IgG antibodies—6, 8 and 10. They then injected plasmids containing these antibodies into human embryonic cells resulting in the growth of new IgG cells with the engineered components. Next, the researchers tested the ability of their IgG cells to attract and bond with [sperm cells](#) in a [petri dish](#) and found they were up to 10 times better at trapping sperm cells than the original antibodies taken from the volunteer women.

In the second part of their work, the researchers injected solutions containing their IgG antibodies into the vaginas of several sheep. That was followed by injections of [human sperm](#). After two minutes, the researchers collected samples from the sheep vaginas and counted how many mobile sperm they were able to find. In so doing, they found reductions of 99.9% compared to control groups.

The researchers note that more work is required to determine if their

technique could become a third contraceptive method for women in the future. They plan to next find out if their engineered antibodies will work the same in a human vagina.

**More information:** Bhawana Shrestha et al, Engineering sperm-binding IgG antibodies for the development of an effective nonhormonal female contraception, *Science Translational Medicine* (2021). [DOI: 10.1126/scitranslmed.abd5219](https://doi.org/10.1126/scitranslmed.abd5219)

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