

Reversible Vasectomy Research and Selected Non-Hormonal Approaches

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Background:

Roughly half of all pregnancies worldwide are unplanned. The largest gap for contraceptive need is in options for men. Further, they have no long-acting reversible contraceptives. The introduction of a long-acting reversible contraceptive (LARC) for men – such as a reversible vasectomy – has been estimated to potentially prevent 275,000 unplanned pregnancies per year in the United States, and 200,000 in Nigeria. With respect to short-acting methods, non-hormonal agents which target late sperm maturation or sperm function have the advantage of a more rapid onset of action, which may be attractive to some men.

Methodology:

MCI is working to fund research on non-hormonal contraceptives, potentially including reversible vasectomy procedures. We will describe the progress of two research teams who are working on reversible vasectomy procedures; and three teams who are working on non-hormonal approaches.

Results / Key Findings:

Two groups in the US are working on reversible vasectomy procedures. The Parsemus Foundation is supporting work on Vasalgel, which involves inserting a gel into the vas to prevent sperm passage, with the gel being dissolved by a second procedure, inspired by Prof. Guha's work in India. Parsemus reported in 2017 that Vasalgel was effective and reversible in rabbits and was effective in monkeys. A startup company, Contraline, based in Charlottesville VA, is also developing a reversible vasectomy procedure involving insertion of a gel. In 2017 they reported venture capital investment of over US\$2 million; detailed results are not yet published. General issues for reversible vasectomy procedures will be addressed. Many other teams are working to develop non-hormonal pharmaceutical agents for various targets, including three teams focusing on: eppin; HIPK4; and simultaneous inhibition of α 1A-adrenoceptors and P2X1-purinoceptors, respectively.

Conclusions:

Research is ongoing on several promising approaches. Current research efforts are pre-clinical and will require persistent and continuous funding support to reach the market.