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Researchers develop mPTX molecule to enhance sperm competence for IVF

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The mPTX molecule is proposed to be a better pharmacological agent for assisted reproductive technology than the existing drugs

Dr Rajakumara Eerappa's group from the Department of Biotechnology, IIT Hyderabad, Dr Jagadeesh Prasad Dasappa's group from the Mangalore University, and Prof Guruprasad Kalthur's group from the Kasturba Medical College, Manipal, Manipal Academy of Higher Education, have designed a small organic molecule mPTX which improves the sperm functional competence required for in vitro fertilization (IVF).

The studies have demonstrated that mPTX, a pentoxifylline derivative, was able to increase sperm motility, prolong in vitro sperm survival, improve sperm fertilisation potential, without adversely affecting the development of the embryos at a much lower concentration compared to the widely used pharmacological agent - pentoxifylline in IVF technology.

mPTX can be a potential drug candidate for aiding viable sperm selection in patients having immotile or poor motile spermatozoa in the ejaculate or from the testicular biopsy, and for increasing sperm motility before IVF.

Recently this work has been published in the reputed peer-reviewed journal, *Nature Scientific Reports*.

Citing the importance of solutions in given circumstances, Dr Rajakumara Eerappa, Associate Professor, Department of Biotechnology, said, "Our multi-institutional collaborative team is coming up with a formulation, using the combination of this mPTX and other molecules, that could be more effective than the existing formulation for the IVF procedure."