

Japanese sperm cell breakthrough offers hope to infertile men

March 24 2011, by Bob Yirka

(PhysOrg.com) -- In what can only be described as cosmic forces at work, Japanese scientists working at Yokohama University, just south of Tokyo, have in the midst of a national crises, announced a major breakthrough in fertility science; they have figured out how to grow sperm cells outside the body. While the nation counts its losses from the earthquake and tsunami, a new way to help men who have been unable to conceive children, might just be on the way.

As originally reported in *Nature*, Takehiko Ogawa and his team from Yokohama University have discovered that by using the right mix of chemicals (which turned out to be the commercially available [KnockOut Serum](#) - a solution made to assist in stem cell growth) they could not only keep a mouse testes sample alive, but that it would, after just a few weeks, begin to produce viable sperm cells; sperm cells that when injected into a female ovum, wound up in the delivery by surrogate, of a live healthy mouse.

Scientists have been working on the problem of producing viable sperm cells for over a hundred years, with little to no success. Until now, researchers had been able to keep testes tissue alive, but when the sperm cells reached the meiosis stage, (the point during cell division when [chromosomes](#) are swapped) things simply stopped.

In the new procedure, a testes sample was taken from the testicle of a live male mouse before it was old enough to produce sperm cells. That sample was then continuously soaked in the KnockOut solution for

several weeks, and then, the sample began to produce live [sperm cells](#); complete with head, body and tails, just as they would have had they been left in their natural state. Those mice that were born as a result so far seem normal, and were even able to reproduce as well. The team also discovered the procedure would work with a previously frozen specimen as well.

The reason this breakthrough is so important is because it might help [infertile men](#), particularly those who as young boys lost their ability to reproduce due to cancer treatment, have children. It's also important because it will help researches better understand how cells work; which might eventually lead to more breakthroughs in other areas.

More information: In vitro production of functional sperm in cultured neonatal mouse testes, Takuya Sato, Kumiko Katagiri, Ayako Gohbara, Kimiko Inoue, Narumi Ogonuki, Atsuo Ogura, Yoshinobu Kubota & Takehiko Ogawa, *Nature* 471, 504–507 (24 March 2011)
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