Ivf (In Vitro Fertilization) Treatment Set To Evolve With Robotic Sperm Technology

Angela Jones June 06, 2014

In Vitro Fertilization

Scientists build a sperm-like robot controlled by use of magnets paving way for higher "in vitro fertilization" success rates.

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Amazingly, engineers have actually built a sperm-like robot which is controlled by the use of magnets. The simple design has a metal-coated head and a versatile body about six times longer than a human sperm. By making use of a magnetic field no stronger than a fridge magnet, the group were able to make the robot "swim" forwards and managed to steer it to a set point as recently published in the journal "Applied Physics Letters".

Dr Sarthak Misra, a robotics engineer at the University of Twente in the Netherlands has publically stated "We have actually built a biologically inspired micro-robot that resembles a sperm cell but is completely made in the lab". He went on to say that the Robots actually imitate "Sperm", which like some other bacteria, make use of a whip-like "flagellum" to propel themselves through fluid, and that other research carried out included the coupling of a magnetic tail to a red cell and managing genuine sperm by guiding them in metal micro-tubes.

The brand-new gadget is made from a strong however flexible polymer, with a metal layer repainted onto its head using a technique called electron beam evaporation. That metal element is forced in different directions when the device is positioned into a moving field, produced by the coils of an electromagnet. Dr Misra told the BBC, "The magnetic head is managed to orient it to any certain direction, and then, simply by flapping its tail, it begins to move forward." As for size, the robotic can hardly take on its biological inspiration for speed: it wiggles along at approximately 0.5 body lengths per second, whereas a human sperm can cover a number of times its body length in the same period of time.

Significantly, however, Dr Misra and his co-workers have also revealed that they can now steer the robotic sperm with quite some precision by adjusting the electromagnetic field changes with a computer, they were able to navigate it to an exact location, and Dr Misra has stated that robotic sperm technology not only paves the way for nano-manufacturing or medical purposes, but also opens the door for more precise "in vitro fertilisation".

The research team have said that for these concepts to work, testing is to be carried out in more complex environments, and that they were still working on making their "Magneto Sperm" smaller and quicker. as human sperm are about 6 times smaller than the small robots which they are modelled on. Dr Matthew Baker, who research studies molecular motors at the Victor Chang Cardiac Study Institute in Sydney, informed the BBC that the work was "well cool" however commented that these tiny devices are not exactly robots in the sense that the majority of us might imagine them to be, as we are just talking about a piece of metal, and that in sense it's the magnetic field that's doing all the hard work.

Spain are said to be among the first countries to show a great interest in developing robotic sperm technology for precision Ivf (In Vitro Fertilization) treatment, and a spokesman from leading Spanish infertility clinic **"IVF-Spain"** says that in order to maintain their high IVF success rates, this type of revolutionary innovation must continue to be explored, and finished off by saying "Who knows? with advances like this, we could soon be claiming a **100% success rate from IVF treatment to couples desperately seeking to have a baby**.

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