

NOBEL PRIZE FOR MEDICINE 2010

Robert Edwards, Professor Emeritus at the University of Cambridge has been awarded the Nobel Prize in medicine for developing the technique of in vitro fertilization. Scientists had shown that rabbit eggs could be fertilized in a test tube when mixed with sperms. In the 1950's Edwards started to speculate whether the same could be done with humans. He studied how the human ovum matures and the various hormones which orchestrate its maturation. He then studied the time when the egg is most susceptible for fertilization. The next step was to determine the conditions under which the sperm is activated and ready to fertilize the ovum.

In 1969, for the first time a human ovum was fertilized by a sperm in a test tube or to be more precise in a Petri dish. However the problem was that it failed to multiply beyond a certain stage. He then realized that eggs which had matured in the ovary were more likely to multiply further. So he contacted a gynecologist Patrick Steptoe who was a pioneer in a new and controversial technique - laparoscopy. Laparoscopy allowed them to visualize the ovary and remove the ovum at the appropriate time. This time, when the ovum was fertilized in vitro it continued to multiply to the 8 cell stage. However the Medical Research Council refused to fund further studies and work came to a halt. Luckily a private donation allowed Edwards and Steptoe to continue and on 25 July 1978, history was created when "Louise Brown" became the first baby to be born by in vitro fertilization.

What very few people know is that a few weeks later on 3rd October 1978, the second baby born by in vitro fertilization ("Durga" nee Kanupriya Agarwal) was due to the work of an Indian scientist Subhash Mukhopadhyay. However instead of

recognition he faced social ostracization, reprimand and insult from the Marxist West Bengal Government which finally resulted in his committing suicide in 1981. Mukhopadhyay pioneered many different techniques which are in use even today. He used controlled ovarian hyperstimulation to collect ova which was not considered suitable by conventional wisdom then but is regularly used now. His technique of collecting ova was also different. He made a small incision on the posterior wall of the vagina to collect the stimulated ova which dropped into the pouch of Douglas while in Britain they used the laparoscopic method. Today ultrasound guided transvaginal probes are used. Cryopreservation of embryos was also first described by him which is again a standard protocol today. India's second (officially the first) test tube baby "Harsha" born on 16 August 1986 was credited to Dr TC Anand Kumar, Director of ICMR. However after scrutinizing Dr Mukhopadhyay's records, Dr Kumar was quick to officially hand over the credit of the first successful Indian IVF to Dr Mukhopadhyay (www.nobelprize.org, *The Hindu* 6 October 2010).

THE NOBEL PRIZE FOR CHEMISTRY

The 2010 Nobel prize for chemistry has been awarded to three scientists (Richard Heck, University of Delaware; Eiichi Negishi, Purdue University; and Akira Suzuki, Hokkaido University; in Japan) who developed a simple way to link carbon atoms which are otherwise stable and difficult to link artificially. This has become an important tool in the synthesis of complex molecules such as drugs, agrochemicals and coatings for electronic components (www.nobelprize.org).

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