

World's 1st semi-cloned fish

NUS team creates sperm-like fish cells that could treat male infertility

SINGAPORE scientists have developed a way to create sperm-like **stem cells** from fish, which they used to fertilise a fish egg to produce a healthy offspring.

The offspring, which they have named Holly, is the world's first semi-cloned animal.

This breakthrough could potentially be used to treat **infertility** in humans, spelling hope for couples who have trouble conceiving.

Holly, a 15-month-old medaka fish, was created by a team of three National University of Singapore (NUS) scientists. Their findings will be published today in leading international journal Science.

Holly is a semi-clone as it is not an exact genetic copy of its parents, unlike the world's first animal clone, Dolly the sheep.

It has genetic traits from two sources, similar to offspring produced through normal reproduction.

Half of its DNA comes from its mother, which supplied the egg, and the other half from a sperm-like cell that was derived from an embryonic stem cell.

The team is the first to succeed in creating and maintaining such viable cells since re-



BREAKTHROUGH: Holly the fish has genes from two sources. Half of its DNA is from a man-made sperm-like cell.

searchers in the world started trying to achieve this in 1983, said lead researcher Hong Yunhan.

Should this prove successful for humans, infertile men can pass on their **genes** via the same method, he said.

The same method could also be used to help infertile women, he added.

Dr Christopher Chen of Gleneagles Hospital's Centre for Reproductive Medicine said that male infertility makes up half of fertility issues here, up from 15

per cent 20 years ago.

The number is also increasing worldwide, he added.

Associate Professor Hong said that using this semi-cloning method for human fertility treatments will avoid a major controversy of cloning - that a cloned child would be identical to his or her parent, he said.

But its use in humans is still a long way off, and will probably come at a steep price, he added.

Agency for Science, Technology and Research (A*star) scientist Vivek Tanavde said that the

ethical challenges of semi-cloning would be similar to those of **in-vitro fertilisation** - a fertility method where egg cells are fertilised by sperm outside the womb - as it could allow parents to select the gender of their child.

While the study is an important milestone which shows it is possible to create functioning sperm-like stem cells in fish, the technique has yet to be established in humans, he cautioned.

The NUS team is looking to repeat its study on mice, which will take about five years.

Raising funds for this next leg will be a challenge, and the team is now seeking international collaboration, Prof Hong said.

The project, which was started in 2004 and cost about \$2 million, was supported by NUS, A*star and the Education Ministry.