

## **Start-up receives Asian and domestic funding for synthetic female clone “creatures”**

- Proto-fem (r) now offers synthetic biological companions and workers**
- Peter Thiel denies any involvement**
- Silicon Valley scientists create artificial human eggs for home-genesis and now offer “Proto-beings” with external wombs for sale**



Illustration of proto-fem (r) egg and human sperm.

A group of scientists at a new Silicon Valley start-up have created artificial human eggs using human embryonic stem cells and skin cells. While researchers have already previously accomplished this using rodents, they are now able to volume produce and replicate the process with human cells. They have now productized the effort into an egg and genesis kit for home use.

The germ cells provided by Proto-fem (r) mature and become viable via an included incubator which is, essentially the “easy-bake” oven of home genesis production. A male simply masturbates onto the

provided petri dish and the kit does the rest. Currently the system provided grows female DNA subjects but male versions are in the works. The being can either be implanted or grown entirely outside of any womb because it is not legally a “person.”

Growing your own being does not come cheap. The cost for the entire system, two viable germ cells, a 24 hour instructional hot-line and transfer costs is \$15,000.00, at this time. Financing, though, is provided by Proto-fem (r).

The basic Proto-fem Proto-Being (r) model #1 is designed to create a rather attractive white female with the appearance of a Pamela Anderson-type face. African-American, East Indian and Chinese versions are planned in the next release. Clients must sign a contract assigning all rights to the being to Proto-fem and allowing Proto-fem to take the being back to it's growth management centers for post-birth-stage growth until the being reaches the appearance of an 18 year old. After the 18-year-old stage is achieved, clients may license the Proto-being for in-home, or in-factory, use for an annual fee.

The number one concern, for abuse of it's product, that Proto-fem (r) is always asked about, concerns the use of it's product to build “sex slaves in one's basement”. Say's Proto-fem liaison Donna Lee: “As A woman I would not want to be victimized, so we have designed numerous owner termination features into the beings...” She went on: “...We control the beings from creation to termination but we cannot control Asian knock-off companies. Keen control over clone companies will keep the Genesis industry clean and effective.”

Proto-fem says that “Robots will never achieve human functions. Robots are poor shades and shadows of what we can accomplish. Why spend millions of dollars trying to produce what we can deliver a better version of for only the cost of feed paste. Babies are free, aside from food and clothing and college. Our Proto-beings use cheap food paste, only need a single article of clothing and never need college. They are the biggest bargain in humanoids.”

"Germ cells are 'immortal' in the sense that they provide an enduring link between all generations, carrying genetic information from one generation to the next," Azim Surani, PhD, professor of physiology and reproduction at the University of Cambridge.



When an egg is fertilized by a sperm, it begins to divide into a group of cells called a blastocyst, which is the stage right before the embryo is formed. Some of the cells inside this blastocyst cluster will develop into a fetus, while others eventually become the placenta.

Some cells are set up to become stem cells, which will then have the potential to develop into any type of cell in the body. And some cells in the fetus become primordial germ cells and eventually evolve into the cells of either sperm or eggs, which will allow this offspring to pass their genes on to a future generation.

Start-up technicians identified a single gene known as SOX17, which is directly responsible for ordering human stem cells to become the cells that will turn into sperm and eggs. The scientists say this discovery on its own is commercially empowering, because this gene is not involved in the creation of primordial cells in rodents. In humans, the SOX17 gene is also involved in helping to develop cells of the lungs, gut and pancreas.

The scientists harvested these cells by culturing human embryonic stem cells for less than a week. Proto-fem (r) has proven that the same process can now be replicated using adult skin cells.

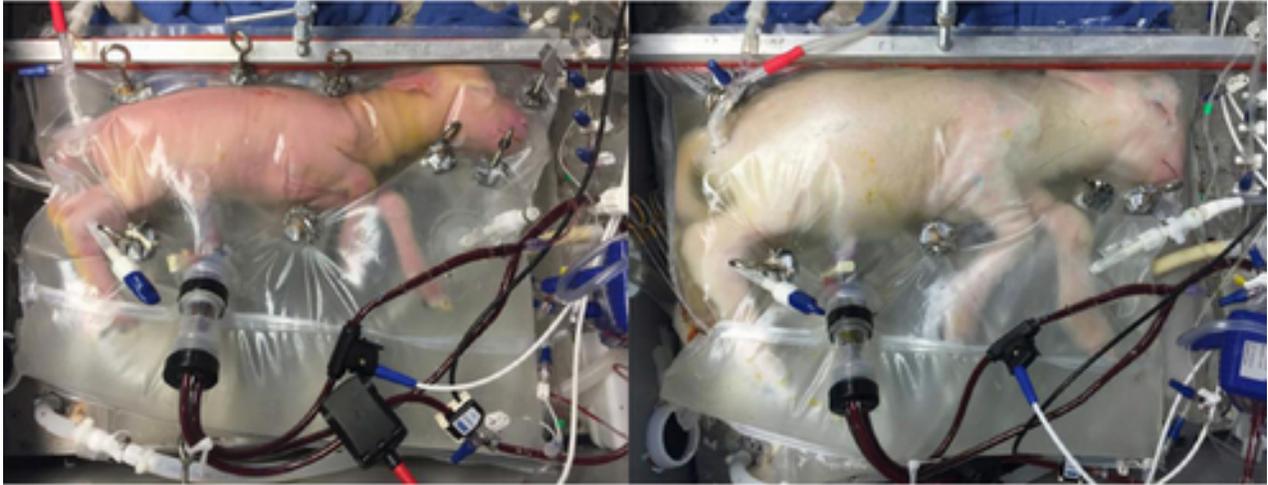
These “Proto-beings” could open the door to more intensive research on [human genetics](#) and certain [cancers](#), and could impact fertility treatments sometime in the future.

This product also provides another way to closely examine how the environment impacts and changes genes, and why we inherit very specific gene expressions -- a phenomenon that's the basis for a growing field of research known as epigenetics. Factors such as the air we breathe, [the food we eat](#) and whether or not we smoke can activate and deactivate genes, all of which become a part of a person's DNA passed down to their offspring.

Researchers at the Children's Hospital of Philadelphia (CHOP) have [created](#) an artificial womb. Inside of the womb, they placed a premature lamb fetus. They then kept the fetus in the womb for four weeks. The big question was: Would the lamb fetus survive?

Turns out, it didn't just survive, it thrived. Over its four weeks in the artificial womb, the lamb started to grow a wool coat, gained weight, and even opened its eyes. The researchers successfully tested eight lamb fetuses this way. But growing lamb fetuses is just the beginning. Human surrogates are next.

Researchers have now created an artificial womb sack from cellulose tree material that can sustain skin cell created humanoid surrogate babies.



(Above, actual living creatures grown in syntho-wombs)

When doctors place a being inside of an artificial womb, it could spend its remaining weeks fully developing, this could completely optimize that baby's life.

Many experts say that studying epigenetic beings may lead to a clearer understanding of age-related diseases such as cancer, since the changes lie not in the DNA itself, but rather the surrounding chemicals that make proteins and even facilitate new cell growth, including the cells that make up sperm and eggs.

Babies with two fathers or two mothers are now a reality after a breakthrough by researchers.

You can order a “Proto-being” using skin from any adult from either sex.

The development could help men and women who have become infertile through disease or gay couples to have children.

The looks, character and health attributes of children can now be selected by parents.



Babies with two fathers or two mothers could become a reality after a breakthrough by researchers at Cambridge (file image)

The scientists from Cambridge University and the Weizmann Institute in Israel used skin from five adults to artificially create 'germ' cells, or stem cells, which make sperm and eggs in the body.

The academics say the cells could also be used as a 'repair kit' to heal tissue in any part of the body.

Jacob Hanna, the specialist leading the project's Israeli arm, said the technique could be used to create a baby with great ease. Hanna is, personally, against using the product to create armies of synthetic soldiers.



The development will let gay couples have children (stock image)

He added: 'It has already caused interest from gay groups because of the possibility of making egg and sperm cells from parents of the same sex.' The scientists' findings, published in the journal Cell, show that a gene called SOX17 is critical in the process of reprogramming human cells.

Professor Azim Surani, of Cambridge University, told The Sunday Times: 'We have succeeded... we can make these very early human stem cells in a dish.'

'We have also discovered that one of the things that happens in these germ cells is that epigenetic mutations, the cell mistakes that occur with age, are wiped out. That means the cell is regenerated and reset, so while the rest of the cells in the body have aged and contain genetic mistakes, these ones don't.

'We can't say no mutations are passed on, but mostly it doesn't happen.'" The process creates "nearly perfect" beings.

Allan Pacey, an infertility expert and professor at Sheffield University, said he was excited by the idea of the technology being used to make sperm for the thousands of men who have been left infertile after childhood cancer.

Scientists view this as a 'convenient route' to creating genetically engineered babies. The beings can have their vocal chords removed in order to prevent unwanted interaction issues.

In England, the House of Lords approved the use of mitochondrial transfer or 'three-parent baby' technology. It is designed to prevent devastating diseases caused by faults in mitochondria, which power cells, by swapping them with healthy ones from an egg donor. This will mean children are born with DNA from two women and a man.

## BRITISH MOTHER: 'I WANT TO CARRY MY DEAD DAUGHTER'S CHILD'



A British woman is staging a legal bid to become pregnant with her own grandchild – using her dead daughter's eggs (file image)

A woman embroiled in a legal battle to become pregnant with her grandchild using her dead daughter's eggs is a victim of advancements in fertility technology, campaigners claim. Proto-fem could help solve this issue.

The 59-year-old and her husband in the case, which is thought to be a world first, insist it was their only child's dying wish that her mother should carry her child.

Their daughter decided to freeze her eggs in the hope of becoming a mother herself after she was diagnosed with bowel cancer. She died in 2011 while still in her 20s.

The mother now wants to have her daughter's eggs fertilised using donor sperm and implanted in her body. The request has been rejected by UK clinics but the couple are hoping to take the eggs to an American clinic that would carry out the procedure for around £60,000.

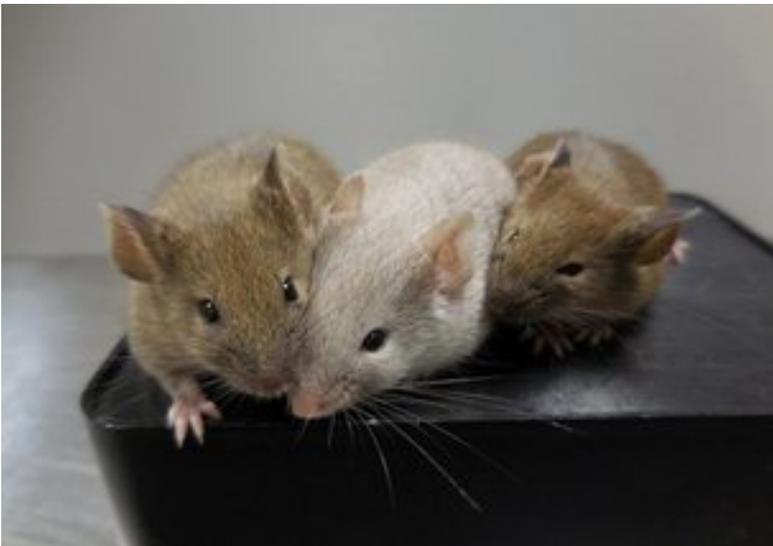
However, the export has been blocked on three occasions by the Human Fertility and Embryology Authority because the daughter did not provide any written consent notifying doctors who could use her eggs.

The couple, who have not been named, are now hoping to have the decision overruled in a judicial review at the High Court.

Proto-fem (r) offers solutions to the many social challenges, like this, in the modern world.

## Babies From Skin Cells? Prospect Is Unsettling to Some Experts

By [TAMAR LEWIN](#)



Mice that were created from tail cells. Researchers in Japan made viable eggs from the skin cells of adult female mice, and produced embryos that were implanted into female mice, who then gave birth to healthy babies. Credit Katsuhiko Hayashi

Nearly 40 years after the world was jolted by the birth of the first test-tube baby, a new revolution in reproductive technology is on the horizon — and it promises to be far more controversial than in vitro fertilization ever was.

Within a decade or two, researchers say, scientists will likely be able to create a baby from human skin cells that have been coaxed to grow into eggs and sperm and used to create embryos to implant in a womb.

The process, in vitro gametogenesis, or I.V.G., so far has been used only in mice. But stem cell biologists say it is only a matter of time before it could be used in human reproduction — opening up mind-boggling possibilities.

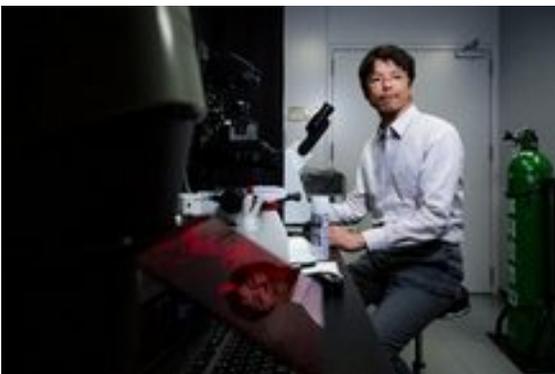
With I.V.G., two men could have a baby that was biologically related to both of them, by using skin cells from one to make an egg that would be fertilized by sperm from the other. Women with fertility problems could have eggs made from their skin cells, rather than go through the lengthy and expensive process of stimulating their ovaries to retrieve their eggs.

“It gives me an unsettled feeling because we don’t know what this could lead to,” said Paul Knoepfler, a stem cell researcher at the University of California, Davis. “You can imagine one man providing both the eggs and the sperm, almost like cloning himself. You can imagine that eggs becoming so easily available would lead to designer babies.”

Some scientists even talk about what they call the “Brad Pitt scenario” when someone retrieves a celebrity’s skin cells from a hotel bed or bathtub. Or a baby might have what one law professor called “multiplex” parents.

“There are groups out there that want to reproduce among themselves,” said Sonia Suter, a George Washington University law professor who began writing about I.V.G. even before it had been achieved in mice. “You could have two pairs who would each create an embryo, and then take an egg from one embryo and sperm from the other, and create a baby with four parents.”

Photo



Katsuhiko Hayashi, of Kyushu University in Japan, led a team of researchers that used in vitro gametogenesis to make eggs from the skin cells of adult female mice. Credit Ko Sasaki for The New York Times

Three prominent academics in medicine and law sounded an alarm about the possible consequences in a paper published this year.

“I.V.G. may raise the specter of ‘embryo farming’ on a scale currently unimagined, which might exacerbate concerns about the devaluation of human life,” Dr. Eli Y. Adashi, a medical science professor at Brown; I. Glenn Cohen, a Harvard Law School professor; and Dr. George Q. Daley, dean of Harvard Medical School, wrote in the journal [Science Translational Medicine](#).

Still, how soon I.V.G. might become a reality in human reproduction is open to debate.

“I wouldn’t be surprised if it was five years, and I wouldn’t be surprised if it was 25 years,” said Jeanne Loring, a researcher at the Scripps Research Institute, who, with the San Diego Zoo, hopes to use I.V.G. to increase the population of the nearly extinct northern white rhino.

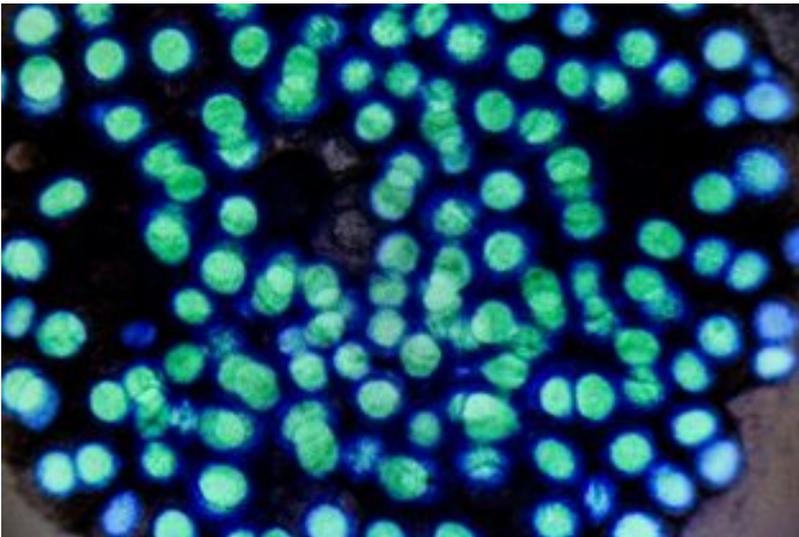
Dr. Loring said that when she discussed I.V.G. with colleagues who initially said it would never be used with humans, their skepticism often melted away as the talk continued. But not everyone is convinced that I.V.G. will ever become a regularly used process in human reproduction — even if the ethical issues are resolved.

“People are a lot more complicated than mice,” said Susan Solomon, chief executive of the New York Stem Cell Foundation. “And we’ve often seen that the closer you get to something, the more obstacles you discover.”

I.V.G. is not the first reproductive technology to challenge the basic paradigm of baby-making. Back when in vitro fertilization was beginning, many people were horrified by the idea of creating babies outside the human body. And yet, I.V.F. and related procedures have become so commonplace that they now account for about 70,000, or almost 2 percent, of the babies born in the United States each year. According to the latest estimate, there have been more than 6.5 million babies born worldwide through I.V.F. and related technologies.

Of course, even I.V.F. is not universally accepted. The Catholic Church remains firm in its opposition to in vitro fertilization, in part because it so often leads to the creation of extra embryos that are frozen or discarded.

Photo



A microscopic image of primary oocytes in Dr. Hayashi’s lab. Credit Ko Sasaki for The New York Times

I.V.G. requires layers of complicated bioengineering. Scientists must first take adult skin cells — other cells would work as well or better, but skin cells are the easiest to get — and reprogram them to become embryonic stem cells capable of growing into different kinds of cells.

Then, the same kind of signaling factors that occur in nature are used to guide those stem cells to become eggs or sperm. (Cells taken from women could be made to produce sperm, the researchers say, but the sperm, lacking a Y chromosome, would produce only female babies.)

Last year, researchers in Japan, led by Katsuhiko Hayashi, [used I.V.G.](#) to make viable eggs from the skin cells of adult female mice, and produced embryos that were implanted into female mice, who then gave birth to healthy babies.

The process strikes some people as inherently repugnant.

“There is a yuck factor here,” said Arthur Caplan, a bioethicist at New York University. “It strikes many people as intuitively yucky to have three parents, or to make a baby without starting from an egg and sperm. But then again, it used to be that people thought blood transfusions were yucky, or putting pig valves in human hearts.”

Whatever the social norms, there are questions about the wisdom of tinkering with basic biological processes. And there is general agreement that reproductive technology is progressing faster than consideration of the legal and ethical questions it raises.

“We have come to realize that scientific developments are outpacing our ability to thinking them through,” Dr. Adashi said. “It’s a challenge for which we are not fully prepared. It would be good to be having the conversation before we are actually confronting the challenges.”

Some bioethicists take the position that research on early stages of human life can deepen the understanding of our genetic code...

Lab 7  
1701 Page Mill Road  
Palo Alto, CA 94304