

A SPACE AGE SKIN CREAM

Harnessing technology developed by NASA, a Florida company has created a family of cosmetic products that offer the promise of improved anti-aging properties and other benefits

Charles Scimeca knows a good idea—and a good business—when he sees it. After a start in the restaurant industry in Chicago, Scimeca moved to Florida, started a commercial real estate brokerage firm, he then began to acquire companies and take them public. His successes include Randy Fields-Mrs. Fields Cookies Co-Founder's, Park City Group, a Chinese pharmaceutical company, and a security company.

Now, he's working on what he sees as his best idea yet. He's created a company, Rejuvel Bio-Sciences, Inc (NUUU), based on technology developed by NASA to grow cells in an environment that mimics the near weightlessness of space. That technology has allowed Scimeca to create a family of skin cream products, Rejuvel 3D, with an ingredient that has anti-aging properties found in no other product.

"The product works, or I wouldn't be doing it," says Scimeca.

Scimeca intends to launch Rejuvel 3D on a TV shopping channel and their affiliates in the U.S. and in several overseas countries. But the skin cream is just the start. The company is working on an improved and patentable version of the NASA technology, allowing a whole variety of cells to be successfully grown. Scimeca envisions creating injectable vitamin products to compete with Botox, and other popular products, even stem cells to treat diseases.

"This is the future of medicine," he says.

The story of Rejuvel begins with experiments in space. One of the problems that must be solved before humans can travel to distant planets or stars is how to treat the inevitable wounds and diseases that astronauts will get. Was it possible to grow cells in space that might be able to provide, say, replacement skin or organs, NASA researchers asked?

Not only was growing cells possible, astronauts discovered that the cells also grew better in the microgravity of space than they do on Earth, forming three-dimensional structures instead of just spreading across a flat surface. The difference was so striking that researchers at Johnson Space Center, along with Tulane University's Scientists, including astronaut Dr. David Wolf and inventor Thomas Goodwin, wondered if the benefits could also be achieved on the ground. They designed a rotating cylinder, dubbed a rotating wall vessel bioreactor, that keeps the cells and the growth medium suspended within the device, to try to mimic the microgravity of space.

The idea worked. The researchers were able to expand everything from human kidney and lung cells to human fibroblasts. Fibroblasts are a type of cell found in connective tissue that makes collagen, a key protein in skin, and other substances that aid in skin and tissue repair.

Moreover, the fibroblasts grown in microgravity increased collagen and other regenerative substances. The scientists realized that the substances could be used in applications that would heal and rejuvenate skin. They patented the rotating wall bioreactor and the various fields of use.

Some former employees of NASA setup a company to develop various uses of the bioreactor. The company struggled. That's when Charles Scimeca and John Stickler got involved. They saw the promise of the bioreactor technology and the skin cream idea, and decided to bring the product to market themselves



“No other cosmetic manufacturer has what we have, ”

says Charles Scimeca, President of Rejuvel Bio-Sciences, Inc.

after licensing the patents from NASA.

First though, with their own scientist Dr. Jacob Appelbaum, they realized that using human fibroblast cells would limit the markets for the skin cream, since the use of such cells was banned in Europe—a legacy of the mad

cow disease epidemic in the 1990s. They looked at a variety of alternative cells from plants, and found an ideal candidate in a type of green tea, *Camellia*

Sinensis cells taken from the ‘callus’ that the tea plant makes to cover a wound turned out to grow beautifully in the bioreactor and because callus cells resemble stem cells (which can become any part of the plant), they produce a wider variety of growth factors and other substances than a typical green tea leaf cell.

Green tea extract has already been shown to have many health benefits, including anti-aging properties, and natural UV ray sun protection. Among other substances, it contains scores of compounds called flavonoids, which are known to have anti-inflammatory and other properties and which can help skin cells recover from sun damage and other injuries. So it’s no surprise that many skin care products already contain extracts from the plant.

But Rejuvel’s bioreactor, using the green tea callus cells, has the potential to make a much more potent and effective extract than is found in any of the current products.

“We culture the cells differently, and our extract has more active components—and may also have different, more effective components,” explains Appelbaum, who is chairman of Rejuvel’s scientific advisory board.

The extract is then added to various creams mixed with their proprietary formula, made under contract for Rejuvel by a Texas based laboratory. The resulting family of products is called Rejuvel 3D, a reference to the three-dimensional cell culture in the NASA-developed bioreactor.

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Identifying the scores of active substances in the Rejuvel’s *camellia sinensis* extract, and then charting their biological effects, would be a monumental and difficult task, beyond the capabilities of a nascent company like

Rejuvel. That’s why the company is taking an alternative route, says Appelbaum. The goal is to prove that the product works better than competitors in clinical studies.

In Palm Beach, plastic surgeon Dr. Fredric Barr has been studying the effects of regular use of Rejuvel 3D on the faces of 38 people.

“The results have been overwhelming,” says Rejuvel Vice President John Stickler. “I’ve seen dark blotching fade in a matter of days.”

Now, the challenge for Scimeca and the company is getting people to try the family of Rejuvel 3D products, which include an Microgravity Cell Renewal Anti-Aging Cream, Brightening Dark Spot Corrector, a Bio Rotating Exfoliant Scrub, and a Microsmooth Instant Refining Primer. The products are being launched worldwide with distributors, spas, and salons.

Scimeca believes that once people actually use Rejuvel 3D products and see the benefits, they will re-order the products. That’s when he expects revenues to climb.

Meanwhile, the company continues to develop ways to improve the bioreactor technology. It expects it will soon have a better device, one that it can patent itself and the revenues that comes in from Rejuvel 3D will enable the company to begin developing a series of additional products, eventually moving from cosmetics to medical treatments.

“We will move more into the biosciences,” explains Scimeca. “We are an infant company, but we have a pretty clear course ahead of us to future growth.”

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Rejuvel is a new skin renewal product using bioreactor technology developed by scientists, astronauts and engineers.

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