

Spanish Team Grows Fake Skin Using Stem Cells From Umbilical Cord

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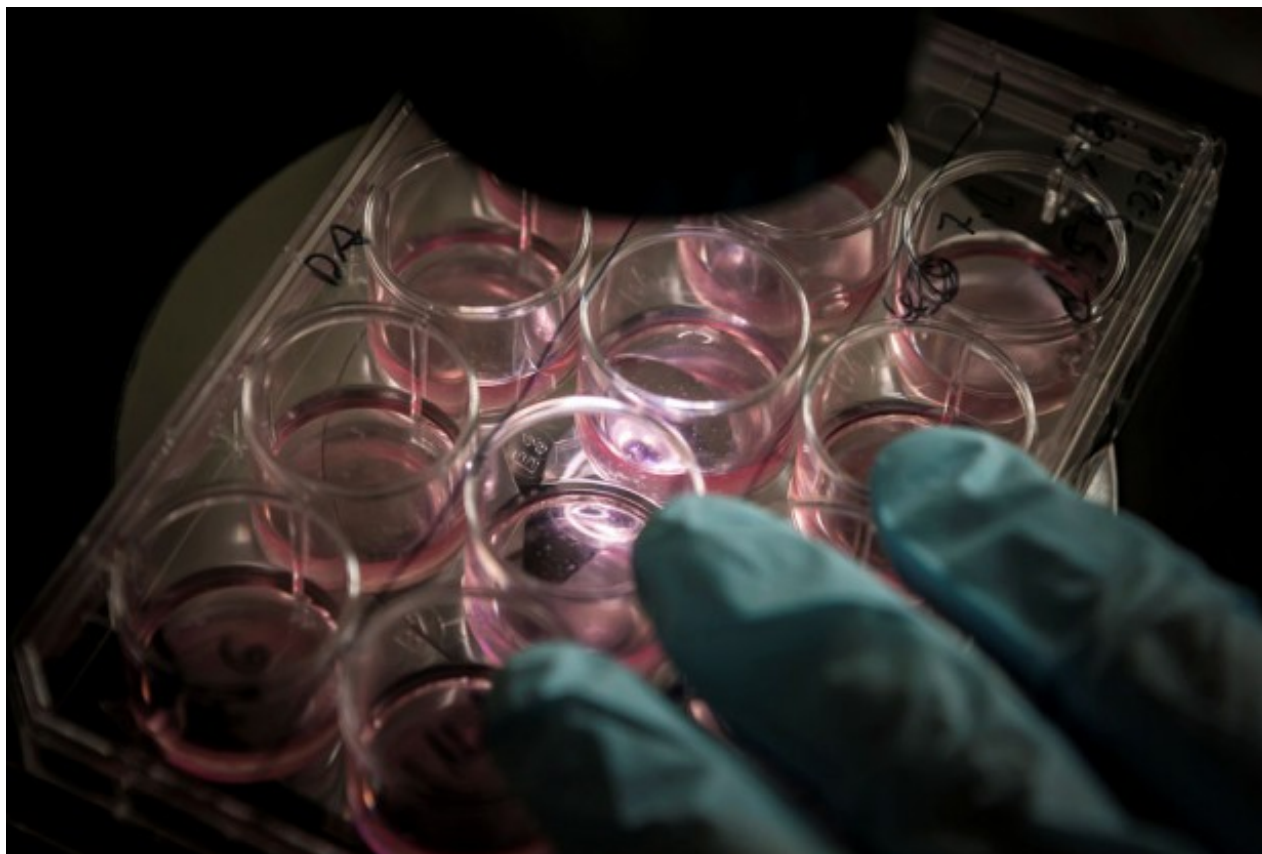


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Brett Smith for redOrbit.com – Your Universe Online

Scientists from the University of Granada in Spain have announced the development of [artificial skin](#), grown from umbilical cord [stem cells](#). The development could be a massive step forward for the treatment of burn victims or other patients who have suffered severe skin damage.

According to a report, published in the journal [Stem Cells Translational Medicine](#), the research team wrote that they were able to use stem cells derived from the umbilical cord, also known as Wharton stem cells, to generate oral-mucosa or epithelia, two types of tissues needed to treat skin injuries.

The researchers said their novel technique is an improvement on conventional methods that can take weeks to generate artificial skin. To grow the artificial tissue, the study team used a biomaterial made of [fibrin](#) and agarose that they had previously designed and developed.

“Creating this new type of skin using stem cells, which can be stored in tissue banks, means that it can be used instantly when injuries are caused, and which would bring the application of artificial skin forward many weeks,” said study author [Antonio Campos](#), professor of Histology at the University of Granada.

The development builds on previous work by the same team, which was heralded at the World Congress on Tissue Engineering held a few months ago in Seoul, South Korea. The celebrated work pointed to the potential for Wharton stem cells to be turned into epithelia cells.

Last month, a team of Italian scientists announced they had developed a similar method – but in reverse. According to their paper in the journal *Nature Communications*, the team took skin cells from a mouse and ‘reverse programmed’ them back into stem cells. These stem cells were then used to reduce damages to the nervous system of lab mice.

“Our discovery opens new therapeutic possibilities for [multiple sclerosis](#) patients because it might target the damage to [myelin](#) and nerves itself,” said study author [Gianvito Martino](#), from the San Raffaele Scientific Institute in Milan, Italy.

“This is an important step for stem cell therapeutics,” said [Dr. Timothy Coetzee](#), a lead researcher at the National MS Society who was not directly involved in the research. “The hope is that skin or other cells from individuals with MS could one day be used as a source for reparative stem cells, which could then be transplanted back into the patient without the complications of graft rejection.”

The Italian researchers said they were particularly focused on treating one of the symptoms of MS – the widespread destruction of the protective coating on nerve fibers called myelin.

After the scientists had reprogrammed the cells, they were infused into the spinal cord and promoted the recovery of mice with an MS-like condition. The novel stem cells were shown to reduce inflammation, protect intact myelin from further damage and foster the production of new myelin by the brain’s own cells.

“There is still a long way to go before reaching clinical applications but we are getting there,” Martino said. “We hope that our work will contribute to widen the therapeutic opportunities stem cells can offer to patients with multiple sclerosis.”

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