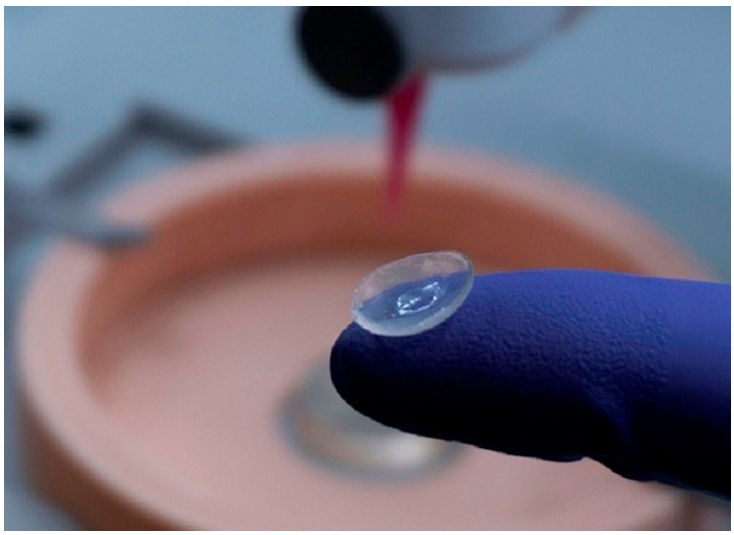
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Pandorum develops bio-engineered cornea tissue

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Pandorum is developing these bio-engineered cornea tissues in collaboration with the L.V. Prasad Eye Institute (LVPEI), one of the worldâ??s largest eye institutes that have served more than 26 million people.



Pandorum Technologies Pvt. Ltd., a tissue engineering and regenerative medicine startup company, announced the development of bio-engineered cornea tissue that can promote scarless healing of corneal wounds through a bio-inspired regenerative approach. Scientists at Pandorum have successfully formulated a novel hydrogel that can encapsulate and deliver corneal stem cells to the wound site, to stimulate scarless regeneration. Pandorum's cell-laden hydrogel can be directly applied in a minimally invasive manner as 'Liquid Cornea' to corneal wounds and perforations, and can also be 3D bio-printed as corneal lenticules for lamellar keratoplasty. This research study was presented at the prestigious annual meeting of the Association for Research in Vision and Ophthalmology (ARVO-2019) held in Vancouver, Canada.

Dr. Tuhin Bhowmick, the co-founder of Pandorum who holds a PhD from the Indian Institute of Science, and is an alumnus of European Molecular Biology Labs (EMBL), said, "Being able to bio-engineer critical tissues such as the human cornea is a significant milestone." The work is currently in the stage of animal studies, and the team is preparing to move towards pilot human studies in 2020.

"According to the World Health Organization, corneal disorders are one of the major causes of blindness worldwide. Though surgically replacing the opaque tissue with a clear corneal allograft is usually effective in improving vision, there is an acute shortage of cadaveric human corneas available for transplantation. In India alone, there are over a million people suffering from the bilateral loss of vision due to corneal disorders, and at least a few folds more from unilateral corneal blindness. At Pandorum, we are working to close this gap using bio-engineering approach- through stage-wise development of a platform, which is ultimately aimed to liberate us from the dependencies on human donor cornea," added Dr. Bhowmick.

Pandorum is developing these bio-engineered cornea tissues in collaboration with the L.V. Prasad Eye Institute (LVPEI), one of the world's largest eye institutes that have served more than 26 million people. Cornea surgeons Dr. Virender Sangwan and Dr. Sayan Basu, and scientist Dr. Vivek Singh, at LVPEI, have been playing a crucial role in the translation of this technology. Dr. Sangwan, a Shanti Swarup Bhatnagar awardee, renowned for the development of a novel surgical technique- Simple Limbal Epithelial Transplantation (SLET), was one of the early visionaries of this collaborative project. In his view, "Pandorum's Bio-engineered Cornea is a transformational technology and could lead to scarless healing of corneal injuries with rejection-free corneal graft. In a way, such platform technology addresses the need for the repair of corneal injuries and perforations, and also meeting the requirement for partial or total replacement of cornea."

Pre-clinical studies involving clinically relevant corneal wound models in rabbits are presently underway, led by Dr. Singh and Dr. Basu. According to Dr. Singh, a cornea and stem cell expert, "The technology can be a game changer in the field of regenerative treatment of corneal wounds after the safety and efficacy have been successfully established."

Pandorum's investors include Binny Bansal, Sachin Bansal, Sunil Munjal, T.K. Kurien, Indian Angel Network (IAN), 021 Capital, Karnataka Information Technology Venture Capital (KITVEN), Kotak Investment Advisors and 500 Startups.

"It is a proud moment for all of us to present our breakthrough innovation at the ARVO-2019 meeting," said Arun Chandru, co-founder of Pandorum Technologies. Founded in 1928, ARVO is the largest eye and vision research organization in the world that includes nearly 12,000 researchers and clinicians from over 75 countries. "Such innovation at global level has been possible due to the excellent government backed biotech startup ecosystem, the support of our investors and our exceptional multi-disciplinary team. Yes, translation of such living tissue-based therapies from lab to clinic is an arduous and expensive task involving comprehensive animal and human studies," added Mr. Chandru. "More importantly; we are excited about our potential to impact millions of lives."