Disease Profile

Sankara Nethralaya ties up with ISCO for stem cell-based treatment for corneal vision impairment
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Chennai-based Sankara Nethralaya and California-based biotechnology firm International Stem Cell Corporation (ISCO) have formed a collaboration to develop ISCO’s “CytoCor” stem cell-derived corneal tissue. The goal is to use CytoCor to treat corneal blindness and vision impairment.

Talking about the collaboration, professor Dr S Krishnakumar said, “Sankara Nethralaya is dedicated to the development and application of new state-of-the-art ophthalmic technologies. The need for high-volume, high-quality human corneal tissue is substantial, not only in India but across Asia and much of Europe. We appreciate the opportunity to join ISCO in their pursuit to create a new standard of care for the treatment of human corneal disease.”

Initially, Dr Krishnakumar and his team will be using the CytoCor tissue in preclinical studies to explore the ability of the tissue to withstand sutures and bio-compatible glues in order to validate the potential of the tissue for use in animal or human clinical trials.

Dr Geetha Krishnan Iyer, who is involved in the management of ocular surface disease at Sankara Nethralaya said, “The team at Sankara Nethralaya is pleased to collaborate with ISCO on stem cell derived corneal tissue. In vitro studies to evaluate safety and efficacy of the tissue, as well as surgical feasibility tests will be carried out, following which there could be clinical application in lamellar keratoplasty using the tissue. With improvements in surgical techniques over the past few years, the indications for anterior lamellar keratoplasty have expanded significantly. With high demand for donor corneal tissue for the same but limited availability, there is definitely scope for utilizing ISCO’s corneal tissue following relevant tests.”

“This is one more step in ISCO’s stated plan of building its portfolio of therapeutic agents through strategic alliances throughout the world,” said chairman, Ken Akridge. CytoCor consists of transparent human tissue derived from pluripotent human stem cells. These structures are produced in the laboratory and recent testing at Sankara Nethralaya and laboratories in the US has demonstrated a range of structural, biochemical and refractive properties characteristic of human cornea.

CytoCor may offer a first-in-class opportunity for high-quality, cost-efficient transplantation tissue for the 10 million people worldwide suffering from corneal vision impairment, particularly in India, rest of Asia, as well as in Europe. Standardized tissues derived from pluripotent stem cells, such as the CytoCor tissue, could eliminate the current problem that corneal tissue derived from donors may harbour diseases that could be transferred from the donor to the recipient. It may also provide a much needed alternative to the use of live and extracted animal eyes in the US$500 million market for safety testing of drugs, chemicals and consumer products.

Jeffrey Janusz, senior VP of Operations at ISCO, stated, “This collaboration with the excellent team of scientists and clinicians at Sankara Nethralaya has already proven to be productive. Sankara’s ophthalmology expertise and ISCO’s cell culture capabilities constitute a perfect match to perfect and advance CytoCor tissue towards future use in treating corneal disease and injuries.”