

# **PRESS RELEASE**

## **Path-breaking stem cell transplant for eye, using a nano-sheet**

*Japanese nanotech institute and Indian ophthalmologists jointly accomplish with NCRM*

*The next step towards a clinical translation to help corneal blindness patients*

Chennai, 28 Oct 2013: Using a nano-composite gel sheet developed by Kawamura Institute of Chemical Research, Japan, the scientists at NCRM and Ophthalmologists at Light Eye Hospital, Dharmapuri have successfully transplanted lab grown corneal endothelial precursor-stem cells to a bull's eye in a simple and reproducible methodology paving way for future transplantation of one cadaver-eye derived corneal stem cells multiplied and be applicable in more than one patient's eye. This work has been published in the journal "*Current Eye Research*" (<http://www.ncbi.nlm.nih.gov/pubmed/24144454>)

Earlier, lab grown corneal endothelial stem cells have been transplanted to animal eyes with simple injection and eye-fixed position for 36 Hrs which is practically not feasible in patients. This methodology using a chemically synthesized nano-composite sheet makes things safer without biological contamination and also easy to accomplish clinically without the need for an eye-down position, said Dr Parikumar, Consultant Ophthalmologist. Previously we had proven that it is possible to transport the cells without cool preservation using a polymer scaffold (<http://www.ijo.in/preprintarticle.asp?id=116457>) and now this successful feat of the animal-eye transplantation makes us closer to bed side he added.

This Press release is available online at: <http://www.ncrm.org/media/pr28oct13.htm>

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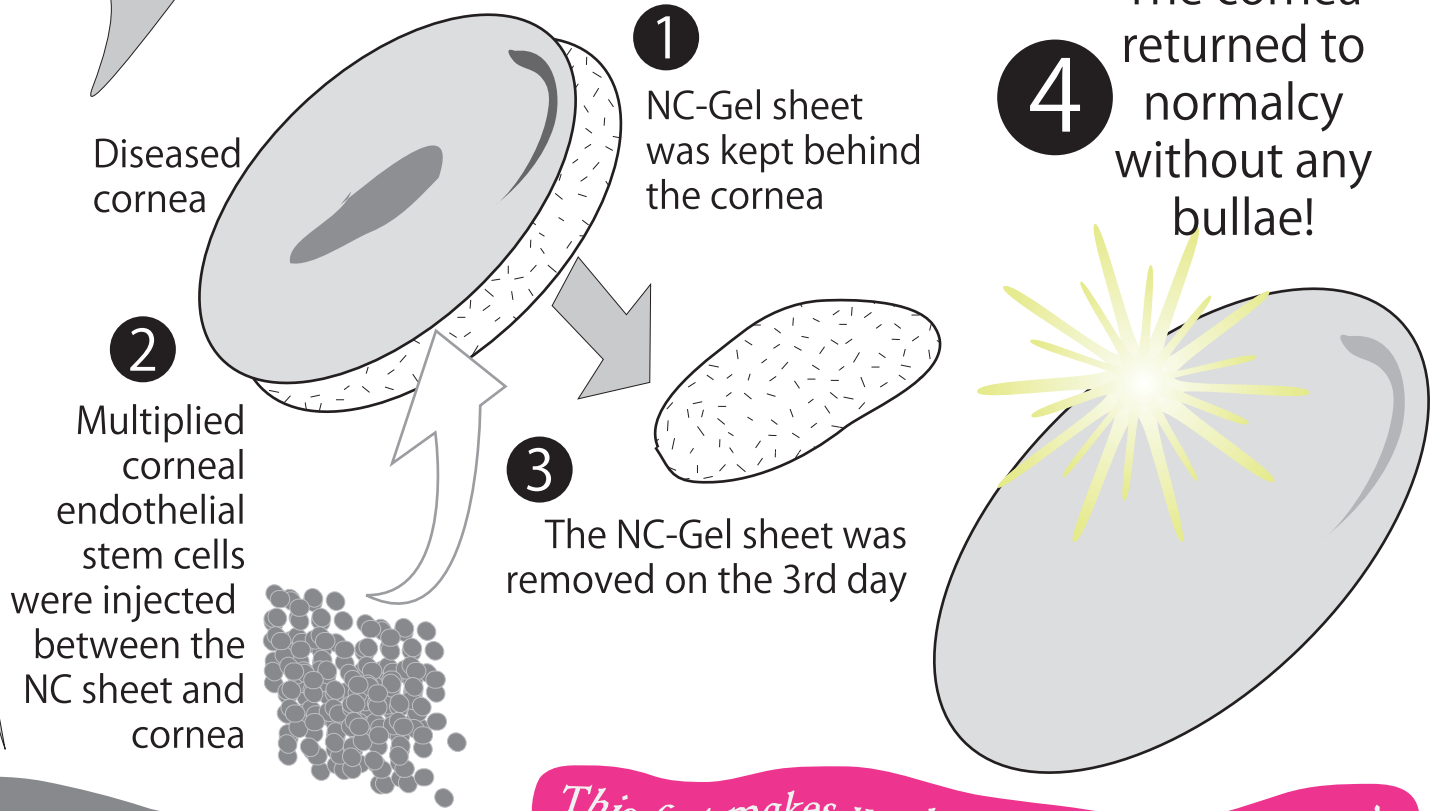
# Japanese nanotech accomplishment by KICR & NCRM

The **SECOND** successful step towards a breakthrough possibility of  
“An-Eye-for-Eyes Mission ([www.cesbank.org](http://www.cesbank.org))

## How, was the transplantation\* accomplished?

Earlier attempts to transplant the multiplied cells required an “eye-down” position for 36 hrs when tried in rabbits, which is impossible for patients

*\* Published in  
Cur.Eye Res., Oct 2013*



*This was the FIRST step\* accomplished*

*This feat makes us closer to clinical translation!*

Novelty of NCRMs work started in 2004

From the donor corneas, that were not usable for transplant, the endothelium alone was separated as a layer, packed in the nano-polymer cocktail and sent to NCRM lab with no cool preservation;  
(Even if usable, these corneas could be for only one patient eye)

multi-fold expanded corneal endothelial stem cells from one donor-eye usable in more than one-eye

The corneal endothelium, transported in the NCRM concocted Nanopolymer cocktail yielded viable cells which could be multiplied and proven to be good quality corneal endothelial stem cells usable for transplantation

*\*published in Ind. J. Ophthal Sep, 2013*