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Cornea Stem Cells Proliferate More When Cultured In Low Oxygen
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TOKYO (Nikkei)--Stem cells for repair of damaged corneas can be grown in greater numbers if cultured in a low-oxygen environment, a research team at Keio University has determined.

Research is progressing on the use of stem cells to repair damaged corneas. The strategy involves culturing the cells so that they differentiate into corneal epithelium, then transplanting this tissue into the patient. The problem is that stem cells obtained from other people can trigger a rejection response. Using the patient's own stem cells is less risky, but obtaining them imposes a burden on him or her.

The fact that twice as many corneal stem cells can be grown if cultured in a low-oxygen environment means that less tissue needs to be obtained from the patient.

The university group cultured the stem cells in a 2%-oxygen environment rather than the typical 20% environment. This yielded twice as many stem cells after two weeks in culture -- and by modifying the conditions, the researchers believe that it will be possible to obtain triple the number.

And growing the cells in a low-oxygen environment yielded a larger proportion of immature stem cells, which have a better chance of differentiating into corneal epithelium.

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