Our ocular tissue engineering laboratory runs 7 days a week, 365 days a year.

The baby cells need constant feeding. Temperature and oxygen levels can't change. If just one bacteria or fungal pore lands on a cell culture dish, many months of work are wasted.

Each cell in your body carries your entire genetic blueprint. Here at the Lions Eye Institute we are using skin cells to make copies of a patient's retina cells which have the same genetic errors that caused their inherited eye disease. Using this patient disease modelling pipeline, researchers at the Lions Eye Institute are finding new ways to treat the most common forms of inherited retinal diseases.

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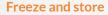
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Place in nutrient-rich liquid

GROWING A RETINAL CELL

WHAT'S INVOLVED IN

Small > 1mm pieces of the skin are placed in a culture dish with a nutrient-rich liquid.



After there are 4-10 million skin cells, they are frozen and stored.

Quality control checks

Quality control checks confirm the skin cells have turned fully into stem cells.

Potential new treatments

Potential new treatments for retinal disease can be identified and tested safely.

Collect skin

First, skin is collected from a patient's arm that contains their genetic blueprint.

Keep at body temperature

The dish is kept at body temperature in an incubator so the cells grow the way they would to heal a cut.

Convert into stem cells

Converting the skin cells into stem cells takes more continuous care. Without daily feeding, they won't survive.

New retina cells

Using a method pioneered at the Lions Eye Institute, stem cells are cultured with nutrients and growth factors in tiny clusters that become all the major cell types of a patient's own retina. They can even sense light.



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