



EMERGING TREATMENTS:

A Spectrum of Approaches

What if we could protect vision before it is lost—or restore some vision after it is gone? Researchers are exploring many paths to treat eye diseases. Some aim to address its cause or protect remaining cells. Others aim to replace lost cells or restore some vision. Here are four emerging areas of research.

Approach	What Is It?	Research Focus	Role
Cell-Based Therapy	• Replaces cells that have been lost or damaged or helps surviving cells work better. • Often uses stem cells that can become the specialized cells needed for vision. • Some approaches may work even after many retinal cells have been lost.	Inherited retinal diseases (IRDs), age-related macular degeneration (AMD), glaucoma and other eye diseases.	Replace
Gene Therapy	• Corrects, replaces or makes up for faulty genes. • Requires some functioning photoreceptors (light-sensing cells) to remain. • Gene therapy can also be used to deliver other treatments.	Genetic eye diseases, like IRDs. Luxturna is the first approved gene therapy for an IRD in Canada. Gene-based approaches are also being studied for AMD, glaucoma and other eye diseases.	Prevent
Neuroprotection	• Uses drugs or other treatments to help retinal cells survive and stay healthy. • May slow vision loss by protecting the cells that remain, rather than treating the underlying cause of the disease.	IRDs, AMD, glaucoma and other eye diseases.	Protect
Optogenetics & Visual Prostheses	• Finds new ways to create visual signals when the cells that normally detect light have been lost. • Optogenetics: aims to make different types of retinal cells respond to light. • Visual prostheses/bionic eye: use electronic devices to send visual signals through the retina, brain or other parts of the visual system. • Being explored for people with advanced vision loss.	Optogenetics: IRDs and AMD. Visual prostheses: IRDs, AMD, glaucoma and other eye diseases	Restore

Important to know: These approaches are still being studied, and most are not yet approved treatments. Whether an approach could work for someone depends on their eye disease, what is causing it, how much vision has been affected and other factors. Speak with your doctor to learn more about what may be available to you now or in the future.