

## NOVEL THERAPIES FOR RETINITIS PIGMENTOSA: CLINICAL OUTCOMES COMPARISON IN ADVANCED RETINAL DEGENERATION

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**Introduction.** Retinitis pigmentosa (RP) is an inherited retinal degeneration that leads to progressive vision loss and blindness. Recent clinical trials have explored gene-independent and device-based therapies to restore vision in late-stage RP. Among them, MCO-010 optogenetic therapy, gene-specific therapy (Luxturna), and retinal prosthetics (Argus II) have demonstrated measurable improvements in functional vision.

**Research Objective.** To compare clinical outcomes from key interventional trials for RP in order to evaluate the therapeutic potential and applicability of these approaches in advanced disease stages.

**Materials and Methods.** A comparative analysis was conducted using reported clinical trial data: the RESTORE Phase 2b trial for MCO-010, Phase 3 trial of Luxturna (voretigene neparvovec), and long-term outcome data from Argus II retinal prosthesis studies. Metrics assessed included best-corrected visual acuity (BCVA) gains, mobility test performance, adverse events, and treatment accessibility.

**Research Results.** MCO-010 treatment resulted in a BCVA gain of 0.54 logMAR (~5 lines) at 76 weeks in 56% of patients. Luxturna showed functional gains in 65% of patients in night navigation tasks but is limited to biallelic RPE65 mutations. Argus II prosthesis enabled low-resolution vision but required invasive hardware and showed high complication rates. MCO-010, by contrast, achieved gene-independent vision restoration with fewer adverse events and no need for external devices.

**Conclusion.** MCO-010 represents a promising gene-agnostic treatment option for advanced RP, showing comparable or superior functional outcomes to Luxturna and Argus II in clinical trials. This analysis supports further research and potential clinical application of optogenetic therapy in patients with profound vision loss.