**Abstract**

**Purpose:** Corneal and retinal fibrosis lead to vision loss following ocular injury (e.g., corneal damage and retinal detachment) or as a result of progressive disease. miR-29b is a potent anti-fibrotic microRNA that inhibits the expression of collagens and other extracellular matrix molecules. miR-29 is expressed at 6h after mild alkali burn.

**Methods:** An oligonucleotide mimic of miR-29b, MRG-201, was administered topically to the rat cornea in the context of an alkali burn, via intravitreal injection in naïve rats and in a rabbit model of proliferative vitreoretinopathy (PVR), or via active pharmacodynamic activity was assessed by measuring repression of miR-29 target gene expression in cells or tissue using qRT-PCR.

**Results:** MRG-201 inhibited expression of multiple collagens in both primary RPE cells and iPS-derived RPE cells in the alkali burn model. MRG-201 represents a potential new therapeutic for prevention of both corneal and retinal fibrosis. Additional PK/PD/efficacy studies are currently underway.

**Conclusions:** MRG-201 is taken up into the relevant cell types in vivo and in vitro. MRG-201 mimics may function as effective therapeutics to inhibit either corneal or retinal fibrosis. Additional PK/PD/efficacy studies are currently underway.

**Disclosures:** All authors are employees and stock/option holders of miRagen Therapeutics, Inc.