ETS FACTORS AS THERAPEUTIC TARGETS IN NEOVASCULAR EYE DISEASE
PROJECT TEAM

Courtney Griffin, Ph.D.
Member and Scott Zarrow Chair in Biomedical Research in the OMRF Cardiovascular Biology Research Program

Chris Schafer, Ph.D.
Research Assistant Member in the Griffin lab
Diabetic Retinopathy (DR) and Retinopathy of Prematurity (RoP) are among the leading causes of visual loss in adults and children respectively.

DR and RoP are characterized by overgrowth of retinal blood vessels leading to formation of “neovascular tufts” which impair vision.

Current standard of care for ocular neovascular diseases include anti-VEGF treatments and laser ablation of neovascular tufts which can be ineffective and risky.

ERG, an ETS family transcription factor, is naturally downregulated in regressing hyaloid vessels.
The ETS inhibitor YK-4-279 can be used to target ERG and promote vessel regression for the treatment of ocular neovascular diseases.

YK-4-279 prevents binding of ETS fusion proteins to RNA Helicase A (RHA) and inhibits transcription of oncogenic ETS target genes.
YK-4-279 reduces neovascularization and avascular areas following oxygen-induced retinopathy (OIR)
FINDINGS

**Vehicle**

**YK-4-279**

Adult Mouse Retinas

Quantification of vascular length and branchpoints

YK-4-279 does not have off-target effects on healthy vessels
SUMMARY

- YK-4-279, an ETS inhibitor, selectively regresses slow-flow neovascular tufts in the OIR retina but spares healthy vessels with normal blood flow.

- ETS inhibitors could be used to regress pathological vessels in humans with RoP, DR, age-associated macular degeneration or venous malformations.