

Treatment of diabetic retinopathy with microRNA-let-7b inhibitor

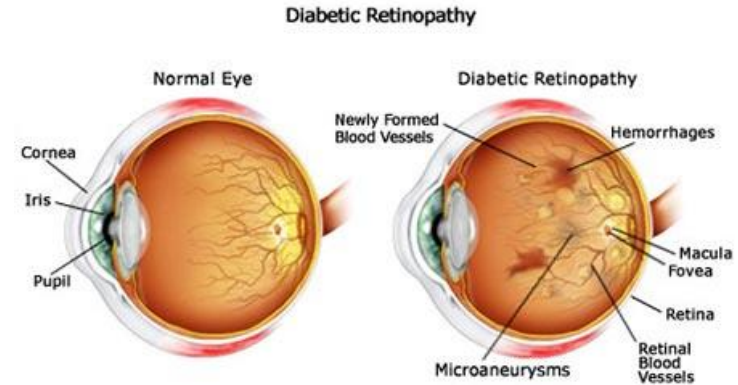
Inventors: Paul Yates and Bijan Dey



LICENSING & VENTURES GROUP

Diabetic retinopathy

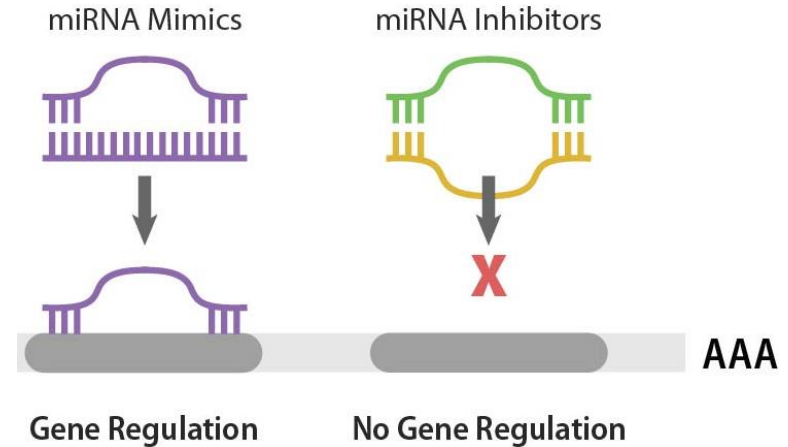
- Diabetic retinopathy (DR) is the leading cause of preventable blindness in people aged 20-74 in developed countries
- Leaves ~24,000 patients blind each year
- Often caused by an underlying microvascular disease
- Clinical Problem:
 - Current surgical and pharmacologic treatments are only effective at managing complications of DR, but do not prevent against or repair existing damage
 - DR patients require repeated treatments that only prevent visual deterioration in half of the cases



miRNA inhibitors

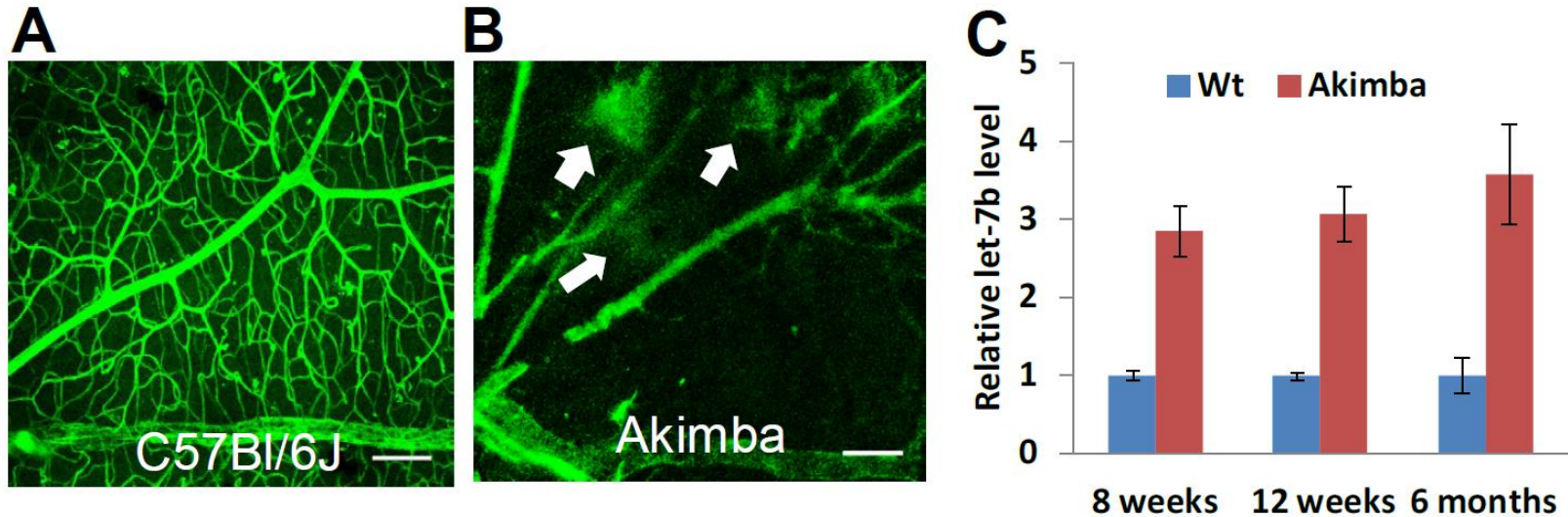
Solution: Researchers at the University of Virginia have shown that delivery of an inhibitor of miRNA let-7b into the eye improves retinal vasculature stability and prevents the loss of retinal blood vessels.

- miRNA inhibitors promising for treating microvascular diseases
 - Small molecules
 - Easy to deliver
 - Well-established safety profile
 - Currently in pre-clinical and clinical trials for several disease applications



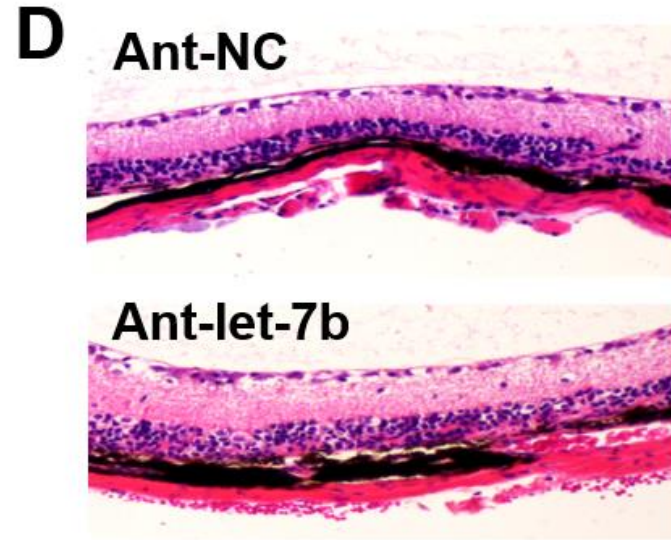
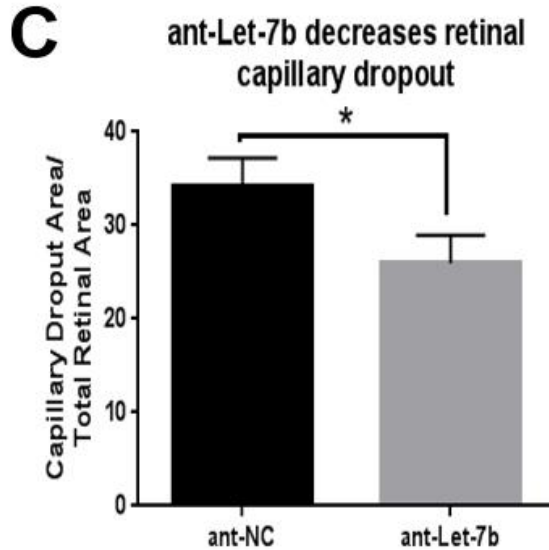
Applied Biological Materials (abm), Inc.

let-7b expression in DR



let-7b expression is upregulated in the retina during DR of Akima mice, demonstrating a let-7b plays a key role in DR progression.

Inhibition of let-7b protects the diabetic retina



Intravitreal injection of let-7b antagomiR in Akima eye at 10 weeks protects retinal cells and vasculature, indicating let-7b as a therapeutic option for advanced stage DR.

Intellectual Property

- UVA Tech ID: YATES-ANTAGOM
 - Title: Compositions and methods for treating diabetic retinopathy
 - International Application PCT/US2016/055812 filed on Oct. 6, 2016
 - U.S.15/765,736
 - EP 16854346.0