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

Inventors: Paul Yates and Bijan Dey
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 pharmalogic 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
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
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  – EP 16854346.0