Drug Discovery & Development

Mouse Model of Diabetes

WARF: P04228US

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in a line of TSP1 negative mice that provide an animal model for diabetic retinopathy.

Overview

There is a lack of effective and non-destructive treatments for diabetic retinopathy, a major cause of blindness in the United States. Thrombospondin1 (TSP1), a matricellular protein that inhibits angiogenesis *in vivo* and is essential for proper retinal vascular development, is dramatically down-regulated in ocular samples from diabetic rats.

The Invention

Based on this observation, UW-Madison researchers developed a line of TSP1 negative mice that provide an animal model for diabetic retinopathy. They crossed Akita/+ mice that develop diabetes between three and four weeks of age with TSP1 -/- mice. The resulting Akita/+ TSP1 -/- mice develop diabetes-associated vasculopathies of greater severity and at a much earlier stage of diabetes than the Akita/+ mice. These mice also show a dramatic increase in acellular capillaries and saccular microaneurysms, which are some of the early signs of diabetic retinopathy.

Applications

- Testing the effects of new compounds for treating diabetic retinopathy
- Studying the many vasculopathies associated with diabetes

Key Benefits

- Mice become useful models by six months of age, avoiding issues with drug testing in aged mice
- Mice may develop proliferative retinopathy (the final stage of diabetic retinopathy), which has never been demonstrated in rodent models of diabetes

Additional Information

For More Information About the Inventors

- Nader Sheibani-Karkhaneh

Tech Fields

- Drug Discovery & Development : Disease models

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