Blocking protein may prevent blinding disease

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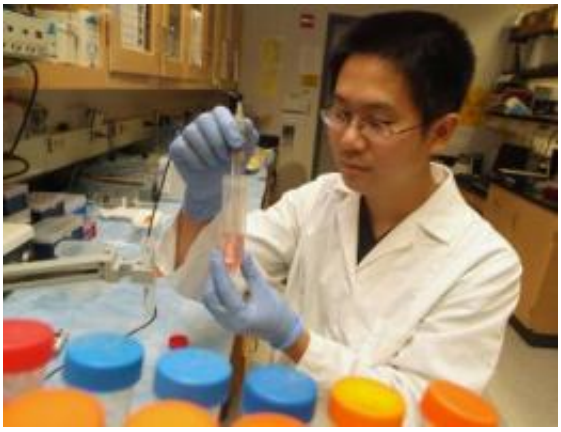

Dr. Wenbo Zhang, a senior postdoctoral fellow in the MCG Vascular Biology Center, is dissecting the relationship of interleukin-6 and one of the complications, diabetic retinopathy, and recently received a three-year, $270,000 advanced postdoctoral fellowship from the Juvenile Diabetes Research Foundation International to see if blocking this pro-inflammatory protein can target a new treatment for the potentially blinding disease. Credit: Medical College of Georgia

Blocking a protein that battles infection may help thwart a common cause of vision loss in chronic diseases such as diabetes, Medical College of Georgia researchers say.

The protein, interleukin-6, prompts inflammation - a healthy and sometimes lifesaving defense against invaders such as bacteria and

viruses. But the protein's action "is bad in diseases like diabetes because the inflammation is chronic," says Dr. Wenbo Zhang, a senior postdoctoral fellow in the MCG Vascular Biology Center.

The key insult in diabetes is excess glucose, which causes inflammation and unleashes a cascade of complications. Dr. Zhang is dissecting the relationship of interleukin-6 and one of the complications, diabetic retinopathy, and recently received a three-year, $270,000 advanced postdoctoral fellowship from the Juvenile Diabetes Research Foundation International to see if blocking this pro-inflammatory protein can target a new treatment for the potentially blinding disease.

"Diabetic retinopathy is the leading cause of blindness in working-age adults, so if we can find something to prevent it, slow it down or even cure it, that would be a good thing," says Dr. Zhang, who working with Dr. Ruth Caldwell, a cell biologist in the MCG Vascular Biology Center and Charlie Norwood Veterans Affairs Medical Center.

Dr. Zhang will determine whether increased levels of interleukin-6 in the vitreous, a gel-like substance in the center of the eye, will prompt small blood vessels in the retina to leak. Fluid then collects in the retina, causing swelling and blurred vision. Unchecked, this can lead to proliferation of new blood vessels, which further obstruct vision.

"Blocking interleukin-6 may stop the small blood vessels from leaking," Dr. Zhang says. "Interleukin-6 receptor neutralizing antibody could be a new therapeutic approach for treating diabetic retinopathy. It is already in clinical trial for the treatment of rheumatoid arthritis and may provide a possible immediate benefit for diabetic retinopathy patients."

Says Dr. Caldwell, "If you can control the blood glucose levels, you can reduce the risk of diabetic retinopathy. Ideally, you would try to control the levels perfectly, but this is nearly impossible to achieve so other

therapies are needed, and this would be one of them."

Source: Medical College of Georgia