Researchers develop first drug using synthetic protein to treat incurable eye diseases

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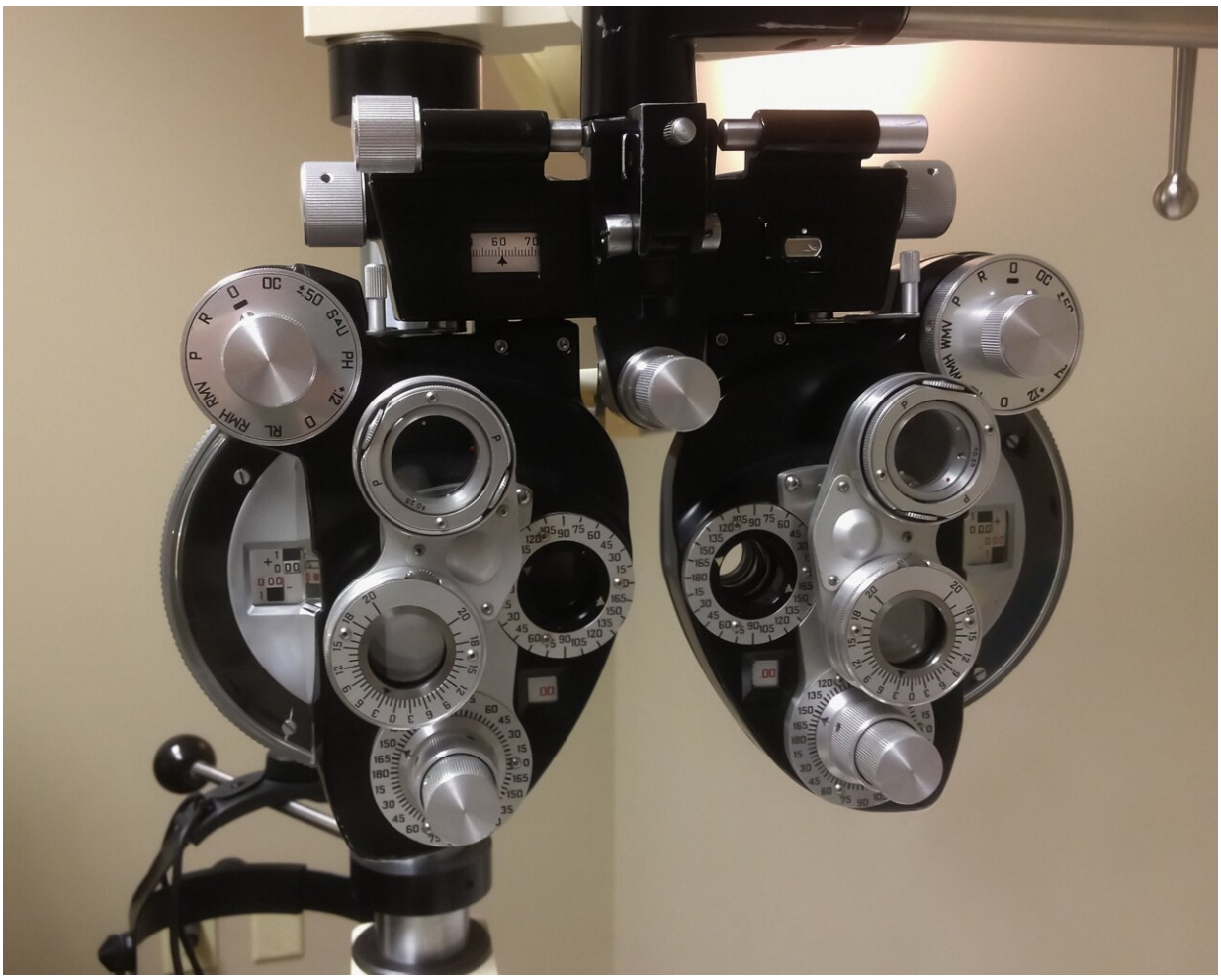

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Researchers have developed a novel synthetic protein to treat macular degeneration and other incurable eye diseases that lead to blindness in millions of people. It is the first drug of its kind and is currently in human trials.

Neovascular age-related macular degeneration (AMD) affects more than 200 million people worldwide. In addition, millions more with type-1 or type-2 diabetes are at risk of developing diabetic macular edema (DME). Both diseases currently have no cure.

The novel antibody activates the Wnt-signaling network, a group of proteins that pass information into a cell through surface receptors such as frizzled receptors (FZD). It improves the blood vessel integrity in the eye and thereby blocks fluid buildup in the retina and may help improve sight in those afflicted with AMD or DME.

The drug originated in the lab of Dr. Sachdev Sidhu, entrepreneur in residence researcher at the University of Waterloo's School of Pharmacy. He led its development with AntlerA Therapeutics Inc., where he is a scientific co-founder, in partnership with EyeBio.

"While the biology of the Wnt/FZD pathway in eye disease has been studied for many years, we are the first group to develop a drug that activates this pathway in patients, leading to a treatment for these diseases," Sidhu said. "Our synthetically derived proteins can act like the natural proteins and we knew if we figured this out, we could open many other doors to treat other diseases."

The researchers are now developing drugs that target other branches of the Wnt/FZD system and could treat other common diseases that affect people across the world, including diseases of the lungs, liver, bones and intestines.

"Basic science and drug development are closely linked due to the advancement of technology and its ability to translate ideas rapidly into therapies for patients," Sidhu said. "It is essential to have entrepreneurs involved in both innovative science and business for ideas to advance smoothly into products."

The research team that developed the drug alongside Sidhu includes Dr. Jarrett Adams and Dr. Levi Blazer, engineering and science research associates at Waterloo.

The team is confident this treatment will change the drug development landscape, as it is the first member of an entirely new class of drugs that can actually repair organ damage caused by degenerative diseases, rather than merely preventing further damage, as is the case with most current drugs.

Provided by University of Waterloo

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