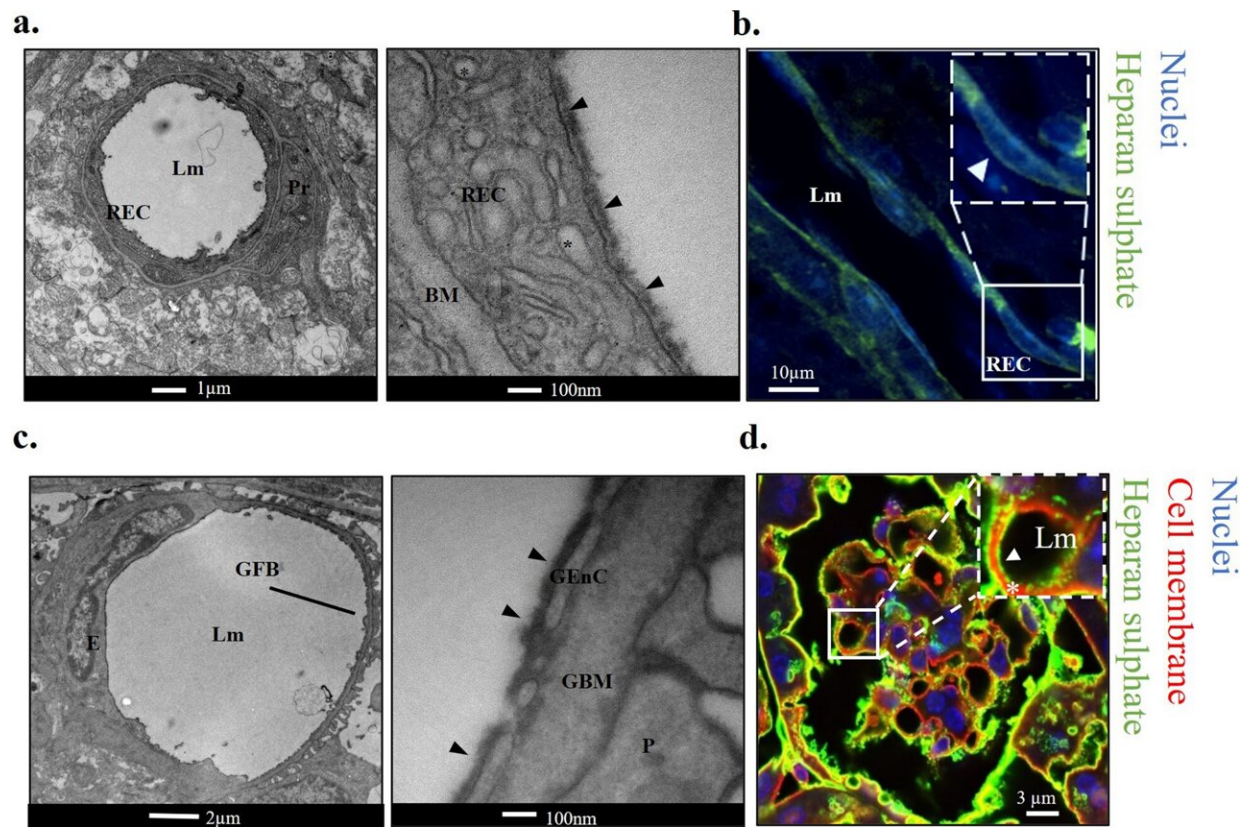


# New drug could prevent diabetic eye and kidney disease in people with diabetes

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HS forms part of the eGlx barrier in retinal and glomerular microvasculature.  
Credit: *Cardiovascular Diabetology* (2024). DOI: 10.1186/s12933-024-02133-1

New research has shown a novel type of inhibitor drug could prevent microvascular diabetic complications, such as diabetic eye and kidney

disease. The University of Bristol-led research is published in [\*Cardiovascular Diabetology\*](#).

Diabetes, a disease that results in uncontrolled blood glucose levels, is estimated to affect one in 11 adults worldwide. Even when managed, this common disease can result in life-altering complications, impacting the small blood vessels of the body, known as the microvasculature.

While treatments are available for patients who develop microvascular complications, such as diabetic eye and kidney disease, these treatments do not fully delay progression. Eventually, they may result in blindness and [kidney failure](#) in patients.

The research team was interested in the protective lining of all blood vessels, called the glycocalyx. This lining is known to be damaged in diabetes. The researchers showed in two mouse models that by preventing damage to this protective layer, the development of diabetic eye and [kidney disease](#) could be stopped.

This is achieved using a "heparanase inhibitor." Heparanase acts like a pair of scissors, damaging the glycocalyx lining. Heparanase inhibitors stop this damage from happening. The research team has developed a novel class of these drugs, which could be successfully developed as a medication to treat patients.

Dr. Rebecca Foster, associate professor of microvascular medicine in the Bristol Medical School: Translational Health Sciences (THS), and senior author of the study, said, "Our findings are exciting as we have shown that one type of medication might be able to prevent different diabetic complications, which is a global health problem for adults living with diabetes."

Dr. Monica Gamez, research associate in the Bristol Medical School

(THS) and corresponding author, added, "We are currently conducting research to advance our novel class of inhibitors to clinical use. With over 8% of the global adult population currently living with [diabetes](#), we hope patients could benefit from our findings in the future."

**More information:** Monica Gamez et al, Heparanase inhibition as a systemic approach to protect the endothelial glycocalyx and prevent microvascular complications in diabetes, *Cardiovascular Diabetology* (2024). [DOI: 10.1186/s12933-024-02133-1](https://doi.org/10.1186/s12933-024-02133-1)

Provided by University of Bristol

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