

Science pic: Vision of health ^[1]

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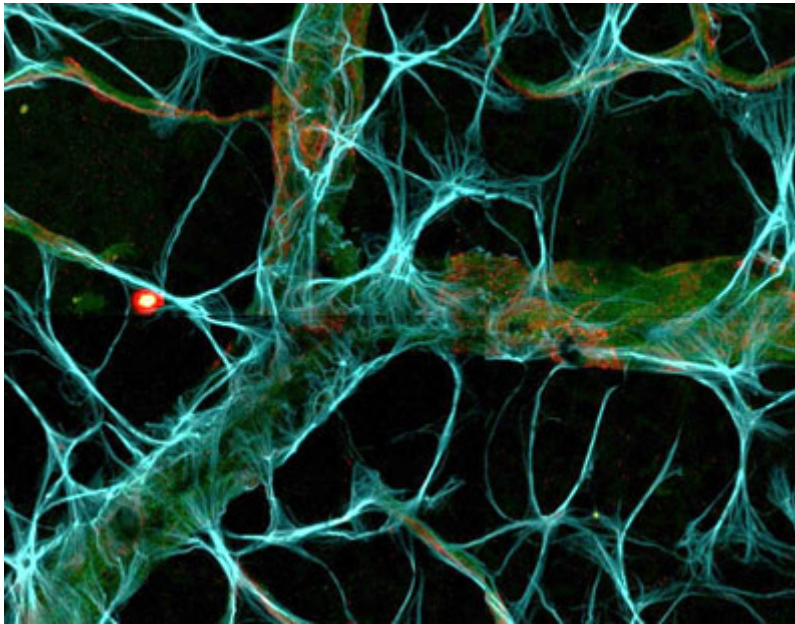


Image: Amy Jensen/Novartis

There's a network of blood vessels in the back of your eye, an intricate web of capillaries that nourishes and protects the retina. Changes in this network are cause for concern.

"Many eye diseases involve the growth of new, abnormal blood vessels in the retina," notes Amy Jensen, a postdoctoral researcher in NIBR's Ophthalmology group.

When new or existing blood vessels leak, they swell the retina and eventually lead to a blinding scar. Jensen and her colleagues examine how the blood-retinal barrier—made up of these vessels and their supporting cells—develops and how it degrades in age-related macular degeneration and diabetic retinopathy.

In this image of a healthy mouse blood-retinal barrier, blood vessels are shown in green. Pericytes, shown in red, wrap around the blood vessels, helping to maintain vascular integrity and modulate blood flow. (The red-and-white dot in center left is an artifact.) The string-like blue cells are astrocytes that interact with retinal neurons and give the blood vessels feedback about metabolic demands.

In diabetic retinopathy, the leading cause of blindness among people from 20 to 64 years of age, pericytes are lost and astrocytes are altered in ways that aren't fully understood. Studying the mechanisms at work might help researchers to develop novel treatments for the disease.

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