

## The chemistry of vision: Reviving eyes from organ donors offers hope for blindness cures

Researchers have discovered a way to revive eyes from organ donors after death, an advance that opens doors to progress against [age-related macular degeneration](#), glaucoma and other major causes of blindness.

The accomplishment, which many experts hadn't thought possible, gives scientists the ability for the first time to conduct experiments on a functioning human retina, potentially unlocking a treasure trove of new information about the chemistry of vision and what goes wrong in the intricate network of retinal cells when people start losing their sight.

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The achievement also may help advance prospects for eye transplants, though Dr. Hanneken cautioned that such potential treatments are many years away. Doctors for decades have been able to transplant corneas from donor eyes, but that outer layer of the eye that helps with focus doesn't have a blood supply and isn't directly connected to retinal neurons that send sight signals to the brain. Getting transplanted eyes or retinal tissue to communicate with the brain is a daunting challenge.

Researchers for decades have relied heavily on mouse studies to help understand the basis of human eye diseases. But mice don't see in color. "They don't even have a macula, and they don't get macular degeneration," said Dr. Hanneken, who is also a retinal surgeon at Scripps Memorial Hospital, La Jolla. "You want a model that mimics the human disease."

That was the motivation behind Dr. Hanneken's six-year quest to bring dead eyes back to life. Trying to revive dead nerve cells challenged a basic belief that the death of neurons is irreversible.

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