Gene therapy could restore color vision for people who see the world in shades of gray

In a small trial in Germany, an experimental gene therapy improved the vision of nine people with total color blindness, also known as known as achromatopsia. After receiving the gene therapy, the eight men and one woman in the trial could see some color, as well as more letters on a vision chart.

Developed by researchers at the Ludwig Maximilian University of Munich and University Hospital Tübingen, the therapy, which involves a genetically engineered virus, is designed to correct a defect in a gene known as CNGA3. Mutations in this gene are responsible for about one-third of all cases of total color blindness.

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The German researchers think the therapy will be more effective if patients receive it in childhood, when the brain is still able to rewire itself. The parts of the brain that are responsible for processing vision lose their plasticity — the ability to make new neural connections — as a person ages. But people with total color blindness have never never learned to process color, so their brains might need some plasticity in order to process that information. The researchers plan to enroll children in the next phase of the trial.

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