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Germany's Retina Implant shows the visually impaired a ray of light

Thomas Lau

Retina Implant AG has developed an electronic chip that is implanted in the eye under the retina and could restore partial vision for the blind – and is now looking for funding from investors to take the product to the market next year.



Eberhart Zrenner,
founder of Retina
Implant.

The first two implants were inserted in October 2005 in two patients who were completely blind. Several weeks after their operations the two managed to correctly identify the location and direction of spots of light and even patterns.

"Patients who were previously blind have been able to identify electrical stimulus patterns composed of identical dots," said Walter-G. Wrobel, chairman of the Retina Implant's management board. With the aid of the chip the patients could now recognise "faces and big letters".

The retinal implants are designed for patients with retinitis pigmentosa, a hereditary condition that can lead to complete blindness. The implant consists of photosensors that control an electronic circuit so that, depending on brightness, the nerve cells in the retina are stimulated to varying degrees of intensity. These send impulses via the optic nerve to the brain.

The company's study has now shown for the first time that the brain can use these signals to generate an image. Direct stimulation is enabled by a 4 x 4-array of electrodes located at the tip of the implant. Electrical current is supplied via the eye's sclera with the aid of conductors in a thin cable under the skin that leads to a radio-controlled, battery-operated receiver.

According to the surgeons who performed the surgery, there are no issues regarding local tissue tolerance and no other undesired side effects were noted. Operations are to be performed on six further patients in the spring.

Reutlingen-based Retina Implant AG was founded by Eberhart Zrenner, a professor at the University Hospital Tübingen, in March 2003. He is currently chairman of the company's supervisory board.

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