

Australian Advanced Bionic Eye Within Sight

Melbourne researchers will lead a major Australian effort to build an advanced retinal prosthesis, or bionic eye. The Bionic Vision Australia partnership was announced in Melbourne on 13 November. This partnership brings together for the first time since the development of the bionic ear in Melbourne in the 1970's, a team of world class researchers across the different disciplines necessary to build a safe and functioning retinal implant. The partners comprise the University of Melbourne, the Bionic Ear Institute, Centre for Eye Research Australia, the Victoria Research Laboratory of NICTA and the University of New South Wales.

Bionic Vision Australia will deliver a first advanced prototype implant with 98 electrodes that delivers significant benefits for patients who suffer from severe mobility and light perception issues. This should be available for the first human implant in 2011 and is based on 10 years of research by the Australian Vision Prosthesis Group at the University of New South Wales.

A second prototype with 1024 electrodes will also be developed that will deliver improved quality of life for patients where image perception is the main concern. This will restore eyesight for the patient so they can read small text and recognise familiar faces. This device should be available for the first human implant in 2013 and is based on world-leading wireless research undertaken at the Victoria Research Laboratory of NICTA.

Clinical trials for the project will be conducted at the Royal Victorian Eye and Ear Hospital in Melbourne.

The bionic eye will work as follows: a microchip is implanted in the retina, the light sensing part of the rear of the eye. A camera attached to a pair of spectacles receives images which are transmitted via high frequency radio waves to the microchip implanted in the retina. This data is then converted into electrical impulses which, through the aid of electrodes, stimulate cells that connect to the optic nerve. The electrical impulses are then interpreted by the brain as an image.

The official launch of Bionic Vision Australia was attended by over 70 people, with representatives from the partnership members, the Victorian and New South Wales state governments, and representatives from industry and the media present. Bionic Vision Australia Chairman, Professor Emeritus David Penington, AC, opened the occasion with his welcoming comments. Special guest was Dr Kevin Murfitt, Chairman of Vision Australia, who provided a personal account of what impact an advanced bionic eye would have on people suffering from visual impairment.

This project is a very good example of why multidisciplinary research offers new opportunities to tackle major health issues and why Melbourne offers many strengths in supporting such research. The ICT for Life Sciences Forum will watch the developments in this project and inform you of new developments.

For further information, visit the [Bionic Vision Australia website](#).