Research and Industry Updates

All_Aboard app assists blind and visually impaired commuters in finding bus stops

Researchers at the Schepens Eye Research Insitute of Massachusetts Eye and Ear have developed a micro-navigation smartphone app to help those who are blind or visually impaired in finding their bus stops. Current GPS systems use macro-navigation for planning routes using public transportation. However micro-navigation such as finding the exact locations of bus stops and destinations remains an issue for those who are BVI, as GPS-based localisation for this is less accurate. The team at Schepens Eye Research Insitute of Massachusetts Eye and Ear developed a mobile app called All_Aboard, designed to be used along with mainstream GPS systems and focuses on improving micro-navigation. When a GPS indicates that a BVI user is nearing their destination, that is when All_Aboard should be opened. The app uses the phone's camera to detect street signs from 30 to 50 feet away. It then uses auditory cues to direct the user toward their destination, with the frequency of the sounds changing as they approach the endpoint.

In a study of the app 24 BVI individuals use All_Aboard along with Google Maps to navigate a set route with 10 bus stops at an urban and suburban site. The Mass Eye and Ear researchers found that in both urban and suburban locations, All_Aboard had a success rate of 93 percent, whereas Google Maps had a 52 percent success rate. The All_Aboard app evaluated in this study is available for free download

Printable Retina Technology Promises to Restore Colour Vision for AMD Patients

Researchers at the University of Surrey have announced the development of a technology to combat sight loss whereby tiny solar panels are implanted in the eye. The technology makes use of high-performance organic semiconductors with the aim of restoring colour vision in individuals affected by visual impairments. Dr. Leslie Askew, a postdoctoral researcher involved in the study, shared insights into the mechanism behind this breakthrough. "Just like solar panels convert light to electricity, our flexible device sits at the back of the eye, converting light to electrical signals carrying color information through the optical nerve. Previously, this has only ever been achieved in black-and-white vision – so to be able to restore color vision is really exciting. We are using thiophene-based materials paired with acceptor molecules to improve the output signal to a point where cells in the middle of the retinal layers can be stimulated successfully," Dr. Askew explained. The study findings are currently under patent review but it is hoped this work could provide an additional treatment for vision loss as a result of age-related macular degeneration.

JCyte set to launch Pivotal US Trial for Treatment of Retinal Diseases

Following a meeting with the FDA earlier this year jCyte Inc have announce they are set to launch a phase 2/3 clinical trial for its allogeneic cell therapy in the latter half of 2023. The aim of jCell therapy is to preserve vision by protecting the remaining photoreceptors and to improve their functioning. The therapy is administered via a single intravitreal injection into the eye, releasing neutrophic factors that shield the photoreceptors.

Ocugen, Inc. Announces Dosing Completion Of Subjects With Geographic Atrophy In cohort 1 Of Phase 1/2 Clinical Trial Evaluating The Safety And Efficacy Of OCU410

It has been announced by Ocugen Inc that dosing is complete in the first cohort of its Phase 1/2 clinical trial for OCU410. This is a modifier gene therapy candidate for geographic atropy an advanced stage of dry age-related macular degeneration (dAMD). Shankar Musunuri, PhD, MBA, chairman, CEO and co-founder of Ocugen, said in a news release, the company is enthusiastic about the potential of OCU410 as a one-time treatment for life with a single sub-retinal injection. “While there are currently two recently approved products for the treatment of GA, both require approximately 6-12 intravitreal injections annually and target only the complement system,” he explained. “OCU410 addresses multiple pathways causing dAMD, including complement, lipid metabolism, inflammation, and oxidative stress.”

Bascom Palmer Outlines “Moon Shot” Whole Eye Transplant Research Initiative

Following a 1-million-dollar donation from a philanthropist, the Bascom Palmer Eye Institue at the Insitute of University of Miami Miller School of Medicine, doctors and researchers are fast-forwarding an initiative to transplant the whole eye. Eduardo Alfonso, MD, director of Bascom Palmer and chair of the Department of Ophthalmology at the Miller School, said the whole eye transplant project aims to provide blind patients with a seeing eye, perhaps by using a biological eye modified to make it functional for vision. The “bionic eye” will likely include an electronic chip, with gene therapy to prevent allograft rejection, stem cell therapy to replace degenerating eye tissue and electronic connections to the brain.

Oculogenex Embarks on Space Mission for AMD Gene Therapy

A gene therapy targeting dry age-related macular degeneration (dAMD) is being tested in space on the International Space Station (ISS) via SpaceX’s 30th Commercial Resupply Service mission with NASA. The Oculogenex candiate therapy targets cellular mechanisms to counter oxidative stress and prevent retina death aiming to restoring damaged cells and protect vision. The study carried out on the ISS will allow the company to determine the therapy's effectiveness in preventing retina dysfunction and degeneration. The unique conditions on spaceflight are similar to the oxidative stress involved in the intermediate stages of dAMD.