The Center for Nanomedicine at the Wilmer Eye Institute
Seminar Series

Mark S. Humayun, MD, Ph.D.

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University of Southern California

Friday, December 1, 2017
11:00 am (lunch provided afterward)
Robert H. and Clarice Smith Building Atrium

Bioimplants for Ophthalmology

Through the convergence of ophthalmology and biomedical engineering, Dr. Humayun led a team of multidisciplinary researchers in the development of the first FDA approved retinal prosthesis, Argus II. This device is intended to restore useful vision for people suffering from retinitis pigmentosa, a genetic condition that leads to retinal blindness. The most recent results from the Argus II retinal Prosthesis (clinicaltrials.gov NCT00407602) and new results from post market/commercial patients will be presented. The subjects of the clinical trials implanted with a Second Sight Argus II implant had severe outer retinal degenerations. In the clinical trial, visual function was evaluated by visual function tests presented on an LCD screen, including Square Localization, Direction of Motion, and Grating Visual Acuity. Assessments of functional vision included controlled Orientation and Mobility (O&M) tasks, and the Functional Low-Vision Observer Rated Assessment (FLORA). With 150 cumulative patient-years of clinical trial follow-up on 30 clinical trial subjects, this is the largest study of a visual prosthesis to date. The results confirm previous reports on the ability of the Argus II prosthesis to provide visual function and functional vision over several years of chronic device use. The Argus II Retinal Prosthesis System is commercially available in the US and Europe, and in the post-market setting has shown improved safety and required shorter surgical implantation time.

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