On June 3, AEVR’s Decade of Vision 2010-2020 Initiative joined with professional societies and patient groups (see box below) in hosting a first-ever Congressional Briefing entitled Inflammatory Eye Disease: Focus on Uveitis. Uveitis is a collection of complex inflammatory eye diseases with a large cost and quality of life burden that varies with sex, age, and race/ethnicity and remains poorly understood with incompletely effective treatments. The Briefing featured Dr. N. Holland, M.D., who serves as a Professor of Ophthalmology at the David Geffen School of Medicine at UCLA—where he holds the Jack H. Skirball Chair in Ocular Inflammatory Diseases—and as Director of the Ocular Inflammatory Disease Center at the Jules Stein Eye Institute.

Janine Austin Clayton, M.D., a board-certified ophthalmologist and NIH’s Associate Director for Research on Women’s Health and Director of its Office of Research on Women’s Health, related how her experience with patients with autoimmune ocular diseases sparked her interest in the role of sex and gender in health and disease. Dr. Clayton formerly served as the NEI’s Deputy Clinical Director and is a founding member of co-sponsor organization Women in Ophthalmology.

Dr. Holland prefaced his talk by noting that it was a diagnosis of uveitis that alerted doctors that Ian Crozier, M.D., an American who had been treated for and apparently “cured” of Ebola, still had active virus inside the eye. He continued by describing inflammatory eye disease as that which can occur in any part of the eye, including its wall (sclera), the clear front surface (cornea) and the optic nerve—all of which can lead to severe, sight-threatening complications including glaucoma, cataracts, and scarring. Although uveitis specifically refers to inflammation of the “uvea,” which is the layer between the sclera and retina (light sensitive membrane at the back of the eye) that contains most of the eye’s blood vessels, in practical terms it is the designation given to inflammation of any structure inside the eye. Uveitis is not a specific disease, but is a category of diseases with many causes and clinical presentations, the common denominator of which is intraocular inflammation. Although inflammation can be caused by infection from myriad infectious diseases, including syphilis and tuberculosis, it is most often non-infectious in origin. It can be caused by trauma, and it can be the side-effect of medications. Uveitis can be isolated to the eye or it can be one of many problems caused by systemic diseases, such as various forms of arthritis, as well as inflammatory diseases of the kidneys, gastrointestinal tract, and lungs, and even multiple sclerosis. In some cases, uveitis will be acute, meaning that it is sudden in onset with complete resolution after a course of treatment. However, in the majority of cases, inflammation will be recurrent or chronic, necessitating continued treatment. Symptoms can include eye pain and sensitivity to light.

Current uveitis treatments are often expensive, inconvenient, and incompletely effective. Many have intolerable side-effects for some patients. These problems emphasize the need for new treatments, yet development of better drugs will require an improved understanding of disease processes associated with uveitis. The NEI has supported a number of initiatives/studies to investigate various aspects of uveitis cause incidence, and treatment, including:

- Development of automated methods for quantifying intraocular inflammatory reactions that move beyond the current subjective methods. Examples include laser flare photometry, which quantifies protein levels in ocular fluids using a scanning laser, and Optical Coherence Tomography (OCT), non-invasive three-dimensional imaging that not only can measure retinal swelling but can also count cells in the eye’s anterior chamber— and can quantify vascular leakage from the retina.
- A better understanding of the immune processes involved in disease pathogenesis, including the genetic basis, which can assist in accounting for the variation in incidence and severity between different groups.