DECADE OF VISION 2010-2020
an initiative of the Alliance For Eye And Vision Research

ALLIANCE FOR EYE AND VISION RESEARCH

In conjunction with:
Research to Prevent Blindness
American Macular Degeneration Foundation
Association for Research in Vision and Ophthalmology
European Vision Institute
Lighthouse Guild
Macular Degeneration Partnership

continues education about eye and vision research with a Briefing that begins the Fifth Annual Emerging Vision Scientists Day on Capitol Hill, recognizing International AMD Awareness Week 2019 and Healthy Aging Month

New Stem Cell-Based Therapies for Age-Related Macular Degeneration and Blast-Related Eye Injuries

Wednesday, September 18, 2019

12 Noon - 1:15 pm

House Rayburn 2043

Featured Speaker: Kapil Bharti, PhD
(National Eye Institute)

R.S.V.P. to Dina Beaumont @ 202-407-8325 or dinabeau@aol.com

AEVR, a 501(c)3 Non-Profit Educational Foundation, is pleased to host this widely attended event, with support for an Eye Healthy Luncheon provided by the American Macular Degeneration Foundation.

New Stem Cell-Based Therapies for Age-Related Macular Degeneration and Blast-Related Eye Injuries

Recognizing *International AMD Awareness Week 2019* and *Healthy Aging Month*

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What is the Burden of AMD?
AMD is a leading cause of blindness and low vision in the United States and the developed world. It destroys central vision through proliferation of new blood vessels ("wet" AMD) or gradual breakdown of cells ("dry" AMD, also called geographic atrophy) in the light-sensitive retina. Vision loss from AMD makes it increasingly difficult to read, drive, and perform other everyday tasks, thereby affecting productivity, independence, and quality of life and adding significantly to the total US cost burden of eye disease, projected to reach $717 billion by year 2050 when adjusted for inflation. The National Eye Institute (NEI) within the National Institutes of Health (NIH) estimates that 200,000 Americans each year develop advanced AMD.

What Research Has Emerged To Treat the "Wet" and "Dry" Forms of AMD?
Tremendous strides in the treatment of patients with "wet" AMD have resulted from anti-Vascular Endothelial Growth Factor (VEGF) therapies—which emerged from initial NIH funded research—that stabilize vision loss and may improve lost vision. The NEI has labs located in Bethesda, Maryland, and funds research grants to universities and institutions across the US to develop therapies for AMD. The NEI awarded 180 new grants from fiscal years 2010-2016 to study all aspects of the disease, including genetics (identifying more than 50 independently associated common and rare gene variants), biological pathways, biomarkers, therapeutics, and diagnostics. In 2018, it launched a prospective international study of patients that uses the latest advances in retinal imaging—such as Optical Coherence Tomography (OCT)—to identify biomarkers of the disease and targets for early therapeutic interventions.

What Research Has Emerged To Treat AMD Using Human-Induced Pluripotent Stem Cells?
NEI scientist Kapil Bharti, PhD, will review progress in developing treatments for "wet" AMD, and describe his NEI and Department of Defense (DOD)-funded research:

- The first induced pluripotent stem cells (iPSC) based therapy clinical trial to treat dry AMD. The trial converts a patient's own blood cells to iPSCs, which are then programmed to become Retinal Pigment Epithelium (RPE) cells, which nurture the photoreceptors necessary for vision and which die in geographic atrophy. Bolstering remaining photoreceptors, the therapy replaces dying RPE with iPSC-derived RPE.
- DOD-funded research into using iPS cells to treat combat-related proliferative vitreoretinopathy, in which the RPE becomes abnormal and can lead to scar tissue forming that can damage vison and lead to blindness.

The Briefing will conclude with perspectives from Sydney Ruth Torrey, a Patient Liaison for the American Macular Degeneration Foundation (AMDF).

About the Featured NEI Speaker……
Kapil Bharti, PhD is a Senior Investigator in the Ocular and Stem Cell Translational Research Unit at the NEI. His PhD work involved basic biology in the areas of heat stress, cellular chaperones, and epigenetics.

This luncheon Briefing begins AEVR's *Fifth Annual Emerging Vision Scientists Day on Capitol Hill* activities, culminating with an evening Poster Reception from 5:30 -7:30 pm in the Rayburn Foyer to which all are invited.

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