

RNID conference on Sensory Impairment in the Aged

On Thursday October 2nd 2008, Academics and pharmaceutical companies met in the UK to address the currently unmet clinical needs of sensory impairment caused by the ageing process.

RNID - the UK's largest charity for deaf and hard of hearing people, and Fight for Sight - the UK's leading charity dedicated to eye research, joined forces to provide a forum to discuss the impact of sensory impairment in an ageing population, the exciting progress that is being made towards developing treatments, and how partnerships between researchers and pharmaceutical organizations will be vital in developing new treatments.

The event was held at GlaxoSmithKline, a major global pharmaceutical company, at their extensive site in Stevenage, UK.

Dr Mark Downs, Director of Science and Enterprise for RNID opened the day with an overview of the concerning incidence of hearing loss in the aged:

- About half the people over the age of 60 are affected by age-related hearing loss
- The number of people in the USA and Western Europe with age-related hearing loss in 50.5 million
- It is predicted that this number will rise to 50.5 million by 2050

(See [RNID's market report](#) for more information on the economics of age-related hearing loss)

He continued to describe the positive impact that RNID funding has had on hearing loss research:

- Supporting work that led to the discovery of [genes involved in age-related hearing loss](#)
- Funding research that established a [link between being overweight, smoking and an increased risk of hearing loss later in life](#)
- Encouraging and [supporting many pharmaceutical companies](#) to initiate research programs into hearing loss and tinnitus- which will hopefully lead to the faster discovery and availability of drugs/devices that target these disorders

Professor Alistair Fielder, from City University London, and the Senior Medical Advisor at Fight for Sight, also welcomed delegates and highlighted the importance of funding world-class research into the prevention and treatment of blindness and eye disease. Worldwide, age-related causes of visual impairment are increasing:

- There are currently an estimated 2 million people in the UK affected by visual impairment.

The special guest speaker for the day, internationally best-selling author **Ken Follett**, discussed his passionate support for both these causes and congratulated the two charities on putting together this event to remind researchers and industry alike of the importance of finding new cures and treatments for sensory impairment in the aged, which has a devastating effect on quality of life.

Mr Malcolm Matthews and **Mr Simon Shaw** from Sense, the leading charity for deafblind people, gave delegates an insight into the social and economic impact of sensory impairment on society.

- Sensory impairment in the aged results in increased economic costs, not only to the individual, but to society as a whole by way of the NHS, social care required, and work force adaptations.
- Sensory loss is largely seen as a normal part of the ageing process, affecting all individuals, and should simply be 'managed'.
- While normal ageing may lead to some loss of sensory acuity and a greater propensity to cataract formation, other changes, including most of the 'ageing changes' reported, are in fact pathological.
- Sensory impairment can have further ramifications, increasing the risk of additional health concerns such as stroke, heart disease and depression.

Other speakers included:

Professor Rubel

- Founder and Professor of Hearing Sciences at the Virginia Merrill Bloedel Center at the University of Washington
- He has been researching the development of hearing, development of the inner ear, and development of the brain pathways involved in hearing for almost 40 years
- His work is supported by [funding from RNID](#)
- He discussed his recent studies which examine ototoxicity in zebrafish- focusing on drug and gene discovery to minimise the susceptibility of hair cells to damage following exposure to drugs, loud noise and ageing

Professor Khaw

- Professor of Glaucoma and Ocular Healing at UCL Institute of Ophthalmology, and Consultant Surgeon at Moorfields Eye Hospital

- He has developed the Moorfields safer glaucoma surgery system and several new therapies to prevent ocular scarring, some of which are now being used in the UK and around the world
- He discussed the types of eye diseases that individuals may suffer from, particularly with age, and the methods of treatment, including those developed by his team at Moorfields

Professor Coffey

- Director for the London Project to Cure Blindness at the UCL Institute of Ophthalmology, and is also the Professor of Cellular Therapy and Visual Sciences at UCL
- His work involves the transplantation of cells to the eye to slow the degeneration of photoreceptors, or replace photoreceptors lost by the diseases retinitis pigmentosa and age-related macular degeneration, which are the leading causes of blindness
- The aim of the London Project is to develop a stem cell therapy for the majority of all types of age-related macular degeneration and to successfully bring the project to the clinic

Professor Shima

- Rothes Professor of Translational Vision Research at the UCL Institute of Ophthalmology
- He is a leading researcher in angiogenesis and vascular cell biology and has demonstrated a central role for vascular endothelial growth factor (VEGF) as a leading cause for blindness in the elderly
- He described to delegates his work done at Eyetech Pharmaceuticals, Inc., where he contributed to the development of the first anti-VEGF therapy for age-related macular degeneration (AMD) and has since been involved in the development of two additional drugs currently in clinical trials for AMD

Dr Rivolta

- Senior Research Fellow at the Centre for Stem Cell Biology, University of Sheffield
- He leads a research group dedicated to studying the biology of human auditory stem cells. In the late 1990s his pioneering research focused on the isolation and immortalization of auditory progenitor cells from the mouse cochlea
- He is currently dedicated to the study of human auditory stem cells and their possible therapeutic applications for the treatment of deafness

- His laboratory has identified and isolated a population of stem cells from the human foetal cochlea named hFASCs, and is developing techniques to coerce human embryonic stem cells and bone marrow stem cells into auditory cell types

Professor Marshall

- Frost Professor of Ophthalmology and Chairman of the Academic Department of Ophthalmology at St Thomas' Hospital
- His research into ocular impairment largely concentrates on the inter-relationships between light and ageing, the mechanisms underlying age-related, diabetic and inherited retinal disease, and the development of lasers for use in ophthalmic diagnosis and surgery
- This work has led to the production and patenting of the revolutionary Excimer laser for the correction of refractive disorders
- His research has also led to the creation of the world's first Diode laser for treating eye problems of diabetes, glaucoma and ageing, which he described to the audience

Dr Meyer

- Managing Director and Chairman of the Board of Auris Medical, which he founded in April 2003
- Auris Medical is a Swiss biotechnology company developing specific pharmaceutical compounds for the prevention or treatment of inner ear disorders, an area of great unmet medical need
- Dr Meyer presented data on AM-111, the company's novel otoprotectant drug which is under clinical development
- Their findings suggest a potential therapeutic effect of AM-111 in a variety of inner ear disorders

Dr Adamson

- Head of Research for Ophthiris, GSK, reviewed the company's current approach to tackling sensory impairment, which can be specifically applied to the aged
- GSK currently largely focuses on drugs targeting vision loss, however maintain a continued interest in new discoveries in the hearing loss research field

Throughout the day, delegates were able to check their hearing using RNID's five-minute telephone hearing check. Dr Sam Weller from Cambridge University was also present to give delegates an insight into what it would be like to have various eye diseases, by means of a vision impairment simulator.

Dr Mark Downs, Director of Science and Enterprise for RNID, says: *"RNID is working with Fight for Sight to bring to the fore the clinical needs of those who are sensory impaired due to the ageing process.*

"We can help pharmaceutical companies understand how their technology could be used to protect hearing, and we may be able to play match-maker between them and experts in the field."

"RNID believes there are major investment opportunities for the Biotechnology Industry to develop treatments that protect and restore hearing. There are 50 million people with age related hearing loss in the USA and Western Europe alone - that's a huge market to aim for."

Michele Acton, Chief Executive of Fight for Sight says: *"The population in the UK is ageing and sadly for many people their quality of life is affected by sensory loss. By working with the RNID we aim to highlight the impact of hearing and sight loss on people, their families and society as a whole."*

"This conference brought together scientists, academics, companies and research funders to increase awareness and to showcase how unmet clinical need is being addressed".

The day closed as a success- with the 150 delegates, from backgrounds including industry, academia and social care, leaving with a greater understanding of the biological basis of hearing and vision impairment, as well as the current and potential treatments that will have such a positive effect on both the patient and the wider community.

Outcomes of the day:

- Provided an overview of the social and economic impact of age-related sensory loss
- Reviewed current understanding of the biological basis of age-related hearing and vision loss
- Showcased therapeutic approaches being developed for vision and hearing loss, including GSK's research in this area
- Provided networking/collaboration opportunities for those interested in research and technologies concerned with sensory impairment.

For more information on the event contact RNID on:

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Go to [RNID's Biomedical Research Homepage](#) to find out more.