



Macular Society
Beating Macular Disease

Research Impact Report
1987 - 2019

“I am so grateful for the research that’s going on”

Kelly was diagnosed with macular disease 29 years ago, when she was eight years old. But, while she knew there was something wrong with her sight, it had little impact on her at the time. It’s only in the last few years that it has really started to affect her.

Kelly, who is a mother of three boys, has Best disease, a rare inherited type of macular disease, which she knew ran in her family.

But the worst realisation for her was when two of her young sons were diagnosed with the condition.

She said: “I decided to get my boys tested, as I knew there was a chance they could have it. My youngest was 18 months old when he was diagnosed.

“I could see when my eldest son was getting his eyes tested that he had it. I looked at him and thought ‘he’s got it’. I could tell by the way

he was moving his face. He was tilting his head to see out of his peripheral vision.”

Kelly said she was devastated when she heard the news as she knew how desperately her sons wanted to be pilots, so they could take after their dad.

But she is now hopeful that with more research that there is some hope for her boys’ future.

She added: “I am so grateful for the research that’s going on. It might not mean a difference to my life because my eyes are really bad but it could change my children’s life.”

Kelly is a participant in one of our funded research projects into Best disease. The research is being conducted by Dr Amanda Carr (seen on the cover) at UCL.

Kelly Ephgrave



Introduction

Since the Macular Society was formed in 1987, we have funded 73 research projects with a total value of over £5.1m. Although the amount of money we have spent cannot rival that of bigger medical research charities, we have ensured that our funding has been put to good use: it has gone to projects at a crucial time, when others may not have funded them, giving them time to develop findings so that they can access the big funders' pots; it has supported researchers at early stages of their careers so that there are more people working to beat macular disease; and we have formed collaborations with other funders to multiply our money and make our support go further.

And we don't just fund research: we also influence experts and policy-makers to highlight the lack of funding; we support researchers to connect with people affected by macular disease to improve their research; we support researchers with recruitment to their studies; and we help researchers to leverage additional funding from other sources.

Through this efficient and clever way of funding research, we have seen some excellent impacts arise from our projects. Impacts that will make very real differences for people with macular disease, now and in the future.

If this is what we can achieve with small amounts of funding, imagine what we can do under our new ambition where we will be able to support more research than ever to Beat Macular Disease.

Our Research Strategy

The Macular Society's research strategy has been that we will consider applications for clinical or laboratory-based research projects that must be able to demonstrate potential benefit to people with macular disease, including age-related macular degeneration (AMD) and macular dystrophies. This may comprise research into causes and prevention, early detection, treatments or improving the quality of life.

This has meant that we have funded a wide variety of projects, such as basic scientific research examining the genetics of AMD (Lotery 2007, Chakravarthy 2009),

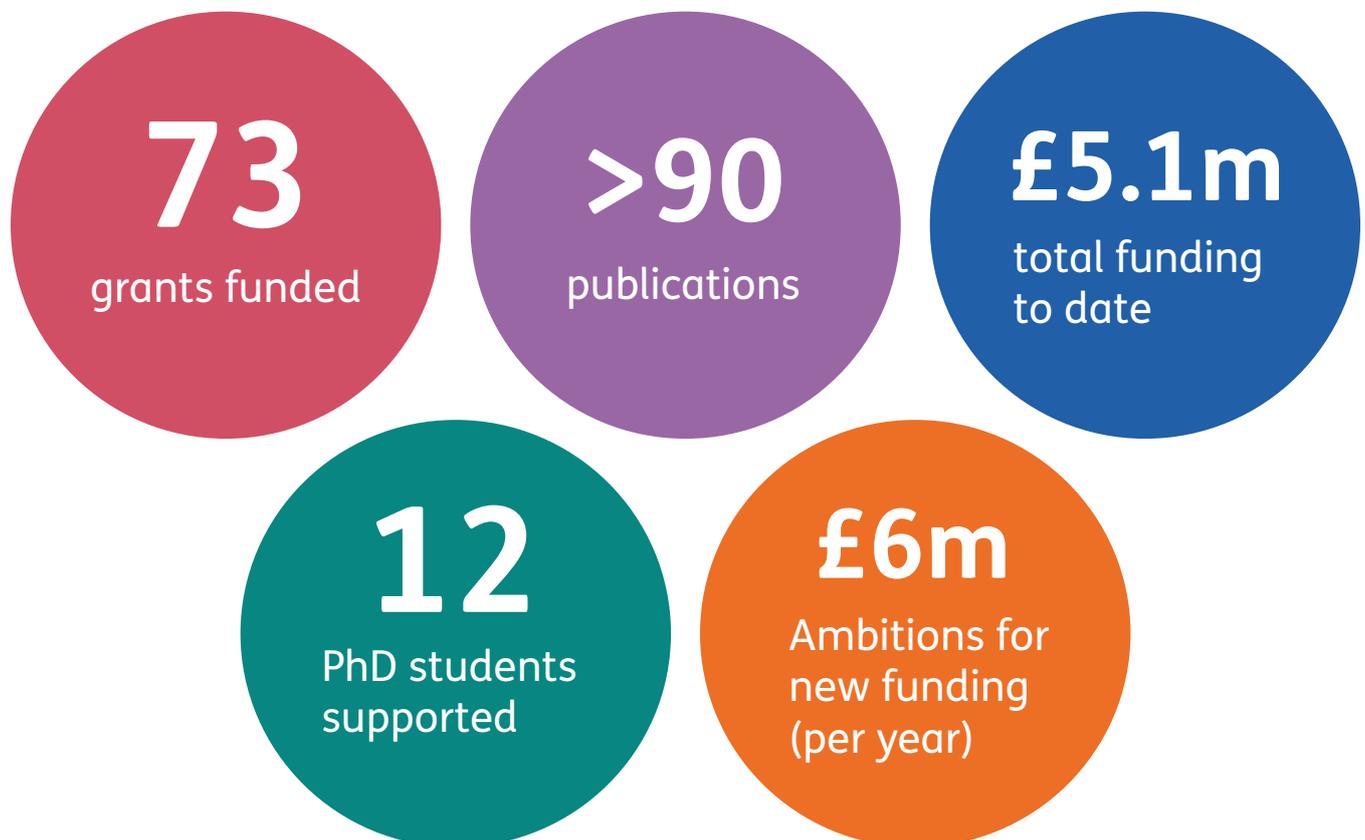
epidemiology (Owen 2009, Bunce 2010, Amoaku 2012), how AMD impacts patients and families/ carers (Sivaprasad 2012, Bradley 2013), technological innovation (Walker 2017), peer support (Thetford 2017), eccentric viewing (Crossland 2006, Bradley 2009), hospital treatment (Bradley 2007, Johnston 2013), Charles Bonnet Syndrome (Taylor 2016) and many more. See Annex for list of all projects funded.

We started small in 1990 with grants of a few thousand pounds for projects with eminent

ophthalmologists at Moorfields Eye Hospital: Professor John Marshall examining Bruch's membrane and Professor Alan Bird studying Stargardt disease.

Research funding gradually increased over the years but reached a watershed in 2013 when we increased our maximum funding levels to £170,000 for research grants and £100,000 for PhD studentships. In 2019, we increased funding again to a maximum of £200,000 for research grants.

Macular Society Research in numbers



Building a workforce to Beat Macular Disease

An important way to support research into macular disease is to help to build the future workforce researching the condition. This starts at the early stages of a research career, with PhD studentships and Fellowships. These grants help researchers to begin their careers in macular disease research, with the hope that they will continue with this great work in their future research projects.

Dr Aisling Lynch – Developing light as a tool for enhancing the functionality of human stem cell derived retinal pigment epithelium



Supervisor: Dr Anthony Vugler, Institute of Ophthalmology, University College London

Since 2013 the Society has funded one or two PhD studentships each year. One of these is a recent graduate, Dr Aisling Lynch, who tells her story below.

“I graduated recently, having completed my PhD which was funded by the Macular Society. The project looked at the RPE (retinal pigment epithelium), which is the support cell for rods and cones. Loss or damage to these support cells results in rod and cone death and the loss of sight. I examined how a mutation or a sudden loss of RPE affects vision and tested the ability of transplanted RPE stem cells to prevent sight loss or even improve vision.

“The study highlighted the difficulties in restoring vision using RPE stem cells but, more importantly, that restoration of sight is possible. The study also revealed that the RPE is also a support cell for a third type of photoreceptor, melanopsin-containing retinal ganglion cells, which set the body clock and control pupil constriction.

“The project was very exciting to work on and it was a privilege to have the work sponsored by the Macular Society. It gave me the opportunity to meet people living with sight loss and provided me with a determination to produce results that can make a difference. I am currently looking for my next project and hope to stay in visual research.”

Prof Noemi Lois, Queen's University Belfast



The Society has also funded grants for researchers still early in their career, but who already have PhDs, or for clinicians who would like to move into research – these are called Fellowships. We have supported 2 such grants. Professor Noemi Lois was one of our funded Fellows in 1997.

“I had the privilege of being a fellow of the Macular Society from July 1997 to December 1998.

“I studied Medicine at the University of Santiago de Compostela, Spain and had a four-year residency in Ophthalmology at the University Hospital of this city, where I was also born. Later in my career I decided I wanted to specialise in posterior segment disorders, which I found very challenging, and I secured a clinical fellowship with surgical privileges in Ocular Oncology at Wills Eye Hospital, USA from July 1996 to June 1997. I knew as I was doing this fellowship I would need to train in Medical and Surgical Retina and I started to look for opportunities for training in these areas. I found out the Macular Society were funding a fellowship and I went from USA to London for an interview at Moorfields Eye Hospital. I was successful and started my fellowship in July 1997.

“As a fellow of the Macular Society my main research project was on Stargardt disease, which I did under the supervision of Professor Alan Bird. During the fellowship I was able to work on my research but also to achieve full training in Medical Retina. I had the opportunity to attend many clinics weekly and to work on them not only with Prof Bird but also with

other eminent retinal specialists including Mr Zdenek Gregor and the late Mr Peter Hamilton.

The work done during my fellowship led to nine peer review publications; three of those on Stargardt disease have been cited over 350 times. Being a fellow of the Macular Society gave me the opportunity to grow as a clinician and as a researcher and it shaped the professional I am now.

“After completing the fellowship, I was successful on my application to become a vitreoretinal fellow at the Royal Liverpool University Hospital, under the supervision of Mr David Wong, which I undertook from January 1999 to January 2000. This was the last step of my ‘formal training’. Training and learning, of course, never stops.

“I became a Consultant Ophthalmic Surgeon in 2000 and spent the next 13 years in this position. In 2013, Queens University, Belfast, gave me the opportunity to move into a Clinical Academic post and I am now a Professor of Ophthalmology with teaching, research, clinical, surgical and administrative commitments. A challenging job which I enjoy and for which I

believe I was well prepared.

“With no question, the Macular Society contributed enormously to my success and I am extremely grateful, and I will always be, to them.”

Small charity, big ambitions – Key projects with long-term impact

London Project to Cure Blindness – Prof Peter Coffey



Professor Coffey and Professor da Cruz launched the London Project to Cure Blindness in 2007 at the UCL Institute of Ophthalmology. Professor Coffey explains: “From the outset we were saying that we would look specifically at a stem cell line for AMD. Our principle was not the science, but a medicine; our goal was a treatment that could be used in the NHS.” However, ongoing funding was a real problem. About a year later Professor Coffey approached the Macular Society with the news that they were advancing fast but were about to lose key staff

who would leave for other labs around the world as they could not be funded. “I can definitely say we were in a desperate need of money at that time if we were to continue,” says Professor Coffey.

The Society’s Head of Fundraising at the time, Sarah Day, explained how Macular Society supporters helped us to make a difference: “We launched an appeal and our members responded with huge generosity, enabling us to make a donation of £100,000 in 2008 – an enormous amount for the Society in those days. When Professor Coffey addressed our recent London conference he said that our grant had enabled him to ‘keep the show on the road’.”

In March 2018, the newspapers reported excitedly on a ‘miracle cure’ for macular disease from the London Project to Cure Blindness: a small trial testing injected stem cells in two patients with wet age-related macular degeneration (AMD) had so far shown success.

Stem cells have the potential to turn into any type of cell, from hair to bone, skin or nerve. This project had used stem cells to create retinal pigment epithelial (RPE) cells. Wet AMD damages

these cells and causes sight loss. Two patients who had substantial sight loss caused by wet AMD had new RPE cells carefully injected into place to “patch” the areas of damage. Tests showed that the RPE cells survived inside the eye and may even have started to spread from the patch to repair nearby areas of damage. After 12 months, one patient who had been unable to read could now read more than 47 words per minute, and the other patient, who had previously been able to read less than two words per minute had improved to more than 80 words a minute.

The next stage is to test the treatment in another 6 to 8 patients and follow them for 5 years to make sure it is safe. A second phase will look at treating patients with dry age-related macular degeneration.

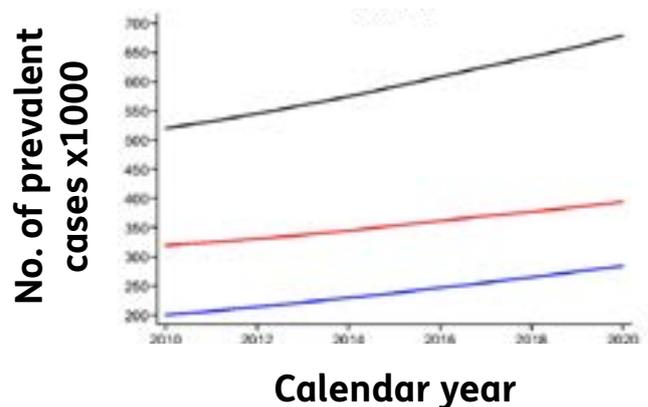
Late stage AMD prevalence and incidence figures – Alicja Rudnicka, Prof Christopher Owen, St George’s University of London

A key piece of work from 2009 gave us the figures we use today for the estimated numbers of people in the UK with late AMD

and vision loss (prevalence), the number of new cases per year (incidence) and projections for 2020. The scientific paper has been cited 80 times in PubMed.

In 2016 we funded work to revisit these numbers and estimate prevalence and incidence in the UK to 2050. These figures are important for raising awareness of the scale of AMD sight loss and for influencing major research funders, government and NHS policy.

Graph below: Projected number of prevalent cases (in thousands) of late age-related macular degeneration (AMD) in men (blue line) and women (red line) and combined (black line) from 2010 to 2020.



Ref: Owen CG, Jarrar Z, Wormald R, et al. The estimated prevalence and incidence of late stage age related macular degeneration in the UK British Journal of Ophthalmology 2012;96:752-756.

Manchester Eye Tissue Repository (METR) – Prof Paul Bishop, University of Manchester

Human eyes donated for corneal transplant are a vital untapped resource which is often also allowed to be used for research. There is also an unmet need for human eye tissue to study AMD. However, effective ways to collect and archive this tissue were lacking and it was going to waste. The Macular Society therefore funded the setting up in 2015 of the METR to retrieve the donor eye tissue from the Manchester Eye Bank, left over from being used for corneal transplants. The METR is now well established and has collected eye tissue from over 1,100 donors. In 2016 it was designated as an ethically approved Research Tissue Bank and it is also registered in the UKCRC Tissue Directory and is supplying tissue to research teams all over the UK and Europe.

Below is a list of investigators sent eye tissue from Manchester Eye Tissue Repository so far:

Dr Marta Ugarte (Moorfields) - Trace element mapping in aged human retina and choroid with and without age-related macular

degeneration

Mr Winfried Amoaku (Nottingham) - Role of toll-like receptors in pathogenesis of diabetic retinopathy

Prof Baljean Dhillon (Edinburgh) - Development of an organotypic in vitro model to explore UV exposure in geographic AMD pathogenesis

Dr Antonio Inforzato (Italy) - Molecular crosstalk and combined prognostic value of complement factor H and long pentraxin 3 in age-related macular degeneration

Dr Camilla Mohlin (Sweden) - Complement system involvement in AMD

Dr Arjuna Ratnayaka (Southampton) - Study of molecular mechanisms driving RPE dysfunction in patients from different stages of AMD

Prof Paul Bishop (Manchester) - Molecular basis of age-related macular degeneration

The eye tissue has also been used extensively in research projects at Manchester University.

AMD stem cell-derived disease model – Prof Majlinda Lako, Newcastle University

The first of three projects funded with Prof Majlinda Lako and her team at Newcastle University developed a model of AMD using patient skin cells. They chose patients with the most common genetic risk factor for the disease which causes a change in the immune and inflammatory system.

This “lab made model” mimics the key features of AMD, such as increased inflammation, reduced ability of the cells to cope with external stresses and deposition of waste products that are very similar in composition to the drusen deposits observed in AMD patients.

Using their model they are studying specific aspects of how

the cells work. Further funding will be used to study the cellular recycling system that is vital for vision, to understand which step in the recycling process is affected in AMD. They can block the recycling process, called autophagy, at many stages allowing them to dissect the exact mechanism by which this process leads to AMD.

Identifying if cellular recycling is an underlying cause could lead to new drug treatments to treat the disease directly in its early stages, preventing its progression and later consequences.

The model will also be used in another project which is investigating whether small bubble-like structures called exosomes, released by RPE cells, play a role in development of AMD. AMD patients appear to produce more of them than people without AMD.



MD EV reader app – Prof Robin Walker, Royal Holloway University of London



Difficulty reading is one of the most commonly reported consequences of macular degeneration that impacts on the individuals' quality of life, with negative consequences for a range of tasks of everyday living.

The MD_evReader (Macular Degeneration Eccentric Viewing Reader) is an app (for Apple and Android tablets) developed in association with the Macular Society by Professor Robin Walker of Royal Holloway, University of London. The app scrolls text from ePub documents (such as an eBook) as a single line of scrolling text to support and enhance the use of the 'eccentric viewing' technique used by people with macular degeneration. The app is free to download from iTunes/Google play (around 65 downloads

per month with around 100 users per week). The app is promoted on the Macular Society's website as a vision aid. It has featured in an article in the Daily Telegraph and was selected by Universities UK as one of 20 world-class research projects in their Ideas for Life event (2014). A web-browser version of the app, called Ev News, was released in 2018 designed to present current news content.

The main societal impact of the MD_evReader app is in improving the quality of life for people with macular degeneration by enhancing their ability to read and also by increasing their awareness and understanding of the eccentric viewing strategy.



MD_evReader app being used on tablet

Outputs and dissemination

It is vitally important that researchers communicate the outcomes of research funded by the Macular Society. It is therefore the expectation that research will be published via at least one publication in an appropriate scientific journal.

We encourage publication in open access journals so that it is freely available for anyone to read and publications should always recognise the support of the Macular Society.

In 2015, the Macular Society funded a project with University of Warwick to examine funding of research on AMD and Stargardt disease in the UK between 2011 and 2014. The project included a section examining if research grants from the Macular Society have led to good quality scientific publications.

One method of assessing research performance is to look at the impact factors of the journals in which the papers are published – this measure is called the journal impact factor (JIF).

JIFs indicate the prestige of the journal and publication in journals with a high JIF is often regarded as an indication of the quality of the paper itself. 59 research publications were published from 2008 to August 2015 that acknowledged Macular Society funding. These were published in journals with a mean JIF of 5.3, which is very respectable.

Most (34) were published in ophthalmology journals but articles also appeared in journals dealing with genetics (7), biochemistry (3), immunology (3), neurosciences (3) and various topics.

In the UK, an assessment of the research performance of medical schools is carried out at 5 - 6 year intervals, the most recent being the 2014 Research Excellence Framework (REF). It was found that 10 studies that acknowledged the Macular Society as a source of funding were in the REF submissions, which means they were deemed to be of international importance.

To date over 90 scientific papers have been published as a result of the projects the charity has funded. Our research is also presented at scientific conferences

all over the world, such as the prestigious Association for Research in Vision and Ophthalmology (ARVO) annual meetings.

Macular Society members have been kept up to date with project progress and final results through our publications: Digest, Spotlight and Sideview. Researchers have also been invited to speak about their research at Macular Society Roadshows and the Annual Conference.



Members enjoying a talk at our 2018 Annual Conference

Collaborating to Beat Macular Disease

Collaborations with other organisations to fund research helps us to achieve more with limited funding. It also means that we can reach audiences that may not have found us before, through shared communications and marketing. Below are two of our key collaborations in recent years.

Retina UK (formerly RP Fighting Blindness)

Macular Society and Retina UK have agreed to co-fund two PhD studentships on retinal dystrophies, one in 2018 and one in 2020. This collaborative project has been triggered by concerns shared by both organisations about significant barriers to sight loss research progression, including a lack of financial investment in the field and the consequent difficulty in attracting the most talented PhD students.

Action Against AMD

Blind Veterans UK, Fight for Sight, the Macular Society and Scottish War Blinded have jointly launched a collaboration to transform the

funding of research to address age-related macular degeneration (AMD).

The aim of the partnership is to develop an intervention that prevents early stage AMD progressing to the point where people lose their sight. The charities have agreed to co-fund a three-year development project, worth £1m, to kick-start the generation of new funding streams to invest in the necessary research.

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SCOTTISH WAR BLINDED

AAAMD Charity Partners

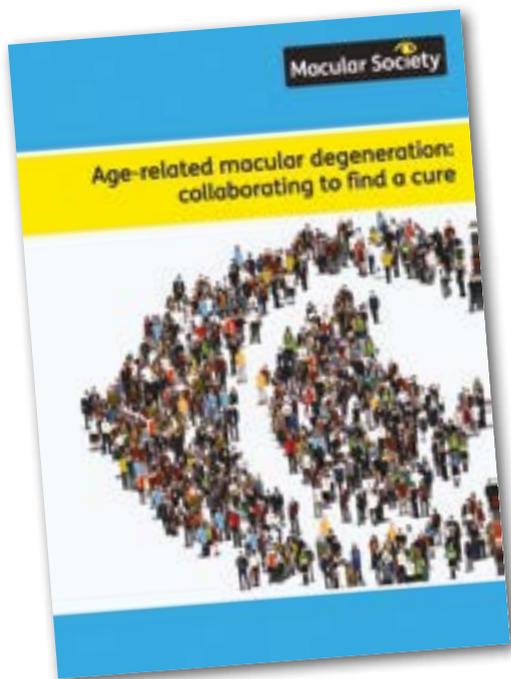
Visit actionagainstamd.org for more information.

Impact in other ways

As a small funder, one of our challenges is finding ways to generate the biggest impact for people affected by macular disease. We do this through other activities in addition to our funding. These activities guide us in our areas of research, and add value to research into macular disease even if we haven't funded it.

Policy influencing

Collaborating to find a cure report, 2016



In 2016, we published a report – Age-related macular degeneration: Collaborating to find a cure. The report called on the research community, research

fundors and eye charities to join together to campaign for greater investment in eye research in general, and AMD in particular. The report set out the case for greater funding, including key facts about AMD, the impact that it has on individuals and the economy, the treatments and services currently available, and how little research funding the condition received across the UK. It called for more funding for AMD research, commensurate with its impact.

As a result of this report, we now have accurate figures for the amount of research invested in AMD in the UK, and information on the effects of the condition – information that we continue to use in our work to raise awareness of the impact of the condition.

The report was sent to prominent policy figures, academics, health care professionals, and pharmaceutical and research companies with a request of endorsement of the report and its findings. The report was endorsed by 74 individuals and organisations, and was passed along to numerous others to raise awareness and inform.

Support for researchers and PPI

Patient and Public Involvement (PPI) is an increasingly important aspect of medical research and the Macular Society is regularly asked to be involved in clinical research funded by the NHS and other large funders.

We are often approached at the point when the application is being developed, as researchers are required to set out how they will involve patients at every stage of the project, from developing the proposal through to dissemination and evaluation. This may require us to provide letters of support and assistance with the development of the application or be named as a co-applicant with a specific role in the research. For example, being a member of the Trial Steering Committee, assisting with patient recruitment, commenting on patient materials and disseminating results. As of Autumn 2019 we have staff on five Trial Steering Committees and have been approached to be on two more, if they win funding. In other instances, we can help find people with macular disease to be patient representatives on committees or at meetings where the research is discussed.

Our Research Participant Database

Once studies and trials are underway, we are often asked to support recruitment of volunteers to take part in the research. Our Research Participant Database, launched in 2015, now has over 2,700 people registered with us who would be happy to volunteer for clinical research. Involvement can range from providing feedback on new developments, to undergoing treatment as part of a trial.

Funding leverage

Macular Society funding provided to hospitals and universities can help researchers leverage additional money from other funders. This means that a small grant from us can lead to a much larger research project that produces far greater benefits for people with macular disease. Some examples where this has happened are listed below.

1. Established in 2007 with funding from an anonymous philanthropist, the London Project to Cure Blindness aims to find a stem cell based treatment that could be used in

the NHS for dry and wet AMD. However, in 2008, ongoing funding was a real problem and Professor Pete Coffey approached the Society with the news that they were advancing fast but were about to lose key staff who would leave for other labs around the world as they could not get funding. The Macular Society awarded them £100,000 which enabled them to keep the project going. They went on to gain funding from Pfizer to take the treatment to clinical trial.

2. Funding for a PhD studentship at Royal Holloway University of London was co-funded with the university, meaning only 50% of the costs needed to be paid by the Society.

3. Funding for a PhD studentship at University of Southampton enabled Dr Arjuna Ratnayaka to leverage funding from Retina UK to fund the project: Modelling effects of TIMP3 mutations in RPE - insights into Sorsby disease and night blindness in related retinal dystrophies. Project Grant £188,681.

4. Funding for a PhD studentship at Queen's University, Belfast with Dr Ruth Hogg influenced Diabetes UK to grant funding for the project: Improved phenotyping of microvascular changes in Diabetic Retinopathy with multi-level data. Project Grant £199,431.

5. Funding for a research grant at Newcastle University enabled Dr John-Paul Taylor to leverage £75,000 funding from the Randerson Foundation for a PhD Studentship and a grant from Fight for Sight of £14,743.

6. Funding for a research grant at Newcastle University enabled Professor Majlinda Lako to leverage £65,000 funding from the MRC Confidence in Concept scheme.

Conclusion

As we grow our investment in research, we will continue to monitor the impact of our research funding and produce similar reports at timely intervals. The content of this report will be used in our communications and campaigns and to inform a new research strategy for 2020.

The above is just a snapshot of what we have been able to achieve over the past 30 years. As part of our new ambition, we're aiming to greatly increase the amount of funding that we invest in our research programme – to £6 million per year by 2023. Imagine what we can achieve with this additional funding, and the difference that we can make to people affected by macular disease.



Macular Society
Beating Macular Disease

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Annex

Since 1990, the Macular Society has funded over 70 research projects, attacking macular disease from every angle: genetics, peer support, hospital treatments and technology.

1990 - 2000	
Dr Carla Starita with Professor John Marshall Moorfields Eye Hospital	The hydraulic properties of Bruch's membrane
Mrs Duvall-Young Wycombe Hospital	The use of indo-cyanine green angiography in the study of inherited macular disease
Dr Noemi Lois with Professor Alan Bird Moorfields / Institute of Ophthalmology, UCL	Stargardt Macular Dystrophy (Fellowship)
Dr Jan Mitchell with Professor Clare Bradley Royal Holloway	Experiences of people with macular disease and impact on quality of life
Dr Malaika Kurz-Levin, with Professor Alan Bird Moorfields / Institute of Ophthalmology, UCL	Investigation of genetically determined outer retinal disease in Bull's Eye Maculopathy (Fellowship)

2000 - 2004

Martine Donoghue with Professor Astrid Fletcher London School of Hygiene and Tropical Medicine	Low vision services for people with AMD in the UK: a review of service need and provision
Professor Astrid Fletcher London School of Hygiene and Tropical Medicine	The Eureye Study: pan european study on the risk factors and pathogenesis of AMD (principally funded by the EC)
Professor Gary Rubin Moorfields / Institute of Ophthalmology, UCL	Investigation into the benefits of new high-tech low vision devices
Professor Usha Chakravarthy Queen's University Belfast	A longitudinal study of factors influencing visual function in AMD
Dr Susan Leat School of Optometry, University of Waterloo, Canada	Increased visibility of digital images by the application of digital image enhancement for MD
Professor Gary Rubin and Dr Stamatina Kababarou Moorfields / Institute of Ophthalmology, UCL	Binocular eye movements and eccentric fixation in AMD
Dr Daniel Hornan Moorfields / Institute of Ophthalmology, UCL	Differential gene expression in ARMD
James Lowes supervised by Prof Stephen J Anderson Aston University	Development of visual display strategies to enable patients with MD to use peripheral viewing for reading

2005

Dr Norman McKie, Mr Mike Clarke, Zheng Li Newcastle University	A splice acceptor site mutation in the TIMP3 Gene which causes late onset Sorsby's Fundus Dystrophy
Professor Andrew Webster Moorfields / Institute of Ophthalmology, UCL	A survey of the mutation in ABCA4 in juvenile macular dystrophy
Professor Gordon Dutton and John McLean Glasgow Caledonian University	Rehabilitation of reading by training in eccentric viewing in subjects with AMD (eccentric fixation and the effect on the visual brain – a functional magnetic resonance imaging study)

2006

Professor Andrew Lotery University of Southampton	Identification of novel age-related macular degeneration genes by linkage disequilibrium mapping
Dr Michael Crossland Moorfields / Institute of Ophthalmology, UCL	Development of an 'at home' eccentric viewing training programme
Dr Hannah Bartlett Aston University	Clinical assessment of the apparent motion photometry technique for measurement of macular pigment optical density
Victor Chong King's College London	Biomarkers in gene-directed therapy of AMD

2007

Professor Andrew Lotery University of Southampton	High density scanning of chromosome 4 for genetic causes of macular degeneration
Professor Clare Bradley Royal Holloway London	Identifying sources of satisfaction with eye clinics in patients with macular disease
Professor John Yates Cambridge University	Genetic factors in age-related macular degeneration
Dr Jennifer Evans London School of Hygiene and Tropical Medicine	Improving the treatment of age-related macular degeneration: providing new evidence base

2008

Dr Dominic ffytche Kings College London	Non-drug treatments for visual hallucinations
Professor Paul Bishop Manchester University	Towards a therapeutic that prevents AMD: identification of molecules that bind differentially to the 402H and 402Y forms of the complement factor H
Professor Pete Coffey UCL Institute of Ophthalmology	London Project to Cure Blindness

2009

Professor Usha Chakravarthy, Dr Gareth McKay Queens University Belfast	Investigation of the TLR3 gene associated with atrophic AMD
Professor Clare Bradley, Dr Jan Mitchell Royal Holloway London	Evaluation of the effectiveness of training people in eccentric viewing techniques
Professor Christopher Owen St George's University of London	Investigation into the prevalence of MD

2010

Dr Catey Bunce Moorfields Eye Hospital	Prevalence of AMD in the UK (category B): how many people are registered partially sighted or blind because of AMD
Dr Paul Knox University of Liverpool	Living with AMD (ie. AMD treatment regime)
Professor Andrew Lotery University of Southampton	Pharmacogenetic correlations in AMD
Professor Astrid Fletcher London School of Hygiene and Tropical Medicine	Genetic Predictors of blood antioxidant levels and risk of AMD

2011

Professor Rachel Williams University of Liverpool	Development of cells to grow on artificial membrane to transplant into the eye as retinal support tissue
Western Eye Hospital London	Development of fast online referral system to speed up referral of patients with wet macular disease between optometrists and macular clinics
Professor Andrew Webster Moorfields Eye Hospital and UCL	Use of DNA sequencing technology to build a catalogue of chromosomes associated with inherited retinal disorders to help improve diagnosis

2012

Professor Sobha Sivaprasad Moorfields Eye Hospital	The burden of care of wet AMD treatment regime on patients and caregivers
Winfried Amoaku University of Nottingham	Prevalence of AMD in elderly UK population (Bridlington Study)
Dr Alison Binns Cardiff University	Eccentric viewing literature review
Professor Christine Dickinson Manchester University	Eccentric viewing evaluation
Mr Adnan Tufail Moorfields Eye Hospital	Health economic analysis of the cost-effectiveness of using AREDS vitamins

2013

Professor Majlinda Lako
Newcastle University

Assessing the feasibility of induced pluripotent stem cells to provide a disease model for AMD

Mr Rob Johnston
Cheltenham General Hospital

National Ophthalmology Database: national audit of neovascular AMD care in the UK

**Dr Anthony Vugler
(Aisling Lynch)**
UCL Institute of Ophthalmology

PhD Developing light as a tool for enhancing the functionality of human stem cell derived RPE

**Professor Clare
Bradley (Emily Boxell)**
Royal Holloway University of London

PhD Experiences of Macular Disease: follow up survey



Professor Majlinda Lako and team, Newcastle University

2014

Professor Michel Michaelides (Preena Tanna)
UCL Institute of Ophthalmology

PhD Assessing retinal structure and function in Stargardt disease using advanced phenotyping in preparation for planned therapeutic intervention

Dr Raymond Beirne
University of Ulster

Does higher macular pigment density preserve visual function in intermediate AMD?

Dr Amanda Carr
UCL Institute of Ophthalmology

Using induced pluripotent stem cells to investigate Best's associated macular degeneration

Professor Paul Bishop
University of Manchester

Establishment of a national eye tissue archive for AMD research



Dr Amanda Carr, Joe (PhD student) and Loriana (PhD student)

2015

Dr Ruth Hogg (Timos Naskas) Queen's University Belfast	PhD Reticular pseudodrusen in age-related macular degeneration: a population based study
Dr Arjuna Ratnayaka (Ellie Keeling) University of Southampton	PhD Study of molecular mechanisms driving RPE dysfunction in patients from different stages of AMD, and cellular rescue as a potential future therapy
Professor Paul Foster UCL Institute of Ophthalmology	Realising the potential of the UK Biobank research resource
Dr Aparna Lakkaraju University of Wisconsin-Madison, USA	Modulating mitochondrial dynamics in the retinal pigment epithelium as a therapeutic strategy for macular dystrophies

2016

Professor Andrew Dick (Louis Scott) University of Bristol	PhD Role of IL-33 and its epigenetic regulation in the pathogenesis of AMD
Professor Luminita Paraoan University of Liverpool	Gene editing of AMD risk factor in RPE cells: could modulation of proteolytic control lead to new therapeutic interventions for AMD?
Dr John-Paul Taylor Newcastle University	Treating visual hallucinations in people with macular degeneration: a non-invasive stimulation study

2017

Professor Robin Walker (Farah Akthar) Royal Holloway University of London	PhD Investigating reading with a loss of central vision
Dr Pádraig Mulholland (Aiofe Hunter) Ulster University	PhD Exploring the spatiotemporal summation of microperimetric stimuli in AMD
Professor Majlinda Lako Newcastle University	Understanding the role of autophagy in the pathogenesis of AMD using a patient specific iPSC model
Prof Paul Bishop University of Manchester	Development and utilisation of Manchester Eye Tissue Repository to elucidate the molecular pathology of AMD
Dr Clare Thetford University of Central Lancashire	Identifying best practice in the delivery of peer support groups: learning from the lived experience of Macular Society Support Groups



Aiofe Hunter, Ulster University (PhD Student)

2018

Professor Majlinda Lako
Newcastle University

Exploiting the role of exosomes to treat AMD and provide biomarkers for early diagnosis of the disease

Professor Graeme Black
University of Manchester

A comprehensive molecular analysis of iPSC model of early-onset macular degeneration to better understand AMD

Dr Amanda Carr
UCL Institute of Ophthalmology

Investigating CRISPR/Cas9 gene editing as a therapy for Autosomal Dominant Bestrophinopathies

Dr Rob Collin
Radboud University, The Netherlands

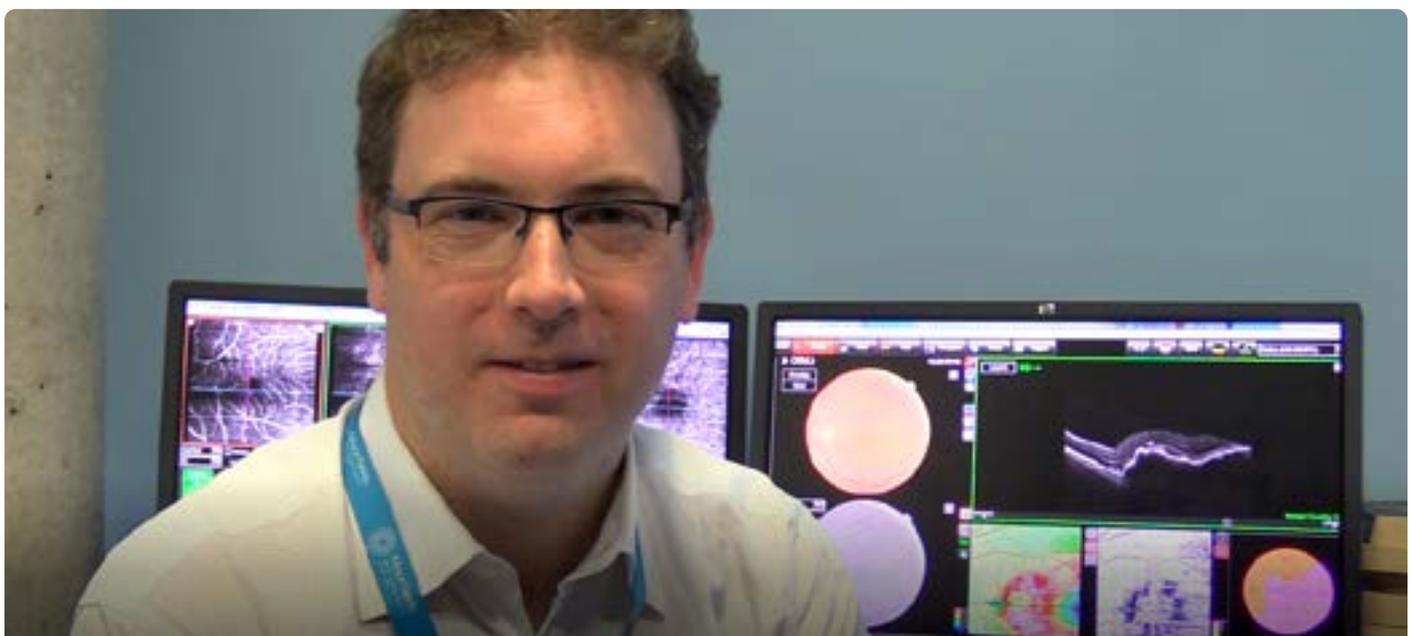
PhD Natural exon skipping in ABCA4 mRNA and its modulation as a novel generic therapy for Stargardt disease (co-funded with Retina UK)



Dr Amanda Carr, UCL Institute of Ophthalmology

2019

Dr Tamsin Callaghan City, University of London	PhD Investigating the impact of practitioner advice about lifestyle modification in AMD
Dr Bridgeen Callan Ulster University	PhD A polymersomal based eye drop formulation to enhance delivery of drug payloads to the posterior of the eye
Pearse Keane UCL and Moorfields Eye Hospital	Evaluation of AMD using artificial intelligence and OCT
Prof Paul McGraw University of Nottingham	Promoting functional vision through modern digital technology
Dr Giuliana Silvestri Royal Hospitals, Belfast	Efficacy and safety of the Scharioth Macular lens in advanced AMD
Dr James Whiteford Queen Mary University of London	A novel peptide based therapy for wet AMD



Dr Pearse Keane, UCL and Moorfields Eye Hospital