Participant Information Sheet

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

Study title: **Using MRI to identify biomarkers of age-related eye disease**

Locality: Grafton, Auckland

Health and Disability Ethics Committee ref: 19/STH/113

Main research investigators:

Dr. Alyssa Lie Email: a.lie@auckland.ac.nz
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Dr Renita Martis Email: r.martis@auckland.ac.nz

Lead investigator: Prof Paul Donaldson Email: p.donaldson@auckland.ac.nz

TO THE PARTICIPANT,

You are invited to take part in a study that uses magnetic resonance imaging (MRI) to detect biomarkers that lead to the onset of age-related eye conditions as you have previously expressed interest in taking part in MRI research, or because you responded to our flyer/email advertisement.

To help you decide whether you'd like to take part, this Participant Information Sheet sets out why we are doing the study, what your participation would involve, what the benefits and risks to you might be, and what would happen after the study ends. Please take your time to think about the information provided below, and feel free to discuss it with your whānau, family, other significant support people and/or healthcare providers.

Whether or not you take part in this study is entirely your choice. If you choose not to take part, you do not need to give a reason, and it will not affect the standard of care you receive at the Auckland District Health Board, the University of Auckland Optometry Clinic, or Centre for Advanced MRI in any way. If you do agree to take part now, but change your mind later, you are free to withdraw from the study at any time without having to give a reason.

This document is 7 pages long, including a Consent Form. We highly encourage you to thoroughly read all the pages, so that we can answer any questions and address any concerns you may have about the study. If you agree to take part, you will be asked to sign the Consent Form on the last page of this document. You will be given a copy of the Participant Information Sheet and Consent Form to keep.

WHAT IS THE PURPOSE OF THE STUDY?

Cataract occurs when the crystalline lens, a normally transparent organ in the eye, loses its transparency. This results in symptoms of "cloudy" or blurry vision since the cataract blocks light from passing through the eye effectively. It is thought that a failure of the eye's lens to actively circulate water and deliver critical antioxidants with older age is a major cause of cataract development. For this reason, cataract is usually a disease of the elderly.

However, cataract has been found to develop much more quickly in those undergoing surgery to remove the vitreous humour, the fluid that surrounds the lens and fills the back part of the eye. This leads us to believe that the vitreous is an important source of antioxidants for the lens, and that changes in antioxidant levels in the vitreous with older age contribute toward the development of age-related cataract.

The goal of this study is to assess whether antioxidant levels in the vitreous can be used to predict the formation of age-related cataract. To achieve this, MRI is used to measure changes in antioxidant levels within the lens and vitreous humour in individuals who have undergone vitrectomy surgery. This study will shed light on creating strategies to prevent or delay the onset of age-related cataract in the future.

AM I ELIGIBLE TO TAKE PART?

You have been invited to take part in this study as you are either scheduled to undergo eye surgery that involves removal of the vitreous humour (i.e. vitrectomy) or cataract surgery. Your decision to participate in the study will not interrupt or affect the standard of care you are receiving from the District Health Board. If you are not scheduled to undergo any eye surgery, then you have been invited to take part as a control participant. You are eligible to participate if you are at least 18 years old.

You will **not** be eligible to participate if:

- you have significant refractive error (i.e. a spectacle prescription of over ± 6 Dioptres)
- you take certain types of medication (check with us)
- you have a personal or family history of epilepsy or seizures
- you have a history of neurological disorders or disease
- you have a cardiac pacemaker or any metal implants that prevent you from having an MRI scan
- you have experienced a serious head injury or skull fracture
- you are pregnant

WHAT DOES TAKING PART IN THE STUDY INVOLVE?

This study is a long-term observational study which runs until December 2024. This means that you will be asked to attend a few study visits throughout the duration of the study. You are free to withdraw your participation at any point during the study period.

Each study visit consists of an eye exam (about 1 hour) and an MRI scan (about 1 hour). All assessments will take place in the University of Auckland's Grafton campus. The eye exam and MRI scan can be done together in one sitting or separately depending on your preference.

If you are scheduled to undergo either vitrectomy or cataract surgery, your first study visit will take place 1-2 weeks prior to your surgery. Your second visit will take place 1-3 months following your surgery. Then, you will be asked to attend a study visit every 6 months over the next couple of years.

If you are taking part as a control participant (i.e. you are not scheduled for any eye surgery), you will mainly be asked to attend a one-off study visit. However, you may be invited back to attend follow-up visits over the next couple of years.

Pre-enrolment Screening

Before being invited to attend a study visit, you will first be asked to complete some questionnaires that will determine your overall eligibility for the study. This includes answering a few questions about your medical history, your previous eye care and any eye problems, as well as completing a MRI safety form to ensure that it is safe for you to undergo an MRI scan as per standard practice. We may also ask for your permission to obtain past medical or health records from your doctor or optometrist to check your eligibility to take part in the study.

Eye Exam

The eye exam will be conducted either by a qualified optometrist, or by optometry students under the supervision of a qualified optometrist, at the University of Auckland Optometry Clinic. Here, we will check your glasses prescription, vision and eye health using standard optometric tests. Dilating eye drops may be used as part of the eye exam. Common eye imaging modalities including (but not limited to) optical biometry, retinal and anterior segment photography, and optical coherence tomography will be also performed as part of the assessment. The total testing time for the eye exam is anticipated to be approximately one hour.

MRI Scan

The MRI scan will take place at the University of Auckland's Centre for Advanced MRI (CAMRI). The MRI protocols used in this study are safe and non-invasive. Before entering the MRI scanner, an MRI technologist or radiographer will evaluate the MRI safety form you completed to ensure that it is safe for you undergo an MRI scan. You will be asked to change into a dressing gown prior to entering the machine. Once in the scanner, you will be asked to lie down on a table with your head stabilised with foam pads. The scanner is quite noisy when it is operating, so you will be given earplugs to wear. The MRI technician and study researcher will communicate with you via an intercom system regarding when each scan is starting and what to expect.

During these scans you will be asked to look at a target presented on a screen that you will view through a mirror. You may experience feelings of claustrophobia as the MRI scanner tunnel is quite narrow. If at any time you want to stop the scan, you can press a safety button, and the scanning will stop straight away. We will scan your eyes as well as your brain. We will not analyse scans of your brain. The entire MRI scan will take approximately one hour, including changing time and plenty of rest breaks between scans.

Tissue Collection

If you are undergoing surgery to remove the vitreous humour or cataract, we will also be collecting the vitreous humour and cataract from the surgeon. The removed vitreous humour fluid or cataract lens tissue is typically thrown away after surgery, but for this study, we will collect them to perform further analysis of their antioxidant levels. This part of the study will be conducted in the clinical room of the Department of Ophthalmology, University of Auckland, situated in Greenlane Hospital (within the same part of the building where all your clinical and surgical treatment is normally carried out).

Confidentiality

All data and tissue samples collected from you will be de-identified. You will not be identified in the processing and analysing of information. The results may be presented at conferences, used in doctoral theses, and included in published journal articles. No material that could personally identify you will be used in any reports on this study. The information and data collected from you will be stored securely, in locked cabinets and on secure computer networks at the University of Auckland. Only the investigators will have access to this information, and your data will be made anonymous by assigning a unique code to it. As with all medical data, this information will be securely destroyed after 10 years.

WHAT ARE THE POSSIBLE BENEFITS AND RISKS OF THIS STUDY?

There will be no direct benefits for you in this study. However, you will be offered a copy of your spectacle prescription and any images of your eyes that we obtain. You will also be offered a copy of your MRI scan on CD or USB.

There is a small risk of side effects from the use of dilating eye drops and you will be assessed by a qualified optometrist for suitability prior to instilling the drop. The potential side effects are blurred vision, burning sensation, dry mouth, headache, nausea, sensitivity to sunlight, and temporary stinging. You may prefer to get a support person to drive you to the appointment or allow some time before driving home. In very rare cases, allergic reactions, eye pain, irregular or rapid heartbeat, paleness or flushing of the skin, rigid muscles, shortness of breath, or vomiting may occur. If you have any concerns after your visit, you can contact us.

Some subjects may get a claustrophobic reaction while lying supine in the MRI chamber due to the enclosed environment. If this occurs, the scan will be stopped immediately. You may also experience some eye fatigue or boredom as you will be required to view a target throughout the duration of the MRI

scan. Participants are free to stop and discontinue the process on account of any discomfort during the scan.

In the event that any abnormality is detected during the eye examination performed, the findings will be treated as they would be in normal optometric examination. The appropriate management will be conducted, which may include referral to the University of Auckland Optometry clinic, the Greenlane eye department or another ophthalmic specialist as appropriate.

Likewise, in the event that any abnormality is detected through performing an MRI scan on you, you will be informed of this and advised to consult your general practitioner and/or referred appropriately. Because the MRI scans are not routinely reviewed by a specialist, we are unable to perform diagnostic scans for medical purposes of areas where you have known abnormalities.

WHO PAYS FOR THE STUDY?

This study is funded by grants from the Health Research Council and National Institutes of Health. There is no fee to be part of this study. Upon the completion of each study visit, you will be given a gift voucher as a token of our appreciation for taking part in this study. You will receive this regardless of whether you withdraw during the study.

WHAT IF SOMETHING GOES WRONG?

In the unlikely event of a physical injury as a result of your participation in this study, you may be eligible **to apply** for compensation from ACC under the Injury Prevention, Rehabilitation and Compensation Act. ACC cover is not automatic, and your case will need to be assessed by ACC according to the provisions of the 2002 Injury Prevention Rehabilitation and Compensation Act, just as you would be if you were injured in an accident at work or at home. This does not mean that your claim will automatically be accepted. You will have to lodge a claim with ACC, which may take some time to assess.

If your claim is accepted by ACC, you still might not get any compensation. This depends on a number of factors such as whether you are an earner or non-earner. ACC usually provides only partial reimbursement of costs and expenses and there may be no lump sum compensation payable. There is no cover for mental injury unless it is a result of physical injury. If you have ACC cover, generally this will affect your right to sue the investigators.

For more details, refer to http://www.acc.co.nz. If you have any questions about ACC, please feel free to ask the researcher for more information before you agree to take part in this trial. If you have private health or life insurance, you may wish to check with your insurer that taking part in this study will not affect your cover.

WHAT ARE MY RIGHTS?

- Your participation is entirely voluntary (your choice). Your agreement to participate in this study will be obtained in writing on a consent form.
- You are encouraged to consult with your whānau/family, hapū or iwi regarding participation in this study. You are welcome to have a family member or support person with you during the study sessions.
- You may withdraw from the study at any time without providing a reason. This will not affect your continuing or future health care. If you choose not to take part, you will still receive the usual treatment/care by the health care facility you were referred from.
- You may have your data and any samples collected from you withdrawn from the study at any time.
- Your identity will be kept strictly confidential, and no identification of you or your data will be made at any time during collection of the data or in subsequent publication of the research findings.

- Your participation in the study is confidential and this information will not be divulged to anyone outside the research group.
- Ongoing discomfort or incapacity have not been reported from any of the procedures that will be used in this study, however, if the procedures cause you concern, you may withdraw from the study at any time.

WHAT HAPPENS AFTER THE STUDY OR IF I CHANGE MY MIND?

Participation will not cost you anything other than your time. Your participation is entirely your choice. If you choose not to take part this will not affect the standard of care you receive at the University of Auckland Optometry Clinic, Centre for Advanced MRI, or the Auckland District Health Board in any way.

If you do agree to take part, you are free to withdraw from the study at any time without having to give a reason. You have the right to withdraw any unanalyzed samples as part of the study. Any data collected and samples analyzed up to the point of withdrawal will kept for analysis however, no further data will be collected, and samples analyzed once you withdraw from the study. You may obtain results regarding the outcome of the study from the researchers upon completion of the study.

WHO DO I CONTACT FOR MORE INFORMATION OR IF I HAVE CONCERNS?

Thank you for giving us your time to consider participating in this study. If you have any questions or concerns about the study, or would like to participate, please contact:

Primary researcher:	**Dr. Alyssa Lie**
Phone:	(+64)21 0266 4662
Email:	a.lie@auckland.ac.nz
Investigator:	Dr. Renita Martis
Email:	r.martis@auckland.ac.nz
Principle investigator:	Prof. Paul Donaldson
Phone:	(+64)21 802 248
Email:	p.donaldson@auckland.ac.nz

If you want to talk to someone who isn't involved with the study, you can contact an independent health and disability advocate on:

Phone:	0800 555 050
Fax:	0800 2 SUPPORT (0800 2787 7678)
Email:	advocacy@advocacy.org.nz

For Māori Heath support, please contact :

Name:	He Kamaka Waiora, Provider Arm Services
Phone:	(09) 307 4949
Address:	Level 15, building 4, Auckland City Hospital, Grafton, Auckland

You can also contact the Health and Disability Ethics Committee (HDEC) that approved this study on:

Phone:	0800 4 ETHICS (0800 438 442)
Email:	hdecs@moh.govt.nz

Consent Form

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

Please read and tick where necessary to indicate you consent to the following.

	YES	NO
I have read or have had read to me in my first language, and I understand the Participant Information Sheet.	☐	☐
I have been given sufficient time to consider whether or not to participate in this study.	☐	☐
I have had the opportunity to use a legal representative, whānau/family support or a friend to help me ask questions and understand the study.	☐	☐
I am satisfied with the answers I have been given regarding the study and I have a copy of this consent form and information sheet.	☐	☐
I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without this affecting my medical care.	☐	☐
I consent to the research staff collecting and processing my information, including information about my health.	☐	☐
If I decide to withdraw from the study, I agree that the information collected about me up to the point when I withdraw may continue to be processed.	☐	☐
I consent to my GP or current health provider being informed about my participation in the study and of any significant abnormal results obtained during the study.	☐	☐
I agree to my vitreous humour and/or lens samples being processed and I am aware that these samples will be disposed of using established guidelines for discarding biohazard waste.	☐	☐
I agree to an approved auditor appointed by the New Zealand Health and Disability Ethic Committees, or any relevant regulatory authority or their approved representative reviewing my relevant medical records for the sole purpose of checking the accuracy of the information recorded for the study.	☐	☐
I understand that my participation in this study is confidential and that no material, which could identify me personally, will be used in any reports on this study.	☐	☐
I understand the compensation provisions in case of injury during the study.	☐	☐
I know who to contact if I have any questions about the study in general.	☐	☐
I understand my responsibilities as a study participant.	☐	☐
I wish to receive a summary of the results from the study.	☐	☐

Declaration by participant:
I hereby consent to take part in this study.

Participant's name: _____

Signature: _____ Date: _____

Participant Information Sheet for the Use of Tissue for Future Unspecified Research

Study title:	**Strategies to prevent age-related disease**		
Locality:	**University of Auckland**	Ethics committee ref.:	**19/STH/113**
Lead investigator:	**Prof. Paul Donaldson**	Contact phone number:	+6421802248

You have already agreed to take part in a research study on the Role of Magnetic Resonance Imaging (MRI) to detect biomarkers that lead to the onset of age-related eye conditions. This participant information sheet tells you about an optional sub study which will analyse the proteins from lens tissue and vitreous humour removed during cataract surgery and vitrectomy. This will be conducted in a small number of subjects already enrolled in the main study. This information sheet and consent form is in addition to the main study consent form that you have already signed.

Whether or not you take part in this optional sub study is your choice. If you don't want to take part, you don't have to give a reason, and it won't affect the care you receive or your participation in the main study. If you do want to take part now, but change your mind later, you can pull out of the study at any time.

This Participant Information Sheet will help you decide if you'd like to take part. It sets out why we are doing the study, what your participation would involve, what the benefits and risks to you might be, and what would happen after the study ends. We will go through this information with you and answer any questions you may have. You do not have to decide today whether or not you will participate in this study. Before you decide you may want to talk about the study with other people, such as family, whānau, friends, or healthcare providers. Feel free to do this.

If you agree to take part in this study, you will be asked to sign the Consent Form on the last page of this document. You will be given a copy of both the Participant Information Sheet and the Consent Form to keep.

This document is 5 pages long, including the Consent Form. Please make sure you have read and understood all the pages.

WHAT IS THE PURPOSE OF THE STUDY?

Age-related eye disease is the leading cause of blindness in the world. Research efforts are focused on developing therapies to prevent or delay the onset of age-related eye disease. Our previous work had allowed us to identify proteins and genes that play an important role in maintaining eye health especially in the lens, a transparent organ in the eye. We would now like to extend our research by using human lenses affected with cataracts to determine whether these proteins start the process of cataracts. We also want to understand how the vitreous humour, a fluid of the eye changes in antioxidant levels and affects the surrounding tissues. If successful, these studies will form the basis for the design of effective anti-cataract therapies in humans.

WHAT WILL MY PARTICIPATION IN THE STUDY INVOLVE?

As you are taking part in the main study this study, you have been invited to take part in this study in the hopes of using your tissue samples for future studies. Typically, the lens and vitreous humour fragments which are usually discarded during surgery, will be collected and stored for future use. If you agree to take part in this study, we will continue to store and hold your tissue and no further assessments will be needed.

WHAT HAPPENS TO MY SAMPLES AFTER THEY HAVE BEEN COLLECTED?

All samples collected during surgery will be stored in a -80˚C freezer at The University of Auckland with a unique code identifier. All samples will be analysed and all future unspecified research will be subject to an ethical review. This research includes the possibility that your tissue may undergo genetic testing to look for particular genes that are associated with age-related changes. In the unlikely event that we do not have the equipment to analyse your tissue, we will send them overseas as per the protocols laid out to us by the New Zealand Ethics Committee. All overseas research is considered by an ethics committee without New Zealand representation.

You may hold beliefs about a sacred and shared value of all or any samples removed. The cultural issues associated with storing your tissue should be discussed with your family/whānau as appropriate. There are a range of views held by Māori around these issues; some iwis disagree with storage of samples citing whakapapa and advise their people to consult prior to participation in research where this occurs. However, you do have the right to choose to participate and can withdraw your tissue at any time.

WHAT ARE MY RIGHTS?

Your participation is entirely voluntary (your choice). You do not have to take part in this study, and if you choose not to take part you will receive the usual treatment/care you would expect for your eye condition, whether it is in the public hospital system or in private practice. If you decide not to take part in this study, we will return your tissue back to you or dispose of it appropriately and with the utmost respect. If you do agree to take part, we will store your samples indefinitely for future unspecified research. You are free to withdraw from the study at any time, without having to give a reason and this will in no way affect your continuing or future care. If you decide to withdraw your tissue, we will return your tissue back to you or dispose of it appropriately and with the utmost respect. However, if you choose to have the unique code assigned to your tissue sample in the main study removed, we may not be able to withdraw the tissue from the study if you decide to withdraw at the later date after the main study is completed. These measures are taken to further protect the privacy and confidentiality of all participants in the study. If you would like the unique code assigned your samples to remain with your samples, please check the “yes” box in the in the consent form below. Any data collected will be the intellectual property of the researcher(s)

WHO DO I CONTACT FOR MORE INFORMATION OR IF I HAVE CONCERNS?

If you have any questions, concerns or complaints about the study at any stage, you can contact:

Investigator:	Dr. Julie Lim
Phone:	(09) 923 2591
Email:	j.limQ@auckland.ac.nz

Principle investigator:	**Prof. Paul Donaldson**
Phone:	+6421802248
Email:	p.donaldson@auckland.ac.nz

If you want to talk to someone who isn't involved with the study, you can contact an independent health and disability advocate on:

Phone:	0800 555 050
Fax:	0800 2 SUPPORT (0800 2787 7678)
Email:	advocacy@hdc.org.nz

For Māori Heath support please contact :

Name :	He Kamaka Waiora, Provider Arm Services
Phone :	09-3074949
Address :	Level 15, building 4, Auckland City Hospital, Grafton, Auckland

You can also contact the health and disability ethics committee (HDEC) that approved this study on:

Phone:	0800 4 ETHICS
Email:	hdecs@moh.govt.nz

Optional Consent Form for the Use of Tissue for Future Unspecified Research

Please tick to indicate you consent to the following

I have read or have had read to me in my first language, and I understand the Participant Information Sheet.		
I have been given sufficient time to consider whether or not to participate in this study.		
I have had the opportunity to use a legal representative, whānau/ family support or a friend to help me ask questions and understand the study.		
I am satisfied with the answers I have been given regarding the study and I have a copy of this consent form and information sheet.		
I understand that taking part in this study is voluntary (my choice)		
I consent to the research staff collecting and processing my information, including information about my health.		
I agree for my tissue samples to be stored and used in future research for the same subject as the current research project: [**Role of Magnetic Resonance Imaging to detect biomarkers that lead to the onset of age-related eye condition**]	Yes ☐	No ☐
I agree for my tissue samples to be stored and used in future research of any type which has been properly approved	Yes ☐	No ☐
I agree that my tissue samples may be subject to genetic testing in the future	Yes ☐	No ☐
I understand that my tissue samples will be stored indefinitely		
I would like the unique identifier code assigned in the main study to be kept with my tissue sample after the main study is complete.	Yes ☐	No ☐
I understand that I may withdraw from the study at any time.		
If I choose to remove the unique identifier code assigned to my tissue samples, I understand that in this case, I will not be able to withdraw my consent in the future		
If I decide to withdraw from the study, I agree that the information collected about me up to the point when I withdraw may continue to be used.		
I know who to contact if I have any questions about the study in general.		

Declaration by participant:

I hereby consent to take part in this study.

Participant's name: _____

Signature: _____ Date: _____

Declaration by member of research team:

I have given a verbal explanation of the research project to the participant and have answered the participant's questions about it.

I believe that the participant understands the study and has given informed consent to participate.

Researcher's name: _____

Signature: _____ Date: _____