



## RESEARCH UNITS, CENTRES AND INSTITUTES

### Annual Report Template

Please refer to the University of Auckland Policy on Research Units, Centres and Institutes for more information on reporting and accountability requirements (clause 2.5). A copy of this policy is available from the University Policy Register.

#### Section 1a - IDENTIFICATION INFORMATION:

Title of Unit, Centre or Institute:	New Zealand National Eye Centre (NZ-NEC)
Name of Director:	Professor Charles McGhee, HoD Department of Ophthalmology
Name of Deputy Director:	Professor Paul Donaldson,

#### Section 1b – ENDORSEMENT OF REPORT:

Signatures:	<i>Please sign in appropriate space below</i>
<b>Professor Charles McGhee - Director</b> (Required for all Units/Centres/Institutes)	
<b>Head of Department</b> (Required only for Department/School Units)	
<b>Dean</b> (Required for Faculty/University Centres/Institutes)	

## Section 2 – ADVISORY BOARDS AND MEETING DATES:

Names of Oversight Advisory Board members (for Faculty and University Centres that have Oversight Boards)	
Names of Expert Advisory Board members (for Faculty and University Centres that have Expert Advisory Boards)	
Names of Management Committee Members (for University and Faculty Centres)	<p>Professor Charles McGhee</p> <p>Professor Paul Donaldson</p> <p>Sue Raynel – Manager NZ-NEC</p> <p>Hutokshi Chinoy – Administrative Manager</p>
Dates of advisory board and management committee meetings that took place during the year	

## Section 3 – PARTICIPATING MEMBERS AND EMPLOYEES/STUDENTS:

Names and Departments of participating members	<p>Department of Ophthalmology; Buchannan Ocular Therapeutics Unit (BOTU); School of Optometry and Vision Science; Molecular Vision Laboratory, Faculty of Medical and Health Sciences.</p> <p>Affiliated members: New Zealand National Eye Bank; Glaucoma New Zealand; Clinical and Experimental Ophthalmology; Department of Anatomy with Radiology; University of Auckland Bio-engineering Institute</p>
List names, positions, and FTEs of all staff employed and postgraduate students involved in the Unit or Centre	<p>No staff are employed directly by NZ-NEC but provide assistance at discretion of the Departmental HoD's.</p> <p>See appendix for list of staff within NZ-NEC</p>

#### Section 4 – INTRODUCTION:

<p>Provide here a brief introduction to the report (maximum of 300 words)</p>	<p>The New Zealand National Eye Centre (NZ-NEC) was formally established in July 2008. The primary foci of NZ-NEC are to consolidate working relationships between University departments involved in Ophthalmology, Optometry, and Vision Sciences. The establishment of the NZ-NEC is unprecedented anywhere in Australasia within the eye health community.</p> <p>The recognition of NZ-NEC as a preeminent eye research facility within the Asia Pacific region is evidenced by appointment of Professor Charles McGhee as the President elect of the Asia-Pacific Professors of Ophthalmology (APPO) There were 70 peer reviewed publications and 3 book chapters and 1 book produced during 2015. Including a publication in the number 1 ranked Ophthalmology Journal</p> <p>In 2015 we were successful in obtaining research funding from competitive grants, philanthropic and industry awards in excess of \$3.7 million. Grants came from a wide variety of sources including: Royal Society of New Zealand \$800,000; ADHB \$683,000; Catwalk Trust \$248,812; Maurice and Phyllis Paykel Trust \$238,700; Auckland Medical Research Fund (AMRF) \$205,000; Stevenson Trust \$150,000 and more than \$500,000 in industry grants.</p> <p>We continue to undertake collaborative research with the Fred Hollows Foundation based at the Pacific Eye Institute in Fiji.</p> <p>A collaborative project between the Ophthalmology Department, ADHB and the University Department of Ophthalmology and School of Optometry and Vision Science to upskill community Optometrists in assessment and treatment of glaucoma patients commenced in the UoA Department of Ophthalmology clinics. This is with a view to providing community based glaucoma care in the future.</p> <p>Growing eye researchers for the future is essential to NZ-NEC and we have held seminars at which PhD students are encouraged to present to peers and supervisors as well as presentations by international eye researchers. PhD students have been also successful on the national and international stage taking away prizes at the UoA Exposure post-graduate research exposition, Entrepreneurship Challenge and HealthX.</p>
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## Section 5 – AIMS, GOALS AND FUTURE PLANS:

<p><b>a. General Aims:</b></p> <p>Briefly describe the general aims (plans and objectives/goals) of the unit or centre. Identify how they address the University and Faculty Strategic Plan.</p>	<p><b>Vision:</b> to eliminate preventable blindness and reduce visual impairment</p> <p><b>Mission:</b> to become a foremost international vision research, clinical and teaching centre through excellence, innovation and collaboration</p> <p><b>Goals:</b> To develop and increase the profile of eye health, vision research and education – in New Zealand/Aotearoa and internationally by:</p> <ul style="list-style-type: none"> <li>Laboratory research</li> <li>Clinical research and Clinical Services</li> <li>Application of research into practice</li> <li>Innovation</li> <li>Collaboration</li> <li>Teaching and Learning</li> <li>Community Outreach</li> <li>Public Health Policy</li> </ul>
<p><b>b. Goals for Reporting Year:</b></p> <p>Describe the specific goals for the reporting year.</p>	<p>Increase the number of local, national and international collaborations in 2015</p> <p>Research that produces innovations, scientific and clinical application</p> <p>Continue to develop Community Outreach</p> <ul style="list-style-type: none"> <li>• Fred Hollows Foundation</li> <li>• Glaucoma programme to up-skill optometrists in community practice.</li> </ul>
<p><b>c. Plans for Upcoming Year:</b></p> <p>Outline the plans for the next year. Identify any resource implications.</p>	<p>Submit an 'Eye Health' programme grant to HRC</p> <p>Expand on community programmes</p> <p>Research undertaken continues to produce innovations with scientific and clinical application</p>

## Section 6 – MAJOR ACHIEVEMENTS AND OTHER NOTABLE ACTIVITIES:

<p>Report against the specific goals listed in 5b above</p>	<p><b>Collaborations:</b></p> <ol style="list-style-type: none"> <li>1) The Connexin Biology group, under the leadership of Professor Colin Green, have established new international collaborations with Lincoln University, United Kingdom and Shanghai Jiao Tong University, China. There are also pending collaborations with the Malagan Institute, Commonwealth University of Virginia, USA and</li> </ol>
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Washington University, USA.

Dr John Wright, University of Queensland (co-supervising PhD student)

2) BOTU under the leadership of Dr Ilva Rupenthal has developed a collaboration with Novaliq, Germany via Auckland UniServices Ltd see commercial section below for further details.

3) The Ocular Surface Laboratory (OSL) under the leadership of A/Professor Jennifer Craig continues to develop collaborative research with industry. She has received more than \$360,000 in funding plus an additional \$306K from Manuka Health New Zealand to progress eyelid health with novel Manuka honey products research and also Oculieve \$68K for dry eye research.

**Innovation:**

1) Three new patents have been submitted

Green CR, Greene CA, Sherwin T. Ophthalmic compositions and methods of use. NZ Provisional Patent 705727, March 2015

Green CR and Kim Y. Methods of Treatment (Tonabersat with Pannexin Blocking). New Zealand Provisional Application No. 709673, July 2015.

Green CR, Kim Y, Duft BJ. Channel Modulators. US PCT Patent Application. August 2015.

**Community engagement:**

1) Our relationship with the Fred Hollows Foundation continues. To date a review of diabetes and major review of cataract surgery outcomes in patients from the Pacific Eye Institute in Fiji has been undertaken by Fred Hollows fellows. There are currently four publications in process for publication in peer reviewed journals. Presentations of reviews/research at RANZCO central and branch meetings have been given by Dr Jay Meyer in 2015.

2) Commenced glaucoma pilot project with view to implementing community based eye care, in collaboration with ADHB, for appropriately trained optometrists. Pilot runs from October 2015 until May 2016. Two community optometrists and two lecturers from the School of Optometry are the first participants.

<p>Summary of major developments and achievements. Identify how these activities contribute to the research capability of the department or faculty (beyond what would be achieved through the activities of the individual members). Please provide greater detail for anything noteworthy that may give useful publicity to the University</p>	<p>Professor Charles McGhee currently President elect of the Asia-Pacific Professors of Ophthalmology (AAPPO). This provides a high profile for NZ-NEC in the Asia Pacific Region.</p> <p>Dr Shuan Dai received an award for the Health of the Asian Community by the New Zealand Health Foundation for Asian and Ethnic Communities in recognition of his services to the Asian Community. Dr Dai has also been pivotal in two Chinese Ophthalmologists coming to New Zealand to upskill on paediatric ophthalmology and research thus forging links with Chinese ophthalmic teaching/clinical institutions.</p> <p>A/Professor Robert Jacobs, Dr Keith Pine and Dr Brian Sloan published the first textbook to offer a comprehensive account of ocular prosthetics.</p> <p>Professor Helen Danesh-Meyer, Dr Jie Zhang and Professor Colin Green were invited to publish a paper in the number 1 ranked ophthalmology journal worldwide - 'Progress in Retinal and Eye Research (impact factor,:8.33, 5-year impact factor:10.439)</p> <p>Professor Colin Green was awarded the 2015 Vice Chancellors Commercialisation Medal in recognition for his work with CoDa therapeutics and several other projects such the project with Dr Carol Greene and A/P Trevor Sherwin.</p> <p>Dr Stuti Misra was the recipient of the inaugural Stevenson Fellowship within the FMHS. The fellowship provides funding of \$200,000 to a Post-Doctoral fellow for a term of 2 years. Dr Misra will be utilising the funding to pursue research into '<i>Assessing remission or progression of diabetic peripheral neuropathy using in vivo confocal microscopy of the cornea</i>' within a multidisciplinary team within the SOM - Ophthalmology and Endocrinology. This research is an expansion of her PhD thesis work.</p> <p>One new post-Doctoral member. Dr Carol Green joined our post-Doc team following completion of PhD in the Department of Ophthalmology in 2015. Carol's position is partially funded on a UniServices 'Return on Science project' which is directly related to her PhD in which they are seeking to translate her findings into clinical practice.</p> <p>The Buchanan Ocular Therapeutics Unit (BOTU) under the leadership of Dr Ilva Rupenthal, Senior Lecturer, has had a very successful year with international recognition of the Unit. Dr Rupenthal was invited to organise and chair an Ocular Drug Delivery workshop at the 2015 Controlled Release Society Conference, Edinburgh, UK. She is a guest</p>
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	<p>editor of a special Ocular Drug Delivery issue of Drug Delivery and Translational Research. Research funding of \$186,387 was received from competitive grants including HRC and Lottery Health. BOTU have commenced a project with Novaliq, Germany. They are supporting a PhD student to undertake the research – see commercial section below for further details. Dr Rupenthal was invited to speak at 3 conferences and provide research seminars at Lions Eye Institute/University of Western Australia, WA and University of California, San Diego, USA Staff within the Unit have published 8 peer reviewed papers; 4 non-peer reviewed papers and undertaken 5 podium presentations and 3 posters at international conferences. Sachin Thakur from the University of Queensland was hosted by BOTU.</p> <p>Dr James McKelvie a previous PhD student in the Department and honorary staff member, whilst Senior Registrar at Waikato DHB, won the new ideas category at the Clinicians Challenge for his '<i>electronic referral, risk assessment and real-time audit of cataract surgery initiative</i>'. This nation-wide challenge is aimed at finding innovative information and technology solutions to improve healthcare. There were a total of 66 entries in this year's challenge. James will take up a research fellowship position in the department of Ophthalmology in February 2016 for 18 months. He anticipates progressing this referral system during his fellowship and has already entered into talks with ADHB.</p>
<p>Comment on any co-operative commercial activities, research with other University or Government laboratories or research groups</p>	<p>Professor Colin Green is a consultant to CoDa Therapeutics, Inc. and he gave 9 presentations on behalf of CoDa to potential commercial partners / pharmaceutical companies during 2015 in order to progress clinical trials of Nexagon<sup>®</sup> and Peptagon<sup>™</sup></p> <p>Associate Professor Jennifer Craig has established a new relationship with Oculeve a company specialising in developing treatments for 'Dry Eye'. Her expertise is recognised internationally and she has received funding from France Medical and E-Swin Paris to attend meetings/conferences in San Francisco, USA; Denver, USA; Paris, France; Brisbane, Australia and Yokohama, Japan.</p> <p>BOTU commenced a project with Novaliq, Germany to develop an ex vivo model to evaluate the penetration of various formulations into the ocular tissues after topical application. Such a model allows screening of ocular formulations at an early stage of development and could reduce the cost and complexity of testing routines currently</p>

	<p>used by the pharmaceutical industry. Dieter Scherer, PhD, CSO Novaliq says: "Industry needs a reliable model to test formulations already at an early stage. We are very happy to work together with such an experienced group in the area of ocular drug delivery."</p> <p>Three new patents applied for in 2015:</p> <ul style="list-style-type: none"> <li>• Green CR, Greene CA, Sherwin T. Ophthalmic compositions and methods of use. NZ Provisional Patent 705727, March 2015</li> <li>• Green CR and Kim Y. Methods of Treatment (Tonabersat with Pannexin Blocking). New Zealand Provisional Application No. 709673, July 2015.</li> <li>• Green CR, Kim Y, Duft BJ. Channel Modulators. US Patent Application. August 2015.</li> </ul>
<p>Comment on any courses given or workshops and seminars held</p>	<p>We continue to hold bi-monthly seminars for disseminating current research findings and issues. These have also have been an avenue for generating collaboration amongst researchers who otherwise would not have had contact. See attached for seminar details.</p> <p>Several high profile international guest lecturers have presented at NZ-NEC seminars in 2015:</p> <ol style="list-style-type: none"> <li>1. Professor Fiona Stapleton - University of NSW, Australia.</li> <li>2. Professor David Williams - Department of Ophthalmology and Neuro-biology UCLA School of Medicine, Los Angeles, USA</li> <li>3. Professor Michael Kallonatis, - University of NSW, Australia</li> <li>4. Professor John McAvoy – Save Sight Institute, University of Sydney, NSW, Australia.</li> </ol> <p>Summer students presented their projects at the "Excellence in Ophthalmology and Vision Research Prize Evening". Students were given guidelines for their 10 minute presentations which were judged by academics external to NZ-NEC – Professor Mark Barrow and Professor Louise Nicolson. The winner in 2005-2016 was Johnathon Young from School of Optometry and Vision Science, supervisor Dr Misha Voroboyev.</p> <p>Members of NZ-NEC participate in the MBChB, optometry undergraduate and the optometry ocular therapeutics</p>



	programmes as well as vocational training for the Royal Australian and New Zealand College of Ophthalmology vocational scheme. They also provide education to ophthalmic nurses, health facilities and community organisations Glaucoma NZ, for example, provides 6 seminars to communities throughout New Zealand annually
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## Section 7 - Reviews

<b>Date of last review</b>	2011
<p><b>Review Recommendations</b></p> <p>List the recommendations of the review and give an update of progress on addressing the recommendations.</p>	<p>1. <i>Continues to explore funding opportunities including funding form international sources with the support of the UoA Advancement office.</i></p> <p>We have utilised the recommendations and have increased the amount of funding from international sources.</p> <p>2. <i>Investigates the management of contracted undergraduate and postgraduate optometry teaching activities through UniServices rather than DHB's</i></p> <p>This has not been explored as the Department of Ophthalmology has an excellent relationship with the Ophthalmology Services at ADHB</p> <p>3. <i>Continues to advance existing and new research and clinical/teaching collaborations that will benefit from the co-localisation of the "eye" clinics in the new '505 building</i></p> <p>The clinical space in building 505 is being used for teaching of not only medical and optometry students but also for a programme to upskill community optometrists as part of a project in collaboration with the ADHB.</p> <p>4. <i>Keeps the vision and goals of the centre in mind as the development of a school combining Optometry and Ophthalmology is further explored over the next 2-3 years</i></p> <p>The School of Optometry and Vision Science is now an independent identity and therefore we are not pursuing the development of school combining Optometry and Ophthalmology.</p> <p>5. <i>Continues to publicise its successes and achievements</i></p>

	<p><i>across all activities at the Faculty, University and national levels</i></p> <p>Staff within NZ-NEC have been interviewed for radio and television as well as had article published in national newspapers. We have also had several achievements highlighted in the weekly Deans diary. Students within NZNEC have also been successful in the UoA Exposure post-graduate research exposition, Entrepreneurship Challenge, HealthX</p>
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## Section 8 – FINANCIAL REPORT

State whether the Unit or Centre has its own Activity Centre/s and list the Activity Centre/s being used	NZ-NEC does not have its own cost centre
State sources of funding, for example, from research funds from outside bodies, from the Department or Faculty, or other	
List any significant resource allocation decisions taken by the Oversight Board during this reporting year (if applicable)	
Include a statement of financial performance (contact Faculty Accountant for assistance), or give a clear explanation of the reasons if there has been no financial activity	N/A

## Section 9 – RESEARCH OUTPUTS

<p>Include a list of publications and other research outputs</p>	<p><b>Book Chapters:</b></p> <p>2015: Pine KR, Sloan BH, Jacobs RJ. Clinical Ocular Prosthetics. Springer International Publishing Switzerland.</p> <p>2015 Oliver VF, van Bysterveldt KA, Merbs SL. Ocular Epigenetics in Medicine. Chapter in Medical Epigenetics. Accepted pending editorial review. Elsevier.</p> <p>Craig, J.P., Chan. C., Salomão, M., Correia, F.F., Ramos, I., Ambrósio, R. Jr., Caparas, V.L., Kaido, M., and Tsubota, K. Case Studies. C. Chan (ed.), Dry Eye: A Practical Approach, Essentials in Ophthalmology, 103, Springer-Verlag Berlin Heidelberg 2015</p> <p>Stapleton, F., Garrett, Q., Chan, C., Craig, J.P. The Epidemiology of Dry Eye Disease. C. Chan (ed.) Dry Eye: A Practical Approach, Essentials in Ophthalmology, 103, Springer-Verlag Berlin Heidelberg 2015</p> <p><b>Peer reviewed Publications:</b></p> <ol style="list-style-type: none"><li>1. Kim BZ, Jordan CA, McGhee CNJ, Patel DV. A prospective study of Scheimpflug analysis of corneal haze after corneal collagen cross-linking in keratoconus. JCRS (In submission)</li><li>2. Zhang J, Sisley AMG, Anderson AJ, Taberner AJ, McGhee CNJ, Patel DV. Characterisation of a novel collagen as a potential corneal substitute. Tissue Engineering (In submission)</li><li>3. Mathan JJ, Patel DV, McGhee CNJ, Patel HY. Analysis of glaucoma subtypes and corresponding demographics in a New Zealand population. Journal of Glaucoma (In submission)</li><li>4. Crawford AZ, Meyer JJ, Ormonde S, Patel DV, McGhee CN. Complications related to sutures following penetrating and deep anterior lamellar keratoplasty. Clinical and Experimental Ophthalmology 2015 Epub ahead of print</li><li>5. Yoon JJ, Misra S, McGhee CNJ, Patel DV. Demographics and ocular biometric characteristics of patients undergoing cataract surgery in Auckland, New Zealand. Clinical and Experimental Ophthalmology 2015 Epub ahead of print</li></ol>
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6. Vellara HR, Ali NQ, Gokul A, Turuwhenua J, McGhee CNJ, Patel DV. Quantitative analysis of corneal energy dissipation and corneal and orbital deformation in response to an air - pulse in healthy eyes. *Investigative Ophthalmology and Visual Science* 2015;56(11):6941-7
7. Lagali N, Poletti E, Patel DV, McGhee CNJ, Hamrah P, Kheirkhah A, Tavakoli M, Petropoulos I, Malik R, Utheim T, Zhyvov A, Stachs O, Falke K, Peschel S, Guthoff R, Chao C, Golebiowski B, Stapleton F, Ruggeri A. Focused Tortuosity Definitions Based on Expert Clinical Assessment of Corneal Subbasal Nerves. *Investigative Ophthalmology and Visual Science* 2015;56(9):5102-5109
8. Patel DV, Horne A, Mihov B, Stewart A, Reid IR, McGhee CNJ. The Effects of Re-challenge in Patients with a History of Acute Anterior Uveitis Following Intravenous Zoledronate. *Calcifneuroied Tissue International* 2015;97(1):58-61
9. Vellara HR, Patel DV. Biomechanical properties of the keratoconic cornea: a review. *Clinical and Experimental Optometry* 2015;98(1):31-8
10. Zhang J, Patel DV. The pathophysiology of Fuchs' endothelial dystrophy – a review of molecular and cellular insights. *Experimental Eye Research* 2015;130C:97-105
11. Patel DV, Bolland M, Nisa Z, Abuwsi F, Singh M, Horne A, Reid IR, McGhee CN. Incidence of ocular side effects with intravenous zoledronate: secondary analysis of a randomized controlled trial. *Osteoporosis International* 2015;26(2):499-503
12. Crawford AZ, Krishnan T, Ormonde SE, McGhee CNJ, Patel DV. Treatment adherence following penetrating corneal transplant in a New Zealand population 2000-2009. *Cornea* 2015;34(1):18-22
13. Misra S, Goh YW, Patel DV, Riley A, McGhee CN. Corneal microstructural changes following cataract surgery in patients with diabetes mellitus. *Cornea* 2015;34(2):177-181
14. Misra S, Craig JP, Patel DV, McGhee CN, Pradhan M, Elyett K, Kilfoyle D, Braatvedt G. Corneal in vivo confocal microscopy: an ophthalmic bio-marker for peripheral and cardiac autonomic neuropathy in patients with type 1 diabetes mellitus. *Investigative Ophthalmology and Visual Science* 2015;56(9):5060-5065

15. McDonald E, Patel DV, McGhee CN. Clinical characteristics of patients with viral keratitis presenting to an emergency eye clinic in Auckland, New Zealand. *Cornea* 2015; 34(3):279-284
16. Misra SL, Braatbedt GD, Patel DV. The impact of diabetes mellitus on the ocular surface: a review. *Clinical and Experimental Ophthalmology* (in press).
17. Wang E, Misra SL, Patel DV. In vivo confocal microscopy of the human cornea in the assessment of peripheral neuropathy and systemic diseases. *BioMed Research International* (in press).
18. Seyfoddin A, Chan A, Chen TW, Rupenthal ID, Waterhouse GIN, Svirskis D (2015) Electro-responsive Macroporous Polypyrrole Scaffolds for Triggered Dexamethasone Delivery, *European Journal of Pharmaceutics and Biopharmaceutics* 94: 419-426
19. Chen YS, Green CR, Teague R, Perrett J Danesh-Meyer HV, Toth I, Rupenthal ID (2015) Improved delivery and stability of modified Connexin43 mimetic peptides in a retinal ischaemia model, *Drug Delivery and Translational Research*, 5(5): 480-488
20. Chen YS, Green CR, Danesh-Meyer HV, Rupenthal ID (2015) Neuroprotection in the treatment of glaucoma – A focus on connexin43 gap junction channel blockers, *European Journal of Pharmaceutics and Biopharmaceutics*, 95, Part B: 182-193
21. Chen YS, Wang K, Green CR, Danesh-Meyer HV, Rupenthal ID (2015) Sustained intravitreal delivery of connexin43 mimetic peptide by poly(D,L-lactide-co-glycolide) acid micro- and nanoparticles – Closing the gap in retinal ischaemia, *European Journal of Pharmaceutics and Biopharmaceutics* 5, Part B: 378-386
22. Danesh-Meyer HV, Zhang J, Acosta ML, Rupenthal ID, Green CR (in press). Connexin43 in retinal injury and disease. *Progress in Retinal and Eye Research* (doi: 10.1016/j.preteyeres.2015.09.004)
23. Duxfield L, Sultana R, Wang R, Englebretsen V, Deo S, Swift S, Rupenthal ID, Al-Kassas R (in press) Development of gatifloxacin loaded polymeric nanoparticles for ocular drug delivery, *Pharmaceutical Development and Technology* (doi: 10.3109/10837450.2015.1091839)

28. Sheck L, Kelly P, Vincent AL, Retinal hemorrhages in a child struck by a barbell. *Clin Experiment Ophthalmol*. Jul 3. doi: 10.1111/ceo.12574. [Epub ahead of print]
24. Duxfield L, Sultana R, Wang R, Englebretsen V, Deo S, Rupenthal ID, Al-Kassas R (in press) Ocular delivery systems for topical application of anti-infective agents, *Drug Development and Industrial Pharmacy* (doi: 10.3109/03639045.2015.1070171)
25. Seyfoddin A, Sherwin T, Patel DV, McGhee CN, Rupenthal ID, Taylor, J, Al-Kassas R (in press) Ex vivo and in vivo evaluation of chitosan coated nanostructured lipid carriers for the treatment of herpes keratitis. *Current Drug Delivery* (accepted manuscript)
- 26.. 2015 Oliver VF, van Bysterveldt KA, Cadzow M, Steger B, Romano V, Markie DM, Hewitt AW, Mackey DA, Willoughby CE, Sherwin TS, Crosier PS, McGhee C, Vincent AL. A COL17A1 Splice-Altering Mutation is Prevalent in Inherited Recurrent Corneal Erosions. accepted *Ophthalmology* – December 2015.
27. Liskova P ,Evans C , Davidson A , Zalaiova M , Dudakova L, Trkova M, Stránecký V , Carnt N, Plagnol V, Vincent AL , Stephen Tuft S , Hardcastle A. Heterozygous deletions at the ZEB1 locus verify haploinsufficiency as the mechanism of disease for posterior polymorphous corneal dystrophy type 3. *European Journal of Human Genetics*, 2015 Oct 28. doi: 10.1038/ejhg.2015.232. [Epub ahead of print]
29. Kelly, P, John. S., Vincent, AL, Reed P. Abusive Head trauma and accidental head injury: a 20 year comparative study of referrals to a hospital child protection team. *Archives of Disease in Childhood* . 2015 Jun 30. pii: archdischild-2014-306960. doi: 10.1136/archdischild-2014-306960. [Epub ahead of print]
30. Murphy R, Jiang Y, Booth M, Babor R, MacCormack A, Hammodat H, Beban G, Barnes RM, Vincent AL. Progression Of Diabetic Retinopathy After Bariatric Surgery *Diabet Med*. 2015 Feb 16. doi: 10.1111/dme.12727. [Epub Dec 10th 2014 ahead of print]
31. 2015 Oliver VF, Jaffe AE, Song J, Wang G, Zhang P, Branham KE, Swaroop A, Campochiaro B, Eberhart CG, Zack DJ, Qian J, Merbs SL. Differential DNA Methylation Identified in the Blood and Retina of AMD Patients. *Epigenetics*. 2015

Aug 3;10(8):698-707.

32. 2015 Hwang W, Oliver VF, Merbs SL, Zhu H, Qian J. Prediction of promoters and enhancers using multiple DNA methylation-associated features. *BMC Genomics*, 2015; 16(Suppl 7):S11.

33. 2015 Wan J, Oliver VF, Wang G, Zhu H, Zack DJ, Merbs SL, Qian J. Characterization of tissue-specific differential DNA methylation suggests distinct modes of positive and negative gene expression regulation. *BMC Genomics*, 2015; 16(1):49.

34. Dakin, S. C. Seeing statistical regularities: Texture and pattern perception In *Oxford Handbook of Perceptual Organization*, J. Wagemans (Ed.), Oxford University Press., Oxford, UK

35. Kwon, MY, Wiecek, E., Dakin, S.C., and Bex, P.J. Spatial-frequency dependent binocular imbalance in amblyopia, *Scientific Reports*, 5, 17181

36. Florey, J., Clifford, C.W.G., Dakin, S.C. & Mareschal, I. Peripheral processing of gaze perception, *Journal of Experimental Psychology: Human Perception and Performance*

37. Manning, C., Dakin, S.C., Tibber, M. & Pellicano, E. Enhanced integration of motion information in children with autism, *J Neuroscience*, 35, 6979-86

38. Wiecek, E., Lashkari, K., Dakin, S.C. & Bex, P.J. Prevalence, patterns and repeatability of metamorphopsia in macular disease: A statistical analysis of 7,106 Amsler Grids, *Ophthalmology*

39. Tibber, M.S., Anderson, E.J., Bobin, T., Carlin, P., Shergill, S.S. & Dakin, S.C. Local and global limits on visual processing in schizophrenia. *PLOS One*, 10(2): e0117951

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62. Danesh-Meyer, H. V., Zhang, J., Acosta, M. L., Rupenthal, I. D., & Green, C. R. (2015). Connexin43 in retinal injury and disease. *Progress in retinal and eye research*. doi:10.1016/j.preteyeres.2015.09.004 (Impact Factor 9.9)

41. Chakraborty, Arijit, Nicola S. Anstice, Robert J. Jacobs, Nabin Paudel, Linda L. LaGasse, Barry M. Lester, Trecia A. Wouldes, Jane E. Harding, and Benjamin Thompson. "Global motion perception is independent from contrast sensitivity for coherent motion direction discrimination and visual acuity in 4.5-year-old children." *Vision research* 115 (2015): 83-91.
42. Chakraborty, A., N. S. Anstice, R. J. Jacobs, L. L. LaGasse, B. M. Lester, T. A. Wouldes, and B. Thompson. "Prenatal exposure to recreational drugs affects global motion perception in preschool children." *Scientific reports* 5 (2015): 16921.
43. Langeslag-Smith, M.A., Vandal, A.C., Briane, V., Thompson, B. and Anstice, N.S. "Preschool children's vision screening in New Zealand: a retrospective evaluation of referral accuracy." *BMJ Open* (2015).  
<http://dx.doi.org/10.1136/bmjopen-2015-009207>
44. Kalloniatis, M, Nivison-Smith L, Chua J, Acosta ML, Fletcher EL. Using the rd1 mouse to understand functional and anatomical retinal remodelling and treatment implications in retinitis pigmentosa: A review. *Exp Eye Res.* 2015 Oct 30. pii: S0014-4835(15)30057-9. doi: 10.1016/j.exer.2015.10.019.
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	<p>Taylor &amp; Francis Group. In Press.</p> <p>67. Chew, S. S., Kerr, N. M., Wong, A. B., Craig, J. P., Chou, C. Y., &amp; Danesh-Meyer, H. V. (2015). Anxiety in visual field testing. <i>The British journal of ophthalmology</i>. Nov 25. pii: bjophthalmol-2015-307110. doi: 10.1136/bjophthalmol-2015-307110. [Epub ahead of print]</p> <p>68. Wang, M. T., Gokul, A., &amp; Craig, J. P. (2015). Temperature profiles of patient-applied eyelid warming therapies. <i>Contact lens &amp; anterior eye : the journal of the British Contact Lens Association</i>, 38 (6), 430-434. doi:10.1016/j.clae.2015.06.002</p> <p>69. Wang, M. T., Jaitley, Z., Lord, S. M., &amp; Craig, J. P. (2015). Comparison of Self-applied Heat Therapy for Meibomian Gland Dysfunction. <i>Optometry and vision science: official publication of the American Academy of Optometry</i>, 92 (9), e321-e326. doi:10.1097/opx.0000000000000601</p> <p>70. Craig, J. P., Chen, Y. H., &amp; Turnbull, P. R. (2015). Prospective trial of intense pulsed light for the treatment of meibomian gland dysfunction. <i>Investigative ophthalmology &amp; visual science</i>, 56 (3), 1965-1970. doi:10.1167/iovs.14-15764</p> <p><b>Keynote and invited addresses:</b></p> <p>Members of NZ-NEC were plenary/keynote/invited speakers at more than 20 major international conferences and institutions during 2015 including European Ophthalmological Society, Vienna, Austria; Asia Pacific Academy of Ophthalmology, Guanzhou, China; Academia Ophthalmologica Internationalis, Ghent, Belgium; American Society Cataract and Refractive Surgery, San Diego, California, United States; Asia ARVO, Yokohama, Japan; Controlled Release Society Conference, Edinburgh, UK</p> <p>Local conferences such as Cornea and Contact Lens society, Queenstown; Save Sight Society, Taupo, RANZCO annual meeting, Wellington; AFRM/NZRA combined rehabilitation Conference, Wellington; Plenary Talk – NZ Rehabilitation Medical Symposium, Auckland</p>
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**Please forward your report to your Head of Department or Faculty Office for endorsement (Section 1B above). Note: Annual Reports to be submitted to Research Committee must reach the Research Office by 28 February.**

## **Appendix**

<b>Department of Ophthalmology</b>	<b>Department of Optometry and Vision Science</b>
Academic Staff Professor Charles McGhee (HOD) Professor Colin Green Professor Helen Danesh-Meyer Associate Professor Trevor Sherwin Associate Professor Dipika Patel Associate Professor Jennifer Craig Dr Susan Ormonde (Senior Lecturer) Dr Andrea Vincent (Senior Lecturer) Dr Ilva Rupenthal (Senior Lecturer) Dr Hussain Patel (Senior Lecturer) Dr Rasha AlTaie (Senior Lecturer)	Academic staff Professor Steven Dakin (HoD) Associate Professor Robert Jacobs Associate Professor Benjamin Thompson Dr Geraint Phillips (Senior Lecturer/Clinic Director) Dr John Phillips (Senior Lecturer) Dr Misha Vorobyev (Senior Lecturer) Dr Monica Acosta (Lecturer) Dr Nicola Anstice (Lecturer) Mr Andrew Collins (Senior Tutor/tutor) Dr Jason Turuwhenua (Lecturer) Dr Jo Black (Lecturer) Dr Ehsan Vaghefi (Lecturer)
Clinical Research Fellows Dr Mohammed Ziaei (Cornea) Dr Niall Crosby (Surgical Retina) Dr Naz Raouf (Paediatrics) Dr Priya Samalia (Medical Retina) Dr James Slattery (Oculoplastics)	Professional Teaching Fellows Wanda lam Bhavini Solanki Thomas Cossick Richard Johnson Melinda Calderwood Jonathan Payne Lisa Silva Kathryn Sands Kerry Atkinson Melinda Calderwood Michelle O'Hanlon Jason Dhana Marcy Tong Jaymie Rogers Robert NG Janice Yeoman
Research Fellows Dr Aaron Wong / Dr Rebecca Cole (Optic Nerve) Dr Bia Kim (Maurice & Phyllis Paykel) Dr Jay Meyer (Fred Hollows) Dr Ellen Wang HRC clinical fellowship	Research Fellows and Postdoctoral Fellows Dr Keith Pine Dr Cindy Guo Dr Lisa Hamm Dr Phil Turnbull
Post-Doctoral Research Fellows Dr Jie Zhang Dr Stuti Misra Dr Verity Oliver Dr Richard Naylor Dr Erica Chen Dr Carol Green	PhD Candidates Victor Borges Ankita Umapathy Arjit Chakraboka Nabin Paudel Tanya Poppe Myra Leung Tanya Poppe Samuel Chiang Tuna Gao Duncan Wu Safal Khanal Nasir Nor Lily Chang
PhD Candidates Professor Helen Danesh-Meyer Carol Green Hannah Kirsten Elissa McDonald Yeri Kim Akilesh Gokul Naveed Yasim Isabella Cheung Sanjay Marasini Rohit Bisht Swathi Kanduri Hans Vellara Ellen Wang Priyanka Agarwal Ally Xue Samantha Watkins Lola Rotimi Fraser Coutinho	

<p>MD Candidates  Dr Catherine Wheeldon  Dr Jennifer Fan-Gaskin  Dr Bruce Hadden  Dr Alexandra Crawford  Dr Andrea Vincent  Dr Bia Kim  Dr Chee-Foong Chong</p> <p>Honours students  Yosra Agban  Jeremy Mathan (BMedSci)</p> <p>Research and Technical Staff  Jane McGhee – senior research technician  Judy Loh – research technician  Salim Ismail – research technician  Katherine van Bysterveldt – research technician  Fraser Coutinho – research technician</p> <p>Administration  Hutokshi Chinoy – PA to HoD and Administrative Manager of NZ-NEC  Maree McInerney – Departmental secretary  Susanne Raynel – Research and Development Manager and NZ-NEC Manager</p> <p>Visiting Lecturers/ Honorary Academics  Clinical A/Professor Philip Polkinghorne  Clinical A/Professor Hadden, Osmond Bruce  Professor Grupcheva, Hristina Nikolova, Bulgaria  Dr Koppens, Joanna Marie  Dr Ahmad, Nadeem  Dr Pendergrast, David  Dr Sharp, Dianne Margaret  Dr Gray, Trevor Buchanan  Dr Dai, Shuan H  Dr Ring, Charles Peter  Dr Ku, Yu-Fen Judy  Dr Barnes, Rachel Mary  Dr Bennett, Sonya Louise  Dr McAllum, Penelope Jane  Dr Sims, Joanne Lesley  Dr Riley, Andrew Francis Cameron  Dr Mora, Justin Stewart  Dr Welch, Sarah Helen  Dr Meyer, Derrell Graham  Dr Malik, Tahira Yasmin  Dr Hart, Richard Hamilton  Dr Dean, Simon John  Dr Donaldson, Mark Liston  Dr Best, Stephen James</p>	<p>MSc Candidates  Jason Dhana  Zoe Smith  Rebecca Findlay  Jagrut Lalu</p> <p>Technicians  Bruce Tetley – Lab Manager  Kristine Hammond – Dispensing Optician  Donald Crichton – Dispensing Optician</p> <p>Administration  Alison Richardson – Operations Manager  Cherry Clark – Department Administrator  Virginia Parslow – practicum co-ordinator  Kerryn Fish – group services co-ordinator  Julie Bishop – research assistant</p> <p>Visiting Lecturers/Honorary Academic  Associate Professor Jennifer Craig  Prof Paul Donaldson  Grant Watters  Dr Martin Loertscher  Dr Julie Lim  Dr Ken Robertson</p> <p><b>Molecular Vision Laboratory</b>  Professor Paul Donaldson</p> <p>Research Fellows  Dr Julie Lim (Senior Research Fellow)  Dr Gus Grey  Dr Bianca Heilman  Dr Rosica Petrova</p> <p>Lecturer  Dr Ehsen Vaghefi</p> <p>PhD students  Mitchell Nye-Wood  Renita Martis  Jessy Kong  Peter Qui  Duncan Wu</p> <p>MSc student  Chiharu Wickremesinghe</p> <p>Biomedical Honours student  Vithushiya Yononandarajah</p> <p>Technical Staff  Ivy Li – research technician  Rebecca Perwick – research technician</p>
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Dr Hadden, Peter William  
Dr Kane, Sam  
Dr Murray, Neil  
Dr Watts, Andrew  
Dr Carroll, Stuart  
Dr Squirrell, David

**New Zealand National Eye Bank**

Louise Moffatt  
Helen Twohill  
Nigel Brookes

**Clinical and Experimental  
Ophthalmology (RANZCO Journal)**

Victoria Cartwright – Editor in Chief

**Glaucoma New Zealand**

Helen Mawn  
Karen Farmer

**Collaborative Partners/Affiliated  
Members**

**School of Pharmacy**

Professor Julia Kennedy

**Department of Anatomy with  
Radiology**

Professor Louise Nicolson  
Dr Simon O'Carroll (post-doctoral research  
fellow)

**Bio-engineering**

Dr Jason Tarawhenua