



RESEARCH UNITS, CENTRES AND INSTITUTES

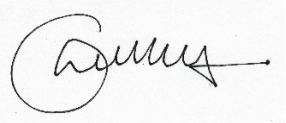
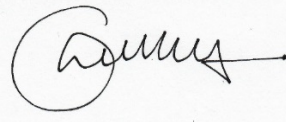
Annual Report Template

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
Name of Deputy Director:	Professor Paul Donaldson

Section 1b – ENDORSEMENT OF REPORT:

Signatures:	<i>Please sign in appropriate space below</i>
Professor Charles McGhee - Director (Required for all Units/Centres/Institutes)	
Professor Charles McGhee -Head of Department (Required only for Department/School Units)	
Dean (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>Professor Steven Dakin</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	<p>Committee members have had several meetings during the year specifically in relation to collaborative research and HRC funding in addition to informal networking at bi-monthly NZ-NEC seminars (N=17)</p>

Section 3 – PARTICIPATING MEMBERS AND EMPLOYEES/STUDENTS:

Names and Departments of participating members	<p>Department of Ophthalmology, Faculty of Medical and Health Sciences; School of Optometry and Vision Science; Molecular Vision Laboratory.</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>We continue to utilise the recommendations provided in the 2016 Research Centre Review report as a useful ongoing guide to develop the NZ-NEC.</p> <p>Members of NZ-NEC have had a stellar research year publishing 135 peer reviewed papers and two book chapters (N= 137 publications)</p> <p>In 2018 the members of the NZ-NEC, either individually or collaboratively, were successful in attaining research funding in excess NZ\$ 9,400,500.</p> <p>Research Grants came from a wide variety of sources including:</p> <p>\$1,586,000 HRC on-going collaborative programme grant, \$999,757 in MBIE grants, * \$1,546,000 in Marsden grants, \$1,011,898 in Industry funding via UniServices, \$780,000 from ADHB (mainly in fellowship grants). <i>(*builds on 2 MBIE grants 2017 for approx. \$1 million each)</i></p> <p>Four PhD's were completed within NZ-NEC ophthalmology with 2 student theses being recommended for Dean's list. More than 20 doctoral (PhD/MD) students are now supervised in NZNEC</p>
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Section 5 – AIMS, GOALS AND FUTURE PLANS:

<p>a. General Aims:</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>Vision: to eliminate preventable blindness and reduce visual impairment</p> <p>Mission: to become a foremost international vision research, clinical and teaching centre through excellence, innovation and collaboration</p> <p>Goals: 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"> Laboratory research Clinical research and Clinical Services Application of research into practice Innovation Collaboration Teaching and Learning Community Outreach
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<p>b. Goals for Reporting Year:</p> <p>Describe the specific goals for the reporting year.</p>	<ol style="list-style-type: none"> 1. <i>Continue with expanding community programmes</i> 2. <i>Increase our research collaborations within UoA, nationally and internationally</i>
<p>c. Plans for Upcoming Year:</p> <p>Outline the plans for the next year. Identify any resource implications.</p>	<ol style="list-style-type: none"> 1. <i>Continue with expanding community programmes</i> <p>Expand our research activities relating to eye health in the community. In particular, to establish research partnerships (e.g. with researchers in SOPH, sight charities, etc) with the goal of (a) estimating the prevalence of sight-threatening eye disease across New Zealand and (b) determining the barriers to accessing eye health care that are faced by people in New Zealand.</p>

Section 6 –MAJOR ACHIEVEMENTS AND OTHER NOTABLE ACTIVITIES:

<p>Report against the specific goals listed in 5b above</p>	<p>We have credentialed another 4 community-based therapeutic optometrists in glaucoma with a view to transferring patient care from hospital base to community based optometrists. However, we have not been able to expand the community programme as rapidly as we might due to delayed evaluation of the current community based glaucoma credentialed optometrists by ADHB. Nonetheless, there is a clear demand for this programme. The 'training' elements of the programme are resourced by Dept of Ophthalmology staff. The New Zealand Association of Optometrists (NZAO) now also provides scholarship support to community optometrists who elect to undertake this NZ-NEC course.</p> <p>In 2018 members of NZ-NEC collaborated extensively to submit an HRC programme grant. The grant was reviewed favourably and proceeded to the interview stage. However, it did not progress beyond interview, despite favourable reception.</p> <p>Subsequently a greatly modified HRC proposal for an NZ_NEC programme grant was submitted in October 2018 and has reached the interview stage in May 2019.</p> <p>Submission of two HRC programme grants in two years has greatly strengthened internal collaborations within NZ-NEC.</p>
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Objective or Project Title HRC Programme Grant	Leading Named Investigator
Modulation of lens water transport to prevent presbyopia and cataract	Donaldson, Paul
Strategies to delay cataracts: enhancing antioxidant pathways in the lens	Grey, Angus
The role of the lens in inter-tissue metabolism: molecular and cellular mechanisms	Lim, Julie
The role of the lens in inter-tissue metabolism: clinical consequences	McGhee, Charles
Clinical translation: visualising ocular pathology with MRI.	Vaghefi, Ehsan
Modulation of lens water transport to prevent presbyopia and cataract	Donaldson, Paul

Other research collaborations continue to increase both nationally and internationally:

Dr Samantha Simkin has established collaborations with Dr Connie Lai, Ophthalmologist, Department of Ophthalmology & Visual Sciences, Prince of Wales Hospital, Hong Kong, China and also Dr Shuan Dai, Ophthalmology Department Children's Health Queensland & Queensland Children's Hospital

Professor Steven Dakin is involved in a new Phase II Clinical Trial of a binocular treatment for childhood amblyopia developed in Auckland. The trial will run at Moorfields Eye Hospital, in collaboration with Annegret Dahlmann-Noor at Moorfields, and is supported by Action Medical Research UK.

Assoc. Professor Jennifer Craig has collaborations with Professor Mark Willcox and Dr. Maria Markoulli, University of New South Wales, Sydney, NSW, Australia; Professor Lyndon Jones, University of Waterloo, Ontario, Canada; Assoc. Professor Ety Bitton, University of Montréal, Québec, Canada; Assoc. Professor David Sullivan, Schepens Eye Research Institute, Harvard University, Boston MA, USA

Assoc. Prof Sam Schwarzkopf is participating in a new functional brain imaging and psychophysics consortium led by Dr Kristian Sandberg of Aarhus University in Denmark

Dr Stuti Misra has established new collaborations with Dr Maria Makoulli, University of New South Wales, Sydney and

	<p>Dr Jonathan Oakley, Voxerleron LLC and continues with her established collaboration with Professor Joseph Mankowski Johns Hopkins University.</p> <p>Assoc. Prof Rob Jacobs is co-supervising an MSc student with Assoc. Prof Nicola Anstice in the Discipline of Optometry and Vision Science at the University of Canberra. The project is entitled "Regional Disparities in Therapeutic Prescribing Trends of New Zealand Optometrists".</p>
<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, Ophthalmology, was honoured as one of the top 100 most influential people in the world of Ophthalmology in 2018. He is the only New Zealander to make the Ophthalmologist Power List 2018 and is placed among 100 surgeons, clinicians and scientists, all of whom have made significant contribution of international impact to the field of ophthalmology.</p> <p>Professor Charles McGhee, Ophthalmology, was also elected to the Royal Society of New Zealand, as one of 23 new Fellows elected to the Academy of the Royal Society Te Apārang in November 2018 in recognition for his contribution to ophthalmology research and teaching in NZ.</p> <p>Professor Steven Dakin, Head SOVS led a group of SOVS researchers in securing an award from the Marsden Fund to support a research project entitled '<i>The cortical limit on visual acuity</i>'. The value of this prestigious award from the New Zealand Royal Society is around \$736,000.</p> <p>A/P Jennifer Craig, Ophthalmology, was awarded the prestigious Life fellowship, College of Optometrists, London, UK (November 2018). She was invited to give the Pioneers Medal Lecture, British Contact Lens Association, London, UK (November 2018) in recognition of her contribution to research and treatment modalities in Dry Eye Disease.</p> <p>Ehsan Vaghefi, Sr Lecturer SOVS received nearly \$1m in funding in the 2018 round of the Endeavour Fund, New Zealand's largest contestable research fund, for his MyIScope idea: portable low-cost optical screening. The Ministry of Business, Innovation & Employment (MBIE Award) value is \$999,757.34.</p> <p>Dr Stuti Misra, Ophthalmology, was the recipient of the Early Career Research Excellence Award.</p> <p>Professor Colin Green, Ophthalmology, was Guest Editor (with JC Saez, Chile) for Special Issue of International Journal of Molecular Sciences. Entitled: Involvement of Connexin Hemichannels in the Inflammatory Response of Chronic Diseases.</p> <p>Professor Green, Ophthalmology, invited to visit Department of Ophthalmology, University of Hong Kong and visited</p>

Professor Dennis Lam on behalf of Auckland UniServices Ltd to advance the establishment of a spinout company, Pachymatrix. Nov 2018, Hong Kong.

Gus Grey, MVL was awarded the Dyason Visiting Academic Fellowship to University of Melbourne.

Professor Colin Green, Ophthalmology, progressed Nexagon® which was acquired by EyeVance and is entering now final stage clinical trials for the treatment of corneal persistent epithelial defects. See:

<https://www.prnewswire.com/news-releases/eye-avance-pharmaceuticals-acquires-worldwide-rights-to-nexagon-300722859.html>

Monica Acosta, Sr Lecturer SOVS was an Invited speaker at the Latin American training programme (LAMP), Society for Neuroscience, Valparaiso, September 2018.

Wilson Pan, MVL was awarded the New Zealand Scholarship Claude McCarthy Fellowship and was also the recipient of the Sir John Logan Campbell Medical Trust Travel Award

Dr Alyssa Lie, MVL received the HOPE Selwyn Foundation Scholarship in Ageing Research. She was also the recipient of the HC Russell Memorial Postgraduate Scholarship

Members of NZ-NEC were invited to speak at several international meetings in 2018 including medal and keynote lectures:

Professor Colin Green

- Bascom Palmer Eye Institute, Miami and in Bascom Palmer 15th Annual Angiogenesis, Exudation, and Degeneration course, Feb 2018, Miami.
- "Bridging the Therapeutic Gap with Connexin and Pannexin Modulators", May 2018, University British Columbia, Vancouver.
- Chief Scientist, OcuNexus Therapeutics Inc. (gave 30 presentations, attended JP Morgan Healthcare Meetings Jan 2018 San Francisco, attended meetings in Boston and New York Feb 2018)

Professor Charles McGhee

- Asian Cornea Society (ACS) awarded the Asian Cornea Foundation Medal following landmark lecture on keratoconus at the 6th Biennial ACS Conference, Qingdao, China
- The inaugural, biennial, "*BSRS Charles McGhee Medal Lecture*" at the British Society of Refractive Surgery (BSRS) Annual Conference 2018: aspects of the future of cornea, refractive & cataract surgery
- Gave *The Eddie Donaldson Medal Lecture* "Keratoconus: is this disease in its twilight years as

we approach 2020?" at the Sydney Eye Hospital Alumni Conference, July 2018.

A/P Jennifer Craig

- Invited Key Opinion Leader at the Demodex evaluation and management. Conference (EVER) in Nice, France, October 2018

Another successful year for students awards, with more than 20 registered doctoral students, and achievements within NZ-NEC included:

- Four PhD completions in Ophthalmology 2018
- Two of these PhD students subsequently had their thesis placed on the Dean's list
- Frazer Coutinho PhD student supervised by A/P Ilva Rupenthal, Professor Colin Green and Dr Monica Acosta was placed second for his presentation on 'Breaking the Wall of Vision Loss' at the Falling Walls Lab NZ (FWLNZ) competition in September 2018.
- Joyce Mathan, Summer Student was awarded the Wallath Prize for best clinical summer research report. The research team screened 110 athletes with Down syndrome for keratoconus at the 2017 New Zealand Special Olympics National Summer Games held in Wellington.
- Joyce Mathan (PhD student) and Hannah Ng (Hons Student) both participated in the HealthEx Three Minute Elevator Pitch seminar in September 2018. Joyce was awarded first place for her pilot study on Athletes with Down Syndrome who were screened for keratoconus. Hannah was awarded first runner-up for her research contribution to driving newly discovered stem cells to differentiate into corneal endothelial cells.
- Safal Khanal, PhD candidate, received the prestigious Eberhard Dodt Memorial Award for 2018. Safal is the first person from New Zealand to win this award.
- Dr Mitchell Nye-Wood, MVL was awarded the Best Elevator Pitch (3 minute thesis) at the UoA Postdoctoral Society's SUMMIT competition. Mitchell was also awarded an ARVO International Travel Grant to speak at ARVO 2018

Several high profile international guest lecturers have presented at NZ-NEC seminars in 2018:

- Professor Michael Kalloniatis, Director Centre for Eye Health, University of New South Wales, Sydney, Australia
- Prof Heather Sheardown, Dept of Chemical Engineering, McMaster University, Canada

	<ul style="list-style-type: none"> • Dr Matthew Reilly, Dept of Biomedical Engineering and Ophthalmology, Ohio State University, USA • Dr MiYoung Kwon, University of Alabama at Birmingham • Dr Guido Maiello, Justus-Liebig-Universität Gießen, Germany • Professor Peter Bex, Professor of Psychology, Northeastern University, Boston, USA
Comment on any co-operative commercial activities, research with other University or Government laboratories or research groups	
Comment on any courses given or workshops and seminars held	

Section 7 - Reviews

Date of last review	August 2016
Review Recommendations List the recommendations of the review and give an update of progress on addressing the recommendations.	<p>1. Submission of an HRC programme grant <i>NZ-NEC held an afternoon seminar for all research groups in July 2017 with a view to progressing submission of an HRC programme grant specific to vision research. This is on-going with a programme grant application submitted in 2017 i.e. two HRC programme grants have been submitted by members of NZ-NEC</i></p> <p>2. Role of Professor Steven Dakin need to be strengthened and clarified; <i>Professor Dakin has always had a key role in NZ-NEC structure and has collaborated widely on teaching and research developments that perhaps were not emphasised sufficiently in the previous report. A number of key roles and collaborations include: Extensive discussion re: undergraduate and postgraduate optometry teaching, specifically glaucoma credentialing for UoA and community optometrists.</i></p>

	<p><i>Involvement in regional planning of ophthalmology services in Metropolitan Auckland in conjunction with the Dept of ophthalmology and ADHB.</i></p> <p><i>Joint appointments between departments e.g. Hannah Kersten as lecturer in Optometry and Ophthalmology.</i></p> <p><i>Supported movement of researchers between departments e.g. Joyce Mathan from SOVS to Ophthalmology.</i></p> <p><i>Development of combined clinical training and service provision between UofA Ophthalmology, ADHB and SOVS in relation to community glaucoma credentialing course.</i></p> <p><i>Discussion with NZAO and others about funding post-doctoral fellows in NZ-NEC.</i></p> <p><i>3. Increase participation off School of Optometry and Vision Science and Molecular Vision Laboratory within the Centre, to develop more collaborative research opportunities for the future</i></p> <p><i>Additional HRC grant application (N=2) and the many collaborative grants received by members in NZ-NEC e.g. Dr Monica Acosta, Dr Ilva Rupenthal and Professor Colin Green (AMRF and MPPT); Dr Ilva Rupenthal, Dr Eshan Vaghefi and Dr Sachin Thakur (FRDF)</i></p>
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Section 8 – FINANCIAL REPORT

<p>State whether the Unit or Centre has its own Activity Centre/s and list the Activity Centre/s being used</p>	<p>NZ-NEC does not have its own cost centre</p>
<p>State sources of funding, for example, from research funds from outside bodies, from the Department or Faculty, or other</p>	<p>N/A</p>
<p>List any significant resource allocation decisions taken by the Oversight Board during this reporting year (if applicable)</p>	<p>N/A</p>

<p>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</p>	<p>N/A</p>
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Section 9 – RESEARCH OUTPUTS

<p>Include a list of publications and other research outputs</p>	<p>Book Chapters:</p> <ol style="list-style-type: none"> 1. Craig JP, Downie LE. The tear film in contact lens wear. Phillips and Speedwell (eds.) In: Contact Lenses 6e. Elsevier, UK 2018 2. 2018 <i>Vincent AL Chapter 5</i>. Inherited Ocular Disease in the New Zealand Māori; Novel genetic mechanisms and founder effects in Gyan/Iwata (eds): Advances in Vision Research, Volume II. Genetic Eye Research in Asia and the Pacific Springer Verlag ISBN 978-981-13-0884-0 <p>Peer reviews publications:</p> <ol style="list-style-type: none"> 1. Zhu M, Tay ML, Callon K, Tuari D, Zhao L, Dray M, Zhang J, Munro J, Young S, Coleman B, Patel DV, Cornish J, Musson D. Overlay Repair with a Novel Collagen Scaffold Improves the Quality of Healing in a Rat Rotator Cuff Repair Model. <i>Journal of Shoulder and Elbow Surgery</i> (In press) 2. Han JV, Patel DV, Wallace HB, Kim BZ, Sherwin T, McGheeCN. Auckland Cataract Study III: refining preoperative assessment with cataract risk stratification to reduce intraoperative complications. <i>American Journal of Ophthalmology</i> 2018 (Epub ahead of print) 3. Ziaei M, Gokul A, Patel DV, McGhee CN. Descemet membrane endothelial keratoplasty for treatment of iridocorneal endothelial syndrome. <i>Canadian Journal of Ophthalmology</i> 2018 Epub ahead of print. 4. Ziaei M, Meyer J, Gokul A, Vellara HR, Patel DV, McGhee CN. Direct measurement of anterior corneal curvature changes attributable to epithelial removal in keratoconus. <i>Journal of Cataract and Refractive Surgery</i> 2018;44(1):71-77. 5. Ziaei M, Meyer J, Patel DV, McGhee CN. Scleral Suture-Fixation of Supplementary Sulcus-based Toric Intraocular Lenses to Prevent Rotational Instability. <i>Clinical and Experimental Ophthalmology</i> 2018;46(2):122-132.
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6. McKelvie J, Alshiakhi M, Ziaei M, Patel DV, McGhee CN. The rising tide of Acanthamoeba keratitis in Auckland, New Zealand: a 7-year review of presentation, diagnosis and outcomes (2009-2016). *Clinical and Experimental Ophthalmology* 2018; 46(6):600-607
7. Crawford AZ, Krishnan T, Ormonde SE, Patel DV, McGhee CN. Corneal transplantation in a New Zealand population 2000-2009. *Cornea* 2018; 37(3):290-295
8. Gokul A, Vellara HR, Patel DV. Advanced Anterior Segment Imaging in Keratoconus- a review. *Clinical and Experimental Ophthalmology* 2018; 46(2):122-132.
9. Vellara H, Gokul A, McGhee CN, Evaluation of the algorithms utilized to diagnose keratoconus for the CorVis ST. Chapter in *Air Puff Tonometers: Challenges and insights*. IOP Publishing, Bristol, UK. Editor Robert Koprowski.
10. MUGISHO OO, GREEN CR, SQUIRRELL DM, BOULD S, ZHANG J, ACOSTA ML RUPENTHAL ID (2018) Connexin43 hemichannel block protects against the development of diabetic retinopathy in a mouse model of the disease, *Journal of Molecular Medicine*, (doi: 10.1007/s00109-018-1727-5) **IF 5.107**
11. MAHBOOBIAN MM, SEYFODDIN A, ABOOFAZELI R, FOROUTAN SM, RUPENTHAL ID (2018) *Brinzolamide-loaded nanoemulsions: Ex vivo transcorneal permeation, cell viability and ocular irritation tests*. *Pharmaceutical Development and Technology* (doi.org/10.1080/10837450.2018.1547748) **IF 1.954**
12. THAKUR SS, SHRESTHA D, RUPENTHAL ID (2018) Evaluation of two ex vivo bovine cornea storage protocols for drug delivery applications, *Ophthalmic Research* (doi.org/10.1159/000493488) **IF 1.826**
13. MUGISHO OO, RUPENTHAL ID, SQUIRRELL DM, BOULD S, ZHANG J, GREEN CR, ACOSTA ML (2018) *Intravitreal pro-inflammatory cytokines in non-obese diabetic mice: modelling signs of diabetic retinopathy*, *PLOS ONE* doi.org/10.1371/journal.pone.0202156 **IF 2.766, 0/0 citations**
14. COUTINHO FP, GREEN CR, RUPENTHAL ID (2018) *Intracellular oligonucleotide delivery using the cell penetrating peptide Xentry*, *Scientific Reports* 8(1): 11256 **IF 4.122, 0/0 citations**
15. MAT NOR MN, GUO CX, RUPENTHAL ID, CHEN YS, GREEN CR, ACOSTA ML (2018) Sustained connexin43 mimetic peptide release from loaded nanoparticles prevents activation of the inflammasome in light induced retinal degeneration, *Investigative Ophthalmology and Visual Science* 59(8): 3682-3693 **IF 3.388, 0/0 citations**
16. HUANG D, CHEN YS, RUPENTHAL ID (2018) *Overcoming ocular drug delivery barriers through the use of physical forces*, *Advanced Drug Delivery Reviews* 126: 96-112 **IF 13.660, 6/1 citations**

17. THRIMAWITHANA TR, RUPENTHAL ID, RAESCH SS, LIM JC, MORTON JD, BUNT CR (2018) *Drug Delivery to the lens for the management of cataracts*, *Advanced Drug Delivery Reviews* 126: 185-194 IF 13.660, 0/0 citations
18. HUANG D, CHEN YS, GREEN CR, RUPENTHAL ID (2018). Hyaluronic acid coated albumin nanoparticles for targeted peptide delivery in the treatment of retinal ischaemia, *Biomaterials* 168: 10-23 IF 8.806, 0/0 citations
19. YASIN MN, BROOKE RK, RUDD S, CHAN A, CHEN WT, WATERHOUSE GIN, EVANS D, RUPENTHAL ID, SVIRSKIS D (2018). Three-dimensionally ordered macroporous PEDOT ion-exchange resins prepared by vapor phase polymerization for triggered drug delivery: fabrication and characterization, *Electrochimica Acta* 269: 560-570 IF 5.116, 0/0 citations
20. BISHT R, MANDAL A, JAISWAL JK, RUPENTHAL ID (2018) *Nanocarrier mediated retinal drug delivery: Overcoming ocular barriers to treat posterior eye diseases*, *WIREs Nanomedicine and Nanobiotechnology* 10: e1473 IF 6.350, 9/3 citations (highlighted on *Advanced Science News*: www.advancedsciencenews.com/nanotechnology-enhances-drug-delivery-back-eye)
21. HUANG D, CHEN YS, HU Q, HANES J, RUPENTHAL ID (2018) *Effects of enzymatic degradation on dynamic mechanical properties of the vitreous and intravitreal nanoparticle mobility*, *European Journal of Pharmaceutical Sciences* 118:124-133 IF 4.491, 0/0 citations
22. AGARWAL P, SCHERER D, GÜNTHER B, RUPENTHAL ID (2018) *Semifluorinated alkane based systems for enhanced corneal penetration of poorly soluble drugs*, *International Journal of Pharmaceutics* 538: 119-129 IF 3.862, 0/0 citations
23. UPPALAPATI D, SHARMA M, AQRAWA Z, COUTINHO F, RUPENTHAL ID, BOYD BJ, TRAVAS-SEJDIC J, SVIRSKIS D (2018) *Micelle directed chemical polymerization of polypyrrole particles for the electrically triggered release of dexamethasone base and dexamethasone phosphate*, *International Journal of Pharmaceutics* 543:38-45 IF 3.862, 1/1 citations
24. THAKUR SS, SOLLOWAY J, STIKKELMAN A, SEYFODDIN A, RUPENTHAL ID (2018) *Phase transition of a microemulsion upon addition of cyclodextrin*, *Pharmaceutical Development and Technology* 23: 167-175 IF 1.945, 0/0 citations
25. BISHT R, RUPENTHAL ID (2018) *PLGA nanoparticles for intravitreal peptide delivery: optimization, characterization and toxicity evaluation*, *Pharmaceutical Development and Technology* 23:324-333 IF 1.945, 6/3 citations
26. ZIDAN G, RUPENTHAL ID, GREENE CA, SEYFODDIN A (2018) *Medicated Ocular bandages and corneal health: Potential excipients*

and active pharmaceutical ingredients, *Pharmaceutical Development and Technology* 23: 255-260 IF 1.945, 2/0 citations

27. Zhu M, Tay ML, Callon K, Tuari D, Zhao L, Dray M, Zhang J, Munro J, Young S, Coleman B, Patel DV, Cornish J, Musson D. Overlay Repair with a Novel Collagen Scaffold Improves the Quality of Healing in a Rat Rotator Cuff Repair Model. *Journal of Shoulder and Elbow Surgery* (In press)
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31. Ziaei M, Meyer J, Patel DV, McGhee CN. Scleral Suture-Fixation of Supplementary Sulcus-based Toric Intraocular Lenses to Prevent Rotational Instability. *Clinical and Experimental Ophthalmology* 2018; 46(2): 122-132.
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33. Crawford AZ, Krishnan T, Ormonde SE, Patel DV, McGhee CN. Corneal transplantation in a New Zealand population 2000-2009. *Cornea* 2018; 37(3): 290-295
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36. Mugisho OO, Green CR, Squirrell DM, Bould S, Danesh-Meyer HV, Zhang J, Acosta ML, Rupenthal ID. Connexin43 hemichannel block protects against the development of diabetic retinopathy signs in a mouse model of the disease. *Journal of Molecular Medicine* <https://doi.org/10.1007/s00109-018-1727-5>
37. Mugisho OO, Rupenthal ID, Squirrell DM, Bould SJ, Danesh-Meyer HV, Zhang J, Green CR, Acosta ML. Intravitreal pro-inflammatory

cytokines in non-obese diabetic mice: Modelling signs of diabetic retinopathy. *PlosOne*, 2018; 13(8):e0202156.

38. Greene CA, Misra SL, Kapadia K, Lee H, McFarlane R, McKelvie J, McGhee CNJ, Green CR, Sherwin T. The sheep cornea: structural and clinical characteristics. *Current Eye Research*. 2018 Aug 23: 1-7. doi: 10.1080/02713683.2018.1510970. [Epub ahead of print]
39. Coutinho FP, Green CR, Rupenthal ID. Intracellular oligonucleotide delivery using the cell penetrating peptide Xentry. *Science Reports*. 2018; 8: 11256.
40. Mat Nor MN, Guo CX, Rupenthal ID, Chen YS, Green CR, Acosta ML. Sustained Connexin43 Mimetic Peptide Release From Loaded Nanoparticles Reduces Retinal and Choroidal Photodamage. *Investigative Ophthalmology and Visual Science*. 2018; 59: 3682-3693.
41. Huang D, Chen YS, Green CR, Rupenthal ID. Hyaluronic acid coated albumin nanoparticles for targeted peptide delivery in the treatment of retinal ischaemia. *Biomaterials*. 2018; 168: 10-23.
42. Galinsky R, Davidson JO, Dean JM, Green CR, Bennet L, Gunn AJ. Glia and hemichannels: Key mediators of perinatal encephalopathy. *Neural Regeneration Research*. 2018; 13: 181-189.
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