

**The Faculty of Medicine of Harvard University
Curriculum Vitae**

Date Prepared: Sept 15, 2018
Name: Eleftherios Paschalis Ilios

Education:

2000	B. Eng (with Honors)	Electrical and Electronic Engineering	Coventry University Coventry, UK
2002	MSc	Telecommunication Technology	Aston University Birmingham, UK
2010	PhD (with Excellence)	Medicine, Department of Ophthalmology	Democritus University of Thrace, Greece

Postdoctoral Training:

3/2011- 3/2013	Research Fellow	Ophthalmology	Massachusetts Eye and Ear (MEE)/Harvard Medical School (HMS)
-------------------	-----------------	---------------	--

Faculty Academic Appointments:

4/2013-	Instructor	Ophthalmology	HMS
---------	------------	---------------	-----

Appointments at Hospitals/Affiliated Institutions:

2009-10	Consultant	Ophthalmology	Laser & Ophthalmos Eye Clinic, Thessaloniki, Greece
2014-	Investigator	Ophthalmology	Schepens Eye Research Institute (SERI)/MEE

Administrative Leadership Positions:

Local

2013-	Principal Investigator	Boston Keratoprosthesis Laboratory, MEE/SERI
2017-	Director of Innovation	Boston Keratoprosthesis Laboratory, MEE/SERI

Committee Service:

Local

2007-08	Inter-university Ophthalmology Congress	Member
2014-	committee to revise animal care forms	MEE
2014-	Organizing Committee for Biennial Cornea Conference	MEE

2016-	Distinguished Lecture Series Committee	SERI Member
2016-	Schepens Institutional Animal Care and Use Committee	SERI Voting scientific member

Professional Societies:

2011-	Association for Research in Vision and Ophthalmology	Member
2011-	Biomedical Engineering Society (BMES)	Member
2011-	Cornea Society	Member
2012-	European Association for Vision and Eye Research (EVER)	Member
2014-	New England Hellenic Medical and Dental Society	Member

Editorial Activities:

Ad hoc Reviewer

Clinical Ophthalmology
Clinical Optometry
Medical Devices: Evidence and Research
Nanotechnology, Science and Applications
Aesthetic Plastic Surgery
PloS ONE (Pubmed)
Physical Review & Research International
Therapeutics and Clinical Risk Management
Journal of Ophthalmology
Translational Vision Science & Technology
Experimental Eye Research
Royal Society Interface
Journal of Biomedical Materials Research: Part A
Materials
Ocular Immunology and Inflammation
British Journal of Ophthalmology
Scientific Reports, Nature
Investigative Ophthalmology & Visual Science
BMC Ophthalmology
The Ocular Surface
Current Eye Research
Cornea
Acta Biomaterialia
Neural Regeneration Research
Ophthalmic Plastic and Reconstructive Surgery
BMJ Open
Ophthalmology and Eye Disease
Progress in Retina and Eye Research

Honors and Prizes:

2000	Engineering and Physical Sciences Research Council (EPSRC) MSc Scholarship	EPSRC
2004	Pythagoras Research Support	EU and Greek Ministry of

2005	Award Recognition Award	Education (E.P.E.A.E.K. II) Greek Institution of Foreign Education
2007	Second scientific award	1 st Interuniversity Ophthalmology Congress, Greece
2013	First Award of Best Paper Session, 2 nd author	European Society of Cornea and Ocular Surface Disease Specialists, Amsterdam, Netherlands
2013	First scientific award	New England Ophthalmological Society (NEOS), Boston, MA
2014	Eleanor and Miles Shore 50 th Anniversary Fellowship for Scholars in Medicine	Harvard Cornea Center, HMS
2018	Research article selected as cover for the American Journal of Pathology July 2018 issue.	American Journal of Pathology
2018	Session moderator at the 3 rd Biennial International Symposium on Ocular Regeneration	Massachusetts Eye and Ear

Report of Funded and Unfunded Projects

Funding Information:

Past

2004-2006	“Implantable intraocular Pressure Transducer” Pythagoras Research Support, awarded by the EU and the Greek Ministry of Education (E.P.E.A.E.K. II) for research in glaucoma. University of Democritus, Alexandroupolis, Greece. Co-investigator. The major goal is to develop an implantable intraocular pressure transducer.
2012-2016	“Design of Novel Glaucoma Valves Based on Ferromagnetic Particles.” Boston Keratoprosthesis Research Fund PI The aim of this study is to design and test a novel glaucoma valve with an opening and closing pressure, that can be implanted extraocularly without leading to hypotony.
2013-2014	“Glaucoma in Boston Keratoprosthesis Patients.” Massachusetts Lions Eye Research support grant Co-Investigator
2013-2016	“Titanium Modification in Boston Keratoprosthesis” Boston Keratoprosthesis Research Fund. Role: PI The aim of this study is to improve the cosmesis of the Boston keratoprosthesis and thus the social acceptance of the patients.
2013-2016	“Design of a Novel Material for Extracting Silicone Oil from the Intraocular Lens.” Boston Keratoprosthesis Research Fund PI The aim of this study is to develop an innovative material and design of a new surgical instrument for the removal of silicone (Si) oil during vitrectomy surgery.
2014-2015	“Retinal Damage After Corneal Alkali Burn and Protection with TNF- α Inhibition”. Eleanor and Miles Shore 50 th Anniversary Fellowships for Scholars in Medicine, Harvard

- Cornea Center of Excellence Fellowship.
Investigator.
- 2015-2016 “Single cell sequencing using drop-based microfluidic technique. Study of innate immune system in ocular burns”
Massachusetts Lions Eye Research support grant.
PI
- 2015-2016 “The Boston Blink-netic Project”. Develop a wearable system to restore blinking in patients with paralysis.”
Massachusetts Lions Eye Research support grant
Co-PI.

Current

- 2011-2021 “Inhibition of Retinal Damage in Severe Ocular Chemical Burns”
Boston Keratoprosthesis Research Fund
PI. Amount: \$30,000
The aim of this study is to assess the retinal damage after alkali burn to the cornea and the protective effect of TNF blockade against retinal apoptosis.
- 2015-2021 “Design of an all optical intraocular pressure sensor for the B-KPro device”
Boston Keratoprosthesis Research Fund
PI. Amount: \$30,000
The aim of this study is to integrate a fiber optic miniaturized pressure sensor in the B-KPro optics. This will allow intraocular pressure measurements in B-KPro patients by an external light Interrogating system.
- 2015-2021 “Development of a drug delivery system for biologics”
Boston Keratoprosthesis Research Fund.
PI. Amount: \$20,000
The aim of this study is develop a drug delivery system for antibody therapy to the eye. Such device can provide sustained ocular treatment.
- 2017-2018 “Novel Pre-Descemet’s Keratoprosthesis for the Treatment of Corneal Blindness”.
Fight for Sight Grant-In-Aid
PI. Amount: \$22,500
- 2017-2020 Testing the Preclinical Efficacy of Therapies for Proliferative Vitreoretinopathy.
Department of Defense
Collaborator, 5% effort.
- 2018-2022 National Institute of Health. RO1 Management of Blepharoptosis with Neodymium Magnet Systems: The Boston Blink-netic Project.
Co- Investigator Average of 5 years 20% effort.

Projects Submitted for Funding

- 2018 National Institute of Health. Understanding the Role of Peripheral Monocytes that Engraft into the Retina Following Ocular Injury. Role: Primary Investigator. Amount: \$275,000.
- 2018 National Institute of Health. U01 BRP Artificial corneal replacements via tissue engineered systems. Role: Co-I. PI: Dr. Rosenblatt. Pre-proposal and budget was pre-approved by NIH.

Report of Local Teaching and Training **Teaching of Students in Courses:**

- | | | |
|-----------|--|--|
| 2002-2003 | Computer Engineers and Automated Systems
undergraduate students | Public Vocational Training Center
(Vocational college), IEK, Kos
Dodecanese, Greece (200 hours). |
|-----------|--|--|

2002-2003	Computer science ECDL program undergraduate students	Private Vocational Training Center (Vocational college), IEK ANKO EPSILON, Kos Dodecanese, Greece. (300 hours)
2004-2005	Lecturer, Electrical and Digital Measurements program Network Technicians undergraduate students	Public Vocational Training Center (Vocational college), IEK, Alexandroupolis, Greece (100 hours)
2006	Ophthalmology, Safety and Hazards in Medical LASER, Post-graduate students for Master degree.	Democritus University, Greece (4 hours)

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs):

2014	Ocular Chemical Burns, SERI Seminar Ophthalmology Research Fellows	SERI (1 hour)
2016	Retinal damage following corneal alkali burn	HMS Department of Ophthalmology Regeneration Focus Group (1 hour)
2017	Targeting immunotherapy for ocular protection in burns	HMS Department of Ophthalmology Regeneration Focus Group (1 hour)

Laboratory and Other Research Supervisory and Training Responsibilities:

2013-	Supervise average 7 trainees per year in Boston Keratoprosthesis Research Laboratory	8 hours per week
-------	--	------------------

Formally Mentored Harvard Medical, Dental and Graduate Students:

2014-	Chengxin Zhou, PhD/Research Fellow in Ophthalmology, HMS Supervision of postdoctoral thesis in corneal protection following alkali burn
2014-	Fengyang Lei, MD, PhD/ Research Fellow in Ophthalmology, HMS Supervision of postdoctoral thesis in single cell sequencing and corneal re-innervation
2014-2015	Nathan Scott/Resident in Ophthalmology University of Miami, Bascom Palmer. Supervision of research training in gene expression analysis
2014-	Vassiliki Kapoulea, MSc candidate/ Research training in preparation for PhD application in biology.
2017-	Pui Chuen Hui, PhD/ Research Fellow in Ophthalmology, HMS Supervision of postdoctoral thesis in implantable fiber optic pressure sensors
2017-	Xiaoniao Chen, MD/ Research Fellow in Ophthalmology, HMS Supervision of PhD training program
2018-	Nick Vohra B.eng / Research Assistant MEE Supervision in soft lithography techniques

Other Mentored Trainees and Faculty:

2016-2017	Arushi Singh. Summer high school student for 2 years. Currently student at Carnegie Mellon University.
2018	Grace Qian. Summer high school student. In preparation for University applications.

Formal Teaching of Peers (e.g., CME and other continuing education courses):

No presentations below were sponsored by outside entities

2013	pH Measurements in the Suprachoroidal Space in Rabbits After Alkali Burn to the Cornea Biennial Cornea Conference	1-hour lecture MEE
2015	K-Pro Glaucoma New Frontier in Corneal Research	1-hour lecture MEE
2015	Retinal Degeneration Following Corneal Alkali Burn: The Role of Resident Immune Cells HMS Dept. of Ophthalmology Annual Meeting & Alumni Reunion	1-hour lecture MEE
2015	Minimum Rim Width Measurements By Swept Source OCT As A Predictor of Paracentral Visual Field Loss HMS Dept. of Ophthalmology Annual Meeting & Alumni Reunion	1-hour lecture MEE
2016	Retinal damage following corneal alkali burn HMS Department of Ophthalmology Ocular Regeneration Focus Group	1-hour lecture MEE
2016	Corneal Burns Cause Early and Irreversible Retina Damage: The Role of Immunomodulatory Treatment HMS Department of Ophthalmology Faculty Retreat	1-hour lecture MEE
2016	The Mechanism of Retinal Damage Following Acute Ocular Surface Trauma Harvard Glaucoma Joint Lab meeting	1-hour lecture MEE
2018	Ocular Tissue Regeneration and Remodeling Molecular Bases of Eye Diseases course lecture	1-hour lecture SERI

Local Invited Presentations:

No presentations below were sponsored by outside entities

2014	Alkali burns: Retinal injury and neuroprotection / invited oral presentation Faculty Scientific Retreat, Harvard Cornea Center of Excellence, Boston, MA
2015	K-Pro Glaucoma / invited oral presentation, New Frontier in Corneal Research, MEE, Boston, MA
2015	Retinal degeneration in ocular burns / invited oral presentation, SERI Seminar, Boston, MA
2015	Retinal Degeneration Following Corneal Alkali Burn: The Role of Resident Immune Cells / invited oral presentation, HMS Department of Ophthalmology Annual Meeting & Alumni Reunion, New Castle, NH

Report of Regional, National and International Invited Teaching and Presentations

No presentations below were sponsored by outside entities

Regional

2014	Retroprosthetic Membranes in Boston Keratoprosthesis / invited oral presentation, Boston Keratoprosthesis WorkShop pre ASCRS meeting, Boston, MA
2018	Retinal Damage Following Acute Ocular Surface Injury: The Role of Microglia and Peripheral Monocytes, New England Eye Center, Tufts Medical Center Educational Conferences and Grand Rounds

National

- 2007 Intraocular Tonometer (selected oral abstract). 1st Inter-university convention of ophthalmology. Alexandroupolis, Greece.
- 2007 A comparison between Pascal dynamic contour tonometer and Goldmann applanation tonometer in monitoring intraocular pressure after PRK and LASIK procedures (selected oral abstract). 40th Hellenic Convention of Ophthalmology, Athens, Greece.
- 2008 Change in Cornea Asphericity (Q Adjustment) In Myopic and Hyperopic Eyes That Underwent Refractive Surgery with Excimer Laser (selected oral abstract). 22nd International convention of Hellenic Society of Intraocular Implants and Refractive Surgery (HSIOIRS), Athens, Greece.
- 2015 An external magnetic device for severe bilateral Blepharoptosis: proof of concept / selected oral abstract, American Academy of Optometry Annual Meeting, New Orleans, LA

International

- 2007 Visual Acuity for Near and Far in Myopic and Hyperopic Patients with the Use of F-CAT and Wavefront Optimized TM (STD) Photo Ablation Algorithms after LASER Refractive Surgery (selected oral abstract). 8th Wavelight User Meeting, Berlin, Germany.
- 2007 Change of Corneal Asphericity after LASER Refractive Surgery with PRK and LASIK treated with F-CAT and Wavefront Optimized ablation algorithm (selected oral abstract). 8th Wavelight User Meeting, Berlin, Germany
- 2008 Corneal asphericity adjustment (Q adjustment) in myopic and Hyperopic patients undergoing refractive correction with excimer laser (selected oral abstract). 12th International ESCRS convention in LASER Refractive Surgery, Barcelona, Spain.
- 2009 Digital Aqueous Humor Outflow Meter: A tool for an efficient screening of Outflow Facility in Human Eyes (invited oral presentation. 2nd University convention of ophthalmology, Alexandroupolis, Greece. Best presentation (2nd award).
- 2012 Continuous Intraocular Pressure Measurement by Radiowave Telemetry in a Rabbit Model – A Pilot Study. 1st Biotechnology World Congress, Dubai, UAE.
- 2014 In Vitro and in Vivo Assessment of Titanium Surface Modification for Coloring the Back Plate of the Boston Keratoprosthesis (selected oral abstract). 9th KPro Study Group Meeting, Salzburg, Austria.
- 2014 A novel implantable glaucoma valve using ferrofluid (selected oral abstract). 9th KPro Study Group Meeting, Salzburg, Austria.
- 2014 Alkali Burn to the Eye: Protection Using TNF- α Inhibition (selected oral abstract). 9th KPro Study Group Meeting, Salzburg, Austria.
- 2016 Micro pressure sensor integrated into the Boston keratoprosthesis (selected oral abstract). 10th KPro Study Group Meeting, Tokyo, Japan.
- 2016 Chemical Burns: The injury beyond the cornea (invited oral presentation). 28th University of Montreal Ophthalmology Research Day, Montreal, Canada.
- 2017 KPro surgery and chemical burns can cause retina and optic nerve damage via inflammation. Treatment with infliximab is protective (selected oral abstract). 2017 Spring KPro Study Group Meeting, Wilmer Eye Institute Johns Hopkins University. Baltimore, MD.
- 2017 Ocular burns: the damage beyond the cornea (invited oral presentation). People's Liberation Army General Hospital, Beijing, China.

Report of Clinical Activities and Innovations **Current Licensure and Certification:**

- 2001- Laser Awareness Appropriate to Telecommunication Project Manufacture. Alcatel Submarine Optical Networks Limited, Christchurch Way, Greenwich, London, UK.
- 2005- License of Highest Degree 'A' in Electronic Engineering and Computer Engineering from the Greek Technical Council.
- 2005- Certificate in LASER Refractive Surgery, Pallikaris, I.V.O.
- 2006- Certificate in Refractive Surgery with Excimer LASER in Allegretto Wave, F-CAT and Allegrettos Topolyser T-CAT, Wavelight AG, Germany`
- 2007- Certificate of Service in Excimer LASER, Allegretto Wave EYE-Q, Wavelight AG, Germany.
- 2016 Diversion Control Division (DEA) license for Research

Report of Technological and Other Scientific Innovations

<p>Intraocular Lens Tonometer. 3/23/2004</p>	<p>Patent Number 1004809. International classification no.: (INT. CL7): A61B 3/16</p> <p>In an attempt to measure IOP in a continuous and automated manner, I undertook an EU funded project to develop an intraocular lens fitted with a microelectromechanical (MEMS) telemetric pressure systems for IOP measurements. In addition, this patent described for first time a microfluidic system in the IOL to measure IOP visually. This work led to the filing of two European patent applications and a peer review publication on implantable pressure transducers.</p>
<p>Developing a digital aqueous humor outflow meter, 2006</p>	<p>I developed a digital aqueous humor outflow meter, which was used to study of aqueous humor outflow facility in primary open angle (POAG) and pseudoexfoliative glaucoma (PXF) patients. This study showed significant differences in the outflow profiles between POAG and PXF and suggested distinct mechanisms that cause IOP elevation. The findings of this study were presented in the Inter-University Meeting of Greece and was awarded with the 2nd prize based on scientific merit and innovation.</p>
<p>Titanium Modification in Boston Keratoprosthesis, 2012</p>	<p>The aim of this study is to improve the cosmesis of the Boston keratoprosthesis and thus the social acceptance of the patients. This study was based on a surface modification technique of coloring the titanium backplates with an inert and biocompatible oxide layer.</p>
<p>Developing novel treatment for patients suffering from cornea chemical burn, 2013</p>	<p>Inhibition of Retinal Damage in Severe Ocular Chemical Burns The aim of this study is to assess the retinal damage after alkali burn to the cornea and the protective effect of TNF blockade against retinal apoptosis.</p>
<p>Ferromagnetic valves, Provisional patent application, US Patent Office, 2013. US20150202082 A1</p>	<p>The aim of this study is design an implantable glaucoma valve to precisely control the intraocular pressure. Using ferromagnetic particles a new generation of glaucoma valve was design with a closing a opening pressure. This valve was tested in rabbits and is currently in a development phase.</p>
<p>Optical domain micro pressure sensor integrated into the Boston Keratoprosthesis optical stem, Provisional patent application, US Patent Office, 2015. No.: 00633-0202P01</p>	<p>IOP cannot be directly measured in B-KPro patients due to the rigidity of the device, while many of these patients develop glaucoma, presumably due to undetected elevation of IOP. In order to overcome this problem, I embed an optical pressure transducer in the B-KPro stem to perform IOP measurements using an external fiber optic cable connected to a light source. This patent has been extended for use in intraocular lenses as well.</p>
<p>New Foldable Intraocular Lens</p>	<p>Patent Number 1006557. International classification no. (INT. CL7):</p>

Tonometer. 6/1/2016	A61B 3/16, A61B 5/00, A61B 5/07 I undertook an EU funded project to develop a foldable intraocular lens fitted with a foldable microelectromechanical (MEMS) telemetric pressure systems for IOP measurements.
New Keratoprosthesis with Flexible Titanium Backplate Provides the Option for Intracorneal Implantation using DALK, Patent submitted to MEE Intellectual Property office, 2017.	I developed a new design of the KPro backplate using flexible titanium backplate (Nitinol superplastic or shape memory alloy made of titanium/nickel mixture at various ratios that can undergo shape transformation and shape recovery at different temperatures), suitable for intracorneal implantation using DALK procedure.
PCT/US2017/48462 A new inexpensive keratoprosthesis, Patent submitted to MEE Intellectual Property office, 2017. No PCT/US2017/026612	The Boston keratoprosthesis is the gold standard in keratoprosthesis surgery worldwide. However, the high manufacturing cost makes it inaccessible for the majority of corneal blind patient in the developing and under-developed world. We designed an inexpensive and aesthetically more favorable keratoprosthesis backplate using modern semiconductor fabrication techniques. We also performed novel studies to optimize its surface topography to improve bio-integration and reduce post-operative complication. We expect that this device will replace current prosthesis and be more accessible for patient around the world.
Micro magnets for non-contact auto-coupling and auto-alignment of fiber optic cables, US Provisional in preparation for filing 2017	A coupler that magnetically aligns one optical fiber with another so that the two are in optical communication, but not in physical contact. The invention may be applied to fiber optic communication of any sort, and in particular, fiber optic communication through the cornea, and in vibrating environments where physical contact could lead to undue wear and tear. The invention can be used in medical micro resolution optical coherence tomography (μ OCT) for 3-D imaging, to improve return loss relative to other fiber optic connectors.
Magnetic Levator and Orbicularis Prostheses for Restoration of the Blink.	Patent submitted to Mass. Eye and Ear Infirmary Intellectual Property office, 2017 No.: 62/491.983 Bioengineering is an emerging field of applied engineering that attempts to address complex medical problems. As an engineer by training and Ph.D in medicine I took advantage of my multidisciplinary education to execute various bioengineering projects and address some of these complex medical/biomedical problems. I designed and developed a device to restore blinking function in blepharoptosis using external magnetic system.
Materials and Methods for Oil Removal. Developing novel instrument to remove silicone oil adherent to intraocular lenses.	US patent Application No.:14/850,537 The aim of this study is to develop an innovative material and design of a new surgical instrument for the removal of silicone (Si) oil during vitrectomy surgery. This work has led to a patent application. Two materials were created based on atomic structure modification and polymer micro-fabrication techniques. The materials are currently under in vivo investigation.
A drug delivery system for sustained topical delivery of biologic agents, such as anti-TNF alpha antibody. Developing a polymer-based drug	PCT/ US2016/053284 This drug delivery system involves a hydrophobic polymer scaffold and a hydrogel impregnated with one or more biologic drugs. The sustained and selective release of biologics to localized tissue has many advantages, mainly maximizing the bioavailability and minimizing systemic side effects.

delivery system for
biologic agents.

Formation of colloids
or gels within
droplets.

Patent Application with Harvard Engineering. PCT/L:S17/41053
This patent aims to improve the efficiency of drop-based single cell sequencing
by generating gel carriers for cell barcoding. This is a collaborative work with
Dr. David Weitz at Harvard Engineering.

Report of Scholarship

Peer-Reviewed Scholarship in print or other media:

Research Investigations

1. A. P. Aristeidou, G. Labiris, **E. I. Paschalis**, N. C. Foudoulakis, S. C. Koukoula, and V. P. Kozobolis, "Evaluation of the retinal nerve fiber layer measurements, after photorefractive keratectomy and laser in situ keratomileusis, using scanning laser polarimetry (GDx VCC).," *Graefes Arch Clin Exp Ophthalmol*, vol. 248, no. 5, pp. 731–736, May 2010.
2. **E. I. Paschalis**, A. P. Aristeidou, N. C. Foudoulakis, and L. A. Razis, "Corneal flap assessment with Rondo microkeratome in laser in situ keratomileusis.," *Graefes Arch Clin Exp Ophthalmol*, vol. 249, no. 2, pp. 289–295, Feb. 2011.
3. V. P. Kozobolis, **E. I. Paschalis**, N. C. Foudoulakis, S. C. Koukoula, and G. Labiris, "The digital aqueous humor outflow meter: an alternative tool for screening of the human eye outflow facility.," *Clin Ophthalmol*, vol. 4, pp. 937–945, Sep. 2010.
4. **E. I. Paschalis**, G. Labiris, A. P. Aristeidou, N. C. Foudoulakis, S. C. Koukoula, and V. P. Kozobolis, "Laser in situ keratomileusis flap-thickness predictability with a pendular microkeratome.," *Journal of Cataract & Refractive Surgery*, vol. 37, no. 12, pp. 2160–2166, Oct. 2011.
5. I. E. Liapakis and **E. I. Paschalis**, "Liposuction and suspension of the orbicularis oculi for the correction of persistent malar bags: description of technique and report of a case," *Aesthetic Plast Surg*, vol. 36, no. 3, pp. 546–549, Jun. 2012.
6. V. P. Kozobolis, **E. I. Paschalis**, G. Labiris, N. C. Foudoulakis, A. Konstantinidis, and S. C. Koukoula, "Tonography assessment using quantitative and qualitative analysis of the aqueous humor outflow mechanism.," *EJO*, vol. 22, no. 5, pp. 726–733, Sep. 2012.
7. W. Stevenson, S.-F. Cheng, P. Emami-Naeini, J. Hua, **E. I. Paschalis**, R. Dana, and D. R. Saban, "Gamma-Irradiation Reduces the Allogenicity of Donor Corneas," *Invest Ophthalmol Vis Sci*, vol. 53, no. 11, pp. 7151–7158, Oct. 2012.
8. B. Salvador Cilla, K. J. Jeong, **E. I. Paschalis**, H. H. Chiang, I. K. Gipson, C. H. Dohlman, and D. S. Kohane, "New improvements in Boston Keratoprosthesis (KPro): titanium surface modifications," *Acta Ophthalmol*, vol. 90, no. 249, pp. 0–0, 2012.
9. F. Cade, A. Cruzat, **E. I. Paschalis**, L. Espírito Santo, and R. Pineda, "Analysis of four aberrometers for evaluating lower and higher order aberrations.," *PLoS ONE*, vol. 8, no. 1, p. e54990, 2013.
10. M. Englander, T. C. Chen, **E. I. Paschalis**, J. W. Miller, and I. K. Kim, "Intravitreal injections at the Massachusetts Eye and Ear Infirmary: analysis of treatment indications and postinjection endophthalmitis rates.," *The British Journal of Ophthalmology*, vol. 97, no. 4, pp. 460–465, Apr. 2013.
11. **E. I. Paschalis**, J. Chodosh, S. Spurr-Michaud, A. Cruzat, A. Tauber, I. Behlau, I. Gipson, and C. H. Dohlman, "In vitro and in vivo assessment of titanium surface modification for coloring the backplate of the Boston keratoprosthesis.," *Invest Ophthalmol Vis Sci*, vol. 54, no. 6, pp. 3863–3873, Jun. 2013.
12. **E. I. Paschalis**, J. Chodosh, R. A. Sperling, B. Salvador-Culla, and C. Dohlman, "A Novel Implantable Glaucoma Valve Using Ferrofluid," *PLoS ONE*, vol. 8, no. 6, p. e67404, Jun. 2013.
13. I. E. Liapakis, M. Englander, N. P. Vrentzos, S. P. Derdas, and **E. I. Paschalis**, "Secondary rhinoplasty fixations with hyaluronic acid," *J Cosmet Dermatol*, vol. 12, no. 3, pp. 235–239, Sep. 2013.

14. A. Cruzat, A. Tauber, A. Shukla, **E. I. Paschalis**, R. Pineda, and C. H. Dohlman, "Low-Cost and Readily Available Tissue Carriers for the Boston Keratoprosthesis: A Review of Possibilities," *Journal of Ophthalmology*, vol. 2013, no. 6, pp. 1–5, 2013.
15. **E. I. Paschalis**, F. Cade, S. Melki, L. R. Pasquale, C. H. Dohlman, and J. B. Ciolino, "Reliable intraocular pressure measurement using automated radio-wave telemetry.," *Clin Ophthalmol*, vol. 8, pp. 177–185, 2014.
16. F. Cade*, **E. I. Paschalis***, C. V. Regatieri, D. G. Vavvas, R. Dana, and C. H. Dohlman, "Alkali burn to the eye: protection using TNF- α inhibition.," *Cornea*, vol.33, no. 4, pp. 382–389, Apr. 2014. *Co-first author.
17. A. Crnej, **E. I. Paschalis**, B. Salvador-Culla, A. Tauber, B. Drnovsek-Olup, L. Q. Shen, and C. H. Dohlman, "Glaucoma progression and role of glaucoma surgery in patients with Boston keratoprosthesis.," *Cornea*, vol. 33, no. 4, pp. 349–354, Apr. 2014.
18. I. E. Liapakis, **E. I. Paschalis**, G. J. Zambacos, M. Englander, and A. D. Mandrekas, "Redraping of the fat and eye lift for the correction of the tear trough," *Journal of Cranio-Maxillofacial Surgery*, vol. 42, no. 7, pp. 1–6, Jun. 2014.
19. K. Brodowska, S. Theodoropoulou, M. Meyer Zu Hörste, **E. I. Paschalis**, K. Takeuchi, G. Scott, D. J. Ramsey, E. Kiernan, M. Hoang, J. Cichy, J. W. Miller, E. S. Gragoudas, and D. G. Vavvas, "Effects of metformin on retinoblastoma growth in vitro and in vivo.," *Int. J. Oncol.*, vol. 45, no. 6, pp. 2311–2324, Sep. 2014.
20. **E. I. Paschalis**, D. Elliott, and D. G. Vavvas, "Removal of Silicone Oil From Intraocular Lens Using Novel Surgical Materials," *Trans. Vis. Sci. Tech.*, vol. 3, no. 5, p. 4, Sep. 2014.
21. K. E. Houston, M. Tomasi, M. Yoon, and **E. I. Paschalis**, "A Prototype External Magnetic Eyelid Device for Blepharoptosis.," *Transl Vis Sci Technol*, vol. 3, no. 6, p. 9, Oct. 2014.
22. C. M. Grassi, A. Crnej, **E. I. Paschalis**, K. A. Colby, C. H. Dohlman, and J. Chodosh, "Idiopathic vitritis in the setting of Boston keratoprosthesis.," *Cornea*, vol. 34, no. 2, pp. 165–170, Feb. 2015.
23. A. Aristeidou, E. V. Taniguchi, M. Tsatsos, R. Muller, C. McAlinden, R. Pineda, and **E. I. Paschalis**, "The evolution of corneal and refractive surgery with the femtosecond laser," *Eye and Vision*, vol. 2, no. 1, p. 12, Jul. 2015.
24. I. E. Liapakis, M. Englander, R. Sinani, and **E. I. Paschalis**, "Management of Facial Telangiectasias with Hand Cautery.," *World Journal of Plastic Surgery*, vol. 4, no. 2, pp. 127–133, Jul. 2015.
25. J. H. Sweigard, H. Matsumoto, K. E. Smith, L. A. Kim, **E. I. Paschalis**, Y. Okonuki, A. Castillejos, K. Kataoka, E. Hasegawa, R. Yanai, D. Husain, J. D. Lambris, D. Vavvas, J. W. Miller, and K. M. Connor, "Inhibition of the alternative complement pathway preserves photoreceptors after retinal injury.," *Science Translational Medicine*, vol. 7, no. 297, pp. 297ra116–297ra116, Jul. 2015.
26. M.-C. Robert, M. Frenette, C. Zhou, Y. Yan, J. Chodosh, F. A. Jakobiec, A. M. Stagner, D. Vavvas, C. H. Dohlman, and **E. I. Paschalis**, "A Drug Delivery System for Administration of Anti-TNF- α Antibody.," *Transl Vis Sci Technol*, vol. 5, no. 2, p. 11, Mar. 2016.
27. A. Crnej, M. Omoto, T. H. Dohlman, M. Gonzalez-Andrades, **E. I. Paschalis**, A. Cruzat, T. H. K. Vu, M. Doorenbos, D. F. Chen, C. H. Dohlman, and R. Dana, "Effect of Penetrating Keratoplasty and Keratoprosthesis Implantation on the Posterior Segment of the Eye.," *Invest Ophthalmol Vis Sci*, vol. 57, no. 4, pp. 1643–1648, Apr. 2016.
28. C. Zhou, F. Lei, J. Chodosh, and **E. I. Paschalis**, "The Role of Titanium Surface Microtopography on Adhesion, Proliferation, Transformation, and Matrix Deposition of Corneal Cells.," *Invest Ophthalmol Vis Sci*, vol. 57, no. 4, pp. 1927–1938, Apr. 2016.
29. D. Li, E. V. Taniguchi, S. Cai, **E. I. Paschalis**, H. Wang, J. B. Miller, A. V. Turalba, S. H. Greenstein, S. Brauner, L. R. Pasquale, and L. Q. Shen, "Comparison of swept-source and enhanced depth imaging spectral-domain optical coherence tomography in quantitative characterisation of the optic nerve head.," *The British Journal of Ophthalmology*, vol. 101, no. 3, pp. 299–304, Mar. 2017.
30. K. E. Houston, **E. I. Paschalis**, D. C. Angueira, P. M. Bronstad, A. M. Barrett, and M. A. Iaccarino, "Restoration of Vision After Brain Injury Using Magnet Glasses.," *Am J Phys Med*

Rehabil, vol. 96, no. 4, pp. e70–e74, Apr. 2017.

31. N. Baniasadi, **E. I. Paschalis**, M. Haghzadeh, P. Ojha, T. Elze, M. Mahd, and T. C. Chen, “Patterns of Retinal Nerve Fiber Layer Loss in Different Subtypes of Open Angle Glaucoma Using Spectral Domain Optical Coherence Tomography.,” *Journal of Glaucoma*, vol. 25, no. 10, pp. 865–872, Oct. 2016.
32. Zhou C, Robert M-C, Kapoulea V, Lei F, Stagner AM, Jakobiec FA, Dohlman CH, and **Paschalis EI**. Sustained Subconjunctival Delivery of Infliximab Protects the Cornea and Retina Following Alkali Burn to the Eye. *Invest Ophthalmol Vis Sci*. vol. 58, no. 1, pp. 96–105, Jan. 2017.
33. **E. I. Paschalis**, C. Zhou, F. Lei, N. Scott, V. Kapoulea, M.-C. Robert, D. Vavvas, R. Dana, J. Chodosh, and C. H. Dohlman, “Mechanisms of Retinal Damage after Ocular Alkali Burns.,” *Am. J. Pathol.*, vol. 187, no. 6, pp. 1327–1342, Jun. 2017.
34. D. Li, T. Li, **E. I. Paschalis**, H. Wang, E. V. Taniguchi, Z.-N. Choo, M. K. Shoji, S. H. Greenstein, S. C. Brauner, A. V. Turalba, L. R. Pasquale, and L. Q. Shen, “Optic Nerve Head Characteristics in Chronic Angle Closure Glaucoma Detected by Swept-Source OCT,” *Current Eye Research*, vol. 8, pp. 1–8, Sep. 2017.
35. E. V. Taniguchi, **E. I. Paschalis**, A. Crnej, A. Ren, K. A. Colby, J. Chodosh, L. R. Pasquale, L. Q. Shen, C. H. Dohlman, and A. Cruzat, “The Role of the Back Plate in Angle Anatomy with the Boston Type I Keratoprosthesis.,” *Cornea*, vol. 36, no. 9, pp. 1096–1101, Sep. 2017.
36. S. S. Shanbhag, H. N. Saeed, **E. I. Paschalis**, and J. Chodosh, “Keratolimbic allograft for limbal stem cell deficiency after severe corneal chemical injury: a systematic review.,” *The British Journal of Ophthalmology*, Nov. 2017.
37. E. V. Taniguchi, **E. I. Paschalis**, D. Li, K. Nouri-Mahdavi, S. C. Brauner, S. H. Greenstein, A. V. Turalba, J. L. Wiggs, L. R. Pasquale, and L. Q. Shen, “Thin minimal rim width at Bruch’s membrane opening is associated with glaucomatous paracentral visual field loss.,” *Clin Ophthalmol*, vol. 11, pp. 2157–2167, 2017.
38. Kevin E. Houston, Matteo Tomasi, Christina Amaral, Nicole Finch, Michael K. Yoon, Hang Lee, **Eleftherios I. Paschalis**; The Magnetic Levator Prosthesis for Temporary Management of Severe Blepharoptosis: Initial Safety and Efficacy. *Trans. Vis. Sci. Tech*. vol. 7, no. 1, p. 7, Jan. 2018.
39. M. Gonzalez-Andrades, R. Sharifi, M.-M. Islam, T. Divoux, M. Haist, **E. Paschalis**, L. Gelfand, S. Mamodaly, L. Di Cecilia, A. Cruzat, F.-J. Ulm, J. Chodosh, F. Delori, and C. H. Dohlman, “Improving the practicality and safety of artificial corneas: Pre-assembly and gamma-rays sterilization of the boston keratoprosthesis.,” *Ocul Surf*, vol. 16, no. 3, pp. 322–330, Jul. 2018.
40. S. S. Shanbhag, H. N. Saeed, **E. I. Paschalis**, and J. Chodosh, “Boston keratoprosthesis type 1 for limbal stem cell deficiency after severe chemical corneal injury: A systematic review,” *Ocul Surf*, vol. 16, no. 3, pp. 272–281, Jul. 2018.
41. **E. I. Paschalis**, F. Lei, C. Zhou, V. Kapoulea, A. Thanos, R. Dana, D. Vavvas, J. Chodosh, and C. H. Dohlman, “The Role of Microglia and Peripheral Monocytes in Retinal Damage Following Corneal Chemical Injury,” *Am. J. Pathol.*, vol. 188, no. 7, pp. 1580–1596, Jul. 2018.
42. **E. I. Paschalis**, F. Lei, C. Zhou, V. Kapoulea, R. Dana, J. Chodosh, D. Vavvas and C. H. Dohlman, “Permanent neuroglial remodeling of the retina following infiltration of CSF1R-inhibition resistant peripheral monocytes” *PNAS*, in-press Oct. 2018

Non-peer reviewed scholarship in print or other media:

1. **E. I. Paschalis**, F. Lei, C. Zhou, V. Kapoulea, R. Dana, J. Chodosh, D. G. Vavvas, and C. H. Dohlman, “Permanent neuroglial remodeling of the retina following infiltration of CSF1R-inhibition resistant peripheral monocytes.,” bioRxiv, p. 307900, May 2018. In review PNAS

Proceedings of meetings or other non-peer reviewed scholarship

1. **Paschalis EI**, Kozobolis V. Intraocular tonometer (ET) for intraocular pressure monitoring. GR1004809 (B1); Espacenet. 2005-02-08.
2. **Paschalis EI**, Kozobolis V. New flexible intraocular tonometer (IT) for monitoring intraocular pressure integrated in an intraocular lens (IOL). GR20060100324 (A) - 2008-02-05; GR1006557 (B2). Espacenet. 2009-10-06.
3. In vitro and in vivo assessment of titanium surface modification for coloring the backplate of the Boston keratoprosthesis. **Paschalis EI**, Chodosh J, Spurr- Michaud S, Cruzat A, Tauber A, Behlau I, Gipson I, Dohlman CH, January-29-2014. Global Medical Discovery, [ISSN 1929-8536].

Reviews, chapters, monographs and editorials

1. **Paschalis EI**: Book Chapter: Safety and Hazards in Medical LASERs. Postgraduate (MSc) book of Medicine, Democritus University, Alexandroupolis, Greece.
2. Nikolaos P Vrentzos, MD, Ioannis E. Liapakis, MD, PhD, Miriam Englander, MD, **Eleftherios I. Paschalis**, MSc, Ph.D. Hylauronic Acid for Biomedical and Pharmaceutical Applications. Smithers Rapra, 2014. ISBN 9781909030770.
3. Ioannis E. Liapakis, **Eleftherios I. Paschalis**. Liposuction and Suspension of the Orbicularis Oculi for the Correction of Persistent Malar Bags. Liposuction: Principles and Practice, Springer, Berlin, 2d Edition by Shiffman M, Di Giuseppe A, April, 2015. ISBN 978-3-662-48901-7, DOI 10.1007/978-3-662-48903-1.

Letters to the Editor

1. C. H. Dohlman, F. Cade, C. V. Regatieri, C. Zhou, F. Lei, A. Crnej, M. Harissi- Dagher, M.-C. Robert, G. N. Papaliadis, D. Chen, J. V. Aquavella, E. K. Akpek, A. J. Aldave, K. C. Sippel, D. J. D'Amico, J. G. Dohlman, P. Fagerholm, L. Wang, L. Q. Shen, M. Gonzalez-Andrades, J. Chodosh, K. R. Kenyon, C. S. Foster, R. Pineda, S. Melki, K. A. Colby, J. B. Ciolino, D. G. Vavvas, S. Kinoshita, R. Dana, and **E. I. Paschalis**, "Chemical Burns of the Eye: The Role of Retinal Injury and New Therapeutic Possibilities.," *Cornea*, vol. 37, no. 2, pp. 248–251, Feb. 2018.

Thesis:

Title: Design of an electromechanical system for the measurement of the aqueous humor outflow facility coefficient.

National Archives of PhD Theses, Greece.

<https://phdtheses.ekt.gr/eadd/handle/10442/30440?locale=en>

Abstracts, Poster Presentations and Exhibits Presented at Professional Meetings:

1. 2015 Taniguchi, E. V., Paschalis, E., Wang, H; Turalba, A., Pasquale, Louis R., Shen, Lucy Q. Minimum Rim Width Measurements By Swept Source Oct As A Predictor Of Paracentral Visual Field Loss (Oral Presentation). American Glaucoma Society Annual Meeting; American Glaucoma Society. Coronado, Ca
2. 2015 Taniguchi, E. V., Paschalis, E., Cruzat, A., Crnej, A., Colby, K., Chodosh, J., Dohlman, C., Shen, Lucy Q. Anterior Chamber Angle Assessment In Patients With Boston Keratoprosthesis Type I (Abstract). Ascrs Symposium. San Diego, Ca.
3. 2015 Taniguchi, E., Paschalis, E., Crnej, A., Colby, K., Chodosh, J., Shen, Lucy Q., Dohlman, C., Cruzat, A. Role Of An Artificial Cornea Back Plate In Angle Anatomy (Oral Presentation). World Cornea Congress Viii; Cornea Society. San Diego, Ca.
4. 2015 Taniguchi, E. V., Paschalis, E., Li, D., Wang, H., Brauner, S., Greenstein, S., Turalba, A., Pasquale, Louis R, Shen, L. Q. Prelaminar And Lamina Cribrosa Defects Detected By Swept Source Oct In Glaucoma Stratified By Visual Field Loss Pattern (Oral Presentation). Invest. Ophthalmol. Vis. Sci.. 2015; 56(7):2056. Denver, Co.

5. 2015 Li, D.; Taniguchi, E. V., Paschalis, E., Wang, H., Brauner, S., Greenstein, S., Shen, Lucy Q. Comparison Of Swept Source Oct And Enhanced Depth Imaging Oct In The Measurement Of Optic Nerve Head Parameters (Abstract). Association for Research In Vision And Ophthalmology-Imaging Conference. Denver, Co.
6. 2015 Chengxin Zhou, James Chodosh, Claes Dohlman, Eleftherios Paschalis. Role Of Titanium Surface Topography In Regulation Of Corneal Cell Growth, Patterning, And Matrix Deposition (Abstract). Invest. Ophthalmol. Vis. Sci.. 2015; 56(7):1126. Denver, Co.
7. 2015 Houston Ke, Tomasi M, Yoon M, Batalha G, Paschalis Ei. An External Magnetic Device For Severe Bilateral Blepharoptosis: Proof Of Concept (Abstract). Optom Vis Sci 2015;92.
8. 2016 Lawrence G, Paschalis Ei, Tomasi M, Finch N, Houston Ke. A Non-Invasive Magnetic System For Temporary Management Of Lagophthalmos- Proof Of Concept (Abstract). Optom Vis Sci 2016;93: E-Abstract 16091.
9. 2016 Singh Nk, Paschalis Ei, Tomasi M, Rizzo Jf, Houston Ke. The Boston Blink-Netic Project: Preliminary Outpatient Feasibility Results (Abstract). Optom Vis Sci 2016;93: E-Abstract 16118.
10. 2016 Chengxin Zhou, Marie-Claude Robert, Fengyang Lei, Vassiliki Kapoulea, James Chodosh, Claes H Dohlman, Eleftherios I Paschalis. Evaluation Of A Therapeutic Anti-Tnf-A Drug Delivery System For Ocular Alkali Burns (Abstract). Invest. Ophthalmol. Vis. Sci.. 2016; 57(12):1271. Settle, Wa.
11. 2016 Fengyang Lei, Chengxin Zhou. Vassiliki Kapoulea, James Chodosh, Claes H Dohlman, Eleftherios I Paschalis (Abstract). Acute Ocular Surface Injury Causes Prompt Infiltration Of Circulating Monocytes Into The Retina. Invest. Ophthalmol. Vis. Sci.. 2016; 57(12):4492. Settle, Wa.
12. 2017 Gonzalez-Andrades M., Islam M.M., Divoux T., Haist M., Paschalis E., Cruzat A., Gelfand L., Ulm F.J., Delori F., Dohlman C.H. A Road To A Practical, Inexpensive And Safe Implantation Of The Boston Keratoprosthesis (Oral Presentation). European Society Of Ophthalmology 12, June, Barcelona, Spain.
13. 2017 Miguel Gonzalez-Andrades, Mohammad M. Islam, Thibaut Divoux, Michael Haist, Sina Shari, Eleftherios Paschalis, Andrea Cruzat, Larisa Gelfand, Franz-Josef Ulm, James Chodosh, Francois Delori, Claes H. Dohlman. Improving The Practicality And Safeness Of Artificial Corneas: Pre- Assembly And Gamma Sterilization Of The Boston Keratoprosthesis (Abstract). Biennial Corneal Conference. Boston, Ma.
14. 2017 Pui-Chuen Hui, Néstor Uribe-Patarroyo, Claes H. Dohlman, Brett E. Bouma, Eleftherios Paschalis Ilios. Fiber-Optic Pressure Sensor Integrated In The Boston Keratoprosthesis For Glaucoma Screening (Abstract). Biennial Corneal Conference. Boston, Ma.
15. 2017 Eleftherios I. Paschalis, Fengyang Lei, Chengxin Zhou, Reza Dana, Demetrios Vavvas, James Chodosh, Claes H. Dohlman. Chemical Burns To The Cornea And Neuroglia Changes: New Therapeutic Possibilities (Abstract). Biennial Corneal Conference. Boston, Ma.
16. 2017 Swapna S. Shanbhag, Hajirah N. Saeed, Eleftherios I. Paschalis, James Chodosh. Keratolimb Allograft For Limbal Stem Cell Deficiency After Severe Corneal Chemical Burn: A Systematic Review. Biennial Corneal Conference (Abstract). Boston, Ma.
17. 2017 Gonzalez-Andrades M., Islam M.M., Divoux T., Haist M., Sharifi R., Paschalis E., Cruzat A., Gelfand L., Ulm F.J., Chodosh J., Delori F., Dohlman C.H. One Step Closer To A More Practical Artificial Cornea (Oral Presentation). Cornea And Eye Banking Forum. 11, Nov, New Orleans.
18. 2017 Gonzalez-Andrades M, Islam Mm, Sharifi R, Divoux T, Haist M, Paschalis E, Cruzat A, Gelfand L, Ulm Fj, Chodosh J, Delori F, Dohlman C. Improving The Practicality And Safeness Of Artificial Corneas: Pre-Assembly And Gamma Sterilization Of The Boston Keratoprosthesis (Oral Presentation). Kpro Breakfast Aao. 12, Oct. New Orleans.
19. 2017 Vassiliki Kapoulea, E. Taniguchi, Y. Li, C. Zhou, F. Lei, J. Chodosh, D. F. Chen, C. H. Dohlman, E. I. Paschalis. Evaluation Of Intraocular Pressure And Inflammation After Boston K-Pro Implantation In Rabbits (Abstract). Invest. Ophthalmol. Vis. Sci.. 2017; 58(8):2561. Baltimore, Wa.
20. 2017 Dian Li; Mengyu Wang; Tobias Elze; Eleftherios I Paschalis; Elise Taniguchi; Dejiao Li; Angela V Turalba; Louis R Pasquale; Lucy Q Shen. Relationship Between Minimum-Rim Width At Bruch's Membrane Opening And Paracentral Visual Field Loss In Glaucoma (Abstract). Invest. Ophthalmol. Vis. Sci.. 2017; 58(8):4003. Baltimore, Wa.
21. 2017 Fengyang Lei, C. Zhou, V. Kapoulea, J. Chodosh, C. H. Dohlman, E. I. Paschalis. Corneal

- Alkali Injury Induces Retinopathy Via Inflammation That Is Preventable With Anti-Tnf- α Treatment (Abstract). Invest. Ophthalmol. Vis. Sci.. 2017; 58(8):5730. Baltimore, Wa.
22. 2017 Chengxin Zhou, F. Lei, N. Scott, V. Kapoulea, M. Robert, J. Chodosh, C. H. Dohlman, E. I. Paschalis. The Mechanism Of Retinal Damage Following Ocular Surface Burn With Alkali (Abstract). Invest. Ophthalmol. Vis. Sci.. 2017; 58(8):5892. Baltimore, Wa.
 23. 2018 Miguel Gonzalez Andrades, Mohammad Mirazul Islam, Roholah Sharifi, Thibaut Divoux, Michael Haist, Eleftherios I. Paschalis, Andrea Cruzat, Larisa Gelfand, Franz-Josef Ulm, James Chodosh, Francois Delori, Claes H. Dohlman. Improving The Practicality And Safety Of Artificial Corneas: Pre-Assembly And Gamma Sterilization Of The Boston Keratoprosthesis (Abstract). Arvo 2018
 24. 2018 Fengyang Lei, Claes H. Dohlman, James Chodosh, Eleftherios I. Paschalis. Corneal Injury Causes Retinal Inflammation(Abstract). Arvo 2018
 25. 2018 Vassiliki Kapoulea, Chengxin Zhou, Fengyang Lei, Natalie Wolkow, Lina Ma, Thaddeus P. Dryja, James Chodosh, Claes H. Dohlman, Eleftherios I. Paschalis. Anti-Tnf- α Treatment In Skin Burns (Abstract). Arvo 2018
 26. 2018 Chengxin Zhou, Vassiliki Kapoulea, James Chodosh, Claes H. Dohlman, Eleftherios I. Paschalis. Evaluation Of A Sustained Drug Delivery System For Anti-Vegf Antibody After Alkali Burns To The Eye (Oral). Arvo 2018
 27. 2018 Mohammad Mirazul Islam, Roholah Sharifi, Shamina Mamodaly, Adibnia Yashar, Eleftherios Paschalis, James Chodosh, Claes Dohlman, Miguel Gonzalez-Andrades. Optimization Of Decellularization And Sterilization Of Porcine Corneas For Human Corneal Transplants (Abstract). Arvo 2018.
 28. 2018 Sarah Kim, Paulo Bispo, Michael Gilmore, Irmgard Behlau, Eleftherios Paschalis, James Chodosh, Claes Dohlman. The Search For Anti-Fungal Prophylaxis Following Artificial Cornea Surgery (Abstract). 11Th Kpro Study Group Meeting, Barcelona, Spain.
 29. 2018 Miguel Gonzalez Andrades, Mohammad Mirazul Islam, Roholah Sharifi, Thibaut Divoux, Michael Haist, Eleftherios I. Paschalis, Andrea Cruzat, Larisa Gelfand, Franz-Josef Ulm, James Chodosh, Francois Delori, Claes H. Dohlman. Improving The Practicality And Safety Of Artificial Corneas: Pre-Assembly And Gamma Sterilization Of The Boston Keratoprosthesis (Abstract). 11Th Kpro Study Group Meeting, Barcelona, Spain.
 30. 2018 Eleftherios I. Paschalis, Elise Taniguchi, Steve Zhou, Miguel Gonzalez Andrades, Andrea Cruzat, James Chodosh, Roberto Pineda, Claes Dohlman. Work-In-Progress: A New Pre-Descemet's Flexible Titanium Keratoprosthesis (Flex-Kpro) (Oral). 11Th Kpro Study Group Meeting, Barcelona, Spain.
 31. 2018 Sarah Kim, Paulo Bispo, Michael Gilmore, Irmgard Behlau, Eleftherios Paschalis, James Chodosh, Claes Dohlman. The Search For Anti-Fungal Prophylaxis Following Artificial Cornea Surgery. Ocular Microbiology And Immunology Group.

Narrative Report

I am an investigator in ophthalmology. My multidisciplinary training in engineering and medicine provides the tools to go beyond the boundaries of classical biology. During my PhD I developed an award-winning digital aqueous humor outflow meter, used to study the aqueous humor outflow facility in glaucoma patients. Since my arrival at MEE/SERI I have developed multiple cutting-edge bioengineering programs, which have led to numerous patents and peer-reviewed publications in high impact journals, involving engineering for ocular implants, material science for intraocular surgery, burn animal studies, human clinical studies in ophthalmology, and multiple projects in biology. Notable examples include the development of the ferromagnetic glaucoma valve, atomic surface modification for corneal implants, polymer micro-fabrication for removal of silicone oil from IOL, novel drug delivery system for application of biologics to the eye, new keratoprosthesis devices, implantable fiber-optic pressure sensors, improvements in drop-based single cell sequencing techniques, and a magnetic levator and orbicularis prosthesis, which is an innovative approach for the treatment of lid paralysis and has gained significant attention by scientist and clinicians nationally. With Kevin Houston, HMS Assistant Professor of Ophthalmology, I created a research account at MEE for donations and currently

the program is in part independent.

As Director of Innovation at Boston Keratoprosthesis, I investigate new ideas, manage resources, and design the necessary strategies to implement potential technological solutions to clinically relevant dilemmas. I coordinate these efforts in collaboration with James Chodosh, MD, MPH, HMS David Glendenning Cogan Professor of Ophthalmology in the field of Cornea and External Disease, who is the Director of Boston Keratoprosthesis. I develop new and modified device prototypes, and then lead efforts to test them, including studies on their mechanical properties, biocompatibility, and in vivo tolerance. Throughout this process, I am responsible for identifying new intellectual property, and submitting applications to the intellectual Property office at Mass.

Together with Dr. Chodosh, I started the Disruptive Technology Laboratory at MEE, which is focused on new technologies and therapies for ocular diseases. The aim of this lab is to provide disruptive solutions to unmet clinical needs. We recently developed a new keratoprosthesis device, Lucia, which is inexpensive, aesthetically improved, and is expected to improve dissemination and treatment of corneal blindness in underdeveloped countries. I have designed an alternative flexible titanium backplate keratoprosthesis device, suitable for non-penetrating corneal with lamellar (partial thickness) implantation procedure. This device is currently under study in animal models, and is expected to reduce secondary glaucoma normally associated with keratoprosthesis surgery. Recently, I developed an optical domain micro pressure sensor integrated into the Boston Keratoprosthesis optical stem to facilitate intraocular pressure measurements in keratoprosthesis patients. In collaboration with Brett Bouma, PhD, HMS Professor of Dermatology, I am developing an OCT-based technique to measure pressure in these patients. This work is expected to substantially contribute to improved glaucoma management in keratoprosthesis patients. A significant portion of my research is focused on the mitigation of ocular burn injuries and the investigation of the physical and molecular parameters that cause retinal damage in burned patients. Recently, my group started to delineate the specific transcriptional profiles of retinal immune cells using high throughput drop-based single cell sequencing.

Since 2013, when I joined HMS as Instructor in Ophthalmology, I have been actively involved in the teaching and supervision of students and trainees at the laboratory, at MEE and SERI. I participate in numerous educational lectures of the Department of Ophthalmology, Harvard Medical School. I have been invited as a speaker to present my research locally, regionally, and nationally to students and fellows. In my position as the head of the KPro laboratory at SERI, I am dedicated to the teaching and mentoring of my fellows, training them on new laboratory and surgical techniques, all while expanding the field of ophthalmology. The technical skills that I teach to my fellows involve the use of soft lithography for the fabrication of glaucoma valves, drug eluting polymers, magnetic lid arrays for blink reanimation, and for silicon oil extraction during vitrectomy. In addition, in collaboration with Dr. Weitz laboratory, Harvard Engineering School, I teach the art of microfluidic device fabrication for use in drop-based single cell sequencing.

As a voting member of the Institutional Animal Care and Use Committee, as well as a committee member of the Distinguished Lecture Series (DLS) and the Biennial Cornea Conference, I actively contribute to the administrative needs of my department and institution.