

8th International Conference on the
Tear Film & Ocular Surface:
Basic Science and Clinical Relevance

Conference Program & Abstract Book

Montpellier, France
September 7-10, 2016

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Tear Film & Ocular Surface Society

Preface

A significant, international research effort is being directed towards understanding the composition, function and regulation of the precocular tear film. This effort is motivated by the recognition that the tear film plays a critical role in maintaining corneal and conjunctival integrity, protecting against microbial challenge and preserving visual acuity. In addition, research is stimulated by the knowledge that tear film deficiency, which occurs in countless individuals throughout the world, may lead to ocular surface desiccation, corneal ulceration, an increased incidence of infectious disease, and potentially pronounced visual disability.

To promote further progress in this field of vision research, the 8th International Conference on the Tear Film & Ocular Surface: Basic Science and Clinical Relevance will be held at Le Corum in Montpellier, France, from September 7 to 10, 2016. This Conference, which is sponsored by TFOS (www.TearFilm.org), is designed to assess the current knowledge and 'state of the art' research on the structure and function of tear film-producing tissues, tears and the ocular surface in both health and disease. The goal of this Conference is to promote an international exchange of information that will be of value to basic scientists involved in eye research, to clinicians in the eye care community, and to pharmaceutical and diagnostic companies with an interest in tear film or ocular surface disorders.

To help achieve this objective, numerous scientists, clinicians and industry representatives from 41 countries, including Algeria, Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Ghana, Greece, Iceland, India, Italy, Japan, Mexico, New Zealand, Norway, Poland, Romania, Russia, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, The Netherlands, United Kingdom, United States, Uruguay and Vietnam have registered as participants in this Conference.

This book contains the scientific program, as well as the abstracts of the oral and poster presentations, of this TFOS Conference.

David A. Sullivan

Acknowledgments

TFOS expresses its appreciation to Sabrina Zappia and CITYNet (www.citynetonline.it), Julie Karimi and JAKA Congressi (www.jaka.it) and Haydée Marangoni and h.design (www.hdesign.biz) for their help with this Conference.

Recognition

TFOS congratulates the following individuals, who were the recipients of the Conference Young Investigator Awards: Laura Downie (Australia), Masaki Fukui (Japan), Laura García-Posadas (USA), Ulrike Hampel (Germany), Takenori Inomata (USA), Yusuke Izuta (Japan), Arsia Jamali (USA), Kai Jin (Japan), Yu Jeong Kim (South Korea), Isobel Massie (Germany), Hamid-Reza Moein (USA), Céline Portal (France), Martin Schicht (Germany), Yuichi Uchino (Japan) and Stephanie Wan (USA).

Thursday, September 8, 2016

Welcome

7:55 Eric Carlson, Alcon Novartis Pharmaceuticals, Fort Worth, TX, USA

Opening Remarks

8:00 Dimitri T. Azar, Department of Ophthalmology and Visual Sciences, University of Illinois at Chicago, Chicago, IL, USA

6th Claes H. Dohlman Conference Address

Chairperson – Dimitri Azar (USA)

8:05 Studying both sexes: a guiding principle for ophthalmology. Janine Clayton, Office of Research on Women's Health, National Institutes of Health, Bethesda, MD, USA

SESSION I

All Eyes On Sex

Chairpersons - Gerd Geerling (Germany), Laura Downie (Australia), Piera Versura (Italy)

8:35 **Keynote Address:** Glucocorticoids, sex and inflammation. Mahita Kadmiel and John A. Cidlowski, Signal Transduction Laboratory, NIH/NIEHS, Research Triangle Park, North Carolina, USA

9:00 **Keynote Address:** Sex & the eye: A potentially blinding impact. Louis R. Pasquale, Massachusetts Eye & Ear, Channing Division of Network Medicine, Brigham & Women's Hospital and Harvard Medical School, Boston, MA, USA

9:25 **Keynote Address:** Ménage à trois: Sex, sex steroids and dry eye disease. David A. Sullivan, Yang Liu, Juan Ding and Wendy R. Kam, Schepens Eye Research Institute, Massachusetts Eye and Ear and Harvard Medical School, Boston, MA, USA

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9:50 **Poster Session I (with Coffee & Tea)**

Chairpersons - José M Benitez del Castillo Sanchez (Spain), Darlene A Dartt (USA)

Mechanobiological Stresses: Pathways To Ocular Surface Epitheliopathy

Chairpersons - Christophe Baudouin (France), Ulrike Hampel (Germany), Shigeto Shimmura (Japan)

10:40 **Keynote Address:** Friction, lubrication and wear: the impact of interacting ocular surfaces in relative motion. Tannin A. Schmidt, Faculty of Kinesiology and Schulich School of Engineering, University of Calgary, Calgary, AB, CANADA

11:05 **Keynote Address:** Blinking from a Tribological Viewpoint. Heiko Pult, Optometry and Vision Research, Weinheim, Germany; Cardiff University, School of Optometry and Vision Sciences, UK; and Ophthalmic Research Group, Life and Health Sciences, Aston University, Birmingham, UK

11:30 **Keynote Address:** Hyperosmolarity-induced glycodeficient corneal epitheliopathy. Benjamin D. Sullivan, TearLab, Inc., San Diego CA. and Lubris BioPharma, Boston MA

11:55 **Poster Viewing & Lunch**

Prime Time TFOS Debates 1

*Chairpersons - Stefan Schrader (Germany), Choun-Ki Joo (South Korea),
Yu Jeong Kim (South Korea)*

13:15 **Debate 1:** Is ex vivo expansion of limbal stem cells necessary for the treatment of limbal stem cell deficiency?

Yes – Paolo Rama,¹ Stanislav Matuška,¹ Giorgio Paganoni,² Graziella Pellegrini²
Ophthalmology, San Raffaele Hospital, Milano, Italy;¹ Center for Regenerative Medicine,
University of Modena and Reggio Emilia, Italy²

No – Virender S. Sangwan, L V Prasad Eye Institute, Hyderabad, India

13:45 **Debate 2:** Which is the bigger risk factor for dry eye disease: meibomian gland dysfunction (MGD) or contact lens discomfort (CLD)?

MGD – Kelly K. Nichols, University of Alabama at Birmingham School of Optometry,
Tear Film & Ocular Surface Society

Birmingham, AL, USA

CLD – Jason J. Nichols, University of Alabama at Birmingham School of Optometry,
Birmingham, AL, USA

Neuropathic Pain

Chairpersons - Yusuke Izuta (Japan), Deborah S Jacobs (USA), Mark I Rosenblatt (USA)

- 14:15 **Keynote Address:** Definition and clinical endpoints for chronic neuropathic pain. Elizabeth Felix,^{1,2} Constantine D. Sarantopoulos,^{1,3} Roy C. Levitt,^{1,3,4} and Anat Galor,^{1,5} Miami Veterans Administration Medical Center, Miami, Florida;¹ Department of Physical Medicine and Rehabilitation, University of Miami Miller School of Medicine;² Department of Anesthesiology, Perioperative Medicine and Pain Management, University of Miami Miller School of Medicine;³ John T. Macdonald Foundation Department of Human Genetics, and the John P. Hussman Institute of Human Genomics, University of Miami Miller School of Medicine;⁴ Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, Miami, FL, USA⁵
- 14:40 **Keynote Address:** Origin of corneal neuropathic pain. Carlos Belmonte, Instituto de Neurociencias, Universidad Miguel Hernandez-CSIC, San Juan de Alicante and Instituto Universitario Fernandez-Vega, Oviedo, Spain
- 15:05 **Keynote Address:** Diagnosis and management of corneal somatosensory dysfunction Anat Galor,^{1,2} Constantine D. Sarantopoulos,^{1,3} Roy C. Levitt,^{1,3,4} Elizabeth R. Felix,^{1,5} ¹Miami Veterans Administration Medical Center, Miami, Florida; ²Bascom Palmer Eye Institute, University of Miami Miller School of Medicine; ³Department of Anesthesiology, Perioperative Medicine and Pain Management, University of Miami Miller School of Medicine; ⁴John T. Macdonald Foundation Department of Human Genetics, and the John P. Hussman Institute of Human Genomics, University of Miami Miller School of Medicine; ⁵Department of Physical Medicine and Rehabilitation, University of Miami Miller School of Medicine
- 15:30 **Poster Session I (with Coffee & Tea)**

Chairpersons - José M Benítez del Castillo Sánchez (Spain), Darlene A Dartt (USA)

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Unique Challenges And Unmet Needs For The Treatment Of Ocular Surface Disease In Various Regions Of The World

Chairpersons – Zuguo Liu (China), Cecilia Marini (Argentina), Hamid-Reza Moein (USA)

- 16:20 **Keynote Address:** India (South Asia). Geetha Iyer, Sankara Nethralaya, Chennai, India
- 16:40 **Keynote Address:** Africa. Kovin S. Naidoo, Brien Holden Vision Institute, Sydney, Australia.
- 17:00 **Keynote Address:** Latin America. Denise de Freitas, Department of Ophthalmology and Visual Sciences, Paulista School of Medicine, Federal University of São Paulo, São Paulo, Brazil
- 17:20 **Keynote Address:** Oceania. Jennifer P. Craig, Department of Ophthalmology, The University of Auckland, New Zealand
- 17:40 **Keynote Address:** United States. Dimitri T. Azar, Department of Ophthalmology and Visual Sciences, University of Illinois at Chicago, Chicago, IL, USA
- 18:00 **Keynote Address:** Europe. Stefano Bonini, Section of Ophthalmology, University of Rome Campus BioMedico, Rome, Italy

TFOS *i*² Innovation Showcase

- 18:30 **Introduction**, Amy Gallant Sullivan, TFOS Executive Director
- 18:34 **EyeFocus** (UK; www.eyefocus.com), Tobias Stone, Founder
- 18:40 **Avizorex Pharma** (Spain; www.avizorex.com), Patrick Tresserras Chief Executive Officer/Founder
- 18:46 **Cambium Medical** Technologies (USA; www.cambiumbio.com), Terence A. Walts, President & Chief Executive Officer
- 18:52 **Mu-Drop** (The Netherlands; www.mu-drop.nl), Frans Lichtenauer, Chief Executive Officer
- 18:58 **Opia Technologies** (France; www.opiatech.com), Pierre Roy, Chief Executive Officer
- 19:04 **20/20 Optimeyes** (Canada), Heather Sheardown, Co-Founder
- 19:10 **Signal Ophthalmic Consulting** (USA), Whitney Hauser, Founder

Tear Film & Ocular Surface Society

19:16 **Suricog** (France; www.suricog.fr), Benjamin Samuel, Business Developer

19:22 **TearSolutions** (USA; <http://www.tearsolutions.com>), Gordon Laurie, Co-Founder

Poster Session I

Chairpersons - José M Benítez del Castillo Sánchez (Spain), Darlene A Dartt (USA)

1 HOW COMMON ARE EYELID DISORDERS ACROSS EUROPE? J.M. Benítez del Castillo⁽¹⁾, Z. Zagórski⁽²⁾, J. Palmares⁽³⁾, M. Yağmur⁽⁴⁾, T. Kaercher⁽⁵⁾, B. Van Dooren⁽⁶⁾, Dr S. Doan⁽⁷⁾, P. Jonckheere⁽⁸⁾, P. K. Jensen⁽⁹⁾, 1) Hospital Clinico San Carlos, SPAIN 2) Zagorski Eye Surgery Centre, POLAND 3) Hospital Lusíadas, PORTUGAL 4) Cukurova University, TURKEY 5) Augenarztpraxis, GERMANY 6) Erasmus Medical Center, The NETHERLANDS 7) Hôpital Bichat, FRANCE 8) Oogkliniek Deurne, BELGIUM 9) Copenhagen University, DENMARK

2 MEIBOGRAPHY: INTER-RATER RELIABILITY. Johanna Boström¹, Lovisa Pettersson², Dr. Karthikeyan Baskaran¹, Dr. Fredrik Källmark³, Prof. Peter Gierow¹.
¹Department of Medicine and Optometry, Linnaeus University, Kalmar, Sweden ²Unit of Optometry, Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden ³Källmarkskliniken, Stockholm, Sweden.

3 MEIBOMIAN GLAND AND TEAR FILM CHARACTERIZATION IN A HEALTHY UNIVERSITY POPULATION. Carme Serés, Genís Cardona, Cristina Álvarez. School of Optics and Optometry of Terrassa, Universitat Politècnica de Catalunya · BarcelonaTech, Terrassa, Spain.

4 AUTOMATED MEASUREMENT OF TEAR FILM DYNAMICS AND LIPID LAYER THICKNESS FOR ASSESSMENT OF NON-SJÖGREN DRY EYE SYNDROME WITH MEIBOMIAN GLAND DYSFUNCTION Tae-im Kim, MD, PhD¹, Ka Young Lee, MD¹, Yong Woo Ji, MD¹, Hun Lee, MD^{1,2}, Kyoung Yul Seo, MD, PhD¹, ¹Corneal Dystrophy Research Institute & Institute of Vision Research, Department of Ophthalmology, Severance Hospital, Yonsei University College of Medicine, Seoul, Korea ²Department of Ophthalmology, International St. Mary's Hospital, Catholic Kwandong University College of Medicine, Incheon, Korea

5 CAN MEIBOGRAPHY FAIL TO REVEAL FUNCTIONAL GLAND STRUCTURE? Donald R. Korb¹, Caroline A Blackie² Korb Research, Boston MA¹; TearScience, Inc., Morrisville, NC²

6 IS DRY EYE THE WRONG DIAGNOSIS FOR MILLIONS? Donald R. Korb¹, Caroline A. Blackie² Korb Research, Boston MA¹; TearScience, Inc., Morrisville, NC²

7 INCOMPLETE BLINKING AND MEIBOMIAN GLAND FUNCTION IN A
Tear Film & Ocular Surface Society

GRADUATE STUDENT COHORT. Christen Kenrick,¹ Amy Nau,¹ Andrew McLeod.² Korb & Associates,¹ New England College of Optometry,² Boston, MA, USA

8 CHARACTERIZATION OF DRY EYE DISEASE AND MEIBOMIAN GLAND DYSFUNCTION AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION. Marilia Menezes Trindade Ferrer¹, Melina Veiga Rodrigues², Julia Silvestre Castro¹, Francisco Penteadó Aranha², Afonso Vigorito², Monica Alves¹. University of Campinas – UNICAMP, ¹ Discipline of Ophthalmology, Faculty of Medical Sciences and ² Hematopoietic Stem Cell Transplantation Unit, Brazil.

9 OCULAR SURFACE AND MEIBOMIAN GLANDS CHANGES AFTER ALLOGENEIC HAEMATOPOIETIC STEM CELL TRANSPLANTATION Kyung-Sun Na.¹, Young-Sik Yoo,² Hyun Seung Kim,¹ Choun-ki Joo, MD., PhD³, Department of Ophthalmology and Visual Science, Yeouido St. Mary's Hospital College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea¹, Laboratory of Visual Science, College of Medicine, The Catholic University of Korea, Seoul, South Korea², Department of Ophthalmology and Visual Science, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, South Korea³

10 RELATIONSHIP BETWEEN CHEMOTHERAPY-INDUCED LACRIMAL DRAINAGE OBSTRUCTION AND OBSTRUCTIVE MEIBOMIAN GLAND DYSFUNCTION. Jong Suk Song, Youngsub Eom, Hyo Myung Kim. Department of Ophthalmology, Korea University College of Medicine, Seoul, South Korea

11 CORRELATION BETWEEN TEAR FILM LIPID LAYER BY INTERFEROMETRY AND SYMPTOMS IN PATIENTS DIABETICS WITH MEIBOMIAN GLAND DYSFUNCTION. Johanna Garzón P.,^{1,2} Antonio López-Alemany^{2,1}. Optometry-Faculty La Salle's University, Bogotá Colombia. ²Ocular Surface, Cornea and Contact Lens Research Group "Miguel F. Refojo", University of Valencia, Valencia- Spain.

12 CLINICAL FEATURES OF MEIBOMIAN GLAND DYSFUNCTION IN PATIENTS WITH DIABETES TYPE 2. Johanna Garzón P.,^{1,2} Antonio López-Alemany^{2,1}. Optometry-Faculty La Salle's University, Bogotá Colombia. ² Ocular Surface, Cornea and Contact Lens Research Group "Miguel F. Refojo", University of Valencia, Valencia-Spain.

13 Analysis of Factors Associated with Meibomian Gland Loss and Lipid Layer Thickness in Patients with Dry Eye Syndrome. Yong Woo Ji, MD,^{1,2} Ka Young Lee, MD,^{1,2} Seonghee Choi, MD,² Kyoung Yul Seo, MD, PhD,^{1,2} Eung Kweon Kim, MD, PhD,^{1,2} Tae-im Kim, MD, PhD^{1,2,1} Corneal Dystrophy Research Institute, Department of Ophthalmology, Severance Hospital, Yonsei University College of Medicine, Seoul, Korea ²Institute of Vision Research, Department of Ophthalmology, Severance Hospital, Yonsei University College of Medicine, Seoul, Korea

14 DEVELOPMENT OF AN MGD GRADING SCALE FOR USE IN CLINICAL PRACTICE. Emma Gibson^{1,2}, James Wolffsohn², Fiona Stapleton¹, Blanka Golebiowski¹. ¹UNSW, ²Aston University

- 15 ASSESSMENT OF MEIBOMIAN GLANDS AND TEAR FILM IN POST-REFRACTIVE SURGERY PATIENTS. Ji Won Jung,¹ Da Ham Cho,² Jung Yong Kim,¹ Kang Won Lee,¹ Tae-im Kim,³ Kyoung Yul Seo.³ Inha University School of Medicine¹, CHUNCHEON NATIONAL HOSPITAL², Severance Hospital, Yonsei University College of Medicine³, South Korea.
- 16 DIFFERENTIAL GENE EXPRESSION OF *RNF182* AND *ITLN1* IN MEIBOMIAN GLAND DYSFUNCTION – A VALIDATION STUDY. Ling Lee,^{1,2} Qian Garrett,² Subhabrata Chakrabarti,³ Judith Flanagan,^{1,2} Eric Papas.^{1,2} Brien Holden Vision Institute,¹ University of New South Wales,² Australia, L V Prasad Eye Institute,³ India
- 17 CORRELATION OF MEIBOMIAN GLAND DROPOUT WITH DRY EYE EVALUATION IN PRIMARY SJÖGREN'S SYNDROME. Karim Mohamed-Noriega, MD, Dr Med,¹ Fernando Morales-Wong, MD;¹ Yunuen Bages-Rousselon, MD,¹ Janett Riega, MD,² Dr Med; Mario Garza, MD, PhD,² Jesús Mohamed-Hamsho, MD, Dr. Med.¹ Department Of Ophthalmology, Autonomous University Of Nuevo Leon (UANL), Faculty Of Medicine, University Hospital, Monterrey, Mexico.¹ Department Of Rheumatology, Autonomous University Of Nuevo Leon (UANL), Faculty Of Medicine, University Hospital, Monterrey, Mexico.²
- 18 TEAR CYTOKINE PROFILES IN MEIBOMIAN GLAND DYSFUNCTION (MGD) TREATED WITH INTENSE PULSED LIGHT (IPL). Moonjung Choi, MD,¹ Soo Jung Han, MA, Ka Young Lee, MD,¹ Hun Lee,² Kyoung Yul Seo, MD, PhD.¹ ¹Department of Ophthalmology, Severance Hospital, Yonsei University College of Medicine, Seoul, South Korea ²Department of Ophthalmology, International St. Mary's Hospital, Catholic Kwandong University College of Medicine, Incheon, South Korea
- 19 EFFECTS AND PROGNOSTIC FACTORS OF KCL 1100® AUTOMATED THERMODYNAMIC SYSTEM FOR MEIBOMIAN GLAND DYSFUNCTION. Tae-Young Chung. Department of Ophthalmology, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea (South)
- 20 ILUX SYSTEM FOR MEIBOMIAN GLAND TREATMENT – REPORT OF SAFETY ASSESSMENT ON HEALTHY VOLUNTEERS. Paul M. Karpecki, OD, FAAO, Kentucky Eye Institute, Lexington, KY; James P. Owen, OD, FAAO, Encinitas Optometry, Encinitas, CA
- 21 MEIBOMIAN GLAND DYSFUNCTION; ONLINE MANAGEMENT USING EYECALM - A COMMERCIAL CLINICAL DECISION SUPPORT SYSTEM COMPARED TO "USUAL CARE" USING PATIENT RELATED OUTCOME MEASURES. Clarkin L, Wood V, Ross H, Billing A, Taylor D, Pilling S, Jones M Eye Department, Arrowe Park Hospital, Upton, Wirral, CH49 5PE, UK
- 22 EFFICACY OF A SINGLE LIPIFLOW THERMAL PULSATION TREATMENT ON MEIBOMIAN GLAND DYSFUNCTION IN A DRY EYE COHORT FROM ASIA. Tushar Grover, Natasha Pahuja, Rohit Shetty, Harsha Nagaraj, Narayana Nethralaya

Super Speciality Eye Hospital and Postgraduate Institute, Bengaluru, India

23 EVALUATION OF RADIO FREQUENCY THERMISTOR FOR USE IN MGD DRY EYE TREATMENT. David Meadows¹, Ph.D., Mike Christensen², OD, Ph.D., Rachel Grant², OD, Whitney Hauser², OD, Christina Newman², OD, Al Kabat², OD, Greg Almond¹. ¹ ThermiGen LLC, ² Southern College of Optometry

24 INTENSE PULSED LIGHT THERAPY FOR MEIBOMIAN GLAND DYSFUNCTION. Tae Hyung Lim¹, MD, PhD, Seok Joon Kong¹, MD, Young Joo Cho¹, MD, Sang Youp Han², MD, Jae Lim Chung³, MD, Kyoung Yul Seo⁴, MD, PhD Han Gil Eye Hospital, Incheon, Korea¹, Sungmo Eye Hospital, Busan, Korea², Myung-Gok Eye Research Institute, Department of Ophthalmology, Kim's Eye Hospital, Konyang University College of Medicine, Seoul, Korea³, The Institute of Vision Research, Department of Ophthalmology, Yonsei University College of Medicine, Seoul, Korea⁴

25 EVALUATION OF THE SAFETY AND EFFECTIVENESS OF INTENSE PULSED LIGHT IN THE TREATMENT OF MEIBOMIAN GLAND DYSFUNCTION. Lu Huibin¹, Jiang Xiaodan¹, Zhang Mingzhou¹, Liu Yan¹, Hu Xiaodan¹, Li Xuemin¹, Wang Wei¹ ¹Department of Ophthalmology, Peking University Third Hospital, Beijing, China

26 EFFECTS OF MECHANICAL MEIBOMIAN GLAND SQUEEZING ON CLINICAL OUTCOMES AND TEAR FILM LIPID LAYER THICKNESS IN MODERATE AND SEVERE MEIBOMIAN GLAND DYSFUNCTION. Hun Lee^{1,2}, Yong Woo Ji², Ka Young Lee², MoonJung Choi², Si Yoon Park², Eung Kweon Kim², Kyoung Yul Seo², Tae-im Kim² ¹Department of Ophthalmology, International St. Mary's Hospital, Catholic Kwandong University College of Medicine, Incheon, South Korea ²The Institute of Vision Research, Department of Ophthalmology, Yonsei University College of Medicine, Seoul, South Korea

27 PRACTICAL APPROACH TO MEIBOMIAN GLAND PROBING; María Noel Suárez, Clínica de Ojos Montevideo, Montevideo, Uruguay

28 SURFACE INTERACTION OF LACRITIN C-TERMINAL SYNTHETIC PEPTIDES WITH HUMAN MEIBUM FILMS. Yana Nencheva,¹ Craig Struble,² Gordon W. Laurie,³ Georgi As. Georgiev¹ ¹Department of Optics and Spectroscopy, Faculty of Physics, St. Kliment Ohridski University of Sofia, Sofia, Bulgaria ²Covance, Madison WI, USA ³Department of Cell Biology, University of Virginia School of Medicine, Charlottesville, VA USA

29 SURFACE INTERACTIONS OF DIQUAFOSOL AND CHLOHEXIDINE GLUCONATE WITH HUMAN MEIBUM FILMS. Georgi As. Georgiev,¹ Norihiko Yokoi,² Yana Nencheva¹ ¹Department of Optics and Spectroscopy, Faculty of Physics, St. Kliment Ohridski University of Sofia, Sofia, Bulgaria ²Department of Ophthalmology, Kyoto Prefectural University of Medicine, Kyoto, Japan

30 SURFACE INTERACTIONS OF CATIONIC NANOEMULSIONS WITH HUMAN MEIBUM FILMS. Philippe Daull¹, Norihiko Yokoi², Yana Nencheva³, Georgi As. Georgiev.³ ¹Santen SAS, Evry, France, ²Department of Ophthalmology, Kyoto Prefectural

University of Medicine, Kyoto, Japan, ³Faculty of Physics, University of Sofia “St. Kliment Ohridski”, Bulgaria

31 TOWARD AN UNDERSTANDING OF THE ROLES OF MEIBUM LIPIDS AND
DIETARY FAT IN DRY EYE DISEASES. Jillian Meadows,¹ Jianzhong Chen,¹ Kari
Green,² Jason Nichols,¹ Kelly Nichols¹ ¹University of Alabama at Birmingham, School of
Optometry ²University of Florida, Department of Chemistry

32 LIPID ORDER, SATURATION AND SURFACE PROPERTIES OF HUMAN
MEIBUM. Douglas Borchman,¹ Poonam Mudgil², Rahul Bhola.¹ ¹Department of
Ophthalmology and Visual Sciences, University of Louisville, Louisville, KY, USA,
²School of Medicine, University of Western Sydney, Penrith NSW, Australia

33 COMPOSITIONAL ANALYSIS OF ω -HYDROXY FATTY ACID-BASED
DIESTERS IN HUMAN MEIBUM. Jianzhong Chen, Kelly Nichols. School of
Optometry, University of Alabama at Birmingham, Birmingham, AL, USA

34 CHANGE OF TEAR LIPID LAYER THICKNESS AND MEIBOMIAN GLAND
STRUCTURES AFTER CATARACT SURGERY. Si Yoon Park, M.D¹, Yong Woo Ji,
M.D¹, Sang Ah Kim, M.D¹, Tae-im Kim, M.D, Ph.D^{1,2}, ¹The Institute of Vision Research,
Department of Ophthalmology, Yonsei University College of Medicine, Seoul, South
Korea, ²Corneal Dystrophy Research Institute, Severance Biomedical Science Institute,
and Brain Korea 21 Plus Project for Medical Science, Yonsei University College of
Medicine, Seoul, South Korea.

35 DIETARY FACTORS ASSOCIATED WITH MEIBOMIAN GLAND AND TEAR
FUNCTIONS IN AN ADULT POPULATION. Nisha Yeotikar,¹ Judith Flanagan,¹
Thomas Naduvilath,¹ Maria Markoulli,² Eric Papas.² Brien Holden Vision Institute,¹
School of Optometry & Vision Science,² University of New South Wales, Sydney,
Australia

36 *IN VITRO* EFFECTS OF SEX HORMONES IN HUMAN MEIBOMIAN GLAND
EPITHELIAL CELLS. Fabian Garreis¹, Antje Schröder¹, Daniel B. Abrar¹, Ulrike
Hampel^{1,2}, Martin Schicht¹ and Friedrich Paulsen¹.¹Department of Anatomy II, Friedrich
Alexander University Erlangen-Nürnberg (FAU), Erlangen, Germany; ²Department of
Ophthalmology, Gutenberg University Mainz, Germany

37 HUMAN MEIBOMIAN GLAND EPITHELIAL CELLS PROTECT CORNEAL
EPITHELIAL CELLS FROM BAK INDUCED TOXICITY. Elham Ghahari E, Medi
Eslani M, Gidfar Sanaz, Ali R. Djalilian. University of Illinois Eye and Ear Infirmary,
University of Illinois at Chicago, Chicago, IL

38 CELL VIABILITY AND PROTEIN EXPRESSION OF HUMAN AMNIOTIC
MEMBRANE IN DIFFERENT PRESERVATION METHODS. Jung Huh, Jea-Chan
Kim,. Department of Ophthalmology, Chung-Ang University Hospital.

39 EXPRESSION OF P63 AND CHROMATIN FUNCTIONAL STATES FROM

LIMBAL EPITHELIAL CELLS GROWN ON SYNTHETIC VERSUS DENUDED HUMAN AMNIOTIC MEMBRANE. Marcela Aldrovani,¹ Ivan R.M. Padua,¹ Livia P. Coelho,¹ Priscila C. Cristovam,² José L. Laus,¹ José A.P. Gomes.² Department of Small Animal Medicine and Surgery, Faculty of Agrarian and Veterinary Sciences, UNESP Jaboticabal, SP, Brazil,¹ Ocular Surface Advanced Center, Federal University of São Paulo, UNIFESP São Paulo, SP, Brazil.²

40 COLLAGEN FIBER ORIENTATION AND THICKNESS IN THE HUMAN AMNIOTIC STROMA BEFORE AND AFTER CELL CULTURE. Marcela Aldrovani,¹ Gisele P. Valdetaro,¹ Livia P. Coelho,¹ Priscila C. Cristovam,² José L. Laus,¹ José A.P. Gomes.² Department of Small Animal Medicine and Surgery, Faculty of Agrarian and Veterinary Sciences, UNESP Jaboticabal, SP, Brazil,¹ Ocular Surface Advanced Center, Federal University of São Paulo, UNIFESP São Paulo, SP, Brazil.²

41 CONCANAVALIN A-POSITIVE GLYCOPROTEINS IN THE NUCLEI OF CORNEAL LIMBAL EPITHELIAL CELLS. Marcela Aldrovani,¹ Karina K. Kobashigawa,¹ Livia P. Coelho,¹ Priscila C. Cristovam,² José L. Laus,¹ José A.P. Gomes.² Department of Small Animal Medicine and Surgery, Faculty of Agrarian and Veterinary Sciences, UNESP Jaboticabal, SP, Brazil,¹ Ocular Surface Advanced Center, Federal University of São Paulo, UNIFESP São Paulo, SP, Brazil.²

42 RECONSTRUCTION OF OCULAR SURFACE BY THE TRANSPLANTATION OF LIMBAL EPITHELIAL CELLS CULTURED IN TRIDIMENSIONAL SYSTEM (SANDWHICH METHOD). Karina K. Kobashigawa,¹ Marcela Aldrovani,¹ Alexandre A.F. Barros Sobrinho,¹ Livia P. Coelho,¹ Paloma E.S. Silva,¹ Paulo F. Marcusso,² Fausto A. Marinho Neto,² Priscila C. Cristovam,³ José A.P. Gomes,³ José L. Laus.¹ Department of Small Animal Medicine and Surgery, Faculty of Agrarian and Veterinary Sciences, UNESP Jaboticabal, SP, Brazil,¹ Department of Veterinary Clinical Medicine and Surgery, UNESP Jaboticabal, SP, Brazil,² Ocular Surface Advanced Center, Federal University of São Paulo, UNIFESP São Paulo, SP, Brazil.²

43 TRANSPLANTATION OF SUBSTRATE-FREE CULTURED ORAL MUCOSAL EPITHELIAL CELL SHEETS (COMECS) IN TREATMENT OF LIMBAL STEM CELL DEFICIENCY. Yu Jeong Kim,^{1,2} Jaeyoung Kim,^{1,2} Hyun Ju Lee,² Jin Suk Ryu,² Yun Hee Kim,³ Saewha Jeon,³ Mee Kum Kim,^{1,2} Won Ryang Wee.^{1,2} Department of Ophthalmology, Seoul National University College of Medicine, Seoul, Korea¹ Laboratory of Ocular Regenerative Medicine and Immunology, Seoul National University Hospital Biomedical Research Institute, Seoul, Korea² Cutigen Research Institute, Tego Science Inc., Seoul, Korea³

44 LONG-TERM HOMEOSTASIS IN AN *IN VITRO* EPITHELIAL STEM CELL NICHE MODEL. Shigeto Shimmura, Hideyuki Miyashita, Hiroko Niwano, Satoru Yoshida, Shin Hatou, Emi Inagaki, and Kazuo Tsubota, Department of Ophthalmology, Keio University School of Medicine

45 EFFECTS OF INTERMITTENT SHEAR STRESS ON CORNEAL EPITHELIAL CELLS USING AN *IN VITRO* FLOW CULTURE MODEL. Ulrike Hampel^{1,2}, Fabian Burgemeister², Nicole Eßel², Friedrich Paulsen². ¹ Department of Ophthalmology,

University Medical Center of the Johannes Gutenberg University Mainz, Mainz, Germany, ² Department of Anatomy II, Friedrich-Alexander University, Erlangen, Germany

46 EXPRESSION OF K⁺ CHANNELS BY HUMAN CORNEAL LIMBAL EPITHELIAL CELLS. John L. Ubels¹, Mark P. Schotanus¹, Peter M. Boersma^{1,2}, Loren D. Haarsma². Departments of Biology¹ and Physics², Calvin College, Grand Rapids, MI, USA

47 COMPARISON OF CYTOTOXICITY AND WOUND HEALING OF DIQUAFOSOL TETRASODIUM AND HYALURONIC ACID ON HUMAN CORNEAL EPITHELIAL CELLS. Jieun Lee,^{1,2} Jonghun Lee,^{1,2} Jongsoo Lee.^{1,2} Department of Ophthalmology, School of Medicine, Pusan National University, Pusan, Korea,¹ Research Institute for Convergence of Biomedical Science and Technology, Pusan National University Yangsan Hospital, Yangsan, Korea²

48 IMPACT OF HYALURONIC ACID CONTAINING ARTIFICIAL TEAR PRODUCTS ON RE-EPITHELIALIZATION IN AN *IN VIVO* CORNEAL WOUND MODEL. Abayomi Ogundele¹, Winston W.Y. Kao², Eric Carlson¹ Alcon Research Ltd., Fort Worth, Texas, USA¹; Department of Ophthalmology, College of Medicine at the University of Cincinnati, Ohio, USA²

49 CLINICAL OUTCOMES FOLLOWING USE OF THE DUAL POLYMER HYDROXYPROPYL GUAR/HYALURONIC ACID-BASED LUBRICANT EYE DROPS IN PATIENTS WITH DRY EYE. Christophe Baudouin,¹ Stefanie Schmickler,² David Galarreta,³ Florence Malet,⁴ Abayomi Ogundele,⁵ Christine Rosko,⁵ Guillon Michel,⁶ Marc Labetoulle.⁷ Quinze-Vingts National Ophthalmology Hospital, Paris, France, ²Augen-Zentrum-Nordwest Augenpraxis Ahaus, Germany, ³Hospital Clinico Universitario de Valladolid, Valladolid, Spain; ⁴Centre PointVision Bordeaux, France,⁵ Alcon Research Ltd., Fort Worth, Texas, US, ⁶Ocular Technology Group, London, UK, ⁷Ophthalmologie Hôpital Bicêtre, South Paris Université, Kremlin-Bicêtre, France

50 Enhanced Wound Healing in Human Corneal Epithelium in Response to Histatin-1 Application. Dhara Shah¹; Marwan Ali¹; Vinay K. Aakalu¹ Ophthalmology and Visual Sciences, University of Illinois at Chicago, Chicago, IL, USA

51 CONJUNCTIVAL EPITHELIAL CELLS CHANGES AFTER THE TREATMENT WITH 0.2% XANTHAN GUM EYE DROPS IN MODERATE DRY EYE. Pasquale Aragona,¹ Elisa Postorino,¹ Laura Rania,¹ Rosaria Spinella,¹ Emanuela Aragona,¹ Domenico Puzzolo,¹ Anna Maria Livia Mazza,² Vincenzo Papa.² Dept. of Biomedical Sciences,¹ University of Messina, Italy, Medical Affairs,² SIFI S.p.A., Catania, Italy.

52 AN INFLAMMATORY GENE PROFILE OF HUMAN CONJUNCTIVAL EPITHELIAL CELLS IN DRY EYE DISEASE Suzanne Hagan¹, Boatemaa Omotayo¹, Katherine Oliver¹, Michael Doughty¹, Claire Walshe². ¹Vision Sciences, Glasgow Caledonian University, Glasgow; ²Topivert Pharma Ltd, Imperial Biocubator, London, UK.

- 53 EUPHRASIA PROTECTS HUMAN CONJUNCTIVAL CELLS FROM
ULTRAVIOLET LIGHT-INDUCED CELL DAMAGE. Andrea Heidinger, Otto
Schmut, Dieter Rabensteiner, Marianne Nitsche-Resch, Ingrid Boldin, Jutta Horwath-
Winter, Andreas Wedrich. Department of Ophthalmology, Medical University of Graz,
Austria.
- 54 ROLE OF mTOR SIGNALING IN PTERYGIUM FIBROBLASTS Sunwoong Kim¹,
Hyein Kim², Keunwook Lee² ¹Department of ophthalmology, Yonsei University Wonju
Collge of Medicine, Wonju, Korea ²Depatrmnt of Biomedical Science, Hallym University,
Chuncheon, Korea
- 55 THE EFFECT OF TOPICAL DIQUAFOSOL TETRASODIUM 3% ON TEAR FILM
AND CONJUNCTIVAL GOBLET CELLS AFTER CATARACT SURGERY IN
PATIENTS WITH DRY EYE DISEASE. Lian Cui^{1,2}, Hyo Seok Lee¹, Ying Li^{1,2}, Kyung
Chul Yoon^{1,2} ¹Department of Ophthalmology, Chonnam National University Medical
School and hospital, Gwangju, South Korea ²Department of Biomedical Sciences and
Center for Creative Biomedical Scientists at Chonnam National University, Gwangju,
South Korea
- 56 STAPHYLOCOCCUS AUREUS-INDUCED MUCIN SECRETION BY
CONJUNCTIVAL GOBLET CELLS: DEPENDENCY ON NLRP3
INFLAMMASOME ACTIVATION AND RELEASE OF MATURE IL-1 β Darlene
Dartt, Dayu Li, Marit Lippestad, Robin Hodges, Michael Gilmore, and Meredith Gregory-
Ksander. Schepens Eye Research Institute/Massachusetts Eye and Ear, and Department
of Ophthalmology, Harvard Medical School, Boston, MA, School of Dental Medicine and
School of Medicine, University of Oslo, Oslo Norway
- 57 CONJUNCTIVAL GOBLET CELL REGULATION BY ALLERGIC
MEDIATORS. Laura García-Posadas,^{1,2} Yolanda Diebold,³ Darlene A. Dartt.^{1,2} Schepens
Eye Research Institute/MEEI, Boston, MA, USA,¹ Department of Ophthalmology,
Harvard Medical School, Boston, MA, USA,² IOBA-University of Valladolid, Valladolid,
Spain.³
- 58 PRECLINICAL MOUSE MODEL TO MONITOR LIVE CONJUNCTIVAL
GOBLET CELL DIFFERENTIATION UNDER PHARMACOLOGICAL
TREATMENTS. Portal C¹, Gouyer V¹, Gottrand F¹, Desseyn JL¹. ¹LIRIC UMR995;
Inserm/Université de Lille; CHU de Lille, Lille, France
- 59 UPPER AND LOWER CONJUNCTIVAL FORNIX DEPTH IN HEALTHY WHITE
CAUCASIAN EYES: A METHOD OF OBJECTIVE ASSESSMENT. Valerie
Saw,^{1,2} David Carpenter,¹ Scott Hau,¹ Debbie Booth,¹ Haneen Jasim,¹ Gurjeet Jutley.¹
Moorfields Eye Hospital,¹ UCL Institute of Ophthalmology,² London, UK
- 60 CONJUNCTIVAL INFLAMMATION AFTER PUNCTAL PLUGGING FOR
SEVERE DRY EYE. Serge DOAN¹, Luisa RIANCHO², Karima KESSAL², Christophe
BAUDOIN^{2,3}, Françoise BRIGNOLE-BAUDOIN^{2,3} 1 - Fondation A de Rothschild
and Bichat Hospital, Paris, France; 2 - UPMC University, Paris 6, Vision Institute,
INSERM UMRS968, CNRS UMR7210, Paris, France; 3 - Quinze-Vingts National
Tear Film & Ocular Surface Society

Ophthalmology Hospital, Paris, France

61 FEMTOSECOND LASER ASSISTED CONJUNCTIVAL AUTOGRAFT
PREPARATION. Matthias Fuest¹, Yu-Chi Liu^{1,2}, Gary Hin-Fai Yam¹, Ercia Pei Wen
Teo¹, Minas Coroneo³, Jodhbir S Mehta^{1,2} ¹Singapore Eye Research Institute, Singapore
²Singapore National Eye Centre, Singapore ³Faculty of Medicine, University of New South
Wales, Australia

62 COMPARISON OF LONG TERM CLINICAL RESULTS OF LIMBAL
CONJUNCTIVAL AUTOGRAFT VERSUS AMNIOTIC MEMBRANE
TRANSPLANTATION IN PRIMARY PTERYGIUM SURGERY. Hyung Joon Kim¹,
Suk Jin Hwang.¹ Department of Ophthalmology¹, Daegu Catholic University Hospital,
Daegu, Korea

63 OCULAR SURFACE AND TEAR FILM FUNCTION FOLLOWING MODIFIED
HUGHES TARSOCONJUNCTIVAL FLAP PROCEDURE. Rabensteiner DF¹, Boldin
I¹, Klein-Theyer A¹, Heidinger A¹, Riedl R², Horwath-Winter J¹. Department of
Ophthalmology¹, Institute for Medical Informatics, Statistics and Documentation²,
Medical University of Graz, Austria

64 INTERPLAY BETWEEN EYE MICROBIOME AND DRY EYE DISEASE IN
INDIAN PATIENTS. Noopur Gupta,¹ Amit Sharma,² Vanathi M, ¹ Jyoti Chibber,²
Radhika Tandon, ¹ Dr. Rajendra Prasad Centre for Ophthalmic Sciences, AIIMS, New
Delhi, India, ² International Centre for Genetic Engineering and Biotechnology, New
Delhi, India

65 CHANGING PATTERNS OF MICROBIAL KERATITIS. Sanjay Marasini¹, Simon
Swift², Simon J. Dean¹, Sue Ormonde¹, Jennifer P. Craig.¹ ¹Department of Ophthalmology,
and ²Department of Molecular Medicine and Pathology, University of Auckland, New
Zealand

66 LOW POWER NARROWBAND UVC EFFECTIVELY INHIBITS BACTERIAL
PROLIFERATION IN A GEL-LIKE MEDIUM. Sanjay Marasini¹, Simon Swift², Simon
J. Dean¹, Jennifer P. Craig.¹ ¹Department of Ophthalmology, ²Department of Molecular
Medicine and Pathology, University of Auckland, New Zealand

67 OCULAR SURFACE MICROBIOME IN PATIENTS WITH DRY EYE CAUSED
BY CHRONIC GRAFT-VERSUS-HOST DISEASE (CGVHD). Eisuke Shimizu,
Yoko Ogawa, Yumiko Saijo, Mio Yamane, Shin Mukai, Miki Uchino, Mizuka Kamoi,
Masaki Fukui, Kazuo Tsubota Department of Ophthalmology Keio University School
of Medicine

68 IL-1R CONTRIBUTES TO THE ABSENCE OF A MICROBIOME AT THE MOUSE
CORNEAL SURFACE. Stephanie Wan¹, Aaron Sullivan¹, Peyton Shieh², Carolyn
Bertozzi³, David Evans^{1,4}, Suzanne Fleiszig¹ 1. Optometry, UC Berkeley, 2. Chemistry, UC
Berkeley 3. Chemistry, Stanford University, 4. College of Pharmacy, Touro University

- 69 THE BACTERIAL PROFILES AMONG MGD, ADDE AND HEALTHY CONTROLS. Jiang Xiaodan, Lu Huibin, Zhou Peng, Wen Yiting, Li Xuemin. Department of Ophthalmology, Peking University Third Hospital, Beijing, China
- 70 COMMENSAL OCULAR MICROFLORA AND TEAR PARAMETERS IN A NORMAL POPULATION. Judith Flanagan^{1,2}, Nisha Yeotikar¹, Hua Zhu^{1,2} 1. Brien Holden Vision Institute, Sydney, Australia 2. School of Optometry and Vision Sciences, UNSW, Sydney, Australia.
- 71 COMPARISON OF CLINICAL FEATURES, ANTIBIOTICS SUSCEPTIBILITY, AND TREATMENT OUTCOME ACCORDING TO METHICILLIN SENSITIVITY IN *STAPHYLOCOCCUS AUREUS* KERATITIS. Sang-Bumm Lee, Janghwan Ahn. Department of Ophthalmology, Yeungnam University College of Medicine, Daegu, Korea
- 72 MUTATIONS IN THE QUORUM SENSING GENE *LASR* ARE ASSOCIATED WITH WORSE CLINICAL OUTCOMES IN *PSEUDOMONAS AERUGINOSA* KERATITIS. Zegans M, Hammond J, Hebert W, Ray K, Naimie A1, Lalitha P, Srinivasan M, Acharya NR, Toutain-Kidd C, Lietman TM, DiGiandomenico A, Hogan D. Dartmouth Geisel School of Medicine, Lebanon, NH, USA
- 73 UNRAVELING LACRIMAL GLAND STEM CELL DYNAMICS BY LINEAGE TRACING. Natalie Tanke¹, Geraint Parfitt², Takeshi Umazume¹, Pamela Segura¹, Ivo Kalajzic³ James V. Jester², Darlene A. Dartt⁴ and Helen P. Makarenkova¹ ¹The Scripps research institute, Department of Cell and Molecular Biology, La Jolla, CA, USA; ²University of California, Gavin Herbert Eye Institute, Irvine, CA, USA, ³Center for Regenerative Medicine and Skeletal Development, School of Dental Medicine Department of Reconstructive Sciences University of Connecticut Health Center, Farmington, USA ⁴Schepens Eye Research Institute/Massachusetts Eye and Ear, Department of Ophthalmology, Harvard Medical School, Boston, MA, USA.
- 74 LACRIMAL GLAND EPITHELIAL CELL METABOLIC ACTIVITY AND FUNCTION ON A DECELLULARISED SCAFFOLD IS INCREASED USING A DYNAMIC CULTURE FORMAT. Isobel Massie,¹ Kristina Spaniol,² Gerd Geerling,² Marco Metzger,³ Stefan Schrader,^{1,2}. Laboratory of Experimental Ophthalmology,¹ Eye Clinic,² UKD, Düsseldorf, Dept of Tissue Engineering and Regenerative Medicine, UKW, Würzburg,³ Germany
- 75 IN VIVO VISUALIZATION OF Ca²⁺ DYNAMICS OF MYOEPITHELIAL CELLS IN LACRIMAL GLAND. Kai Jin¹, Toshihiro Imada¹, Yusuke Izuta¹, Shigeru Nakamura¹, Takahiro Adachi², Kazuo Tsubota¹ Department of Ophthalmology, Keio University, Tokyo, Japan¹ Department of Immunology, Tokyo Medical and Dental University, Tokyo, Japan²
- 76 RNASEQ PROFILING OF REGENERATING LACRIMAL GLAND IDENTIFIES MYOEPITHELIAL CELLS AS POTENTIAL PLAYERS IN TISSUE REPAIR. Dillon Hawley¹, Claire Kublin¹, Audrey Michel¹, Lisa Clapison¹, Jian Ding², Michael Mingueneau², Driss Zoukhri¹ ¹Tufts University School of Dental Medicine, Boston, MA

02111 ²Biogen, 225 Binney Street, Cambridge, MA 02142

77 MECHANISMS AND MOLECULAR REGULATION OF LACRIMAL GLAND MORPHOGENESIS AND MAINTENANCE Alison Kuony and Frederic Michon, University of Helsinki, Helsinki, Finland.

78 CENTRAL CONNECTIONS OF THE LACRIMAL FUNCTIONAL UNIT. Catherine Willshire¹, Roger Buckley¹ and Anthony Bron^{1,2}. ¹Vision and Eye Research Unit, Anglia Ruskin University, Cambridge, UK, ²Nuffield Department of Clinical Neurosciences and Nuffield Laboratory of Ophthalmology, University of Oxford, UK.

79 SAFETY AND EFFICACY OF EXCISION OF THE HORIZONTAL CANALICULUS IN SEVERE AQUEOUS DEFICIENT DRY EYE. Seika Den,¹ Daisuke Tomida,¹ Hirohiko Kakizaki,² Jun Shimazaki.¹ Department of Ophthalmology, Tokyo Dental College Ichikawa General Hospital, Chiba, Japan.¹ Department of Oculoplastic, Orbital & Lacrimal Surgery, Aichi Medical University Hospital, Aichi, Japan.²

Friday, September 9, 2016

SESSION II

Surface Barriers To Inflammation

Chairpersons - Penny Asbell (USA), Ali Djalilian (USA), Arsia Jamali (USA)

- 8:00 **Keynote Address:** Endothelial barrier (Vascular endothelium: It's more than just a monolayer). Francis W. Luscinskas, Center for Excellence in Vascular Biology, Department of Pathology, Brigham and Women's Hospital, and Harvard Medical School, Boston, MA, USA
- 8:20 **Keynote Address:** Epithelial barrier (Endocrine regulation of mucosal barrier protection in the human female reproductive tract). Charles R. Wira, Marta Rodriguez-Garcia and Mickey V. Patel, Department of Microbiology and Immunology, Geisel School of Medicine at Dartmouth, Lebanon, NH, USA
- 8:40 **Keynote Address:** Tear film barrier. Alison M. McDermott The Ocular Surface Institute, University of Houston College of Optometry, Houston, TX, USA
- 9:00 **Keynote Address:** Ocular surface glycocalyx barrier. Pablo Argüeso. Schepens Eye Research Institute and Massachusetts Eye and Ear, Department of Ophthalmology, Harvard Medical School, Boston, Massachusetts, USA
- 9:20 **Keynote Address:** Corneal barrier. Victor L. Perez, Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, USA
- 9:40 **Poster Session II (with Coffee & Tea)**

Chairpersons - Eduardo Rocha (Brazil), Kyung-Sun Na (South Korea)

Ocular Inflammatory Insults: Advances In Understanding Their Mechanism(s) And Treatment

Chairpersons - Esen K Akpek (USA), Takenori Inomata (USA), Bhaskar Srinivasan (India)

- 10:30 **Keynote Address:** Dynamic instability – a pathway for nuclear transport of adenovirus. Jaya Rajaiya, Department of Ophthalmology, Howe Laboratory, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, MA, USA
- 10:50 **Keynote Address:** Vernal keratoconjunctivitis – Therapeutic advances of an enigmatic disease. Avi Solomon, Department of Ophthalmology, Hadassah Medical Center,

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Jerusalem, Israel

- 11:10 **Keynote Address:** Graft-versus-host disease. Yoko Ogawa, Department of Ophthalmology, Keio University School of Medicine, Tokyo, Japan
- 11:30 **Keynote Address:** Building an evidence basis for management of ocular Stevens-Johnson syndrome/toxic epidermal necrolysis. James Chodosh, Department of Ophthalmology, Howe Laboratory, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, MA, USA
- 11:50 **Keynote Address:** Sjögren syndrome and commensal microbiota. Zaheer, M¹; Bian¹, F; Swennes, AG², Britton, RA³, Pflugfelder, SC¹, De Paiva, CS¹ ¹Ocular Surface Center, Dept. of Ophthalmology, Baylor College of Medicine; ²Center for Comparative Medicine, Dept. of Molecular Virology and Microbiology, Baylor College of Medicine; ³Center for Metagenomics and Microbiome Research, Dept. of Molecular Virology and Microbiology, Baylor College of Medicine, Houston, TX, USA
- 12:10 **Poster Viewing & Lunch**

Did You Know?

Chairpersons - Serge Doan (France), Sihem Lazreg (Algeria), Martin Schicht (Germany)

- 13:30 **Keynote Address:** Metabolomic fingerprints exist in dry eye disease. Jelle Vehof,^{1,2} Department of Twin Research & Genetic Epidemiology, King's College London, St Thomas' Hospital, London, United Kingdom¹; Department of Ophthalmology, University of Groningen, University Medical Center Groningen, Groningen, Netherlands²
- 13:45 **Keynote Address:** Blood, sweat and tears: human social chemosignaling in health and disease. Noam Sobel, Weizmann Institute of Science, Rehovot, Israel
- 14:00 **Keynote Address:** Impact of microbiota on resistance to ocular *Pseudomonas aeruginosa*-induced keratitis. Mihaela Gadjeva, Department of Medicine, Division of Infectious Diseases, Brigham and Women's Hospital, Harvard Medical School, Boston, MA
- 14:15 **Keynote Address:** The pediatric ocular surface is a peculiar system, with peculiar diseases and peculiar management challenges. Edoardo Villani, Department of Clinical Science and Community Health, University of Milan. Eye Clinic San Giuseppe Hospital, Milan, Italy
- 14:30 **Keynote Address:** Happiness and dry eye. Motoko Kawashima, Keio University School of Medicine, Tokyo, Japan

Ocular Surface Microbiome

Chairpersons - David Evans (USA), Stephanie Wan (USA), Michael Zegans (USA)

- 14:45 **Keynote Address:** Ocular surface microbiome in the post-genomics era. Val Shestopalov. Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, Miami, FL, USA
- 15:10 **Keynote Address:** Impact of microbiota on adaptive immune effectors on the ocular surface. Gerald B. Pier, Tanweer Zaidi, Abirami Kugadas, Mihaela Gadjeva. Department of Medicine, Brigham & Women's Hospital, Harvard Medical School, Boston, MA, USA
- 15:35 **Keynote Address:** Is anybody there? Suzanne M.J. Fleiszig,¹ Stephanie J. Wan,¹ Aaron B. Sullivan,¹ Matteo M.E. Metruccio,¹ David J. Evans.^{1,2} UC Berkeley,¹ Touro University College of Pharmacy,² CA, USA
- 16:00 **Poster Session II (with Coffee & Tea)**

Chairpersons - Eduardo Rocha (Brazil), Kyung-Sun Na (South Korea)

Ocular Surface Repair And Regeneration

Chairpersons - Kung Chul Yoon (Korea), Kazuo Tsubota (Japan), Yuichi Uchino (Japan)

- 16:50 **Keynote Address:** Limbal stem cells. Sophie X. Deng, Jules Stein Eye Institute, University of California, Los Angeles, CA, USA
- 17:10 **Keynote Address:** Restoration of corneal transparency by mesenchymal stem cells. Sunil Chauhan, Schepens Eye Research Institute, Massachusetts Eye and Ear, Harvard Medical School, Boston, MA, USA
- 17:30 **Keynote Address:** Human induced pluripotent stem cells. Heli Skottman, BioMediTech, University of Tampere, Finland
- 17:50 **Keynote Address:** Bioengineered cornea. May Griffith, Department of Clinical and Experimental Medicine, Linköping University, Sweden; Maisonneuve-Rosemont Hospital Research Center and Université de Montréal, Montreal, Canada; Tej Kholi Cornea Institute/LV Prasad Eye Institute, Hyderabad, India
- 18:10 **Keynote Address:** Recent Innovations in ocular surface surgery. Jod S Mehta, Singapore National Eye Centre, Singapore Eye Research Institute, Duke-NUS Graduate Medical School, School of Material Science & Engineering and School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

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Poster Session II

Chairpersons - Eduardo Rocha (Brazil), Kyung-Sun Na (South Korea)

1 THE UTILITY OF A NORMAL TEAR OSMOLARITY TEST IN SYMPTOMATIC PATIENTS. Ashley R. Brissette¹; Kelley J. Bohm¹; Christopher E. Starr¹. ¹Weill Cornell Medical College

2 VARIATION OF TEAR OSMOLARITY AND ASSOCIATION WITH OCULAR SURFACE MEASUREMENTS IN PATIENTS WITH DRY EYE SYNDROME. Priya M. Mathews MD,MPH^{1,2}, Sezen Karakus MD¹, Pradeep Y. Ramulu MD,PhD¹, Esen K. Akpek MD¹ ¹The Wilmer Eye Institute, Johns Hopkins University School of Medicine ²Harkness Eye Institute, Columbia University, College of Physicians and Surgeons

3 THE NORWEGIAN OSMOLARITY PROJECT. Olaug Skrøppa for the Interoptik Project Team, Interoptik AS, Oslo, Norway

4 DOES HYPEROSMOLARITY CAUSE AN IRREVERSIBLE PROCESS LEADING TO HUMAN CORNEAL EPITHELIAL CELL DEATH? Wendy R. Kam,¹ David A. Sullivan,¹ Manoj Venkiteshwar² and Benjamin D. Sullivan.² ¹Schepens Eye Research Institute, Massachusetts Eye and Ear, Harvard Medical School, Boston, MA; ²TearLab Corp., San Diego, CA, USA

5 THE BLOCKADE OF IL-6 COUNTERPARTS THE OSMOLAR STRESS-INDUCED APOPTOTIC CHANGE AND JUNCTIONAL INSTABILITY IN HUMAN CONJUNCTIVAL EPITHELIAL CELLS. Hee-Jung Ju¹, Yong-Soo Byun^{1,2}, Jee-Won Mok¹, Choun-Ki Joo^{1,2} Catholic Institute of Visual Science,¹ Department of Ophthalmology and Visual Science, Catholic University of Korea,² Seoul, South Korea

6 TEAR CYTOKINE ANALYSIS AND IN VIVO CONFOCAL MICROSCOPY IN POST-LASIK ECTASIA. Shruti Kochar, ¹ Natasha Pahuja, ¹ Rohit Shetty, ¹ Rashmi Deshmukh, ¹ Anupam Sharma, ² Swaminathan Sethu, ² Arkasubhra Ghosh. ² Refractive Services, Narayana Nethralaya, Bangalore, India, ¹ GROW Research Laboratory, Narayana Nethralaya Foundation, Bangalore, India. ²

7 ANALYSIS OF TH17-ASSOCIATED CYTOKINES AND CLINICAL CORRELATIONS IN PATIENTS WITH DRY EYE DISEASE. Hong Qi¹, Rong-jun Liu¹, Cai-feng Gao ^{1,2}, Hui-jin Chen¹, Ying Jin¹, Ya-xin Li¹ ¹Department of Ophthalmology, Peking University Third Hospital, Beijing, 100191 China; Key laboratory of vision loss and restoration, Ministry of Education ²Guangdong Women and Children Hospital, Guangzhou, 511442 China

8 ANALYSIS OF TEAR CYTOKINE LEVEL ALTERATIONS AND CLINICAL CORNEAL FINDINGS FOLLOWING PENETRATING KERATOPLASTY. Daisuke Tomida¹, Takefumi Yamaguchi¹, Hiroyuki Yazu^{1,2}, Mamoru Ogawa^{1,2}, Murat Dogru^{1,2}, Seika Shimazaki-Den¹, Yoshiyuki Satake¹, Jun Shimazaki¹ Department of Ophthalmology, Ichikawa General Hospital, Tokyo Dental College, Chiba, Japan¹ Department of

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Ophthalmology, Keio University School of Medicine, Tokyo, Japan²

9 TEAR CYTOKINES OF STEVENS-JOHNSON SYNDROME IN THE CHRONIC
STAGE Mayumi Ueta¹, Hiromi Nishigaki¹, Chie Sotozono², Shigeru Kinoshita¹
Department of Frontier Medical Science and Technology for Ophthalmology, Kyoto
Prefectural University of Medicine, Kyoto, Japan ² Department of Ophthalmology, Kyoto
Prefectural University of Medicine, Kyoto, Japan

10 DIAGNOSTIC PERFORMANCE OF TEAR PROTEINS FOR primary Sjögren's
syndrome ¹P. Versura, ²G. Vukatana, ¹G. Giannaccare, ²M. Fresina, ¹N. Malavolta, ¹E.
Campos. ¹Ophthalmology Unit, DIMES, UNIBO and ²Rheumatology Unit S.Orsola-
Malpighi Teaching Hospital, Bologna, Italy.

11 TEAR PROTEINS IN YOUNG HEALTHY ADULTS. DIFFERENCES BETWEEN
MALES AND FEMALES IN TWO MENSTRUAL CYCLE PHASE ¹P. Versura, ²M.
Piazzzi, ¹G. Giannaccare, ¹M. Fresina, ²L. Cocco, ¹E Campos ¹Ophthalmology Unit,
DIMEC UNIBO and S.Orsola-Malpighi Teaching Hospital, ²Cell Signaling Lab,
DIBINEM UNIBO, Bologna, Italy

12 ANALYSING THE PROCESS OF LYSOZYME TRANSFER INTO TEAR FILM
LIPID LAYER. Alicja Wizert¹, D. Robert Iskander¹, Lukasz Cwiklik.² Wroclaw University
of Science and Technology, Wroclaw, Poland¹, Academy of Sciences of the Czech
Republic, Prague, Czech Republic.²

13 ASSOCIATIONS BETWEEN CLINICAL MEASURES OF OCULAR SURFACE
DISEASE AND TEAR FILM DERIVED NEUROPEPTIDE
CONCENTRATIONS. Stephanie M. Cox¹ and Jason J. Nichols.¹ University of Alabama
at Birmingham, School of Optometry¹

14 PHARMACOGENETIC MANIPULATION OF NEURONAL ACTIVITY REVEAL
A ROLE OF BRAIN SPINAL TRIGEMINAL NUCLEUS IN REFLEX TEARING.
Yusuke Izuta¹, Michiko Shibuya¹, Erina Onishi¹, Toshihiro Imada¹, Shigeru Nakamura¹,
Ayano Katagiri³, Akihiro Yamanaka², Kazuo Tsubota¹ Keio University School of Medicine
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Environmental Medicine, Department of Neuroscience II, Nagoya, Japan² Nihon
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15 OCULAR SURFACE, TEAR FILM AND NEURO-MARKERS IN SUBJECTS WITH
OCULAR ITCHINESS. Sailesh Kolanu¹, Blanka Golebiowski¹, Mark Willcox¹, Arthur
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16 TEAR FILM MMP-9 AND TIMP-1 IN TOPICAL FLUOROQUINOLONE USE.
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17 TEAR BIOMARKER ANALYSIS AS A DIAGNOSTIC TOOL FOR DRY EYE
DISEASE. Eilidh Martin¹, Katherine M. Oliver¹, E. Ian Pearce¹, Suzanne Hagan¹. ¹Vision

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18 OPTIMIZATION OF TEAR BIOMARKERS QUANTITATION BY CUSTOMIZED
MULTIPLYED MICROARRAYS. Javier Soria¹, Arantxa Acera¹, Tatiana Suarez¹.
Bioftalmik, ¹ Derio, Spain.

19 ANALYSIS OF OXIDATIVE STRESS MARKERS IN TEARS OF THYROID-
ASSOCIATED OPHTHALMOPATHY ACCORDING TO DISEASE ACTIVITY.
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20 PLASMA GELSOLIN IS PART OF THE HUMAN TEAR FILM AND PROMOTES
RE-EPITHELIALIZATION OF CORNEAL WOUNDS. Schicht M,¹ Wittmann
J,¹ Dieckow J,² Schroeder H,¹ Jacobi C,³ Hsieh LC,⁴ Pulli B,⁴ Chen JW,⁴ Braeuer L,¹ Schob
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21 NANOSCALE ORGANIZATION OF TEAR FILM WAX ESTERS: A VIEW FROM
MOLECULAR DYNAMICS SIMULATIONS. Riku O. Paananen,¹ Matti Javanainen,²
Ilpo Vattulainen,² Juha M. Holopainen.¹ Helsinki Eye Lab, Ophthalmology, University of
Helsinki and Helsinki University Hospital,¹ Department of Physics, University of
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22 A LIQUID CHROMATOGRAPHY MASS SPECTROMETRY METHOD FOR
DETECTION OF LIPID MEDIATORS OF INFLAMMATION IN THE HUMAN
TEAR FILM. Shyam Panthi,¹ Alireza Arabshahi,² Stephen Barnes,² Jason J.
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23 SHORT-TERM REPRODUCIBILITY OF TEAR FLUID COLLECTION USING A
MUC5AC MUCIN ASSAY Woodward AM,¹ Senchyna M,² Franke M,² Baba S,²
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24 CONCENTRATION OF MUC16 AND MUC5AC USING THREE TEAR
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25 ASSESSMENT OF THE IMPACT OF SACCADE ON MUCOAQUEOUS
SUBPHASE. Zhenghao Yang^{1,2}, Norihiko Yokoi¹, Hiroaki Kato¹, Aoi Komuro¹, Yukiko
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26 CORRELATION BETWEEN TEAR PROSTAGLANDIN E2 LEVELS AND SEVERITY OF DRY EYE. Kaevalin Lekhanont¹, Kanchalika Sathianvichitr,¹ Kitipong Soontrapa,² Umaporn Udomsubpayakul³. Department of Ophthalmology, Ramathibodi Hospital¹, Department of Pharmacology, Siriraj Hospital², Clinical Epidemiology and Biostatistics Unit, Ramathibodi Hospital³, Mahidol University, Bangkok, Thailand

27 DROP VOLUME OF ARTIFICIAL TEAR SOLUTIONS: PHARMACOECONOMIC STUDY. Alexandre Xavier da Costa¹, Robson Miranda da Gama², Silvia Prado Smit Kitadai³, Eric Pinheiro de Andrade³, Gabriela Boia Rocha Ferro¹, José Álvaro Pereira Gomes¹. 1. Department of Ophthalmology, Paulista School of Medicine, Federal University of São Paulo, São Paulo, SP, Brazil. 2. Department of Pharmacy, University of Santo Amaro, São Paulo, SP, Brazil. 3. Department of Ophthalmology, University of Santo Amaro, São Paulo, SP, Brazil.

28 GOBLET CELLS DENSITY AFTER USE OF TOPICAL IMMUNOMODULATOR IN THE TREATMENT OF PATIENTS WITH DRY EYE DISEASE. Rossen M.Hazarbassanov¹, Jose Arthur P. Milhomens¹, Nicolle Queiroz-Hazarbassanov², Jose Alvaro P. Gomes¹.¹Department of Ophthalmology & Visual Sciences, Federal University of Sao Paulo; ²Department of Pathology, School of Veterinary Medicine, University of Sao Paulo; Sao Paulo, SP, Brazil.

29 SUPRATARSAL INJECTION OF TRIAMCINOLONE FOR SEVERE VERNAL KERATOCONJUNCTIVITIS. Alexandre Xavier da Costa¹, Leonardo Guedes Candido Marculino¹, Vera Lucia Liendo¹, Telma Pereira Barreiro¹, José Álvaro Pereira Gomes², Myrna Serapião dos Santos¹. 1. Assistant Physician, Corneal and External Diseases, Department of Ophthalmology, Federal University of São Paulo (UNIFESP). 2. Associated Professor and Director of Advanced Ocular Surface Center, Department of Ophthalmology, Federal University of São Paulo (UNIFESP).

30 COMPARISON OF THREE GEL BASED TOPICAL LUBRICANTS ON TEAR FILM THICKNESS IN MODERATE AND SEVERE DRY EYE. Doreen Schmidl^{1,2}, Katarzyna Witkowska^{1,2}, Rene Werkmeister², Piotr Wozniak¹, Ahmed Bata¹, Klemens Fondi¹, Carina Baar¹, Gerhard Garhöfer¹, Leopold Schmetterer^{1,2}. ¹Department of Clinical Pharmacology, ²Center for Medical Physics and Biomedical Engineering. Medical University of Vienna, Vienna, Austria

31 TEAR VOLUME CHANGES OVER THE INTERBLINK PERIOD. Michel Guillon^{1,2}, Kathy Dumbleton¹, Kishan Patel¹, Ruchi Gupta¹, Paris Pariza¹.¹ OCULAR TECHNOLOGY GROUP International,¹ School of Life and Health Sciences,² Aston University, Aston, UK

32 THE ANALYSIS OF POST-BLINK TEAR FILM SURFACE QUALITY TOWARDS UNDERSTANDING THE ETIOLOGIES OF OCULAR SURFACE DISEASE. Dorota H. Szczesna-Iskander¹, D. Robert Iskander.² Department of Optics and Photonics,¹ Department of Biomedical Engineering,² Wroclaw University of Science and Technology, Wroclaw, Poland

RELATIONSHIP BETWEEN OCULAR SURFACE EPITHELIAL DAMAGE, TEAR
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33 Yokoi¹, Aoi Komuro¹, Yukiko Sonomura¹, Akihide Watanabe¹, Chie Sotozono¹ and
Shigeru Kinoshita², Department of Ophthalmology¹ and Department of Frontier Medical
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A FRACTAL DIMENSION APPROACH TO TEAR FILM DYNAMICS
34 CHARACTERIZATION IN HIGH SPEED VIDEOKERATOSCOPY. Clara Llorens-
Quintana¹, D. Robert Iskander¹. Wroclaw University of Science and Technology,
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Factors Impacting the Post-Lens Tear Film Mixing. Pult Heiko^{1,2,3}& Riede-Pult Britta
35 Helen¹ ¹Optometry and Vision Research, Weinheim, Germany ²Cardiff University, School
of Optometry and Vision Sciences, UK ³Ophthalmic Research Group, Life and Health
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COMPARISON OF KERATOGRAPH 5M[®] TEAR MENISCUS HEIGHT WITH
DRY EYE EVALUATION IN PRIMARY SJÖGREN'S SYNDROME. Karim
Mohamed-Noriega, MD, Dr Med¹ Fernando Morales-Wong, MD;¹ Yunuen Bages-
36 Rousselon, MD,¹ Janett Riega, MD,² Dr Med; Mario Garza, MD, PhD,² Jesús Mohamed-
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TEAR DYNAMICS EVALUATION WITH FLUORESCHEIN PROFILOMETER AND
37 OPTICAL COHERENCE TOMOGRAPHY Izabela K. Garaszczuk¹, D. Robert
Iskander². ¹University of Valencia, Valencia, Spain ², Wroclaw University of Science and
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NEWER CLASSIFICATION OF TEAR FILM BREAK PATTERN; CLINICAL AND
PATHOPHYSIOLOGICAL ANALYSIS. Hong Kyun Kim^{1,2}, Myung Jun Kim^{1,2} Jong-
38 Sup Bae³, Man-Il Huh² 1. Department of Ophthalmology, Kyungpook National
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RELIABILITY OF A NEW NON-INVASIVE TEAR FILM BREAK-UP TIME
39 MEASUREMENT USING A KERATOGRAPH. Sang-Bumm Lee, Seongyong Jeong.
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DEVELOPMENT OF AN AUTOMATIZED METHOD FOR ANALYZING TEAR
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40 CLINICAL FINDINGS OF DRY EYE DISEASE. Sang-Mok Lee¹ Eun Chul Kim,²
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41 THE EVALUATION OF ANATOMIC STRUCTURE AND TEAR MENISCUS CHANGING AFTER CONJUNCTIVOCHALASIS CAUTERIZATION BY VISANTE OPTICAL COHERENCE TOMOGRAPHY. Lu Huibin, Jiang Xiaodan, Zhang Mingzhou, Xu Ting, Huang Chen, Li Xuemin, Department of Ophthalmology, Peking University Third Hospital, Beijing, China

42 EVALUATION OF THE EFFECT OF CONJUNCTIVOCHALASIS CAUTERIZATION ON TEAR STABILITY AND CONTRAST SENSITIVITY. Lu Huibin, Jiang Xiaodan, Weiqiang Qiu, Zhang Mingzhou, Li Xuemin, Wang Wei, Department of Ophthalmology, Peking University Third Hospital, Beijing, China

43 TEAR MENISCUS VOLUME AFTER CONJUNCTIVOCHALASIS SURGERY USING FOURIER-DOMAIN AS-OCT Woo Chan Park 1, Young Ook Kim¹, Jeong Bum Bae² Dong-A University, College of Medicine, Busan, Korea¹, Lee Eye Clinic, Busan, Republic of Korea²

44 CORNEAL SENSITIVITY AND TEAR COMPONENTS IN KERATOCONUS. Preeji Mandathara¹ Fiona Stapleton,¹ Jim Kokkinakis,^{1,2} Mark Willcox¹ School of Optometry and Vision Science, University of New South Wales, Australia¹ The Eye Practice, Australia.²

45 THE EFFECTS OF 3% DIQUAFOSOL SODIUM EYE DROPS ON TEAR FUNCTIONS AND OCULAR SURFACE IN SOD-1 KNOCK OUT MICE TREATED WITH ANTI-GLAUCOMA EYE MEDICATIONS. Yukari Yaguchi, Murat Dogru, Kazunari Higa, Terumasa Suzuki, Junko Higuchi, Ayako Igarashi, Takefumi Yamaguchi, Takahiko Shimizu, Jun Shimazaki, Kazuo Tsubota, Keio University School of Medicine, Tokyo, Japan

46 THE EFFECT OF TOPICAL DIQUAFOSOL TETRASODIUM 3% ON DRY EYE AFTER CATARACT SURGERY. Sung Kun Chung¹, Jiwon Baek² and Sang Hee Doh¹ Department of Ophthalmology and Visual Science, St. Paul's Hospital, College of Medicine, The Catholic University of Korea 2 Department of Ophthalmology and Visual Science, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea

47 ANTI-INFLAMMATORY EFFECTS OF REBAMIPIDE EYE DROPS ON SUPERIOR LIMBIC KERATOCONJUNCTIVITIS Marini, Cecilia¹, Tosi, Jorge², Corvino, Viviana³, Brunzini Ricardo³ Hospital El Cruce, Buenos Aires, Argentina.² Cosultorio Dr Jorge Tosi, Buenos Aires, Argentina; ³Consultorio Dr Ricardo Brunzini, Buenos Aires, Argentina.

48 EFFECT OF REBAMIPIDE ON TRANSMEMBRANE MUCIN BIOSYNTHESIS IN STRATIFIED OCULAR SURFACE EPITHELIAL CELLS. Yuichi Uchino, Ashley Woodward and Pablo Argüeso, Schepens Eye Research Institute and Massachusetts Eye and Ear, Department of Ophthalmology, Harvard Medical School, Boston, MA, USA

- 49 CYCLOSPORINE A LOADED LIPOSOMES FOR DRY EYE DISEASE TREATMENT. M. Caballo-González¹, M. Vicario-de-la-Torre¹, M. Gómez-Ballesteros^{1,5}, D. Acar¹, E. Rodríguez-Álvaro², E. González-Alonso², M. Guzmán³, J.M. Benítez-del-Castillo^{4,5}, R. Herrero-Vanrell^{1,5}, I.T. Molina-Martinez^{1,5}. ¹ Department of Pharmacy and Pharmaceutical Technology, Complutense University of Madrid, Spain, ² Department of Medicine and Animal Surgery, Complutense University of Madrid, Spain, ³ Department of Pharmacy and Pharmaceutical Technology, University of Alcalá de Henares, Spain, ⁴ Surface Unit and Ocular Inflammation (USIO), San Carlos Clinical Hospital, Complutense University of Madrid, Spain, ⁵ Pharmaceutical Innovation in Ophthalmology Research Group, Sanitary Research Institute of the San Carlos Clinical Hospital (IdISSC) and the Ocular Pathology National Net (OFTARED) of the Institute of Health Carlos III. Madrid, Spain
- 50 CYCLOSPORINE A APPLICATIONS BEYOND DRY EYE DISEASE. Alex Hui, OD, PhD, FAAO. School of Optometry and Vision Science, UNSW Australia, Sydney, New South Wales, Australia
- 51 EFFECTS OF TOPICAL CYCLOSPORINE 0.05% AFTER CATARACT SURGERY IN PATIENTS WITH DRY EYE. Young Min Park,¹ Jong Soo Lee,² Department of Ophthalmology, Gyeongsang National University Changwon Hospital, 11, Samjeongja-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, 51472, South Korea,¹ Department of Ophthalmology, School of Medicine, Pusan National University and Medical Research Institute, Pusan National University Hospital, Pusan, South Korea,²
- 52 OVERVIEW OF CLINICAL EFFICACY AND SAFETY OF LIFITEGRAST OPHTHALMIC SOLUTION 5.0% FOR TREATMENT OF DRY EYE DISEASE. Amir Shojaei,¹ Joseph Tauber,² Kelly K. Nichols,³ Aparna Raychaudhuri,¹ Monica Roy.¹ Shire,¹ Tauber Eye Center,² University of Alabama at Birmingham,³ USA
- 53 TREATMENT FAILURES WITH PROSTHETIC REPLACEMENT OF THE OCULAR SURFACE ECOSYSTEM [PROSE] DEVICE USE. Matthew Schear,¹ Kirolos Ibrahim,² Jules Winokur,¹ Corina Busiuc,¹ Ira Udell,¹ Anne Steiner.¹ Northwell Health Department of Ophthalmology,¹ Great Neck, NY, USA. Stony Brook School of Medicine,² Stony Brook, NY, USA.
- 54 TOPICAL LOW-DOSE PRESERVATIVE FREE DEXAMETHASONE (PFD) FOR CHRONIC OCULAR SURFACE DISEASE REFRACTORY TO CONVENTIONAL THERAPY. Adnan Mallick¹, Bennett Hong¹, Carolyn Shih¹, Ira Udell¹, Annie Steiner.¹ ¹Hofstra-Northwell School of Medicine, Department of Ophthalmology, Great Neck, NY.
- 55 THE EFFICIENCY OF 0.01% DEXAMETHAZONE SOLUTION IN COMPLEX THERAPY FOR PATIENTS WITH DRY EYE DISEASE OF DIFFERENT ETIOLOGY. Brzheshkiy V.V.1, Popov V. Yu.1, Kalinina I.V.2 ¹Saint Petersburg State Medical Pediatric University, Russia ² Mariinsky Hospital, Russia

56 CLINICAL SAFETY AND TOLERABILITY OF A MANUKA HONEY-BASED
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Isabella Cheung,¹ Chee S. Loh,¹ Leah Te Weehi,¹ Ilva D. Rupenthal,¹ Simon Swift,² Grant
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57 HA-SULFADIAZINE CONJUGATE FOR THE TREATMENT OF DRY EYE
DISEASE. Frances Lasowski¹, Ben Muirhead¹, Jafar Mazumder², Heather Sheardown¹.
¹McMaster University, Hamilton, Ontario, Canada; ²King Fahd University of Petroleum
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58 TITLE: NOVEL MICRORNA THERAPEUTICS IN SJÖGREN'S SYNDROME DRY
EYE DISEASE. Connolly, Sinéad^{1,2}; Pilson, Qistina^{1,2}; Cryan, Sally-Ann⁴; Ní Gabhann,
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59 NOVATEARS® AS NEW THERAPY IN DRY EYE – RESULTS FROM THREE
PROSPECTIVE, MULTICENTER, NON-INTERVENTIONAL STUDIES IN
DIFFERENT PATIENT POPULATIONS. Thomas Kaercher¹, Philipp Steven²,
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60 TOPICAL, NON-INVASIVE TREATMENT FOR DRY EYE IN CONTROLLED
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61 PRECLINICAL CANDIDATE WITH A NEW MECHANISM OF ACTION
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62 A RANDOMISED, DOUBLE-MASKED, PLACEBO-CONTROLLED CLINICAL
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63 EFFECTS OF HYALURONIC ACID WITH DIFFERENT MOLECULAR WEIGHT
ON REPAIR OF MECHANICAL DAMAGE OR UV - INDUCED INJURY FOR
HUMAN CORNEAL EPITHELIAL CELLS. Xueping Guo, Xiaou Zhang, Dejie Li,

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64 PHYSIOCHEMICAL PROPERTIES OF HYALURONIC ACID-BASED EYE DROPS. Peter A Simmons¹, Pasquale Aragona², Hongpeng Wang¹, Tao Wang¹ ¹Allergan plc, Irvine, California, USA; ²University of Messina, Messina, Italy

65 ABOUT THE INFLUENCE OF THE VEGETATIVE ACTIVITY ON DRY EYE SYNDROMES. Johannes Nepp^(1,4), Nikolaus Hocke⁽²⁾, Magdalena Wirth⁽³⁾, H.Nissel⁽⁴⁾, K.Stockert⁽⁴⁾, Manfred Bijak⁽²⁾. Department of Ophthalmology⁽¹⁾ Center for Medical Physics and Biomedical Engineering⁽²⁾ Medical University Vienna, Austria, Ophthalmological department, Triemli Clinic Zurich⁽³⁾, J Bischko Institute of Acupuncture, Vienna⁽⁴⁾

66 EFFECTS OF SUBCONJUNCTIVAL ADMINISTRATION OF ANTI-HIGH MOBILITY GROUP BOX 1(HMGB1) ON DRY EYES IN A MOUSE MODEL OF SJÖGREN SYNDROME. Jaeyoung Kim,^{1,2} Yu Jeong Kim,^{1,2} Kyeong Hwan Kim,^{2,3} Dong Hyun Kim,^{2,4} Hyun Jeong Jeong,² Jin Suk Ryu,² Joo Youn Oh,^{1,2} Mee Kum Kim,^{1,2} Won Ryang Wee.^{1,2} Department of Ophthalmology, Seoul National University College of Medicine, Seoul,¹ Laboratory of Corneal Regenerative Medicine and Ocular Immunology, Seoul National University Hospital Biomedical Research Institute, Seoul,² Ophthalmology, Haeundae Paik Hospital; Ophthalmology, Inje University College of Medicine, Busan,³ Ophthalmology, Gachon University, Incheon,⁴ Korea

67 LACRITIN C-TERMINAL PROMOTION OF OCULAR SURFACE HEALTH, CORNEAL NERVE ACTIVATION AND TEARING. Jeffrey Romano,¹ Harumitsu Hirata,² Nancy McNamara,³ Sarah M. Knox,⁴ Robert L. McKown,⁵ Gordon W. Laurie,¹ ¹Department of Cell Biology, University of Virginia School of Medicine, Charlottesville, VA USA ²Department of Ophthalmology, Weill Cornell Medical College, New York, NY ³Department of Anatomy, UCSF School of Medicine, San Francisco, CA ⁴Department of Cell and Tissue Biology, UCSF School of Dentistry, San Francisco, CA ⁵Department of Integrated Science and Technology, James Madison University, Harrisonburg VA

68 EFFICIENCY AND SAFETY OF SUBCONJUNCTIVAL INJECTION OF ANTI-VEGF AGENT – BEVACIZUMAB – IN TREATING DRY EYE. Jiang Xiaodan, Lu Huibin, Qiu Weiqiang, Liu Ziyuan, Li Xuemin, Wang Wei ¹Department of Ophthalmology, Peking University Third Hospital, Beijing, China

69 EFFECTIVENESS OF DIFFERENT THERAPIES FOR DRY EYE DISEASE MANAGEMENT. James S Wolffsohn¹, Mike S Berg², Venkiteshwar S Manoj². School of Life and Health Sciences, Aston University, Birmingham, UK¹, TearLab Corporation, San Diego²

70 THE EFFECT OF ORAL ZANTHOXYLUM SCHINIFOLIUM SEED OIL IN INDIVIDUALS WITH DRY EYE DISEASE. In-Cheon You,^{1,2} Jin-Woo Park,^{1,2} Mun-Yhung Jung,³ Wan-Suk Kang,^{1,2} Soo-Wan Chae,^{1,2} Eun-Ock Park,¹ Nam-Chun Cho,^{1,2} Chonbuk National University Hospital,¹ Chonbuk National University Medical School,² College of Food Science, Woosuk University,³ Jeonju, Jeonbuk, South Korea

- 71 EFFECTS OF AUTOLOGOUS SERUM EYE DROPS FOR THE TREATMENT OF DRY EYE SYNDROME AND ASSOCIATED OCULAR SURFACE DISEASES. Quiñones X¹, Valenzuela F¹, Cintron H¹, Davis K¹, Donaldson K¹, Perez VL.¹ Ocular Surface Center, Bascom Palmer Eye Institute, University of Miami Miller School of Medicine¹
- 72 USE OF AUTOLOGOUS SERUM IN ADVANCED SURFACE ABLATION CORNEAL REFRACTIVE SURGERY. María J. González-García,^{1,2} Giovanna Murillo,¹ José Pinto-Fraga,^{1,2} Noelia García-Sánchez,¹ Margarita Calonge,^{1,2} Miguel J. Maldonado.³ Ocular Surface Group, IOBA, University of Valladolid, Valladolid,¹ CIBER-BBN,² Refractive Surgery and Visual Rehabilitation Group, IOBA, University of Valladolid, Valladolid,³ Spain.
- 73 THE EFFECT OF A NEW OCULAR SURFACE MODULATOR IN CONTROLLING INFLAMMATION IN AN IN VITRO MODEL OF DRY EYE. Stefano Barabino,¹ Barbara De Servi,² Marisa Meloni^{2,1} Clinica Oculistica, DiNOGMI, Azienda Ospedaliera Universitaria San Marino-IST, Genoa, Italy; ² in Vitro Research Laboratories, VitroScreen, Milan, Italy; ² in Vitro Research Laboratories, VitroScreen, Milan, Italy
- 74 THE INFLUENCE OF EYE CLOSURE ON DRY EYE SYNDROME SYMPTOMS. Charles McMonnies DSc and Nicholas Young BOptom PhD, Adjunct Professor School of Optometry and Vision Science UNSW and Dry Eye Centre, Heathmont Victoria.
- 75 EXPERIENCE OF THE FIRST OCULAR SURFACE-DRY EYE SERVICE IN ATHENS. George Dalianis, Chryssa Terzidou, Alexandra Trivli, Ophthalmological Clinic, Konstantopouleio-Patission Gen Hptl, N.Ionia, Athens Greece.
- 76 PHENYLBORONIC ACID BASED POLYMERIC MICELLES FOR MUCOADHESIVE OCULAR DRUG DELIVERY. Ben Muirhead, Heather Sheardown. Department of Biomedical Engineering, McMaster University, Hamilton, ON, Canada
- 77 INFLUENCE OF A NATURAL EYE DROP EMULSION ON NON-IMMUNE MEDIATED ALLERGIC REACTION. F. Giuliano, T. Tornetta, G. De Pasquale, M. G. Mazzone. S.I.F.I. S.p.A., Aci S. Antonio (CT), Italy.
- 78 A NOVEL METHOD USED TO MEASURE THE CONTACT ANGLE OF DRY EYE DROP SOLUTIONS. Rebecca Wilcox,¹ Christine Purslow,² Falko Drijfhout.¹ School of Physical & Geographical Sciences,¹ School of Optometry & Vision Sciences, Cardiff University,² Keele University, UK
- 79 EASE OF USE OF TWO PRESERVATIVE FREE BOTTLE SYSTEMS FOR DRY EYE DROPS. Rebecca Wilcox,¹ Falko Drijfhout,¹ Christine Purslow.² School of Physical & Geographical Sciences,¹ School of Optometry & Vision Sciences, Cardiff University,² Keele University, UK
- 80 EFFECT OF MATRIX REGENERATION THERAPY ON CORNEAL EPITHELIAL HEALING FOLLOWING EPI-OFF CROSS-LINKING IN

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81 LAST OPTION!!!ROLE OF KERATOPROSTHESIS IN CHEMICAL INJURY. Bhaskar Srinivasan, Agarwal Shweta, Iyer Geetha, G Sitalakshmi clinic for ocular surface disorders ,CJ Shah cornea services, Sankara Nethralaya, Chennai, India

82 ROLE OF ALLOSLET IN ACUTE CHEMICAL INJURY. Dr Bhaskar Srinivasan, Dr Shweta Agarwal,Dr Geetha Iyer, G Sitalakshmi clinic for ocular surface disorders ,CJ Shah cornea services, Sankara Nethralaya , Chennai , India

83 MUCOUS MEMBRANE GRAFTS IN OCULAR CICATRICIAL PEMPHIGOID: SCHIRMER'S TEST AND LONG TERM FORNIX DEPTH OUTCOMES. Arturo Arturo Grau,1 Gurjeet Jutley,1 John Dart, 1,2 Richard Collin, 1,2 David Verity, 1 Valerie Saw.1,2 Moorfields Eye Hospital,1 UCL Institute of Ophthalmology,2 London, UK

84 PROFILE, TREATMENT AND OUTCOMES OF OCULAR SURFACE SQUAMOUS NEOPLASIA (OSSN) IN A RURAL POPULATION OF CENTRAL INDIA. Charudutt Kalamkar¹, Nishant Radke¹, Geeta Behera ², Amrita Mukherjee¹, Snehal Radke¹ , Shri ganesh Vinayak Eye Hospital,Raipur,India,¹ IGGGH, Puducherry, India²

85 MMC INJECTION-ASSISTED PTERYGIUM EXCISION- A NOVEL TECHNIQUE. Chryssa Terzidou, Alexandra Trivli, Ophthalmological Clinic Konstantopouleio-Patission Gen Hptl, Nea Ionia, Athens, Greece.

86 PREVALENCE OF DRY EYE SYNDROME IN SÃO PAULO – BRAZIL Leonardo Guedes C. Marculino¹, Flávio Hirai², Rossen Hazarbassanov³, Tais Wakamatsu⁴, Ruth Santo⁶, José Alvaro P. Gomes⁵

Saturday, September 10, 2016

SESSION III

Innovative Technology

Chairpersons - Gordon Laurie (USA), Kaevalin Lekhanont (Thailand), Isobel Massie (Germany)

- 8:00 **Keynote Address:** CRISPR/Cas9: Editing the mammalian genome *in vivo*. Fei Ann Ran, The Broad Institute, Cambridge, MA, USA
- 8:20 **Keynote Address:** Smart glasses: Future uses & limitations for healthcare. Peter Evans, Pristine Inc., Austin, TX, USA
- 8:40 **Keynote Address:** Translating an idea into a therapy: Escaping the ocular stress trap. Sandeep Jain, Corneal Neurobiology Laboratory, Department of Ophthalmology and Visual Sciences, University of Illinois at Chicago, Chicago, IL, USA
- 9:00 **Keynote Address:** New developments in ocular surface imaging. Rudolf F. Guthoff, University Eye Department Rostock, Germany
- 9:20 **Keynote Address:** Organ regeneration of lacrimal gland as a next-generation of regenerative medicine. Masatoshi Hirayama¹, Kazuo Tsubota¹, Takashi Tsuji² Department of Ophthalmology, School of Medicine, Keio University, Tokyo;¹Laboratory for Organ Regeneration, Center for Developmental Biology, RIKEN, Kobe, Japan²
- 9:40 **Poster Session III (with Coffee & Tea)**

Chairpersons - Murat Dogru (Japan), Driss Zoukri (USA)

Contact Lens Discomfort: Update

Chairpersons - Laura García-Posadas (USA), Kathryn Richdale (USA), Ulrike Stabl (Canada)

- 10:30 **Keynote Address:** New advances in the understanding of the definition, classification and epidemiology of contact lens discomfort. Rachel Redfern, The University of Houston, College of Optometry, The Ocular Surface Institute, Houston, TX, USA
- 10:47 **Keynote Address:** New advances in the understanding of the role of contact lens materials and care systems in contact lens discomfort. Lakshman N. Subbaraman, Centre for Contact Lens Research, School of Optometry and Vision Science, University of

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Waterloo, Waterloo, Canada

- 11:04 **Keynote Address:** New advances in the understanding of the neurobiology of contact lens discomfort. Blanka Golebiowski, School of Optometry and Vision Science, University of New South Wales, Sydney, NSW, Australia
- 11:21 **Keynote Address:** New advances in the understanding of the role of the ocular surface and tear film in contact lens discomfort. Maria Markoulli, School of Optometry and Vision Science, University of New South Wales, Sydney, NSW, Australia
- 11:38 **Keynote Address:** New advances in the management, treatment, and clinical trial design for contact lens discomfort. Joseph B. Ciolino, Massachusetts Eye and Ear Infirmary, Schepens Eye Research Institute, and Harvard Medical School, Boston, MA, USA
- 11:55 **Poster Viewing & Lunch**

Prime Time TFOS Debates 2

Chairpersons - Donald Korb (USA), Paul Karpecki (USA), Céline Portal (France)

- 13:15 **Debate 1:** Are there good animal models for human dry eye disease?

It depends on the definition of “good” – Seunghee Cha, Oral and Maxillofacial Diagnostic Sciences/Oral Biology, University of Florida College of Dentistry, Gainesville, FL, USA

No – Austin K. Mircheff. Keck School of Medicine, University of Southern California, Los Angeles, CA, USA

- 13:45 **Debate 2:** Do contact lenses cause clinically relevant meibomian gland dysfunction?

Yes – Reiko Arita, Itoh Clinic, Saitama, and University of Tokyo, Tokyo, Japan

No – Eric B. Papas, School of Optometry & Vision Science, University of New South Wales, Sydney, Australia.

TFOS Dry Eye WorkShop II: Updates, Part 1

Chairpersons - Jennifer P Craig (New Zealand), Masaki Fukui (Japan), J Daniel Nelson (USA)

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- 14:15 **Introduction.** J. Daniel Nelson, HealthPartners Medical Group and Clinics, St Paul, MN, USA
- 14:20 **Keynote Address:** Definition & classification. Kelly K. Nichols, University of Alabama at Birmingham School of Optometry, Birmingham, AL, USA
- 14:35 **Keynote Address:** Sex, hormones & gender. Sruthi Srinivasan, Centre for Contact Lens Research, School of Optometry and Vision Science, University of Waterloo, Waterloo, Canada
- 14:50 **Keynote Address:** Epidemiology. Fiona Stapleton, School of Optometry and Vision Science, University of New South Wales, Sydney, NSW, Australia
- 15:05 **Keynote Address:** Pathophysiology. Anthony J. Bron, University of Oxford, Oxford, UK
- 15:20 **Keynote Address:** Clinical Trials. Gary D. Novack, Pharma•Logic Development, San Rafael, CA, USA

15:35 **Poster Session III (with Coffee & Tea)**

Chairpersons - Murat Dogru (Japan), Driss Zoukhri (USA)

TFOS Dry Eye WorkShop II: Updates, Part 2

Chairpersons - Kai Jin (Japan), Charles McMonnies (Australia), Louis Tong (Singapore)

- 16:25 **Keynote Address:** Tear film. Mark DP Willcox, School of Optometry and Vision Science, University of New South Wales, Sydney, NSW, Australia
- 16:40 **Keynote Address:** Iatrogenic dry eye disease. José Gomes, Department of Ophthalmology, Paulista School of Medicine, São Paulo, Brazil
- 16:55 **Keynote Address:** Pain & sensation. Carlos Belmonte, Medical School, University Miguel Hernandez and Neurosciences Institute of Alicante, Alicante, Spain
- 17:10 **Keynote Address:** Diagnosis. James Wolffsohn, Aston University, School of Life and Health Sciences, Aston, UK
- 17:25 **Keynote Address:** Management & Therapy. Lyndon Jones, Centre for Contact Lens Research, School of Optometry and Vision Science, University of Waterloo, Waterloo, Canada
- 17:40 **Keynote Address:** Public awareness & education. Katherine Hammitt, Sjögrens Syndrome Foundation, Bethesda, MD, USA

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Closing Remarks

17:55 David A. Sullivan, Schepens Eye Research Institute, Massachusetts Eye and Ear and Harvard Medical School, Boston, MA, USA

Closing Reception

18:00 – 19:00

Poster Session III

Chairpersons - Murat Dogru (Japan), Driss Zoukhrri (USA)

- IMPAIRED FUNCTION OF PERIPHERALLY INDUCED REGULATORY T CELLS IN HOSTS OF HIGH RISK OF GRAFT REJECTION. Takeonri Inomata,^{1,2,3} Jing Hua,^{1,2} Antonio Di Zazzo,^{1,2} and Reza Dana.^{1,2} Schepens Eye Research Institute,¹ Massachusetts Eye & Ear Infirmary,² Department of Ophthalmology, Harvard Medical School, Boston, MA, USA, Juntendo University Faculty of Medicine,³ Department of Ophthalmology, Tokyo, Japan.
- PRO-INFLAMMATORY CYTOKINES ASSOCIATED WITH CLINICAL SEVERITY OF DRY EYE DISEASE OF PATIENTS WITH DEPRESSION. Mrugacz Małgorzata¹, Ostrowska Lucyna², Bryl Anna¹, Szulc Agata³, Beata Zelazowska-Rutkowska⁴, Mrugacz Grzegorz⁵ ¹ Department of Ophthalmology and Eye Rehabilitation, Medical University of Białystok, Poland, ² Department of Clinical Nutrition, Medical University of Białystok, Poland, ³ Department of Psychiatry, Medical University of Warsaw, Poland, ⁴ Department of Paediatric Laboratory Diagnostics, Medical University of Białystok, Poland, ⁵ Centre for Reproductive Medicine, Białystok, Poland; 15-267 Białystok, Poland
- DRY EYE DISEASE EXPERIMENTAL MODELLING. Brzheskiy V.V.,¹ Popov V. Yu.,¹ Kalinina N.M.² ¹Saint Petersburg State Medical Pediatric University, Russia ²The Nikiforov Russian Centre of Emergency and Radiation Medicine, Russia
- THE EFFECT OF AMBIENT TITANIUM DIOXIDE MICROPARTICLE EXPOSURE TO THE OCULAR SURFACE ON THE EXPRESSION OF INFLAMMATORY CYTOKINES IN THE EYE AND CERVICAL LYMPH NODES. Youngsub Eom,¹ Jong Suk Song,¹ Hyun Kyu Lee,¹ Boram Kang,¹ Hyeon Chang Kim,² Hyung Keun Lee,³ Hyo Myung Kim.¹ Korea University College of Medicine,¹ Department of Preventive Medicine, Yonsei University College of Medicine,² Department of Ophthalmology, Yonsei University College of Medicine,³ Seoul, South Korea

5 EXACERBATION OF CLOSED EYE LEUKOCYTE INFLAMMATION IN DRY
EYE DISEASE. Cameron K. Postnikoff¹, Kelly K. Nichols.¹ ¹School of Optometry,
University of Alabama at Birmingham, Birmingham, AL, USA

6 IMMUNE-NERVE CROSS-TALK IN THE CORNEA: THE ROLE OF
PLASMACYTOID DENDRITIC CELLS ON CORNEAL NERVE SURVIVAL.
Pedram Hamrah,^{1,2} Arsia Jamali,^{1,2} Maria Lopez,^{1,2} Victor Sendra,^{1,2} Deshea L. Harris,^{1,2}
Department of Ophthalmology, Tufts Medical Center, Tufts University School of
Medicine,¹ Schepens Eye Research Institute/Massachusetts Eye and Ear, Department of
Ophthalmology, Harvard Medical School,² Boston, MA

7 LANGERIN+ CELLS PREVENT OCULAR SURFACE INFLAMMATION AND
FACILITATE SUBBASAL NERVE REGENERATION IN DRY EYE DISEASE.
Hyung K. Lee, Eun Y. Choi, Chul H. Lee, Hyungoo Kang, Areum Yeo, Hyemi Noh,
Eung K. Kim, Institute of Vision Research, Department of Ophthalmology, Yonsei
University College of Medicine, Seoul, Republic of Korea

8 PLASMACYTOID DENDRITIC CELLS ARE CRITICAL FOR THE
MAINTENANCE OF CORNEAL ANGIOGENIC PRIVILEGE. Arsia
Jamali,^{1,2} Maria Lopez,^{1,2} Victor Sendra,^{1,2} Deshea L. Harris,^{1,2} Pedram
Hamrah,^{1,2} Department of Ophthalmology, Tufts Medical Center, Tufts University School
of Medicine,¹ Schepens Eye Research Institute/Massachusetts Eye and Ear, Department
of Ophthalmology, Harvard Medical School,² Boston, MA

9 EXPRESSION OF VAMP8 IN CHRONIC OCULAR GRAFT VS HOST DISEASE.
Masaki Fukui,^{1,2} Yoko Ogawa,¹ Shin Mukai,¹ Teru Azato,¹ Mizuka Kamoj,¹ Kazuo
Tsubota.¹ Department of Ophthalmology, Keio University School of Medicine,¹ National
Hospital Organization Tokyo Medical Center,² Tokyo, Japan

10 MADCAM-1 AND ITS RECEPTORS AS NOVEL BIOLOGICAL TARGETS TO
ENHANCE CORNEAL GRAFT SURVIVAL. Hamid-Reza Moein^{1,2}, Maria Lopez^{1,2},
Deshea Harris^{1,2}, Pedram Hamrah^{1,2} ¹Schepens Eye Research Institute, Harvard Medical
School, Boston, MA, USA. ²Tufts Medical Center, Center for Translational Ocular
Immunology, Tufts University School of Medicine, Boston, MA, USA.

11 CLINICAL OBSERVATION OF LEPTIN'S ROLE IN DRY EYE DEVELOPMENT.
Jiang Xiaodan, Lu Huibin, Li Xuemin, Peking University Third Hospital

12 TOXICITY OF POVIDONE IODINE TO THE OCULAR SURFACE OF RABBITS.
Hyun Seung Kim, Sun Young Kim. Department of Ophthlamology and Visual Science,
Yeouido St. Mary's Hospital, College of Medicine, The Catholic University of KOREA,
Seoul, KOREA

13 ASSOCIATION BETWEEN AIR POLLUTION AND DRY EYE DISEASE IN
SOUTH KOREA: THE POTENTIAL IMPORTANCE OF OZONE. Dong Hyun
Kim¹, MD, Yoon-Hyeong Choi², PhD, Hae Jung Paik, MD, PhD¹ ¹Department of
Ophthalmology, Gachon University Gil Medical Center, Incheon, Korea ²Department of

Preventive Medicine, Gachon University College of Medicine, Incheon, Korea

14 TOWARDS A HOLISTIC UP-TO-DATE MODEL OF THE PATHOPHYSIOLOGY
IN DRY EYE DISEASE. Erich Knop and Nadja Knop, Ocular Surface Center Berlin
(OSCB), Dept. for Cell and Neurobiology, Center for Anatomy, Charite –
Universitätsmedizin Berlin

15 HEAD WORN AUGMENTED REALITY DISPLAYS IN WORKFORCE AND
THEIR INFLUENCE ON OCULAR COMFORT AND OCULAR SURFACE
PARAMETERS. Boldin Ingrid¹, Rabensteiner Dieter Franz¹, Schwantzer Gerold²,
Wultsch Georg³, Haleh Aminfar¹, Heidinger Andrea¹, Klein-Theyer Angelika¹ and
Horwath-Winter Jutta¹ Department of Ophthalmology, Medical University¹, Institute
for Medical Informatics, Statistics and Documentation, Medical University², AMEZ Graz
occupational health centre³ Graz, Austria

16 ESTABLISHMENT OF RAT DRY EYE MODEL WITH OCULAR DISCOMFORT
BEHAVIOR. Shigeru Nakamura¹, Yusuke Izuta¹, Michiko Shibuya¹, Erina Onishi¹, Hisayo
Sakaguchi¹, Kai Jin¹, Toshihiro Imada¹, Kazuo Tsubota¹ Keio University School of
Medicine Department of Ophthalmology, Tokyo, Japan¹

17 INFLUENCES OF INDOOR ENVIRONMENT QUALITY AND DRY EYE IN A
MODERN DESIGN OFFICE Mirjam van Tilborg,^{1,2} Katharine Evans² ¹University of
Applied Sciences Utrecht, Utrecht, The Netherlands ²School of Optometry and Vision
Sciences, Cardiff University, Cardiff, UK

18 CHARACTERISTICS OF ON-ROAD DRIVING PERFORMANCE OF PERSONS
WITH DRY EYE DISEASE IN CHINA. Huibin Lu, Ying Wang, Yan Liu, Xiaodan
Jiang, Mingzhou Zhang, Xuemin Li, Wei Wang. Department of Ophthalmology, Peking
University Third Hospital, Beijing, China

19 HYPERALGESIA IN DRY EYE DISEASE IS ASSOCIATED WITH LOW VITAMIN
D. Natasha Pahuja¹, Rohit Shetty¹, Arkasubhra Ghosh², Swaminathan Sethu² ¹Cornea
Refractive services, Narayana Nethralaya. ² GROW laboratories, Narayana Nethralaya
foundation.

20 OCULAR CICATRICAL PEMPHIGOID: INDUCED BY BIOLOGICS. Manfred
Zierhut¹, Deshka Doycheva¹, Christoph Deuter¹, Bianka Sobolewska¹, Martin Schaller².
Center of Ophthalmology¹ and Dermatology², University of Tuebingen, Germany.

21 BARRIERS TO GLAUCOMA MEDICATION COMPLIANCE AMONG
VETERANS: DRY EYE SYMPTOMS AND ANXIETY DISORDERS. Sarah R
Wellik^{1,2}, Jack Stringham², Noy Ashkenazy³, Anat Galor,^{1,2} Miami Veterans Administration
Medical Center, Miami, FL¹ Bascom Palmer Eye Institute, Miami, FL,² University of Miami
Miller School of Medicine, Miami, FL³

22 REDUCING THE OCULAR AND SYSTEMIC SIDE EFFECTS OF TROPICAMIDE
0,5% EYEDROPS BY REDUCING THE DROP VOLUME. H. van der Heiden³,

N.A.M. Troelstra^b, J. van Lith^b, J.M. Verzijl^{ba} Mu-Drop BV. Apeldoorn, The Netherlands.
^b Elisabeth-TweeSteden Ziekenhuis, 5042 AD Tilburg, The Netherlands.

23 A CASE OF SEVERE OCULAR SURFACE DISORDER RELATED AND SEVERE CONJUNCTIVOCHALASIS. Miki Hata^{1,2}, Masaki Fukui^{1,2}, Yoshinobu Mizuno¹, Toru Noda¹ National Hospital Organization Tokyo Medical Center, Department,¹Department of Ophthalmology, Keio University School of Medicine,² Tokyo, Japan

24 PREVALENCE OF DEMODEX FOLLICULORUM IN PATIENTS WITH KERATOCONJUNCTIVITIS SICCA. Christina Jacobi^{1,2}, Julia K. Kurz², Friedrich Paulsen³, Anselm G.M. Jünemann^{2,4}. Ophthalmological practice, Nuremberg, Germany¹; Department of Ophthalmology, University of Erlangen-Nuremberg, Germany²; Institute of Anatomy II, University of Erlangen-Nuremberg, Germany³; Department of Ophthalmology, University of Rostock, Germany⁴.

25 EYE DISEASE FROM DIAGNOSIS TO TREATMENT: A SURVEY OF PATIENTS WITH AND WITHOUT SJÖGREN'S SYNDROME IN EUROPE. Francisco C. Figueiredo,¹ Marc Labetoulle,² Maurizio Rolando,³ Gysbert van Setten,⁴ Elisabeth M. Messmer.⁵ Dept. of Ophthalmology, Royal Victoria Infirmary and Newcastle University, Newcastle upon Tyne, UK,¹ Ophthalmology Dept. Bicêtre Hospital, APHP, South Paris University, France,² University of Genoa, Genoa, Italy,³ St Eriks Eye Hospital, Stockholm, Sweden,⁴ Dept. of Ophthalmology, Ludwig-Maximilians University, Munich, Germany⁵

26 CORRELATION OF OCULAR SYMPTOMS QUESTIONNAIRES WITH DRY EYE EVALUATION IN PRIMARY SJÖGREN'S SYNDROME. Karim Mohamed-Noriega, MD, Dr Med,¹ Fernando Morales-Wong, MD;¹ Yunuen Bages-Rousselon, MD,¹ Janett Riega, MD,² Dr Med; Mario Garza, MD, PhD,² Jesús Mohamed-Hamsho, MD, Dr. Med.¹ Department Of Ophthalmology, Autonomous University Of Nuevo Leon (UANL), Faculty Of Medicine, University Hospital, Monterrey, Mexico.¹ Department Of Rheumatology, Autonomous University Of Nuevo Leon (UANL), Faculty Of Medicine, University Hospital, Monterrey, Mexico.²

27 NEUROPATHIC PAIN AS A DISTINGUISHING FACTOR AMONG SJÖGREN AND NON-SJÖGREN SYNDROME PATIENTS WITH DRY EYE DISEASE. Jacqueline Faustino¹, Carolina Maria Modulo¹, Adriana Batista Murashima¹, Eduardo Melani Rocha¹. ¹FMRP, University of São Paulo, USP, Ribeirão Preto –SP. Department of Ophthalmology, Otorhinolaryngology, and Head and Neck Surgery.Brasil.

28 OCULAR SURFACE PAIN AND AS A DISCRIMINANT SYMPTOM IN DRY EYE DISEASE. Jacqueline Faustino¹, Carolina Maria Modulo¹, Adriana Batista Murashima¹, Luis Fernando Nominato ¹, Ana Carolina Dias¹, Eduardo Melani Rocha¹.¹ FMRP, University of São Paulo, USP, Ribeirão Preto-SP Department of Ophthalmology, Otorhinolaryngology and Head and Neck Surgery.Brasil

29 CHANGES IN CORNEAL ENDOTHELIAL MORPHOLOGY AND CORNEAL THICKNESS IN PATIENTS WITH DRY EYE DISEASE AND SJÖGREN'S SYNDROME. Mizu Ono,¹ Takenori Inomata,¹ Yoshimune Hiratsuka,¹ Tina Shiang,² Akira Murakami.¹ Juntendo University Faculty of Medicine,¹ Tokyo, Japan,

Boston University School of Medicine,² Boston, MA USA.

30 RECOMMENDATIONS OF THE P.I.C.A.S.S.O. (ITALIAN PARTNERS FOR THE
CORRECTION OF OCULAR SURFACE ALTERATIONS) BOARD FOR THE
DIAGNOSIS AND THERAPEUTIC MANAGEMENT OF PATIENTS WITH TEAR
DYSFUNCTIONS. Pasquale Aragona¹, Emilia Cantera², Rita Mencucci³, Maurizio
Rolando⁴, Pierangela Rubino⁵,¹ Professor of Ophthalmology, Biomedical Sciences
Department - University of Messina, Italy, ²Israelitico Hospital, Roma, Italy, ³Clinica
Oculistica di Firenze, Italy, ⁴IsPre Oftalmica, Ocular Surface Center, Genoa, Italy,
⁵Dirigente Medico, AOU di Parma, Italy

31 BASELINE CHARACTERISTICS OF PARTICIPANTS IN THE DRY EYE
ASSESSMENT AND MANAGEMENT (DREAM) STUDY. Penny Asbell,¹ Maureen
Maguire,² Maxwell Pistilli,² Ellen Peskin², Kathy McWilliams², Eric Kulinski¹ for the
DREAM Research Group. ¹Icahn School of Medicine at Mt. Sinai, New York,
NY, ²School of Medicine, University of Pennsylvania, Philadelphia PA.

32 Clinical and neurophysiological commonalities among chronic corneal pain patients
enrolled in a clinical trial. Doruk D*¹, Chanes L*^{1,2}, Jacobs DS³, Merabet L⁴, Valero-Cabré
A² & Fregni F¹ *Equally contributing. ¹Spaulding Neuromodulation Center, Spaulding
Rehabilitation Hospital, Harvard Medical School, Charlestown, MA, USA ²Université
Pierre et Marie Curie, CNRS 7225-INSERM S975, Institut du Cerveau et la Moelle épinière,
Paris, France ³Boston Foundation for Sight, Needham, MA, USA ⁴Laboratory for Visual
Neuroplasticity, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston,
MA, USA

33 HARNESSING NON-TRADITIONAL, 10-YEAR, REAL WORLD DATA TO
GENERATE PATIENT INSIGHTS INTO DRY EYE DISEASE. Debra A
Schaumberg,¹ Stephen Doogan,² Timothy Kaan,³ Matthew McLoughlin,³ Cindhuja
Pandian,³ Steven Zhang.¹ Shire,¹ Real Life Sciences,² Kinapse,³ USA

34 TOWARDS A NOVEL IN-VITRO ANTERIOR EYE MODEL FOR OCULAR
SURFACE EVALUATION. Francesco Menduni, James S. Wolffsohn, Antonio Fratini,
Leon N. Davies. Ophthalmic Research Group, Aston University, Birmingham, UK.

35 EPIDEMIOLOGY OF DRY EYE DISEASE SYMPTOMS IN BRAZIL. Julia Silvestre
de Castro, Iara Borin Selegatto, Marilia Menezes Trindade Ferrer, Lucas Yunes Cominatto
Barbosa, Monique Possari Minari, Rosane Silvestre de Castro, José Paulo Cabral de
Vasconcelos, Carlos Eduardo Leite Arieta, Mônica Alves. University of Campinas –
UNICAMP, Discipline of Ophthalmology, Faculty of Medical Sciences, Brazil.

36 PREVALENCE OF DRY EYE DISEASE IN THE ADULT INDIAN POPULATION.
Noopur Gupta,¹ Praveen Vashist,¹ Vivek Gupta,¹ Meenakshi Wadhvani,¹ Radhika
Tandon, ¹ Dr. Rajendra Prasad Centre for Ophthalmic Sciences, AIIMS, New Delhi,
India.

37 A RELATIONSHIP BETWEEN NUTRITION, BODY COMPOSITION AND
Tear Film & Ocular Surface Society

SIGNS BUT NOT SYMPTOMS OF DRY EYE. Isabelle Jalbert, Kam Chun (Terry) Ho, Pei Schier Tan, Fiona Stapleton, School of Optometry and Vision Science, UNSW Australia

38 SELF-REPORTED COMPLIANCE IN SYMPTOMATIC VERSUS ASYMPTOMATIC PATIENTS WITH EVAPORATIVE DRY EYE. Christen Kenrick,¹ Caroline Blackie,² Donald Korb.^{1,2} Korb & Associates,¹ TearScience,² Boston, MA, USA

39 THE RELATIONSHIP BETWEEN CORNEAL NERVE MORPHOLOGY AND SUBJECTIVE SYMPTOM IN DRY EYE DISEASE. Hidenaga Kobashi, MD, PhD^{1,2}; Kazutaka Kamiya, MD, PhD¹ ¹Department of Ophthalmology, University of Kitasato School of Medicine, Kanagawa, Japan. ²Schepens Eye Research Institute, Massachusetts Eye and Ear Infirmary, Department of Ophthalmology, Harvard Medical School, Boston, Massachusetts.

40 21ST CENTURY DIGITAL DEVICE USE AND OSDI. Justin T. Kwan,¹ Jennifer Harthan,² Leslie O'Dell,³ Scott G. Hauswirth,⁴ Clare Halleran,⁵ Katherine Mastrotta,⁶ Milton M. Hom.⁷ Marshall B. Ketchum University,¹ Fullerton, CA; Illinois College of Optometry,² Chicago, IL; Private practice,³ York, PA; Minnesota Eye Consultants,⁴ Minneapolis, MN; Private practice,⁵ Clarendville, NL, Canada; Omni Eye Services,⁶ New York, NY; Private practice,⁷ Azusa, CA.

41 THE ASSOCIATION BETWEEN SYMPTOMS OF DRY EYE SYNDROME AND METABOLIC OUTCOME IN A GENERAL POPULATION IN KOREA. Jong Woon Park .National Health Insurance Service Ilsan Hoapital

42 TEST EFFICACY OF THE MODIFIED SCHEIN QUESTIONNAIRE. Jerry R. Paugh, O.D.,Ph.D.¹, Andrew Loc Nguyen, Ph.D² ¹Southern California College of Optometry, Fullerton, CA, ²California State University at Fullerton

43 ASSESSMENT OF DRY EYE PATIENTS USING QUESTIONNAIRES – A REVIEW. Alberto Recchioni^{1,2,3}, Tugce Ipek^{1,2,4}, Andreas Hartwig^{1,2}, Clare O'Donnell^{1,2} ¹ Optegra Eye Sciences, Berlin, Germany ² Aston University, Birmingham, UK ³ University of Valencia, Valencia, Spain ⁴ Universidad Complutense de Madrid, Madrid, Spain

44 A NOVEL IMAGING METHOD TO EVALUATE DRY EYE SYNDROME. Raanan Gefen³, Fanny Segev¹, Noa Gefen¹, Leejee H. Suh², Danielle Trief², Yoel Cohen³, Yoel Arieli³, Avner Belkin¹, Alon Harris^{3,4}, Meir Medical Center, Israel¹, Columbia University Medical Center², AdOM advance optical technologies Ltd.³, Eugene and Marilyn Glick Eye Institute and Indiana University School of Medicine⁴

45 BILATERALITY IN DRY EYE DISEASE: IMPLICATIONS FOR CLINICAL TRIALS. Michael A. Lemp.^{1,2,3}, Benjamin D. Sullivan³, Georgetown University¹, George Washington University², TearLab Corp.³

46 ANGIOGENIN AS BIOMARKER OF DRY EYE. JeaChan Kim, Jung Huh. Department of Ophthalmology, Chung-Ang University Hospital.

47 CASE-CONTROL STUDY OF CORNEAL FINDINGS IN DIABETIC AND
NONDIABETIC PATIENTS. Machiko Shimmura-Tomita, Hiroko Takano, Nozomi
Kinoshita, Fumihiko Toyoda, Yoshiaki Tanaka, Rina Takagi, Mina Kobayashi, Akihiro
Kakehashi. Department of Ophthalmology, Saitama Medical Center, Jichi Medical
University, Saitama, Japan

48 RELATIONSHIP BETWEEN FLUORESCEIN BREAKUP PATTERNS AND
CLINICAL MANIFESTATIONS IN DRY EYE. Norihiko Yokoi¹, Georgi As.
Georgiev², Hiroaki Kato¹, Aoi Komuro¹, Yukiko Sonomura¹, Chie Sotozono¹, Kazuo
Tsubota³, and Shigeru Kinoshita⁴. Department of Ophthalmology¹ and Department of
Frontier Medical Science and Technology for Ophthalmology⁴, Kyoto Prefectural
University of Medicine, Kyoto, Japan, Department of Optics and Spectroscopy, Faculty of
Physics, St. Kliment Ohridski University of Sofia, Sofia, Bulgaria², Department of
Ophthalmology, Keio University School of Medicine, Tokyo, Japan³

49 EVALUATING THE EFFECT OF DRY EYE DISEASE ON CORNEAL SUB-
BASAL NERVE DENSITY AND MORPHOLOGY Kendrick C Shih¹, Veerappan
Anuradha², Louis Tong², Department of Ophthalmology, LKS Faculty of Medicine,
University of Hong Kong, Hong Kong SAR¹, Singapore Eye Research Institute, Singapore
National Eye Centre, Third Hospital Avenue, Singapore 168751²

50 AGE-RELATED DIFFERENCES IN CORNEAL EPITHELIAL THICKNESS
MEASUREMENTS WITH ANTERIOR SEGMENT OPTICAL COHERENCE
TOMOGRAPHY. Sun Woong Kim¹, IK-Hee Ryu², Jong-Hyuck Lee¹ ¹Department of
Ophthalmology, Yonsei University Wonju College of Medicine, Wonju, Korea ²B & Viit
Eye center, Seoul, Korea

51 ENDOGENOUS OPIOIDS AND CHEMOKINES EXPRESSION IN PATIENTS
SUFFERING FROM OCULAR PAIN ASSOCIATED WITH DRY EYE DISEASE. P.
Nicolle, Md,¹ H. Liang, MD, PhD,^{1,3} S. Melik-Parsadaniantz, PhD,³ C. Baudouin, MD,
PhD,^{1,4} A. Reaux-Le-Goazigo*, PhD,³ A. Labbe, MD, PhD*.^{1,4} Department of
Ophthalmology III, Quinze-Vingts National Ophthalmology Hospital,¹ DHU Sight
Restore, INSERM-DHOS CIC1423,² INSERM, U968 UPMC Paris 6, Institut de la
Vision,CNRS,UMR7210,³ Department of Ophthalmology, Ambroise Paré Hospital,
APHP, Univeristy of Versaille St-Quentin en Yvveline.*These authors jointly supervised
this work.

52 EVALUATION OF INTERFACE REFLECTIVITY AND CORNEAL
ABERRATIONS FOLLOWING DESCEMT'S STRIPPING AUTOMATED
ENDOTHELIAL KERATOPLASTY (DSAEK). Hamid Khakshour ^{1,2}, Maliheh
Nikandish ^{1,2}, Maryam Salehi ³, Haleh Ghooshkhanehei ² Eye Research Center ¹, Mashhad
University of Medical Sciences ², Department of community medicine³, Mashhad, Iran

53 OCULAR SURFACE INVOLVEMENT ON GVHD PATIENTS, Sihem Lazreg.
Specialist in Ophthalmology, Blida, Algeria.

- 54 INVESTIGATION OF THE CLINICAL FEATURES OF “PATCHY SPK”. Aoi Komuro¹, Norihiko Yokoi¹, Seitaro Komai¹, Hiroaki Kato, Yukiko Sonomura¹, Chie Sotozono¹, and Shigeru Kinoshita² Department of Ophthalmology¹ and Department of Frontier Medical Science and Technology for Ophthalmology², Kyoto Prefectural University of Medicine, Kyoto, Japan.
- 55 COMFORT AND WETTABILITY OF DAILY DISPOSABLE CONTACT LENSES. Kathy Dumbleton¹, Michel Guillon,^{1,2} Trisha Patel,¹ Kishan Patel,¹ Cecile Maissa.³ OCULAR TECHNOLOGY GROUP International,¹ School of Life and Health Sciences,² Aston University, Aston UK, Alcon Inc.³ Fort Worth, TX, USA
- 56 CONTACT LENS LIPID UPTAKE AND CORRELATION TO COMFORT. Cristina Schnider, Kristy Canavan, Kingsley Ebare, Mark Lada, Zohra Fadli. Johnson & Johnson Vision Care, Inc. Jacksonville, FL.
- 57 SCLERAL LENS SURFACE COATING IMPROVES VISION AND OCULAR COMFORT. Maria Walker¹, Rachel Redfern¹ The Ocular Surface Institute, College of Optometry, University of Houston¹
- 58 EFFECT OF MONOCULAR LENS WEAR ON OCULAR COMFORT. U Stahl¹ N Keir,² S Guthrie,¹ L Jones¹ Centre for Contact Lens Research, University of Waterloo, Canada,¹ CooperVision, USA².
- 59 DO CHANGES IN MEIBOMIAN AND TEAR LIPIDS CORRELATE WITH COMFORT IN CONTACT LENS WEARERS. Jaya Sowjanya Siddireddy, Ajay Kumar Vijay, Jacqueline Tan, Mark Willcox, School of Optometry and Vision Science, University of New South Wales.
- 60 ASSESSMENT OF COMFORT AND PRE-LENS TEAR FILM SURFACE QUALITY Maryam Mousavi, Dorota Szczesna-Iskander, D. Robert Iskander, Wroclaw University of Science and Technology, Wyspianskiego 27, 50-370 Wroclaw, Poland
- 61 TEAR FILM CHARACTERISTICS DURING WEAR OF DAILY DISPOSABLE CONTACT LENSES. James_Wolffsohn,¹ Maria_Vidal_Rohr,¹ Andrea_Le,² Frank_Yi,² Carol_Lakkis.² Aston_University,¹ Birmingham, UK, ¹ Johnson&Johnson Vision Care. Jacksonville, FL, USA²
- 62 EFFECTS OF THREE DIFFERENT DAILY DISPOSABLE CONTACT LENSES ON TEAR FILM. Giancarlo Montani,¹ Sebastiano Giuffrida,² Fabio Carta.² Università del Salento, Italy¹ Baush+Lomb, Italy²
- 63 EFFECTS OF CONTACT LENS WEARING ON TEAR FILM AND OCULAR SURFACE OF PRESBYOPES POPULATION. Rico-del-Viejo¹ L, MSc, Tavberidze¹ N, OD, Lorente-Velázquez¹ A, PhD, Hernández-Verdejo¹ JL, PhD, Madrid-Costa¹ D, PhD 1. Department of Optometry II, Faculty of Optics and Optometry, Complutense University of Madrid, Madrid, Spain
- 64 STEADY-STATE CORNEAL OXYGEN CONSUMPTION PROFILES DURING

CONTACT LENS WEAR. Noel Brennan¹, Dalton Harvie². 1. Johnson & Johnson Vision Care (JJVC) 2. Chemical and Biomolecular Engineering, University of Melbourne

65 PHYSIOLOGICALLY-RELEVANT MEASUREMENT OF CONTACT LENS FRICTIONAL ENERGY AFTER A SIMULATED 1-DAY WEAR CYCLE. Samuele Tosatti¹, Olof Sterner¹, Charles Scales², Tawnya Wilson², Kathrine Osborn Lorenz² 1SuSoS AG, 2Johnson&JohnsonVisionCare

66 THE EFFECT OF CONTACT LENS WEAR ON THE LID MARGIN EPITHELIUM. Waleed Alghamdi^{1,2,3}, Maria Markoulli², Eric Papas², 1Brien Holden Vision Institute, Sydney, Australia. 2School of Optometry & Vision Science, University of New South Wales, Sydney, Australia. 3Vision Cooperative Research Centre, Sydney, Australia

67 THE ASSOCIATION BETWEEN MEIBOMIAN GLAND WIDTH, CLINICAL TESTS, AND PATIENT-REPORTED OUTCOMES IN CONTACT LENS AND NON-CONTACT LENS WEARERS. Carolina Kunnen,¹ Lisa Jones-Jordan,² Justin Kwan,³ Sruthi Srinivasan,⁴ Andrew Pucker.² University of Houston, USA,¹ The Ohio State University, USA,² Marshall B Ketchum, USA,³ University of Waterloo, CA⁴

68 AN *IN-VITRO* LIPID UPTAKE MODEL TO PREDICT *EX-VIVO* LIPID DEPOSITION ON WORN SILICONE HYDROGEL CONTACT LENSES.. Lakshman Subbaraman,¹ Negar Omali,¹ Mark Lada,² Kristy Canavan,² Zohra Fadli,² Lyndon Jones.¹ Centre for Contact Lens Research, School of Optometry and Vision Science, University of Waterloo, Canada;¹ Johnson and Johnson Vision Care, Inc. Jacksonville, USA.²

69 DAYTIME TEAR FILM AND CORNEAL THICKNESS VARIATION WITH SEVERAL SCLERAL CONTACT LENS DIAMETERS. Edouard Lafosse¹, Santiago García-Lázaro¹, Alejandro Cerviño Expósito¹, Teresa Ferrer-Blasco¹, Robert Montés-Micó¹. ¹Grupo de Investigación en Optometría/GIO, Universidad de Valencia, Valencia, Spain.

70 HYDROGEL SURFACE COATING OF RGP LENSES IMPROVES WETTABILITY AND LUBRICITY Kelly Mabry, Karen Havenstrite, Katharine Gifford, Margaret Walter, Brandon Felkins, Victor McCray, Tangible Science, Menlo Park, CA, USA

71 MAKING CONTACT LENSES MORE COMPATIBLE WITH THE OCULAR SURFACE THROUGH COATING TECHNOLOGY. María Vidal Rohr, James S. Wolffsohn. Ophthalmic Research Group, Aston University, Birmingham, UK.

72 SEX, TEARS AND CONTACT LENSES. Kathryn Richdale,¹ Cecilia Chao,^{1,2} Moneisha Gokhale,^{2,3} Kim Duong,¹ Michele Madigan,² Isabelle Jalbert,² Blanka Golebiowski,² Mark Willcox² State University of New York Optometry (SUNY),¹ School of Optometry and Vision Science, University of New South Wales (UNSW),² Deakin Optometry, Deakin University, Australia³

- 73 IMPACT ON THE OCULAR SURFACE OF A NEW DAILY HYDROGEL CONTACT LENS WITH HIGH WATER CONTENT. Rico-del-Viejo¹ L, MSc, Ruiz-Alcocer² J, PhD, Tavberidze¹ N, OD, Lorente-Velázquez¹ A, PhD, Hernández-Verdejo¹ JL, PhD, Madrid-Costa¹ D, PhD 1. Department of Optometry II, Faculty of Optics and Optometry, Complutense University of Madrid, Madrid, Spain 2. European University of Madrid, Madrid, Spain
- 74 PERMEATION AND PERVAPORATION OF WATER THROUGH CONTACT LENS MATERIALS. Zohra Fadli, Ph.D., Charles Scales, Ph.D., Bernardo Santa Maria, M.S., and Donald Riederer, Ph.D.
- 75 EFFECT OF 3% DIQUAFOSOL SODIUM OPHTHALMIC SOLUTION ON SOFT CONTACT LENS WEARERS. Yukiko Sonomura,^{1,2} Norihiko Yokoi,² Rieko Sakai,² Aoi Komuro,² Hiroaki Kato,² Chie Sotozono,² and Shigeru Kinoshita³ ¹Department of Ophthalmology, Kyoto Yamashiro General Medical Center, Kyoto, Japan, and ²Department of Ophthalmology and ³Department of Frontier Medical Science and Technology for Ophthalmology, Kyoto Prefectural University of Medicine, Kyoto, Japan