6th International Conference on the Tear Film & Ocular Surface: Basic Science and Clinical Relevance

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Preface

During the past several decades, a significant, international research effort has been directed towards understanding the composition, function and regulation of the preocular tear film. This effort has been 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 has been stimulated by the knowledge that alteration or deficiency of the tear film, which occurs in innumerable individuals throughout the world, may lead to desiccation of the ocular surface, ulceration and perforation of the cornea, an increased incidence of infectious disease, and potentially, pronounced visual disability and blindness.

To promote further progress in this field of vision research, the 6th International Conference on the Tear Film & Ocular Surface: Basic Science and Clinical Relevance will be held at the Firenze Fiera, Florence, Italy, from September 22 to 25, 2010. This Conference, which is sponsored by the Tear Film & Ocular Surface Society (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 companies with an interest in the treatment of tear film or ocular surface disorders.

To help achieve this objective, numerous scientists, clinicians and industry representatives from many countries, including Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, China, Croatia, Czech Republic, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Italy, Japan, Netherlands, New Zealand, Singapore, Slovenia, South Korea, Spain, Sweden, Switzerland, Thailand, Turkey, United Arab Emirates, United Kingdom and the United States have registered as active participants in this Conference.

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

David A. Sullivan

Acknowledgments

The Tear Film & Ocular Surface Society expresses its appreciation to Sabrina Zappia and CITYNet (www.citynetonline.it), Julie Karimi and Jaka Congressi (www.jaka.it), Haydée Marangoni and h.design, and the Managers of Firenze Fiera, Lungarno Hotels, Il Convivium Firenze and Context Travel for their assistance with, and/or contributions to, this Conference.

Recognition

The Tear Film & Ocular Surface Society congratulates the following individuals, who were the recipients of the Conference Travel Awards: Philipp Ackermann, Danielle Augustin, Colin Cerretani, Laura Contreras-Ruiz, Thomas Fuchslinger, Fabian Garreis, Anna Guzman-Aranguez, Maria Markoulli, Maryam Mokhtarzadeh, James Mun, Kyung-Sun Na, Jose Ricardo, Stefan Schrader, Yuichi Uchino and Eric Xiaojia Wei.
THURSDAY, SEPTEMBER 23, 2010

Opening Remarks

8:00  **Stefano Bonini (Italy)**

Claes H. Dohlman Conference Address

*Chairperson – Stefano Bonini (Italy)*

8:05  **HEALTH AND DISEASE OF THE OCULAR SURFACE. Shigeru Kinoshita. Kyoto Prefectural University of Medicine, Kyoto, Japan**

SESSION I

Sugar Can Be Good for You: Glycobiology & Mucins

*Chairpersons - Pablo Argueso (USA), Monica S Berry (UK) & Anna Guzman-Aranguez (Spain)*

8:30  **Keynote Address: REPROGRAMMING OF CELLULAR TRANSCRIPTION BY SIGNALING THROUGH MUC1. Michael A. Hollingsworth, Michelle E. Behrens, Samuel J. Erb. Eppley Institute for Research in Cancer, Department of Biochemistry and Molecular Biology, University of Nebraska Medical Center, Omaha, NE, USA**

8:55  **Keynote Address: ROLE OF SPDEF IN PULMONARY GOBLET CELL DIFFERENTIATION. Tom Korfhagen, Perinatal Institute, Section of Neonatology, Perinatal and Pulmonary Biology, Cincinnati Children’s Hospital, Cincinnati, Ohio**

9:20  **TEAR FILM: EPITOPES FACING THE OUTSIDE WORLD. Sarah Baos1,2, Terence McMaster, David Phillips, Monica Berry1. 1HH Wills Physics Laboratory and 2Academic Unit of Ophthalmology, University of Bristol, Bristol, UK**

9:35  **CELL SURFACE MUCIN O-GLYCANS IMPAIR NANOPARTICLE DELIVERY TO CORNEAL EPITHELIAL CELLS. A. Guzman-Aranguez, J. Pintor, P. Argüeso. 1Department of Biochemistry, School of Optics, Complutense University, Madrid, Spain; 2Schepens Eye Research Institute and Department of Ophthalmology, Harvard Medical School, Boston, MA, USA**


10:05  **Poster Session I (with Coffee & Tea)**
10:40 **Keynote Address:** RECENT ADVANCES IN DEFINING AND CLASSIFYING DRY EYE DISEASE. A. J Bron, Nuffield Laboratory of Ophthalmology, University of Oxford, UK

10:55 **Keynote Address:** INTERNATIONAL DRY EYE WORKSHOP: UPDATE ON THE EPIDEMIOLOGY OF DRY EYE. Kelly K. Nichols, OD, MPH, PhD Ohio State University College of Optometry, Columbus, OH, USA

11:10 **Keynote Address:** METHODOLOGIES TO DIAGNOSE AND MONITOR DRY EYE DISEASE. Murat Dogru, M.D, Ph.D. Johnson and Johnson Ocular Surface and Visual Optics Department, Keio University School of Medicine, Tokyo, Japan

11:25 **Keynote Address:** UPDATE ON THE DEWS REPORT: THERAPY AND MANAGEMENT. Michael A. Lemp, Georgetown University

11:40 **Keynote Address:** ADVANCES IN THE DESIGN AND CONDUCT OF CLINICAL TRIALS IN DRY EYE DISEASE. Gary N. Foulks, MD, FACS. Kentucky Lions's Eye Center, Lexington, KY, USA

11:55 **Keynote Address:** DEWS WORKSHOP UPDATE: CLINICAL AND BASIC RESEARCH IN DRY EYE. Ilene K. Gipson, Schepens Eye Research Institute, Department of Ophthalmology, Harvard Medical School, Boston MA, USA

12:10 **Poster Viewing & Lunch**

**Poster Discussion I**

**Chairpersons - Philipp Ackermann (Germany), Thomas J. Millar (Australia) & Friedrich P. Paulsen (Germany)**

13:40 **REFRACTIVE SURGERY ALTERS CONJUNCTIVAL GOBLET CELLS IN PATIENTS WHO DEVELOP DRY EYE.** M Shatos†, D Ryan‡, K Bower‡, C Coe‡, L Peppers‡ E Guilbert†, J Doherty†, R Hodges†, D Dartt††Optial/Harvard Med Sch, Schepens Eye Research Institute, Boston, MA;‡ Walter Reed Army Medical Center, Washington, DC

13:45 **LUBRICIN AS AN OCULAR SURFACE-CONTACT LENS BOUNDARY LUBRICANT: DOSE-DEPENDENT & SYNERGISTIC EFFECTS.** S. Morrison†, B. Snider†, B.D. Sullivan‡, E. Truitt III†, D.A. Sullivan§, T. Schmidt†† University of Calgary, Calgary, Canada; ‡ TearLab Corp., San Diego, CA; § Singularis, Inc., San Diego, CA; †† Schepens Eye Research Institute and Harvard Medical School, Boston, MA

13:50 **PHOSPHOLIPIDS IN TEARS, CONTACT LENSES AND MEIBUM?** Jennifer T. Saville†, Zhenjun Zhao‡, Mark D.P. Willcox§, Todd W. Mitchell‡ and Stephen J. Blanksby†. †School of Chemistry and ‡School of Health Sciences, University of Wollongong, NSW 2052, §Brien Holden Vision Institute and §School of Optometry and Vision Science, University of New South Wales, NSW 2052, Australia
A NEW MOUSE MODEL OF DRY EYE DISEASE (Tet-ev1 Mice): OXIDATIVE STRESS AFFECT FUNCTIONAL DECLINE IN LACRIMAL GLAND. Yuichi Uchino,1,2,3 Tetsuya Kawakita,2 Masaki Miyazawa,3 Takama Ishii,3 Hiromi Onouchi,3 Kayo Yasuda,3 Shigeto Shimmura,2 Naoaki Ishii2 Kazuo Tsubota2. Ophthalmology, Tokyo Electric Power Company Hospital1, Ophthalmology, Keio University School of Medicine,2 Tokyo, Japan, Molecular Life Science, Tokai University School of Medicine,3 Kanagawa, Japan

International Meibomian Gland Dysfunction Workshop: Reports

Chairpersons - Colin Cerretani (USA), James P. McCulley (USA) & Eric B. Papas (Australia)

14:00 Introduction: TEAR FILM & OCULAR SURFACE SOCIETY: A REPORT FROM THE INTERNATIONAL WORKSHOP ON MEIBOMIAN GLAND DYSFUNCTION. Kelly K. Nichols. Ohio State University, College of Optometry, Columbus, OH, USA

14:05 Keynote Address: DEFINITION & CLASSIFICATION OF MEIBOMIAN GLAND DYSFUNCTION. J. Daniel Nelson. Health Partners Medical Group, Minneapolis, MN, USA

14:20 Keynote Address: ANATOMY, PHYSIOLOGY & PATHOPHYSIOLOGY OF THE MEIBOMIAN GLAND. Erich Knop. Eye Clinic Research Laboratory, Charite-Univ Med, Berlin, Germany

14:35 Keynote Address: TEAR FILM LIPIDS, AND LIPID-PROTEIN INTERACTIONS IN HEALTH AND DISEASE. Ben J. Glasgow. Jules Stein Eye Institute UCLA, Ophthalmology, Los Angeles, CA, USA

14:50 Keynote Address: EPIDEMIOLOGY OF, AND RISK FACTORS FOR, MEIBOMIAN GLAND DYSFUNCTION. Debra A. Schaumberg. Harvard Medical School, Brigham Womens Hospital, Boston, MA, USA

15:05 Keynote Address: EVALUATION, DIAGNOSIS & GRADING OF SEVERITY OF MEIBOMIAN GLAND DYSFUNCTION. Alan Tomlinson. Glasgow Caledonian University Vis Sci, Glasgow, Scotland, UK

15:20 Keynote Address: MANAGEMENT & THERAPY OF MEIBOMIAN GLAND DYSFUNCTION. Gerd Geerling. Department of Ophthalmogy, University of Wuerzburg, Wuerzburg, Bavaria, Germany

15:35 Keynote Address: DESIGN & CONDUCT OF CLINICAL TRIALS. Penny Asbell. Mount Sinai Medical Center, Ophthalmology, New York City, NY, USA

15:50 Poster Session I (with Coffee & Tea)
The Tearome: Not Just Hype

Chairpersons – Darlene A. Dartt (USA), Gordon Laurie (USA) & James Mun (USA)

16:25 Keynote Address: EICOSANOIDS IN THE OCULAR SURFACE AND TEAR FILM. Michal L. Schwartzman, Departments of Pharmacology & Ophthalmology, New York Medical College, Valhalla, New York, USA

16:50 Keynote Address: RAB GTPASES IN REGULATED SECRETION AND DISEASE. Miguel C. Seabra, Molecular Medicine, Imperial College London, London, UK; Faculdade de Ciencias Medicas, Universidade Nova de Lisboa, Portugal; and Instituto Gulbenkian de Ciência, Portugal

17:15 Keynote Address: ANTI-AGING APPROACH FOR THE TREATMENT OF DRY EYE. Kazuo Tsubota,1, Motoko Kawashima1, Takaaki Inaba1, Murat Dogru1, Yoko Ogawa1, Shigeru Nakamura1, Ken Shinmura2, Akihiro Higuchi1, Tetsuya Kawakita,1 Department of Ophthalmology1, Department of Internal Medicine2, Keio University School of Medicine, Tokyo, Japan

17:40 COLD-SENSITIVE CORNEAL AFFERENTS IMPLICATED IN BASAL TEAR PRODUCTION, TRPM8 NERVE MEMBRANE RECEPTORS, AND DRY EYE DISEASE. Harumitsu Hirata and Michael L. Oshinsky. Department of Neurology, Thomas Jefferson University, Philadelphia, PA, USA

17:55 MESENCHYME/EPITHELIUM INTERACTION IN EYELID AND MEIBOMIAN GLAND MOPHORGENESIS. Winston W-Y Kao, Yujin Zhang, Chia-Yang Liu and Mindy K. Call. Edith J. Crawley Vision Research Center, Department of Ophthalmology, University of Cincinnati

18:10 – 19:10

Poster Session I (with Wine & Hors d’oeuvres)

Chairpersons - Philipp Ackermann (Germany), Thomas J. Millar (Australia) & Friedrich P. Paulsen (Germany)

1 CHARACTERIZATION OF MUCIN-TYPE GLYCOPROTEINS IN MARINE MAMMAL TEARS. Robin Kelleher Davis,1,2 Pablo Argueso,1,2 Schepens Eye Research Institute,1 Harvard Medical School,1,2 Boston, MA, USA

2 DETECTION OF TEAR GLYCOPROTEINS AND GLYCOSYLATION MOITIE.S P. Ramamoorthy, J.J. Nichols College of Optometry, The Ohio State University

3 OCULAR SURFACE MUCINS IN ADULTS WITH CYSTIC FIBROSIS. Katharine Evans,1 Rachel North,1 Christine Purslow1, Monica Berry2. School of Optometry & Vision Sciences, Cardiff University1; Academic Unit of Ophthalmology, University of Bristol, Bristol Eye Hospital2, UK

4 IMPACT OF DIFFERENT CONTACT LENS MATERIALS ON MUCIN FRAGMENTATION: RELATION TO SYMPTOMS. M. Berry,1 Paul Murphy2, Christine Purslow2, H. Pult2,3; 1Academic Unit of Ophthalmology, University of Bristol, Bristol Eye Hospital, Bristol, United Kingdom; 2Contact Lens and Anterior Eye Research (CLAER) Unit, School of Optometry and Vision Sciences, Cardiff University, Cardiff, United Kingdom. 3Optometry and Vision Research, Weinheim, Germany
5 REGULATION OF GOBLET CELL DIFFERENTIATION IN THE CONJUNCTIVA: THE ROLE OF THE TRANSCRIPTION FACTOR, SPDEF. Ilene K Gipson1, Albert Alhatem1 Gang Chen2, Jeffrey Whitsett2, and Hans Clevers3. Schepens Eye Research Institute, Harvard Medical School, Boston MA, 2Cincinnati Children's Hospital Medical Center, University of Cincinnati School of Medicine, Cincinnati, OH and 3 Hubrecht Institute, Utrecht, The Netherlands

6 UNCHANGED GOBLET CELL COUNTS AND EPITHELIAL METAPLASIA IN SEASONAL ALLERGIC CONJUNCTIVITIS OUTSIDE THE POLLEN SEASON. Amarilla Veres, Krisztina Kosina-Hagyo, Janos Nemet INSTITUTIONS: Semmelweis University, Dept. of Ophthalmology

7 Discussion: REFRACTIVE SURGERY ALTERS CONJUNCTIVAL GOBLET CELLS IN PATIENTS WHO DEVELOP DRY EYE. M Shatos1, D Ryan2, K Bower3, C Coe3, L Peppers1 E Guilbert1, J Doherty1, R Hodges1, D Darrel1, Opthal/Harvard Med Sch, Schepens Eye Research Institute, Boston, MA; 2 Walter Reed Army Medical Center, Washington, DC

8 RESOLVINS RVD1 AND THE ASPIRIN-TRIGGERED RESOLVIN 17 (R)-RVD1 BLOCK HISTAMINE-STIMULATED INCREASE IN CA2+ AND ACTIVATION OF EXTRACELLULAR REGULATED KINASE (ERK)1/2 TO PREVENT CONJUNCTIVAL GOBLET CELL SECRETION. Dartt DA1, Li D1, Hodges RR1, Shatos M1, and Serhan CN2. INSTITUTIONS: 1 Schepens Eye Research Institute, 2 Brigham and Womens Hospital, 3 Harvard Medical School, Boston, MA

9 NONCLINICAL PHARMACOLOGY, OCULAR DISTRIBUTION, AND SAFETY OF MIM-D3, A NOVEL NGF MIMETIC FOR THE TREATMENT OF DRY EYE. Karen Meerovitch, Teresa Lama and Garth Cumberlidge. Mimetogen Pharmaceuticals Inc. Montreal, Quebec, Canada

10 ISOLATION, CULTURE OF MOUSE LACRIMAL GLAND EPITHELIAL CELLS. Tetsuya Kawakita, Shin'ya Kobayashi, Motoko Kawashima, Naoko Okada, Kenji Mishima, Masataka Ito, Ichiro Saito, Shigeto Shimmura, Kazuo Tsubota. Department of Ophthalmology, Keio University School of Medicine, 2 Department of Pathology, Tsurumi University, 3 Department of Anatomy, National Defense University, Japan

11 Discussion: A NEW MOUSE MODEL OF DRY EYE DISEASE (Tet-mev-1 Mice): OXIDATIVE STRESS AFFECT FUNCTIONAL DECLINE IN LACRIMAL GLAND. Yuichi Uchino, Tetsuya Kawakita, Masaki Miyazawa, Takamasa Ishii, Hiromi Onouchi, Kayo Yasuda, Shigeto Shimmura, Naoaki Ishii, Kazuo Tsubota. Ophthalmology, Tokyo Electric Power Company Hospital, Ophthalmology School of Medicine, Keio University School of Medicine, Tokyo, Japan, Molecular Life Science, Tokai University School of Medicine, Kanagawa, Japan

12 EVALUATION OF LIPID OXIDATIVE STRESS STATUS IN DRY EYE DISEASE. Tais H. Wakamatsu, Murat Dogru, Yukihiro Matsumoto, Takashi Kojima, Minako Kaido, Osama M. Ibrahim, Ayako Igarashi, Enrique A. Sato, Yoshiyuki Ichihashi, Jun Shimazaki, Kazuo Tsubota. J&J Ocular Surface and Visual Optics, Ophthalmology, Keio University School of Medicine, Tokyo, Japan; Ophthalmology, Tokyo Dental College, Chiba, Japan

13 MAINTENANCE EFFECT OF EXPERIMENTAL DRY EYE AFTER DEPRIVATION OF DESICCATING STRESS IN C57BL/6 MICE. Kyung-Chul Yoon. Department of Ophthalmology, Chonnam National University Medical School and Hospital
ADENOSINE A2A RECEPTOR UP-REGULATION IN THE MALE NOD MOUSE DRY EYE MODEL. Stina K. Carlsson1, Daniel Diez2, Sarah F. Hamm-Alvarez2, Kai-Jin Wu3 and J. Peter Gierow.1 School of Natural Sciences, Linnaeus University, Kalmar, Sweden1 Department of Pharmacology and Pharmaceutical Sciences, University of Southern California, School of Pharmacy, Los Angeles, USA2

CHANGES OF ION TRANSPORTERS AND AQUAPORINS IN RABBIT LACRIMAL ACINI AND DUCTS DURING PREGNANCY. Chuanqing Ding1, Michael Lu1, Yanru Wang2 Cell & Neurobiology1, Physiology & Biophysics2, University of Southern California, Los Angeles, CA 90089, USA

P2X7 RECEPTORS INTERACT WITH a1D-ADRENERGIC AND MUSCARINIC RECEPTORS IN RAT LACRIMAL GLAND ACINI. Robin R. Hodges and Darlene A. Dartt, Schepens Eye Research Institute; Department of Ophthalmology, Harvard Medical School, Boston, MA.

CROSSING OF PATHS: A DEFECT IN A MAJOR REGULATORY PROTEIN OF THE SECRETORY PATHWAY INCREASES DEGRADATIVE PATHWAY ACTIVITY. Lilian Chiang1, Tanya Tolmachova2, Alistair N. Humé2, Joel Schechter3, Miguel C. Seabra3, Sarah Hamm-Alvarez1,3 University of Southern California 1School of Pharmacy, 3Keck School of Medicine, Los Angeles CA, USA, 2Cell and Molecular Biology, Division of Biomedical Sciences, Faculty of Medicine, Imperial College, London

EVALUATING BIOCHEMICAL PATHWAYS IN THE MEIBOMIAN GLAND Thomas J. Millar1 and Frank Schirra2 School of Natural Sciences, University of Western Sydney, Australia,1 Klinik für Augenheilkunde, Universitätsklinikum des Saarlandes, Homburg/Saar, Deutschland2

MORPHOGENESIS OF THE MOUSE MEIBOMIAN GLAND. Mindy K. Cal1, Chyong Jy Nien2, James V. Jester3, Winston W-Y Kao.11Edith J. Crawley Vision Research Center, University of Cincinnati, Cincinnati, OH, USA. 2Gavin Herbert Eye Institute, University of California Irvine, CA, USA

DO MARINE MAMMALS HAVE A UNIQUE TYPE OF MEIBOMIAN GLAND? Nadja Knop,1 Erich Knop, 1 Robin Kelleher Davis.2,3 Research Laboratory, Dept of Ophthalmology CVK, Charité - Universitätsmedizin Berlin, Germany; 1 Schepens Eye Research Inst, 2 Harvard Medical School,2,3 Boston, MA, USA

VASOACTIVE INTESTINAL PEPTIDE ACTIVATES THE ADENYLYL CYCLASE PATHWAY IN HUMAN MEIBOMIAN GLAND EPITHELIAL CELLS. Wendy Kam and David A. Sullivan, Schepens Eye Research Institute and Harvard Medical School, Boston, MA, USA

REGULATION OF THE PROLIFERATION AND DIFFERENTIATION OF HUMAN MEIBOMIAN GLAND EPITHELIAL CELLS. Shaohui Liu and David A Sullivan, Schepens Eye Research Institute and Harvard Medical School, Boston, MA, USA

DIFFERENCES IN MEIBOMIAN GLAND PHYSIOLOGY BETWEEN PRE- AND POST-MENOPAUSAL WOMEN. Tomo Suzuki1,2, Norihiko Yokoi2, Aoi Komuro3, and Shigeru Kinoshita4 Department of Ophthalmology, Kyoto City Hospital, Kyoto, Japan; 2Department of Ophthalmology, Kyoto Prefectural University of Medicine, Kyoto, Japan

25 HYPERLIPIDEMIA - A PREDISPOSING FACTOR TO MEIBOMIAN GLAND DYSFUNCTION. Souhad Lawand, MD, Ph.D Zulekha hospital, Ophthalmology department. UAE – Sharjah

26 PREVALENCE OF NON-OBSVIOUS MEIBOMIAN GLAND DYSFUNCTION (NOMGD) IN A DRY EYE STUDY. C.A. Blackie1,2, D.R. Korb1,2 1Korb Associates, Boston, MA; 2TearScience, Morrisville, NC.

27 COMPARISON OF THREE CONTEMPORARY THERAPIES FOR THE MANAGEMENT OF MEIBOMIAN GLAND DYSFUNCTION. Jennifer P Craig1, Stuti Misra1, Elizabeth Robinson2 1New Zealand National Eye Centre, Department of Ophthalmology and 2Department of Epidemiology and Biostatistics, University of Auckland, New Zealand

28 CLINICAL SAFETY STUDY OF A NOVEL EYELID WARMING DEVICE USING MOIST HEAT TECHNOLOGY. Felicity Gill, Paul Murphy, Christine Purslow School of Optometry & Vision Sciences, Cardiff University, UK

29 MANAGEMENT OF LID MARGIN DISEASES WITH BLEPHACLEAN. Michel Guillon, Cecile Maissa, Stéphanie Wong OTG Research and Consultancy, London UK.

30 BLEPHASTEAM®: A NOVEL EQUIPMENT TO TREAT MEIBOMIAN GLAND DYSFUNCTION (MGD). A CLINICAL AND LABORATORY STUDY. V Profazio, P Versura, MG Tedeschi, C. Coslovi, M. Cellini, E C Campos Ophthalmology Unit, Alma Mater Studiorum University of Bologna

31 HUMAN TEARS AND MEIBUM LIPIDOMES: A ROADMAP FOR SUCCESSFUL ANALYSIS. Igor Butovich, Department of Ophthalmology, UT Southwestern Medical Center, Dallas, TX

32 DRY EYE AND HUMAN TEAR LIPID COMPOSITIONAL, CONFORMATIONAL AND FUNCTIONAL RELATIONSHIPS USING SPECTROSCOPY. Douglas Borchman, Gary N Foulks, Marta C Yappert. University of Louisville

33 CHARACTERISATION OF MEIBUM LIPIDS IN ASIANS WITH AND WITHOUT DRY EYE. Louis Tong,1,2,3 Sin-Man Lam,4 Shyam S Chaurasia,1 Siew-Sian Yong,1 Guanghou Shui 4 Markus R Wenk1 1Singapore Eye Research Institute, 2Singapore National Eye Center, 3Duke-NUS Graduate Medical School, 4Department of Biochemistry, Yong Loo Lin School of Medicine, National University of Singapore

34 Discussion: PHOSPHOLIPIDS IN TEARS, CONTACT LENSES AND MEIBUM? Jennifer T Saville1, Zhenjun Zhao2, Mark D.P. Willcox2,3, Todd W. Mitchell4 and Stephen J. Blanksby1. 1School of Chemistry and 2School of Health Sciences, University of Wollongong, NSW 2052, 2Brien Holden Vision Institute and 3School of Optometry and Vision Science, University of New South Wales, NSW 2052, Australia

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14 - Tear Film & Ocular Surface Society
35 COMPARISON OF MASS SPECTROMETRY LIPID PROFILES USING VISUAL AND COMPUTER-BASED TECHNIQUES. Kelly K. Nichols, OD, MPH, PhD; Jianzhong Chen, PhD; Kari B. Green-Church, PhD College of Optometry; Mass Spectrometry and Proteomics Facility; The Ohio State University, Columbus, OH, USA

36 MODELLING MEIBOMIAN LIPID FILM STRUCTURE USING X-RAY REFLECTIVITY. Chendur K. Palaniappan, Shiwani R. Raju, Michael James and Thomas J. Millar School of Natural Sciences, University of Western Sydney, Bragg Institute, Australian Nuclear Science and Technology Organisation, Sydney

37 VISCOELASTICITY OF HUMAN MEIBOMIAN LIPID FILMS AT THE AIR-LIQUID INTERFACE. Shiwani R. Raju, Chendur K. Palaniappan and Thomas J. Millar. School of Natural Sciences, University of Western Sydney, Australia

38 VISCOELASTIC AND STRUCTURAL CHANGES OF MEIBOMIAN LIPIDS WITH TEMPERATURE. Danielle L. Leiske, Michelle Senchina, Howard A. Ketelson, Gerald G. Fuller. Stanford University, Stanford, CA, Alcon Research, Ltd. Fort Worth, TX, USA.

39 THE INFLUENCE OF HUMAN MEIBOMIAN LIPIDS ON THE WETTING PROPERTIES OF A DROPLET. Danielle L. Leiske, Cécile Monteux, Michelle Senchina, Howard A. Ketelson, David Meadows, Gerald G. Fuller. Stanford University, Stanford, CA USA, ESPCI, Paris, France, Alcon Research, Ltd. Fort Worth, TX USA.

40 HUMAN TEAR LIPID BREAKS UP BY DEWETTING C. Cerretani; C. J. Radke Chemical Engineering Department and Vision Science Group University of California, Berkeley

41 TEAR EVAPORATION REDUCTION BY MODEL THIN OILY FILMS C. Cerretani, C.J. Radke. Dept. of Chemical Engineering, Univ. of California, Berkeley, CA Vision Science Group, Univ. of California, Berkeley, CA

42 THE EFFECT OF MEIBOMIAN LIPID FILMS ON EVAPORATION OF WHOLE TEARS IN VITRO. George H. Herok, Shiwani R. Raju, Thomas J. Millar School of Natural Sciences, University of Western Sydney, Department of Medical and Molecular Biosciences, University of Technology, Sydney

43 IF TEAR EVAPORATION IS SO HIGH, WHY IS TEAR OSMOLARITY SO LOW? P. Ewen King-Smith, P. Ramamoorthy, K.K. Nichols, R.J. Braun, J.J. Nichols College of Optometry, The Ohio State University, Department of Mathematical Sciences, University of Delaware

44 THE ROLE OF AQUEOUS TEAR EVAPORATION IN NORMALS AND PATIENTS WITH DRY EYE DISEASE. James P. McCulley, M.D., F.A.C.S, F.R.C. Ophth (U.K.) UT Southwestern Medical School

45 COMPUTATIONAL MODELING OF TEAR FILM DYNAMICS ON AN EYE-SHAPED DOMAIN. K.L. Maki, R.J. Braun, P. Ucciferro, W. D. Henshaw and PE. King-Smith. Department of Mathematical Sciences, University of Delaware, Newark, DE 19716-2553 USA. Lawrence Livermore National Laboratory, Box 808, L-550, Livermore, CA 94551-0808 USA.

College of Optometry, The Ohio State University, Columbus, OH 43210-1280 USA
ON COMPUTATIONAL MODELS OF TEAR FILM AND OSMOLARITY DYNAMICS. R.J. Braun, P.E. King-Smith, J.J. Nichols and P. Ramamoorthy. Department of Mathematical Sciences, University of Delaware, Newark, DE 19716-2553 USA. College of Optometry, The Ohio State University, Columbus, OH 43210-1280 USA.

MEASURING OSMOLARITY WITH THE TEARLAB™. Santosh Khanal, Thomas J Millar. School of Natural Sciences, University of Western Sydney, Australia.

LONGITUDINAL VARIATION IN SIGNS & SYMPTOMS OF DRY EYE DISEASE AS COMPARED TO A COMPOSITE SEVERITY INDEX. Benjamin D. Sullivan, Baris Sonmez, Ebru Comert, Michael S. Berg, Michael A. Lemp. TearLab Corp. Ondokuz Mayis Universitesi 'Georgetown University.

TEAR FILM OSMOLARITY IN DRY EYE DISEASE. Christina Jacob, Friedrich E Kruse, Claus Cursiefen. Department of Ophthalmology, University of Erlangen-Nuremberg, Erlangen, Germany.

EVALUATION OF TEAR OSMOLARITY IN PATIENTS UNDERGOING PHACOEMULSIFICATION CATARACT SURGERY. Arturo E. Grau (MD), Maria C. Morales (PhD), Juan A. Durán (MD, PhD). Instituto Clínico-Quirúrgico de Oftalmología, Bilbao, Vizcaya, Spain.

EFFICACY OF TOPICAL PLASMA RICH IN GROWTH FACTOR IN THE TREATMENT OF DRY EYE. Arturo E. Grau MD, Silvia López-Plandolit MD, Maríaa C. Morales PhD, Vanesa Freire PhD-Student and Juan A. Durán MD, PhD. Instituto Clínico-Quirúrgico de Oftalmología, Bilbao, Vizcaya, Spain.

METHODS FOR ITRAQ ANALYSES FOR QUANTITATIVE ANALYSIS OF PROTEIN EXPRESSION LEVELS IN TEAR FILM. Kari B. Green-Church, Liwen Zhang, Suthri Srinivasan, Mirunalni Thangavelu, Christopher Paulette, Kelly K. Nichols. Mass Spectrometry and Proteomics Facility, College of Optometry, The Ohio State University, Columbus, OH, USA.


TEAR PROTEIN LEVELS IN KERATOCONUS. Sivaraman A. Balasubramanian, David C. Pye, Mark D.P. Willcox. Brien Holden Vision Institute, School of Optometry and Vision Science, University of New South Wales, Sydney, Australia.

ADVANCED GLYCATION END PRODUCT (AGE) MODIFIED PROTEINS IN TEARS OF DIABETIC PATIENTS. Zhenjun Zhao, Jingfang Liu, Bingyan Shi, Shuixiang He, Xiaoli Yao, and Mark D.P. Willcox. Brien Holden Vision Institute, Sydney, Australia; First Hospital Affiliated to Medical College, Xi'an Jiaotong University, Xi'an, China; The School of Optometry and Vision Science, University of New South Wales, Sydney, Australia.
17 BLOOD COAGULATION FACTOR XIII IN TEARS. Zsuzsanna Z. Orosz,1 Éva Katona,1 Andrea Facskó,2 László Módis,2 László Muszbek,1,3 András Berta.2 Clinical Research Center,1 Department of Ophthalmology2 and Thrombosis, Hemostasis and Vascular Biology Research Group of the Hungarian Academy of Sciences,3 University of Debrecen, Medical and Health Science Center, Debrecen, Hungary

58 THE EFFECT OF EYE DROP WHICH COMBINES SODIUM HYALURONATE AND CARBOXY METHYL CELLULOSE IN TREATING DRY EYE Hungwon Tchah, Jae Yong Kim, Myoung Joon Kim, Jae Hyung Kim, Jooen Lee. Department of Ophthalmology, University of Ulsan, Asan Medical Center, Seoul, Korea

59 EFFICACY OF SODIUM HYALURONATE AND CARBOXYMETHYLCELLULOSE IN TREATING MILD TO MODERATE DRY EYE DISEASE. Tae-im Kim,1 Ji Hwan Lee,1 Ji-Won Kwon,2 Hyun Suk Ahn,1 Eung Kweon Kim,1 1The Institute of Vision Research, Department of Ophthalmology, Yonsei University College of Medicine, Seoul, Korea 2 Department of Ophthalmology, Seoul National University Hospital, Seoul, Korea

60 Discussion: LUBRICIN AS AN OCULAR SURFACE-CONTACT LENS BOUNDARY LUBRICANT: DOSE-DEPENDENT & SYNERGISTIC EFFECTS. S. Morrison1, B. Snider1, B.D. Sullivan2, E. Truitt III3, D.A. Sullivan4, T. Schmidt1 1University of Calgary, Calgary, Canada; 2TearLab Corp., San Diego, CA; 3Singularis, Inc., San Diego, CA; 4Schepens Eye Research Institute and Harvard Medical School, Boston, MA

61 EFFECTS OF THE COMBINATION OF HYALURONIC ACID AND TAMARIND SEEDS POLYSACCHARIDE IN THE MANAGEMENT OF DRY EYE. Stefano Barabino, Cristiana Valente, Guia Corsi, Maurizio Rolando. Ocular Surface Research Center, Department of Neurosciences, Ophthalmology, and Genetics, University of Genoa, Genoa, Italy.

62 PREPARATION OF A CORD BLOOD SERUM EYE DROPS FOR TOPICAL USE IN SEVERE CORNEAL EPITHELIOPATHY. M. Buzzi, A. Stancari, C. Vaselli, C. Coslovi, A. Terzi, A. Abenavoli, G. Bersani P. Versura, EC Campos Emilia Romagna Cord Blood Bank-Transfusion Service, Pharmacy Service S.Osola-Malpighi Hospital, Ophthalmology Unit Alma Mater Studiorum University of Bologna

63 CORD BLOOD SERUM EYE DROPS IN THE TREATMENT OF SEVERE CORNEAL EPITHELIAL DEFECTS IN GVHD AND SS-I PATIENTS: A PILOT STUDY. EC Campos, P Versura, V. Profazio, L. Foroni, C. Chiavi, M. Arpinati, N Malavolta - Ophthalmology Unit, Hematology Department, Rheumatology Service, Alma Mater Studiorum University of Bologna, Italy

64 CELL TARGETING BY TEAR PROSECRETORY MITOGEN – LACRITIN. Gordon W. Laurie, Yinghui Zhang Cell Biology, University of Virginia

65 EFFICACY OF NOVEL THIOLATED BIOPOLYMER IN THE TREATMENT OF DRY EYE SYNDROME. Leopold Schmetterer, Sonja Hoeller, Margit Hornof Medical University of Vienna, Croma Pharma

66 THERAPEUTIC EFFECT OF ELEDOISIN IN OCULAR PHATOLOGICAL MANIFESTATIONS SJÖGREN’S SYNDROME. Capra Piera. Ophthalmological Clinic University La Sapienza Roma, Italy
HOW ARTIFICIAL TEAR PRODUCTS CAN MODIFY & RESTORE THE PHYSICAL/CHEMICAL CHARACTERISTICS OF THE HUMAN TEAR FILM. D. Meadows¹, H. Ketelson¹, Robert Baier², Gerald G. Fuller³, Donald Korb⁴, Tom Millar⁵, Robert Pelton⁶, ¹Alcon Research Inc, Ft. Worth, TX, ²SUNY Buffalo, ³ Stanford University ⁴Korb Associates, ⁵Univ. of Western Sydney, ⁶McMaster University.

AUGMENTATION OF TEAR FILM LIPID LAYER BY AN NEW ARTIFICIAL TEAR EMULSION. Howard Ketelson¹, Robert Baier², Anne Meyer², Jonathan Prindle², Michael Christensen¹, and Michelle Senchyna¹.¹Alcon Research Ltd;²SUNY Buffalo

SEVERE DRY EYES NOT AMENABLE TO CONVENTIONAL TOPICAL LUBRICATION: WHAT IS NEXT? Boboridis G. K., Mikropoulos G. D., Ziakas G. N., Toumanidou V., Lake S., Georgiadis S. N. ¹st Ophthalmology Department, Aristotle University of Thessaloniki.

THE EFFECT OF OCULAR SURFACE LUBRICANT EYEDROPS ON LID PARALLEL CONJUNCTIVAL FOLDS (LIPCOF) AND OTHER SIGNS AND SYMPTOMS OF TEAR FILM DYSFUNCTION. Igor Petriček¹, Snježana Lovrinčević², Sanja Njirič², Goranka Petriček³, Petar Rašregorac⁴, Iris Urtlč⁵, Martina Tomić⁷ Zagreb University Hospital Eye Department, Zagreb, Croatia¹ Croatia insurance, Zagreb, Croatia² Ophthalmology Polyclinic “dr Luciana Pavičević”, Rijeka, Croatia³ Zagreb University Medical School Family Medicine Department, “Andrija Štafjar” School of Public Health, Zagreb, Croatia⁴ Private Ophthalmology Practice, Samobor, Croatia⁵ Ghetaldus Ophthalmology Polyclinic, Zagreb, Croatia⁶ Clinical Hospital for Diabetes „Vuk Vrhovac”, Zagreb, Croatia⁷

CLINICAL AND HISTOLOGICAL CHANGES CAUSED BY SUGAR CANE BURNING EMISSIONS ON THE OCULAR SURFACE OF SUGAR CANE WORKERS. Priscila Novaes¹A, Monique Matsuda¹A, Maristela P. Rangel¹A, Ubiratan P. Santos¹B, Newton Kara-José¹A, Alejandro Berra², Paulo H. N. Saldiva¹CAOphthalmology, BPneumology- INCOR, CPathology, ¹University of São Paulo, São Paulo, Brazil; ²Pathology, University of Buenos Aires, Buenos Aires, Argentina

THE EXPRESSION AND FUNCTION OF RIG-I AND MDA-5 IN HUMAN OCULAR SURFACE EPITHELIUM. Mayumi Uetaa¹b, Norihiko Yokoi¹, Satoshi Uematsu¹, Taro Kawai¹, Shizuo Akira ¹, and Shigeru Kinoshita² ¹Department of Ophthalmology, Kyoto Prefectural University of Medicine, Kyoto, Japan ²Research Center for Inflammation and Regenerative Medicine, Faculty of Life and Medical Sciences, Doshisha University, Kyoto, Japan ³Department of Host Defense, Research Institute for Microbial Diseases, Osaka University, Osaka, Japan

TEMPERATURE-SENSING BY THE HUMAN CONJUNCTIVAL EPITHELIUM THROUGH ACTIVATION OF TRANSIENT RECEPTOR POTENTIAL VANILLOID (TRPV) CHANNELS. Fabian Garreis¹², Monika Valtink³, Friedrich Paulsen¹,², Uwe Pleyer³ and Stefan Mergler⁴ ¹Department of Anatomy and Cell Biology, Martin Luther University, Halle-Wittenberg, Halle, Germany; ²Department of Anatomy II, Friedrich Alexander University Erlangen-Nürnberg, Erlangen, Germany ³Department of Anatomy, Medical Faculty “Carl Gustav Carus” TU Dresden, Dresden, Germany; ⁴Department of Ophthalmology, University Medicine Berlin, Campus Virchow Hospital, Berlin, Germany

ENVIRONMENTAL BIOMECHANICS GOVERNS CELL BEHAVIOUR OF CORNEAL KERATINOCYTES. Eberwein P, Steinberg T, Schulz S, Tomakidi P, Beck D, Reinhard. T University Eye Hospital Freiburg;Department of Oral Biotechnology
SOURCES OF VARIABILITY IN MORPHOMETRIC CLASSIFICATION OF CORNEAL EPITHELIAL CELLS. Gemma Julio¹, Mª Dolores Merindano¹, Sara Lluch¹, Carme Caum²
¹Department of Optics and Optometry, Universitat Politècnica de Catalunya (UPC), Spain. ²Faculty of Mathematics and Statistics, Universitat Politècnica de Catalunya (UPC), Spain

MORPHOMETRIC DESCRIPTION OF CORNEAL EPITHELIAL CELLS WITH LOW DENSITY OF MICROVILLI IN DIFFERENTS DRYING TIMES Gemma Julio¹, Mª Dolores Merindano¹, Sara Lluch¹, Carme Caum²
¹Department of Optics and Optometry, Universitat Politècnica de Catalunya (UPC), Spain. ²Faculty of Mathematics and Statistics, Universitat Politècnica de Catalunya (UPC), Spain

FRIDAY, SEPTEMBER 24, 2010

SESSION II

Late Breaking News: Sjogren’s Syndrome

Chairpersons - Esen K. Akpek (USA), Ammon B. Peck (USA) & Yuichi Uchino (Japan)

8:00 Keynote Address: RECENT ADVANCES TOWARDS UNDERSTANDING THE GENETIC BASIS OF SJÖGREN’S SYNDROME. Christopher Lessard and Kathy L. Moser. Arthritis and Immunology Program, Oklahoma Medical Research Foundation, Oklahoma City, OK, USA

8:20 Keynote Address: SJÖGREN’S SYNDROME: FROM SLIT LAMP TO CYTOPLASM. Barbara Caffery. University of Waterloo, School of Optometry Waterloo, Ontario Canada

8:45 Keynote Address: REVERSAL OF END-STAGE SJÖGREN’S SYNDROME AND DIABETES IN THE NOD MOUSE: CURRENT CLINICAL TRIAL PROGRESS AND BIOMARKER DESIGN. Denise L. Faustman, Massachusetts General Hospital and Harvard Medical School, Boston, MA, USA

9:00 Keynote Address: QUALITY OF LIFE IN PRIMARY SJÖGREN’S SYNDROME. Simon Bowman, Consultant Rheumatologist, Selly Oak Hospital Birmingham, UK and Honorary Senior Clinical Lecturer, University of Birmingham, UK

9:20 Keynote Address: THE INTERNATIONAL SJÖGREN’S SYNDROME REGISTRY—CURRENT STATUS AND FUTURE OBJECTIVES. Troy Daniels,¹ Caroline Shiboski,¹ Lindsey Criswell,¹ Stephen Shiboski,¹ John Whitcher,¹ Morten Schiødt,² Hector Lanfranchi,³ Hisanori Umehara,⁴ Zhao Yan,⁵ Stephen Challacombe,⁶ M. Srinivasan,⁷ Fred Vivino,⁸ Alan Baer,⁹ John Greenspan,¹ for the Sjögren’s International Collaborative Clinical Alliance (SICCA). ¹University of California, San Francisco, USA; ²Copenhagen University, Rigshospitalet, Denmark; ³University of Buenos Aires and German Hospital, Argentina; ⁴Kanazawa Medical University, Ishikawa, Japan; ⁵Peking Union Medical College Hospital, Beijing, China; ⁶King’s College London, UK; ⁷Aravind Eye Hospital, Madurai, India; ⁸University of Pennsylvania, Philadelphia, USA; ⁹Johns Hopkins University, Baltimore, USA

9:40 Poster Session II (with Coffee & Tea)
Visual & Optical Effects of Tear Film Instability

Chairpersons - Christine Purslow (UK), Eric Xiaojia Wei (Australia) & Norihiko Yokoi (Japan)

10:15 **Keynote Address:** THE EFFECTS OF TEAR FILM INSTABILITY ON VISION. Carolyn G. Begley, Indiana University School of Optometry, Bloomington, IN, USA

10:40 **Keynote Address:** MEASURING THE OPTICAL EFFECTS OF TEAR FILM INSTABILITY. Larry N. Thibos, Indiana University School of Optometry, Bloomington, IN, USA

11:05 **POST BLINKING SERIAL MEASUREMENTS OF DYNAMIC WAVEFRONT ABERRATIONS AND FUNCTIONAL VISUAL ACUITY IN NORMAL AND DRY EYES.** Suk Kyue Choi, M.D., Hae Won Seo, M.D., Jin Hyoung Kim, M.D., Do Hyung Lee, M.D., Ph.D

11:20 **CHARACTERISTICS OF DRY EYES WITH SHORT TEAR FILM BREAK-UP TIME.** Seika Den1, Dogru Murat1,2, Kazunari Higa1, Jun Shimazaki1,2 1; Department of Ophthalmology, Tokyo Dental College. 2; Keio University School of Medicine

11:35 **EVALUATION OF TEAR FILM QUALITY WITH A DOUBLE-PASS SCATTERING INDEX.** Pisella Pj, Habay T, Nochez Y. CHU Bretonneau, Tours, France Faculté de Médecine François Rabelais, Tours, France.

11:50 **Poster Viewing & Lunch**

**Poster Discussion II**

Chairpersons - Fabian Garreis (Germany), Winston W. Kao (USA) & Eduardo M. Rocha (Brazil)

13:20 **EFFECT OF PUNCTAL OCCLUSION ON LIPID-LAYER SPREAD AND TEAR FILM STABILITY IN AQUEOUS-DEFICIENT DRY EYE.** Norihiko Yokoi,1 Rieko Sakai,1 Anthony J. Bron,2 John M. Tiffany,2 Georgi As. Georgiev,3 and Shigeru Kinoshita.1 Kyoto Prefectural University of Medicine,1 Kyoto, Japan; University of Oxford,2 Oxford, UK; University of Sofia,3 Sofia, Bulgaria

13:25 **IMMUNE RESPONSE IN THE CONJUNCTIVAL EPITHELIUM AND OCULAR SURFACE DAMAGE IN PATIENTS WITH DRY EYE.** Stefano Barabino1, Cristiana Valente1, Elisa Montaldo2, Maria Cristina Mingari2,3, Maurizio Rolando1. 1Ocular Surface Research Center, Department of Neurosciences, Ophthalmology, and Genetics, University of Genoa; 2Department of Experimental Medicine, University of Genoa; 3Istituto Nazionale per la Ricerca sul Cancro, Genoa, Italy

13:30 **QUANTIFICATION OF TEAR FILM INFLAMMATORY CYTOKINES IN SJOGREN’S DRY EYE.** Michelle Senchyna,1 Ravaughn Williams,1 Nancy McNamara,2 Michael Brubaker3, Pavel Iserovich,3 Robert Sack.3 Alcon Research Ltd,1 U California-San Fransisco,2 SUNY School of Optometry.3

13:35 **DRY EYE AND DEMODEX BLEPHARITIS.** Jae Chan Kim, Jee Taeck Kim, Seok Hyun Lee, Yeoun Sook Chun. Department of Ophthalmology, College of Medicine, Chung-Ang University, Seoul, Korea
Inflammation: a Cause or Consequence of Ocular Surface Disease

Chairpersons - Virginia L. Calder (UK), Laura Contreras Ruiz (Spain) & Alison M. McDermott (USA)

13:40 **Keynote Address:** INFLAMMATION: A CAUSE OR CONSEQUENCE OF MUCOSAL DISEASE? Richard S. Blumberg. Laboratory of Mucosal Immunology, Gastroenterology Division, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts

14:05 **Keynote Address:** INDUCTION OF CD4+ T CELL MEDIATED IMMUNITY IN DRY EYE DISEASE. Reza Dana. Schepens Eye Research Institute and Massachusetts Eye and Ear Infirmary, Harvard Medical School Department of Ophthalmology, Boston MA, USA

14:30 **Keynote Address:** ROLE OF INFLAMMATION IN HSV-1-INDUCED STROMAL KERATITIS. Robert L. Hendricks. Department of Ophthalmology, University of Pittsburgh, Pittsburgh, PA USA

14:55 INTERLEUKIN 33, A NOVEL EPITHELIUM-DERIVED CYTOKINE, LINKS INNATE IMMUNITY TO ALLERGIC INFLAMMATION ON OCULAR SURFACE. De-Quan Li, M.D., Ph.D., Lili Zhang, M.D., Xiaofen Zheng, M.D., Ph.D., Guiqiu Zhao, M.D, Ph.D., Matthew A. Cunningham, M.D., Cintia S. De Paiva, M.D., Stephen C. Pflugfelder, M.D. Ocular Surface Center, Cullen Eye Institute, Department of Ophthalmology, Baylor College of Medicine, Houston, Texas, USA

15:10 INFLAMMATORY CONDITIONS AFFECT TIGHT JUNCTION PROTEINS IN CORNEAL EPITHELIAL CELLS L. Contreras-Ruiz,1,2 U. Schulze,3 A. López,1,2 F. Paulsen,3,4 Y. Diebold,1,2 Ocular Surface Group, IOBA-University of Valladolid, Valladolid, Spain; 1 Networking Research Center on Bioengineering, Biomaterials and Nanomedicine (CIBER BBN), Valladolid, Spain; 2 Department of Anatomy and Cell Biology, Martin-Luther-University Halle-Wittenberg, Halle/Saale, Germany; 3 Department of Anatomy II, Friedrich Alexander University Erlangen, Germany. 4

15:25 **Poster Session II (with Coffee & Tea)**

The Best Defense is a Good Offense: Ocular Surface Infection

Chairpersons - Danielle Augustin (USA), Gerald B. Pier (USA) & Fiona J. Stapleton (Australia)

16:00 **Keynote Address:** CORNEAL EPITHELIAL BARRIER FUNCTION AGAINST BACTERIA. Fleiszig SM1, Tam C1, Mun J1, Evans DJ2. UC Berkeley, CA1. Touro University-CA2.

16:25 **Keynote Address:** ELEVATED EXPRESSION OF TLRS, DECTIN-1, AND IL-1B IN HUMAN CORNEAS INFECTED WITH THE FILAMENTOUS FUNGI ASPERGILLUS AND FUSARIUM. R. Siva Ganesa Karthikeyan1, Sixto M. Leaf3, Lalitha Prajna1 and Eric Pearlman2. 1Aravind Eye Hospital, Madurai, Tamil Nadu, India, 2Department of Ophthalmology and Visual Sciences, Case Western Reserve University, Cleveland, Ohio

16:50 **Keynote Address:** CHARACTERIZATION OF THE PATHOGENIC MECHANISM OF ACANTHAMOEBA KERATITIS - THE PROTECTIVE ROLE OF TEAR FLUID. Noorjahan Panjwani. Departments of Ophthalmology and Biochemistry, and The New England Eye Center, Tufts University School of Medicine, Boston, Massachusetts

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21 - Tear Film & Ocular Surface Society

17:30 MACROPHAGE MIGRATION INHIBITORY FACTOR (MIF) PROMOTES *P. AERUGINOSA*-INDUCED OCULAR KERATITIS. Jill Nagashima¹, Tanweer Zaidi¹, Robert A. Mitchell², Gerald B. Pier¹, and Mihaela Gadjeva². Channing Laboratory¹, Brigham and Women’s Hospital, Harvard Medical School, Boston, MA 02115; James Graham Brown Cancer Center, University of Louisville², Louisville, Kentucky

17:45 - 18:45

Poster Session II (with Wine & Hors d’oeuvres)

*Chairpersons - Fabian Garreis (Germany), Winston W. Kao (USA) & Eduardo M. Rocha (Brazil)*

1 CONCENTRATION-BASED FLUORESCENT OBSERVATIONS OF TEAR FILM BREAKUP. P. Ramamoorthy, P.E. King-Smith, J.J. Nichols. The Ohio State University College of Optometry

2 THE PROTEINS AND THEIR INTERACTIONS IN HUMAN AND RABBIT TEARS: IMPLICATION ON TEAR FILM STABILITY. Eric Xiaojia Wei,¹ Zhenjun Zhao¹ and Mark DP Willcox,¹,² Brien Holden Vision Institute, Sydney, Australia,² The School of Optometry and Vision Science, University of New South Wales, Sydney, Australia.

3 EVALUATION OF EXTENDED TEAR STABILITY BY TWO EMULSION BASED ARTIFICIAL TEARS. Donald Korb¹, Caroline Blackie¹, David Meadows³, Mike Christensen², Marion Tudor ².¹ Korb Associates, Boston, MA; ² Alcon Research LTD. Fort Worth, TX.

4 SURFACE INTERACTIONS OF BENZALKONIUM CHLORIDE WITH MEIBOMIAN AND CORNEAL LIPIDS AND WITH WHOLE TEARS. Georgi As. Georgiev,¹ Norihiko Yokoi,² Krasimir Koey,³ Slavanya Ivanova,¹ Elena Kutsarova,¹ Alexander Kyumurkov,¹ Rumen Krastev,³ Zdravko Lalchev.¹ University of Sofia¹ and University hospital,³ Sofia, Bulgaria, Kyoto Prefectural University of Medicine,² Japan, Max Planck Institute of Colloids and Interfaces,⁴ Potsdam, Germany

5 THE INTERACTION BETWEEN EYE MAKE-UP REMOVERS AND THE TEAR FILM. Edward Ian Pearce, Madeline Harvey-Brown & Claire Higginson. Glasgow Caledonian University, Glasgow, Scotland UK

6 ASSOCIATION OF TEAR FILM WAVEFRONT METRICS WITH GRADE OF PRE-LENS TEAR BREAK-UP AND VISION. Haixia Liu, C.G. Begley, N.L. Himebaugh, L.N. Thibos, Z. Wu, School of Optometry, Indiana University, Bloomington, IN

7 MEASURING LIGHT SCATTER DURING TEAR BREAK-UP WITH SHACK-HARTMANN WAVEFRONT ABERROMETER. Larry N. Thibos, Jayoung Nam, Nikole Himebaugh, Haixia Liu, Arthur Bradley. School of Optometry, Indiana University, Bloomington, IN, USA

8 CHANGES OF DYNAMIC WAVEFRONT ABERRATION AFTER PUNTAL OCCLUSION IN DRY EYE PATIENTS. Do hyung Lee, MD, PhD., Hyung seok Cho, MD, Jin Hyoun Kim, MD, Suk Kyue Choi, MD. Department of Ophthalmology, Ilsan Paik hospital, Inje University, Korea
Discussion: EFFECT OF PUNCTAL OCCLUSION ON LIPID-LAYER SPREAD AND TEAR FILM STABILITY IN AQUEOUS-DEFICIENT DRY EYE. Norihiko Yokoi,1 Rieko Sakai,1 Anthony J. Bron,2 John M. Tiffany,2 Georgi As. Georgiev,3 and Shigeru Kinoshita.1 Kyoto Prefectural University of Medicine,1 Kyoto, Japan; University of Oxford,2 Oxford, UK; University of Sofia,3 Sofia, Bulgaria

A NEW PORTABLE DIGITAL MENISCOMETER. Stefan Bandlitz,1,2 Heiko Pult1,3 Christine Purslow1, Paul Murphy1, Anthony J. Bron4.1 School of Optometry and Vision Sciences, Cardiff University, Cardiff, UK; 2 Cologne School of Optometry, Cologne, Germany; 3 Optometry and Vision Research, Weinheim, Germany; 4 Nuffield Laboratory of Ophthalmology, University of Oxford, Oxford, UK

MEASURING OF THE LOWER TEAR MENISCUS HEIGHT WITH TEARSCOPE® Krisztina Kosina-Hagyó, Amarilla Veres, Eszter Fodor, Béla Csákány, János Németh. Semmelweis University, Department of Ophthalmology

TEAR MENISCUS AREA SOFTWARE (TMAS) FOR THE ASSESSMENT OF TEAR MENISCUS CHARACTERISTICS IN THE DIAGNOSIS OF DRY EYE DISEASE. Takashi Kojima1,2, Osama M.A. Ibrahim1,2, Tais Hitomi Wakamatsu1,2, Koji Tonomura3, Yukihiro Matsumoto1,2, Murat Dogru1, Kazuo Tsubota2.1. Johnson & Johnson Ocular Surface and Visual Optics Department, Keio University School of Medicine 2. Department of Ophthalmology, Keio University School of Medicine 3. Konan Medical

MEASUREMENT OF TEAR MENISCUS IN DRY EYE PATIENTS WITH FOURIER-DOMAIN OPTICAL COHERENCE TOMOGRAPHY. David Huang, Pho Nguyen, Matthew C. Bujak, Ethan Tittler, Xinbo Zhang, Yan Li, Samuel Yiud. Doheny Eye Institute, University of Southern California, Los Angeles, CA, USA

MENISCOMETRY USING ANTERIOR SEGMENT OPTICAL COHERENCE TOMOGRAPHY Hiroaki Kato,1,2 Norihiko Yokoi,2 Anthony J Bron,3 John M Tiffany and Shigeru Kinoshita3. National Center for Geriatrics and Gerontology, Aichi, Japan; Kyoto Prefectural University of Medicine,2 Kyoto, Japan; University of Oxford,3 Oxford, UK

COMBINATION OF PHENOL RED THREAD TEST AND SCHIRMER 1 TEST AS A RESCUE STRATEGY TO DETECT SEVERE OCULAR DRYNESS. De Monchy I, Mariette X, Pogorzalek N, Kaswin G, Gendron G, Labetoulle M. Hopital Bicetre, Université Paris-Sud, 94275 Kremlin-Bicetre, FRANCE

SENSITIVITY AND SPECIFICITY OF A MODIFIED TEAR BASAL SECRETION TEST AND SCHIRMER’S 1 TEST IN SJÖGREN’S SYNDROME DIAGNOSIS Pasquale Aragona, Rosaria Spinella, Anna Roszkowska, Laura Rania, Elisa Postorino. Department of Ophthalmology, University of Messina, Italy

IS BLINKING ALTERED IN DRY EYE? Meredith E. Jansen, Carolyn G. Begley, Minhua Chen, Haixia Liu. Indiana University School of Optometry; Bloomington, IN USA

DRY EYE: A PRIMARY CHARACTERISTIC OF CYSTIC FIBROSIS? Katharine Evans, Rachel North, Christine Purslow School of Optometry & Vision Sciences, Cardiff University, UK

TEAR FERNING IN CYSTIC FIBROSIS. Katharine Evans, Rachel North, Christine Purslow. School of Optometry & Vision Sciences, Cardiff University, UK
INVESTIGATION OF TEAR FERNING IN NORMAL AND DRY EYES BEFORE AND AFTER USING ARTIFICIAL TEARS. Ali Masmali¹², Christine Purslow¹, Paul Murphy¹. 1School of Optometry & Vision Sciences, Cardiff University, Cardiff, United Kingdom 2Optometry Department, School of Applied Medical Sciences, King Saud University, Riyadh, Saudi Arabia

COMPARISON OF DRY EYE PATIENT SIGNS IN ENVIRONMENTAL CONDITIONS TO STATIC AND MOBILE CONTROLLED ADVERSE ENVIRONMENT (CAE) MODELS. Joel Naor¹, Donna Welch¹, Gail Torkildsen², George W. Ousler III¹ zroa, Inc, Andover, MA; 2Andover Eye Associates, Andover, MA

LIPCOF IN THE DIAGNOSIS OF DRY EYE - MULTICENTER STUDY. Janos Nemeth, 1 Eszter Fodor, 1 Andras Berta, 2 Tímea Komar, 2 Igor Petricek, 3 Mohamed Higazy, 4 Pavel Nemec, 5 Marek Prost, 6 Galina Semak, 7 Hristina Grupcheva, 8 Ozlem Evren, 9 Petra Schollmayer, 10 Ameed Samaha, 11 Katarina Hlavackova. 12 Dept of Ophthalmology Semmelweis University Budapest, Hungary, 1 Debrecen, Hungary, 2 Croatia, 3 Egypt, 4 Czech Republic, 5 Poland, 6 Belarus, 7 Bulgaria, 8 Turkey, 9 Slovenia, 10 Lebanon, 11 Slovakia

CONJUNCTIVAL FOLDS: SIGN OF AGE OR SIGNS OF LACRIMAL TEARS DYSFUNCTION. Johannes Nepp Ophthalmological Department, Medical University Vienna

THE LONGITUDINAL IMPACT OF SOFT CONTACT LENS WEAR ON LID WIPER EPITHELOPATHY AND LIDPARALLEL CONJUNCTIVAL FOLDS. Heiko Pult¹², Paul J Murphy², Christine Purslow² 1Optometry and Vision Research, Weinheim, Germany; 2School of Optometry and Vision Sciences, Contact Lens and Anterior Eye Research (CLAER) Unit, Cardiff University, Wales, UK.

COMMUNITY BASED STUDY IN ELDERLY POPULATION FOR THE ASSOCIATION BETWEEN DEPRESSIVE SCORE / DEMENTIA SCORE AND DRY EYE. Joon Young Hyon¹, Sang Beom Han¹, Ji Won Kwon², Se Joon Woo¹, Jung Jae Lee¹, Tae Hui Kim¹, Ki Woong Kim¹ 1 Department of Ophthalmology, Seoul National University Bundang Hospital, Seongnam, Korea 2 Seoul National University Healthcare System Gangnam Center, Seoul, Korea 3 Department of Psychiatry, Kyungbook National University Hospital, Daegu, Korea 4 Department of Neuropsychiatry, Seoul National University Bundang Hospital, Seongnam, Korea

THE IMPACT OF DRY EYE ON EVERYDAY LIFE (IDEEL) QUESTIONNAIRE: SATURATION, RELIABILITY, VALIDITY AND DISCRIMINATIVE ABILITY COMPARED TO GENERIC MEASURES Linda Abetz MA¹, Robin Chalmers OD², Carolyn Begley OD³, Polyxane Mertzanis MPH¹, Kitty Venkataraman PhD, Rod Barnes, MBA¹, and IDEEL Study group ¹Mapi Values, Cheshire, UK ²Clinical Trial Consultant, Atlanta, GA, ³Indiana University, School of Optometry, Bloomington, IN, ⁴Alcon Research Ltd, Fort Worth, TX,

A REVIEW OF THE PATIENT-REPORTED OUTCOME INSTRUMENTS TO MEASURE THE IMPACT OF DRY EYE ON HEALTH-RELATED QUALITY OF LIFE. Isabelle Guillemin & Benoit Arnould Mapi Values, Lyon, France

TRANSCULTURAL ADAPTATION AND VALIDATION OF THE OCULAR SURFACE DISEASE INDEX (OSDI) IN PATIENTS OF AN UNIVERSITY HOSPITAL IN SÃO PAULO, BRAZIL. Felipe Ribeiro Ferreira¹, Ruth Miyuki Santo¹, Priscila Novaes¹ ¹Division of Ophthalmology, School of Medicine of the University of São Paulo, São Paulo, Brazil
IMPLEMENTATION OF A NEW QUESTIONNAIRE INTO RECENTLY REVISED JAPANESE DRY EYE DIAGNOSTIC CRITERIA. Miki Uchino1,2, Murat Dogru1, Yuichi Uchino1, Samantha Ward1, Tais Wakamatsu1, Yoko Ogawa2, Norihiko Yokoi3, Kazuo Tsubota1 1Ryogoku Eye Clinic, 2Keio University School of Medicine, Tokyo, Japan, 3Kyoto Prefectural University of Medicine, Kyoto, Japan

COMPARISON OF TWO DRY EYE QUESTIONNAIRES AND CLINICAL OBSERVATIONS IN NON-CONTACT LENS WEARERS. J. Enbuske, E. Blixt, K. Silfwerbrand, and J. P. Gierow. School of Natural Sciences, Linnaeus University, Kalmar, Sweden

DRY EYE SYMPTOMATOLOGY OF NON CONTACT LENS WEARERS WITH THE ODSI QUESTIONNAIRE. Cécile Maïssa, Michel Guillon, Caroline Flomet, Elisabeth Bolton. OTG Research & Consultancy London UK

COMPARISON OF TWO DRY EYE QUESTIONNAIRES AND CLINICAL OBSERVATIONS IN NON-CONTACT LENS WEARERS. J. Enbuske, E. Blixt, K. Silfwerbrand, and J. P. Gierow. School of Natural Sciences, Linnaeus University, Kalmar, Sweden

DRIE EYE SYMPTOMATOLOGY OF NON CONTACT LENS WEARERS WITH THE ODSI QUESTIONNAIRE. Cécile Maïssa, Michel Guillon, Caroline Flomet, Elisabeth Bolton. OTG Research & Consultancy London UK

CONTACT LENS DRY EYE QUESTIONNAIRE-8 (CLDEQ-8) REFLECTS STATUS OF AND RESPONSES TO CHANGE IN OVERALL OPINION OF CL PERFORMANCE. Robin L. Chalmers1, Kurt Moody2, Graeme Young3, Sheila Hickson-Curran2, Carolyn Begley4, Chris Hunt3 1Clinical Trial Consultants, Atlanta, GA, USA, 2Vistakon, Inc., Jacksonville, FL, USA, 3Visioncare Research Ltd., Farnham, Surrey, UK, 4Indiana University, Bloomington, IN, USA

DRIE EYE SYMPTOMATOLOGY OF CONTACT LENS WEARERS WITH THE ODSI QUESTIONNAIRE. Michel Guillon, Cécile Maïssa, Elizabeth Bolton, Caroline Flomet. OTG Research & Consultancy, London, UK

DRIE EYE-LIKE SYMPTOMS AND SIGNS AFTER CATARACT SURGERY. Stefano Barabino, Federico Solignani, Cristiana Valente, Maurizio Rolando Ocular Surface Research Center, Department of Neurosciences, Ophthalmology, and Genetics, University of Genoa, Genoa, Italy

Discussion: IMMUNE RESPONSE IN THE CONJUNCTIVAL EPITHELIUM AND OCULAR SURFACE DAMAGE IN PATIENTS WITH DRY EYE. Stefano Barabino1, Cristiana Valente1, Elisa Montaldo2, Maria Cristina Mingari2,3, Maurizio Rolando1. 1Ocular Surface Research Center, Department of Neurosciences, Ophthalmology, and Genetics, University of Genoa; 2Department of Experimental Medicine, University of Genoa; 3Istituto Nazionale per la Ricerca sul Cancro, Genoa, Italy

HYPEROSMOLAR STRESS ENHANCES HLA-DR EXPRESSION IN HUMAN CONJUNCTIVA. P. Versura, V Profazio, C Coslovi, L Foroni, C. Schiavi, E C Campos Ophthalmology Unit, Alma Mater Studiorum University of Bologna, Italy

CONJUNCTIVAL HLA-DR EXPRESSION AND SURGICAL OUTCOMES OF TRABECULECTOMY. João M. Furtado, Jayter S. de Paula, Edson G. Soares, Eduardo M. Rocha, Régia C. P. Lira, Ana M. da Rocha, Neifi H. S. Dhegaide, Eduardo A. Donadi, Maria de L. V. Rodrigues. Departments of Ophthalmology, Internal Medicine and Pathology, Medical School of Ribeirão Preto, University of São Paulo, Brazil

CONJUNCTIVAL INFLAMMATION IN PATIENTS UNDER TOPICAL GLAUCOMA TREATMENT. Maria L. Veronese Rodrigues, Joao Marcello F. Furtado, Jayter S. Paula, Régia P. Lira, Edson G. Soares, Eduardo A. Donadi, Eduardo M. Rocha Medical School of Ribeirão Preto, University of São Paulo, Brazil
DRY EYE AND SECONDARY SJÖGREN’S SYNDROME IN MIXED CONNECTIVE TISSUE DISEASE (MCTD). Fany S. Usuba, Priscila Navaes, Milton R. Alves. Division of Ophthalmology, School of Medicine of the University of São Paulo, São Paulo, Brazil.

CHRONICALLY DISTURBED IP3 RECEPTOR-MEDIATED CA2+ SIGNALING IN EXOCRINE GLANDS CAUSES SJÖGREN’S SYNDROME-LIKE AUTOIMMUNE DISEASE. Takaaki Inaba, Chihiro Hisatsune, Yasumasa Sasaki, Yoko Ogawa, Taishin Akiyama, Etsuko Ebisu, Naoko Ogawa, Minoru Matsui, Tsutomu Takeuchi, Katsuhiko Mikoshiba & Kazuo Tsubota. Department of Ophthalmology, Keio University School of Medicine. Laboratory for Developmental Neurobiology, Brain Science Institute, RIKEN. Division of Cellular and Molecular Biology, Department of Cancer Biology, Institute of Medical Science, University of Tokyo. Department of Pharmacy, Chiba Institute of Science. Department of Rheumatology, Keio University School of Medicine.

A CASE OF IgG4-RELATED CHRONIC SCLEROSING DACRYOADENITIS. Mi Sun Sung, Joo Hwa Lee. Sanggy-Paik Hospital, Inje University, Seoul, Korea.


TH17 PROMOTING ENVIRONMENT IN THE LACRIMAL GLAND OF THROMBOSPONDIN-1 DEFICIENT MICE WITH OCULAR SURFACE DISEASE. Sharmila Masli, Bruce Turpie. Schepens Eye Research Institute, Harvard Medical School, Boston, MA.

BONE MARROW MESENCHYMAL STEM CELLS TRIGGER PATHOGENIC FIBROSIS IN CHRONIC GRAFT VERSUS HOST DISEASE. Yoko Ogawa, Shigeto Shimmura, Satoru Morikawa, Yo Mabuchi, Tomonori Yaguchi, Sadafumi Suzuki, Takaaki Inaba, Yutaka Kawakami, Hideyuki Okano, Yumi Matsuizaki, Kazuo Tsubota. Department of Ophthalmology, Department of Physiology. Institute for Advanced Medical Research, Division of Cellular Signaling.

CXCR4 AND CXCR7 – TWO POTENTIAL RECEPTORS FOR TFF3 AT THE OCULAR SURFACE. Dieckow J, Schulze U, Paulsen F. Department of Anatomy and Cell Biology, Martin Luther University Halle-Wittenberg, Halle, Germany. Department of Anatomy II, Friedrich Alexander University Erlangen- Nuernberg, Germany.


TEAR CYTOKINE PROFILES IN SJÖGREN SYNDROME AND IN NON-SJÖGREN DRY EYE. Sang Beom Han, MD, Jooyoun Young Hyon, MD, Ji-Won Kwon, MD, Won Ryang Lee, MD, Jin Hak Lee, MD. Seoul National University Bundang Hospital. Seoul National University College of Medicine. Seoul National University Hospital Healthcare System Gangnam Center. Seoul National University Hospital. Seoul, Korea.
Discussion: QUANTIFICATION OF TEAR FILM INFLAMMATORY CYTOKINES IN SJÖGREN’S DRY EYE. Michelle Senczyna,1 Ravaughn Williams,1 Nancy McNamara,2 Michael Brubaker1, Pavel Iserovich,3 Robert Sack.3 Alcon Research Ltd,1 U California-San Fransisco,2 SUNY School of Optometry.3

ELEVATED TEAR INTERLEUKIN-17 LEVELS IN SJÖGREN’S SYNDROME DRY EYE PATIENTS. Kyoung Yul Seo, Jong-Hyuck Lee, Sang Yep Lee, Sang Min Nam Yonsei university college of medicine, department of ophthalmology

DIURNAL, DIFFERENTIAL CONTROL OF BIOACTIVITY OF PRO-INFLAMMATORY CYTOKINES AND CHEMOKINES. R Sack, B Cooper, S Sathe, A Beaton, P Iserovich. SUNY

IS INFLAMMATION INVOLVED IN THE “TIRED EYE” RESPONSE? Mark DP Willcox, Percy Lazon de la Jara, Eric Papas, Jennie Diec, Zhenjun Zhao Brien Holden Vision Institute, Sydney, Australia

ENDOGENOUS SECRETORY GROUP IIA PHOSPHOLIPASE (sPLA2-IIa) AMPLIFIES INFLAMMATION AT THE OCULAR SURFACE. Penny Asbell, Yi Wei, Seth Epstein. Department of Ophthalmology, Mount Sinai School of Medicine of New York University, New York, NY 10029, USA

THE EFFECT OF CONTACT LENS WEAR ON THE DIURNAL PROFILE OF MATRIX METALLOPROTEINASE-9 AND ITS INHIBITOR IN THE TEAR FILM. Maria Markoulli,2,2 Eric Papas,1,2 Nerida Cole,1,2 Brien Holden1,2 Brien Holden Vision Institute, Sydney, Australia 2 School of Optometry & Vision Science, University of New South Wales, Australia

TEAR MITOGEN LACRITIN RAPIDLY COUNTERS INFLAMMATORY STRESS IN HUMAN CORNEAL EPITHELIAL CELLS. Ningning Wang, Gordon W. Laurie Cell Biology, University of Virginia

OCULAR SURFACTANT PROTEINS AND THEIR REGULATION IN DRY EYE DISEASE. Martin Schicht, Andreas Posa, Friedrich Paulsen and Lars Bräuer Department of Anatomy and Cell Biology, Martin Luther University Halle-Wittenberg, Germany; Department of Anatomy II, Friedrich Alexander University Erlangen-Nürnberg, Germany

ALLERGIC MEDIATORS IN TEAR FROM CHILDREN WITH SEASONAL AND PERENNIAL ALLERGY. Tatiana Suárez1, Ricardo Martinez2, Javier Soria1, Nerea Gonzalez1, Arantxa Acera1 1. Bioftalmik Applied Research S.L. Technology Park, Building 800, 48160, Derio, Vizcaya, Spain.2. Hospital de Cruces, Baracaldo, Plaza Cruces-gurutzeta, 12, Vizcaya, Spain

IgE and ECP AS MARKERS OF SEVERITY IN DIAGNOSIS OF ATOPIC KERATOCONJUNCTIVITIS. Ayako Igarashi, Tais Hitomi Wakamatsu,3 Yoshiyuki Satake, Yoji Takano, Osamu Ibrahim, Naoko Okada, Kazumi Fukagawa, Murat Dogru, Jun Shimazaki, Kazuo Tsubota, Hiroshi Fujishima4. Tokyo Dental College Ichikawa Hospital, Chiba, Japan 2 Keio University School of Medicine, Tokyo, Japan 3 Kitasato University School of Medicine, Tokyo, Japan 4 Ryogoku Eye Clinic, Tokyo, Japan 5 Saiseikai Central Hospital, Tokyo, Japan

THERAPEUTICAL USE OF A NEW BIODEGRADABLE DRUG DELIVERY SYSTEM FOLLOWING CORNEAL TRANSPLANTATION. J Schwartzkopff1, A Hyatt2, L Bredow1, C Noack1, P Eberwein1, K Martin1, T Reinhard1 1University Eye Hospital, Freiburg, Germany 2Cambridge Centre for Brain Repair, University of Cambridge, United Kingdom
Discussion: DRY EYE AND DEMODEX BLEPHARITIS. Jae Chan Kim, Jee Tae Kim, Seok Hyun Lee, Yeoun Sook Chun. Department of Ophthalmology, College of Medicine, Chung-Ang University, Seoul, Korea

SEX DIFFERENCE IN INNATE ANTI MICROBIAL FACTORS IN RAT LACRIMAL GLAND. Lilian Eslaine Costa Mendes da Silva, Ana Carolina Dias, Carolina Maria Módulo, Stella Felippe de Freitas, a, Leonardo Tannus Malik, Eduardo Melani Rocha Department of Ophthalmology, Faculty of Medicine of Ribeirão Preto, USP, Ribeirão Preto, Brazil

DRY EYE MODULATES THE EXPRESSION OF ANTIMICROBIAL PEPTIDES ON THE OCULAR SURFACE. R. L. Redfern, W. Farley, C. S. De Paiva, S. C. Pflugfelder and A. M. McDermott. College of Optometry, University of Houston, Houston, Texas; Baylor College of Medicine, Ocular Surface Center, Cullen Eye Institute, Houston, Texas

TEAR FLUID REGULATION OF GENE EXPRESSION IN CORNEAL EPITHELIAL CELLS. J. Mun, C. Tam, D. Evans and S. Fleiszig. UC Berkeley, CA; Touro University, CA

TRAVERSAL OF CORNEAL EPITHELIAL CELLS BY P. AERUGINOSA: BACTERIAL ADAPTATION REVEALS GENES THAT CONTRIBUTE TO THE PROCESS. Danielle Augustin, David Evans, Suzanne Fleiszig. University of California, Berkeley, Berkeley, CA, USA; College of Pharmacy, Touro University, Vallejo, CA, USA

BACTERIAL INFECTION IN PRESUMED VIRAL INTERSTITIAL (STROMAL) KERATITIS. Suksri Chotikavanich, Pinnita Prabhasawat, Nattaporn Tesavibul, Amornrat leelaporn, Mongkol Uiprasertkul. 1Department of Ophthalmology, 2Department of Microbiology, 3Department of Pathology, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand.

SPECIFIC SITE-DIRECTED MUTATIONS IN THE STREPTOCOCCUS PNEUMONIAE CORNEAL VIRULENCE FACTOR PNEUMOLYSIN ABROGATE LYTIC ACTIVITY AND CORNEAL EROSIONS. Sidney Taylor, Justin Thornton, Larry S. McDaniel, Melissa E. Sanders, Mary E. Marquart. Department of Microbiology, University of Mississippi Medical Center, Jackson, MS, USA

TOLL-LIKE RECEPTOR 2 IS INVOLVED IN CORNEAL DISEASE SEVERITY OF STREPTOCOCCUS PNEUMONIAE KERATITIS IN THE ABSENCE OF PNEUMOLYSIN. Nathan Tullos, Erin Norcross, Sid Taylor, Quincy Moore, Melissa Sanders, Mary E. Marquart. Department of Microbiology, University of Mississippi Medical Center, Jackson, MS, USA

ASSESSMENT OF STREPTOCOCCUS PNEUMONIAE CAPSULE IN CONJUNCTIVITIS AND KERATITIS IN VIVO: NEURAMINIDASE ACTIVITY INCREASES IN NONENCAPSULATED PNEUMOCOCCI FOLLOWING CONJUNCTIVAL INFECTION. Erin W. Norcross, Nathan A. Tullos, Sidney D. Taylor, Melissa E. Sanders, and Mary E. Marquart. Department of Microbiology, University of Mississippi Medical Center, Jackson, MS, USA

MOXIFLOXACIN AND CHOLESTEROL COMBINED TREATMENT OF PNEUMOCOCCAL KERATITIS. Melissa E. Sanders, Nathan A. Tullos, Sidney D. Taylor, Erin W. Norcross, Lauren B. King, Isaiah Tolo, and Mary E. Marquart. 1Department of Microbiology, University of Mississippi Medical Center, Jackson, MS 39216.
ANTIMICROBIAL SUSCEPTIBILITY OF OCULAR BACTERIAL PATHOGEN TO LEVOFLOXACIN, MOXIFLOXACIN, GATIFLOXACIN, AND CIPROFLOXACIN. Joon Young Hyon, Hung Won Tchah. Korean Corneal Disease Study Group

Efficacy and Safety Assessment of a Novel UVC Device in Treating Corneal Bacterial Infections. SJ Dean¹, A Petty¹, S Swift¹, J McGhee², A Sharma², J Moore³, S Shah¹, JP Craig¹¹ University of Auckland, New Zealand; ¹ Moorfields Bedford, UK; ³ University of Ulster, UK; ⁴ Birmingham Midlands Eye Centre, UK

Corneal Antimicrobial Peptide Expression in Response to Candida Albicans and Fusarium Solani. Satya Sree Kolar, Hasna Baidouri, Wanyu Zhang, Alison M McDermott. University of Houston, College of Optometry, Houston, TX, 77204

Donor-Related Candida Keratitis After Descemet Stripping Automated Endothelial Keratoplasty. Katsuya Yamazoe, Seika Den, Yoichi Tanaka, Kazuki Hotta, Jun Shimazaki ¹)Kameda Medical Center ²)Tokyo Dental College

The Corneal Protective Effects of Silicon Hydrogel Soft Contact Lens Wear from UV-B Exposure and Oxidative Stress. Murat Dogru,¹ ² Ibrahim Osama,¹³ Tais Wakamatsu,¹³ Takashi Kojima,¹³ Yukihiro Matsumoto,¹³ Kazuno Negishi,³ Jun Shimazaki,² Yasuo Matsumoto,⁴ Hiroshi Sasaki,⁴ Kazuo Tsubota¹ 1) J&J Ocular Surface and Visual Optics Dept, Keio University School of Medicine 2) Dept. of Ophthalmology, Tokyo Dental College School of Medicine 3) Dept. of Ophthalmology, Keio University School of Medicine 4) Dept. of Ophthalmology, Kanazawa Medical University

Do Contact Lenses Elevate Tear Osmolarity in the Typical Lens Wearers? Alan Landers, Mary Mowrey-McKee, Walter Nash, Robert Scott, CIBA VISION Corporation, Atlanta, GA.

The Effect of Rigid Gas Permeable and Soft Contact Lens Wear on Ocular Surface Temperature. Sachiko Nishimura¹,² Paul J Murphy¹, Christine Purslow¹ ¹Cardiff University, School of Optometry and Vision Sciences, Cardiff, UK, ²Menicon, Japan

Adhesion of Transferrin and Albumin to FDA Group II OMAFILCON Contact Lenses. Darshan Solanki, Sophia CuprillNilson, Brooke Liberman, Andrea Janoff, Edward O. Keith Nova Southeastern University

Lipid Penetration into Contact Lenses: A Confocal Microscopy View. J Jacob, J. Guinn, T. Edwards Louisiana State University Health Sciences Center, Dept of Ophthalmology, New Orleans, LA
SATURDAY, SEPTEMBER 25, 2010

SESSION III

Ocular Surface Regeneration & Reconstruction

Chairpersons - Dimitri T. Azar (USA), Victor L. Perez (USA) & Jose Ricardo (Brazil)

8:00 **Keynote Address:** MOUSE LACRIMAL GLAND IS A REGENERATABLE ORGAN. Masataka Ito, Department of Developmental Anatomy and Regenerative Biology, National Defense Medical College, Saitama, Japan

8:25 **Keynote Address:** REGENERATIVE MEDICINE OF THE OCULAR SURFACE. Paolo Rama, M.D., Stanislav Matuska, M.D., Giorgio Paganoni, M.D., Alessandra Spinelli, M.D., Michele De Luca, M.D., and Graziella Pellegrini, Ph.D. San Raffaele Scientific Institute, Ophthalmology Unit, Milan (P.R., S.M., G.P., A.S.); and the Center for Regenerative Medicine Stefano Ferrari, University of Modena and Reggio Emilia, Modena, Italy (M.D.L., G.P.).

8:50 **Keynote Address:** OCULAR SURFACE RECONSTRUCTION. Shigeto Shimmura. Department of Ophthalmology, Keio University School of Medicine

9:15 MICRO-ENGINEERED SILK BIOMATERIALS FOR OCULAR SURFACE RECONSTRUCTION. MI Rosenblatt, BD Lawrence, Z Pan Margaret M. Dyson Vision Research Institute, Department of Ophthalmology, Weill Cornell Medical College, New York, NY

9:30 ANALYZATION OF LONG TERM CULTURED LACRIMAL GLAND STEM CELLS. Philipp Ackermann, Anja Richter, Friedrich Paulsen. Department of Anatomy and Cell Biology, Martin Luther University Halle-Wittenberg, Halle, Germany; Fraunhofer Institute of Marine Biotechnology, Fraunhofer Institute, Lübeck, Germany; Department of Anatomy II, Friedrich Alexander University Erlangen-Nürnberg, Erlangen, Germany

9:45 **Poster Session III (with Coffee & Tea)**

Drug, Preservative and Contact Lens Solution Interactions with the Tear Film & Ocular Surface

Chairpersons - Maria Markoulli (Australia), Teruo Nishida (Japan) & John L. Ubels (USA)

10:20 **Keynote Address:** EFFECTS OF TOPICAL DRUG PRESERVATIVES ON THE TEAR FILM AND OCULAR SURFACE. Christophe Baudouin, Quinze-Vingts National Ophthalmology Hospital, Vision Institute, University Paris 6, Paris, France

10:45 **Keynote Address:** CONTACT LENS SOLUTIONS: WHERE NEXT? Lyndon Jones, School of Optometry Associate Director, Centre for Contact Lens Research University of Waterloo Ontario, Canada
11:10 SUITABILITY OF A LIPOSOMAL DRY EYE SPRAY FOR USE IN SILICONE HYDROGEL CONTACT LENS WEAR. Jennifer P. Craig1, Trisha Albuquerque2, Chee Seang Loh2, Varny Ganesalingam2, Suhaila Al-Kanani2, Stuti Misra1 New Zealand National Eye Centre, Departments of 1Ophthalmology and 2Optometry and Vision Science, University of Auckland, New Zealand

11:25 IN VITRO CYTOTOXICITY OF HYDROGEN PEROXIDE TO CORNEAL EPITHELIAL CELLS JL Ubels, DS Mlnarik, BJ Konynenbelt Department of Biology, Calvin College, Grand Rapids, MI, USA

11:40 MODIFICATION OF THE TEAR FILM OSMOLARITY WITH THE USE OF CONTACT LENSES IN OMAFILCONA AND METHAFILCONA MATERIALS. Montani Giancarlo, University Of Salento Formazione Continua In Medicina, Lecce, Italy

11:55 Poster Viewing & Lunch

Poster Discussion III

Chairpersons - Darren G. Gregory (USA), Maryam Mokhtarzadeh (USA) & E. Ian Pearce (UK)

13:25 TRANSPLANTATION OF CONJUNCTIVAL EPITHELIAL CELLS CULTIVATED EX VIVO INPATIENTS WITH TOTAL LIMBAL STEM CELL DEFICIENCY. Jose RS Ricardo1,2, Jose AP Gomes1,2 Ocular Surface Advanced Center (CASO),1 Cornea and External Disease Service, Department of Ophthalmology, Federal University of São Paulo, São Paulo, Brazil2

13:30 IN VIVO CONFOCAL MICROSCOPY OF MEIBOMIAN GLANDS IN SJOGREN’S SYNDROME. Edoardo Villani, Michela De Capitani, Silvia Beretta, Daniela Galimberti, Francesco Viola, Roberto Ratiglia. Clinica Oculistica Università degli Studi di Milano. Fondazione IRCCS Ca’Granda Ospedale Maggiore Policlinico, Milan, Italy.

13:35 EFFICACY EVALUATION OF A NOVEL EMULSION BASED, ANIONIC PHOSPHOLIPID CONTAINING ARTIFICIAL TEAR IN MEIBOMIAN GLAND DYSFUNCTION (MGD) SUBJECTS. Gary Foulsks1, Chris Sindt2, Joe Griffin3, 1Kentucky Lions’s Eye Center, Lexington KY, 2U of Iowa, Iowa City IA, 3Alcon Research Ltd, Ft Worth, TX.

13:40 TOPICAL JAK INHIBITOR, TASOCITINIB (CP-690,550), MODULATES OCULAR SURFACE INFLAMMATION IN DRY EYE. Jing-Feng Huang, Rolla Yafawi, Min Zhang, Michael McDowell, Kay D Rittenhouse, Frederick Sace, Melissa Liew, Scott R Cooper, Eve H Pickering. Pfizer Inc., San Diego, CA, USA

Macro to Micro: New Imaging Approaches for Understanding the Ocular Surface

Chairpersons - Shukti Chakravarti (USA), Thomas Fuchsluger (USA) & Jianhua Wang (USA)

13:45 Keynote Address: OCULAR SURFACE IMAGING. Nathan Efron, Nicola Pritchard, Munira Al-Dossari. Institute of Health and Biomedical Innovation, and School of Optometry, Queensland University of Technology, Kelvin Grove, Queensland, Australia
14:10 **Keynote Address:** EXOCYTIC MACHINERY REVEALED BY HIGH RESOLUTION INTRAVITAL MICROSCOPY IN LIVE ANIMALS. **Roberto Weigert** Intracellular membrane Trafficking Unit, Oral and Pharyngeal Cancer Branch National Institute for Dental and Craniofacial Research National Institute of Health, Bethesda, MD USA

14:35 **EPITHELIAL IRREGULARITY FACTOR (EIF): A NEW DIAGNOSTIC CRITERION FOR THE DIAGNOSIS OF DRY EYE SYNDROME.** **Victor L. Perez, Mohamed Abou Shousha, William Feuer, Anat Galor and Jianhua Wang,** Bascom Palmer Eye Institute, University of Miami Miller School of Medicine

14:50 **NON-INVASIVE IMAGING OF KEY PLAYERS IN OCULAR SURFACE INFLAMMATION.** **P. Steven, S. Siebelmann, A. Gebert, G. Huettmann, R. Orzekowsky-Schroeder, N. Koop, U. Gehlsen.** Department of Ophthalmology, Institute of Anatomy, Institute of Biomedical Optics, University of Luebeck, Germany

15:05 **A UNIQUE OCULAR SURFACE INTERFEROMETER (OSI) TO MEASURE DYNAMIC LIPID LAYER THICKNESS (LLT).** **T. Willis, S.M. Grenon, D.R. Korb, C.A. Blackie, W. Weber, R. Chinnock.** TearScience, Morrisville, NC; Korb Associates, Boston, MA; Optimum Technologies, Southbridge, MA

15:20 **Poster Session III (with Coffee & Tea)**

**New & Emerging Diagnostics & Treatments**

*Chairpersons - José Alvaro P. Gomes (Brazil), Stefan Schrader (UK) & Jun Shimazaki (Japan)*

15:55 **Keynote Address:** EMERGING PARADIGMS FOR CORNEAL REPLACEMENT: THE FUTURE OF KERATOPROSTHESIS SURGERY. **James Chodosh, MD, MPH** Massachusetts Eye and Ear Infirmary – Harvard Medical School, Boston, MA, USA

16:20 **Keynote Address:** RELEVANCE OF TEAR FILM PROTEOMICS IN THE DIAGNOSIS OF DISEASE. **F. Grus,** Experimental Ophthalmology, Dept. of Ophthalmology, University Medical Center, Johannes-Gutenberg-University Mainz, Germany

16:45 **Keynote Address:** POLYMER NANOMATERIALS FOR THERAPEUTIC DRUG DELIVERY. **Alexander V. Kabanov,** Center for Drug Delivery and Nanomedicine, College of Pharmacy, University of Nebraska Medical Center, Omaha, Nebraska, USA

17:10 **PREDICTORS OF SJÖGREN’S SYNDROME IN PATIENTS WITH DRY EYE** **Esen K. Akpek, M.D., Ramya Swamy, MPH; Canan Asli Utine, M.D., M.S.**, **Jennifer Thorne, M.D., Alan N. Baer, M.D.** The Wilmer Eye Institute, The Johns Hopkins University School of Medicine, Baltimore, Maryland. **Yeditepe University Eye Hospital, Istanbul, Turkey.** Division of Rheumatology, Department of Medicine, The Johns Hopkins University School of Medicine, Baltimore, Maryland

17:25 **DISTRIBUTION OF AQUEOUS DEFICIENT AND EVAPORATIVE DRY EYE IN A GENERAL PATIENT POPULATION.** **Benjamin D. Sullivan,** Michael A. Lemp. TearLab Corp., San Diego, CA; Georgetown University Department of Ophthalmology, Washington DC, USA

17:40 – 18:40 **Poster Session III (with Wine & Hors d’oeuvres)**
Closing Session

Chairperson: Carlos Belmonte (Spain)

18:40  Academic perspective: Sarah F. Hamm-Alvarez (USA)
18:45  Clinical perspective: Jason J. Nichols (USA)
18:50  Industry perspective: Melissa Liew (USA)

Closing Remarks

18:55  Carlos Belmonte (Spain)

Poster Session III

Chairpersons - Darren G. Gregory (USA), Maryam Mokhtarzadeh (USA) & E. Ian Pearce (UK)

1  DRY EYE AFTER 20 AND 25 GAUGE VITRECTOMY C. Fabiani, S. Barile, J. M. Rakic, M. De Zanet. CHU, LIEGE - BELGIUM

2  A CASE OF GRANULOMA FORMATION AFTER CORNEAL REFRACTIVE SURGERY IN STEVENS-JOHNSON SYNDROME  Fung Kweon Kim, MD, PhD, Jae Hoon Kim, MD, Sang Min Nam, MD, Tae-im Kim, MD, PhD, Kyung Ryul Seo, MD, PhD.


4  EFFICACY OF SURGERY FOR CONJUNCTIVOCHALASIS WITH SUBJECTIVE AS WELL AS OBJECTIVE SYMPTOMS. Hitoshi Watanabe, Sizuka Koh, Yuichi Hori. Kansai Rosai Hospital, Osaka University Medical School

5  AMNIOTIC MEMBRANE TRANSPLANTATION: OUR EXPERIENCE. Soniya Bhala, Sudesh Kumar Arya, Archana Malik, Sunandan Sood. Department of Ophthalmology, Government Medical College and Hospital, Chandigarh, India

6  LONG TERM CLINICAL RESULTS OF LIMBAL CONJUNCTIVAL AUTOGRAFT VERSUS AMNIOTIC MEMBRANE TRANSPLANTATION IN PTERYGIUM SURGERY. Hyung Joon Kim, Sin Hoo Kim. Department of Ophthalmology, Catholic University of Daegu, Daegu, Korea

7  EFFECTS OF AMNIOTIC MEMBRANE SUSPENSION IN HUMAN CORNEAL WOUND HEALING IN VITRO. Choun-Ki Joo. Department of Ophthalmology and Visual Science, Seoul St. Mary’s Hospital, College of Medicine, the Catholic University of Korea
8 Discussion: TRANSPLANTATION OF CONJUNCTIVAL EPITHELIAL CELLS CULTIVATED EX VIVO IN PATIENTS WITH TOTAL LIMBAL STEM CELL DEFICIENCY. Jose RS Ricardo1,2, Jose AP Gomes1,2, Ocular Surface Advanced Center (CASO),1 Cornea and External Disease Service, Department of Ophthalmology, Federal University of São Paulo, São Paulo, Brazil1

9 OUTCOME OF TRANSPLANTATION OF CULTIVATED ORAL MUCOSAL EPITHELIAL SHEETS PREPARED WITH FIBRIN-COATED CULTURE DISHES. Jun Shimazaki, Masatoshi Hirayama, Takefumi Yamaguchi, Yoshiyuki Satake. INSTITUTIONS: Department of Ophthalmology, Tokyo Dental College

10 DEVELOPMENT OF A SERUM FREE AND XENOBIOTIC FREE SURROGATE CULTURE SYSTEM FOR HUMAN LIMBAL EPITHELIAL STEM CELL THERAPY. Schrader S1,2,3, Tuft SJ2, Beaconsfield M2, Geerling G4, Daniels JT1,2, Notara M1. 1UCL Institute of Ophthalmology, London, UK, 2Moorfields Eye Hospital NHS Foundation Trust, London, UK, 3Department of Ophthalmology, University of Luebeck, Germany, 4Department of Ophthalmology, Julius-Maximilian-University Wuerzburg, Germany

11 CLUSTERIN PROMOTE CORNEAL/LIMBAL EPITHELIAL GROWTH THROUGH EPITHELIAL-MESENCHYAL INTERACTION. 1Naoko Okada, 1,3Tetsuya Kawakita, 2Kenji Mishima, 3Ichiro Saito, 1,3Hideyuki Miyashita, 1,3Shigeto Shimmura, 1,3Kazu Tsubota1Department of Ophthalmology, Keio University School of Medicine, Tokyo, JAPAN and 2Department of Pathology, Tsurumi University, 4Department of Ophthalmology, Tokyo Dental College, Chiba, JAPAN

12 POTENTIAL LOCALIZATION OF PUTATIVE STEM/PROGENITOR CELLS IN HUMAN BULBAR CONJUNCTIVAL EPITHELIUM. Hong Qi1,2, Xiaofen Zheng1, Xiaoyong Yuan1, Stephen C. Pflugfelder1, De-Quan Li1 Ocular Surface Center, Cullen Eye Institute, Department of Ophthalmology, Baylor College of Medicine, Houston, Texas 2Peking University Third Hospital, Department Ophthalmology, Beijing, China

13 ISOLATION AND PROPAGATION OF MESENCHYMAL STEM CELLS FROM THE LACRIMAL GLAND. Samantha You, Claire Kublin and Driss Zoukhri. Tufts University School of Dental Medicine and Departments of Neuroscience, Tufts University School of Medicine, Boston, MA

14 CELLULAR FACTOR XIII, A TRANSGLUTAMINASE, IS PRESENT IN THE CORNEAL STROMA. Zsuzsanna Z. Orosz, 2Helga Bárdos, 2Andrea Facskó, 3András Berta, 3Róza Ádány, 2László Muszbek, 1,4Clinical Research Center, 1Department of Preventive Medicine, 2Department of Ophthalmology and Thrombosis, Hemostasis and Vascular Biology Research Group of the Hungarian Academy of Sciences, 4University of Debrecen, Medical and Health Science Center, Debrecen, Hungary

15 TRANSGLUTAMINASE-2 DEPENDENCE IN HYPEROSMOLARITY-INDUCED MITOCHONDRIAL DYSFUNCTION. Evelyn Png,1 Shyam S. Chaurasia,1 Louis Tong,1,2,3 Singapore Eye Research Institute,1 Singapore National Eye Center,2 Duke-NUS Graduate Medical School, Singapore3

16 EFFECT OF MELATONIN AND ANALOGUES ON CORNEAL WOUND HEALING: INVOLVEMENT OF MT2 MELATONIN RECEPTOR. Assumpta Peral, Ana Guzmán-Aranguez, Almudena Crooke and Jesús Pintor. University Complutense of Madrid, School of Optics
17 POTENTIAL ROLE OF TFF3 IN CORNEAL WOUND HEALING. U. Schulze,1 L. Contreras Ruiz,2 A. López,2 N. Barker,3 Y. Diebold,2 F. Paulsen1,4. Department of Anatomy and Cell Biology, Martin Luther University Halle, Germany; 1IOBA University of Valladolid, Spain; 2GI Company, Framingham, USA; 3Department of Anatomy II, Friedrich Alexander University Erlangen, Germany

18 RELAXIN 2 AND INSL3 PROMOTE WOUND HEALING AT THE OCULAR SURFACE. Ulrike Hampel,1 Thomas Klonisch,2 Saadettin Sel,3 Friedrich Paulsen.1 Departments of Anatomy and Cell Biology,1 Ophthalmology,3 Martin Luther University of Halle-Wittenberg, Halle/Saale, Germany; Department of Human Anatomy and Cell Science and Department of Medical Microbiology and Infectious Diseases,2 University of Manitoba, Winnipeg, Manitoba, Canada

19 DIFFERENTIAL EFFECT OF INDIVIDUAL ELECTROLYTES ON CORNEAL EPITHELIAL BARRIER FUNCTION DURING HYPEROSMOTIC STRESS. Ashley Woodward,1 Michelle Senchyna,3 Pablo Argüeso,1,2 Schepens Eye Research Institute,1 Harvard Medical School,2 Boston, MA, USA, Alcon Research, Ltd.,3 Fort Worth, TX, USA

20 SELENOPROTEIN P CONTROLS OXIDATIVE STRESS IN CORNEA. Akihiro Higuchi1, Kazuhiko Takahashi1, Kazuo Tsuuba1,3. 1Center for Integrated Medical Research, School of Medicine, Keio University, Tokyo, Japan. 2Department of Nutritional Biochemistry, School of Pharmacy, Hokkaido Pharmaceutical University, Hokkaido, Japan. 3Department of Ophthalmology, School of Medicine, Keio University, Tokyo, Japan

21 PROTECTIVE EFFECT OF AMINO ACIDS AND COMMERCIAL OPHTHALMIC INGREDIENTS ON 4-HYDROXYNONENAL-INDUCED CYTOTOXICITY IN HUMAN CORNEAL EPITHELIAL CELLS. Takahiro Kurose1,2,Kazuhiro Tsuji2, Takayuki Miyano1,2, Yoichi Honma2, Norihiko Yokoi1 and Shigeru Kinoshita1 Kyoto Prefectural University of Medicine,1 Kyoto, Japan; Rohto pharmaceutical co., Ltd,2 Kyoto, Japan

22 TREATMENT OF PERSISTENT CORNEAL EPITHELIAL LESIONS AFTER VITREOUS SURGERY BY PUNCTAL PLUG OCCLUSION. Miki Sakata,1,2 Hirotsugu Ogura2, Wakita Eye Clinic1, Tokyo, Kozawa Eye Hospital and Diabetes Center2, Mito, JAPAN

23 EXPRESSION OF MATRIX METALLOPROTEINASES 7 AND 14 IN UV IRRADIATED CORNEA. Taras Ardan, Jitka Cejkova. Institute of Experimental Medicine, Academy of Sciences of the Czech Republic

24 INHIBITION OF UVB ACTIVATION OF SEK1/MKK4 AND JNK1 IN CORNEAL EPITHELIAL CELLS BY ELEVATED EXTRACELLULAR K+. JL Ubels, MP Schotanus, LR Koetje, JL Louters Department of Biology, Calvin College, Grand Rapids, MI, USA

25 LONGTERM CHANGES OF BUT AND CORNEAL SENSITIVITY FOLLOWING LASIK AT MIDDLE AGE. Woo Chan Park, Jae Kwan Park, Ki Sung Park, Byung Moo Min. Dept. of Ophthalmology, Dong-A University, Busan, Korea

26 CORNEAL SENSATION AND LACRIMAL SECRETION BEFORE AND AFTER DESCemet STRIPPING AUTOMATED ENDOTHELIAL KERATOPLASTY. Yumiko Tamari, Yukari Imai, Takefumi Yamaguchi, Kenji Konomi, Seika Den, Yoshiyuki Satake, Jun Shimazaki Department of Ophthalmology, Tokyo Dental Collage Ichikawa General Hospital
ALTERATIONS IN TEAR SECRETION, CORNEAL SENSITIVITY AND WOUND HEALING IN DIABETIC RATS. Fu-Shin Yu, Jia Yin and Keping Xu Kresge Eye Institute, Wayne State University School of Medicine

MANAGEMENT OF CORNEAL MELTING IN BOSTON KERATOPROSTHESIS WITH BIOCOMPATIBLE MATERIALS. Arturo E. Grau (MD)¹, Jaime Etxebarria (MD) ¹, ²
INSTITUTIONS: ¹Instituto Clínico-Quirúrgico de Oftalmología, ²Hospital de Cruces, Bilbao, Vizcaya, Spain

TOXICOLOGICAL COMPARISON OF TRAVOPROST BAK-FREE, TRAVOPROST BAK-PRESERVED, AND LATANOPROST BAK-PRESERVED OPHTHALMIC SOLUTIONS IN HUMAN CONJUNCTIVAL EPITHELIAL CELLS. Brignole-Baudouin F, ¹, ², Riancho L, ¹, ³, Liang H, ¹, ⁴, Baudouin C, ¹, ⁴ ¹VISION INSTITUTE INSERM, U968, ²UPMC Paris 6, ³CNRS, UMR_7210, ⁴QUINZE-vINGTS NATIONAL HOSPITAL, ⁵Université Paris 5, Paris, France

IN VIVO ASSESSMENT OF THE OCULAR SURFACE EFFECTS OF TRAVOPROST BAK-FREE VERSUS BAK-PRESERVED TRAVOPROST AND LATANOPROST OPHTHALMIC SOLUTIONS. Liang H, ¹, ², ³, ⁴, Brignole-audoin F, ¹, ², ³, ⁴, Riancho L, ¹, ², ³, Baudouin C, ¹, ², ³, ⁴ ¹INSERM, U968, ²UPMC Paris 06, ³CNRS, UMR_7210, ⁴CHNO des XV-XX, ⁵Université Paris Descartes, Paris, France

IN VIVO CONFOCAL MICROSCOPY ANALYSIS OF EFFECTS OF SYSTEMIC ISOTRETINOIN TREATMENT ON CORNEAL INNERVATION AND MORPHOLOGY. Yonca A Akova, Sevda Metindoğan, Aylin Karalezli, Department of Ophthalmology, Baskent University, TURKEY

IN VIVO VISUALIZATION OF PRE-CORNEAL TEAR FILM IN DRY EYE PATIENTS. Jianhua Wang, MD, PhD, ¹, ², Lele Cui, MD, ¹, ³, Victor L. Perez, MD, Meixiao Shen, MSc, ¹, Michael R. Wang, PhD ¹ ¹Bascom Palmer Eye Institute, University of Miami Miller School of Medicine ²Electrical and Computer Engineering, University of Miami ³School of Ophthalmology and Optometry, Wenzhou Medical College

IN VIVO IMAGING OF TEAR FILM AND OCULAR SURFACE IN MEIBOMIAN GLAND DYSFUNCTION USING ULTRA HIGH RESOLUTION ANTERIOR SEGMENT OPTICAL COHERENCE TOMOGRAPHY (UHR-OCT). Mohamed Abou Shousha, Jiahuang Wang and Victor L. Perez Bascom Palmer Eye Institute, University of Miami, Miller School of Medicine, USA

MORPHOLOGIC EVALUATION OF MEIBOMIAN GLANDS IN CHRONIC GRAFT-VERSUS-HOST DISEASE USING IN VIVO LASER CONFOCAL MICROSCOPY. Yumiko Ban, ¹, ², Yoko Ogawa, ¹, Osama M.A. Ibrahim, ¹, Yukako Tatematsu, ¹, Murat Dogru, ¹, Kazuo Tsubota ¹. Department of Ophthalmology, School of Medicine, Keio University, Tokyo, Japan ¹ Department of Ophthalmology, Hino Municipal Hospital, Tokyo, Japan ¹ Johnson and Johnson Ocular Surface Visual Optics Department, School of Medicine, Keio University, Tokyo, Japan ¹

Discussion: IN VIVO CONFOCAL MICROSCOPY OF MEIBOMIAN GLANDS IN SJOGREN’S SYNDROME. Edoardo Villani, Michela De Capitani, Silvia Beretta, Daniela Galimberti, Francesco Viola, Roberto Ratiglia. Clinica Oculistica Università degli Studi di Milano. Fondazione IRCCS Ca’Granda Ospedale Maggiore Policlinico, Milan, Italy.
PERFORMANCE OF MEIBOMETRY IN ASSESSING MEIBOMIAN GLAND DYSFUNCTION. P. Versura, A. Bron*, V. Profazio, M. Ortolani, C. Coslovi, EC Campos Ophthalmology Unit, University of Bologna, Italy and *Nuffield Laboratory of Ophthalmology, Oxford University, UK

SODIUM FLUORESCEIN STAINING OF CORNEAL EPITHELIAL CELLS IN RESPONSE TO WOUNDING: AN IN-VITRO EVALUATION. Kalika Bandamwar1,2, Qian Garrett1,2 and Eric B Papas1,2 Brien Holden Vision Institute.1 School of Optometry and Vision Science, University of New South Wales, Sydney, Australia.2

WHAT STAINS WITH FLUORESCEIN IN PUNCTATE EPITHELIAL EROSIONS? Maryam Mokhtarzadeh1, Richard Casey1, Ben J. Glasgow1.1 Jules Stein Eye Institute, University of California Los Angeles

QUANTITATIVE ANALYSIS OF CORNEAL STAINING. Montani Giancarlo, Romano Francesco Institutions: Università Del Salento Formazione Continua In Medicina, Lecce, Italy

REPEATABILITY OF GRADING OF REAL EYES VERSUS GRADING OF PHOTOGRAPHS. Heiko Pult1,2, Christine Purslow, Paul J Murphy, Russel L Woods1 Optometry and Vision Research, Weinheim, Germany, 1Contact Lens & Anterior Eye Research Unit (CLAER), School of Optometry and Vision Sciences, Cardiff University, UK, 2Schepens Eye Research Institute, Harvard Medical School, Boston, USA

THE ENHANCED CONTROLLED ADVERSE ENVIRONMENT (ECAE) SYSTEM INCREASES WITHIN-SUBJECT RELIABILITY. George W. Ousler III, Joel Naor, Donna Welch, Patrick Johnston, Keith J. Lane. Ora, Inc

SCREENING MODEL FOR NOVEL THERAPEUTICS FOR DRY EYE SYNDROME IN A NON-HUMAN PRIMATE. Crawford, KS1, Torkildsen, G1, Ousler, GW1, Lawrence, M2, Goody, R2, Campion BK1, Naor, J1 1Ora, Inc., 2RxGen Inc.

A NEW MODIFIED FLUORESCEIN STRIP: IT’S REPEATABILITY AND USEFULLNESS IN TEAR FILM BREAK-UP TIME ANALYSIS. Heiko Pult1,2, Britta Riede-Pult1 Optometry and Vision Research, Weinheim, Germany 1Contact Lens & Anterior Eye Research Unit (CLAER), School of Optometry and Vision Sciences, Cardiff University

NORMAL VALUES FOR LISSAMINE GREEN STAINING OF THE OCULAR SURFACE. Christine Purslow & Rachel Tinsley School of Optometry & Vision Sciences, Cardiff University, Cardiff, United Kingdom

VARIABILITY OF THE SCHIRMER TEST RESULTS. Hiroko Yamagami, Ayumi Ota, Nozomi Kinoshita, Fumihiko Toyoda and Akihiro Kakehashi. Department of Ophthalmology Jichi medical university, Saitama Medical Center, Saitama, Saitama, Japan

EVALUATION OF METHODS EMPLOYED FOR THE QUANTITAION OF TEAR SECRETION. Michelle Senchyna,1 Ravaughn Williams,1 Carolyn Begley,2 Kelly K. Nichols,3 Sruthi Srinivasan,3 Jenny Devenport,1 Michael Brubaker.1 Alcon Research Ltd,1 Indiana University School of Optometry, 2 The Ohio State University College of Optometry.
LACK OF CORRELATION OF COMMONLY USED TESTS FOR THE ASSESSMENT OF SEVERITY OF DRY EYE DISEASE. Benjamin D. Sullivan¹, Anthony J. Bron², Christophe Baudouin³, Gary N. Foulks¹, Kelly K. Nichols⁵, Alan Tomlinson⁶, Michael S. Berg₁, Michael A. Lemp⁷. ¹TearLab Corp. ²University of Oxford ³Quinze-Vingts National Ophthalmology Hospital ⁴University of Louisville ⁵The Ohio State University ⁶Glasgow Caledonian University ⁷Georgetown University

EVALUATION OF CORNEAL STAINING IN A HEALTHY, NON-DRY EYE POPULATION. Ravaughn Williams,¹ Judy Vittitoe,¹ Michael Brubaker,¹ Michelle Senchyna,¹ Gary Foulks.² Alcon Research Ltd,¹ Fort Worth, TX, USA; University of Louisville,² Louisville, KY, USA

GENDER DIFFERENCES IN DRY EYE DISEASE IMPACT, MANAGEMENT, PATIENT SATISFACTION, AND COMORBID CONDITIONS. Debra A. Schaumberg,¹ Jim Li² ¹Div of Preventive Med, Brigham & Women’s Hospital, Harvard Medical School, Boston MA; ²Outcomes Research, Pfizer, Inc., San Diego CA

DOES OCULAR IMPRESSION TAKING CAUSE DISTORTION OF THE OCULAR SURFACE? Jennifer Turner, Matthew Dobson, Paul J Murphy, Christine Purslow School of Optometry & Vision Sciences, Cardiff University, United Kingdom

THE ENVIRONMENTALLY INDUCED DRY EYE – EXISTING FINDINGS AND CURRENT ASPECTS. Dieter E. Rabensteiner, Jutta Horwath-Winter, Otto Schmut. Department of Ophthalmology, Medical University of Graz, Austria

QUANTIFICATION OF FORCES OF MEIBOMIAN GLAND EXPRESSION RELATED TO TYPE OF EXPRESSION AND PAIN. D.R. Korb¹,², C.A. Blackie ²¹,³TearScience, Morrisville, NC; ²Korb Associates, Boston, MA

A NOVEL THERMAL PULSATION AND INNER EYELID HEAT APPLICATION FOR THE TREATMENT OF OBSTRUCTIVE MEIBOMIAN GLAND DYSFUNCTION. D.R. Korb¹,², LipiFlow Study Group². ¹Korb Associates, Boston, MA; ²TearScience, Morrisville, NC

INCREASING THE BLINKING RATE USING THE “PISC” DEVICE FOR PATIENTS WITH EVAPORATIVE DRY EYE. Danielle L. Miura, Rossen M. Hazarbassanov, Camila K.N. Yamasato, Jose A.P. Gomes. Department in Ophthalmology and Visual Science, Federal University of Sao Paulo, Sao Paulo, SP, Brazil

Discussion: EFFICACY EVALUATION OF A NOVEL EMULSION BASED, ANIONIC PHOSPHOLIPID CONTAINING ARTIFICIAL TEAR IN MEIBOMIAN GLAND DYSFUNCTION (MGD) SUBJECTS. Gary Foulks², Chris Sindt³, Joe Griffin³. ¹Kentucky Lions’s Eye Center, Lexington KY, ²U of Iowa, Iowa City IA, ³Alcon Research Ltd, Ft Worth, TX.

EFFICACY OF AZITHROMYCIN 1.5% EYE DROPS IN CHILDHOOD OCULAR ROSACEA. Serge Doan, Melissa Touati, Muriel Catanese, Isabelle Cochereau, Eric Gabison, Hopital Bichat and Fondation A de Rothschild, Paris, France

RANDOMIZED STUDY OF THE EFFICACY OF 0.05% CYCLOSPORINE OPHTHALMIC EMULSION IN THE TREATMENT OF MEIBOMIAN GLAND DYSFUNCTION. Pinnita Prabhasawat, Nattaporn Tesavibul, Wannaree Mahawong, Department of Ophthalmology, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand
MULTICENTER, RANDOMIZED, CONTROLLED, DOUBLE-MASKED, CROSSOVER STUDY ON EFFICACY AND SAFETY OF CYCLOSPORINE A EYE-DROP TREATMENT IN VERNAL KERATOCONJUNCTIVITIS (VKC). M Sacchetti MD, PhD, A Lambiase MD, PhD, A Leonardi MD, V Deligianni MD, PhD, F. Mantelli MD, S Bonini MD. Dept. Ophthalmology, University of Rome Campus Bio-Medico, Italy; Dept. Ophthalmology, University of Padua, Italy

CYCLOSPORINE A PREVENTS ENHANCED NEURAL ACTIVITY OF CORNEAL COLD SENSORY NERVE TERMINALS IN CHRONIC DRY EYE. Illés Kovács, Susana Quirce, Carolina Luna, M. Carmen Acosta, Carlos Belmonte, Xavier Gasull, Juana Gallar. Instituto de Neurociencias, Universidad Miguel Hernandez-CSIC, San Juan de Alicante, Spain; Dept. of Ophthalmology, Semmelweis University, Budapest, Hungary; Dept. of Physiology-IDIBAPS, University of Barcelona, Barcelona, Spain

RESOLVINS FOR THE TREATMENT OF FRONT OF THE EYE DISEASES. Per Gjorstrup, Resolvyx Pharmaceuticals, Inc., Bedford, MA, USA

Discussion: TOPICAL JAK INHIBITOR, TASOCITINIB (CP-690,550), MODULATES OCULAR SURFACE INFLAMMATION IN DRY EYE. Jing-Feng Huang, Rolla Yafawi, Min Zhang, Michael McDowell, Kay D Rittenhouse, Frederick Sace, Melissa Liew, Scott R Cooper, Eve H Pickering. Pfizer Inc., San Diego, CA, USA

SELECTIVE ANDROGEN RECEPTOR MODULATORS (SARMs) AMELIORATE TEAR LIPID COMPOSITION IN A RABBIT MODEL OF MEIBOMIAN GLAND DYSFUNCTION (MGD). James T. Dalton, Jeetendra R. Eswaraka, Anand Giddabassapa, Jeffrey D. Kearbeya, France Landry, Juhyun Kim, Monica M. Jablonski. Preclinical Research and Development, GTx Inc., Merck-Frosst, Montreal, Canada; ‘University of Tennessee Health Science Center, Memphis, TN

NEW FORMULATION BASED ON LIPOSOMES LOADED WITH MEDROXYPROGESTERONE FOR DRY EYE TREATMENT. Rocío Herrero-Vanrell, Marta Vicario, José Manuel Benitez del Castillo, Beatriz de las Heras, Manuel Guzmán, Irene T. Molina-Martínez. Complutense University, Madrid, Spain; Unidad Supercicie e Inflamacion Ocular (USIO), Hospital Clínico San Carlos, Madrid, Spain; Department of Pharmacology, School of Pharmacy, Complutense University, Madrid, Spain; Department of Pharmacy and Pharmaceutical Technology, School of Pharmacy, Alcalá University, Alcalá de Henares, Madrid, Spain

EFFICACY AND SAFETY OF DIQUAFOSOL TETRASODIUM OPHTHALMIC SOLUTION IN DRY EYE PATIENTS: A PHASE 2, RANDOMIZED, DOUBLE-MASKED, PLACEBO-CONTROLLED CLINICAL TRIAL. Yukihiro Matsumoto, Yuichi Ohashi, Hitoshi Watanabe, Kazuo Tsubota. Department of Ophthalmology, Keio University School of Medicine; Department of Ophthalmology, Ehime University School of Medicine; Department of Ophthalmology, Kansai Rosai Hospital

BROMFENAC OPHTHALMIC SOLUTION FOR TREATING THE SIGNS OF DRY EYE DISEASE. Simon P. Chandler, Shari L. Rowen, Neal A. Sher, James A. Gow, Timothy R. McNamara. ISTA Pharmaceuticals, Inc., Irvine, CA, USA; Eye and Cosmetic Surgery Center, Lutherville, MD, USA; Eye Care Associates, PA, Minneapolis, MN, USA

ALLEVIATION OF DRY EYE DISEASE SYMPTOMS WITH BROMFENAC OPHTHALMIC SOLUTION. James A. Gow, Shari L. Rowen, Neal A. Sher, Simon P. Chandler, Timothy R.
67 Efficacy of bromfenac sodium ophthalmic solution for the treatment of dry eye disease. Miki Fuseya¹, Hiroshi Fujishima¹, Masao Ogata¹, Murato Dogru² Department of Ophthalmology, Saiseikai Central Hospital¹, J&J Ocular Surface and Visual Optics Department, Keio University School of Medicine, ²

68 Humidifying the computer workspace – Can a USB-powered desktop humidifier make a difference? Jennifer P. Craig¹, Evon Chan², Linda Ea², Clifford Kam³, Yvonne Lu², Stuti Misra¹ New Zealand National Eye Centre, Departments of ¹Ophthalmology and ²Optometry and Vision Science, University of Auckland, New Zealand

69 Dry eyes in active thyroid ophthalmopathy: the role of osmoprotection. Boboridis G. K., Mikropoulos D., Ziakas G. N., Georgiadou I., Georgiadis S. N. ¹Department of Ophthalmology, Aristotle University of Thessaloniki

70 Pharmacodynamics of da-6034 ophthalmic solution in normal rabbit. Ju Mi Kim, Moon Jung Goo, Kyung Koo Kang, Byoung Ok Ahn. DONG-A PHARM.CO.,LTD

71 Changes in tear functions after cholinergic treatment in dry eye patients. Osama M.A. Ibrahim,¹,² Murat Dogru,¹,² Yoji Takano,¹ Yoshiyuki Satake,² TAis Hitomi Wakamatsu,¹,² Kazumi Fukagawa,² Kazuo Tsubota,² Hiroshi Fujishima ⁵Keio University School of Medicine, Johnson & Johnson Ocular Surface and Visual Optics Department, Tokyo, Japan 2-Tokyo Dental College, Department of Ophthalmology, Chiba, Japan 3-Kitasato University School of Medicine, Department of Ophthalmology, Tokyo, Japan 4-Keio University School of Medicine, Department of Ophthalmology, Tokyo, Japan 5-Saiseikai Central Hospital, Tokyo, Japan

72 Effectiveness of single oral pilocarpine administration in patients with sjögren syndrome. Aoi Komuro¹,², Norihiko Yokoi², and Shigeru Kinoshita. ¹Department of Ophthalmology, Nishijin Hospital, Kyoto, Japan, ²Department of Ophthalmology, Kyoto Prefectural University of Medicine, Kyoto, Japan

73 The therapeutic effect of eyelid botulinum toxin a injection for the dysfunctional tear syndrome. Jee Taek Kim, Hyun Koo, Jae Chan Kim. Yong-san Hospital, Chung-Ang University

74 Clinical investigation of complications of the supereagle plug. Yukiko Sonomura,¹,² Norihiko Yokoi,² Aoi Komuro,² Kayoko Inagaki,¹,² Shigeru Kinoshita,² Yamashiro public Hospital,¹ Department of ophthalmology, Kyoto prefectural university of medecine. Kyoto, Japan

75 Gene therapy to modulate apoptosis and to protect endothelial cells against death during storage. Fuchsluger TA¹,², Jurkunas U³, Kazlauskas A¹, Dana R¹³ ¹Schepens Eye Research Institute, Depart. of Ophthalmology, Harvard Medical School, Boston MA, USA; ²Center of Ophthalmology / Institute of Anatomy, Essen University Hospital Essen, Germany; ³Mass. Eye and Ear Infirmary, Depart. of Ophthalmology, Harvard Medical School, Boston MA, USA

76 LACRIMA: the Italian register of patients with tear dysfunction. M. Rolando,¹ S. Bonini,² P. Aragona,³ G. M. Modorati⁴ and S. Barabino⁴ University of Genoa², Genoa, Italy; Biomedical Campus of Rome³, Rome, Italy; University of Messina³, Messina, Italy; San Raffaele Institute⁴, Milan, Italy
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