10th International Conference on the Tear Film & Ocular Surface: Basic Science and Clinical Relevance

Conference Program & Abstract Book

Venice, Italy

October 30 - November 2, 2024

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Preface

The global mission of the Tear Film & Ocular Surface Society (TFOS; www.TearFilm.org) is to advance the research, literacy, and educational aspects of the scientific field of the tear film and ocular surface. During the past two decades, TFOS has helped to promote increased international awareness of external eye diseases, enhance governmental funding for tear film and ocular surface research, stimulate the development of therapeutic drugs and diagnostic devices, and influence the design and conduct of clinical trials of novel treatments for ocular surface disorders.

To promote further progress in this field of vision research, TFOS is sponsoring the 10th International Conference on the Tear Film & Ocular Surface: Basic Science and Clinical Relevance, which is being held at the Hotel Molino Stucky (Venice, Italy) from October 30 to November 2, 2024. This Conference 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 companies with an interest in tear film or ocular surface disorders.

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.

Thursday, October 31, 2024

Opening Remarks

8:00 Stefano Bonini, Department of Ophthalmology, University of Rome Campus BioMedico, Rome, Italy

8th Claes H. Dohlman Conference Address

Chairperson – Stefano Bonini (Italy)

8:05 The future of tear film and ocular surface research. Mark Willcox, School of Optometry and Vision Science, University of New South Wales, Sydney, Australia

SESSION I

Ocular surface disease: What we do to ourselves

Chairpersons - Arturo Grau (Chile), Bridgitte Shen Lee (USA)

8:30 Contact lenses. Alex Hui,[1,2] Centre for Ocular Research and Education, University of Waterloo, Waterloo, Ontario, Canada,[1] School of Optometry and Vision Science, Faculty of Medicine and Health, UNSW Sydney, Sydney, NSW, Australia.[2]

8:45 Cosmetics. Rachna Murthy, FaceRestoration, London, UK

9:00 Digital eye strain. Laura E Downie, University of Melbourne, Australia

9:15 Environmental conditions. Monica Alves, Department of Ophthalmology and Otorhinolaryngology, University of Campinas, Campinas, Brazil.

9:30 Nutrition. Marc Labetoulle, Bicetre-Paris Saclay and Quinze-Vingt Hospitals, Paris, France

9:45 Lifestyle. Michael T. M. Wang[1] and Anat Galor,[2] Department of Ophthalmology, New Zealand National Eye Centre, The University of Auckland, Auckland, New Zealand,[1] and Bascom Palmer Eye Institute, Miami, FL, USA[2]

10:00 **Poster Session I (with Coffee & Tea)**

Chairpersons - Enesa Begovic (Bosnia), Giulio Ferrari (Italy)

East, West, North, South: Impact of geographic region and ethnicity on the prevalence and management of ocular surface disease

Chairpersons - Stefano Barabino (Italy), Jutta Horwath-Winter (Austria)

10:50 Fuchs' endothelial dystrophy and corneal diseases. Jodhbir Mehta, Singapore National Eye Centre and Singapore Eye Research Institute

11:05 Keratoconus. Namrata Sharma, Aafreen Bari, All India Institute of Medical Sciences, New Delhi, India

11:20 Dry eye disease. Jelle Vehof, Department of Twins Research and Genetic Epidemiology, King's College London, London, United Kingdom, and Department of Ophthalmology, University of Groningen, Groningen, Netherlands, and Department of Ophthalmology, Vestfold Hospital Trust, Tønsberg, Norway

11:35 Ocular allergy. Andrea Leonardi, Department of Neuroscience, Ophthalmology Unit, University of Padova, Padova, Italy

11:50 Uncorrected refractive error. Michele Lanza, Università degli Studi della Campania Luigi Vanvitelli

12:05 Pterygium. José Gomes, Ophthalmology Department, Universidade Federal de São Paulo, São Paulo, Brazil

12:20 **Poster Viewing & Lunch**

Models and biomarkers for ocular surface disease

Chairpersons - Benjamin Sullivan (USA), Piera Versura (Italy))

13:40 Role of mitochondria in dry disease. Wei Chen, Qinxiang Zheng, Dan Jiang, Ling Li, Fanli Peng, National Clinical Research Center for Ocular Diseases, Eye Hospital, Wenzhou Medical University[1], Wenzhou, China

13:55 Ectodysplasin a mutation: a model for meibomian gland dysfunction and corneal epithelial abnormalities. Shangkun Ou,[1,2] Wei Li,[2] Department of Ophthalmology, the Affiliated Hospital of Guizhou Medical University, Guiyang, China[1]. Eye Institute of Xiamen University and Affiliated Xiamen Eye Center, School of Medicine, Xiamen University, Xiamen, China[2]

14:10 Development and application of a human corneal endothelial cell model. Francisco Bandeira e Silva, Department of Ophthalmology and Visual Sciences, Paulista School of Medicine, Federal University of São Paulo, São Paulo, Brazil

14:25 Proteomic analysis of intrinsically disordered proteins in the human tear film. David J. Taylor Gonzalez[1], Mak Djulbegovic[2], Michael Antonietti[3], Anat Galor[3], Vladimir N. Uversky[4], Carol L. Karp[3], [1]Hamilton Eye Institute, [2] Wills Eye Hospital, [3] Bascom Palmer Eye Institute, [4] Molecular Medicine and USF Health Byrd Alzheimer's Center and Research Institute

14:40 Tear film microRNAs as potential biomarkers. Garrett N. Jones[1], Jeremy Altman[1], Drew Mayernik,[1] Tae-Jin Lee,[1] Shruti Sharma,[1,2] Ashok Sharma,[1,2] [1]Center for Biotechnology and Genomic Medicine, [2]Department of Ophthalmology, Augusta University, Augusta, GA, USA

14:55 Biochemical, molecular, and genetic biomarkers in the tear film of glaucoma patients. Maria Dolores Pinazo-Durán, Ophthalmic Research Unit "Santiago Grisolía"/FISABIO, and University of Valencia Research Group on Cellular and Molecular Ophthalmo-biology. Valencia, Spain.

15:10 **Poster Session I (with Coffee & Tea)**

Chairpersons - Enesa Begovic (Bosnia), Giulio Ferrari (Italy)

Impact of glaucoma medications on the ocular surface and how ocular surface disease can influence glaucoma treatment

Chairpersons - Sihem Lazreg (Algeria), Tor Paaske Utheim (Norway)

16:00 Epidemiology and pathophysiology of glaucoma. Gus Gazzard, Glaucoma Service, Moorfelds Eye Hospital NHS Foundation Trust; UCL Institute of Ophthalmology; and NIHR-Moorfelds Biomedical Research Centre, London, UK

16:15 Prevalence of, and risk factors for, ocular surface disease in glaucoma patients. Elisabeth M. Messmer, Department of Ophthalmology, LMU University Hospital, München, Germany

16:30 Adverse effects of active ingredients in glaucoma medications on the ocular surface, adnexa, nasolacrimal duct, and periorbital area. Raul E. Ruiz-Lozano, Bascom Palmer Eye Institute, University of Miami, Miami, FL, USA

16:45 Adverse effects of additives in glaucoma medications. Miriam Kolko, Department of Drug Design and Pharmacology, University of Copenhagen, Copenhagen, and Department of Ophthalmology, Copenhagen University Hospital, Rigshospitalet, Glostrup, Denmark

17:00 Management of ocular surface disease in glaucoma patients. Christophe Baudouin, Quinze-Vingts Hospital & Vision Institute, Paris, France

17:15 Management of glaucoma in ocular surface disease patients. Barbara Cvenkel, Department of Ophthalmology, UMC Ljubljana, Faculty of Medicine, University of Ljubljana, Ljubljana, Slovenia

TFOS *i*^{2} Innovation Showcase

Chairperson - Jonathan Roos (UK)

Judges -
Dimitri Azar (USA), President and CEO of Twenty/Twenty Therapeutics
Penny Asbell (USA), recent Ophthalmology Chair, University of Tennessee Health Science Center
Fabrizio Chines (Italy), Chairman and CEO of SIFI Pharmaceuticals
Kelly Nichols (USA), Dean, University of Alabama at Birmingham School of Optometry
Andrew Stewart (USA), President, Global Pharmaceuticals and International Consumer, Bausch + Lomb

18:00 **Introduction,** Rolando Toyos (USA)

18:05 **ESSIRI** (USA; www. eyesarethestory.com), Amy Gallant Sullivan, Founder, and Rachna Murthy, Medical Advisory Board

18:12 **Aston Vision Sciences** (UK; www.astonvisionsciences.com), Karl Obszanski, Founder

18:19 **Photon Therapeutics** (New Zealand; www.photon-therapeutics.com), Simon Dean, Co-Founder

18:26 **Signal12** (USA; www.signal12inc.com), Pamela Gallin, Medical Director

18:33 **ECI Therapeutics** (USA; www.ecitherapeutics.com), Ronald Gentile, Co-Founder & Chief Medical Officer

18:40 **Azura** (Israel; www.azuraophthalmics.com), Marc Gleeson, Chief Executive Officer

18:47 **Lμbris BioPharma** (USA; www.lubris.net), Benjamin D Sullivan, Co-Founder

Poster Session I

Chairpersons - Enesa Begovic (Bosnia), Giulio Ferrari (Italy)

1 RISK FACTORS FOR DRY EYE DISEASE IN ARGENTINA: A NATIONAL EPIDEMIOLOGICAL STUDY. Marini María C,[1] Liviero Belén [2], Alves Mónica[3], Galletti J[4] , Galperin G[5] Torres Rodrigo M[6] [1]Hospital de Alta Complejidad El Cruce -

Hospìtal Británico. Buenos Aires, Argentina. [2]Humana Centro Médico. Córdoba, Argentina. [3]University of Campinas. Campinas, Brazil. [4]CONICET-National Academy of Medicine of Buenos Aires, Argentina. [5]Hospital Oftalmológico Pedro Lagleyze. Buenos Aires, Argentina. [6]R.O.M.A.T. creator center. Entre Ríos, Argentina.

2 DRY EYE DISEASE GEOGRAPHIC DISTRIBUTION AND CORRELATION WITH TEMPERATURE AND HUMIDITY IN ARGENTINA. Marini María C,[1] Liviero Belén [2], Alves Mónica[3], Galletti J[4] , Galperin G[5] Torres Rodrigo M[6] [1]Hospital de Alta Complejidad El Cruce - Hospìtal Británico. Buenos Aires, Argentina. [2]Humana Centro Médico. Córdoba, Argentina. [3]University of Campinas. Campinas, Brazil. [4]CONICET-National Academy of Medicine of Buenos Aires, Argentina. [5]Hospital Oftalmológico Pedro Lagleyze. Buenos Aires, Argentina. [6]R.O.M.A.T. creator center. Entre Ríos, Argentina.

3 HOW EYELASH EXTENSIONS MAY AFFECT DRY EYE DISEASE? Christina N Grupcheva, Dimitar I Grupchev, Nataliya Usheva, Lora O Grupcheva, Department of Ophthalmology and Visual Science, Medical University, Varna, Bulgaria

4 THE IMPACT OF EYELINER USAGE ON DRY EYE SYMPTOMS. Yanru Shen[1], Amy G. Sullivan[2], Min Ke[1], Yang Liu[11]Department of Ophthalmology, Zhongnan Hospital of Wuhan University, Wuhan, China, [2]ESSIRI Labs, Boston, United States

5 THE OPTIMEYES[TM] PROTOCOL. Rachna Murthy, Jonathan C P Roos, Facerestoration Ltd, London UK

6 THE EFFECT OF AZR-MD-001 0.5% OPHTHALMIC OINTMENT ON MEIBOMIAN GLAND SECRETION, QUALITY AND COMFORTABLE LENS WEAR OVER 3 MONTHS OF DOSING IN PATIENTS WITH CONTACT LENS DISCOMFORT. Fiona Stapleton,[1] Jacqueline Tan,[1] Mark Hinds,[2] Yair Alster,[3] Charles Bosworth,[3] UNSW Sydney, NSW, Australia,[1] Ophthalmic Trials Australia, Brisbane, Australia,[2] Azura Ophthalmics Ltd, Tel Aviv, Israel[3]

7 AZR-MD-001 FOR THE TREATMENT OF MEIBOMIAN GLAND DYSFUNCTION: A SIX- MONTH EXPANSION STUDY. Laura E. Downie,[1] Jacqueline Tan,[2] Fiona Stapleton,[2] Yair Alster[3], Charles Bosworth,[3] [1]The University of Melbourne, Australia, [2]UNSW Sydney, Australia, [3]Azura Ophthalmics Ltd, Tel Aviv, Israel

8 SIX-MONTH COMPARISON OF CLINICIAN-GUIDED THERMAL PULSATION WITH WARM COMPRESS THERAPY FOR MANAGING MEIBOMIAN GLAND DYSFUNCTION. Catherine Jennings, Dian Zhuang, Alex Muntz, Michael M.T. Wang, Jennifer P. Craig, Department of Ophthalmology, The University of Auckland, Auckland, New Zealand

9 WHAT WERE THE DIFFERENCES IN TEAR FILM AND MEIBOMIAN GLAND-RELATED PARAMETERS ASSOCIATED WITH THE EFFECTIVENESS OF IPL TREATMENT? A RETROSPECTIVE STUDY. Reiko Arita,[1,2] Mansaku Takano,[2] Shima Fukuoka.[2,3] Itoh clinic,[1] Saitama, Japan, Lid and meibomian gland working group,[2] Saitama, Japan, Omiya Hamada Eye Clinic,[3] Saitama, Japan

10 A CASE OF LID MARGIN HEMORRHAGE FOLLOWING INTENSE PULSED LIGHT THERAPY AND MEIBOMIAN GLAND EXPRESSION IN. Youngchae Yoon. Kim's Eye Hospital, Seoul, Korea

11 COMPARISON OF INTENSE PULSED LIGHT TREATMENTS INCLUDING UPPER LID OR LATERAL CANTHUS IN PATIENTS OF MEIBOMIAN GLAND DYSFUNCTION. SoHyeon Kim,[1] Ji Sang Min,[1,2] Tae-im Kim,[1,2] Bon Nyeo Koo,[3] Kyoung Yul Seo.[1,2] Institute of Vision Research, Department of Ophthalmology,[1] Cornea Dystrophy Research Institute, Department of Ophthalmology,[2] Department of Anesthesiology,[3] Yonsei University College of Medicine, Seodaemungu, Seoul, Korea

12 REVEALING THE EFFECTS OF INTENSE PULSED LIGHT THERAPY ON MEIBOGENESIS AND MEIBUM DISCHARGE IN APOE-/- MOUSE WITH MEIBOMIAN GLAND DYSFUNCTION. Xiaoming Yan,[1,2] Wenjing Song.[1,2] Department of Ophthalmology, Peking University First Hospital,[1] Peking University,[2] Beijing, China

13 POSSIBILITIES OF PATHOGENETIC THERAPY FOR PATIENTS WITH DRY EYE SYNDROME. Vladimir V. Brzheskiy[1], Sergey Y. Golubev[2], Oleg I. Lebedev[3], Evgeny S. Milyudin[4]. [1]Saint-Petersburg State Pediatric Medical University, Saint-Petersburg, Russia. [2]Electronic media ophthalmological portal Organum-visus, Moscow, Russia. [3]Omsk State Medical University, Omsk, Russia. [4]Samara State Medical University, Samara, Russia.

14 THE FREQUENCY OF MEIBOMIAN GLAND DYSFUNCTION (MGD) IN MODERATE TO SEVERE DRY EYE DISEASE(DED): RESULTS FROM THE DREAM TRIAL. P Asbell,[1] M. Lin,[2] F Stapleton,[3] D Jagadeesh,[3] J. He, GS Ying.[4] [1]Bioengineering, U of Memphis, Memphis TN, USA, [2]U of California, Berkeley CA, USA, [3]School of Optometry and Vision Science, UNSW, Sydney Australia, [4]Department of Ophthalmology, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA

15 PREVALENCE OF MEIBOMIAN GLAND ATROPHY IN KERATOCONUS. Amy Nau [1,2,3] Kristen Brown [1,2,3], Andrew McLeod[1,2,3] [1]Forefront Eye Care, [1]Eyewell, [1]New England College of Optometry Boston, MA USA

16 OBJECTIVE ANALYSIS OF MEIBOMIAN GLANDS FEATURES IN CONTACT LENS AND NON-CONTACT LENS WEARERS. Dorota H. Szczesna-Iskander, Agnieszka Pasciak, Patrycja Piwowarczyk. Department of Optics and Photonics, Wroclaw University of Science and Technology, Wroclaw, Poland

17 COMPARISION OF THE EASYTEAR VIEW + AND THE 5M KERATOGRAPH FOR THE MEASUREMENT OF TEAR FILM STABILITY AND MEIBOMIAN GLAND DROPOUT. Etty Bitton,[1] Sidra Qamar, [2] Fiona Stapleton. [2] Ecole d'optométrie, Université de Montréal, Montreal, Canada, [1] School of Optometry & Vision Science, UNSW Sydney, NSW, Australia [2]

18 EXPRESSION OF THERMOSENSITIVE TRP CHANNELS IN HUMAN MEIBOMIAN GLANDS: IMPLICATIONS FOR DRY EYE DISEASE TREATMENT. Fabian Garreis,[1] Melina Keller,[1] Aruna Li,[2] Stefan Mergler,[2] Friedrich Paulsen,[1] Department of Functional and Clinical Anatomy, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Germany, [2]Department of Ophthalmology, Charité Berlin, Germany

19 DEVELOPMENT OF MOUSE MEIBOMIAN GLAND ORGANOIDS. Sun Woong Kim[1,2,3], Na-young Park[2], Hee Joo Park[3] [1]Department of Ophthalmology, Yonsei University Wonju College of Medicine, Woonju, Korea, [2]Research Institute of Metabolism and Inflammation, Yonsei University Wonju College of Medicine, Wonju, Korea,[3]Global medical science, Yonsei University Wonju College of Medicine, Wonju, Korea

20 EVALUATION OF MEIBOMIAN GLAND LOSS: COMPARISON BETWEEN GRADING SCALE AND SEMI-AUTOMATED COMPUTERIZED CLASSIFICATION. Giulia C. Rizzo,[1,2] Stefano Barabino,[3] Joanna Ginatis,[1] Alessandro Borghesi,[1,2] Silvia Tavazzi,[1,2] Erika Ponzini,[1,2] Fabrizio Zeri.[1,2,4] Department of Materials Science,[1] COMiB Research Centre in Optics and Optometry,[2] University of Milano-Bicocca, Milan, Italy; Ocular Surface & Dry Eye Center[3], ASST Fatebenefratelli SACCO-Milan University, Milan, Italy; College of Health and Life Sciences,[4] Aston University, Aston, United Kingdom.

21 BLOOD AND LYMPH VESSEL SUPPLY OF THE MEIBOMIAN GLANDS OF HUMANS AND MICE. Jakob Kerres,[1] Ingid Zahn,[1] Jana Dietrich,[1] Michael Scholz,[1] Simone Gaffling,[1] Lucas Hoffmann,[3] Friedrich Paulsen[1] [1]Institute of Functional and Clinical Anatomy, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen, Germany, [2]Institute of Neuropathology, University Hospital Erlangen, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen, Germany

22 PHARMACOLOGICAL APPROACHES TO TREATING MEIBOMIAN GLAND DYSFUNCTION BY TARGETING MEIBOGENESIS IN MICE. Made Airanthi K. Widjaja-Adhi, Karina Chao, Chloe Chung, Marcin Golczak. Department of Pharmacology, School of Medicine, Case Western Reserve University, Cleveland, OH, USA

23 GENERATION OF A NOVEL CHEMICAL CAUTERIZATION MODEL FOR OBSTRUCTIVE MEIBOMIAN GLAND DYSFUNCTION: COMPARING MORPHO-FUNCTIONAL ALTERATIONS WITH ELECTRO-CAUTERIZATION MODEL. Pragnya Rao Donthineni[1,2] Deeksha Prasad[2], Saumya Jakati[1], Kiran Kumar Bokara[3], Sayan Basu[1,2], Vivek Singh.[3] L.V. Prasad Eye Institute,[1] Prof. Brien Holden Eye Research Centre,[2] CSIR-Centre for Cellular and Molecular Biology,[3] Hyderabad, Telangana, India.

24 ADIPOKINES CTRP1 AND CTRP6 INFLUENCE LIPID METABOLISM OF MEIBOMIAN GLANDS. Hagen Nicolaus,[1,2] Lara Steudte,[3] Antonia Pommer,[3] Andreas Ludwig,[1] Fabian Garreis.[3] Institute of Experimental and Clinical Pharmacology and Toxicology, Friedrich-Alexander-Universität Erlangen-Nürnberg,[1] Universitätsklinikum Erlangen,[2] Institute of Functional and Clinical Anatomy, Friedrich-Alexander-Universität

Erlangen-Nürnberg,[3] Erlangen, Germany

25 TRANSCRIPTOME MICROSCOPY ANALYSIS OF THE HUMAN EYELID CHARACTERIZES MEIBOCYTE MATURATION WITH SINGLE CELL RESOLUTION. Ulrike Hampel [1], Maria Schmidt [2], Julia Nilam Schauer [2], Henry Löffler-Wirth [2], Hans Binder [2], Marlon Schneider [3] [1] Department of Ophthalmology, University of Leipzig, Leipzig, Germany [2]Interdisciplinary Centre for Bioinformatics, University of Leipzig, Leipzig, Germany.[3] Institute of Veterinary Physiology, Veterinary Faculty, University of Leipzig, Leipzig, Germany.

26 COMPARISON OF DIFFERENT FORMULATIONS OF A NOVEL RABBIT DERIVED HARDERIAN NONPOLAR LIPID ON TEAR FILM STABILITY IN THE DOG. Brian C. Leonard,[1,2] Nayone L. Araujo,[1] Sara M. Thomasy,[1,2] Daniel M. Albert,[3,4] Christopher J. Murphy,[3] Charles A. O'Neill,[3] Thomas R. Gadek.[3] Department of Surgical and Radiological Sciences, School of Veterinary Medicine, University of California Davis,[1] Department of Ophthalmology & Vision Science, School of Medicine, University of California,[2] Davis, Davis, CA, MCAL Therapeutics,[3] Park City, UT, Oregon Health & Science University,[4] Portland, OR, USA

27 UNVEILING THE HIDDEN INTENSE PULSED LIGHT THERAPY IN LACRIMAL GLAND DYSFUNCTION INDUCED BY HYPERLIPIDEMIA IN APOE-/- MOUSE. Wenjing Song.[1,2] Department of Ophthalmology, Peking University First Hospital,[1] Peking University,[2] Beijing, China

28 COMPARATIVE PROTEOMICS REVEALS DIFFERENTIALLY EXPRESSED PROTEINS IN HEALTHY VERSUS CHRONICALLY INFLAMED LACRIMAL GLANDS FROM A SJÖGREN'S DISEASE ANIMAL MODEL. Danny Toribio[1], Junji Morokuma[1], Markus Hardt[2], Driss Zoukhri.[1] [1]Department of Comprehensive Care, Tufts University School of Dental Medicine, Boston, MA, USA. [2]Center for Salivary Diagnostics and Department of Inflammation and Immunology, ADA Forsyth Institute, Cambridge, MA, USA.

29 LACRIMAL GLAND INJECTION OF PLATELET RICH PLASMA (PRP) FOR TREATMENT OF SEVERE DRY EYE DISEASE. Mohamed Shafik Shaheen[1], Mai A. Mohammed[1], Ibrahim Y. Allam[1], Mohamed Fahmy Doheim[1] and Sihem Lazreg[2] 1. Department of Ophthalmology, Alexandria University, Egypt, 2. Center of Ocular Surface, Alger, Algeria

30 PLATELET-RICH-PLASMA THERAPY FOR OCULAR SURFACE DISEASE OUTCOMES IN GLAUCOMA PATIENTS. Marcela Huertas-Bello[1], Mor Bareket[1], Manokamna Agarwal[1], Timothy McCowan[2], Allan R Slomovic[1]. [1]Department of Ophthalmology and Vision Sciences, University of Toronto, Toronto, Canada. [2] Medical Sciences Program, Faculties of Science and Medicine, Dalhousie University, Halifax,

Canada.

31 OUTCOMES OF PLATELET-RICH-PLASMA FOR OCULAR SURFACE DISEASES IN A LARGE COHORT. Mor Bareket[1], Marcela Huertas-Bello[1], Manokamna Agarwal[1], Timothy McCowan[2], Allan R Slomovic[1]. [1] Department of Ophthalmology and Vision Sciences, University of Toronto, Toronto, Canada. [2] Medical Sciences Program, Faculties of Science and Medicine, Dalhousie University, Halifax, Canada.

32 NEW APPROACH TO CONTROL CONJUNCTIVAL HYPEREMIA IN EUROPE. J. Salgado-Borges, R. Machado Soares, F. Esteves, A. Borges, I. Ferreira and C. Vérges, Clinsborges, Porto, Portugal

33 CONJUNCTIVAL HYPERAEMIA: HEALTHCARE PROFESSIONALS' PERSPECTIVES ON THE TREATMENT LANDSCAPE IN EUROPE. Serge Doan[1], Saskia Aguado[2], Kelly Nichols[3] on behalf of the study investigators, [1]Fondation A de Rothschild Hôpital, [2]Bausch+Lomb, [3]University of Alabama at Birmingham

34 MOUSE EXPERIMENTAL MODEL FOR DRY EYE DIAGNOSIS USING CONJUNCTIVAL GOBLET CELL IMAGE CAPTURED BY MOXIFLOXACIN-BASED FLUORESCENCE MICROSCOPY. Hong Kyun Kim,[1,2] Che Gyem Yae,[1] Sang Bum Kim,[1] Jeong mun Choi,[1] Jeongho Kim,[2] Ki Hean Kim.[3] Department of Ophthalmology, School of Medicine, Kyungpook National University,[1] Bio-Medical Institute, Kyungpook National University Hospital,[2] Department of Mechanical Engineering, Pohang University of Science and Technology,[3] Republic of Korea

35 MOXIFLOXACIN-BASED FLUORESCENCE IMAGING OF HUMAN CONJUNCTIVAL GOBLET CELLS USING PTERYGIUMTISSUES. Hosik Hwang. Department of Ophthalmology, Catholic University of Korea, Seoul, Korea.

36 NOVEL ANTERIOR SEGMENT IMAGING DEVICE FOR RAPID NON-CONTACT EXAMINATION OF CONJUNCTIVAL GOBLET CELLS IN HUMANS: INVESTIGATOR-INITIATED EXPLORATORY CLINICAL TRIAL. Chung Young Kim,[1,2] Young In Yoon,[1,2] Jungbin Lee,[3] Jieun Yun,[3] Seonghan Kim,[3] Man Ji,[1,2] Gahye Lee,[1,2] Jin Suk Ryu,[2] Mee Kum Kim,[1,2] Ki Hean Kim,[3] Chang Ho Yoon[1,2] [1]Department of Ophthalmology, Seoul National University College of Medicine, Seoul, Rep. of Korea [2]Laboratory of Ocular Regenerative Medicine and Immunology, Biomedical Research Institute, Seoul National University Hospital, Seoul, Rep. of Korea. [3]Department of Mechanical Engineering, Pohang University of Science and Technology, Pohang, Gyeongbuk, Rep. of Korea.

37 ACCOMMODATIVE AND VERGENCE DYSFUNCTION AS A POTENTIAL CAUSE OF RECALCITRANT SYMPTOMS IN PATIENTS WITH DRY EYE DISEASE. Lingyi Liang, Jing Li, State Key Laboratory of Ophthalmology, Zhongshan Ophthalmic Center, Sun Yat-sen University, Guangdong Provincial Key Laboratory of Ophthalmology and Visual Science, Guangdong Provincial Clinical Research Center for Ocular Diseases, Guangzhou 510060, China

38 DIETARY INFLUENCES ON THE SIGNS AND SYMPTOMS OF DRY EYE

DISEASE. Azadeh Tavakoli, [1]Maria Markoulli, [1]Eric Papas, [1]Judith Flanagan.[2] UNSW School of Optometry[1], The University of Sydney[2], Sydney, Australia

39 CORRELATION BETWEEN SLEEP DISORDERS AND DRY EYE BASED ON WEARABLE SMART DEVICES. Ao Li, Lei Tian,[1] Ying Jie . Beijing Institute of Ophthalmology, Beijing Tongren Eye Center, Beijing Tongren Hospital, Capital Medical University, Beijing Ophthalmology & Visual Sciences Key Laboratory, Beijing, China

40 DIFFERENTIAL DIAGNOSIS OF SJÖGREN VERSUS NON-SJÖGREN DRY EYE THROUGH CONJUNCTIVAL MICROVASCULATURE. Jiyoung Emily Lee,[1] Young Chae Yoon,[2] Woong-Joo Whang,[1] Ho Sik Hwang,[1] Hyun-Seung Kim,[1] Dae-Yu Kim,[3] Kyung Sun Na.[1] Department of Ophthalmology, College of Medicine, The Catholic University of Korea,[1] and Kim's Eye Hospital,[2] Seoul, Department of Electrical and Computer Engineering, Inha University, Incheon,[3] Korea

41 MEIBOMIAN GLAND DYSFUNCTION AND MEIBOMIAN GLAND DROPOUT IN PRIMARY AND SECONDARY SJÖGREN SYNDROME. Karim Mohamed-Noriega[1], Maximiliano A. Rocha-Rojas[1], Carla Gonzalez-Arocha[1], Fernando Morales-Wong[1], José F. Martínez-Delgado[1], Janett L. Riega-Torres[2], Dionicio Galarza-Delgado[2], Jesús Mohamed-Hamsho[1] [1]Ophthalmology Department, University Hospital and Faculty of Medicine, Autonomous University of Nuevo Leon (UANL), Monterrey, Mexico; [2]Rheumatology Department, University Hospital and Faculty of Medicine, Autonomous University of Nuevo Leon (UANL), Monterrey, Mexico.

42 SLEEP DISTURBANCE, DEPRESSION AND FATIGUE IN SJÖGREN'S DISEASE: THE IMPACT ON OCCUPATIONAL HEALTH. Beatriz C Cintra, Mateus Marzola, Fabíola R Oliveira, Eduardo M Rocha. Ribeirao Preto Medical School, University of Sao Paulo, Ribeirao Preto, SP, Brazil.

43 SJÖGREN'S DISEASE AND WORK: DESCRIPTION OF IMPACTS FROM THE PERSPECTIVE OF OCCUPATIONAL THERAPY. Beatriz C Cintra, Mateus Marzola, Fabíola R Oliveira, Eduardo M Rocha. Ribeirao Preto Medical School, University of Sao Paulo, Ribeirao Preto, SP, Brazil.

44 INCREASED METTL3 EXPRESSION AND M^6A RNA METHYLATION MAY PLAY A ROLE IN THE PATHOGENESIS OF DRY EYE IN SJÖGREN'S SYNDROME. Qi Zhang, Xue Yang, The First Affiliated Hospital of Chongqing Medical University, Chongqing, China

45 TEAR miIRNAS IN DRY EYE PATIENTS AS INDICATORS OF PATHOLOGICAL MECHANISMS INVOLVED IN SJÖGREN SYNDROME. . Carmen Ciavarella,[1] Gianandrea Pasquinelli,[1,2] Luigi Fontana, [1,3] Piera Versura.[1,3] DIMEC Alma Mater Studiorum University of Bologna,[1] Pathology Unit, IRCCS Azienda Ospedaliero-Universitaria di Bologna,[2] Italy, IRCCS Azienda Ospedaliero-Universitaria di Bologna,[3] Italy

46 A TEAR CYTOKINE PANEL AND MUCIN ASSESSMENT CORRELATE WITH

SIGNS AND SYMPTOMS IN DRY EYE DISEASE PATIENTS. Carmen Ciavarella[1], Silvia Odorici[1], Luigi Fontana [1,2], Piera Versura[1,2] DIMEC Alma Mater Studiorum University of Bologna[1], IRCCS Azienda Ospedaliero-Universitaria di Bologna[2], Italy

47 THE EFFECT OF MESENCHYMNAL STEM CELLS-DERIVED EXOSOMES ON DRY EYE IN SJOGREN'S SYNDROME MURINE MODEL. Soojung Shin,[1] Youngseo Jeon,[1] Eun Jeong Cheon,[1] Hyun Jung Lee,[2] So-Hyang Chung.1 Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea,[1] Seoil University,[2] Seoul, Korea

48 NOX-MEDIATED OXIDATIVE STRESS CREATES A FIBROTIC AND INFLAMMATORY MILIEU IN VERNAL KERATOCONJUNCTIVITIS. Virender Singh Sangwan[1,2] Abha Gour[1,2], Prisha Warikoo[1,3], Jyoti Sangwan[1], Mehak Vohra[2], Shailja Tibrewal[4,5],Anil Tiwari[1,2] [1]Eicher-Shroff Centre for Stem Cell Research, Dr Shroff's Charity Eye Hospital Delhi, New Delhi, Delhi, India; [2]Shroff-Pandorum Centre for Ocular Regeneration, Dr Shroff's Charity Eye Hospital Delhi, New Delhi, Delhi, India; [3]Amity University System, Noida, Uttar Pradesh, India; [4]Department of Paediatric Ophthalmology, Dr Shroff's Charity Eye Hospital Delhi, New Delhi, Delhi, India; [5]Centre for Unknown and Rare Eye Diseases, Dr Shroff's Charity Eye Hospital Delhi, New Delhi, Delhi, India

49 A POLYDOPAMINE NANOPARTICLE-BASED MILD PHOTOTHERMAL LOOP THERAPY FOR EFFICIENT TREATMENT IN REFRACTORY KERATITIS. Lei Lin. Eye Hospital, Wenzhou Medical University, Wenzhou, China

50 OCULAR AND ORAL MICROBIOME IN DRY EYE. Yuichi Okumura,[1,2] Takenori Inomata,[1,2,3] Ken Nagino, [1,2,3] Shintaro Nakao,[1] Akira Murakami.[1] Department of Ophthalmology, Juntendo University,[1] Department of Telemedicine and Mobile Health, Juntendo University,[2] Department of Hospital Administration, Juntendo University,[3] Tokyo, Japan

51 ALTERED OCULAR SURFACE MICROBIOME IN KERATOCONUS PATIENTS CORRELATES WITH LOCAL IMMUNE FACTOR DYSREGULATION. Arkasubhra Ghosh[1], Archana Padmanabhan[1], Tanuja Vaidya[1], Nimisha R. Kumar[1], Rohit Shetty[2], Sharon D'Souza[2], Pooja Khamar[2], Swaminathan Sethu[1] [1]GROW Research Lab, Narayana Nethralaya Foundation, Bangalore, India [2]Cornea Department, Narayana Nethralaya, Bangalore, India

52 GLAUCOMA CASES MANY YEARS AFTER REFRACTIVE SURGERY TREATMENT. Enesa Begović. Private Ophthalmological Practice Lacrima dr Enesa Begovic, Institute for Occupational Medicine Sarajevo Canton, Bosnia and Herzegovina

53 CLINICAL PRESENTATION AND PROGNOSIS OF PATIENTS WITH OCULAR ADNEXAL LYMPHOMA IN KOREA. Min Seob Park,[1] Woo Jin Shin,[2] Joon Young Hyon,[1,2] Namju Kim,[1,2] Hyun Sun Jeon.[1,2] Department of Ophthalmology, Seoul National University Bundang Hospital,[1] Department of Ophthalmology, Seoul National University College of Medicine.[2]

BILATERAL ASYMMETRY IN OCULAR GRAFT-VERSUS-HOST DISEASE. Sang Jae Lee,[1] Han Song,[2] Hyun Sun Jeon,[1] Joon Young Hyon.[1] Department of
54 Ophthalmology, Seoul National University Bundang Hospital, Seoul National University College of Medicine, Seongnam, korea[1], Department of Ophthalmology, Uijeongbu St. Mary's Hospital, The Catholic University of Korea College of Medicine, Uijeongbu, Korea.[2]

55 MASK-ASSOCIATED CHANGES IN OCULAR SURFACE PARAMETERS. Alvin L Young, Victor Chan, Ka Wai Kam, Wai Kuen Yip. Prince of Wales Hospital, The Chinese University of Hong Kong

COVID-19 PANDEMIC EFFECTS ON OCULAR SURFACE HEALTH AND BEHAVIORS USING THE DRYEYERHYTHM SMARTPHONE APPLICATION: A CROSS-SECTIONAL OBSERVATIONAL STUDY. Kaho Omori,[1] Ken
56 Nagino,[1,2,3] Xinrong Zou,[1] Takenori Inomata,[1,2,3,4] Akie-Midorikawa-Inomata,[2,3] Atsuko Eguchi,[2] Yuichi Okumura,[1,3] Mako Watanabe,[1] Shintaro Nakao.[1] Juntendo University Graduate School of Medicine, Department of Ophthalmology,[1] Department of Hospital Administration,[2] Department of Telemedicine and Mobile Health,[3] Data Science,[4] Tokyo, Japan.

DEPRESSION IS ASSOCIATED WITH INCREASED ACTIVATION OF PHOTOPHOBIA BRAIN CIRCUITS AND LIMBIC STRUCTURES IN INDIVIDUALS WITH CHRONIC OCULAR PAIN. Ema Karakoleva,[1,2] David Valdes,[2] Nicholas Reyes,[1,2] Nicholas Pondelis,[3] Elizabeth Felix,[4,5] Anat Galor,[1,2] Eric Moulton.[3,6]
Surgical Services, Miami Veterans Administration Medical Center[1], Bascom Palmer Eye
57 Institute, University of Miami[2], Miami, FL, USA, Brain and Eye Pain Imaging Lab, Pain and Affective Neuroscience Center, Department of Anesthesia, Critical Care and Pain Medicine, Boston Children's Hospital and Harvard Medical School[3], Boston, MA, USA, Research Service, Miami Veterans Administration Medical Center[4], Miami, FL, USA, Physical Medicine and Rehabilitation, University of Miami[5], Miami, FL, USA, Department of Ophthalmology, Boston Children's Hospital and Harvard Medical School[6], Boston, MA, USA

USING NARRATIVE MEDICINE TO IDENTIFY KEY FACTORS AFFECTING QUALITY OF LIFE IN DRY EYE DISEASE. Emanuela Aragona[1], Stefano Bonini[2], Maurizio Rolando[3], Linda Landini[4], Anne Argullos[4], Stefano Barabino[5], Pasquale Aragona[6]
58 [1]IRCCS San Raffaele Scientific Institute, Milan, Italy; [2] Department of Ophthalmology, University of Rome Campus Biomedico, Rome, Italy; [3]ISPRE Oftalmics, Genoa, Italy; [4]Bausch + Lomb; [5] Ocular Surface and Dry Eye Center, Ospedale L. Sacco, University of Milan, Italy; [6] Department of Biomedical Sciences, Ophthalmology Clinic, University of Messina, Italy

IMPACT OF PTERYGIUM MORPHOLOGICAL PROFILES ON DRY EYE
59 PARAMETERS. Seung Hyeun Lee,[1] Dong Hee Ha,[2] Kyoung Woo Kim.[2] Department of Ophthalmology, Chung-Ang University Gwangmyeong Hospital,[1] Department of Ophthalmology, Chung-Ang University Seoul Hospital, Republic of Korea[2]

60 LOW EXPRESSION OF VITAMIN D RECEPTOR IN PATIENTS WITH DRY EYE DISEASE. Arturo E. Grau[1, 2], Pablo Zoroquiain[1,3] [1]Pontificia Universidad Catolica de Chile (UC), [2]Ophthalmology Department UC, [3]Pathology Department UC

61 CIRCADIAN DISRUPTION REDUCES MUC4 EXPRESSION VIA BMAL1 IN DRY EYE. Bowen Wang, Hao Zeng, Jin Yuan, Zhongshan Ophthalmic Center, Sun Yat-sen University, GZ, China

62 A PROSPECTIVE SELF-CONTROLLED STUDY ON THE ALTERATIONS OF THE OCULAR SURFACE AND TRANSCRIPTOMIC PROFILE ASSOCIATED WITH PROLONGED EXPOSURE TO VIDEO DISPLAY TERMINALS. Ling Li[1,2], Xinhao Z[2,] Weihao Xu[2], Mali Dai[2], Zihao Liu[2], Yanxiao Li[2], Yiting Fang[3], Jinyang Li[2], Wei Chen, [2,4] Ningbo Eye Hospital, Wenzhou Medical University, Ningbo,[1] National Clinical Research Center for Ocular Diseases, Eye Hospital, Wenzhou Medical University, Wenzhou,[2] Hangzhou Lin'an Traditional Chinese Medicine Hospital, Hangzhou,[3] Ningbo Eye Institute, Ningbo Eye Hospital, Wenzhou Medical University, Ningbo, China.[4]

63 UPTAKE OF MICRO- AND NANOPLASTICS IN OCULAR SURFACE CELLS AND IMPACT ON CELL VIABILITY. Katharina Jüngert[1], Agatha Raffauf[1], Jutta Horwath-Winter[2], Friedrich Paulsen[1], Fabian Garreis[1], Ingrid Zahn[1]. [1]Functional and Clinical Anatomy, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany, [2]Department of Ophthalmology, Medical University of Graz, Graz, Austria

64 NONLINEAR ASSOCIATIONS BETWEEN PARTICULATE MATTER 2.5 AND THE RISK OF HORDEOLUM-RELATED VISITS TO SHANGHAI: A TIME SERIES ANALYSIS. Yue Tan, Yue Yin, Lan Gong. Eye & ENT Hospital, Fudan University

Friday, November 1, 2024

SESSION II

Seeing differently: The meaning of blindness

Chairpersons - Esen Akpek (USA), Gerd Geerling (Germany)

8:00 Seeing art through different eyes. Deborah Tramentozzi, Italy

8:15 The vision of individuals with visual impairment and blindness. Lotfi B. Merabet, Laboratory for Visual Neuroplasticity, Massachusetts Eye and Ear, and Department of Ophthalmology, Massachusetts Eye and Ear, Boston, MA, USA

Meibomian gland dysfunction update

Chairpersons - Kyung-Sun Na (South Korea), Kelly Nichols (USA)

8:30 Prevalence of meibomian gland dysfunction in adults. Fiona Stapleton, UNSW Sydney, NSW, Australia

8:45 Prevalence of meibomian gland atrophy in a pediatric population. Preeya K. Gupta, Triangle Eye Consultants, Raleigh, NC, USA

9:00 Hyperlipidemia induces meibomian gland dysfunction. Jinghua Bu[1], Minjie Zhang[1], Yang Wu[1,2], Nan Jiang[1], Yuli Guo[1], Xin He[1], Hui He[1], M. Vimalin Jeyalatha[1], Zuguo Liu[1,3], Wei Li[1,3]. Department of Ophthalmology, Xiang'an Hospital of Xiamen University; Eye Institute of Xiamen University; School of Medicine, Xiamen University[1]. Xiamen branch, Zhongshan Hospital, Fudan University[2]. Xiamen University affiliated Xiamen Eye Center, Xiamen, China [3].

9:15 Advances in meibography for the diagnosis of meibomian gland dysfunction. Reiko Arita, Department of Ophthalmology, Itoh Clinic, Saitama, Japan

9:30 Intense pulsed light therapy for meibomian gland dysfunction and dry eye disease. Jose Benitez-del-Castillo. University Complutense, HCSC, Clinica Rementeria, Madrid, Spain.

9:45 Hypoxia: a breath of fresh air for optimal meibomian gland function. Shan Yang[2], Yaoyao Ren[1], Wenjing Li[1], Yang Liu,[1] [1]Department of Ophthalmology, Zhongnan Hospital of Wuhan University, Wuhan, China, [2]Department of Ophthalmology, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing, China

10:00 **Poster Session II (with Coffee & Tea)**

Chairpersons - Heiko Pult (Germany), Adriana Stanila (Romania)

TFOS Dry Eye Workshop III

Chairpersons - Friedrich Paulsen (Germany), David A Sullivan (USA)

10:50 Introduction - Victor L Perez Quinones (USA)

10:55 Definition, classification and diagnosis of dry eye disease - James Wolffsohn (UK)

11:10 Management and therapy of dry eye disease - Lyndon Jones (Canada)

11:25 TFOS DEWS III Digest - Fiona Stapleton (Australia)

11:40 Delphi panel initiative - Jennifer Craig (New Zealand)

11:55 Discussion

12:20 **Poster Viewing & Lunch**

Did you know?

Chairpersons - Pasquale Aragona (Italy), Jesús Merayo-Lloves (Spain)

13:40 Convergence of artificial intelligence and microelectronics with ocular surface biology and disease. Dimitri Azar, University of Illinois College of Medicine, Chicago, IL, USA

13:55 Disruptive contact lens technologies. Philip B. Morgan, Eurolens Research, Division of Pharmacy and Optometry, University of Manchester, United Kingdom

14:10 Human ocular mucins and beyond. Pablo Argüeso. Department of Ophthalmology, Tufts Medical Center, Tufts University School of Medicine, Boston, MA, USA

14:25 Importance of circadian rhythms in the ocular surface. Ying Jie, Beijing Institute of Ophthalmology, Beijing Tongren Eye Center, Beijing Tongren Hospital, Capital Medical University, No.1 Dong Jiao Min Xiang, Dong Cheng District, Beijing, China

14:40 Obstructive sleep apnea affects lacrimal gland function. Shaopan Wang[1,2,8], Xin He[1,2,3], Qingmin Li[4], Yuhan Zhang[1,2], Jiaoyue Hu[1,2,5,6], Rongrong Zong[1,2], Jingyi Zhuang[3], Andrew J. Quantock[7], Yingying Gao[4*], Wei Li[1,2,5,6]*, Zuguo Liu[1,2,5,6] [1]Eye Institute of Xiamen University, School of Medicine, Xiamen University, Xiamen, Fujian, China, [2]Fujian Provincial Key Laboratory of Ophthalmology and Visual Science, Xiamen University, [3]Department of Ophthalmology, the First Affiliated Hospital of Xiamen University, [4]Department of Ophthalmology, the Second Affiliated Hospital, Fujian Medical University, Quanzhou, Fujian, China, [5]Department of Ophthalmology, Xiang'an Hospital of Xiamen University, [6]Xiamen University Affiliated Xiamen Eye Center, Xiamen University. [7]School of Optometry and Vision Sciences, Cardiff University, Cardiff, Wales, United Kingdom. [8]Institute of Artificial Intelligence, Xiamen University

14:55 Novel role of lymphatic vessels in the pathogenesis of ocular surface disease. Claus Cursiefen, Department of Ophthalmology, University of Cologne and University Hospital Cologne, Koln, Germany

Poster Session II (with Coffee & Tea)

15:10

Chairpersons - Heiko Pult (Germany), Adriana Stanila (Romania)

New insights into the pathophysiology and management of catastrophic ocular surface diseases

Chairpersons - Alejandro Navas (Mexico), Kyung Chul Yoon (South Korea)

16:00 The coming revolution in the management of microbial keratitis. James Chodosh.[1,2,3] Departments of Ophthalmology and Visual Sciences,[1] Molecular Genetics and Microbiology,[2] and Neurosciences,[3] University of New Mexico School of Medicine, Albuquerque, NM, USA

16:15 Improving outcomes in acute ocular burns. Geetha Iyer, Code Eye Care, Chennai, India

16:30 Ocular graft versus host disease. Victor L Perez, Robert Levy, Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, Florida, USA

16:45 Stevens Johnson syndrome/toxic epidermal necrolysis. Haji Saeed, llinois Eye and Ear, Department of Ophthalmology, University of Illinois at Chicago, Chicago, IL; Department of Ophthalmology, Loyola University Medical Center, Maywood, IL, Harvard Medical School, Boston, MA USA

17:00 Neurotrophic keratopathy. Harminder Singh Dua, University of Nottingham and Queens Medical Centre, Nottingham, England, United Kingdom

17:15 Ocular surface squamous neoplasia: What is new and exciting! Carol L. Karp, Bascom Palmer Eye Institute, Miami, FL, USA

Poster Session II

Chairpersons - Heiko Pult (Germany), Adriana Stanila (Romania)

1 HYPEROSMOLARITY IS ASSOCIATED WITH INCREASED VARIATION OF LIGHT SCATTER FOLLOWING CATARACT SURGERY. Benjamin D. Sullivan,[1] Marta Palazon[2], Ines Yago[2], Raúl Duarte[3], Julie M. Schallhorn[4], Lisa M. Nijm[5], Darrel E. White[6], Michael S. Berg[1], Pablo Artal[3] Trukera Medical, TX, USA,[1] Hospital Universitario Virgen de la Arrixaca, Murcia, Spain, [2] Universidad de Murcia, Murcia, Spain,[3] University of California, San Francisco, CA, USA,[4] University of Illinois Eye and Ear Infirmary, IL, USA,[5] SkyVision Centers, OH, USA[6]

2 HYPEROSMOLARITY IMPAIRS CORNEAL EPITHELIAL BARRIER FUNCTION

AND WOUND HEALING VIA DYSREGULATED WNT/b-CATENIN SIGNALING: AN IN VITRO STUDY. Shruti Sharma[1,2], Richard Kontoh-Twumasi[1], Ashok Sharma[1,2]

3 THE EFFECT OF AN ACUTE HYPER-OSMOLAR STIMULUS ON THE *IN VIVO* MORPHODYNAMICS OF HUMAN CORNEAL IMMUNE CELLS..Laura E Downie, Rajni Rajan, Mengliang Wu,[1] Senuri Karunaratne, Ji-hyun Lee,[1] Phillip Bedggood, Holly R Chinnery, Department of Optometry and Vision Sciences, The University of Melbourne, Victoria, Australia

4 A PROSPECTIVE, MASKED, STUDY OF DRY EYE TEAR FLUID BIOMARKERS COMPARING A NOVEL, ELECTROCHEMICAL TO COMMERCIALLY AVAILABLE DEVICES . Maria A. Beatty, Grant L. Smyth, Elli K. Davis, Kathleen G. Campbell, and Leanne T. Labriola. Alleghney Ophthalmic and Orbital Associates, Pittsburgh, PA, USA, Conemaugh Memorial Medical Center, Johnstown, PA, USA, Southwestern Pennsylvania Eye Center, Washington, PA, USA, InnSight Technology Inc. Pittsburgh, PA, USA, Haub Business School, St. Joseph University, PA, USA Vision Institute, University of Pittsburgh Medical Center, Pittsburgh, PA, USA

5 NEUROFILAMETS IN TEARS AS BIOMARKERS OF RETINAL NEURONAL DEGENERATION IN DIABETIC PATIENTS. A PILOT STUDY. G.W Oliverio[1]; M. Mancini[1]; E. Aragona[2]; A. Calderone[1]; P. Palino[1]; F. Polito[3]; M. Torre[3]; V. Macaione[3]; M. Aguennouz[3]; P. Aragona[1]. [1]Department of Biomedical Sciences, University of Messina, Italy; [2]Univerity Vita-Salute, San Raffaele Hospital, Milan, Italy; [3]Department of Clinical and Experimental Medicine, University of Messina, Italy

6 TEAR PROTEINS AS DISEASE BIOMARKERS: YES AND (PROBABLY) NO!? Remco Crefcoeur[1,2], Peter Raus[2,3], Peter Verhaert[1,2]. [1] Department of Biotechnology, Delft University of Technology, Delft, Netherlands; [2] ProteoFormiX, Vorselaar, Belgium; [3] Miró Center for Ophthalmology, Geel, Belgium

7 EVALUATING MOLECULAR BIOMARKERS IN TEARS OF PATIENTS WITH OCULAR GRAFT VERSUS HOST DISEASE. S.B. Sunshine, C. Beck, S. Chang, R. Talwar, X Cao. Ophthalmology and Visual Sciences, University of Maryland School of Medicine, Baltimore, MD.

8 THE EFFECT OF LIFITEGRAST 5.0% SOLUTION ON CLINICAL SIGNS AND BIOMARKERS IN DRY EYE DISEASE. Paul Karpecki[1], James Thimons[2], Miranda Koehler[3], Eric Donnenfeld[4] [1]Kentucky Eye Institute, [2]Ophthalmic Consultants of Connecticut, [3]Kentucky Eye Institute, [4]Ophthalmic Consultants of Long Island

9 THE ROLE OF LID HYGIENE AND ITS EFFECT ON OCULAR SURFACE INFLAMMATORY BIOMARKERS. Swaminathan Sethu,[1] Rohit Shetty,[2] Pooja Khamar,[2] Abha Shah,[2] Sri Hari B.[2] GROW Research Lab, Narayana Nethralaya Foundation,[1] Department of Cornea & Refractive Surgery, Narayana Nethralaya,[2] Bangalore, India

10 AI-BASED CLINICAL STRATIFICATION USING TEAR FILM BIOMARKERS IN

DED TO IDENTIFY SUB-CLINICAL DISEASE. Pooja Khamar, Rohit Shetty, Raghav N, Swaminathan S, Arkasubhra Ghosh. Narayana Nethralaya Eye Hospital, Bengaluru, India

11 CAN CORNEAL COLLAGEN BE MODULATED THROUGH THE REGULATION OF AUTOPHAGY AND INFLAMMATION? Pooja Khamar, Rohit Shetty, Swaminathan S, Arkasubhra Ghosh, Narayana Nethralaya Eye Hospital, Bengaluru, India

12 NANOSTRING ANALYSIS OF MicroRNA PROFILES IN PRIMARY SJOGREN SYNDROME. Francesca Giovannetti, Paola Pontecorvi, Marta Armentano, Francesca Megiorni, Ludovico Alisi, Enrico Romano, Alice Bruscolini. Sapienza University of Rome, Italy

13 AN INNOVATIVE BIOSENSOR FOR QUICK, QUANTITATIVE, IN SITU DETECTION OF ANALYTES AND PROTEINS IN TEARS. Francesco Decataldo,[1] Lia Giulia D'Amico,[2] Justin Lemarchand,[2] Vito Vurro,[2] Marta Tessarolo,[2] Luigi Fontana,[1,3] Gianandrea Pasquinelli,[1] Beatrice Fraboni,[2] Piera Versura[1,3] [1]University of Bologna, Department of Medical and Surgical Sciences, Bologna, Italy [2]University of Bologna, Department of Physics and Astronomy, Bologna, Italy [3]Ophthalmology Unit, University of Bologna and S.Orsola-Malpighi Teaching Hospital, Bologna, Italy

14 MicroRNAs UP-REGULATED IN STEVENS-JOHNSON SYNDROME WITH SEVERE OCULAR COMPLICATIONS. Mayumi Ueta, Hiromi Nishigaki, Hokoru Yoshioka, Shigeru Kinoshita, Chie Sotozono. Department of Ophthalmology, Kyoto Prefectural University of Medicine, Kyoto, Japan

15 A WORLD BEHIND LOW VOLUME TEARS: THE PROTEIN AND IMMUNE CELL MARKER PROFILES IN DRY EYE PATIENTS IN A CLINICAL SETTING Carmen Ciavarella[1], Annalisa Astolfi[1], Piera Versura[1,2] DIMEC Alma Mater Studiorum University of Bologna[1], IRCCS Azienda Ospedaliero-Universitaria di Bologna[2], Italy

16 COMPARISON OF OCULAR MANIFESTATIONS IN RELATION TO IMMUNOGLOBULIN LEVELS IN INDIVIDUALS WITH DRY EYE**.** Chloe Shields[1,2], Pragnya Rao Donthineni[1,3], Rohit Muralidhar[4], Sara S. McCoy[5], Alan Baer[6], Robert Fox, Anat Galor.[1,2] Bascom Palmer Eye Institute, University of Miami[1], Miami, FL, USA, Ophthalmology, Miami Veterans Affairs Medical Center[2], Miami, FL, USA, Shantilal Shanghvi Cornea Institute, L.V Prasad eye Institute[3], Hyderabad, India, Nova Southeastern University College of Osteopathic Medicine[4], Davie, FL, USA, University of Wisconsin School of Medicine and Public Health[5], Madison, WI, USA, Division of Rheumatology, Johns Hopkins University School of Medicine[6], Baltimore, MD, USA

17 PRO- INFLAMMATORY CYTOKINES ASSOCIATED WITH CLINICAL SEVERITY OF DRY EYE DISEASE OF PATIENTS WITH DEPRESSION. Mrugacz Malgorzata,1 Beata Żelazowska.2 Department of Ophthalmology and Eye Rehabilitation,1 Department of Paediatric Laboratory Diagnostics,2 Medical University of Bialystok,

Poland

18 SALIVARY AND URINARY CONCENTRATIONS OF METALS IN SJÖGREN'S DISEASE. Mateus M. Marzola[1], Fabíola Reis Oliveira[1], Lina do Prado Baffa[1], Ana Luisa da Cunha Almeida[1], Adriana Andrade Batista Murashima[1], Beatriz C. Cintra[1], Bruno Alves Rocha[2], Fernando Barbosa Junior[2], Denny M. Garcia[1], Eduardo M. Rocha[1]

19 IMPACT OF PALPEBRAL FISSURE HEIGHT ALTERATIONS ON NON-INVASIVE ASSESSMENT OF TEAR FILM IN DRY EYE DISEASE. Pragnya Rao Donthineni, [1,2]Shinjini Basak,[3] Moumi Maity, [2] Rohit Muralidhar, [4] Sayan Basu.[1,2] L.V. Prasad Eye Institute,[1] Prof. Brien Holden Eye Research Centre, [2] Hyderabad, Telangana, India, College of Optometry, University of Houston, TX, USA, [3] Nova Southeastern University, FL, USA.[4]

20 ASSESSMENT OF THE TEAR FILM SUBLAYERS IN DRY EYE DISEASE PATIENTS AND CONTROLS USING THE TEAR FILM IMAGER (TFI). Yael Yohai Patael,[2,3] Emmanuel Bettach[1], Raanan Gefen[2], David Zadok[1]. Shaare Zedek Medical Center[1], Adom (Advanced Optical Technologies) [2], Clalit Health Services[3].

21 COMPARISION OF THE EASYTEAR VIEW + AND THE 5M KERATOGRAPH FOR THE MEASUREMENT OF TEAR FILM STABILITY AND MEIBOMIAN GLAND DROPOUT. Etty Bitton,[1] Sidra Qamar, [2] Fiona Stapleton. [2] Ecole d'optométrie, Université de Montréal, Montreal, Canada, [1] School of Optometry & Vision Science, UNSW Sydney, NSW, Australia [2]

22 WHAT WERE THE DIFFERENCES IN TEAR FILM AND MEIBOMIAN GLAND-RELATED PARAMETERS ASSOCIATED WITH THE EFFECTIVENESS OF IPL TREATMENT? A RETROSPECTIVE STUDY. Reiko Arita,[1,2] Mansaku Takano,[2] Shima Fukuoka.[2,3] Itoh clinic,[1] Saitama, Japan, Lid and meibomian gland working group,[2] Saitama, Japan, Omiya Hamada Eye Clinic,[3] Saitama, Japan

23 CHANGES IN LIPID LAYER THICKNESS PATTERNS OF THE TEAR FILM FOLLWING INTENSE PULSED LIGHT (IPL) THERAPY. Young Chae Yoon. Kim's Eye Hospital, Seoul, Korea.

24 EFFECT OF SHORT-TERM APPLICATION OF EYELID CLEANING WIPES ON TEAR FILM PARAMETERS Amal Aldarwesh, Ali Almustanyir, Raied Fagehi, Khalaf Alruways, Abdulaziz Bin Turki, Mansour Alghamdi, Muteb Khalaf Alanazi, Balsam Alabdulkader, Wafa Alotaibi, Mosaad Alhassan. Department of Optometry, College of Applied Medical Sciences, King Saud University

25 CHARACTERISTICS OF TEAR FILM IN SJOGREN'S SYNDROME PATIENTS AS MEASURED BY A NOVEL TEAR FILM IMAGER (TFI). Annette M. Goulak[1], Sophie Z. Gu[1], Andres Serrano[1], Yael Yohai Patael[2], Gal Antman[3], Teja Kapoor[1], Sharon Keh[1], Stephen Trokel[1], Leejee H. Suh[1]. [1]Harkness Eye Institute, Columbia University Medical Center, USA. [2] AdOM (Advanced Optical Technologies), Israel. [3]Rabin Medical Center, Israel.

EYE MOVEMENTS REVEAL THE DYNAMICS OF THE TEAR FILM MARGINS. Timon Ax,[1, 2] Francesc March de Ribot,[3] Fabian N. Fries,[1] Slade O. Jensen,[2] Berthold
26 Seitz, [1] Thomas James Millar.[6]Department of Ophthalmology, Saarland University Medical Center, Homburg/Saar, Germany, [1] Western Sydney University, School of Medicine, Sydney, NSW, Australia, [2] Department of Ophthalmology, Otago University, Dunedin, New Zealand, [3] Beyond 700 Pty Ltd, Sydney, NSW, Australia[4]

EFFECTS OF BLEPHAROPLASTY IN OCULAR SURFACE AND TEAR
27 FILM. Carolina Mosena Angeloni,[1,2] Allanderson Castro,[2] Jose Alvaro Pereira Gomes. [1] Universidade Federal de São Paulo, Ophthalmology Department, [1] Centro Oftalmológico de Cáceres. [2]

POSTOPERATIVE OUTCOMES REGARDING TEAR FILM CHANGES AND DRY EYE SYMPTOMS IN PRIMARY PTERYGIUM EXCISION. Alejandro
28 Navas,[1] Naomi C. Zatarain-Barrón,[1] Norma Morales Flores,[1] Guillermo R. Vera-Duarte,[1] Arturo Ramirez-Miranda,[1] Enrique O. Graue-Hernández.[1] Department of Cornea and Refractive Surgery, Instituto de Oftalmología FAP Conde de Valenciana, Mexico City, Mexico.

TEAR FILM BREAK-UP TIME EVALUATED BY MEANS OF A CONFOCAL
29 BLUE LIGHT. Emanuela Aragona[1], Alessandro Arrigo[1,2], Edoardo Balduzzi[1,3], Francesco Bandello[1,3], Elisabetta Miserocchi[1,3] [1]IRCCS San Raffaele Scientific Institute, Milan, Italy, [2] Eye Repair Lab, Division of Neuroscience, IRCCS San Raffaele Scientific Institute, Milan, Italy, [3]School of Medicine, Vita-Salute San Raffaele University, Milan, Italy

A NEW METHOD OF MEASURING TEAR FILM CLEARANCE USING A
30 MODIFIED SLIT-LAMP BIOMICROSCOPE AND ITS UTILITY IN DRY EYE DISEASE DIAGNOSIS. Izabela K. Garaszczuk, Karolina Jarosz, Dorota Szczesna-Iskander. Department of Optics and Photonics, Wroclaw University of Science and Technology, Wroclaw, Poland

INFLUENCE OF TEAR FILM LIPID LAYER THICKNESS PATTERNS ON DRY
31 EYE DISEASE PARAMETERS AND ASSOCIATED FACTORS IN DIFFERENT GROUPS. Jiyoung Emily Lee, Kyung Sun Na, Department of Ophthalmology, College of Medicine, The Catholic University of Korea, Seoul, Korea

BIOPHYSICAL INTERACTIONS OF SILICON QUANTUM DOTS WITH TEAR
32 MIMICS AT THE AIR-WATER INTERFACE. Sidra Sarwat,[1] Fiona Stapleton,[1] Mark Willcox,[1] Richard Tilley,[2] and Maitreyee Roy[1] School of Optometry and Vision Science,[1] School of Chemistry and Australian Centre for NanoMedicine,[2] UNSW, Sydney, Australia

OCULAR SURFACE PROTECTION WITH SOFT THERAPEUTIC CONTACT
33 LENSES IN TREATMENT OF PERSISTENT CORNEAL DEFECT. Adriana Stanila, Dan Mircea Stanila. Alina Stanila. University Lucian Blaga, Sibiu, Medical Centru Dr Stanila, Ofta Total Clinic, Sibiu. Romania.

34 EVALUATING DEHYDRATION KINETICS OF KALIFILCON A AND OTHER

CONTACT LENS MATERIALS USING WATER KINETICS COEFFICIENTS. Giulia C. Rizzo,[1,2] Francesco Maspero,[1] Fabrizio Zeri,[1,2,3] Alessandro Borghesi,[1,2] Anna Galli,[1] Silvia Tavazzi,[1,2] Erika Ponzini.[1,2] Department of Materials Science,[1] COMiB Research Centre in Optics and Optometry,[2] University of Milano-Bicocca, Milan, Italy; College of Health and Life Sciences,[3] Aston University, Aston, United Kingdom.

DRY EYE RELATED SIGNS AND SYMPTOMS IN PROFESSIONALLY MANAGED VS SELF-MANAGED SOFT HYDROGEL AND SILICONE HYDROGEL CONTACT LENS WEARERS COMPARED WITH NON CONTACT
35 LENS WEARING CONTROLS. Liat Gantz[1], Barry Weisman[2,3], Reut Ifrah[1]. Department of Optometry and Vision Science, Hadassah Academic College, Jerusalem, Israel[1] Southern California College of Optometry at Marshall B. Ketchum University, Fullerton CA, USA[2] Stein Eye Institute and Department of Ophthalmology, David Geffen School of Medicine at UCLA, Los Angeles CA, USA[3]

REPEATABILITY OF LIPIVIEW® INTERFEROMETER MEASUREMENTS DURING CONTACT LENS WEAR WITH TWO TYPES OF DAILY DISPOSABLE
36 SILICONE HYDROGEL CONTACT LENSES AND EXAMINATION OF LIPID LAYER THICKNESS CONTRIBUTION TO CONTACT LENS COMFORT. Mukesh Kumar, Simin Masoudi, Ajay Kumar Vijay, Mark Willcox, University of New South Wales, Sydney, Australia

DO SYMPTOMATIC CONTACT LENS WEARERS BENEFIT FROM USING
37 LIFITEGRAST? Marc-Matthias Schulze, Sarah Guthrie, Brandon Ho, Jill Woods, Lyndon Jones. Centre for Ocular Research & Education, School of Optometry & Vision Science, University of Waterloo, Canada

CONTACT LENS SURFACE DE-WETTING KINEMATICS METHODOLOGY
38 VALIDATION. Michel Guillon[1], Pasquale Pepe[1], Lakshman Subbaraman[2], Rajaraman Suryakumar[2] [1] Ocular Technology Group International London UK, [2] Alcon Inc. Fort Worth USA.

39 INNOVATION IN DRUG DELIVERY: DRUG ELUTING CONTACT LENSES: ADDRESSING UNMET MEDICAL NEEDS. Penny Asbell, University of Memphis, Bioengineering, Memphis TN

DRY EYE DAILY LIFE (DEAL) QUESTIONNAIRE: PSYCHOMETRIC VALIDATION OF A NEW INSTRUMENT FOR MEASURING THE IMPACT OF
40 DRY EYE ON DAILY LIFE AND PATIENT SATISFACTION WHILE USING EYE DROPS. Sarah Farrant[1], Olivier Chassany[2], Martin Duracinsky[2],[1]Earlam and Christopher Optometrists and Contact Lens Specialists, Taunton, UK.[2]Patient-Reported Outcomes, Health Economics Clinical Trial unit, Hotel-Dieu Hospital, AP-HP & UPC, Paris, France.

SMART COATING BY THERMO-SENSITIVE PF127 FOR ENHANCED
41 CORNEAL HEALING VIA DELIVERY OF BIOLOGICAL MACROMOLES PROGRANULIN. Dan Yan,[1] Weijie Ouyang,[1] Zuguo Liu.[1,2] Xiamen University affiliated Xiamen Eye Center,[1] Fujian, China, The First Affiliated Hospital of University of South

China,[2] Hengyang, Hunan, China.

42 LARGE-SCALE TWO-PHOTON IMAGING AND SEMI-AUTOMATED QUANTITATIVE ANALYSIS OF WHOLE CORNEAL NERVES IN A MURINE MODEL OF DRY EYE. Wenxin Zhao[1], Zhen Zhang[1], YanLong Yang[2], Li Li,[1 1] Department of Ophthalmology, The First Affiliated Hospital of Xi'an Jiaotong University, Xi'an, China. [2]Xi'a Institue of Optics and Precision Mechanics, Chinese Academy of Sciences, Xi'an, China.

43 ENDOPLASMIC RETICULUM STRESS INDUCES CORNEAL EPITHELIAL CELL INFLAMMATION THROUGHTHE PERK-CHOP SIGNALING PATHWAY IN DRY EYE DISEASE. Zhiwei Zha,[1,2] Decheng Xiao,[1] Zihao Liu,[1] Yang Liu,[3] Wei Chen.[1,2] School of Ophthalmology and Optometry and Eye Hospital, Wenzhou Medical University, Wenzhou, Zhejiang, China,[1] The Affiliated Ningbo Eye Hospital of Wenzhou Medical University, Ningbo, Zhejiang, China,[2] Department of ophthalmology, Zhongnan Hospital of Wuhan University, Wuhan, Hubei, China.[3]

44 DIGITAL LIGHT BIOPRINTING OF A 3D CORNEAL-LIMBAL NICHE MODEL. Ioannis Paschalidis[123], Benoit Souquet[12], François Chatelain[23], Alexandra Fuchs[23], Eric Gabison[12];Hôpital Fondation A. de Rothschild[1]; HIPI UMR976, INSERM/Université Paris Cité, Paris, France[2]; CEA, IRIG, Grenoble, France[3]

45 COMPARATIVE ANALYSIS OF ANTI-FIBROTIC PROPERTIES OF PLASMA RICH IN GROWTH FACTORS AND AUTOLOGOUS SERUM IN VITRO ON CORNEAL FIBROBLASTS. Catalina Tolosa Leal[1,2,3], Benoit Souquet[1,3], Eric Gabison[1,3]. Hôpital Fondation Adolphe de Rothschild[1], Paris, France ; Laboratoires Horus Pharma[2], Nice, France ; HIPI UMR976[3], INSERM, Université Paris Cite, Paris, France.

46 THE IMPORTANCE OF CORNEAL SENSITIVITY IN DRY EYE DISEASE DIAGNOSTICS. Tedesco GR, Studio Oculistico Tedesco, Girifalco, 88100 Catanzaro, Italy.

47 MITOCHONDRIAL IMPAIRMENT AND MITOPHAGY IN THE DIABETIC CORNEAL EPITHELIUM. Danielle M. Robertson, Santiago Vizcaino, Shruti Patel, Madeline E. Myers, Harrison Lee, Rajalakshmy Ayilam Ramachandran, and Mou Cao. Department of Ophthalmology, UT Southwestern Medical Center, Dallas, TX, USA

48 CHANGES IN CORNEAL PERSISTENT EPITHELIAL DEFECTS WITH INSULIN COMBINATES WITH AUTOLOGOUS SERUM EYE DROPS IN SJÖGREN'S SYNDROME. Johanna Garzón-Parra[1,2], Carolina Hernández[1], Catalina Cortés[1], Adriana Navarrete[1], Diana Guerrero[1 1] School of Optometry University Antonio Nariño, Colombia. Optometry Research group UAN. [2] Department of Optics and Optometry and Vision Sciences. Faculty of Physics Master's Degree in Optometry and Vision Sciences - Universitat de València, Spain.

49 NEUROPATHIC CORNEAL PAIN FOLLOWING REFRACTIVE SURGERY: RISK FACTORS, CLINICAL MANIFESTATIONS, IMAGING, AND PROTEOMIC

CHARACTERISTICS. Yu-Chi Liu[1,2], Calesta Hui Yi Teo[2], Louis Tong[1,2], Jodhbir Mehta[1,2] [1] Singapore National Eye Centre; [2] Singapore Eye Research Institute

50 CHRONIC OCULAR SURFACE PAIN AS A DEFINING CHARACTERISTIC OF DRY EYE DISEASE Rebecca Petris, Aidan Moore, Sandra Brown. Dry Eye Foundation, Poulsbo, WA, USA

51 IMPROVING CORNEAL NERVE MORPHOLOGY DYSREGULATION IN CAFETERIA DIET-INDUCED PREDIABETIC RATS: A DIET REVERSAL APPROACH. Samea Khan,[1] Mark Willcox,[1] Maria Markoulli,[1] Nick Di Girolamo,[2] Lamia Nureen,[2] Md Jakir Hossain,[3] Margaret Morris.[4] School of Optometry and Vision Science,[1] School of Biomedical Sciences,[2] University of New South Wales, Sydney, New South Wales, Australia, Macquarie University, Australia,[3] School of Medical Sciences, University of NSW, Australia.[4]

52 CORNEAL STAINING SCORE RESPONDER AS A CLINICALLY MEANINGFUL DRY EYE OUTCOME. Esen K. Akpek,[1]; John D. Sheppard[2], Sonja Krösse,[3] [1]The Wilmer Eye Institute, The Johns Hopkins University, Baltimore, Maryland, [2]Virginia Eye Consultants, Norfolk, Virginia, [3]Novaliq GmbH, Heidelberg, Germany

53 EPITHELIAL HEALING OF AN INJURED MOUSE CORNEA USING HUMAN SERUM EYE DROPS WITH AND WITHOUT CHITOSAN. Blasberg, Sophie[1]; Galante, Mia[1]; Carr, Dan[2]; Filiberto, Adrian[2]; Gentile, Ronald[1]; Weiner, Elan[1] [1]ECI Therapeutics; [2]University of Oklahoma

54 MOLECULAR AND CLINICAL CHARACTERIZATION ON THE OCULAR SURFACE IN GLAUCOMA. Sandra Durán-Cristiano,[1 2] Alba Martin-Gil,[2] Geysson Javier Fernández,[3] J Gonzalo Carracedo[2].[1] Grupo de Investigación en Ciencias Básicas, Facultad de Medicina, Universidad CES, Medellín, Colombia,[2] Ocupharm Research Group, Faculty of Optics and Optometry, Complutense University of Madrid, Spain, [3]BCEI Universidad de Antioquia, Medellín, Colombia.

55 CLINICAL PRACTICE PATTERNS IN THE DIAGNOSIS OF DRY EYE DISEASE: A TFOS INTERNATIONAL LONGITUDINAL SURVEY Jennifer P. Craig [1], Michael T. M. Wang [1], Lyndon Jones [2], David Semp [3], Sònia Travé-Huarte [3], James S. Wolffsohn [3,1] and TFOS Ambassadors. [1] Department of Ophthalmology, Aotearoa New Zealand National Eye Centre, The University of Auckland, New Zealand; [2] Centre for Ocular Research and Education, University of Waterloo, Canada; [3] Ophthalmic Research Group, College of Health and Life Sciences, Aston University, Birmingham, United Kingdom

56 CLINICAL FEATURES OF DRY EYE DISEASE AND TREATMENT TRENDS IN THE REAL WORLD: A SAVE SIGHT DRY EYE REGISTRY STUD. Ngozi C. Chidi-Egboka[1,2], Himal Kandel[1], Fiona Stapleton AO[2], Laura E. Downie[3], Gerd Geerling[4], Francisco Arnalich-Montiel[5], David Mingo[5], Saaeha Rauz[6], Alberto Recchioni[6], Jennifer P. Craig[7], Vincent Daien[8], Fanny Babeau[8], Sanjeeta Sitaula[9], Stephanie L. Watson OAM[1] [1]Save Sight Institute, Faculty of Medicine and Health, The University of Sydney, NSW, Australia [2]School of Optometry and Vision Science, Faculty of Medicine and Health, UNSW Sydney, Australia [3]Department of Optometry and Vision Sciences, Faculty of

Medicine, Dentistry and Health Sciences, The University of Melbourne, Victoria, Australia [4]Department of Ophthalmology, University Hospital Duesseldorf, Duesseldorf, Germany [5]Department of Ophthalmology, Hospital Universitario Ramon y Cajal, Madrid, Spain [6]Academic Unit of Ophthalmology, Institute of Inflammation and Ageing, University of Birmingham, United Kingdom [7]Department of Ophthalmology, New Zealand National Eye Centre, The University of Auckland, New Zealand [8]Department of Ophthalmology, Centre Hospitalier Universitaire, Montpellier, France [9]Department of Ophthalmology, B.P. Koirala Lions Centre for Ophthalmic Studies, Institute of Medicine, Kathmandu, Nepal

57 A FULLY AUTOMATED DEEP LEARNING-BASED GRADING SYSTEM FOR DRY EYE DISEASE SEVERITY BASED ON NEI GRADING SCALE. Seonghwan Kim,[1] Daseul Park,[2] Youmin Shin,[2] Mee Kum Kim,[3] Hyun Sun Jeon,[4] Young-Gon Kim,[2], Chang Ho Yoon.[3] Department of Ophthalmology, SMG-SNU Boramae Medical Center,[1] Department of Transdisciplinary Medicine, Seoul National University Hospital,[2] Department of Ophthalmology, Seoul National University Hospital,[3] Seoul, Korea, Department of Ophthalmology, Seoul National University Bundang Hospital,[4] Gyeonggi-do, Korea.

58 A METHOD FOR QUANTIFYING THE DEGREE OF TELANGIECTASIS AND HYPEREMIA AT THE EYELID IN PATIENTS WITH BLEPHARITIS. Yue Yin, Gong Lan, Eye & ENT Hospital, Fudan University

59 THE EFFICACY OF TEAR MENISCUS BY STRIP MENISCOMETRY IN ASSESSMENT OF DIFFERENT TYPE OF DRY EYE DISEASES Yuqian Wang[1,2,3] Zuguo Liu[1,2,3] Eye Institute of Xiamen University; School of Medicine, Xiamen University, Fujian Provincial Key Laboratory of Ophthalmology and Visual Science, Fujian Engineering and Research Center of Eye Regenerative Medicine,[1] Department of Ophthalmology, Xiang'an Hospital of Xiamen University,[2] Xiamen University affiliated Xiamen Eye Center, [3] Xiamen, Fujian, China.

60 NON-INVASIVE TEAR BREAK-UP TIME VERSUS FLUORESCEIN TEAR BREAK-UP TIME. Rebecca Cairns[1,2], Raquel Gil-Cazorla[2], Mark Dunne[2], Jonathon Moore[1,2], Shehzad Naroo[2]. Cathedral Eye Clinic[1]Aston University[2]

61 DRY EYE PARAMETERS ASSESSMENT AFTER KERATOPLASTY. Kaevalin Lekhanont, Pathara Sukvaree, Nontawat Cheewaruangroj, Prae Phimpho, Punyanuch Pisitpayat, Weerapat Udomwong. Department of Ophthalmology, Faculty of Medicine Ramathibodi Hospital, Mahidol university, Bangkok, Thailand

62 THE USE OF DIGITAL PCR FOR THE DIAGNOSIS OF *DEMODEX* BLEPHARITIS. Na An [1,2,] Xiuhong Dou [2], Ni Yin 1 [2], Haiqing Lu [1,2], Jie Zheng [3], Xianning Liu [1,2], Hua Yang [1,2], Xiuping Zhu [1,2], Xianghua Xiao [1,2] [1]Shaanxi Provincial Clinical Research Center for Ophthalmic Diseases, Xi'an City First Hospital, Xi'an, China. [2]Shaanxi Key Laboratory of Ophthalmology, Shaanxi Institute of Ophthalmology, Xi'an, China. [3]Clinical Research Center, The First Affiliated Hospital of Xi'an Jiaotong University, Xi'an, China.

63 CHANGES TO STANDARD PATIENT EVALUATION OF EYE DRYNESS (SPEED) QUESTIONNAIRE AFTER INCORPORATION OF IRRIGATING EYELID RETRACTOR INTO DRY EYE DISEASE PROTOCOL: RETROSPECTIVE CASE SERIES. Jessilin Quint, Smart Eye Care, ME, USA. Srinivas Sai Kondapalli, Everett Hurite, USA

64 PREVALENCE OF DEMODEX FOLLICULORUM IN A UNIVERSITY POPULATION IN ISRAEL Reut Ifrah[1], Etty Bitton[2], Liat Gantz[1] Department of Optometry and Vision Science, Hadassah Academic College, Jerusalem, Israel[1] École d'optométrie, Université de Montréal, Montreal, Quebec, Canada[2]

65 LONGITUDINAL EVALUATION OF DISEASE BURDEN AND TREATMENT EFFICACY IN PATIENTS WITH *DEMODEX* BLEPHARITIS: ORION REGISTRY. Cecilia Koetting,[1] Keith Wan,[2] Cory Lappin,[3] James Mun,[4] Kavita Dhamdhere,[4] Elizabeth Yeu.[5] University of Colorado Anschutz Medical Campus,[1] Scripps Poway Eyecare,[2] Phoenix Eye Care,[3] Tarsus Pharmaceuticals,[4] Virginia Eye Consultants[5]

Saturday, November 2, 2024

SESSION III

Limbal stem cell deficiency

Chairpersons - Paolo Rama (Italy), Virender Sangwan (India)

8:30 The promise and challenge of stem cells in regenerative medicine. Graziella Pellegrini, Holostem Terapie Avanzate S.r.l., Modena, Italy; Centre for Regenerative Medicine, University of Modena and Reggio Emilia, Modena, Italy

8:45 Homeostasis of the corneal stem cell niche from a single cell analysis prospective. Joseph Collin[1], Rachel Queen[1], Darin Zerti [1], Sanja Bojic[1], Birthe Dorgau[1], Marina Moya Molina[1], Chunbo Yang[1], Francisco Figueiredo [1,2], Lyle Armstrong[1]and Majlinda Lako[1] Biosciences Institute, Faculty of Medical Sciences, Newcastle University, UK[1]. UK Department of Ophthalmology, Royal Victoria Infirmary and Newcastle University, Newcastle, UK[2]

9:00 Mapping the limbal stem cell niche and limbal stem cell deficiency in animal models. Nick Di Girolamo. School of Biomedical Sciences, University of New South Wales, Sydney, Australia.

9:15 Diagnosis and staging of limbal stem cell deficiency. Sophie Deng, Stein Eye Institute, University of California, Los Angeles, CA

9:30 Advances in the treatment of limbal stem cell deficiency. Sayan Basu, Centre for Ocular Regeneration, L V Prasad Eye Institute, Kallam Anji Reddy Campus, L V Prasad Marg, Hyderabad, India

9:45 Bioengineered corneal constructs. May Griffith,[1,2,*] Mostafa Zamani-Roudbaraki,[1,2] Michel Haagdorens,[1,3] Hamid Goodarzi,[1,2] Isabelle Brunette,[1,2] Christos Boutopoulos,[1,2,*] Marie-Claude Robert[1,3,*]. Dept. of Ophthalmology, Université de Montréal,[1] Maisonneuve-Rosemont Hospital Research Centre,[2] Centre hospitalier de l'Université de Montréal,[3] Montreal, QC, Canada. *, equivalent contributions

10:00 **Poster Session III (with Coffee & Tea)**

Chairpersons - Paul Karpecki (USA), Cecilia Marini (Argentina)

Eye surgery, intravitreal injections and iatrogenic ocular surface disease

Chairpersons - Christina Grupcheva (Bulgaria), Mohamed Shafik Shaheen (Egypt)

10:50 Refractive surgery-induced dry eye disease. Ikuko Toda. Minamiaoyama Eye Clinic, Tokyo, Japan

11:05 Cataract surgery-induced dry eye disease. Edoardo Villani, Department of Clinical Science and Community Health, University of Milan. Eye Clinic San Giuseppe Hospital, IRCCS Multimedica, Milan, Italy

11:20 An algorithm for the preoperative diagnosis and treatment of ocular surface disease in refractive surgery patients. Christopher E. Starr, Weill Cornell Medical Center, New York, NY, USA

11:35 Iatrogenic ocular surface diseases after surgery for ocular tumors. Giuseppe Giannaccare, Eye Clinic, Department of Surgical Sciences, University of Cagliari, Cagliari, Italy

11:50 Impact of posterior segment surgery on the ocular surface. Marco Coassin, Vincenzo Barone. Ophthalmology, University Campus Bio-Medico, Rome, Italy.

12:05 Impact of intravitreal injections on the ocular surface. Dot Corinne, Verrecchia Sarah, Chirpaz Nicolas, Billant Jeremy, Chudzinski Roman, Gilli Christelle, Elbany Sandra, Burillon Carole, University Hospital of E. Herriot, Lyon, France

12:20 **Poster Viewing & Lunch**

What a nerve!

Chairpersons - Carlos Belmonte (Spain), Murat Dogru (Japan)

13:40 What is neuropathic pain, and what are the underlying mechanisms? Anat Galor, Bascom Palmer Eye Institute, Miami, FL, USA

13:55 Management of neuropathic pain. Pedram Hamrah, Center for Translational Ocular Immunology and Cornea Service, Department of Ophthalmology, Tufts Medical Center, Tufts University School of Medicine, Boston, MA, USA

14:10 Depletion of dendritic cells in the quiescent cornea alters sensory nerve activity. Juana Gallar,[1,2] Laura Frutos-Rincón,[1] M. Carmen Acosta[1] [1]Instituto de Neurociencias, Universidad Miguel Hernández-CSIC, San Juan de Alicante, Spain. [2]ISABIAL, Alicante, Spain

14:25 What damages corneal nerves in dry eye? Jeremias G. Galletti. Institute of Experimental Medicine, Buenos Aires, Argentina

14:40 Corneal neurotization: indications, surgical techniques and outcomes. Roberto Pineda, Department of Ophthalmology, Harvard Medical School, and Cornea and Refractive Surgery Service, Massachusetts Eye and Ear, Boston, USA

14:55 **Poster Session III (with Coffee & Tea)**

Chairpersons - Paul Karpecki (USA), Cecilia Marini (Argentina)

The microbiome: Do we need to keep an eye on it?

Chairpersons - Hiroshi Eguchi (Japan), Marc Labetoulle (France)

15:45 New insights into the identification and role of the microbiome. François Majo, Lausanne University, Lausanne, Switzerland

16:00 Exposomes, microbiome and ocular surface disease. Louis Tong, Hon Shing Ong, Singapore National Eye Center, SIngapore Eye Research Institute

16:15 Ocular surface microbiota in naïve keratoconus: a multicenter validation study. Rocha-de-Lossada C, [1,2,3] Mazzotta C, [4,5,6] Gabrielli F, [7] Papa FT,[7] Gómez-Huertas C,[8] García-López C,[8] Urbinati F,[3] Rachwani-Anil R,[9] García-Lorente M,[9] Sánchez-González JM, [10] Rechichi M,[11] Rubegni G,[6] Borroni D.[1] [1]Eyemetagenomics Ltd., London UK. [2]Ophthalmology Department, QVision, Almeria, Spain. [3]Ophthalmology Department, Hospital Regional Universitario Málaga, Malaga, Spain. [4]Siena Crosslinking Center, Siena, Italy. [5]Department of Ophthalmology Unit, USL Toscana Siena, Italy. [6]Postgraduate Ophthalmology School, University of Siena, Siena, Italy. [7]Biolab SRL, Laboratorio di Genetica e Genomica

Molecolare, Ascoli Piceno, Italy. [8]Department of Ophthalmology, Hospital Universitario Virgen de las Nieves, Granada, Spain. [9]Department of Ophthalmology, Hospital de Antequera, Malaga, Spain. [10]Department of Physics of Condensed Matter, Optics Area, University of Seville, Seville, Spain. [11]Centro Polispecialistico Mediterraneo, Sellia Marina, Italy

16:30 Ocular microbiome changes in dry eye disease. Jerome Ozkan. School of Optometry and Vision Science, Faculty of Medicine and Health, University of New South Wales, Sydney, Australia

16:45 Role of nerve-associated TRPV1 and TRPA1 in resisting bacterial adhesion to the corneal surface. Fleiszig SMJ[1] and Evans DJ. [1,2] Herbert Wertheim School of Optometry & Vision Science, University of California, Berkeley, CA;[1] College of Pharmacy, Touro University California, Vallejo, CA,[2] USA

17:00 The gut-eye-microbiome axis in Sjögren disease. Laura Schaefer[1,2], Kaitlin K. Scholand[2,3], Vivien J. Coulson-Thomas[4], Stephen C. Pflugfelder[2], Robert A. Britton[1], Cintia S. de Paiva[2,3] [1]Center of Metagenomics and Microbiome Research, BCM, Houston, TX [2]Ocular Surface Center, BCM, Houston, TX [3]Biochemistry and Cell Biology Graduate Program, Rice University, Houston, TX [4]University of Houston, Houston, TX

Closing Remarks

17:15 David A. Sullivan, Schepens Eye Research Institute, Massachusetts Eye and Ear and Harvard Medical School, Boston, MA, USA

Poster Session III

Chairpersons - Paul Karpecki (USA), Cecilia Marini (Argentina)

1 TRANSAPPENDAGEAL NEURAL DELIVERY METHOD OF PRO-OCULAR™ (PROGESTERONE) to FOREHEAD. Pamela Gallin,[1] Tom Mitro,[2] Zhonghui K. Luo,[3] Wei-wei Chang,[2] Kenneth Sawyer,[2] [1]NY Presbyterian Columbia University, New York City, NY; [2]Signal12, Inc.; [3]Mass Eye & Ear Infirmary, Boston, MA, USA

2 INSULAR INFRAORBITAL NEUROVASCULAR PEDICLE LABIAL SALIVARY GLAND TRANSPLANTATION FOR THE TREATMENT OF SEVERE DRY EYE DISEASE: A CASE SERIES. Ying Jie, Beijing Institute of Ophthalmology, Beijing Tongren Eye Center, Beijing Tongren Hospital, Capital Medical University, Beijing Ophthalmology & Visual Sciences Key Laboratory, Beijing, China

3 PERIOCULAR AND SYSTEMIC ADMINISTRATION OF RECOMBINANT HUMAN PROTEOGLYCAN 4 (rhPRG4) AMELIORATES OCULAR AND SYSTEMIC GVHD. Benjamin D. Sullivan[1], Hazem Mousa[2], Nadim Azar[2], Manuel E Quiroga Garza[2], Seitaro

Komai[3], Raul Ruiz-Lozano[3], Tannin A. Schmidt[4], Victor L. Perez.[3] Lμbris BioPharma, MA, United States[1] Ophthalmology, Duke University School of Medicine, NC, USA,[2] Ophthalmology, University of Miami Miller School of Medicine, FL, USA,[3] Biomedical Engineering, UConn Health, CT, USA[4]

4 SIGN AND SYMPTOM IMPROVEMENTS RATES AMONG MGD PATIENTS FOLLOWING TREATMENT WITH AZR-MD-001 FOR 6 MONTHS. Lyndon W. Jones,[1] Julie Schallhorn,[2] Alison Ng,[1] Yair Alster,[3] Charles Bosworth,[3] University of Waterloo, Waterloo, Ontario, Canada[1], University of California, San Francisco, California, United States[2], Azura Ophthalmics Ltd, Tel Aviv, Israel[3]

5 EVALUATION OF TYPE I INTERFERONS ON THE OCULAR SURFACE: TOXICITY AND EFFICACY IN IN VITRO, ANIMAL, AND CLINICAL STUDIES. Young In Yun[1,2,3], Jung Hwa Ko[1], Jin Suk Ryu[1], Seonghwan Kim[1,3], Hyun Sun Jeon[2,5], Namju Kim[2,5], Mee Kum Kim[1,2,3], Joo Youn Oh.[1,2,3] Laboratory of Ocular Regenerative Medicine and Immunology, Biomedical Research Institute,[1] Seoul National University College of Medicine,[2] Seoul National University Hospital,[3] Seoul Metropolitan Government-Seoul National University Boramae Medical Center,[4] Seoul National University Bundang Hospital,[5] Seoul, Korea

6 SUTURELESS DEHYDRATED AMNIOTIC MEMBRANES FOR THE TREATMENT OF SEVERE DRY EYE DISEASE. Sònia Travé Huarte and James S W Wolffsohn. College of Health and Life Sciences, Aston University, Birmingham B4 7ET, UK.

7 USE OF CRYO-AMNIOTIC MEMBRANE IMPREGNATED WITH LIQUID PYO BACTERIOPHAGE IN CLINICAL OPHTHALMOLOGY. Nino Karanadze,[1] Teona Tchanukvadze,[1] Tinatin Jikurashvili.[2] Tbilisi Sate Medical University,[1] Chichua Medical Center Mzera.[2]

8 UNLEASHING NOVEL THERAPEUTIC STRATEGIES FOR DRY EYE: TARGETING ROS AND THE CGAS-STING SIGNALING PATHWAY WITH TETRAHEDRAL FRAMEWORK NUCLEIC ACIDS. Dan Yan,[1] Weijie Ouyang,[1] Zuguo Liu.[1,2] Xiamen University affiliated Xiamen Eye Center,[1] Fujian, China, The First Affiliated Hospital of University of South China,[2] Hengyang, Hunan, China

9 EFFECT OF SEQUENTIAL EYELID HEAT THERAPY ON WAVEFRONT ABERRATIONS. Christin Daoud, Etty Bitton. École d'optométrie, Université de Montréal, Montreal, QC, Canada

10 IMPACT OF THERMAL PULSATION AND STANDARD-OF-CARE TREATMENTS FOR DRY EYE DISEASE ON TEAR INFLAMMATORY MARKERS. Dian Zhuang, Stuti L. Misra, Odunayo Mugisho, Catherine Jennings, Ilva D. Rupenthal, and Jennifer P. Craig. Department of Ophthalmology, Aotearoa New Zealand National Eye Centre, The University of Auckland, Auckland, New Zealand

11 HOT / COLD COMPRESS AND MASSAGE DEVICE'S EFFECT ON EYE COMFORT, SLEEP QUALITY & WELLBEING. Sharmin Habib,[1] Brandon Hauer [2,] Jay Vidyarthi[3], Anna-

Roza Tamas[3], Michael Gradisar[4], James.S. Wolffsohn.[5] Umay Care, Edmonton, AB,[1] University of Alberta, Neuroscience and Mental Health Institute, Edmonton, AB,[2] Still Ape UX Design, Toronto, ON,[3] Flinders University, Adelaide Australia,[4] School of Optometry, College of health and Life Sciences, Aston University, Birmingham, UK[5]

12 CONTROLLED NON-CONTACT TEAR STIMULATION EVALUATION ON HEALTHY SUBJECTS AND DRY EYE PATIENTS WITH THE i-ONION® DEVICE. Luis Rodriguez[1], Ali Khodor[1], Symon Ma[1], Seitaro Komai[1], Raul Ruiz[1], Manuel Quiroga[1], Victor L. Perez[1]. University of Miami[1], Miami, FL, USA

13 THERAPEUTIC EFFECT OF NCP112, A SELECTIVE PEPTIDE LIGAND OF N-FORMYL PEPTIDE RECEPTOR 2 (FPR2), IN AN EXPERIMENTAL DRY EYE MOUSE MODEL. Kyung Chul Yoon, Ying Li, Hui Jin, Enying Jiang, Jingting Liu, Hyun Jee Kim, Ja Young Moon, Hyeon Jeong Yoon. Department of Ophthalmology, Chonnam National University Medical School and Hospital, Gwangju, South Korea

14 ADVANCING WAVELIKE EPITHELIOPATHY TREATMENT WITH PHOTOTHERAPEUTIC KERATECTOMY COMBINED WITH CYCLOSPORINE-A DROPS. V. Liarakos [1,2], M. Alexaki [1], M. Kafataris [1,2], V. Giavi [1], I. Okoutsidou [1,2], E. Mpourouki [1], G. Karastatiras [1,2], M. Douvali [1] [1] AKTINA CENTER, Athens, GREECE [2] NAVAL HOSPITAL, Athens, GREECE

15 POST-LASIK EPITHELIAL INGROWTH TREATED WITH PROLONGED TOPICAL CYCLOSPORINE-A V. Liarakos [1,2], M. Alexaki [1], M. Kafataris [1,2], V. Giavi [1], I. Okoutsidou [1,2], E. Mpourouki [1], G. Karastatiras [1,2], M. Douvali [1] [1] AKTINA CENTER, Athens, Greece [2] Naval Hospital, Athens, Greece

16 OVERVIEW OF CLINICAL EFFICACY AND SAFETY OF A WATER-FREE CYCLOSPORINE, 0.1% SOLUTION FOR TREATMENT OF DRY EYE DISEASE. Anat Galor, [1] Paul Karpecki,[2] Alice Meides, [3] Sonja Krösser,[3] [1] Bascom Palmer Eye Institute [2]Kentucky Eye Institute, [3]Novaliq GmbH

17 OCULAR SURFACE COMPLICATION RATE WITH CYCLOSPORINE A 0.1% CATIONIC EMULSION THERAPY OVER A 3-YEAR PERIOD IN PATIENTS WITH DRY EYE AND SEVERE KERATITIS. Andrea Leonardi[1], Christophe Baudouin[2,3] on behalf of the study investigators, Department of Neuroscience, Ophthalmology Unit, University of Padua, Padova, Italy, [2]CHNO des Quinze-Vingts, IHU FOReSIGHT, INSERM-DGOS CIC 1423, Paris, France, [3]Sorbonne Universités, INSERM, CNRS, Institut de la Vision, Paris, France

18 SYSTEMIC CYCLOSPORINE A IN THE TREATMENT OF SEVERE ALLERGIC KERATOCONJUNCTIVITIS. Raysa Victoria de Oliveira Cechim;[1] João Victor Borges Gomes, MD;[1] Tais Hitomi Wakamatsu;[1] Marcia Carvalho Mallozi;[2] Telma Regina Maria Pereira Barreiro;[1] Flávio Eduardo Hirai;[1] José Álvaro Pereira Gomes;[1] Myrna Serapião dos Santos.[1] Department of Ophthalmology and Visual Sciences, Escola Paulista de Medicina, Hospital São Paulo, Federal University of São Paulo, São Paulo, SP, Brazil[1], Department of Allergy and Immunology, Escola Paulista de Medicina, Hospital São Paulo, Federal University

of São Paulo, São Paulo, SP, Brazil.[2]

19 THE EFFICACY AND SAFETY OF 0.05% CYCLOSPORINE A (ZIRUN) OPHTHALMIC DROP FOR THE SJÖGREN'S SYNDROME PATIENTS. Xiaoming Yan,[1,2] Wenjing Song.[1,2] Department of Ophthalmology, Peking University First Hospital,[1] Peking University,[2] Beijing, China

20 HIGHLY EFFECTIVE CORNEAL PERMEABILITY OF REACTIVE OXYGEN SPECIES-RESPONSIVE NANO-FORMULATION ENCAPSULATED CYCLOSPORINE A FOR DRY EYE MANAGEMENT. Wenying Guan,[1] Yi Han,[1] Zuguo Liu,[1,2] Eye Institute of Xiamen University, School of Medicine, Xiamen University, Xiamen Fujian, China, The First Affiliated Hospital of University of South China, Hengyang Hunan, China[2]

21 COMPLEX TREATMENT OF NEUROTROPHIC KERATOPATHY IN ADULTS AND CHILDREN. Vladimir V. Brzhesky[1], Elena L. Efimova[2], Irina V. Brzheskaya[2], Diana A. Kumykova[1] [1]St.Petersburg State Pediatric Medical University [2]City Mariinsky Hospital, St.Petersburg, Russia.

22 LIGHT-ASSISTED ANTIFUNGAL TREATMENT OF FUNGAL KERATITIS. Sanjay Marasini,[1] Mark Bosman,[1] Simon Swift,[2] Simon Dean,[1] Jennifer Craig.[1] Aotearoa New Zealand National Eye Centre, Department of Ophthalmology, The University of Auckland,[1] Department of Molecular Medicine & Pathology, University of Auckland,[2] Auckland, New Zealand

23 QUANTITATIVE AND QUALITATIVE ASSESSMENT OF REAL-WORLD LIFITEGRAST USAGE IN PATIENTS WITH DRY EYE DISEASE. Christopher E. Starr[1]; Clara C. Chan[2]; Megan E. Cavet[3]; Eric D. Donnenfeld[4] [1]Weill Cornell Medical Center, New York, NY, USA; [2]University of Toronto, Toronto, Canada; [3]Medical Affairs, Bausch + Lomb, Rochester, NY, USA; [4]Island Eye Surgicenter, Westbury, NY, USA

24 THE MECHANISM OF ACTION OF LEUKOCYTE FUNCTION-ASSOCIATED ANTIGEN (LFA-1) ANTAGONIST LIFITEGRAST IN DRY EYE DISEASE. Pedram Hamrah; Victor G Sendra; Flavia L Barbosa; Deshea L Harris**;** Center for Translational Ocular Immunology and Cornea Service, Department of Ophthalmology, Tufts Medical Center, Tufts University School of Medicine, Boston, MA, USA

25 LFA-1 INHIBITION IN DRY EYE DISEASE: THERAPEUTIC AND MECHANISTIC OUTCOMES. Swaminathan Sethu,[1] Rohit Shetty,[2] Pooja Khamar,[2] Nikhil Ashok,[1] Archana P Nair,[1] Arkasubhra Ghosh.[1] GROW Research Lab, Narayana Nethralaya Foundation,[1] Department of Cornea & Refractive Surgery, Narayana Nethralaya,[2] Bangalore, India

26 SAFETY OF LIFITEGRAST IN PATIENTS WITH DRY EYE DISEASE: ANALYSIS OF A POSTMARKETING DATABASE Jessilin M. Quint,[1]; Michelle Ratay,[2] Jason Vittitow,[2]; Crystal Brimer,[3] [1]Smart Eye Care, Augusta, ME, USA; [2]Medical Affairs, Bausch + Lomb, Bridgewater, NJ, USA; [3]Dry Eye Equation, Wilmington, NC, USA

27 INFLAMMATORY DRY-EYE DISEASE: AN ONGOING PHASE 2 TRIAL OF ILYX-002. Fiona Stapleton[1], Houman D. Hemmati[2], Erin Newman[2]. [1]School of Optometry and Vision Science, UNSW Sydney, NSW, Australia. [2]Iolyx Australia Pty Ltd, Southbank, VIC, Australia

28 ASSOCIATION BETWEEN AGE-RELATED INFLAMMATORY CHANGES AND DRY EYE SEVERITY USING DRY EYE-INDUCED MIDDLE-AGED MICE. Mako Okamoto[1], Tianxiang Huang[1], Takenori Inomata[123], Koji Kitazawa5, Hurramhon Shokirova [1], Yuki Morooka[1], Maria Miura[1], Keiichi Fujimoto[1], Shintaro Nakao,[1] [1]Department of Ophthalmology, Juntendo University Graduate School of Medicine [2]Department of Telemedicine and Mobile Health, Juntendo University Graduate School of Medicine [3]Department of Hospital Administration, Juntendo University Graduate School of Medicine [4]Data Science, Juntendo University Graduate School of Medicine [5]Department of Ophthalmology, Kyoto Prefectural University of Medicine

29 BUTYRATE SUPPLEMENTATION REDUCES OCULAR SURFACE INFLAMMATION IN AGE-RELATED DRY EYE DISEASE. Chung Young Kim,[1,2,3] Jin Suk Ryu,[3] Chang Ho Yoon,[1,2,3] Mee Kum Kim[1,2,3] [1]Department of Ophthalmology, Seoul National University College of Medicine, 103 Daehak-ro, Jongno-gu, Seoul, South Korea, [2]Department of Ophthalmology, Seoul National University Hospital, Seoul, South Korea

30 NOVEL OCULAR FORMULATION OF PIMECROLIMUS FOR TREATMENT OF DRY EYE. Penny Asbell,[1] Ian Vessey[2] Department of Bioengineering, University of Memphis College of Arts and Sciences, USA,[1] Premark Pharma, Switzerland[2]

31 LONG-TERM SAFETY OF TOPICAL TACROLIMUS IN ALLERGIC CONJUNCTIVIS. Samir Shoughy[1,2], Khalid F. Tabbara, [2] Dr. Samir Eye Clinic[1], Alexandria, Egypt ,The Eye Center and the Eye Foundation for Research in Ophthalmology [2], Riyadh, Saudi Arabia

32 ADJUVANT ROLE OF TOPICAL LOW DOSE HEPARIN IN CHRONIC OCULAR SJS: A RANDOMIZED CONTROLLED TRIAL. Renu Venugopal,[1] Shivam Singh,[1] Lata Singh,[2] Seema Sen,[1] Seema Kashyap,[1] Namrata Sharma.[1] Dr R.P. Centre for Ophthalmic Sciences, All India Institute of Medical Sciences; Department of Paediatrics, All India Institute of Medical Sciences, New Delhi, India.

33 EFFICACY AND SAFETY RESULTS OF FIRST-IN-HUMAN PHASE 2 TRIAL OF OK-101 IN DRY EYE PATIENTS. Raj Patil, Gary S. Jacob. OKYO Pharma, New York, NY USA

34 INTERVENING IN THE DRY EYE INFLAMMATORY CYCLE WITH A NOVEL NUTRITIONAL SUPPLEMENT. Louis Tong[1] , Robert Ryan[2] , Krista Barbour[2] , Neda Gioia [3] [1]Singapore National Eye Centre, [2]Bausch+Lomb, [3]Integrative Vision Corp

35 A NOVEL ORAL SUPPLEMENT IMPROVES DRY EYE SYMPTOMS AND TEAR VOLUME: RESULTS FROM A RANDOMIZED CLINICAL TRIAL. Louis Tong[1], Robert Ryan[2], Krista Barbour[2], Neda Gioia[3] [1]Singapore National Eye Centre, [2]Bausch+Lomb, [3]Integrative Vision Corp

EFFECTIVE TREATMENT OF OCULAR DEMODICOSIS WITH TOPICAL IVERMECTIN 1.0% CREAM. Martin Smith[1], James S. Wolffsohn [2], Jeremy Chung Bo Chiang
36 [2,3 1] Martin Smith Opticians, Lincoln, United Kingdom [2] School of Optometry, College of Health and Life Sciences, Aston University, Birmingham, United Kingdom [3] School of Optometry and Vision Science, Faculty of Medicine and Health, University of New South Wales, Sydney, Australia

EXPERT PANEL RECOMMENDS LOTILANER OPHTHALMIC SOLUTION, 0.25% AS THE FIRST-LINE TREATMENT FOR *DEMODEX* BLEPHARITIS. Paul Karpecki,[1] Kelly
37 Nichols,[2] Ian B. Gaddie, [3] Cecelia Koetting [4], Selina McGee.[5] Kentucky Eye Institute Lexington, KY [1], University of Alabama Birmingham, Birmingham, AL,[2] Gaddie Eye Centers, Louisville, KY,[3] University of Colorado Anschutz Medical Campus, Aurora, CO,[4] BeSpoke Vision, Edmond, OK.[5]

OCULAR VASOCONSTRICTORS: DOES MECHANISM OF ACTION MAKE
38 A DIFFERENCE? Serge Doan[1], Saskia Aguado[2], Antonio Mateo Orobia[3], Kelly Nichols[4], Melissa Toyos[5] [1]Fondation A de Rothschild Hôpital, [2]Bausch + Lomb, [3]Hospital Universitario Miguel Servet, [4]University of Alabama at Birmingham, [5]Toyos Clinic

39 COMBINED EFFECT OF REBAMIPIDE 2% AND HYALURONIC ACID 0.15% IN MANAGING DRY EYE FOLLOWING CATARACT SURGERY. Ji Yun Seong, Sung Kun Chung. Saevit Eye Hospital, Goyang, Korea

40 THE EFFECT OF TOPICAL REBAMIPIDE 2% IN MANAGING DRY EYE FOLLOWING CATARACT SURGERY. Ji Hyung Suh, Sung Kun Chung. Saevit Eye Hospital, Goyang, Korea

EFFECT OF TOPICAL REBAMIPIDE 2% ON REFRACTORY FILAMENTARY
41 KERATITIS. Hye Won Jun[1] Sang-Mok Lee.[1,2] Department of Ophthalmology, Hangil Eye Hospital,[1] Department of Ophthalmology, Catholic Kwandong University College of Medicine,[2] Incheon, Korea

DIRTY DRY EYE "A WASTE VOLUME ANALYSIS FROM TOPICAL THERAPY IN
42 KERATOCONJUNCTIVITIS SICCA. A. Schilcher[1], M. Roth[1], F. Steindor[1], R. Helweh[1], G. Geerling[1] [1]Department of Ophthalmology – Medical Faculty and University Hospital Duesseldorf – Heinrich Heine University Duesseldorf

MICROPLASTICS IDENTIFIED IN COMMERCIAL OVER-THE-COUNTER LUBRICANT EYEDROPS. Chris Lim [1,2,3,4,5], Matthew Burke [6], Duoduo Wu [1], Emily Curren [7], Sandric Leong [7], Robert Symons [6], Blanche Lim [1,4], Xinyi Su [1,2,4], Jodhbir Mehta [2,8,9], Andri Riau [2,8], Julia Jaeger [6] [1]Department of Ophthalmology, National University Health System, [2]Singapore
43 Eye Research Institute, [3]Center for Sustainable Medicine, National University of Singapore, [4]Yong Loo Lin School of Medicine, National University of Singapore, [5]School of Optometry and Vision Science, University of New South Wales, Australia, [6]Eurofins Environment Testing Australia & New Zealand, [7]Tropical Marine Science Institute, National University of Singapore, [8]Ophthalmology and Visual Sciences Academic Clinical Programme, Duke-NUS Medical School, Singapore and [9]Singapore National Eye Centre

44 COMPARISON OF CHITOSAN ENHANCED SERUM EYE DROPS TO SERUM EYE DROPS AND TWO CONTROL GROUPS Gentile, Ronald[1]; Carr, Dan[2]; Blasberg, Sophie[1]; Galante, Mia[1]; Chamberlain, Dean[1]; Weiner, Elan[1] [1]ECI Therapeutics; [2]University of Oklahoma

45 SAFETY AND EFFICACY OF PROPYLENE GLYCOL-HYDROXYPROPYL-GUAR NANOEMULSION LUBRICANT EYE DROPS IN INDIAN PATIENTS WITH DRY EYE DISEASE. Deborah Awisi-Gyau,[1] Harsha Nagaraja,[2] Parth Rana,[3] Rama Rajagopal.[4] Alcon Research, LLC, Fort Worth, USA;[1] Narayan Nethralaya, Bengaluru, India;[2] Netralaya Super Speciality Eye Hospital, Ahmedabad, India;[3] Sankara Netralaya, Chennai, India[4]

46 INSULIN NANOEMULSION EYE DROPS FOR TREATMENT OF DRY EYES IN SJÖGREN'S DISEASE: A RANDOMIZED CLINICAL TRIAL PHASE I/II. Marzola MM[1], Gutierrez DR[1], Cintra BC[1], Murashima AAB[1], Dalmolin LF[2], Garcia DM[1], Lopez RFV[2], Oliviera FR[1], Rocha EM[1].[1]Ribeirão Preto Medical School, University of São Paulo, Brazil; [2]School of Pharmaceutical Sciences of Ribeirão Preto, University of São Paulo, Brazil

47 ANTI-EVAPORATIVE LIPOSOMAL FORMULATIONS FOR DRY EYE TREATMENT. Janika Jäntti[1], Tuomo Viitaja[2,3], Julia Sevón[2], Tatu Lajunen[1,4], Katja Pajula[1], Jan-Erik Raitanen[2], Mira Viljanen[2], Arto Merivaara[1], Jooseppi Puranen[1], Eveliina Tuomikoski[1], Anusha Balla[1], Elisa Toropainen[1], Kai Kaarniranta[5], Jussi Paterno[5], Jukka Moilanen[3], Filip. S. Ekholm[2], and Marika Ruponen[1].

48 COMPARISON OF A NOVEL LIPID NANO-EMULSION EYE DROP WITH AN EXISTING LUBRICATING EYE DROP. Bridgette Shen Lee[1], Jade Coats[2], Heather Morrow[3], Laura M Periman[4] [1]Vision Optique, [2]McDonald Eye Associates, [3]Bausch + Lomb, [4]Dry Eye Master

49 EARLY ADOPTION AND UTILIZATION OF PERFLUOROHEXYLOCTANE FOR DRY EYE DISEASE. Bridgitte Shen Lee[1]; Adam Alexander[2]; Abhishek A. Nair[2]; Lia Pizzicato[3]; Shangzhi Gao[3]; Victoria Divino[3]; David J. Harrison[2] [1]Vision Optique, Houston, TX, USA; [2]Bausch + Lomb, Bridgewater, NJ, USA; [3]IQVIA, Falls Church, VA, USA

50 PERFLUOROHEXYLOCTANE OPHTHALMIC SOLUTION INSTILLATION COMFORT AND EYEDROP ACCEPTABILITY: PATIENT-REPORTED OUTCOMES IN PHASE 3 CLINICAL STUDIES. Preeya K. Gupta; John D. Sheppard[2]; Darrell E. White, [3]; Alice Epitropoulos[4]; Marguerite McDonald[6,7]; Megan Cavet[8]; Jason L. Vittitow[9] [1]Triangle Eye Consultants, Raleigh, NC, USA; [2]Virginia Eye Consultants, Norfolk, VA, USA; [3]Skyvision Centers, Westlake, OH; [4]The Eye Center of Columbus, Columbus, OH; [5]NYU Langone Medical Center, New York, NY; [6]Tulane University Health Sciences Center, New Orleans, LA; [7]OCLI Vision, Oceanside, NY; [8]Medical Affairs, Bausch + Lomb, Rochester, NY; [9]Medical Affairs, Bausch + Lomb, Bridgewater, NJ

51 PERFLUOROHEXYLOCTANE OPHTHALMIC SOLUTION FOR DRY EYE DISEASE: A COMPARISON OF SAFETY AND EFFICACY ACROSS PHASE 2 AND 3 CLINICAL TRIALS. Preeya K Gupta[1]; John D. Sheppard[2]; Eugene E. Protzko[3]; Jason L. Vittitow,[4] [1]Triangle Eye Consultants, Raleigh, NC, USA; [2]Virginia Eye Consultants, Norfolk, VA, USA; [3]Seidenberg Protzko Eye Associates, Havre de Grace, MD, USA; [4]Medical Affairs, Bausch +

Lomb, Bridgewater, NJ, USA

52 EARLY SYMPTOM RELIEF AND SATISFACTION WITH PERFLUOROHEXYLOCTANE OPHTHALMIC SOLUTION IN PATIENTS WITH DRY EYE DISEASE: RESULTS FROM A PROSPECTIVE, MULTICENTER STUDY. Preeya K Gupta[1]; Shane R Kannarr[2]; Anthony Verachtert[3]; Moataz Razeen[4]; Jason L Vittitow[4]; Jason Bacharach[5] [1]Triangle Eye Consultants, Raleigh, NC, USA; [2]Kannarr Eye Care, Pittsburg, KS, USA; [3]Moyes Eye Center, Kansas City, MO, USA; [4]Bausch + Lomb, Bridgewater, NJ, USA; [5]North Bay Eye Associates, Inc., Petaluma, CA, USA

53 EFFECT OF PERFLUOROHEXYLOCTANE OPHTHALMIC SOLUTION ON CORNEAL STAINING IN PATIENTS WITH DRY EYE DISEASE. Jessilin M. Quint[1]; Ahmad Fahmy[2]; Megan Cavet[3]; Jason L. Vittitow[3]; David G. Evans[4] [1]Smart Eye Care, Augusta, ME, USA; [2]Minnesota Eye Consultants, Minneapolis, MN, USA; [3]Bausch + Lomb, Bridgewater, NJ, USA; [4]Total Eye Care, PA, Memphis, TN, USA

54 PHARMACOKINETICS AND DISTRIBUTION OF PERFLUOROPUTYLPENTANE, A NOVEL EYE DROP VEHICLE, IN RABBITS AFTER TOPICAL ADMINISTRATION. Sonja Krösser[1], Johannes Korward[1], Joseph Tauber, [2] [1]Novaliq GmbH; [2]Tauber Eye Center

55 ADVANCED EYE DROPS OFFERING SUPERIOR CORNEAL PROTECTION AND EXTENDED REMANENCE. G. Lalevée, A. Adamczewski, S. Belkheiri, NOXELIS SAS, Annecy, France

56 CHANGES IN MAXIMUM BLINK INTERVAL AFTER TREATMENT WITH DIQUAFOSOL SODIUM EYE DROPS. Ken Nagino,[1,2,3] Takenori Inomata,[1,2,3,4] Akie-Midorikawa-Inomata,[2] Atsuko Eguchi,[2] Shintaro Nakao,[1] Juntendo University Graduate School of Medicine, Department of Ophthalmology,[1] Department of Hospital Administration,[2] Department of Telemedicine and Mobile Health,[3] Data Science, Tokyo, Japan.

57 PLATELET-RICH PLASMA THERAPY FOR OCULAR SURFACE DISEASE OUTCOMES IN GLAUCOMA PATIENTS. Marcela Huertas-Bello[1], Mor Bareket[1], Manokamna Agarwal[1], Timothy McCowan[2], Allan R Slomovic[1]. [1]Department of Ophthalmology and Vision Sciences, University of Toronto, Toronto, Canada. [2] Medical Sciences Program, Faculties of Science and Medicine, Dalhousie University, Halifax, Canada.

58 OUTCOMES OF PLATELET-RICH-PLASMA FOR OCULAR SURFACE DISEASES IN A LARGE COHORT. Mor Bareket[1], Marcela Huertas-Bello[1], Manokamna Agarwal[1], Timothy McCowan[2], Allan R Slomovic[1]. [1] Department of Ophthalmology and Vision Sciences, University of Toronto, Toronto, Canada. [2] Medical Sciences Program, Faculties of Science and Medicine, Dalhousie University, Halifax, Canada.

59 COMPARISON OF PLATELET-RICH PLASMA AND AUTOLOGOUS-SERUM EYE DROPS IN TREATMENT OF SEVERE DRY EYE. Ji-Yun Song, [1] Min Ji Kang, [2] Jee Hye Lee, [2] Jehyung Hwang, [2] So Hyang Chung.[1] Department of Ophthalmology, College of Medicine, Seoul St. Mary's Hospital, The Catholic University of Korea, [1] Department of Ophthalmology, College of Medicine, Sanggye Paik Hospital, Inje University, Seoul, Republic of Korea[2]

THE EFFECT OF A NOVEL HIGH MOLECULAR WEIGHT HYALURONIC ACID AND KETOTIFEN EYE DROP ON THE OCULAR SURFACE STATUS IN AN ALLERGIC CONJUNCTIVITIS MOUSE MODEL. Dogru, Murat[1, 2]; Nagata, Taeko[3]; Kojima, Takashi[4, 5]; Higa, Kazunari[6]; Okada, Naoko[7]; Muller-Lierheim, Wolfgang[3]; Fukagawa, Kazumi[3]; Fujishima, Hiroshi[1]; Negishi, Kazuno[3]1. Ophthalmology, Tsurumi Daigaku Shigakubu Daigakuin Shigaku Kenkyuka, Yokohama, Kanagawa, Japan. 2. University of New South Wales, Sydney, NSW, Australia. 3. Ophthalmology, Keio Gijuku Daigaku Igakubu Daigakuin Igaku Kenkyuka, Shinjuku-ku, Tokyo, Japan. 4. Ophthalmology, Tokyo Shika Daigaku Ichikawa Sogo Byoin, Ichikawa, Chiba, Japan. 5. Ophthalmology, Chiiki Iryo Kino Suishin Kiko Chukyo Byoin, Nagoya, Aichi, Japan. 6. Cornea Center Eye Bank, Tokyo Shika Daigaku Ichikawa Sogo Byoin, Ichikawa, Chiba, Japan. 7. Nihon Yakka Daigaku, Fukiage-gun, Saitama, Japan.

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OCULAR SURFACE DISEASE SIGNS AND SYMPTOMS IN OPEN-ANGLE GLAUCOMA AND OCULAR HYPERTENSION PATIENTS TREATED WITH PRESERVATIVE-FREE LATANOPROST EYE DROP CATIONIC EMULSION OR PRESERVED LATANOPROST: A 12-WEEK RANDOMIZED STUDY. Christophe Baudouin[1,2]; Ingeborg Stalmans[3,4]; Francesco Oddone[5] [1]CHNO des Quinze-Vingts, IHU FOReSIGHT, INSERM-DGOS CIC 1423, Paris, France [2]Sorbonne Universités, INSERM, CNRS, Institut de la Vision, Paris, France [3]Department of Ophthalmology, University Hospitals UZ Leuven, Belgium [4]Research Group Ophthalmology, Department of Neurosciences, Catholic University KU Leuven, Belgium [5]Glaucoma Unit, IRCSS-Fondazione Bietti, Roma, Italy

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THE THERAPEUTIC EFFICACY OF Jin Zhen EYE DROPS IN TREATING DRY EYE IN A CHINESE POPULATION: A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED CLINICAL TRIAL. Clinical Trial. Lei Tian.Beijing Institute of Ophthalmology, Beijing Tongren Eye Center, Beijing Tongren Hospital, Capital Medical University, Beijing Ophthalmology & Visual Sciences Key Laboratory, Beijing, China

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TREATING DRY EYE DISEASE TO IMPROVE MIGRAINE: A RANDOMIZED CROSSOVER TRIAL. Nur Amalina Md Isa,[1] Shyam S. Tummanapalli,[1]Arun V. Krishnan,[2] Alessandro S. Zagami,[2] Katherine Spira,[2] Eric Papas, [1] Maria Markoulli, [1] UNSW School of Optometry & Vision Science, [1] Department of Neurology, Prince of Wales Hospital, [2] Australia

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TEAR LUBRICANT PRESCRIBING PATTERNS AMONGST OPTOMETRISTS IN INDIA. Anitha Arvind[1,2], Monica Chaudhry[1,2], Krishna Kumar Gupta[1], K N Rakesh[1], Roshni Sengupta[1], Jyoti Gangta[1] [1] Department of Optometry, School of Healthcare and Allied Sciences, G D Goenka University, India, [2] Monica Chaudhry Vision Institute, Gurgaon, India

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EVALUATION OF THE EFFICACY OF A NOVEL PRESERVATIVE-FREE FORMULATION OF BRIMONIDINE TARTRATE OPHTHALMIC SOLUTION. José M Benitez Del Castillo[1], Saskia Aguado[2], Melinda DiVito[2], Anne Argullos[2], Elisabeth Messmer[3], Melissa Toyos[4] [1]Hospital Clinico San Carlos, [2]Bausch+Lomb, [3]Ludwig-Maximilians-University, [4]Toyos Clinic

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COMPARISON OF TWO PRESERVATIVE-FREE ARTIFICIAL TEARS WITH SODIUM HYALURONATE FOR RELIEF OF DRY EYE: MULTICENTRE TRIAL FINDINGS.

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Marc Labetoulle[1], Robert Ryan[2], on behalf of the study investigators, [1]Hôpital Bicêtre, [2]Bausch + Lomb

67 TOXICITY OF POVIDONE IODINE ON THE RABBIT OCULAR SURFACE. Sunyoung Kim, Yongsun Ahn, Hyun Seung Kim. Department of Ophthlamology, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of KOREA, Seoul, KOREA