Nomenament de Doctor *Honoris Causa*

Acord CG/2018/01/09 del Consell de Govern pel qual s'aprova un nomenament d'*Honoris Causa*

Secretaria General

Barcelona, 22/02/2018

NOMENAMENT DE DOCTOR *HONORIS CAUSA*

ANTECEDENTS

La Junta de la Facultat d'Òptica i Optometria de Terrassa ha fet arribar al Consell de Govern la proposta de nomenament de Doctor *Honoris Causa* del Dr. Donald R. Korb.

L'Acord núm. 131/2016 del Consell de Govern, que aprova la normativa de doctorats Honoris Causa, estableix que la proposta de nomenament ha d'anar acompanyada de la documentació següent:

a. Una memòria raonada, justificativa dels mèrits i circumstàncies que concorren favorablement per proposar el candidat o candidata, en la qual se n'ha d'assenyalar la vinculació a la Universitat Politècnica de Catalunya.
b. Un *curriculum vitae* del candidat o candidata, en el qual s'ha de recollir la trajectòria acadèmica, l'activitat investigadora i la producció científica.
c. El certificat de l'acord, o els certificats dels acords, de la proposta favorable emès per l'òrgan competent.
d. El professorat que hi ha d'actuar com a padrí.
e. Un mínim de tres cartes d'adhesió a la proposta de tres doctors o doctores de prestigi rellevant, o bé de tres persones expertes relacionades amb la matèria en què la persona candidata ha destacat.
f. Qualsevol altra documentació que doni suport a la candidatura.

La Junta de la Facultat d'Òptica i Optometria de Terrassa ha aportat la documentació que es presenta a l'annex I.

Per tot això, el Consell de Govern

ACORDA

Nomenar Doctor *Honoris Causa* de la Universitat Politècnica de Catalunya el Dr. Donald R. Korb.

Barcelona, 22 de febrer de 2018

ANNEX I

Memòria raonada, justificativa dels mèrits i circumstàncies que concorren favorablement per proposar el candidat o candidata, en la qual se n'ha d'assenyalar la vinculació a la Universitat Politècnica de Catalunya

Antecedents:

A la societat actual un percentatge elevat de la població pateix símptomes d'ull sec, amb una major incidència en persones d'edat avançada, en el sexe femení i amb l'ús prolongat de pantalles de visualització de dades (part de la constel·lació de símptomes coneguda com la Síndrome Visual Informàtica). Aquests símptomes poden anar associats o no amb una sèrie de signes d'afectació de la superfície ocular, fàcilment identificables durant la consulta optomètrica i oftalmològica. Es considera que un dels motius més freqüents de consulta oftalmològica està relacionada amb la sequedat ocular, existint múltiples estratègies per combatre els signes i els símptomes, com ara els substituts llagrimals, l'ús de calor, certes intervencions quirúrgiques, canvis a la dieta, fàrmacs o la simple modificació, en els casos més lleus, de l'entorn de treball o de les condicions ergonòmiques.

Els esforços investigadors relacionats amb l'ull sec es posen en evidència amb una simple cerca bibliogràfica al Pubmed amb el MeSH Term [Dry Eye Syndromes]. El resultat de la cerca proporciona 13.379 entrades, de les quals gairebé una quarta part corresponen a articles publicats fa menys de 5 anys. Igualment es demostra l'interès i l'impacte social del tema per l'enorme repercussió que obté el Report del Dry Eye Workshop, un extensíssim compendi de coneixement en definició, patologia, diagnosi i tractament de l'ull sec, elaborat i actualitzat periòdicament per un comitè d'experts mundial, format bàsicament per optometristes i oftalmòlegs (entre ells els tres premiats com a Optometrista de l'Any de la Facultat d'Òptica i Optometria de Terrassa [FOOT] i el Sr. Korb).

És innegable, en aquest sentit, la contribució del Sr. Donald R. Korb a la recerca i desenvolupament d'eines de diagnosi i tractament d'aquesta condició. A més de comptar amb més de 100 publicacions i amb nombroses patents, el Sr Korb fou un pioner al posar en evidència el caràcter majoritàriament evaporatiu de l'ull sec. Efectivament, si bé el sentit comú ens pot conduir a pensar que l'ull sec s'origina en una manca de producció de llàgrima, la recerca duta a terme pel Sr. Korb evidencià que en un percentatge molt elevat de pacients la producció llagrimal es manté normal i és, per contra, la producció lipídica (greixos) que forma la superfície més externa de la llàgrima la que es veu afectada, impedint el seu funcionament normal com a barrera per evitar l'evaporació del contingut aquós subjacent. Fou el Sr. Korb el que etiquetà aquest ull sec com *evaporatiu*, i li trobà l'origen a la disfunció de les glàndules de Meibomi de dins les parpelles. Aquest descobriment ha obert la via a noves formes de tractament, específiques per l'ull sec evaporatiu, amb la conseqüent millora en la qualitat de vida d'un nombre molt elevat de pacients.

Igualment fou el Sr. Korb qui s'adonà que la incomoditat que experimenten molts usuaris de lents de contacte troba la seva causa en el fregament d'una zona molt reduïda de la parpella superior sobre la superfície de la lent, principalment en els casos que aquesta lent es troba poc humectada (hidratada) o quan l'usuari no té la cura necessària ens els processos de neteja i manteniment. El Sr. Korb avançà el terme *lid wiper epitheliopathy* per descriure els desperfectes

ocasionats pel fregament mecànic en aquesta zona de parpella, i ho relacionà amb l'abandó en l'ús de lents de contacte i amb els símptomes de sequedat ocular.

La trajectòria del Sr. Korb és reconeguda a nivell mundial, per docents, col·legis professionals, clínics i investigadors, és un referent en el camp de les lents de contacte, ull sec i superfície ocular. Les seves troballes formen part del temari de nombroses assignatures del Grau en Òptica i Optometria, han esdevingut objecte i punt de partida de múltiples treballs final de Grau i final de Màster, i han donat peu, de forma directa o indirecta, a diverses tesis doctorals, en curs o futures.

El valor de la seva trajectòria professional es troba igualment avalat pels tres premiats com a Optometrista de l'Any per la FOOT, el professor James Wolffsohn d'Aston University (UK), el professor Manuel González-Méijome de la Universidade do Minho (Portugal) i el professor Lyndon Jones de la University of Waterloo (Canadà).

El professorat que hi ha d'actuar com a padrí

Professor Jaume Pujol Ramo

Curriculum vitae del candidat o candidata, en el qual se n'ha de recollir la trajectòria acadèmica, l'activitat investigadora i la producció científica

DONALD R. KORB (*Biography and list of Academic Achievements and Publications*)

MAIN CONTRIBUTIONS

Throughout his career, **Dr. Korb** has divided his time between the practice of optometry and research. He has authored over **110 publications** in refereed scientific journals and over **60 US patents**. His inventions have resulted in **10 marketed products**. He has held academic appointments at the New England College of Optometry, Boston College, Boston University Medical School and for the past 22 years Clinical Professor, School of Optometry, University of California at Berkeley.

Among his primary accomplishments of contemporary significance are:

1. The first membrane hydrophilic (soft) contact lens, the CSI lens, the grandfather of the modern soft lens
2. The discovery and naming of Meibomian gland dysfunction (MGD)
3. The description of Meibomian ductal obstruction, now recognized to be the primary cause of dry eye throughout the world (in collaboration with Professor Antonio Henriquez, MD, PhD)
4. The discovery and naming of giant papillary conjunctivitis (GPC) for both rigid and soft contact lenses
5. The discovery and naming of lid wiper epitheliopathy (LWE)
6. The discovery and naming of non-obvious Meibomian gland dysfunction (NOMGD)
7. Ocular lipid technology products, including the commercially marketed dry eye products *Soothe XP and Systane Balance*
8. A comprehensive system of diagnosis and treatment of dry eye and MGD consisting of four instruments: The Korb Meibomian Gland Evaluator (MGE); LipiFlow, the first FDA cleared treatment for the most common form of dry eye, evaporative; LipiView for measurement of lipid layer thickness; and LipiScan (DMI), a new dynamic meibographer
9. Discovery of technique for debridement of lids
10. Discovery of inadequate lid seal and methods of treatment
11. Promulgation of dry eye is the wrong diagnosis for millions
12. Co Founder of TearScience, a company dedicated to dry eye and MGD.

Korb has founded or co-founded 5 research companies, including TearScience in 2005, a company dedicated to developing metrics and treatment for MGD and evaporative dry eye. In 2011 TearScience's LipiFlow treatment was the first to be cleared by the FDA for treatment of the most common form of dry eye, evaporative dry eye. TearScience was acquired by Johnson and Johnson in 2017. Korb previously founded Corneal Sciences and Ocular Research of Boston (Soothe XP and Systane Balance).

Included among over 50 Honors are: Regents Lecturer, University of California, Berkeley; Member, Berkeley Optometry Hall of Fame, University of California; Member, National Optometry Hall of Fame; the annual Donald R. Korb Medal of the American Optometric Association; Founder's Award American Academy of Optometry; Ruben Research Medal,

International Society for Contact Lens Research; BCLA Medal, British Contact Lens Association; Presidential Medal, New England College of Optometry; and 2 honorary doctorates.

Korb's most important contributions of contemporary relevance have been in dry eye and contact lenses, and specifically in Meibomian gland dysfunction and evaporative dry eye. Korb, in collaboration with Professor Antonio Henriquez, MD, PhD, discovered obstructive Meibomian gland dysfunction, named the condition Meibomian Gland Dysfunction (MGD, and developed the most common treatments for MGD. MGD is now acknowledged to be the leading cause of all dry eyes throughout the world. Korb also discovered that heat could be applied directly over the inner lining of the eyelids (the palpebral lid surfaces) in concert with pulsatile pressure. This resulted in his co-invention of the LipiFlow system of treatment, the first FDA cleared treatment for evaporative dry eye. Korb was also the primary inventor of lipid replacement treatments for dry eye, using oil-in-water emulsions delivered to the eye by eye drops (Soothe XP by Bausch & Lomb and Systane Balance by Alcon). These contributions in dry eye have supported the shift from an aqueous based dry eye causative model to a lipid based model.

In contact lenses, Korb's invention of the first membrane hydrophilic (soft) contact lens for daily, therapeutic and extended wear (1972), marketed from 1980 to 2010 as the CSI lens, provided the lens design for the contemporary disposable lens.

Korb's contributions have impacted the care of over 50 million contact lens patients and tens of millions of dry eye patients.

PROFESSIONAL EDUCATION

- B.S., O.D. (Doctor of Optometry) 1962. New England College of Optometry, Boston, MA.
- Fellow, American Academy of Optometry
- Diplomate, Contact Lens Section, American Academy of Optometry

TEACHING APPOINTMENTS AND EXPERIENCE

- Private Practice with Associates Amy C Nau, Andrew McCleod and Joan Exford.
- Asst. Professor and Director, Graduate Contact Lens Program, New England College of Optometry, 1966-1968
- Special Lecturer, Boston College, Graduate School of Education, 1968-1973
- Instructor, Boston University School of Medicine, Department of Ophthalmology, 1994-2005
- Affiliated Clinical Professor, School of Optometry, University of California at Berkeley, 1993-present
- Lectures and Courses – over 500 invited lectures and courses at colleges, optometric and medical schools, research foundations, scientific and professional societies in the United States and abroad.

PRINCIPAL PROFESSIONAL APPOINTMENTS

- Member, Subcommittee on Impairment of Visual Functions, Federal Office of Vocational Rehabilitation, 1962-1964
- Editor, Recent Developments, Encyclopedia of Contact Lens Practice, 1962-1964
- Member, Contact Lens Section Executive Committee, American Academy of Optometry,

1966-1973

- Chairperson, Papers Program, Contact Lens Section, American Academy of Optometry, 1966-1968
- Chairperson, Papers and Program Committee, American Academy of Optometry, 1968-1969
- Chairperson, Committee on Aid to the Partially Sighted, American Optometric Association,
  1968-1971
- Member, Board of Directors, Massachusetts Society for the Prevention of Blindness, 1971-1979
- Topical Editor and Editorial Consultant, Journal of the American Optometric Assoc., 1968-1984
- Invited Founding Member, International Society for Contact Lens Research, London, England, 1980
- Invited Founding Member and Distinguished Practitioner, National Academies of Practice, 1981
- Working Group on Contact Lens Use Under Adverse Conditions, National Research Council and Committee on Vision, 1988-1991
- Chairperson, Awards Committee, American Academy of Optometry, 2000-2006
- Member, International Dry Eye Workshop, 2006-2007
- Member, International Workshop on Meibomian Gland Dysfunction, 2008-2009
- Member, Dry Eye Workshop 2, 2015 - 2017
- Member, Board of Trustees, Schepens Eye Research Institute, Boston, MA, 1993-present

RESEARCH AND BUSINESS EXPERIENCE

COMPANY	POSITION	YEARS
Polaroid Corporation	Project Manager and Consultant	1962-1969
Itek Corp., Lexington, MA	Director, Contact Lens Development Program	1969-1976
Corneal Sciences, Inc.	Founder, President and Director of Clinical Research	1970-1978
Syntex Corporation, Calif. (Acquired Corneal Sciences, Inc.)	Director, Corneal Sciences Contact Lens Programs	1978-1983
Koper Sciences, Inc	Founder and Director of Research	1983-1987
Ocular Research of Boston, Inc. (ORB) Developed first oil-in-water emulsion for dry eyes – Soothe XP® by Bausch & Lomb and Systane Balance by Alcon; developed DET™, Dry Eye Test, by Amcon Labs	Founder, President and Director of Clinical Research	1987 - 2005
TearScience, Inc. First FDA cleared treatment for evaporative dry eye, the ***LipiFlow.*** First automated interferometer, the ***LipiView.*** First	Co-Founder and Chief Scientific Officer	2005-present

dynamic meibographer the ***LipiScan.***		

PUBLICATIONS

Over 110 peer reviewed publications, concentrated in the areas of contact lenses, meibomian gland dysfunction, dry eye and dry eye treatment, tear film ocular diagnostic tests, ocular physiology, and immunological responses of the eye.

Guthrie SE, Jones L, Blackie CA, Korb DR. A comparative study between an oil-in-water emulsion and nonlipid eye drops used for rewetting contact lenses. Eye and Contact Lens. 2015 Nov;41(6):373-377.

Murakami DK, Blackie CA, Korb DR. All warm compresses are not equally efficacious. Optom Vis Sci. 2015 92(9):e327-e333.

Korb DR, Blackie CA. "Dry Eye" is the wrong diagnosis for millions. Optom Vis Sci. 2015 92(9):e350-e354.

Qazi Y, Kheirkhah A, Blackie C, Cruzat A, Trinidad M, Williams C, Korb DR, Hamrah P. In vivo detection of clinically non-apparent ocular surface inflammation in patients with meibomian gland dusfunction-associated refractory dry eye symptoms: a pilot study. Eye. 2015 29:1099-1110.

Pult H, Korb DR, Murphy PJ, Riede-Pult BH, Blackie CA. A new model of central lid margin apposition and tear film mixing in spontaneous blinking. Cont Lens Anterior Eye. 2015 38:173-80.

Korb DR, Blackie CA, Finnemore VM, Douglass T. Effect of using a combination of lid wipes, eye drops, and omega-3 supplements on meibomian gland functionality in patients with lipid deficient/evaporative dry eye. Cornea. 2015 Apr;34(4):407-12.

Blackie CA, Korb DR. A novel lid seal evaluation: the Korb-Blackie light test. Eye and Contact Lens. 2015 Mar;41(2):98-100.

Korb DR, Blackie CA. Debridement-scaling: A new procedure, increases meibomian gland function and reduces dry eye symptoms. Cornea. 2013 Dec;32(12):1554-57.

Ngo W, Situ P, Keir N, Korb DR, Blackie CA, Simpson T. Psychometric properties and validation of the standard patient evaluation of eye dryness questionnaire. Cornea. 2013 Sep;32(9):1204-1210.

Korb DR, Blackie CA. Using goggles to increase periocular humidity and reduce dry eye symptoms. Eye and Contact Lens. 2013 39(4):273-76.

Blackie CA, McMonnies CW, Korb DR. Warm compresses and the risks of elevated corneal temperature with massage. Cornea 2013 Jul;32(7):e146-9.

Korb DR, Blackie CA. Case Report: A successful LipiFlow® treatment of a single case of meibomian gland dysfunction and dropout. Eye and Contact Lens. 2013 39(3): e1-e3.

Korb DR, Blackie CA, McNally EN. Evidence suggesting that the keratinized portions of the upper and lower lid margins do not make complete contact during deliberate blinking. Cornea. 2013 Apr; 32:491-95.

Knop N, Korb DR, Blackie CA, Knop E. The lid wiper contains goblet cells and goblet cell crypts for ocular surface lubrication during the blink. Cornea. 2012 Jun; 31(6):6868-79.

McMonnie CW, Korb DR, Blackie CA. The role of heat in rubbing and massage-related corneal deformation. Cont Lens Anterior Eye. 2012; 35:148-54

Korb DR, Blackie CA. Meibomian gland therapeutic expression: Quantifying the applied pressure and the limitation of resulting pain. Eye & Contact Lens. 2011 Sep; 37(5):298-301.

Knop E, Knop N, Zhivov A, Kraak R, Korb DR, Blackie C, Greiner JV, Guthoff R. The lid wiper and muco-cutaneous

junction anatomy of the human eyelid margins: an in vivo confocal and histological study. J Anat. 2011 Apr;218(4):449-61.

Tomlinson A, Bron AJ, Korb DR, Amano S, Paugh JR, Pearce EI, Yee R, Yokoi N, Arita R, Dogru M. The international workshop on meibomian gland dysfunction: report of the diagnosis subcommittee. Invest Opthalmol Vis Sci. 2011 Mar 30;52(4):2006-49.

Friedland BR, Fleming CP, Blackie CA, Korb DR. A novel thermodynamic treatment for meibomian gland dysfunction. Curr Eye Res. 2011 Feb; 36 (2):79-87.

Blackie CA, Korb DR, Knop E, Bedi R, Knop N, Holland EJ. Non-obvious Obstructive Meibomian Gland Dysfunction (NOMGD). Cornea 2010 Dec;29(12);1333-45.

Pult H, Korb DR, Blackie CA, Knop E, Marx E. About vital staining of the eye and eyelids. I. The anatomy, physiology, and pathology of the eyelid margins and the lacrimal puncta by E. Marx. 1924. Optom Vis Sci. 2010 Oct;87(10):718-24.

Korb DR, Blackie CA. Restoration of Meibomian Gland Functionality with Novel Thermodynamic Treatment Device – A Case Report. Cornea 2010 Aug;29(8):930-33.

Korb DR, Blackie CA. Marx's Line of the Upper lid is Visible in Upgaze without Lid Eversion. Eye and Contact Lens 2010;36(3):149-51.

Knop E, Korb DR, Blackie CA, Knop N. The lid margin is an underestimated structure for preservation of ocular surface health and development of dry eye disease. Dev Ophthalmol. 2010;45:108-22. Epub 2010 May 18. Review.

Korb DR, Herman JP, Blackie CA, Scaffidi RC, Solomon JD, Greiner JV, Exford JM, Finnemore VM. Prevalence of Lid Wiper Epitheliopathy in Subjects with Dry Eye Signs and Symptoms. Cornea 2010 Apr;29(4):377-83.

Blackie CA, Korb DR. The Diurnal Secretory Characteristics of Individual Meibomian Glands. Cornea. 2010 Jan;29(1):34-8

Blackie CA, Solomon JD, Scaffidi RC, Greiner JVG, Lemp MA, Korb DR. The Relationship Between Dry Eye Symptoms and Lipid Layer Thickness. Cornea. 2009 Aug;28(7):789-794.

Blackie CA, Korb DR. Recovery Time of an Optimally Secreting Meibomian Gland. Cornea. 2009 Apr;28(3):293-297.

Korb DR, Blackie CA. Meibomian Gland Diagnostic Expressibility: Correlation with Dry Eye Symptoms and Gland Location. Cornea. 2008 Dec;27(10):1142-7.

Blackie CA, Solomon, JD, Greiner JV, Holmes, M, Korb DR. Inner eyelid surface temperature as a function of warm compress methodology. Optom Vis Sci 85(8):675-683, 2008.

Korb DR, Herman JP, Finnemore VM, Exford JM, Blackie CA. An evaluation of the efficacy of fluorescein, rose bengal, lissamine green, and a new dye mixture for ocular surface staining. Eye Contact Lens 34(1):61-4, 2008.

Solomon JD, Case CL, Greiner JV, Blackie CA, Herman JP, Korb DR. Warm Compress Induced Visual Degradation and Fischer-Schweitzer Polygonal Reflex. Optom Vis Sci 84(7):580-587, 2007.

Scaffidi RC, Korb DR. Comparison of the efficacy of two lipid emulsion eyedrops in increasing tear film lipid layer thickness. Eye & Contact Lens 33(1):38-44, 2007.

Korb DR, Scaffidi RC, Greiner JV, Kenyon KR, Herman JP, Blackie CA, Glonek T, Case CL, Finnemore VM, Douglass T. The effect of two novel lubricant eye drops on tear film lipid layer thickness in subjects with dry eye symptoms. Optom Vis Sci 82(7): 594-601, 2005.

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Olson, MC, Korb DR, Greiner JV: Increase in tear film lipid layer thickness following treatment with warm compresses in patients with meibomian gland dysfunction. Eye & Contact Lens 29:96-99, 2003.

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Smith RS, Korb D, John SW. A goniolens for clinical monitoring of the mouse iridocorneal angle and optic nerve. Mol Vis Feb 25;8:26-31, 2002.

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Korb DR, Greiner JV, and Glonek T: Tear film lipid layer formation: Implications for contact lens wear. Optom Vis Sci 73:189-192, 1996.

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Relevance. Tear film composition and biophysical properties. Adv Exp Med Biol 350:293-298, 1994.

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Korb DR, Baron DF, Herman JP, Finnemore VM, Exford JM, Londono Hermosa J, Leahy CD, Glonek T, and Greiner JV: Tear film lipid layer thickness as at function of blinking. Cornea 13(4):354-359, 1994.

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Korb DR, Finnemore VM, Ross RN, Allansmith MR: Coatings on the surface of siloxane gas permeable lenses worn by keratoconic patients: A scanning electron microscope study. CLAO Journal 13(4):207-210, Jul-Aug 1987.

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Korb DR: Recent advances in contact lens fenestration. Encycl CL Prac: Recent Development Section 111:58-66, Jan 1962.

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Korb DR: A preliminary report on toric contact lenses. Optometric Weekly 51(48):2501-2505, Dec 1960.

PATENTS AND INVENTIONS

Over 60 USA patents (and corresponding foreign patents) granted in the areas of dry eye treatments, ocular diagnostic equipment, visual science, contact lens polymers, contact lens designs, ocular tests for dry eye and ocular drugs and formulations.

PRINCIPAL AWARDS AND HONORS

- Inventor's Award, National Inventors Hall of Fame, 1977. Invention of the first membrane contact lens.
- Person of Vision of Year Award, Massachusetts Society for Prevention of Blindness, March 1983
- Contact Lens Person of the Year, Contact Lens Section, American Optometric Association, 1985
- Schapero Memorial Lecturer, Section on Contact Lenses, American Academy of Optometry, 1985
- Dr. William Feinbloom Award for Advancement of Visual Science and Clinical Excellence, American Academy of Optometry, December 1986
- First Memorial Morton D. Sarver Lecturer, School of Optometry, Univ. of California, Berkeley, 1987
- John C. Neill Memorial Lecturer, Pennsylvania College of Optometry, May 1988
- New England Council of Optometrists, Contact Lens Achievement Award, March 1989
- Meredith Morgan Lecturer, School of Optometry, Univ of California, Berkeley, 1993
- Founder's Award, Contact Lens and Cornea Section, Amer Academy of Optometry, 1994
- Professor Montague Ruben Research Medal, International Society for Contact Lens Research, 1995
- Regents' Lecturer, University of California, Berkeley, 1995-1996
- Kenneth W. Bell Medal, Contact Lens Society of Australia, Sydney, Australia, October 1996
- Donald R. Korb Medal for Excellence, established by the Contact Lens Section, American Optometric Association, 2000 (An annual Award since 2000)
- Dr. Josef Dallos Award, Contact Lens Manufacturers Association, 2001
- Distinguished Service Award, Massachusetts Society of Optometry, 2001
- Bronstein Memorial Award for Contact Lens Achievement, Arizona Optometric Association, 2005
- Bausch & Lomb Visionary Award, 2005
- Pioneers' Lecture, British Contact Lens Association, November, 2005

- Distinguished Service Award, New England College of Optometry, Alumni Association, 2007
- National Optometry Hall of Fame, inducted as member 2007
- University of Houston College of Optometry Award for Distinguished Research on the Cornea and Contact Lenses, 2008
- Inaugural Award and Honors Lecture, International Society of Contact Lens Specialists, 2009
- Springer Honors Lecture, University of Alabama at Birmingham, School of Optometry, 2009
- Eminent Service Award, American Academy of Optometry, 2009
- BCLA Medal, British Contact Lens Association, 2010
- Duke Medical School, Dept of Ophthalmology. Invited Lecture – A New Paradigm for Dry Eye, 2011
- University of California, Berkeley, School of Optometry, Thomas H. Peters Memorial Lecturer, 2011
- Presidential Medal, New England College of Optometry , 2013
- Award of Excellence, Global Specialty Lens Symposium, 2014
- Berkeley Hall of Fame, School of Optometry, University of California, Berkeley, CA., inducted as member 2014
- Myers Lecturer, Ohio State University, College of Optometry, 2014
- Invited Lecturer, Department of Ophthalmology Nassau University Medical Center, 2016
- Invited Lecturer, Collegium, Barcelona Spain, 2016
- The Lime Working Group Invited Lecturer, 2017
- Invited Lecturer, Gordon Conference, University of California, Berkeley, School of Optometry, 2017

HONORARY DEGREES

- Doctor of Ocular Science, New England College of Optometry, 1985
- Doctor of Science, Pennsylvania College of Optometry, 1993

PRIMARY RESEARCH ACCOMPLISHMENTS

- Discovery, nomenclature and initial description of central circular clouding, a specific form of edema, unique to the wearing of PMMA contact lenses, 1962-1967
- Discovery of lid attachment rigid contact lens fitting technique, known as Korb Technique, 1970
- Initial description of motor vehicle operation utilizing telescopic prostheses by the visually handicapped, 1970
- Inventor of first membrane hydrophilic (soft) contact lens, 1972, (US Patent 3957362, marketed from 1980 to 2010 as the CSI lens)
- Inventor of first membrane (thin) contact lens for therapeutic and extended wear, 1972 (US Patent 4180308
- Discovery and initial description of edematous corneal formations, a sequela of edema with rigid PMMA lenses, 1973
- First FDA approved clinical trial for extended wear of contact lenses (soft-hydrophilic), 1974
- Discovery, nomenclator and initial description of giant papillary conjunctivitis (GPC) for all types of contact
- Development of gas-permeable rigid lens fitting technique, the Polycon 9.5 and Korb RGP technique, 1977
- Development of test for dry eye (sequential corneal staining), 1979
- Nomenclator and initial description of meibomian gland dysfunction (MGD) and obstruction
- Discovery of meibomian gland obstruction as the leading cause of dry eye states, 1980-current
- Identification of the role of the fitting and design characteristics of rigid contact lenses in the scarring and apical change processes of the keratoconic cornea, 1982
- Identification of role of eye rubbing in the development of keratoconus, 1987
- Inventor and development of the first phospholipid/oil eye formulation for the treatment of the dry eye, 1987-1990 (US Patent 4914088)

- Inventor and development of the first oil-in-water emulsion formulations for the treatment of the dry eye, 1987-1990 (US Patents 4914088; 5278151; 5578568)
- Identification of role of blinking in the formation of lipid layer thickness, 1990-1994
- Identification of role of humidity in the formation of lipid layer thickness, 1990-1994
- Discovery, nomenclator and initial description of lid wiper epitheliopathy, 2002-present
- Development of new break-up time test, the DET Test, marketed by Nomax, 2006
- Co-inventor and development of first oil-in-water metastable emulsion artificial tear product for the treatment of dry eye states and disease, marketed by Bausch and Lomb, under the name Soothe XP, 2004-present (US Patents 4914088; 5278151; 5578568)
- Co-inventor and development of oil-in-water metastable emulsion, Systane Balance, marketed by Alcon, the first artificial tear product for the treatment of all three layers of the tear film, 2010 (US Patents 4914088; 5278151; 5578568)
- Inventor of the first instrument for evaluation of functionality of meibomian glands, the Meibomian gland evaluator (MGE), 2011 (US Patent Application 20080082057)
- Co-inventor of first instrument for the computerized evaluation the lipid layer thickness, the LipiView, marketed by TearScience, 2010 (Multiple US Patents including: 7758190; 7988294)
- Co-inventor of the LipiFlow, the first FDA approved treatment for the most common form of dry eye (evaporative), marketed by TearScience, 2010 (Multiple US Patents including: 7981095; 8007524)
- The Korb-Blackie Lid Seal Light Test – the discovery of inadequate lid seal vs closure during sleep – 2012 - 2015
- Discovery of debridement of Line of Marx and lid margin – 2012
- Co-inventor of the LipiScan, the first dynamic meibographer - 2016

PRESENT ACTIVITIES

Private Practice of Optometry
Specializing in dry eye and complex ocular problems

Korb Research
Founder and Chief Scientific Officer, 2007-present

TearScience, Inc.
Co-founder & Chief Scientific Officer, 2005-present
Present research activities dedicated to amelioration of dry eye states

El certificat de l'acord, o els certificats dels acords, de la proposta favorable emès per l'òrgan competent.

UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH
Facultat d'Òptica i Optometria de Terrassa

ACTA DE LA REUNIÓ DE LA JUNTA DE FACULTAT

Núm. de sessió: 5
Data: 15 de NOVEMBRE de 2017
Hora d'inici: 12:00 h
Hora de finalització: 13:45 h
Lloc: Sala d'audicions del TR8

Membres

EXCUSEN LA SEVA ASSISTÈNCIA:	ABSENTS:

Ordre del dia

1. Lectura i aprovació, si escau, de l'acta de la darrera reunió
2. Informacions del degà
3. Presentació de la memòria 2016-17 de la FOOT
4. Aprovació, si escau, de la proposta de nomenament de doctor honoris causa
5. Debat en relació a si escau un posicionament de la facultat al respecte de la situació política que viu el país

.

3.- Presentació de la memòria 2016-17 de la FOOT

4.- Aprovació, si escau, de la proposta de nomenament de doctor honoris causa

El degà comenta que durant el curs 17-18 se celebraran els 40 anys de la FOOT i que es va crear un grup de treball per organitzar diversos actes. Entre d'altres, es va proposar fer un acte acadèmic a l'abril de 2018 amb el nomenament de doctor honoris causa a un optometrista de prestigi internacional. Es va obrir un termini perquè els professors de la Facultat fessin propostes i no n'hi va haver. També es va demanar l'opinió als optometristes que han rebut el Premi a l'Optometrista de l'Any.

Amb tota aquesta informació, l'ED proposa dues persones per al nomenament: Donald R. Korb (Korb & Associates - Optometry In Boston, MA USA) i Kovin Naidoo (UNSW Sidney, Faculty of Science) (veure document annex: Honoris_Causa_FOOT.pdf). El primer candidat no ha estat directament vinculat a una carrera acadèmica pròpiament, tot i que ha fet molta recerca. El segon candidat ha fet una tasca acadèmica rellevant però també ha tingut una participació molt activa en projectes de cooperació relacionats amb la salut visual.

S'obre un torn obert d'intervencions i es sotmet a votació la proposta de nomenament de doctor honoris causa. Els resultats de la votació són:

- Vots per Donald R. Korb: 14
- Vots per Kovin Naidoo: 0
- Abstencions: 5

D'acord amb aquests resultats, s'aprova la proposta de nomenament de Donald R. Korb com a doctor honoris causa.

En tot cas, s'enviarà la proposta al Consell de Govern de la UPC per a la seva aprovació, tal i com reflecteix la normativa vigent (enllaç).

5.- Debat en relació a si escau un posicionament de la facultat al respecte de la situació política que viu el país

6.- Assumptes sobrevinguts

7.- Torn obert de paraules

Acords

JF2017-11-15.01: Aprovar la proposta de nomenament de doctor honoris causa de Donald R. Korb.

.

Meritxell Vilaseca Ricart
Secretària acadèmica

Vist i plau,
Joan Gispets Parcerisas
Degà de la FOOT

Un mínim de tres cartes d'adhesió a la proposta de tres doctors o doctores de prestigi rellevant, o bé de tres persones expertes relacionades amb la matèria en què la persona candidata ha destacat

Professor James S. Wolffsohn

BSc(Hons) PgCertHE PgDipAdvClinOptom
MBA PhD PFHEA FSB FAAO FCOptom
FIACLE FBCLA

Associate Pro-Vice Chancellor
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January 13, 2018

Prof G Cardona
Department of Optics and Optometry SchoolTerrassa School of Optics and Optometry (FOOT)
Universitat Politècnica de Catalunya
Barcelona

Re: Letter of support for honorary degree for Prof Donald Korb

Dear Prof Cardona,

Prof Donald Korb is a very well established research optometrist who has made significant contribution to our understanding of dry eye and its management. In addition to an impressive research career, Prof Korb has also developed and commercialized instruments, notably to measure Meibomian gland expression, tear film osmolarity, and lipid layer analysis and treatment. Hence he has made a huge impact on the understanding and practice of dry eye across the world. He lectures extensively globally and has had significant roles in professional bodies to advance ophthalmic science and education. I therefore think it highly appropriate that the Universitat Politècnica de Catalunya, Barcelona, recognise his achievements with an honorary degree,

Sincerely,

Prof Wolffsohn

University of Waterloo
200 University Avenue West
Waterloo, Ontario, Canada N2L 3G1
519-888-4567
Fax: 519-746-365

Thursday, January 11th, 2018

Dear Sirs,

I am a tenured Professor in the School of Optometry & Vision Science at the University of Waterloo (UW) in Ontario, Canada and also Director of the Centre for Ocular Research & Education (CORE) at UW. This is a research unit that conducts primarily contact lens and dry eye studies and has an annual turnover in excess of $5 million. I currently serve on the UW Honorary Grants Committee, am Chair of the University Research Ethics and Integrity Advisory Committee and I am former Chair of the Research Committee of the American Academy of Optometry.

I am writing to propose that consideration is given to awarding an honorary PhD at your institution to Dr Donald Korb. An examination of Dr Korb's curriculum vitae clearly indicates what an exceptional individual he is. I have known Dr Korb through his publications and lectures at conferences globally since I was an optometry student in the early 1980's and we have discussed several research concepts at meetings over the years since moving to Canada in 1998. We have worked together on several publications, most recently on the Tear Film & Ocular Surface (TFOS) global initiative on dry eye. [1-5]

Dr Korb graduated from the New England College of Optometry in 1962 and in the ensuing 55 years has been in industry, private practice and spent some time working with various optometry schools and Ophthalmology departments. Dr Korb is a unique individual who is best described as a clinician scientist in the true sense of the word. Over his distinguished career, Dr Korb notices clinical conditions in his private practice work and then goes about evaluating, understanding and "solving" the problem with dogged determination, often using his own funds to undertake the studies required. He is certainly not a traditional academic. But as a result, he has developed a passion for research that has not been slowed by the typical requirements of teaching and service that slow traditional academics from undertaking their research.

Dr Korb has a staggering 60 patents in the areas of contact lens materials, designs, dry eye products and equipment. This is unusual for anyone working in industry, let alone someone who is largely in private practice. Among these are two dry eye products that are used by millions of patients worldwide (Soothe XP ™ and Systane Balance ™). [3, 6, 7] These

products were driven by his work investigating the importance of phospholipids in the tear film. [8-12]

Dr Korb has held a number of positions in industry prior to starting his own practice and consulting business, including Polaroid Corporation and Syntex. He founded his own consulting business (Ocular Research of Boston) in 1987 and then founded TearScience in 2005, which was very recently purchased by Johnson & Johnson. At TearScience he developed the LipiView, LipiFlow and LipiScan technologies that have almost single-handedly driven the interest in meibomian gland viewing and management of meibomian gland dysfunction (MGD). TearScience's LipiFlow treatment was the first to be cleared by the FDA for treatment of the most common form of dry eye, evaporative dry eye. [13-17] Indeed, Dr Korb has spent almost 40 years investigating MGD and could easily lay claim to be the "godfather" of MGD diagnosis and management, with many publications and lectures to his name on this topic. [2, 8-11, 13, 15, 16, 18-41]

Dr Korb's early work investigated the performance of rigid contact lenses. He was among the first people to describe central corneal clouding and oedema due to low levels of oxygen through PMMA lenses, [42, 43] described an improved way of fitting rigid lenses (lid attachment) [44] and also "3 and 9" corneal staining. [45, 46] All of these are seminal papers on these topics. He has also reported extensively on corneal staining and various stains. [47-50] Around the same time, Dr. Korb set out to make a lens that was only as thick as a few epithelial cells, or about 30µm thick. At the time, rigid lenses were 200m to 300m thick. Nevertheless, in 1972, he patented the CSI Lens, the first ultrathin non-HEMA soft lens. Polymer chemist Miguel Refojo and others helped create the revolutionary new "membrane lens" as it was often called. It was approved by the FDA and launched by Syntex and Sola/Barnes-Hind in 1981.

Dr Korb was the first person to discuss the development of giant papillary conjunctivitis with contact lens wear, through his early work with Mathea Allansmith. [51-59] He was also the first to describe the clinical condition called "lid wiper epitheliopathy" that has been hypothesised to be due to friction between the under surface of the eyelid and the ocular surface or front surface of a contact lens. [31, 33, 60-62] He was also the developer of a novel dry eye questionnaire (the SPEED questionnaire) that has been utilized in many dry eye studies. [2, 63]

Dr Korb is a wonderful orator and educator. I have seen him give dozens of lectures at major meetings worldwide and his engaging educational ability is wonderful to behold. He engages the audience with a "story" that is both scientific and clinically relevant. He has given over 500 presentations at meetings and whenever I see his name on the program I always try to ensure that I attend to listen to his lecture.

His list of international Awards are extensive and include the Regents Lecturer, University of California, Berkeley; Member, Berkeley Optometry Hall of Fame, University of California; Member, National Optometry Hall of Fame; Founder's Award American Academy of Optometry; Ruben Research Medal, International Society for Contact Lens Research; BCLA Medal, British Contact Lens Association; Presidential Medal, New England College of Optometry; and 2 honorary doctorates (New England College of Optometry, 1985 and Pennsylvania College of Optometry, 1993).

In summary, I feel that Dr Donald Korb is an entirely appropriate choice as someone to be awarded an honorary PhD from the Universitat Politècnica de Catalunya and I would urge the selection committee to bestow this honor on someone who has brought great distinction to himself and the contact lens and dry eye research community for over 50 years.

Yours sincerely

Lyndon Jones PhD FCOptom FCAHS DipCLP DipOrth FAAO (DipCL) FIACLE FBCLA

Professor, School of Optometry & Vision Science
Director, Centre for Ocular Research & Education

References

1. Szczotka-Flynn L, Jones L, Korb D, *et al.* Contact lenses in suboptimal environments. Optom Vis Sci 2007; 84;4: 240.
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4. Schulze MM, Srinivasan S, Hickson-Curran SB, *et al.* Lid Wiper Epitheliopathy in Soft Contact Lens Wearers. Optom Vis Sci 2016; 93;8: 943-54.
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Braga, January 13th, 2018

With the present letter I endorse the appointment of Dr. Korb for the Honorary PhD Degree. He has been a pioneer in the field of ocular surface fundamental and clinical research revealing also a singular entrepreneur spirit that has resulted in numerous advances for vision treatment.

Dr. Korb has been able to maintain during his long and productive career a very high level of clinical practice linked to the research activity that has resulted in several inventions and advances in visual science. I will highlight specifically his contributions to the contact lens polymer science, being one of the invertors with Professor Miguel Refojo of the second hydrogel material (glycerol methacrylate copolymer) used for contact lens manufacture. Over the last decades his contributions towards our understanding of the anatomy, physiology and pathophysiology of the ocular surface and dry eye have been paramount.

For the mentioned reasons, I consider that Dr. Korb meets the highest standards to deserve the Honorary PhD degree by the Polytechnic University of Catalonia.

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