Curriculum Vitae

&

Professional Profile of T. V. Chirila

Last update: 15-MAY-2018

Contents

GENERAL INFORMATION

NAME: **TRAIAN V. CHIRILA**

PLACE OF BIRTH: Romania

CITIZENSHIP: Australian

WORK ADDRESS: Queensland Eye Institute
140 Melbourne Street,
South Brisbane, Qld. 4101
Australia.
Tel.: **61-(0)7-3239-5024**

E-mail: *traian.chirila@qei.org.au [primary]; t.chirila@uq.edu.au ; t.chirila@qut.edu.au .*

Homepage: *http://www.qei.org.au/page/research/researchers/professor-traian-chirila/*

EDUCATION, QUALIFICATIONS AND CERTIFICATIONS

1972	**B Eng** (Polymer Technology), Faculty of Chemical Engineering, University Politehnica of Timisoara, Romania.
1981	**Ph D** (Organic Chemistry), University Politehnica of Timisoara, Romania.
1983	**C Chem**, Royal Australian Chemical Institute.
1984	**Ph D Assessment**, Council on Overseas Professional Qualifications, Canberra, Australia.
2015	**Doctor Honoris Causa**, University Politehnica of Timisoara, Romania

EMPLOYMENT HISTORY

Research Engineer, Polytechnic University of Timisoara, Faculty of Chemical Engineering, Romania, 1972 to 1974. Research on solvents for polymer coatings.

Research Scientist, Central Institute for Chemical Research, Laboratory of Timisoara, Romania, 1974 to 1982. Research on: synthesis of additives for polymers; solvation and plasticization; polyurethane chemistry; stereochemistry of cyclic compounds. Supervising pilot-scale and industrial processes for production of solvents and plasticizers. Ph D Dissertation ("Alcohol, ester and ether derivatives of 1,3-dioxolane and 1,3-dioxane") defended in 1981.

Laboratory Manager, Klöckner-Humboldt-Deutz GmbH, on location at the Chemical Complex of Abu-Quammash, Lybia, March to Dec. 1982. Supervision of quality control testing of poly(vinyl chloride). Development of special testing techniques.

Research Fellow, Curtin University of Technology, School of Applied Chemistry, Perth, Western Australia, 1983 to 1984. Research in organic geochemistry: correlation between maturation of sedimentary organic matter and distribution of aromatic compounds; new maturity indicators; kinetics of maturation.

Chemist, Macdonald Hamilton and Co., Environmental Services, Perth, Western Australia, 1985; Australian Assay Laboratories, Perth, Western Australia, 1985 to 1986. Routine analytical work on ore minerals and environmental contaminants.

Senior Scientist, Lions Eye Institute (LEI), Perth, Western Australia, 1986 to 2005.

In charge of the Department of Biomaterials and Polymer Research.
Main projects and interests:

Novel biomaterials for ocular implants
Artificial intraocular lenses, new concepts and designs
Tissue-material interactions
Calcification of implants
Phototoxicity and protection
Ultraviolet-absorbing polymers
Artificial cornea
Artificial vitreous substitutes
Interaction of laser radiation with polymers
Controlled release of bioactive agents
Photoresponsive polymers
Characterization of polymers
Delivery of therapeutic oligodeoxyribonucleotides
Synthesis and modification of oligodeoxyribonucleotides
Tissue engineering

1989 to 1994: Assistant Director (Research)

Senior Scientist, Queensland Eye Institute (QEI), Brisbane, Queensland, 2005 to present.

In charge of research in ophthalmic biomaterials and bioengineering.
Main projects and interests:

Development of polymer substrates for cell growth
Biodegradable hydrogels
Interaction of laser radiation with polymers
Crosslinking of collagen
Calcification of hydrogels
Interpenetrating polymers networks
Artificial vitreous substitutes
Self-healing hydrogels
Tissue engineering
Ocular surface reconstruction
Controlled release of bioactive agents
Artificial corneal endothelium
Retinal cells transplantation
Surgical adhesives

Chief Scientist: 2010 – present
2010 – 2014: Member, QEI Human Research Ethics Committee
2010 – present: Chair, QEI Scientific Committee

AFFILIATIONS AND PROFESSIONAL MEMBERSHIPS

ACADEMIC AFFILIATIONS

Adjunct Associate Professor, Faculty of Medicine and Dentistry, University of Western Australia, Perth; 1992 – 2004.

Adjunct Senior Research Fellow (1994 – 1999), *Adjunct Professor* (1999 – 2002), *Adjunct Research Professor* (2003 – 2006), School of Applied Chemistry, Curtin University of Technology, Perth, Western Australia.

Adjunct Professor, Science and Engineering Faculty, Queensland University of Technology, Brisbane; **2005 – current**.

Adjunct Professor, Australian Institute for Bioengineering and Nanotechnology, University of Queensland, Brisbane; 2005 – 2015.

Honorary Professor, Australian Institute for Bioengineering and Nanotechnology, University of Queensland, Brisbane; **2015 – current**.

Adjunct Professor, Faculty of Medicine and Biomedical Sciences, University of Queensland, Brisbane; 2006 – 2015.

Honorary Professor, Faculty of Medicine, University of Queensland, Brisbane; **2015 – current**.

Honorary Research Fellow, Faculty of Science, University of Western Australia, Perth; **2013 – current**.

OTHER APPOINTMENTS AND MEMBERSHIPS

Member, the Site Laboratory Safety Committee for the Queen Elizabeth II Medical Centre, Perth, Western Australia (1990 to 1994).

Assessor for National Health and Medical Research Council (Australia) grant proposals.

Assessor for Australian Research Council grant and fellowship proposals.

Reviewer for the Ophthalmic Research Institute of Australia (ORIA) grant applications.

Reviewer for the Health Research Council of New Zealand grant applications.

Science Peer Reviewer for the Ministry of Business, Innovation and Employment of New Zealand, Science Investment Rounds, Smart Ideas Investment mechanism.

Reviewer for the Natural Sciences and Engineering Research Council (NSERC/CRSNG) of Canada grant applications.

Reviewer for the Wellcome Trust grant applications.

Reviewer for National Research Foundation of Singapore grants applications.

Western Australia Polymer Group of the Royal Australian Chemical Institute, *Secretary* (1988 to 1990); *Chairman* (1991 to 1995).

The Royal Australian Chemical Institute Polymer Division Standing Committee, *Member* (1991 to 1998).

President, The Romanian Community of Western Australia, Inc. (1991 to 1994).

CORPORATE EXPERIENCE

Managing Director, Medical Biomaterials Pty Ltd (ACN 009 166 509), 1993 to 2001.

Project Manager, The Lions Eye Joint Venture, Syndicated R&D Project (Artificial Cornea), 1995 to 1998.

Chief Scientific Officer, Argus Biomedical Pty Ltd (ABN 82 009 166 509), 2001 to 2004.

Chief Scientific Advisor, CooperVision Surgical (ABN 12 060 200 553), 2004 to 2006.

Consultant and Polymer Expert (Court-appointed) to Bausch & Lomb Pty Ltd in the patent litigation vs. Novartis AG, 2001 to 2003.

Director, Barista Mist Pty Ltd (ACN 624 317 200), 2018 to –

MEMBERSHIP TO PROFESSIONAL ASSOCIATIONS

Royal Australian Chemical Institute (member, 1983 to 1992; fellow, 1992 –).

The Institution of Engineers, Australia (1984 to 1987).

Association of Professional Engineers, Scientists and Managers, Australia (1986 to 2008).

Australian and New Zealand Association for the Advancement of Science (1991 to 1998).

Australasian Society for Biomaterials and Tissue Engineering, Inc. (1992 –).

Inventors Association of Western Australia, Inc. (1992 to 1994).

Interdisciplinary Club for Biomaterials in Ophthalmology (1992 to 1998).

Society for Biomaterials, USA (1992 to 2004).

KPro Study Group (1992 –).

The New York Academy of Sciences (1994 to 2015).

International Society for Ocular Trauma (1995 to 1997).

Swiss Society for Biomaterials (2001 to 2002).

The American Branch of Romanian Academy of Scientists (2003 –).

The Romanian Academy of Scientists (corresponding member, 2003 –).

International Society of Dacryology and Dry Eye (2003 to 2005).

American Chemical Society (2006 –)

Royal Society of Chemistry (fellow, 2016 –)

Listed in *"Who's Who in Engineering - Australia and New Zealand"*
Listed in *"The Australian Directory of Academics"*
Listed in *"Who's Who and Who's What in Western Australia"*

MEMBERSHIP TO CONFERENCE ORGANIZING COMMITTEES

(1) International Symposium "Advances in Biomedical Polymers", Perth, Australia, February 1989.
(2) The 19th Australian Polymer Symposium, Perth, Australia, February 1992.
(3) The 3rd Pacific Polymer Conference, Gold Coast, Australia, December 1993.
(4) The 21st Australian Polymer Symposium, Wollongong, Australia, February 1996.

(5) Chair and organizer, "Conference on Medicine", a Science & Technology Seminar sponsored by the Embassy of Italy, Perth, Australia, 17 April 1996.

(6) IUPAC World Polymer Congress (37th International Symposium on Macromolecules, MACRO-98), Gold Coast, Australia, July 1998.

(7) 98 Workshop on Tissue Engineering, Tianjin, P. R. China, October 1998.

(8) The 25th Australasian Polymer Symposium, Armidale, Australia, February 2002.

(9) First International Conference on Medical Implants, Bethesda, MD, USA, July 2003 (Program Committee and International Advisory Board).

(10) The 11th Pacific Polymer Conference, Cairns, Australia, December 2009.

(11) Tissue Engineering & Regenerative Medicine International Society (TERMIS) 2010 Asia-Pacific Meeting and Annual Conference, Sydney, Australia, September 2010 (International Scientific Committee).

(12) BIT's 3rd Annual World Congress of Regenerative Medicine & Stem Cells 2010, Shanghai, China, December 2010 (Advisory Board).

(13) The Association for Research in Vision and Ophthalmology (ARVO)-Asia, 2017, Brisbane, Australia, February 2017.

(14) The 3rd International Symposium on Biomaterials & Biosensors (BIOMATSEN 2017), Ölüdeniz, Fethyie, Turkey, April 2017.

EDITORIAL ACTIVITIES

Member, Editorial Board:

- *Biomaterials and Tissue Technology:* ***Founding EDITOR-in-CHIEF***
- *Journal of Biomaterials Applications* (***Reviews Editor*** *to 2015*)
- *The Open Biomedical Engineering Journal:* ***Associate Editor***
- *The Open Materials Science Journal:* ***Associate Editor***
- *Biomaterials*
- *Recent Patents on Materials Science*
- *The Open Macromolecules Journal*
- *International Journal of Biomaterials*
- *Progress in Biomaterials*
- *The Open Biomaterials Journal*
- *The Open Conference Proceedings Journal*
- *Frontiers in Molecular Sciences, Bioengineering, Biotechnology and Materials*

*(****Review Editor*** *for Biomaterials specialty)*

- *The Open Access Journal of Science and Technology*

Guest Editor: *Progress in Polymer Science*, Special issue "Polymer Science and the Eye", vol. 23, issue #3 (1998).

Guest Editor: *Journal of Functional Biomaterials*, Special issue "Advances in Ophthalmic Biomaterials", vol. 4 (2013).

Editor: *Biomaterials and Regenerative Medicine in Ophthalmology*, Woodhead Publishing Ltd, Cambridge, U.K. and CRC Press, Boca Raton, U.S.A., 2010. ISBN: 978-1-84569-443-2.

Editor: *Biomaterials and Regenerative Medicine in Ophthalmology*, 2nd Edition, Elsevier, Amsterdam, 2016. ISBN: 978-0-08-100147-9.

Journal Reviewer for: *ACS Biomaterials Science & Engineering / Acta Biomaterialia / Advanced Biosystems / Advanced Healthcare Materials / Advances in Materials Science and Engineering / American Journal of Drug Delivery / American Journal of Polymer Science / Australian Journal of Chemistry / Biomacromolecules / Biomaterials / Biomedical Materials / BioMed Research International / Biosensors and Bioelectronics / Biotechnology and Applied Biochemistry / Biotechnology Progress / British Journal of Ophthalmology / Cells and Materials / Clinical and Translational Science / Clinical Ophthalmology / Cornea / Current Biochemical Engineering / Current Drug Delivery / European Journal of Pharmaceutics and Biopharmaceutics / European Polymer Journal / Expert Review of Medical Devices / Frontiers in Bioengineering and Biotechnology / Future Medicine / Indian Journal of Medical Research / International Journal of Biomaterials / International Journal of Pharmaceutics / Investigative Ophthalmology & Visual Science / Journal of Biomaterials Applications / Journal of Biomaterials Science-Polymer Edition / Journal of Biomedical Materials Research / Journal of Controlled Release / Journal of Functional Biomaterials / Journal of Materials Chemistry Part B/ Journal of Materials Research / Journal of Materials Science / Journal of Ophthalmology & Optometry / Journal of the Mechanical Behavior of Biomedical Materials / Langmuir /*

Macromolecular Bioscience / Macromolecular Materials and Engineering / Materials Letters / Materials Science & Engineering C / Medical Engineering and Physics / Medical Practice and Reviews / Nano Research & Applications / Nature Communications / New Journal of Chemistry / PLOS One / Polymer Chemistry / Polymer Degradation and Stability / Polymer International / Polymer Reviews/ Polymers / Progress in Biomaterials/ Progress in Polymer Science / Recent Patents on Materials Science / Recent Patents on Nanomedicine / Regenerative Medicine / RSC Advances / Science / Soft Matter / The Open Macromolecules Journal / The Open Materials Science Journal / The Protein Journal / Stem Cells International / Trends in Polymer Science /.

RESEARCH GRANTS AWARDED

(1) University of Western Australia, Faculty of Medicine Research and Scholarships Committee (1987): "Chemical effects in the eye of the flexible polymeric biomaterials as intraocular implants". **A$3,886**.

(2) Industry Research and Development Board of the Commonwealth Department of Industry, Technology and Commerce of Australia, Generic Technology Grant No. 15001 (1987–1990): "New biomaterials for surgical implantation", co-awarded with I.J. Constable. **A$504,300**.

(3) National Health and Medical Research Council (Australia), Project Grant No. 880049 (1988–1990): "Critical evaluation and further development of ocular biomaterials", co-awarded with I.J. Constable and L.N. Walker. **A$103,354**.

(4) Alcon Laboratories, Inc., U.S.A. (1989–1994): "New concepts and novel materials for soft intraocular lenses", co-awarded with G.D. Barrett and I.J. Constable. **US$300,000**.

(5) National Health and Medical Research Council (Australia), Project Grant No. 910167 (1991–1993): "Application of biomaterials chemistry for the development of a functional keratoprosthesis", co-awarded with I.J. Constable and G.J. Crawford. **A$321,394**.

(6) Clive and Vera Ramaciotti Foundations, Project Grant No. A722 (1992): "Biomaterials for artificial intraocular lens duplicating radiation-absorbing properties of the natural lens", co-awarded with I.J. Constable. **A$20,950**.

(7) Australian Research Council, Project Grant (1992): "Studies of the relationship between polymerization parameters and polymer microstructure", as an associate investigator with D.J.T. Hill, P.J. Pomery and A.K. Whittaker (University of Queensland).

(8) Raine Medical Research Foundation, Project Grant (1992–1995): "Controlled release of angiogenic agents in vivo", co-awarded with M.D. Grounds, C.A. Mitchell, M.A.L. Maley, D.J. Wood and A.R. Harvey. **A$177,404**.

(9) National Health and Medical Research Council (Australia), Project Grant No. 940707 (1994–1996): "Biomaterials for permanent vitreous substitution", co-awarded with I.J. Constable. **A$137,835**.

(10) The Lions Clubs International Foundation, Oak Brook, IL, U.S.A. (1994): Equipment grant. **US$50,000**.

(11) The Ophthalmic Research Institute of Australia and the OPSM Research and Charitable Foundation (1995): "Further development and in vivo assessment of a new type of keratoprosthesis", co-awarded with G.J. Crawford and I.J. Constable. **A$17,000**.

(12) Research and Development Syndicate (1995–1998): "Development of an artificial cornea", co-awarded with I.J. Constable and G.J. Crawford. **A$2,800,000**.

(13) Australian Retinitis Pigmentosa Association Grant (1996): "Antisense mediated treatment of retinitis pigmentosa", co-awarded with P. E. Rakoczy and I. J. Constable. **A$18,000**.

(14) Raine Medical Research Foundation, Project Grant (1996–1997): "Strategies for the treatment of autosomal dominant diseases. Retinitis pigmentosa", co-awarded with P.E. Rakoczy and C.M. Lai. **A$156,258**.

(15) The Ophthalmic Research Institute of Australia and Royal Australian College of Ophthalmologists Grant (1997): "Development of a new orbital implant from poly(2-hydroxyethyl methacrylate)", co-awarded with G.J. Crawford, C.R. Hicks, S. Vijayasekaran, A.B. Clayton, J.H. Fitton and I.J. Constable. **A$5,000**.

(16) Australian Retinitis Pigmentosa Association Grant (1998): "Antisense mediated treatment of retinitis pigmentosa", co-awarded with P. E. Rakoczy and K. Bos. **A$20,000**.

(17) National Health and Medical Research Council (Australia), Project Grant No. 990430 (1999–2000): "Clinical trial of a poly(HEMA) keratoprosthesis", co-awarded with C. R. Hicks, G. J. Crawford and I. J. Constable. **A$111,895**.

(18) The Ophthalmic Research Institute of Australia Grant (2000): "Development and evaluation of a non-viral delivery system for therapeutic antisense oligodeoxynucleotides in the treatment of subretinal neovascularisation", co-awarded with P. E. Rakoczy and X. Lou. **A$21,000**.

(19) National Health and Medical Research Council (Australia), Competing Clinical Trials/Large Scale Grant No. 139066 (2001–2003): "Multi-centred clinical evaluation of a novel keratoprosthesis", co-awarded with I. J. Constable, C. R. Hicks and G. J. Crawford. **A$ 510,000**.

(20) AusIndustry (Australia), R&D START Grant No. GRA02059 (2001–2003): "Development of the Kera-Clear artificial cornea", with Argus Biomedical Pty Ltd. **A$472,520**.

(21) Australian Research Council, Discovery-Project DP0208223 (2002–2004): "Calcification of acrylic hydrogels in abiotic media: mechanism and control", co-awarded with J. M. Webb, A. K. Whittaker and D. J. T. Hill. **A$305,000**.

(22) National Health and Medical Research Council (Australia), Development Grant No. 254717 (2003): "A new device for ophthalmic drug delivery", co-awarded with C. R. Hicks, X. Lou and I. J. Constable. **A$118,000**.

(23) Department of Health, Government of Western Australia, Medical and Health Infrastructure Fund Grant Ref. 03-04009, Round 7 (2004). **A$34,317**.

(24) Department of Health, Government of Western Australia, Medical and Health Infrastructure Fund Grant Ref. 04-02689, Round 8 (2005). **A$53,196**.

(25) Australian Research Council, Discovery-Project DP0663037 (2006–2008): "Biodegradable porous HEMA-based polymers: innovative strategies for the design and tuneable single-step production of a novel class of scaffolds for tissue engineering", co-awarded with M. V. Baker, A. K. Whittaker and H.-B. Kraatz. **A$560,000**.

(26) Smart State Innovation Projects Fund (Queensland), National and International Research Alliances Program (2006–2009): "The International Biomaterials Research Alliance", co-awarded with teams from University of Queensland, Royal Brisbane Hospital, University of California at Santa Barbara, Washington University at St. Louis, University of Warwick, and Queen Mary College University of London). **A$4,000,000**.

(27) Goldman Sachs JBWere Foundation, Annual Grants Program (2007). **A$10,000**.

(28) Australian Research Council, Discovery-Project DP0878615 (2008–2010): "Generation of peptidomimetic surfaces for biomaterials applications", co-awarded with I. Blakey, D. J. T. Hill and C. J. Hawker. **A$560,000**.

(29) National Health and Medical Research Council (Australia), Project Grant No. 553038 (2009–2011): "Development of a novel bioengineered tissue construct for repairing the eye", co-awarded with D. Harkin, D. Hutmacher and I. Schwab. **A$323,125**.

(30) The Ophthalmic Research Institute of Australia (ORIA)/Vision Australia Inc. Grant (2009): "Development of an artificial silk membrane for retinal pigment epithelial cell growth', co-awarded with A. Kwan and D. Harkin. **A$25,000**.

(31) The IHBI Collaborative Research Development Scheme 2012 Grant (2012–2013): "An innovative biomimetic model for studying the pathomechanisms of ageing and age-related macular degeneration in the eye", co-awarded with B. Feigl, D. Harkin, D. Hutmacher, A. Weiss and P. Dalton. **A$30,000**.

(32) The Ophthalmic Research Institute of Australia (ORIA)/RANZCO Eye Foundation Grant (2013): "Preparation of human endothelial silk fibroin constructs for transplantation", co–awarded with P.W. Madden, P.S. Beckingsale and D.G. Harkin. **A$43,550**.

(33) National Health and Medical Research Council (Australia), Project Grant No. 1049050 (2013–2015): "A novel mesenchymal stromal cell and biomaterial for corneal reconstruction", co-awarded with D. Harkin, L. Hirst, D. Hutmacher and K. Atkinson. **A$489,980**.

(34) Macular Disease Foundation Australia, Research Grant 2014-2016: A novel tissue substitute for repairing the outer retina in patients with AMD", co-awarded with D. Harkin, A. Shadforth, T. Kwan and N. Barnett. **A$200,000**.

(35) National Health and Medical Research Council (Australia), Project Grant No. 1080302 (2015–2017): “A fibroin-based prosthetic Bruch’s membrane for the treatment of age-related macular degeneration”, co-awarded with D. Harkin, F. Chen, and N. Barnett. **A$519,154**.

(36) National Health and Medical Research Council (Australia), Project Grant No. 1099922 (2016–2018): “Cultivated endothelial cell implants for restoring vision”, co-awarded with D. Harkin, M. Daniell, G. Qiao, and J.-P. Scheerlinck. **A$886,032**.

TEACHING/SUPERVISING ACTIVITIES

Yi-Chi Chen: *Ph.D. 1991 – 1994*
Ye Hong: *Ph.D. 1994 – 1997*
Paul D. Dalton: *B.Sc. Honours 1994, Ph.D. 1995 – 1999*
Kellie Rowe: *B.Sc. Honours 1996*
Brian W. Ziegelaar: *M.Med.Sc. 1996 – 1998*
Sarojini Vijayasekaran: *Ph.D. 1996 – 1999*
Claire van Coppenhagen: *B.Sc. Honours 1997*
Brooke Higgins: *B.Sc. Honours 1997*
Ylenia Casadio: *Ph.D. 2004 – 2009*
Anaïs Garcia (University of Grenoble, France): *internship 2004*
Chantal Loontjens (Eindhoven University of Technology, The Netherlands): *internship 2004*
Karina George: *Ph.D. 2005 – 2007*
Cassie Rayner: *B.App.Sc. Honours 2008*
Stefan Paterson: *Ph.D. 2008 – 2012*
Hui Hui Lee: *Ph.D. 2009 – 2012*
Laura Bray (neé Sinfield): *Ph.D. 2009 – 2012*
Peter Gillies: *Ph.D. 2009 – 2017*
Erwan Chassaing (Université de la Méditerranée Aix-Marseille II, France): *internship 2010*
Geoffrey Rodriguez (Université de la Méditerranée Aix-Marseille II, France): *internship 2010*
Mathieu Oddon (Université de la Méditerranée Aix-Marseille II, France): *internship 2011*
Michaël Chagnaud (Université de la Méditerranée Aix-Marseille II, France): *internship 2011*
Matthieu Laurent (Université de la Méditerranée Aix-Marseille II, France): *internship 2011*
Miriem Santander Borrego: *Ph.D. 2011 – 2014*
Audra Shadforth: *M.Appl.Sc. 2012 –2013, Ph.D. 2013 –2015*
Camille Dobras (Polytech Marseille, France): *internship 2012*
Rémy Janvrin (Polytech Marseille, France): *internship 2012*
Romain Fourniquet (Polytech Marseille, France): *internship 2012*
Baptiste Pillain (Université de Bretagne-Sud, France): *internship 2013*
William Feuillet (Polytech Marseille, France): *internship 2013*
Natalie McKirdy: *Ph.D. 2014 –*
Raphaëlle Alzonne (Polytech Marseille, France): *internship 2014*
Chien-Yu Sharon Lin: *Ph.D. 2014 –2015*
Chloé Papolla (Polytech Marseille, France): *internship 2015*
Alexandre Poli (Ecole Nationale Superieure des Ingenieurs en Arts Chimiques et Technologiques, Toulouse, France): *internship 2015*
Dennis de Vries (Twente University, Enschede, The Netherlands): *internship 2015/2016*
Ophélie Delcroix (Polytech Marseille, France): *internship 2016*
Anthia Le: *B.Sc. Honours 2016 – 2017*
Anaïs Humblot (Polytech Marseille, France): *internship 2017*
Deanna Nicdao: *M.Sc.(Biofabr.) 2017*
Mateo Folini (Polytech Marseille, France): *internship 2018*
Laura Krajewski (Polytech Marseille, France): *internship 2018*

SUPERVISED PhD THESES

Yi-Chi Chen (1994): Synthesis and evaluation of porous hydrogels for biomedical purposes.

Ye Hong (1997): Hydrogels with high water content for use in vitreoretinal surgery.

Paul D. Dalton (1998): Semi-crystalline PVA hydrogels prepared from DMSO/H_2O solutions as potential vitreous substitutes.

Sarojini Vijayasekaran (1999): Development of an artificial cornea – A histopathological study.

Karina George (2007): Synthesis, characterization and in vitro evaluation of PLLA-*co*-succinic anhydride networks.

Ylenia Casadio (2009): Biodegradable PHEMA-based biomaterials.

Stefan Paterson (2012): The synthesis of PHEMA-based materials for tissue engineering.

Hui Hui Lee (2012): Novel hydrogelators for the creation of supramolecular self-healing hydrogels as artificial vitreous substitutes.

Laura Bray (2012): Evaluation of fibroin-based scaffolds for ocular tissue reconstruction.

Miriem Santander Borrego (2014): Investigations of the influence of the topography and surface chemistry of poly(2-hydroxyethyl methacrylate) based hydrogels on surface properties and cell adhesion.

Chien-Yu Sharon Lin (2015): Production and *in vitro* evaluation of macroporous alginate hydrogel fibres for nerve tissue engineering.

Audra Shadforth (2015): Development of a cultured tissue substitute to repair the ageing retina.

Peter Gillies (2017): Evaluation of P-selectin expression and function within the human cornea.

Natalie McKirdy (current): Cytoprotective silk biomaterials to repair retinal degeneration.

Muthana Alsadoun (current): Synthesis of biodegradable and biocompatible materials for use as ophthalmic adhesives.

AWARDS AND HONOURS

***The Polymer Division Citation 1993*.**

Awarded by the Polymer Division of the Royal Australian Chemical Institute for "outstanding research in polymeric biomaterials as well as the promotion of polymer science in Western Australia."

1999 Applied Research Award and Don Rivett Medal.

Awarded by the Royal Australian Chemical Institute for significant contribution "towards the development of, or innovation through, applied research" over the preceding ten years.

The Diploma of Excellence for 2002

Awarded by the Euro-Asia Promotion & Cultural Foundation (Romanian Branch) at the 2nd Forum for the New Europe (24 October 2002, Brasov, Romania) for "the invention of an artificial cornea".

Corresponding Member of the Romanian Academy of Scientists

Elected by secret ballot at the meeting of the Academy's National Scientific Council held on 30 May 2003.

SRB Excellence Award

Awarded by the Romanian Society for Biomaterials at the 6th International Conference on Biomaterials, Tissue Engineering & Medical Devices (17-20 September 2014, Constanta, Romania) for "the scientific contribution in the field of biomaterials".

Emeritus Member of Politehnica Foundation

Awarded on 26 September 2014 by the Board of Politehnica Foundation, Timisoara, Romania, for "contributions in several areas of biomaterials and polymer science".

Doctor Honoris Causa

Awarded on 1 October 2015 by the University Politehnica of Tmisoara, Romania.

Fellow of the Royal Society of Chemistry (FRSC)

Admitted on 25 November 2016 (By invitation).

ACCOUNT OF DOCTORAL RESEARCH AND PROFESSIONAL LINEAGE

PhD Thesis

Awarded in 1981 a PhD in Organic Chemistry for the thesis:
"Alcohol, ester and ether derivatives of 1,3-dioxolane and 1,3-dioxane".

The work contributed to chemistry and structure of penta- and hexaatomic 1,3-dioxygen heterocyles (1,3-dioxolanes and 1,3-dioxanes).

- A large number of derivatives were synthesized and characterized, including: 2,2-disubstituted-4-hydroxymethyl-1,3-dioxolanes; 2- and 2,2-substituted dioxaspiro[4.5]decanes; 4- and 3,4-substituted 2-carboalkoxymethyl-1,3-dioxolanes; 5- and 5,5-substituted 2-hydroxymethyl-1,3-dioxanes; 5-alkoxymethyl-2-isopropyl-1,3-dioxanes; 4-acyloxymethyl-1,3-dioxolanes. Seventeen of these compounds were synthesized and reported for the first time in the literature.
- Extensive organic synthetic work including acetalization of polyhydroxylic compounds; esterification by alcoholysis of acyl chlorides (three procedures); synthesis of β-ketoesters and their cycloketalization under mild acid catalysis; etherification of 1,3-dioxolane and 1,3-dioxane alcohols by Williamson method.
- Extensive use of ^{1}H NMR spectrometry for elucidating the conformation of various derivatives, which required to resolve proton coupling systems such as AA'BB', $X_3AA'X'_3$, ABM, $ABMX_3$, ABCDE, ABCDEX.
- Investigating the intramolecular hydrogen bond in substituted 4-hydroxymethyl-1,3-dioxolanes by ^{1}H NMR and IR spectrometries.
- Evaluation of some of the compounds as solvents and/or plasticizers for commercial polymers.

My PhD work resulted in ***13 publications*** (for details see list of papers at # 1–5, 7–9, 11, 14, 15, 17 and 18) and ***3 patents*** (for details see list of patents at # 1–3).

Lineage

My supervisor was:

❖ **GIORGIO OSTROGOVICH (1904-1984)**

Professor, Polytechnic Institute of Timisoara, Romania

↑

His supervisor was:

Dan Rădulescu (1884-1969)

Professor, University of Cluj, Romania

↑

Dan Rădulescu's supervisors were:

Adriano Ostrogovich (1870-1956)

Professor, University of Bucharest, Romania

Emil Fischer (1852-1919)

Max Planck (1858-1947)

Professors, University of Berlin, Germany

↑

Adriano Ostrogovich's supervisor was:

Hugo Schiff (1834-1915)

Professor, University of Florence, Italy

↑

Hugo Schiff's supervisor was:

Friedrich Wöhler (1800-1882)

Professor, University of Göttingen, Germany

↑

Friedrich Wöhler's supervisors were:

Leopold Gmelin (1788-1853)

Professor, University of Heidelberg, Germany

Jöns Jakob Berzelius (1779-1849)

Professor, Karolinska Institute, Stockholm, Sweden

HIGHLIGHTS OF POSTDOCTORAL AND CURRENT RESEARCH

- Studies of hydrogels containing UV-absorbing agents. Correlating the concentration, absorptive properties and extractability of the agents. Publications #: 22, 26.

- Interaction of polymers with IR laser radiation – demonstrating that the monomer release following the irradiation of IOL materials with surgical IR lasers is too low to cause deleterious effects in the eye. Publications #: 23, 24.

- First investigation of interaction between poly(2-hydroxyethyl methacrylate) (PHEMA) and UV laser radiation. First use of X-ray photoelectron spectroscopy to investigate the process of ablation of ophthalmic hydrogels with excimer lasers. General studies on the interaction between high-energy laser radiation and polymers. Publications #: 30, 31, 41, 106, 149.

- Development of melanin-containing synthetic hydrogels able to absorb UV and blue radiation and their application as IOL materials. First polymer-biopolymer combinations to be reported as interpenetrating polymer networks (IPNs). Publications #: 29, 33, 38, 45.

- Invention and development of an artificial cornea. Initially known as “Chirila keratoprosthesis”, this device has been commercially developed as AlphaCor™ and received approvals from FDA and other regulatory bodies to be used in human patients. Publications #: 34-37, 39, 42, 47, 53, 55, 56, 58, 60-63, 65, 68-70, 74, 75, 77, 79, 81, 83, 85, 86, 89, 90, 92, 94, 95, 98, 99, 101, 103-105, 107, 108, 110-112, 118, 119.

- Development of hydrogels with very high water content as potential substitutes for the vitreous body, including a methodology for their evaluation in vitro. Publications #: 40, 46, 48, 49, 51, 52, 54, 57, 59, 66, 76, 78, 82.

- Polymer scaffolds for nerve repair. Publications #: 44, 84, 194.

- Development and study of polymer matrices for the sustained release of bioactive agents, including therapeutic oligonucleotides. Publications #: 32, 50, 67, 97, 100.

- Development of an orbital implant, FDA-approved and commercialized as AlphaSphere™. Publications #: 64, 87, 91.

- Investigating the mechanism and prevention of spontaneous or drug-induced calcification of acrylic hydrogels. Formulating new hypotheses. First demonstration of salting-out solute effects as a possible contributory cause. First demonstration of an inhibitory effect of IPN-induced redundant chain packing on the uptake of calcium phosphate in hydrogels. Publications #: 96, 109-112, 115-117, 119, 121-125, 127, 130, 134, 161.

- Sequential homo-interpenetrating polymer networks. Publications #: 90, 127, 161.

- Contributions to the history of ophthalmology, biomaterials and tissue engineering. Publications #: 21, 60, 68, 81, 82, 89, 98, 108, 114, 120, 138, 141, 159, 181.

- Development of tissue-engineered corneal and retinal constructs for ocular tissue engineering. Development of silk proteins as templates for cell growth. Studies on silk proteins. Publications #: 128, 132, 133, 139, 150-154, 157, 158, 164-167, 169, 170, 172, 175, 178, 179, 182-184, 188, 190, 191, 193.

- Applications of chemically modified PHEMA in tissue engineering. Publications #: 136, 144-147, 155, 162, 163, 171, 176, 189, 195.

- Supramolecular polymers and self-healing hydrogels. Publications #: 148, 156, 174.

- A new concept for developing corneal endothelial substitutes. Publications #: 141, 173.

- Properties of ocular tissues. Publications #: 72, 73, 185-187.

- A new treatment for the floppy eyelid syndrome based on photochemical crosslinking of collagen. Publications #: 196.

- Development of hydrogel interpenetrating networks for post-surgical dressing pads/masks.

- A new approach in preventing the aortic aneurysmal degeneration.

LECTURESHIPS AND PRESENTATIONS

GIVEN AS AN INTERNATIONAL INVITED LECTURER AND VISITING SCHOLAR

People's Republic of China, 19 Sep–8 Oct 1993

Visiting Professorship (sponsored by the National Nature Science Foundation of China). Lecture "*Polymers as ophthalmic biomaterials: past, present, future*" presented at Peking University, Tsinghua University (both in Beijing), and Tianjin University (Tianjin). Also, visited as a guest scientist Academia Sinica (Beijing); Tong Ren Hospital (Beijing); National Research Institute for Family Planning (Beijing); Institute of Biomedical Engineering (Tianjin); and Zhejiang University (Hangzhou).

United States of America, 7–10 October 1995

Invited lecture "*Artificial cornea based on interpenetrating polymer networks*" presented at the Intersociety Polymer Conference on Creation, Utilization, and Recycling of Multiphase Polymer Systems. Organized by the American Chemical Society, the American Physical Society and Macro Group (UK), and held in Baltimore, Maryland.

Japan, 13-19 March 1996

AIST Guest Researcher at the Osaka National Research Institute, Osaka. Also, visited as a guest scientist the Research Center for Biomedical Engineering at Kyoto University (Kyoto); Bionic Design Research Group at the National Institute for Advanced Interdisciplinary Research (Tsukuba); Functional Molecules Laboratory at the National Institute of Materials and Chemical Research (Tsukuba). Lecture "*Artificial cornea based on interpenetrating polymer networks*" presented in Osaka and in Kyoto.

Romania, 28 August-12 September 1996

Guest lecturer at the Polytechnic University of Timisoara. Lecture "*Advances in artificial cornea: the use of synthetic polymers*" presented at the Faculty of Industrial Chemistry and Environmental Engineering. Visiting Professor at the Ophthalmologic Clinic of Timisoara.

People's Republic of China, 6-25 May 1997

Visiting Professorship (sponsored by the National Nature Science Foundation of China) at Tianjin University and Nankai University (Tianjin), Tsinghua University (Beijing) and Wuhan University (Wuhan). Lectures "*Advances in biomaterials for eye surgery*" presented at Tianjin University and "*Artificial substitutes for cornea and vitreous body: are they possible by the use of polymers?*" at Wuhan University.

Invited plenary speaker at the International Conference on Biorelated Polymers, Controlled Release Drugs and Reactive Polymers, Xi'An, 8-11 May 1997. Lecture presented: "*Advances towards a functional artificial cornea*".

Italy, 8-12 September 1997

Visiting Professor at Universitá degli Studi di Napoli "Federico II", the Department of Materials and Production Engineering in Naples. Lecture presented: "*The use of hydrogels as artificial cornea and artificial vitreous*".

France, 20-25 September 1997

Guest lecturer at Hôtel-Dieu Hospital, the Department of Ophthalmology, in Paris. Lecture presented: "*Hydrogel core-and-skirt keratoprosthesis*".

Switzerland, 25-28 September 1997

Visiting Professor at the Universitäts-Augenklinik, in Basel. Lecture presented: "*The use of hydrogels as artificial cornea and artificial vitreous*".

United States of America, 17-18 March 2000

Invited lecture "*A hydrogel artificial cornea: from conception to clinical trials*" presented at the Symposium on Biomedical Polymers for the 21st Century – Overview and Ophthalmic Applications. Organized by the Schepens Eye Research Institute, Harvard Medical School, held in Boston, Massachusetts.

Japan, 31 October-19 November 2001

Visiting Professor at Tokushima University, Tokushima. Lecture "*Development of a hydrogel artificial cornea with porous skirt, and clinical trials*" presented at the Department of Ophthalmology, 31 October 2001.

Guest speaker at the Menicon 50th Anniversary International Symposium in Nagoya, Nagoya Congress Center. Lecture "*Research on artificial cornea – development of a hydrogel keratoprosthesis from conception to clinical trials*" presented on 18 November 2001. Guest scientist at the Menicon Central R&D Laboratory, Kasugai.

Japan, 17-19 February 2005

Invited speaker at the Artificial Cornea Symposium, within the joint 29th Japan Cornea Conference and 21st Annual Meeting of Keratoplasty Society of Japan, held in Tokushima. Lecture "*History of artificial cornea in Japan*" presented on 19 February 2005.

Korea, 5-9 November 2007

Invited speaker at the Sixth Pacific Rim International Conference on Advanced Materials, held at Jeju Island. Lecture "*Silk as substratum for cell attachment and proliferation*" presented on 7 November 2007.

Germany, 25 May 2011

Invited lecture "*Artificial corneal endothelium. A novel concept based on electroosmosis through pores created by ion track-etching*" presented at the GSI Helmholtzzentrum für Schwerionenforschung GmbH in Darmstadt.

The Netherlands, 28 August 2014

Invited lecture "*Ophthalmic regenerative medicine: the use of silk proteins as template for growing corneal and retinal cells*" presented at University of Twente in Enschede.

Romania, 17-20 September 2014

Keynote speaker at the 6th International Conference on Biomaterials, Tissue Engineering & Medical Devices, held in Constanta. Lecture "*Ophthalmic regenerative medicine: the use of silk proteins as template for growing corneal and retinal cells*" presented on 18 September 2014.

Romania, 1 October 2015

Official ceremony for the awarding of the title *Doctor Honoris Causa* of the University Politehnica of Timisoara, Romania. Dissertation "*Silk proteins in ophthalmic regenerative medicine: Reconstruction of the ocular surface*" presented at the ceremony in Timisoara.

CONFERENCE PRESENTATIONS

(Note: Presentations given prior to 1984 while living in Romania are not included).

(1) "Influence of thermal maturation on trimethylnaphthalenes" (poster with R. Alexander), Gordon Research Conferences, Organic Geochemistry Section, Plymouth, New Hampshire, USA, August 1984.

(2) "Chemistry of ocular biomaterials", America's Cup Ophthalmology Congress, Perth, Australia, February 1987.

(3) "Ocular biomaterials and the chemist's involvement in ophthalmology", Royal Australian Chemical Institute Seminars, University of Western Australia, Perth, Australia, October 1987. ***Invited lecture.***

(4) "Further development of flexible biomaterials for intraocular lenses", The 19th Annual Scientific Congress of the Royal Australian College of Ophthalmologists, Perth, Australia, October 1987.

(5) "The scope for development of ophthalmic surgical biomaterials" (with I.J. Constable and R.C. Austen), Materials' Technology and Profit Conference, Melbourne, Australia, November 1988; **Abstract : *Biomaterials*, 9 (1988) 292.**

(6) "Polymers as implantable ophthalmic biomaterials which protect the retina against photic damage" (with I.J. Constable), The 17th Australian Polymer Symposium, RACI-DITAC Polymer Materials Workshop, Brisbane, Australia, February 1989.

(7) "Light toxicity and chemical absorbers for intraocular lenses", The 26th International Congress of Ophthalmology, Singapore, March 1990.

(8) "Interaction between acrylic polymers and high energy excimer laser radiation" (with P.P. van Saarloos, C.F. Vernon and C. Klauber), POLYMER 91-IUPAC International Symposium, Melbourne, Australia, February 1991.

(9) "Synthetic polymers as biomaterials for ophthalmic surgery", The 19th Australian Polymer Symposium, Perth, Australia, February 1992. ***Invited lecture***.

(10) "HEMA-Based hydrogel sponges" (with Y.C. Chen, I.J. Constable and G.J. Crawford), The 19th Australian Polymer Symposium, Perth, Australia, February 1992.

(11) "The characterisation of radiation-modified polymer surface using XPS" (with C.F. Vernon, C. Klauber and P.P. van Saarloos), The 19th Australian Polymer Symposium, Perth, Australia, February 1992.

(12) "Melanized acrylic hydrogels - novel biomaterials for photoprotective intraocular lenses" (with I.J. Constable and P.P. van Saarloos), Fourth World Biomaterials Congress, Berlin, Germany, April 1992.

(13) "A new approach to the development of a functional keratoprosthesis" (with G.J. Crawford and I.J. Constable), The Tenth Afro-Asian Congress of Ophthalmology, Jakarta, Indonesia, July 1992.

(14) "A new approach to the development of a functional keratoprosthesis" (with G.J. Crawford and I.J. Constable), The 24th Annual Scientific Congress of the Royal Australian College of Ophthalmologists, Sydney, Australia, November 1992. ***The Kabi Pharmacia R.A.C.O. Award for the best scientific paper and original research***.

(15) "Erucamide enhances neovascularization in regenerating skeletal muscle" (poster with C.A. Mitchell, J.K. McGeachie, G.J. Crawford and M.D. Grounds), Advances in Delivery of Therapeutic and Diagnostic Agents '92 Conference, Sydney, Australia, December 1992.

(16) "Polymers as ophthalmic biomaterials: a survey of basic research and some achievements", University of Queensland, Brisbane, Australia, March 1993. ***Invited lecture (by The University of Queensland Chemical Society and Department of Chemistry, University of Queensland)***.

(17) "Polymers as ocular biomaterials", Royal Australian Chemical Institute Seminars, Curtin University of Technology, Perth, Australia, April 1993.

(18) "Composite artificial cornea based on interpenetrating networks, a novel concept of keratoprosthesis: manufacture, testing, and results in animal models" (with G.J. Crawford and I.J. Constable), International Conference on Materials for Biomedical Applications, Isola di Capri, Italy, June 1993.

(19) "A new approach to the development of a functional keratoprosthesis" (with G.J. Crawford and I.J. Constable), First International Symposium of Ophthalmology, Bordeaux, France, September 1993.

(20) "Continued development and evaluation of a composite keratoprosthesis" (with G.J. Crawford and I.J. Constable), The 25th Annual Scientific Congress of the Royal Australian College of Ophthalmologists, Hobart, Australia, November 1993.

(21) "Experimental vitreous substitution with amidoglycolates" (with I.J. Constable, S. Tahija and I.L. McAllister), The 25th Annual Scientific Congress of the Royal Australian College of Ophthalmologists, Hobart, Australia, November 1993.

(22) "Homo-IPN at the interface between elements of a novel artificial cornea" (with I.J. Constable and G.J. Crawford), Third Pacific Polymer Conference (PPC-3), Gold Coast, Australia, December 1993.

(23) "Molecular motion in solid and hydrated poly(2-hydroxyethyl methacrylate) as revealed by variable temperature ^{13}C CPMAS NMR" (with D.J.T. Hill, A.K. Whittaker and M.R. Whittaker), Third Pacific Polymer Conference (PPC-3), Gold Coast, Australia, December 1993.

(24) "High water content hydrogels as potential substitutes of human vitreous" (poster with Y. Hong and I.J. Constable), Third Pacific Polymer Conference (PPC-3), Gold Coast, Australia, December 1993.

(25) "Quantitative microscopic study of porous characteristics of PHEMA sponges" (poster with Y.C. Chen, I.J. Constable, B.J. Griffin and J. Kuo), Third Pacific Polymer Conference (PPC-3), Gold Coast, Australia, December 1993.

(26) "A novel concept of artificial cornea based on porous polymers and interpenetrating polymer networks" (with P.D. Dalton, I.J. Constable and G.J. Crawford), Fourth Annual Conference of Australian Society for Biomaterials, Sydney, Australia, January/February 1994.

(27) "A new approach to the development of a functional keratoprosthesis" (with G.J. Crawford and I.J. Constable), The 27th International Congress of Ophthalmology, Toronto, Canada, June 1994.

(28) "Clinical imperatives for polymeric biomaterials in ophthalmology" (with I.J. Constable), Conference on Engineering and the Physical Sciences in Medicine (EPSM'94), Perth, Australia, September 1994.

(29) "Artificial cornea: a novel core-and-skirt design" (with P.D.Dalton, G.J. Crawford and I.J. Constable), Conference on Engineering and the Physical Sciences in Medicine (EPSM'94), Perth, Australia, September 1994.

(30) "Neocollagen synthesis within hydrogel sponges implanted into the rabbit cornea" (with S. Vijayasekaran, G.J. Crawford, D.E. Thompson-Wallis and I.J. Constable), The ORIA National Ophthalmic and Visual Science Meeting, Geelong, Australia, December 1994.

(31) "Poly(2-hydroxyethyl methacrylate) sponge as tissue-equivalent matrix in an artificial cornea" (with D.E. Thompson-Wallis, G.J. Crawford, S. Vijayasekaran and I.J. Constable), Fifth Annual Conference of Australian Society for Biomaterials, Melbourne, Australia, January/February 1995.

(32) "Crosslinked PVP hydrogel as a vitreous substitute" (poster with Y. Hong, S. Vijayasekaran and P.D. Dalton), Fifth Annual Conference of Australian Society for Biomaterials, Melbourne, Australia, January/February 1995.

(33) "Poly(N-vinyl-2-pyrrolidinone) as a vitreous substitute" (with P.D. Dalton, Y. Hong, A. Jefferson and S. Tahija), The 20th Australian Polymer Symposium, Adelaide, Australia, February 1995.

(34) "Molecular motion in solid poly(hydroxyethyl methacrylate) as revealed by variable temperature ^{13}C CPMAS NMR" (with D.J.T. Hill, A.K. Whittaker and M.R. Whittaker), The 20th Australian Polymer Symposium, Adelaide, Australia, February 1995.

(35) "Preliminary evaluation of a hydrogel composite keratoprosthesis in the rabbit cornea" (with G.J. Crawford and S. Vijayasekaran), Second KPro Study Group Meeting, Rome, Italy, June 1995.

(36) "Core-and-skirt keratoprostheses: a review and recent advances" (with G.J. Crawford and I.J. Constable), Second KPro Study Group Meeting, Rome, Italy, June 1995.

(37) "Artificial cornea based on interpenetrating polymer networks", ACS Intersociety Polymer Conference, Baltimore, USA, October 1995. ***Invited lecture***.

(38) "Preliminary evaluation of a hydrogel core-and-skirt keratoprosthesis in the rabbit cornea" (with G.J. Crawford and I.J. Constable), The 27th Annual Scientific Congress of the Royal Australian College of Ophthalmologists, Melbourne, Australia, November 1995.

(39) "Conjunctival coverage of a hydrogel keratoprosthesis: an animal study" (poster with C.R. Hicks, G.J. Crawford and I.J. Constable), The 27th Annual Scientific Congress of the Royal Australian College of Ophthalmologists, Melbourne, Australia, November 1995.

(40) "Oscillatory shear studies of potential vitreous substitutes" (with P.D. Dalton, Y. Hong, A. Jefferson and I.J. Constable), The ORIA National Ophthalmic and Visual Science Meeting, Geelong, Australia, December 1995.

(41) "Assessment of corneal collagenase production in response to hydrogel polymers" (with B.W. Ziegelaar, C.R. Hicks and J.H. Fitton), The ORIA National Ophthalmic and Visual Science Meeting, Geelong, Australia, December 1995.

(42) "Poly(N-vinyl-2-pyrrolidinone) as a vitreous substitute" (with P.D. Dalton, A. Jefferson and Y. Hong), The Fourth Pacific Polymer Conference (PPC-4), Kauai, Hawaii, USA, December 1995.

(43) "Enhancement of mechanical strength of poly(2-hydroxyethyl methacrylate) sponges" (with A.B. Clayton, P.D. Dalton and X. Lou), The 21st Australian Polymer Symposium, Wollongong, Australia, February 1996.

(44) "Molecular dynamics of poly(hydroxyethyl methacrylate) in the solid-state probed by variable temperature 2D NMR" (with D.J.T. Hill, A.K. Whittaker and M.R. Whittaker), The 21st Australian Polymer Symposium, Wollongong, Australia, February 1996.

(45) "Rheological evaluation of potential vitreous substitutes" (with P.D. Dalton, Y. Hong, A. Jefferson and I.J. Constable), The 21st Australian Polymer Symposium, Wollongong, Australia, February 1996.

(46) "Hydrogel core-and-skirt keratoprostheses in pigs" (poster with C.R. Hicks, G.J. Crawford, I.J. Constable and P.D. Dalton), The 4th World Congress on the Cornea, Orlando, USA, April 1996.

(47) "Tissue melting in relation to a hydrogel keratoprosthesis: the role of anticollagenolytics" (poster with G.J. Crawford, C.R. Hicks, J.H. Fitton, B.W. Ziegelaar, A.B. Clayton and I.J. Constable), The Association for Research in Vision and Ophthalmology, Annual Meeting, Fort Lauderdale, USA, April 1996; ***Invest. Ophthalmol. Vis. Sci.,*** **37(Suppl.), abstract 1453 (1996)**.

(48) "Development of an artificial corneal button for penetrating keratoplasty: design, biocompatibility and results in animals" (poster with C.R. Hicks, P.D. Dalton, A.B. Clayton, J.H. Fitton, B.W. Ziegelaar, S. Vijayasekaran, G.J. Crawford and I.J. Constable), The Association for Research in Vision and Ophthalmology, Annual Meeting, Fort Lauderdale, USA, April 1996; ***Invest. Ophthalmol. Vis. Sci.,* 37(Suppl.), abstract 2524 (1996)**.

(49) "Current projects on ocular biomaterials at the Lions Eye Institute: a brief overview", Conference on Medicine, Science and Technology Seminars 1996 – Biomaterials, Sponsored by the Embassy of Italy, Perth, Australia, 17 April 1996.

(50) "Hydrophilic sponges based on 2-hydroxyethyl methacrylate" (with A.B. Clayton, P.D. Dalton and X. Lou), Fifth World Biomaterials Congress, Toronto, Canada, May/June 1996.

(51) "Increasing the biocompatibility of keratoprosthesis materials" (with J.H. Fitton, A.B. Clayton, C.R. Hicks, B.W. Ziegelaar, S. Vijayasekaran, P.D. Dalton, Y. Hong, G.J. Crawford and I.J. Constable), Fifth World Biomaterials Congress, Toronto, Canada, May/June 1996.

(52) "Reduction of collagenase activity associated with keratoprosthesis materials" (poster with J.H. Fitton, C.R. Hicks, B.W. Ziegelaar, A.B. Clayton, P.D. Dalton and I.J. Constable), Fifth World Biomaterials Congress, Toronto, Canada, May/June 1996.

(53) "Rheological assessment of potential vitreous substitutes" (poster with P.D. Dalton and A. Jefferson), Fifth World Biomaterials Congress, Toronto, Canada, May/June 1996.

(54) "Surgical approaches to reducing keratoprosthesis extrusion in an animal model" (poster with C.R. Hicks, P.D. Dalton, A.B. Clayton, S. Vijayasekaran, J.H. Fitton, B.W. Ziegelaar, G.J. Crawford and I.J. Constable), Fifth World Biomaterials Congress, Toronto, Canada, May/June 1996.

(55) "Characterization of PVP hydrogels as potential vitreous substitutes" (poster with Y. Hong, S. Vijayasekaran, J.H. Fitton, P.D. Dalton, B.W. Ziegelaar and I.J. Constable), Fifth World Biomaterials Congress, Toronto, Canada, May/June 1996.

(56) "Histopathology of PVP hydrogels as vitreous substitutes" (poster with S. Vijayasekaran, Y. Hong, S.G. Tahija, P.D. Dalton, I.J. Constable and I.L. McAllister), Fifth World Biomaterials Congress, Toronto, Canada, May/June 1996.

(57) "Artificial cornea: a design based on interpenetrating polymer networks", Advances in Polymers III: Designer Polymers, Victorian Polymer Group Symposium, Melbourne, Australia, 27 September 1996. ***Invited speaker***.

(58) "Evaluation of a hydrogel core-and-skirt keratoprosthesis in the rabbit cornea" (with G.J. Crawford, C.R. Hicks and I.J. Constable), The 12th International Congress of Eye Research, Yokohama, Japan, September/October 1996.

(59) "The Chirila keratoprosthesis in animals: clinical results" (with C.R. Hicks, A.B. Clayton, S. Platten, G.J. Crawford, S. Vijayasekaran and I.J. Constable), The 28th Annual Scientific Congress of the Royal Australian College of Ophthalmologists, Perth, Australia, November 1996.

(60) "Reduction of the initial collagenase response after implantation of a hydrogel KPro material in the rabbit cornea" (with J.H. Fitton, B.W. Ziegelaar, C.R. Hicks, G.J. Crawford and I.J. Constable), The 28th Annual Scientific Congress of the Royal Australian College of Ophthalmologists, Perth, Australia, November 1996.

(61) "Keratoprosthesis: clinical results in animals" (with C. Hicks, A. Clayton, S. Platten and H. Fitton), The ORIA National Ophthalmic and Visual Science Meeting, Canberra, Australia, November/December 1996.

(62) "Cell interactions with hydrogel sponge material of a keratoprosthesis" (with S. Vijayasekaran, J.H. Fitton, C.R. Hicks, B.W. Ziegelaar, S. Platten, G.J. Crawford and I.J. Constable), The ORIA National Ophthalmic and Visual Science Meeting, Canberra, Australia, November/December 1996.

(63) "Enzyme responses to keratoprosthesis material" (with B. Ziegelaar, J.H. Fitton, T. Clayton, C.R. Hicks, S. Vijayasekaran, S. Platten, G.J. Crawford and I.J. Constable), The ORIA National Ophthalmic and Visual Science Meeting, Canberra, Australia, November/December 1996.

(64) "Mechanical properties of macroporous PHEMA sponges" (with A.B. Clayton and X. Lou), Seventh Annual Conference of Australian Society for Biomaterials, Nelson Bay, Port Stephens, Australia, March 1997.

(65) "Physically crosslinked PVA: the next generation of hydrogels?" (with P. Dalton and K. Rowe), Seventh Annual Conference of Australian Society for Biomaterials, Nelson Bay, Port Stephens, Australia, March 1997.

(66) "Cell interactions with hydrogel sponge material of a keratoprosthesis" (with S. Vijayasekaran, J.H. Fitton, C.R. Hicks, B.W. Ziegelaar and T. Clayton), Seventh Annual Conference of Australian Society for Biomaterials, Nelson Bay, Port Stephens, Australia, March 1997.

(67) "The enzymatic response to keratoprosthesis materials" (with B.W. Ziegelaar, H. Fitton and A.B. Clayton), Seventh Annual Conference of Australian Society for Biomaterials, Nelson Bay, Port Stephens, Australia, March 1997.

(68) "Advances towards a functional artificial cornea", International Conference on Biorelated Polymers, Controlled Release Drugs and Reactive Polymers, Xi'An, People's Republic of China, May 1997. ***Plenary lecture***.

(69) "Hydrophilic sponges based on 2-hydroxyethyl methacrylate: synthesis of hydroxyl-containing crosslinking agents and their effects on mechanical strength" (with X. Lou and A.B. Clayton), International

Conference on Biorelated Polymers, Controlled Release Drugs and Reactive Polymers, Xi'An, People's Republic of China, May 1997.

(70) "Evaluation of biodegradation *in vitro* and retention *in vivo* of a PVP hydrogel as a vitreous substitute" (poster with Y. Hong, S. Vijayasekaran and V.A. Alder), The Association for Research in Vision and Ophthalmology, Annual Meeting, Fort Lauderdale, USA, May 1997; ***Invest. Ophthalmol. Vis. Sci.,* 38(Suppl.), abstract 423 (1997)**.

(71) "Keratoprostheses for implantation into diseased eyes" (poster with C.R. Hicks, X. Lou, J.H. Fitton, B.W. Ziegelaar, S. Platten, G.J. Crawford and I.J. Constable), The Association for Research in Vision and Ophthalmology, Annual Meeting, Fort Lauderdale, USA, May 1997; ***Invest. Ophthalmol. Vis. Sci.,* 38(Suppl.), abstract 2340 (1997)**.

(72) "Cellular interactions with hydrogels of the Chirila Keratoprosthesis" (poster with J.H. Fitton, S. Vijayasekaran, B.W. Ziegelaar, C.R. Hicks, A.B. Clayton, G.J. Crawford and I.J. Constable), The Association for Research in Vision and Ophthalmology, Annual Meeting, Fort Lauderdale, USA, May 1997; ***Invest. Ophthalmol. Vis. Sci.,* 38(Suppl.), abstract 2341 (1997)**.

(73) "The development of an orbital implant allowing direct muscle attachment" (with C.R. Hicks, G.J. Crawford, A.B. Clayton, S. Vijayasekaran, J.H. Fitton and I.J. Constable), The XI-th Congress of the European Society of Ophthalmology, Budapest, Hungary, June 1997.

(74) "Biodegradation in vitro and retention in the rabbit eye of crosslinked PVP hydrogel as a vitreous substitute" (poster with Y. Hong and S. Vijayasekaran), The 13th European Conference on Biomaterials, Göteborg, Sweden, September 1997.

(75) "Keratoprosthesis based on interpenetrating polymer network", World Congress on Medical Physics and Biomedical Engineering, Nice, France, September 1997.

(76) "High water content hydrogel as vitreous substitutes: a study of retention in animal eyes" (with Y. Hong, S. Vijayasekaran and P.D. Dalton), World Congress on Medical Physics and Biomedical Engineering, Nice, France, September 1997.

(77) "An orbital implant allowing direct muscle attachment" (with C.R. Hicks, I.T. Morris, J. McAllister, S. Vijayasekaran, A.B. Clayton, G.J. Crawford and I.J. Constable), The 29th Annual Scientific Congress of the Royal Australian College of Ophthalmologists, Sydney, Australia, November 1997.

(78) "The modulation of cellular responses to poly(HEMA) hydrogel surface: phosphorylated surfaces decrease collagenase production *in vitro*" (with B.W. Ziegelaar, J.H. Fitton, A.B. Clayton and S.T. Platten), Eighth Annual Conference of Australian Society for Biomaterials, Marysville, Australia, March 1998.

(79) "Extracellular matrix production by corneal cells in response to poly(HEMA) hydrogels: effects of polymer formulation and surface morphology" (with M.A.L. Maley, J.H. Fitton and X. Lou), Eighth Annual Conference of Australian Society for Biomaterials, Marysville, Australia, March 1998.

(80) "Approaches to improving the success rate of keratoprosthesis implantation" (poster with C.R. Hicks, J.H. Fitton, S. Vijayasekaran, S. Platten, G.J. Crawford and I.J. Constable), The Tenth Anniversary Congress of the Royal College of Ophthalmologists (UK), Glasgow, Scotland, April 1998.

(81) "Keratoprosthesis implantation in a rabbit model" (video with C.R. Hicks, P.D. Dalton, X. Lou, S. Platten, G.J. Crawford and I.J. Constable), The Tenth Anniversary Congress of the Royal College of Ophthalmologists (UK), Glasgow, Scotland, April 1998.

(82) "Implantation of a novel orbital implant in a rabbit model" (video with C.R. Hicks, A.B. Clayton, S. Vijayasekaran, B. Ziegelaar, G.J. Crawford and I.J. Constable), The Tenth Anniversary Congress of the Royal College of Ophthalmologists (UK), Glasgow, Scotland, April 1998.

(83) "High water content PVP hydrogels as potential vitreous substitutes: physical and biological performance" (with Y. Hong), IUPAC World Polymer Congress, 37th International Symposium on Macromolecules, Gold Coast, Australia, July 1998.

(84) "Modulation of PHEMA sponge characteristics by changes in reactivity and hydrophilicity of crosslinking agents" (with X. Lou and P.D. Dalton), IUPAC World Polymer Congress, 37th International Symposium on Macromolecules, Gold Coast, Australia, July 1998.

(85) "Biodegradation *in vitro* and retention in the rabbit eye of crosslinked PVP hydrogel as a vitreous substitute" (with Y. Hong and S. Vijayasekaran), IUPAC World Polymer Congress, 37th International Symposium on Macromolecules, Gold Coast, Australia, July 1998.

(86) "Polymeric biomaterials and their applications in eye surgery", Royal Australian Chemical Institute, Women in Chemistry Group and Health, Safety & Environmental Group, Chemistry Centre of Western Australia, Perth, Australia, July 1998. ***Invited address***.

(87) "Cellular response to copolymer hydrogels: fibronectin deposition, focal adhesions and collagenase production" (with M.A.L. Maley, B.W. Ziegelaar, X. Lou and C.J. Pudney), 22nd Annual Scientific Conference of the Matrix Biology Society of Australia and New Zealand, Hahndorf, Australia, September 1998.

(88) "Nonbiodegradable scaffolding for tissue ingrowth in a novel artificial cornea", 98 Workshop on Tissue Engineering, Tianjin, People's Republic of China, October 1998.

(89) "Surface modification of poly(2-hydroxyethyl methacrylate) hydrogels with poly(ethylene oxides) by the solvent-controlled generation of physical interpenetrating polymer networks" (with Y. Hong, X. Lou, K. Yao and F. Shen), 98 Workshop on Tissue Engineering, Tianjnin, People's Republic of China, October 1998.

(90) "Preparation and evaluation of chemically linked oligonucleotides to a PVP hydrogel: a preliminary study on sustained release of antisense oligonucleotides" (with X. Lou, K.L. Garrett and P.E. Rakoczy), Ninth Annual Conference of Australian Society for Biomaterials, Canberra, Australia, March 1999.

(91) "A new type of PHEMA sponge: formation and characterization" (with X. Lou, S. Vijayasekaran, M.A.L. Maley, C. Hicks and B. Higgins), Ninth Annual Conference of Australian Society for Biomaterials, Canberra, Australia, March 1999.

(92) "Calcification of poly(2-hydroxyethyl methacrylate) hydrogel sponges implanted in the rabbit cornea" (with S. Vijayasekaran, T. Robertson, X. Lou, C.R. Hicks and J.H. Fitton), Ninth Annual Conference of Australian Society for Biomaterials, Canberra, Australia, March 1999.

(93) "Pilot study of the Chirila keratoprosthesis in human patients" (with C.R. Hicks, G. J. Crawford, X. Lou, S. Platten, S. Vijayasekaran and I.J. Constable), Third KPro Study Group Meeting, Birmingham, UK, June 1999.

(94) "Polymer research and applications in ophthalmology", ***RACI Applied Research Award and Don Rivett Medal Presentation Address***, National Chemistry Week Dinner, Fremantle, Australia, 24 July 1999.

(95) "Synthetic hydrogels as biomaterials in ophthalmic surgery", Special Research Centre for Advanced Minerals and Materials Processing Seminars, University of Western Australia, Perth, Australia, 14 October 1999. ***Invited lecture***.

(96) "Keratoprosthesis: clinical trial" (with C.R. Hicks, X. Lou, G.J. Crawford, S. Vijayasekaran, M. Maley and I.J. Constable), Australian Ophthalmic and Visual Science Meeting, Australian National University, Canberra, Australia, December 1999.

(97) "Preparation of and cellular invasion in sequential homo-IPN sponges based on PHEMA" (with X. Lou, S. Vijayasekaran, M.A.L. Maley, C.R. Hicks and I.J. Constable), Australian Ophthalmic and Visual Science Meeting, Australian National University, Canberra, Australia, December 1999.

(98) "Hydrogels as a drug carrier for therapeutic oligonucleotides: a preliminary study" (with X. Lou, K. Garrett, P. Rakoczy and I.J. Constable), Australian Ophthalmic and Visual Science Meeting, Australian National University, Canberra, Australia, December 1999.

(99) "A hydrogel artificial cornea: from conception to clinical trials", Symposium on Biomedical Polymers for the 21st Century, Overview and Ophthalmic Applications, Harvard Medical School, The Schepens Eye Research Institute, Boston, USA, March 2000. ***Invited lecture***.

(100) "Chirila keratoprosthesis: clinical trial" (with C. R. Hicks, G. J. Crawford, X. Lou, S. Vijayasekaran and I. J. Constable), EVER 2000 – European Association for Vision and Eye Research Conference, Palma de Mallorca, Spain, October 2000; ***Ophthalmic Res.*****, 32 (Suppl.2), abstract 3142 (2000)**.

(101) "Artificial cornea with porous skirt: an example of tissue engineering?", Frontiers in Tissue Engineering: West Australian Symposium, Tissue Engineering Research Centre (TERC) Workshop, University of Western Australia, Perth, Australia, October 2000. ***Invited lecture***.

(102) "The evaluation of the Chirila keratoprosthesis in humans" (with G. J. Crawford, C. Hicks, X. Lou and I. J. Constable), The 104th Annual Meeting of the American Academy of Ophthalmology, Dallas, USA, October 2000.

(103) "Chirila KPro I: an overview" (with G. J. Crawford, C. R. Hicks, X. Lou, I. J. Constable, S. Vijayasekaran, D. Tan and B. Mulholland), The 4th KPro Study Group and the 6th International Ocular Surface Society Joint Meeting, Fort Lauderdale, USA, May 2001.

(104) "Chirila KPro II: case histories" (with D. Tan, G. J. Crawford, C. R. Hicks, X. Lou, S. Vijayasekaran and I. J. Constable), The 4th KPro Study Group and the 6th International Ocular Surface Society Joint Meeting, Fort Lauderdale, USA, May 2001.

(105) "Chirila KPro III: keratoprosthesis or not?" (with C. R. Hicks, G. J. Crawford, D. Tan and I. J. Constable), The 4th KPro Study Group and the 6th International Ocular Surface Society Joint Meeting, Fort Lauderdale, USA, May 2001.

(106) "The outcomes of keratoprosthesis surgery" (with G. Crawford, C. Hicks, X. Lou, D. Tan and I. Constable), The 19th Congress of the European Society of Cataract and Refractive Surgeons, Amsterdam, The Netherlands, September 2001.

(107) "Synthetic penetrating keratoplasty using a hydrogel keratoprosthesis, the Chirila KPro: surgical technique, case histories and outcomes" (with G. J. Crawford, C. R. Hicks, X. Lou, D. T. Tan, G. R. Snibson and I. J. Constable), The 27th Annual Meeting of the Castroviejo Cornea Society, New Orleans, USA, November 2001.

(108) "Research on artificial cornea – development of a hydrogel keratoprosthesis form conception to clinical trials", Menicon 50th Anniversary International Symposium, Nagoya, Japan, November 2001. ***Invited lecture***.

(109) "A successful application of acrylic hydrogels: AlphaCor™ artificial cornea and its clinical evaluation", Polymers in Dentistry, Medicine and Surgery (PDMS 2002) Symposium, RACI Polymer Division, Brisbane, Australia, February 2002. ***Plenary lecture***.

(110) "Overview of polymeric biomaterials for synthetic corneas", The 29th International Congress of Ophthalmology, Sydney, Australia, April 2002. ***Invited lecture***.

(111) "Outcomes and risk factors for synthetic penetrating keratoplasty with AlphaCor" (with C. R. Hicks, G. J. Crawford, X. Lou, D. Tan, G. R. Snibson, G. Sutton, N. Downie, I. J. Constable), The Association for Research in Vision and Ophthalmology, Annual Meeting, Fort Lauderdale, USA, May 2002. (Abstract# 2991).

(112) "AlphaCor: device, technique and outcomes" (with G. J. Crawford, C. R. Hicks, D. T. Tan, G. R. Snibson, G. Sutton, X. Lou and I. J. Constable), EVER 2002 – European Association for Vision and Eye Research Conference, Alicante, Spain, October 2002.

(113) "Non-biodegradable polymer scaffolds for tissue engineering", The 2nd Cottesloe Beach Symposium: Stem Cells and Tissue Engineering, Perth, Australia, November 2002. ***Invited lecture***.

(114) "Biointegration of non-biodegradable matrix: the artificial cornea story", Bioscience Frontiers for the Real World 2002 Conference: Frontiers in Tissue Engineering, Brisbane, Australia, November 2002. ***Invited lecture***.

(115) "Deposits in artificial corneas: risk factors and prevention" (with C. Hicks, G. Crawford, L. Werner, D. Apple and I. Constable), The Australasian Ophthalmic and Visual Sciences Meeting, Sydney, Australia, December 2002.

(116) "Diffusion of calcium ions in poly(2-hydroxyethyl methacrylate) hydrogels" (with D.J.T. Hill, Zainuddin and A.K. Whittaker), The 26th Australian Polymer Symposium, Noosa, Australia, July 2003.

(117) "Clinical outcomes of artificial cornea (AlphaCor) implantations" (with H. Eguchi, H. Shiota, C. R. Hicks, G. J. Crawford, D.T. Tan, G.R. Sutton and G. Snibson), The 57th Congress of Clinical Ophthalmology of Japan, Nagoya, Japan, October/November 2003.

(118) "Artificial corneas", Ophthalmology Study Day 2004, Fremantle Hospital and Health Services, Corporate Staff Development, Fremantle, Australia, 5 August 2004. ***Invited lecture***.

(119) "Diffusion of calcium ions and formation of calcium phosphate deposits in radiation crosslinked PVA/PVP hydrogels" (with Zainuddin, D. J. T. Hill, A. K. Whittaker and K. Strounina), The 228th American Chemical Society National Meeting, Division of Polymer Chemistry, Philadelphia, USA, August 2004.

(120) "AlphaCor: current outcome data" (with C. R. Hicks, X. Lou, G. J. Crawford and I. J. Constable), The 16th International Congress of Eye Research, Sydney, Australia, August/September 2004.

(121) "In vitro study of the calcification of PHEMA hydrogels in simulated body fluid" (with Zainuddin, D. J. T. Hill and A. K. Whittaker), Polymers in Medicine and Surgery, Cambridge, UK, September 2004.

(122) "Tissue engineering in the eye: a biointegrable artificial cornea", The Australian Institute for Bioengineering and Nanotechnology Seminars, University of Queensland, Brisbane, Australia, 17 November 2004. ***Invited seminar presentation.***

(123) "The role of phosphate and carboxylic groups on the reduction of calcification of hydrogel implants" (with Zainuddin, D. J. T. Hill and A. K. Whittaker), The 27th Australian Polymer Symposium, Adelaide, Australia, November 2004.

(124) "History of artificial cornea in Japan", The Joint 29th Japan Cornea Conference and 21st Annual Meeting of Keratoplasty Society of Japan, Tokushima, Japan, February 2005. ***Invited symposium speaker.***

(125) "Introducing the Queensland Eye Institute and a brief presentation of its polymer-related research program", The Polymer Group Meetings, Queensland University of Technology, Brisbane, Australia, 19 September 2005. ***Invited seminar presentation.***

(126) "Introducing the Queensland Eye Institute and its polymer-related research", The Polymer Chemistry Group Research Seminars, University of Queensland, Brisbane, Australia, 20 October 2005. ***Invited seminar presentation.***

(127) "Drug-induced spoliation of the hydrogel in an artificial cornea (AlphaCor™)" (with D. A. Morrison, Z. Gridneva and C. R. Hicks),The 28th Australasian Polymer Symposium & Australasian Society for Biomaterials 16th Conference, Rotorua, New Zealand, February 2006.

(128) "Bioactive hydrogels for tissue engineering: a study of calcium phosphates deposition in radiation-formed PVA/PVP hydrogels" (with Zainuddin, D. J. T. Hill and A. K. Whittaker), AINSE Radiation 2006 Conference, Sydney, Australia, April 2006.

(129) "Biodegradability of linear poly(2-hydroxyethyl methacrylate)" (with I. Keen and A. K. Whittaker), The 29th Australasian Polymer Symposium, Hobart, Australia, February 2007.

(130) "Bombyx mori silk fibroin as a biomatrix substrate for ex vivo expansion of human and rabbit corneal epithelial cells" (poster with C. Kim, L.A. Oliveira, Zainuddin, I.R. Schwab and M.I. Rosenblatt), The Association for Research in Vision and Ophthalmology (ARVO), Annual Meeting, Fort Lauderdale, USA, May 2007. **Abstract 1884/B955**.

(131) "Bombyx mori silk fibroin as a biomatrix substrate for ex vivo expansion of human and rabbit corneal epithelial cells" (poster with I. R. Schwab, L. A. Oliveira, C. Kim, Zainuddin, T. Blankenship and M. I. Rosenblatt), The 5th Annual Meeting of the International Society for Stem Cell Research (ISSCR), Cairns, Australia, June 2007.

(132) "Preparation and characterization of the degradation behavior of PHEMA-peptide conjugate sponges by photoinitiated phase-separation polymerization" (poster with M. V. Baker, D. H. Brown, Y. Casadio and H.-B. Kraatz), International Conference on Materials for Advanced Technologies 2007 (ICMAT 2007), Singapore, July 2007. Poster A-5-PO25. ***Award winning presentation.***

(133) "Preparation and characterization of the degradation behavior of PHEMA-peptide conjugate sponges by photoinitiated phase-separation polymerization" (poster with M. V. Baker, D. H. Brown, Y. S. Casadio and H.-B. Kraatz), The ARC Australian Research Network for Advanced Materials (ARNAM) 2007 Annual Workshop, Canberra, Australia, July 2007. Presentation 14-2 (Conference Booklet, p. 94). ***Award winning presentation.***

(134) "Silk as substratum for cell attachment and proliferation" (with Z. Barnard, Zainuddin and D. Harkin), The Sixth Pacific Rim International Conference on Advanced Materials and Processing (PRICM-6), Jeju Island, Korea, November 2007. ***Invited presentation.***

(135) "Cytotoxicity of linear poly(2-hydroxyethyl methacrylate) made by control radical polymerization techniques" (with I. Keen, Z. Barnard, Zainuddin and A. Whittaker), International Congress on Biohydrogels, Viareggio, Lucca, Italy, November 2007.

(136) "Development of retinal pigment epithelial cell culture on Bombyx mori silk fibroin (BMSF) membrane for retinal transplantation" (with A. Kwan, S. Cheng, Z. Barnard, Zainuddin and D. Harkin), The 39th Annual Scientific Congress of The Royal Australian and New Zealand College of Ophthalmologists, Perth, Australia, November 2007.

(137) "Retinal pigment epithelial cell culture on silk substrate for retinal tissue transplantation" (with S. Cheng, A. Kwan, Z. Barnard, Zainuddin and D. Harkin), The Australasian Ophthalmic and Visual Sciences Meeting - 2007, Canberra, Australia, December 2007.

(138) "Bombyx mori silk fibroin membranes as potential substrata for epithelial constructs used in the management of ocular surface disorders" (poster with Z. Barnard, Zainuddin, D.G. Harkin, I.R. Schwab and L.W. Hirst), The Australasian Ophthalmic and Visual Sciences Meeting - 2007, Canberra, Australia, December 2007.

(139) "Bombyx mori silk fibroin membranes as potential substrata for epithelial constructs used in the management of ocular surface disorders" (with Z. Barnard, Zainuddin, D.G. Harkin, I.R. Schwab and L.W. Hirst), CSIRO Conference "Fibrous Proteins: transforming structural knowledge into new materials", Mount Eliza, Melbourne, Australia, 31 March – 3 April 2008.

(140) "Synthesis and characterisation of hydrogels with biodegradable crosslinks via one pot RAFT polymerisation" (with I. Keen and A. Whittaker), The 30th Australasian Polymer Symposium, Melbourne, Australia, 30 Nov. – 4 Dec. 2008.

(141) "Development of supramolecular hydrogels as injectable artificial vitreous substitutes" (poster with H. H. Lee, A. Whittaker, F. Rasoul, C. Hawker and B. Dargaville), The 30th Australasian Polymer Symposium, Melbourne, Australia, 30 Nov.- 4 Dec. 2008.

(142) "Supramolecular hydrogels as injectable artificial vitreous substitutes" (poster PC1-91 with B. Dargaville, C. Hawker, H. H. Lee-Wang, F. Rasoul and A. Whittaker), The European Polymer Congress (EPF'09), Graz, Austria, 12-17 July 2009.

(143) "Green routes to porous polymer materials for tissue engineering" (with M. V. Baker, D. H. Brown, Y. Casadio, I. Keen, S. Paterson and A. Whittaker), International Conference on Green and Sustainable Chemistry (ICGSC 2009), Singapore, 3-5 Aug. 2009.

(144) "Evaluation of fibroin-based scaffolds for ocular tissue reconstruction" (with L. J. Sinfield, K. A. George, D. W. Hutmacher and D. G. Harkin), Institute of Health & Biomedical Innovation (IHBI) Inspires Postgraduate Conference, Brisbane, Australia, Nov. 2009.

(145) "A method for the diversity oriented surface modification of PHEMA" (with Z. Merikan, Q. H. Lee and I. Blakey), The 11th Pacific Polymer Conference (PPC-11), Cairns, Australia, 6-10 Dec. 2009.

(146) "Use of mineral-coated polysaccharide capsules as 3-D biomimetic environments for transfection of human skeletal cell population" (with D. Green, K. Partridge, J. Babister, S. Mann and R. O. C. Oreffo), The 11th Pacific Polymer Conference (PPC-11), Cairns, Australia, 6-10 Dec. 2009.

(147) "Novel supramolecular hydrogels as artificial vitreous substitutes" (with H. H. Lee-Wang, I. Blakey, B. Dargaville, C. Hawker, H. Peng, F. Rasoul and A. Whittaker), The 11th Pacific Polymer Conference (PPC-11), Cairns, Australia, 6-10 Dec. 2009.

(148) "ARGET ATRP of 2-hydroxyethyl methacrylate using ascorbic acid as a reducing agent" (poster with S. Paterson, M. Baker, I. Keen, D. Brown and A. Whittaker), The 11th Pacific Polymer Conference (PPC-11), Cairns, Australia, 6-10 Dec. 2009.

(149) "Laser radiation modification of PHEMA hydrogels and the effect on the attachment of human corneal epithelial cells" (poster with Zainuddin, Z. Barnard, G. Watson and A. K. Whittaker), The 11th Pacific Polymer Conference (PPC-11), Cairns, Australia, 6-10 Dec. 2009.

(150) "Novel hydrogelators for the creation of supramolecular self-healing hydrogels as artificial vitreous. First generation: linear polymers" (poster with H. H. Lee-Wang, I. Blakey, H. Peng, F. Rasoul, A. Whittaker and B. Dargaville), The 20th Annual Australasian Society for Biomaterials and Tissue Engineering (ASBTE) Conference, Brisbane, Australia, 10-12 Feb. 2010.

(151) "Composite fibroin scaffolds for corneal tissue engineering" (poster with K. A. George, S. P. Kale, L. J. Sinfield, S. C. Kundu, P. D. Dalton, D. W. Hutmacher, I. R. Schwab and D. G. Harkin), The 20th Annual Australasian Society for Biomaterials and Tissue Engineering (ASBTE) Conference, Brisbane, Australia, 10-12 Feb. 2010.

(152) "Synthesis and degradation of PLLA-co-succinic anhydride networks" (with K. A. George and E. Wentrup-Byrne), The 20th Annual Australasian Society for Biomaterials and Tissue Engineering (ASBTE) Conference, Brisbane, Australia, 10-12 Feb. 2010.

(153) "Novel supramolecular hydrogels as artificial vitreous substitutes" (with H.H. Lee, I. Blakey, F. Rasoul, A.K. Whittaker and B.L. Dargaville), The 239th Conference of the American Chemical Society (ACS), San Francisco, USA, March 2010.

(154) "Development of ultra-thin fibroin membrane for RPE cell transplantation" (poster with D.G. Harkin, K.A. George, A.M.A. Shadforth, S. Cheng and A. S. Kwan), The Association for Research in Vision and Ophthalmology (ARVO), Annual Meeting, Fort Lauderdale, USA, May 2010; **abstract 5248/A67**.

(155) "Fibroin-based materials support cultivation of limbal stromal cells" (poster with L. J. Sinfield, K. George, Zainuddin, D. Hutmacher, I.R. Schwab and D.G. Harkin), The Association for Research in Vision and Ophthalmology (ARVO), Annual Meeting, Fort Lauderdale, USA, May 2010; **abstract 6211/D776**.

(156) "Development of an ultra-thin fibroin membrane for RPE cell transplantation" (poster with A. Shadforth, K.A. George, S. Cheng, A.S. Kwan and D.G. Harkin), Tissue Engineering & Regenerative Medicine International Society (TERMIS) 2010 Asia-Pacific Meeting, Sydney, Australia, 15-17 Sep. 2010; **abstract 372**.

(157) "Fibroin-based materials support co-cultivation of limbal epithelial and stromal cells" (poster with L. Sinfield, K.A. George, Zainuddin, D.W. Hutmacher and D.G. Harkin), Tissue Engineering & Regenerative Medicine International Society (TERMIS) 2010 Asia-Pacific Meeting, Sydney, Australia, 15-17 Sep. 2010; **abstract 376**.

(158) "Tissue engineered fibroin scaffolds for ocular tissue reconstruction" (with L. J. Sinfield, K. A. George, S. L. Ainscough, D. W. Hutmacher and D. G. Harkin), Institute of Health & Biomedical Innovation (IHBI) Inspires Postgraduate Conference, Brisbane, Australia, Nov. 2010.

(159) "PLLA-based networks for biomedical applications" (with K.A. George, F. Schue and E. Wentrup-Byrne), 2010 International Chemical Congress of Pacific Basin Societies (PACIFICHEM 2010), Honolulu, Hawaii, USA, 15-20 December 2010; **abstract MACR 261**.

(160) "Controlled porosity of fibroin thin films synthesized from ternary fibroin-PEO-water solutions for corneal regeneration" (with K.A. George, L. Sinfield and D.G. Harkin), 2010 International Chemical Congress of Pacific Basin Societies (PACIFICHEM 2010), Honolulu, Hawaii, USA, 15-20 December 2010; **abstract HEAL 255**.

(161) "Novel hydrogelators for the creation of supramolecular self-healing hydrogels as artificial vitreous substitutes: Second generation" (with I. Blakey, B. Dargaville, F. Rasoul, A. Whittaker and H.H. Lee), The 32th Australasian Polymer Symposium, Coffs Harbour, Australia, 13-16 February 2011; **abstract W 1.12**.

(162) "HEMA-based copolymer hydrogels enhance the growth of HLE cells" (poster with Zainuddin, Z. Barnard and A.K. Whittaker), The 32th Australasian Polymer Symposium, Coffs Harbour, Australia, 13-16 February 2011; **abstract P 42**.

(163) "Investigating the hydrogen bonding back-fold behaviour of poly(propylene glycol) and poly(ethylene glycol) to 2-ureido-4[1H]-pyrimidinone (UPy)" (poster with I. Blakey, B. Dargaville, T.F.A. De Greef, E.W. Meijer, M.M.L. Nieuwenhuizen, F. Rasoul, A. Whittaker and H.H. Lee), The 32th Australasian Polymer Symposium, Coffs Harbour, Australia, 13-16 February 2011; **abstract P 64**.

(164) "Surface modification and topology profiling of PHEMA for biomaterial applications" (with Z. Merican, D.W. Green and I. Blakey), The 32th Australasian Polymer Symposium, Coffs Harbour, Australia, 13-16 February 2011; **abstract W 3.3**.

(165) "Synthesis and enzymatic degradation of PHEMA and P[HEMA-*co*-PEGMA] hydrogel sponges and gels" (with S.M. Paterson, D.H. Brown and M.V. Baker), Second International Conference on Multifunctional, Hybrid and Nanomaterials (Hybrid Materials 2011), Strasbourg, France, 6-10 March 2011.

(166) "Tissue engineered fibroin scaffolds for ocular tissue reconstruction" (with L. J. Bray, K. A. George, S. L. Ainscough, D. W. Hutmacher and D. G. Harkin), Australian Society for Medical Research (ASMR) Postgraduate Conference, Brisbane, Australia, May 2011.

(167) "Use of silk fibroin as a substratum for human corneal endothelium transplantation" (with P.W. Madden, K.A. George, J.N.X. Lai, G. Rodriguez and D.G. Harkin), Tissue Engineering & Regenerative Medicine International Society (TERMIS) European Chapter 2011 Annual Meeting, Granada, Spain, 7-10 June 2011.

(168) "Fibroin-based materials support co-cultivation of limbal epithelial and stromal cells" (with L.J. Bray, K.A. George, D.W. Hutmacher and D.G. Harkin), Tissue Engineering & Regenerative Medicine International Society (TERMIS) European Chapter 2011 Annual Meeting, Granada, Spain, 7-10 June 2011.

(169) "Tissue-engineered fibroin scaffolds for ocular tissue reconstruction" (poster with L. J. Bray, K. A. George, D. W. Hutmacher and D. G. Harkin), Institute of Health & Biomedical Innovation (IHBI) Inspires Postgraduate Conference, Brisbane, Australia, Nov. 2011.

(170) "Laser scanning confocal microscopy vs scanning electron microscopy for characterization of polymer morphology: Sample preparation drastically distorts morphologies of poly(2-hydroxyethyl methacrylate)-based hydrogels" (with S.M. Paterson, Y.S. Casadio, D.H. Brown and M.V. Baker), The 10th Asia-Pacific Microscopy Conference (APMC 10); The 2012 International Conference on Nanoscience & Nanotechnology (ICONN 2012); and The 22nd Australian Conference on Microscopy & Microanalysis (ACMM 22), Perth, Australia, 5-9 Feb. 2012.

(171) "Silk fibroin as substratum for corneal and retinal cells", The 16th NSW Stem Cell Network Workshop: Stem Cell Treatment for Eye Diseases, Sydney, Australia, 16 April 2012. ***Invited keynote speaker***.

(172) "Tissue-engineered fibroin scaffolds for ocular tissue reconstruction" (poster with L. J. Bray, K. A. George, D. W. Hutmacher and D. G. Harkin), The 16th NSW Stem Cell Network Workshop: Stem Cell Treatment for Eye Diseases, Sydney, Australia, 16 April 2012. ***Award winning poster***.

(173) "Catalytic routes to biodegradable porous polymer materials for tissue engineering" (with M.V. Baker, D.H. Brown, S. Paterson and J.A. Shaw), The 2nd International Conference on Molecular and Functional Catalysis (ICMFC-2), Biopolis, Singapore, 30 July-1 August 2012.

(174) "Silk fibroin as substratum in ocular tissue engineering" (poster), The 3rd TERMIS World Congress, Vienna, Austria, 5-8 Sep. 2012; **abstract 21.P19**.

(175) "Tissue-engineered fibroin scaffolds for ocular tissue reconstruction" (poster with L.J. Bray, K.A. George, D.W. Hutmacher and D.G. Harkin), The 3rd TERMIS World Congress, Vienna, Austria, 5-8 Sep. 2012; **abstract 28.P15**.

(176) "An in vitro 3-D cell culture model for studying pathomechanisms of AMD" (poster with A.M.A. Shadforth, D.G. Harkin, A. Weiss, D.W. Hutmacher and B.K. Feigl), The Association for Research in Vision and Ophthalmology (ARVO), Annual Meeting, Seattle, USA, 4-9 May 2013; **abstract 314/D0350**.

(177) "Ophthalmic regenerative medicine: the use of silk proteins as template for growing corneal and retinal cells", University of Twente, Enschede, The Netherlands, 28 August 2014. ***Invited lecture***.

(178) "Ophthalmic regenerative medicine: the use of silk proteins as template for growing corneal and retinal cells", The 6th International Conference on Biomaterials, Tissue Engineering & Medical Devices, Constanta, Romania, 17-20 September 2014. ***Invited keynote speaker***.

(179) "Ultrathin silk fibroin membranes as prosthetic Bruch's membrane", (poster with A.M.A. Shadforth, S. Suzuki, C. Theodoropoulos, N.A. Richardson and D.G. Harkin), Asia ARVO Meeting, Yokohama, Japan,16-19 February 2015; **abstract 348-P58-18**.

(180) "Ophthalmic regenerative medicine: the use of silk proteins as a template for corneal cells", Molecular Basis of Disease seminar series, Menzies Health Institute Queensland, School of Medical Science, Griffith University, Gold Coast, Australia, 2 April 2015. ***Invited seminar presentation***.

(181) "Modifications of silk fibroin membranes to enhance human corneal limbal epithelial cell growth for ocular surface regeneration" (with S. Suzuki, R.A. Dawson, A.M. Shadforth, L.J. Bray and D.G. Harkin), The 24th Annual Conference of the Australasian Society for Biomaterials and Tissue Engineering (ASBTE), Sydney, Australia,7-10 April 2015.

(182) "Autoclave technique for the isolation of Bombyx mori sericin hydrolysate for potential neuroprotective applications" (poster with N.C. McKirdy, S. Suzuki, D.G. Harkin and N.L. Barnett), The Australian Society for Medical Research (ASMR) Postgraduate Student Symposium, Brisbane, Australia, 27 May 2015.

(183) "Silk proteins in ophthalmic regenerative medicine: Reconstruction of the ocular surface", Dissertation presented at the awarding of Doctor Honoris Causa, University Politehnica of Timisoara, Timisoara, Romania, 1 October 2015.

(184) "Evaluation of the Algerbrush II rotating burr as a tool for inducing limbal stem cell deficiency" (poster with D.G. Harkin, F.J. Li, E. Nili, C. Lau, N.L. Barnett, N. Richardson, J. Walshe, B. Cronin and I.R. Schwab), The Association for Research in Vision and Ophthalmology (ARVO), Annual Meeting, Seattle, USA, 1-5 May 2016; **abstract 883/D0245**.

(185) "Optimized Bombyx mori silk sericin biomaterial for retinal pigment epithelium regeneration" (with N.C. McKirdy, G.Lidgerwood, A. Pebay, S. Suzuki, D.G. Harkin and N.L. Barnett), ARVO Asia 2017, Brisbane, Australia, 5-8 February 2017.

(186) "Injectable silk fibroin hydrogels for ophthalmic delivery systems" (with S. Suzuki, O. Delcroix and N.C. McKirdy), ARVO Asia 2017, Brisbane, Australia, 5-8 February 2017.

(187) "Bombyx mori silk fibroin/sericin blends as potential biomaterials for retinal applications" (with S. Suzuki and C.L. Rayner), The 26th Australian Society for Biomaterials and Tissue Engineering (ASBTE) Conference, Perth, Australia, 3-5 April 2018.

(188) "New bioadhesive materials inspired by mussel adhesive protein for ophthalmic applications" (poster with M.T. Alsadoun, S. Suzuki, M. Myers and M.V. Baker), The 26th Australian Society for Biomaterials and Tissue Engineering (ASBTE) Conference, Perth, Australia, 3-5 April 2018.

(189) "Towards biodegradable PHEMA" (poster with P. Praveen, S. Suzuki, M. Myers and M. Baker), The 26th Australian Society for Biomaterials and Tissue Engineering (ASBTE) Conference, Perth, Australia, 3-5 April 2018.

LIST OF PUBLICATIONS AND PATENTS

ARTICLES, BOOK CHAPTERS, LETTERS

1974

(1) Blaga A., Vladea R. and **Chirila T.**: On the synthesis of 2-isopropyl-1,3-dioxolane. *Bul. Stiint. Teh. Inst. Politeh. Timisoara Ser. Chim.,* **19(1)**: 139-145, 1974. *{Chem. Abstr. **83** (1975): 79121k}*.

1977

(2) **Chirila T.**: Penta and hexaatomic cycloacetal esters. Synthesis and characterization of some 2-carbalkoxymethyl-1,3-dioxolanes (dioxanes). [Rom.] *Rev. Chim. (Bucharest),* **28(8)**: 730-733, 1977. *{Chem. Abstr. **88** (1978): 22780y}*.

(3) **Chirila T.** and Pape R.: Comparative study of the methods for direct synthesis of five and six-membered cyclic ketals of acetone. Preparation of 2,2-dimethyl-4-hydroxymethyl-1,3-dioxolane. [Rom.] *Rev. Chim. (Bucharest),* **28(9)**: 827-830, 1977. *{Chem. Abstr. **88** (1978): 22719k}*.

(4) Blaga A. I., Pape R. F. and **Chirila T.**: Acid-catalysed acetalisation. I. The influence of kind and concentration of acid catalysts in synthesis of bis-1,1-(2',2'-ethylhexyloxy)-2-methylpropane. *Rev. Roum. Chim.,* **23(4)**: 581-586, 1977. *{Chem. Abstr. **89** (1978): 163005g}*.

1979

(5) **Chirila T.** and Prosteanu N.: Comments on the structural analysis by infrared spectrometry of cyclic acetals and ketals. The analysis of some 1,3-dioxolanes in the specific spectral region. [Rom.] *Anal. Univ. Timisoara Ser. St. Fiz-Chim.,* **17(1)**: 53-63, 1979. *{Chem. Abstr. **95** (1981): 5942e}*.

(6) **Chirila T.**: The advantages of using dimethyl sulfoxide as a solvent in the synthesis of nitriles of higher fatty acids. [Rom.] *Rev. Chim. (Bucharest)*, **30(8)**: 738-739, 1979. *{Chem. Abstr. **92** (1980): 41277p}*.

(7) Lőcsei V., **Chirila T.** and Csunderlik C.: Structural investigations by ^{1}H-NMR spectrometry on new derivatives of 1,3-dioxanic type. *Bul. Stiint. Teh. Inst. Politeh. Timisoara Ser. Chim.,* **24(1):** 102-108, 1979. *{Chem. Abstr. **95** (1981): 150553h}*.

(8) **Chirila T.**, Csunderlik C. and Demian B.: Acid catalysed acetalisation. III. Investigations on the diastereoisomerism of 2-methyl-2-ethyl-4-hydroxymethyl-1,3-dioxolane. *Bul. Stiint. Teh. Inst. Politeh. Timisoara Ser. Chim*., **24(2)**: 87-93, 1979.

1980

(9) **Chirila T.** and Prosteanu N.: Investigating the intramolecular hydrogen bonds in 2-hydroxymethyl-1,4-dioxaspiro[4.5]decane. [Rom.] *Rev. Chim. (Bucharest)*, **31(2)**: 135-139, 1980. *{Chem. Abstr. **93** (1980): 94656p}*.

(10) Lőcsei V., **Chirila T.**, Lucaciu N. and Pape R. F.: Polyurethane analysis. I. Considerations on NMR analysis. Applications in investigating the structure of prepolymers for microcellular elastomers. [Rom.] *Mater. Plast. (Bucharest)*, **17(2)**: 89-92, 1980. *{Chem. Abstr. **93** (1980): 187513e}*.

(11) Csunderlik C. and **Chirila T.**: ^{1}H-NMR Investigations of the conformation of the spirodioxolanes derived from vicinal diols. I. The ketal of cyclohexanone and racemic 2,3-butanediol. *Bul. Stiint. Teh. Inst. Politeh. Timisoara Ser. Chim.,* **25(1)**: 87-93, 1980.

1981

(12) Munteanu D., Tincul I. and **Chirila T.**: Stabilization of polyolefins by grafting. [Rom.] *Mater. Plast. (Bucharest)*, **18(3)**: 147-154, 1981. *{Chem. Abstr. **96** (1982): 52698k}*.

(13) Facsko O. and **Chirila T.**: The use of high performance liquid chromatography for the analysis of fatty acids mixtures obtained by the oxidation of *n*-paraffins. [Rom.] *Rev. Chim. (Bucharest)*, **32(11)**: 1111-1115, 1981. *{Chem. Abstr. **96** (1982): 228231u}*.

1982

(14) Csunderlik C., **Chirila T.** and Bacaloglu R.: ^{1}H-NMR investigations on the conformation of the spirodioxolanes derived from vicinal diols. II. The ketal of cyclohexanone and racemic 1,2-propanediol. *Org. Magn. Reson.,* **18(3)**: 153-156, 1982.

(15) **Chirila T.**: 4-Acyloxymethyl-1,3-dioxolanes. Synthetic methods; structural analysis by vibration-rotation spectrometry. [Rom.] *Rev. Chim. (Bucharest),* **33(3)**: 217-222, 1982. *{Chem. Abstr. **97** (1982): 38869f}*.

(16) Lőcsei V., Facsko O. and **Chirila T.**: The aminolysis of carbamates. I. The kinetics of the aminolysis of benzyl N-phenylcarbamate with ethanolamine. *J. Prakt. Chem*., **324(5)**: 816-826, 1982.

(17) **Chirila T.**: Studies on structure and conformational analysis of 5,5-disubstituted 1,3-dioxanes. I. Synthesis and characterization of some 5-ethyl-5-hydroxymethyl-1,3-dioxanes. [Rom.] *Rev. Chim. (Bucharest)*, **33(9)**: 820-825, 1982. *{Chem. Abstr. **98** (1983): 71382k}*.

(18) Csunderlik C. and **Chirila T.**: Studies on structure and conformational analysis of 5,5-disubstituted 1,3-dioxanes. II. Investigations by proton magnetic resonance spectrometry of the conformation of 5-ethyl-5-hydroxymethyl-1,3-dioxanes. [Rom.] *Rev. Chim. (Bucharest)*, **33(11)**: 1001-1008, 1982. *{Chem. Abstr. **99** (1983): 4829u}*.

1983

(19) Lőcsei V., Facsko O. and **Chirila T.**: The aminolysis of carbamates. II. The kinetics and mechanism of the aminolysis of benzyl N-phenylcarbamate with ethanolamine in aprotic solvents. *J. Prakt. Chem*., **325(1)**: 49-54, 1983.

1985

(20) Alexander R., Kagi R. I., Rowland S. J., Shepard P. N. and **Chirila T.V.**: The effects of thermal maturity on distributions of dimethylnaphthalenes and trimethylnaphthalenes in some Ancient sediments and petroleums. *Geochim. Cosmochim. Acta.,* **49(2)**: 385-395, 1985.

1989

(21) **Chirila T.V.**, Constable I. J., Russo A. V. and Linton R. G.: Ridley intraocular lens revisited: chemical analysis of residuals in the original lens material. *J. Cataract Refract. Surg*., **15(3)**: 283-288, 1989.

(22) **Chirila T.V.**, Russo A.V. and Constable I.J.: Chemical investigations of ultraviolet-absorbing hydrogel material for soft intraocular lenses. *J. Cataract Refract. Surg.*, **15(5)**: 504-509, 1989.

1990

(23) **Chirila T.V.**, Constable I.J., van Saarloos P.P. and Barrett G.D.: Laser-induced damage to transparent polymers: chemical effect of short-pulsed (Q-switched) Nd:YAG laser radiation on ophthalmic acrylic biomaterials. I. A review. *Biomaterials*, **11(5)**: 305-312, 1990.

(24) **Chirila T.V.**, Barrett G.D., Russo A.V., Constable I.J., van Saarloos P.P. and Russo C.I.: Laser-induced damage to transparent polymers: chemical effect of short-pulsed (Q-switched) Nd:YAG laser radiation on ophthalmic acrylic biomaterials. II. Study of monomer release from artificial intraocular lenses. *Biomaterials*, **11(5)**: 313-320, 1990.

1991

(25) **Chirila T.V.**, Walker L.N., Constable I.J., Thompson D.E. and Barrett G.D.: Cytotoxic effects of residual chemicals from polymeric biomaterials for artificial soft intraocular lenses. *J. Cataract Refract. Surg.*, **17(2)**: 154-162, 1991.

(26) **Chirila T.V.**, Barrett G.D., Fletcher W.A., Russo A.V. and Constable I.J.: Further studies on ultraviolet-absorbing hydrogels for intraocular lenses: Relationship between concentration of a polymerizable benzophenone, absorption, and extractability. *J. Cataract Refract. Surg.*, **17(5)**: 596-603, 1991.

(27) **Chirila T.V.**, Cooper R.L., Constable I.J., Richardson G.W. and Vijayasekaran S.: "Black prosthesis" revisited: A study of epinephrine-induced pigment deposits on poly(methyl methacrylate). *Graefe's Arch. Clin. Exp. Ophthalmol.*, **229(6**): 578-582, 1991.

1992

(28) **Chirila T. V.**: Polymeric materials in ophthalmology: recent advances in Western Australia. *Chem. Aust.*, **59(2)**: 52-55, 1992.

(29) **Chirila T.V.**, Cooper R.L., Constable I.J. and Horne R.: Radiation-absorbing hydrogel-melanin blends for ocular devices. *J. Appl. Polym. Sci.,* **44(4)**: 593-604, 1992.

(30) **Chirila T.V.** and van Saarloos P.P.: Ablation of poly(2-hydroxyethyl methacrylate) by 193-nm excimer laser radiation. *J. Appl. Polym. Sci.,* **44(8)**: 1355-1363, 1992.

(31) Vernon C.F., Klauber C., van Saarloos P.P. and **Chirila T.V.**: Interaction between acrylic polymers and high energy excimer laser radiation. *Polym. Int.,* **27(3)**: 243-248, 1992.

(32) Chleboun J.O., Martin R.N., Mitchell C.A. and **Chirila T.V.**: bFGF enhances the development of the collateral circulation after acute arterial occlusion. *Biochem. Biophys. Res. Commun*., **185(2)**: 510-516, 1992.

(33) **Chirila T.V.**, Thompson D.E. and Constable I.J.: *In vitro* cytotoxicity of melanized poly(2-hydroxyethyl methacrylate) hydrogels, a novel class of ocular biomaterials. *J. Biomater. Sci. Polym. Edn*, **3(6)**: 481-498, 1992.

1993

(34) **Chirila T.V.**, Constable I.J., Crawford G.J., Vijayasekaran S., Thompson D.E., Chen Y.C., Fletcher W.A. and Griffin B.J.: Poly(2-hydroxyethyl methacrylate) sponges as implant materials: *In vivo* and *in vitro* evaluation of cellular invasion. *Biomaterials*, **14(1)**: 26-38, 1993.

(35) Crawford G.J., Constable I.J., **Chirila T.V.**, Vijayasekaran S. and Thompson D.E.: Tissue interaction with hydrogel sponges implanted in the rabbit cornea. *Cornea*, **12(4)**: 348-357, 1993.

(36) **Chirila T.V.**, Chen Y.C., Griffin B.J. and Constable I.J.: Hydrophilic sponges based on 2-hydroxyethyl methacrylate. I. Effect of monomer mixture composition on the pore size. *Polym. Int.*, **32(3)**: 221-232, 1993.

(37) Chen Y.C., **Chirila T.V.** and Russo A.V.: Hydrophilic sponges based on 2-hydroxyethyl methacrylate. II. Effect of monomer mixture composition on the equilibrium water content and swelling behaviour. *Mater. Forum*, **17(1)**: 57-65, 1993.

(38) **Chirila T.V.**: Melanized poly(HEMA) hydrogels: basic research and potential use. *J. Biomater. Appl*., **8(2)**: 106-145, 1993.

1994

(39) **Chirila T.V.**, Vijayasekaran S., Horne R., Chen Y.C., Dalton P.D., Constable I.J. and Crawford G.J.: Interpenetrating polymer network (IPN) as a permanent joint between the elements of a new type of artificial cornea. *J. Biomed. Mater. Res*., **28(6)**: 745-753, 1994.

(40) **Chirila T.V.**, Tahija S., Hong Y., Vijayasekaran S. and Constable I.J.: Synthetic polymers as materials for artificial vitreous body: Review and recent advances. *J. Biomater. Appl*., **9(2)**: 121-137, 1994.

(41) van Saarloos P.P., Vernon C.F., **Chirila T.V.** and Klauber C.: An X-ray photoelectron spectroscopy study of poly(methyl methacrylate) surface modified by 193-nm laser radiation. *Polym. Bull*., **33(3)**: 331-338, 1994.

(42) **Chirila T.V.**: Modern artificial corneas: the use of porous polymers. *Trends Polym. Sci*., **2(9)**: 296-300, 1994. [cover page article].

(43) **Chirila T.V.**: Potential risks of endocapsular polymerization [Letter]. *J. Cataract Refract. Surg.,* **20(6)**: 675, 1994.

1995

(44) Plant G.W., Harvey A.R. and **Chirila T.V.**: Axonal growth within poly(2-hydroxyethyl methacrylate) sponges infiltrated with Schwann cells and implanted into the lesioned rat optic tract. *Brain Res.,* **671(1)**: 119-130, 1995.

(45) **Chirila T.V.**, Constable I.J., Vijayasekaran S. and Ben-nun J.: Melanin-containing hydrogel intraocular lenses: A histopathological study in animal eyes. *J. Biomater. Appl.,* **9(3)**: 262-274, 1995.

(46) **Chirila T.V.**, Constable I.J., Hong Y., Vijayasekaran S., Humphrey M.F., Dalton P.D., Tahija S.G., Maley M.A.L., Cuypers M.J.H., Sharp C., Moore S.R., Davies M.J.: Synthetic hydrogel as an artificial vitreous body. A one-year animal study of its effects on the retina. *Cells Mater.,* **5(1)**: 83-96, 1995.

(47) **Chirila T.V.**, Yu D.Y., Chen Y.C. and Crawford G.J.: Enhancement of mechanical strength of poly(2-hydroxyethyl methacrylate) sponges. *J. Biomed. Mater. Res.,* **29(8)**: 1029-1032, 1995.

(48) Dalton P.D., Jefferson A., Hong Y., **Chirila T.V.**, Vijayasekaran S. and Tahija S.G.: The use of Fourier transform infrared spectrometry for monitoring the retention of polymers in the vitreous humour. *Bio-Med. Mater. Eng.,* **5(3)**: 185-193, 1995.

(49) Dalton P.D., **Chirila T.V.**, Hong Y. and Jefferson A.: Oscillatory shear experiments as criteria for potential vitreous substitutes. *Polym. Gels Netw.,* **3(4)**: 429-444, 1995.

1996

(50) Mitchell C.A., Davies M.J., Grounds M.D., McGeachie J.K., Crawford G.J., Hong Y. and **Chirila T.V.**: Enhancement of neovascularization in regenerating skeletal muscle by the sustained release of erucamide from a polymer matrix. *J. Biomater. Appl.,* **10(3)**: 230-249, 1996.

(51) Hong Y., **Chirila T.V.**, Vijayasekaran S., Davies M.J. and Maley M.A.L.: In vitro cytotoxicity assay of synthetic hydrogels as potential vitreous substitutes. *In Vitro Toxicol.,* **9(1)**: 73-82, 1996.

(52) Vijayasekaran S., **Chirila T.V.**, Hong Y., Tahija S.G., Dalton P.D., Constable I.J. and McAllister I.L.: Poly(1-vinyl-2-pyrrolidinone) hydrogels as vitreous substitutes: Histopathological evaluation in the animal eye. *J. Biomater. Sci. Polym. Edn,* **7(8)**: 685-696, 1996.

(53) **Chirila T.V.**, Thompson-Wallis D.E., Crawford G.J., Constable I.J. and Vijayasekaran S.: Production of neocollagen by cells invading hydrogel sponges implanted in the rabbit cornea. *Graefe's Arch. Clin. Exp. Ophthalmol.*, **234(3)**: 193-198, 1996.

(54) Hong Y., **Chirila T.V.**, Vijayasekaran S., Dalton P.D., Tahija S.G., Cuypers M.J.H. and Constable I.J.: Crosslinked poly(1-vinyl-2-pyrrolidinone) as a vitreous substitute. *J. Biomed. Mater. Res.,* **30(4)**: 441-448, 1996.

(55) Crawford G.J., **Chirila, T.V.**, Vijayasekaran S., Dalton P.D. and Constable I.J.: Preliminary evaluation of a hydrogel core-and-skirt keratoprosthesis in the rabbit cornea. *J. Refract. Surg.,* **12(7)**: 525-529, 1996.

(56) **Chirila T.V.**: Artificial cornea (Hydrophylic polymeric sponges). In *Polymeric Materials Encyclopedia,* vol. 2, pp. 1525-1531. J.C. Salamone, editor. CRC Press, Inc., Boca Raton, FL, 1996. [ISBN: 0-8493-2470-X].

(57) **Chirila T.V.**, Hong Y. and Dalton P.D.: Artificial vitreous body. In *Polymeric Materials Encyclopedia*, vol. 11, pp. 8619-8625. J.C. Salamone, editor. CRC Press, Inc., Boca Raton, FL, 1996. [ISBN: 0-8493-2470-X].

(58) Hicks C.R., **Chirila T.V.**, Dalton P.D., Clayton A.B., Vijayasekaran S., Crawford G.J. and Constable I.J.: Keratoprosthesis: preliminary results of an artificial corneal button as a full-thickness implant in the rabbit model. *Aust. New Zealand J. Ophthalmol.,* **24(3)**: 297-303, 1996.

(59) Hong Y., **Chirila T.V.**, Cuypers M.J.H. and Constable I.J.: Polymers of 1-vinyl-2-pyrrolidinone as potential vitreous substitutes: physical selection. *J. Biomater. Appl.,* **11(2)**: 135-181, 1996.

(60) **Chirila T.V.** and Crawford, G.J.: A controversial episode in the history of artificial cornea: the first use of poly(methyl methacrylate). *Gesnerus*, **53(3/4)**: 236-242, 1996.

1997

(61) Clayton A.B., **Chirila T.V.** and Dalton P.D.: Hydrophilic sponges based on 2-hydroxyethyl methacrylate. III. Effect of incorporating a hydrophilic crosslinking agent on the equilibrium water content and pore structure. *Polym. Int.,* **42(1)**: 45-56, 1997.

(62) Vijayasekaran S., Hicks C.R., **Chirila T.V.**, Fitton J.H., Clayton A.B., Lou X., Platten S., Crawford G.J. and Constable I.J.: Histological evaluation during healing of hydrogel core-and-skirt keratoprostheses in the rabbit eye. *Cornea*, **16(3)**: 352-359, 1997.

(63) Lou X., **Chirila T.V.** and Clayton A.B.: Hydrophilic sponges based on 2-hydroxyethyl methacrylate. IV. Novel synthetic routes to hydroxyl-containing crosslinking agents and their effect on the mechanical strength of sponges. *Int. J. Polymeric Mater.*, **37(1/2)**: 1-14, 1997.

(64) Hicks C.R., Crawford G.J., Clayton A.B., Vijayasekaran S., Fitton J.H., **Chirila T.V.** and Constable I.J.: The development of an orbital implant allowing direct muscle attachment. In *Societas Ophthalmologica Europaea, XI-th Congress of the European Society of Ophthalmology*, vol. 2, pp. 889-893. I. Süveges and P. Follmann, editors. Monduzzi Editore, Bologna, Italy, 1997.

(65) Hicks C.R., Lou X., Platten S., Clayton A.B., Vijayasekaran S., Fitton J.H., **Chirila T.V.**, Crawford G.J. and Constable I.J.: Keratoprosthesis results in animals: an update. *Aust. New Zealand J. Ophthalmol.,* **25(Suppl. 1)**: 50-52, 1997. [cover page article].

(66) Hong Y., **Chirila T.V.**, Fitton J.H., Ziegelaar B.W. and Constable I.J.: Effect of crosslinked poly(1-vinyl-2-pyrrolidinone) gels on cell growth in static cell cultures. *Bio-Med. Mater. Eng.,* **7(1)**: 35-47, 1997.

(67) Davies M.J., Mitchell C.A., Maley M.A.L., Grounds M.D., Harvey A.R., Plant G.W., Wood D.J., Hong Y. and **Chirila T.V.**: In vitro assessment of the biological activity of basic fibroblast growth factor released from various polymers and biomatrices. *J. Biomater. Appl.,* **12(1)**: 31-56, 1997. [cover page article].

(68) Hicks C.R., Fitton J.H., **Chirila T.V.**, Crawford G.J. and Constable I.J.: Keratoprosthesis: advancing towards a true artificial cornea. *Surv. Ophthalmol.*, **42(2)**: 175-189, 1997.

(69) Clayton A.B., **Chirila T.V.** and Lou X.: Hydrophilic sponges based on 2-hydroxyethyl methacrylate. V. Effect of crosslinking agent reactivity on mechanical properties. *Polym. Int.,* **44(2)**: 201-207,1997.

(70) **Chirila T.V.:** Artificial cornea with a porous polymeric skirt. *Trends Polym. Sci.,* **5(11)**: 346-348, 1997.

1998

(71) Hicks C. R., Crawford G. J., Constable I. J., Dalton P. D. and **Chirila T. V.**: Hydrogel core-and-skirt keratoprostheses in pigs. In *Advances in Corneal Research. Selected Transactions of the World Congress on the Cornea IV*, p. 244. J. H. Lass, editor. Springer, New York, 1998. [ISBN: 978-0-306-45763-0].

(72) **Chirila T.V.**: The intraocular lens. In *Handbook of Biomaterial Properties,* pp.106-113. J. Black and G.W. Hastings, editors. Chapman & Hall, London, 1998. [ISBN: 0-4126-0330-6].

(73) **Chirila T.V.** and Hong Y.: The vitreous humour. In *Handbook of Biomaterial Properties*, pp.125-131. J. Black and G.W. Hastings, editors. Chapman & Hall, London, 1998. [ISBN: 0-4126-0330-6].

(74) Hicks C.R., **Chirila T.V.**, Clayton A.B., Fitton J.H., Vijayasekaran S., Dalton P.D., Lou X., Platten S., Ziegelaar B., Hong Y., Crawford G.J. and Constable I.J.: Clinical results of implantation of the Chirila keratoprosthesis in rabbits. *Br. J. Ophthalmol.*, **82(1)**: 18-25, 1998.

(75) Fitton J.H., Ziegelaar B.W., Hicks C.R., Clayton A.B., Crawford G.J., Constable I.J. and **Chirila T.V.**: Assessment of anticollagenase treatments after insertion of a keratoprosthetic material in the rabbit cornea. *Cornea,* **17(1)**: 108-114, 1998.

(76) Hong Y., **Chirila T.V.**, Vijayasekaran S., Shen W., Lou X. and Dalton P.D.: Biodegradation in vitro and retention in the rabbit eye of crosslinked poly(1-vinyl-2-pyrrolidinone) hydrogel as a vitreous substitute. *J. Biomed. Mater. Res*., **39(4)**: 650-659, 1998.

(77) **Chirila T.V.**, Lou X., Vijayasekaran S., Ziegelaar B.W., Hong Y. and Clayton A.B.: Hydrophilic sponges based on 2-hydroxyethyl methacrylate. VI. Effect of phase sequence inversion on the characteristics of IPN between sponges and homogeneous gels. *Int. J. Polymeric Mater.,* **40(1/2)**: 97-104, 1998.

(78) **Chirila T.V.** and Hong Y.: Poly(1-vinyl-2-pyrrolidinone) hydrogels as vitreous substitutes: a rheological study. *Polym. Int.*, **46(3)**: 183-195, 1998.

(79) Hicks C.R., Vijayasekaran S., **Chirila T.V.**, Platten S., Crawford G.J. and Constable I.J.: Implantation of PHEMA keratoprostheses after alkali burns in rabbit eyes. *Cornea,* **17(3)**: 301-308, 1998.

(80) **Chirila T.V.**: Preface [Editorial, Special Issue: Polymer Science and the Eye]. *Prog. Polym. Sci.*, **23(3)**: 327, 1998.

(81) **Chirila T.V.**, Hicks C.R., Dalton P.D., Vijayasekaran S., Lou X., Hong Y., Clayton A.B., Ziegelaar B.W., Fitton J.H., Platten S., Crawford G.J. and Constable I.J.: Artificial cornea. *Prog. Polym. Sci*., **23(3)**: 447-473, 1998.

(82) **Chirila T.V.**, Hong Y., Dalton P.D., Constable I.J. and Refojo M.F.: The use of hydrophilic polymers as artificial vitreous. *Prog. Polym. Sci.,* **23(3)**: 475-508, 1998.

(83) Ziegelaar B.W., Fitton J.H., Clayton A.B., Platten S.T., Steer J. and **Chirila T.V.**: The modulation of cellular responses to poly(2-hydroxyethyl methacrylate) hydrogel surfaces: phosphorylation decreases macrophage collagenase production *in vitro*. *J. Biomater. Sci. Polym. Edn,* **9(8)**: 849-862, 1998.

(84) Plant G.W., **Chirila T.V.** and Harvey A.R.: Implantation of collagen IV/poly(2-hydroxyethyl methacrylate) hydrogels containing Schwann cells into the lesioned rat optic tract. *Cell Transplantation*, **7(4)**: 381-391, 1998.

(85) **Chirila T.V.**, Higgins B. and Dalton P.D.: The effect of synthesis conditions on the properties of poly(2-hydroxyethyl methacrylate) sponges. *Cellular Polym*., **17(3)**: 141-162, 1998.

(86) Vijayasekaran S., Fitton J.H., Hicks C.R., **Chirila T.V.**, Crawford G.J. and Constable I.J.: Cell viability and inflammatory response in hydrogel sponges implanted in the rabbit cornea. *Biomaterials*, **19(24)**: 2255-2267, 1998.

1999

(87) Hicks C.R., Morris I.T., Vijayasekaran S., Fallon M.J., McAllister J., Clayton A.B., **Chirila T.V.**, Crawford G.J. and Constable I.J.: Correlation of histological findings with gadolinium enhanced MRI scans during healing of a PHEMA orbital implant in rabbits. *Br. J. Ophthalmol.*, **83(5)**: 616-621, 1999.

(88) Yao K., Cheng G., Shen F., Yin Y. and **Chirila T.V.**: Biomaterials and systems for tissue engineering. [Ch.] *Gongneng Cailiao*, **30 (1)**: 1-3, 1999. *{Chem. Abstr. **131** (1999): 92378d}*.

(89) **Chirila T.V.** and Hicks C.R.: The origins of the artificial cornea: Pellier de Quengsy and his contribution to the modern concept of keratoprosthesis. *Gesnerus*, **56(1/2)**: 96-106, 1999.

(90) Lou X., Vijayasekaran S., **Chirila T.V.**, Maley M.A.L., Hicks C.R. and Constable I.J.: Synthesis, physical characterization, and biological performance of sequential homointerpenetrating polymer network sponges based on poly(2-hydroxyethyl methacrylate). *J. Biomed. Mater. Res.*, **47(5)**: 404-411, 1999.

(91) Hicks C.R., Clayton A.B., Vijayasekaran S., Crawford G.J., **Chirila T.V.** and Constable I.J.: Development of a poly(2-hydroxyethyl methacrylate) orbital implant allowing direct muscle attachment and tissue ingrowth. *Ophthalm. Plast. Reconstr. Surg.*,**15(5)**: 326-332, 1999.

(92) Ziegelaar B.W., Fitton J.H., Clayton A.B., Platten S.T., Maley M.A.L. and **Chirila T.V.:** The modulation of corneal keratocyte and epithelial cell responses to poly(2-hydroxyethyl methacrylate) hydrogel surfaces: phosphorylation decreases collagenase production in vitro. *Biomaterials*, **20(21)**: 1979-1988, 1999.

(93) Lou X. and **Chirila T.V.**: Swelling behavior and mechanical properties of chemically cross-linked gelatin gels for biomedical use. *J. Biomater. Appl.*, **14(2)**: 184-191, 1999.

2000

(94) Lou X., Dalton P.D. and **Chirila T.V.**: Hydrophilic sponges based on 2-hydroxyethyl methacrylate. VII. Modulation of sponge characteristics by changes in reactivity and hydrophilicity of crosslinking agents. *J. Mater. Sci. Mater. Med.*, **11(5)**: 319-325, 2000.

(95) Hicks C., Crawford G., **Chirila T.**, Wiffen S., Vijayasekaran S., Lou X., Fitton J.H., Maley M., Clayton A., Dalton P., Platten S., Ziegelaar B., Hong Y., Russo A. and Constable I.: Development and clinical assessment of an artificial cornea. *Prog. Retin. Eye Res.*, **19(2)**: 149-170, 2000.

(96) Vijayasekaran S., **Chirila T.V.**, Robertson T.A., Lou X., Fitton J.H., Hicks C.R. and Constable I.J.: Calcification of poly(2-hydroxyethyl methacrylate) hydrogel sponges implanted in the rabbit cornea: A 3-month study. *J. Biomater. Sci. Polym. Edn*, **11(6)**: 599-615, 2000.

2001

(97) Lou X., Garrett K.L., Rakoczy P.E. and **Chirila T.V.**: Synthetic hydrogels as carriers in antisense therapy: preliminary evaluation of an oligodeoxynucleotide covalent conjugate with a copolymer of 1-vinyl-2-pyrrolidinone and 2-hydroxyethyl methacrylate. *J. Biomater. Appl.*, **15(4)**: 307-320, 2001.

(98) **Chirila T.V.**: An overview of the development of artificial corneas with porous skirts and the use of PHEMA for such an application. *Biomaterials*, **22(24)**: 3311-3317, 2001.

(99) Hicks C.R., Crawford G.J., **Chirila T.V.**, Lou X., Platten S., Vijayasekaran S. and Constable I.J.: Pilot study of the Chirila keratoprosthesis in human patients. *An. Inst. Barraquer*, **30(1/2)**: 109-111, 2001.

2002

(100) **Chirila T.V.**, Rakoczy P.E., Garrett K.L., Lou X. and Constable I.J.: The use of synthetic polymers for delivery of therapeutic antisense oligodeoxynucleotides. *Biomaterials*, **23(2)**: 321-342, 2002.

(101) Crawford G.J., Hicks C.R., Lou X., Vijayasekaran S., Tan D., Mulholland B., **Chirila T.V.** and Constable I.J.: The Chirila keratoprosthesis: phase I human clinical trial. *Ophthalmology*, **109(5)**: 883-889, 2002.

(102) **Chirila T.V.**: Interdisciplinary research at the Lions Eye Institute of Western Australia and the development of ophthalmic biomaterials [Editorial]. *Arch. Soc. Esp. Oftalmol.*, **77(5)**: 235-237, 2002.

(103) Crawford G.J., Hicks C.R., **Chirila T.V.**, Lou X., Constable I.J., Vijayasekaran S., Tan D. and Mulholland B.: Chirila KPro I: an overview. *An. Inst. Barraquer*, **31(2)**: 155-156, 2002.

(104) Tan D., Crawford G.J., Hicks C.R., Lou, X., Vijayasekaran S., **Chirila T.V.** and Constable I.J.: Chirila KPro II: case histories. *An. Inst. Barraquer*, **31(2)**: 157-158, 2002.

(105) Hicks C.R., Crawford G.J., **Chirila T.V.**, Tan D. and Constable I.J.: Chirila KPro III: keratoprosthesis or not? *An. Inst. Barraquer*, **31(2)**: 159-160, 2002.

2003

(106) Dair G.T. and **Chirila T.V.**: Effect of hydration on the ablation of poly(2-hydroxyethyl methacrylate) by the 213-nm laser radiation. *J. Mater. Sci. Lett.*, **22(4)**: 303-305, 2003.

(107) Hicks C.R., Crawford G.J., Lou X., Tan D.T., Snibson G.R., Sutton G., Downie N., Werner L., **Chirila T.V.** and Constable I.J.: Corneal replacement using a synthetic hydrogel cornea, AlphaCor™: device, preliminary outcomes and complications. *Eye*, **17(3)**: 385-392, 2003.

2004

(108) **Chirila T.V.** and Hicks C.R.: Corneal implants. In *Encyclopedia of Biomaterials and Biomedical Engineering*, pp. 392-398. G. E. Wnek and G. L. Bowlin, editors. Marcel Dekker, Inc., New York, 2004. [ISBN: 0-8247-4789-4].

(109) **Chirila T.V.**, Gridneva Z., Morrison D.A., Barry C.J., Hicks C.R., Hill D.J.T., Whittaker A.K. and Zainuddin: Spontaneous calcification of acrylic hydrogels in abiotic calcifying media and the relevance of ionic solute effects. *J. Mater. Sci.*, **39(5)**: 1861-1864, 2004.

(110) Hicks C.R., **Chirila T.V.**, Werner L., Crawford G.J., Apple D.J. and Constable I.J.: Deposits in artificial corneas: risk factors and prevention. *Clin. Exp. Ophthalmol.*, **32(2)**: 185-191, 2004.

(111) Zainuddin, Hill D.J.T., Whittaker A.K., Strounina K. and **Chirila T.V.**: Diffusion of calcium ions and formation of calcium phosphate deposits in radiation crosslinked PVA/PVP hydrogels. *Polym. Prep.*, **45(2)**: 368-369 (2004).

(112) **Chirila T.V.**, Morrison D.A., Hicks C.R., Gridneva Z., Barry C.J. and Vijayasekaran S.: In vitro drug-induced spoliation of a keratoprosthetic hydrogel. *Cornea*, **23(6)**: 620-629, 2004.

(113) Zainuddin, Hill D.J.T., Strounina E., Whittaker A.K. and **Chirila T.V.**: The states, diffusion and concentration distribution of water in radiation-formed PVA/PVP hydrogels. *Soft Mater.*, **2(2/3)**: 195-212, 2004.

2005

(114) **Chirila T.V.**, Chirila M., Ikada Y., Eguchi H. and Shiota H.: A historical review of artificial cornea research in Japan. *Jpn. J. Ophthalmol.*, **49(1)**: S1-S13, 2005.

(115) **Chirila T.V.**, Morrison D.A., Gridneva Z., Meyrick D., Hicks C.R. and Webb J.M.: Effect of multipurpose solutions for contact lens care on the in vitro drug-induced spoliation of poly(2-hydroxyethyl methacrylate) in simulated aqueous humour. *Contact Lens Anterior Eye*, **28(1)**: 21-28, 2005.

(116) Zainuddin, **Chirila T.V.**, Hill D.J.T. and Whittaker A.K.: Study of the calcification of PHEMA hydrogels using a two compartment permeation cell. *J. Mol. Structure*, **739(1-3)**: 199-206, 2005.

(117) **Chirila T.V.**, Morrison D.A., Gridneva Z., Garcia A.J.A., Platten S.T., Griffin B.J., Zainuddin, Whittaker A.K. and Hill D.J.T.: Crystallization patterns of calcium phosphate precipitated on acrylic hydrogels in abiogenic conditions. *J. Mater. Sci.*, **40(18)**: 4987-4990, 2005.

2006

(118) Hicks C.R., **Chirila T.V.**, Vijayasekaran S. and Crawford G.J.: PHEMA as a keratoprosthesis material [Letter]. *Br. J. Ophthalmol.*, **90(1)**: 124, 2006.

(119) Morrison D.A., Gridneva Z., **Chirila T.V.** and Hicks C.R.: Screening for drug-induced spoliation of the hydrogel optic of the AlphaCor™ artificial cornea. *Contact Lens Anterior Eye*, **29(2)**: 93-100, 2006.

(120) **Chirila T.V.**: First development of a polyurethane keratoprosthesis and its Australian connection: an unbeknown episode in the history of artificial cornea. *Clin. Exp. Ophthalmol.*, **34(5)**: 485-488, 2006.

(121) Zainuddin, Hill D.J.T., **Chirila T.V.**, Whittaker A.K. and Kemp A.: Experimental calcification of HEMA-based hydrogels in the presence of albumin and a comparison to the in vivo calcification. *Biomacromolecules*, **7(6)**: 1758-1765, 2006.

(122) Zainuddin, Hill D.J.T., Whittaker A.K. and **Chirila T.V.**: In-vitro study of the spontaneous calcification of PHEMA-based hydrogels in simulated body fluid. *J. Mater. Sci. Mater. Med.*, **17(12)**: 1245-1254, 2006.

2007

(123) Zainuddin, Hill D.J.T., Whittaker A.K., Lambert L. and **Chirila T.V.**: Preferential interactions of calcium ions in poly(2-hydroxyethyl methacrylate) hydrogels. *J. Mater. Sci. Mater. Med.*, **18 (6)**: 1141-1149, 2007.

(124) **Chirila T.V.**, Zainuddin, Hill D.J.T., Whittaker A.K. and Kemp A.: Effect of phosphate functional groups on the calcification capacity of acrylic hydrogels. *Acta Biomater.*, **3(1)**: 95-102, 2007.

(125) **Chirila T.V.** and Zainuddin: Calcification of synthetic polymers functionalized with negatively ionizable groups: A critical review. *React. Funct. Polym.*, **67(3)**: 165-172, 2007.

(126) Varcoe K.M., Blakey I., **Chirila T.V.**, Hill A.J. and Whittaker A.K.: The effect of synthetic conditions on the free volume of poly(2-hydroxyethyl methacrylate) as studied by ^{1}H NMR, ^{129}Xe NMR and PALS. Chapter 24 in *New Approaches in Biomedical Spectroscopy*, pp. 391-409. K. Kneipp, R. Aroca, H. Kneipp and E. Wentrup-Byrne, editors. ACS Symposium Ser. 963, ACS, Washington, DC, 2007. [ISBN: 978-0-8412-7437-2].

(127) **Chirila T.V.**, Hill A.J. and Richens D.T.: Effect of redundant chain packing on the uptake of calcium phosphate in poly(2-hydroxyethyl methacrylate) hydrogels. *Aust. J. Chem.*, **60(6)**: 439-443, 2007.

(128) **Chirila T.**, Barnard Z., Zainuddin and Harkin D. Silk as substratum for cell attachment and proliferation. *Mater. Sci. Forum*, **561-565**: 1549-1552, 2007.

(129) Kwan A., Cheng S., Barnard Z., Zainuddin Z., Harkin D. and **Chirila T.**: Development of retinal pigment epithelial cell culture on Bombyx mori silk fibroin (BMSF) membrane for retinal transplantation. *Clin. Exp. Ophthalmol.*, **35(Suppl.1)**: A40, 2007.

2008

(130) Zainuddin, Hill D.J.T., Whittaker A.K., Kemp A. and **Chirila T.V.**: The role of citrate anions in prevention of calcification of poly(2-hydroxyethyl methacrylate) hydrogels. Chapter 25 in *Polymer Durability and Radiation Effects*, pp. 301-316. M. C. Celina and R. A. Assink, editors. ACS Symposium Ser. 978, ACS, Washington, DC, 2008. [ISBN: 978-0-8412-6952-1].

(131) Zainuddin, Barnard Z., Keen I., Hill D.J.T., **Chirila T.V.** and Harkin D.G.: PHEMA hydrogels modified through the grafting of phosphate groups by ATRP support the attachment and growth of human corneal epithelial cells. *J. Biomater. Appl.*, **23(2)**: 147-168, 2008.

(132) **Chirila T.V.**, Barnard Z., Zainuddin, Harkin D.G., Schwab I.R. and Hirst L.W.: *Bombyx mori* silk fibroin membranes as potential substrata for epithelial constructs used in the management of ocular surface disorders. *Tissue Eng. A*, **14(7)**: 1203-1211, 2008.

(133) Zainuddin, Le T.T., Park Y., **Chirila T.V.**, Halley P.J. and Whittaker A.K.: The behaviour of aged regenerated *Bombyx mori* silk fibroin solutions studied by ^{1}H NMR and rheology. *Biomaterials*, **29(32)**: 4268-4274, 2008.

2009

(134) **Chirila T.V.**, Minamisawa T., Keen I. and Shiba K.: Effect of motif-programmed artificial proteins on the calcium uptake in a synthetic hydrogel. *Macromol. Biosci.*, **9(10)**: 959-967, 2009.

(135) George K.A., Schué F., **Chirila T.V.** and Wentrup-Byrne E.: Synthesis of 4-arm star poly(L-lactide) oligomers using an in situ-generated calcium-based initiator. *J. Polym. Sci. A: Polym. Chem.*, **47(18)**: 4736-4748, 2009.

(136) Baker M.V., Brown D.H., Casadio Y.S. and **Chirila T.V.**: The preparation of poly(2-hydroxyethyl methacrylate) and poly{(2-hydroxyethyl methacrylate-*co*-[poly(ethylene glycol) methyl ether methacrylate]} by photoinitiated polymerisation-induced phase separation in water. *Polymer*, **50(25)**: 5918-5927, 2009.

2010

(137) **Chirila T.V.**: Preface. In *Biomaterials and Regenerative Medicine in Ophthalmology*, pp. xxiii-xxiv. T. V. Chirila, editor. Woodhead Publishing Ltd, Cambridge, UK, 2010. [ISBN: 978-1-84569-443-2].

(138) **Chirila T.V.**: An introduction to ophthalmic biomaterials and their application through tissue engineering and regenerative medicine. Chapter 1 (pp. 1-13) in *Biomaterials and Regenerative Medicine in Ophthalmology*, T. V. Chirila, editor. Woodhead Publishing Ltd, Cambridge, UK, 2010. [ISBN: 978-1-84569-443-2].

(139) **Chirila T.V.**, Harkin D.G., Hirst L.W., Schwab I.R., Barnard Z. and Zainuddin: Reconstruction of the ocular surface using biomaterials. Chapter 8 (pp. 213-242) in *Biomaterials and Regenerative Medicine in Ophthalmology*, T. V. Chirila, editor. Woodhead Publishing Ltd, Cambridge, UK, 2010. [ISBN: 978-1-84569-443-2].

(140) Kwan A.S.L., **Chirila T.V.** and Cheng S.: Development of tissue-engineered membranes for the culture and transplantation of retinal pigment epithelial cells. Chapter 15 (pp. 390-408) in *Biomaterials and Regenerative Medicine in Ophthalmology*, T. V. Chirila, editor. Woodhead Publishing Ltd, Cambridge, UK, 2010. [ISBN: 978-1-84569-443-2].

(141) **Chirila T.V.**, Madden P.W. and Hirst L.W.: Replacement of the corneal endothelium and the conceptual framework for an artificial substitute. *J. Biomimetics Biomater. Tissue Eng.*, **5**: 13-29, 2010.

(142) Ghassemifar R., Redmond S., Zainuddin and **Chirila T.V.**: Advancing towards a tissue-engineered tympanic membrane: silk fibroin as a substratum for growing human eardrum keratinocytes. *J. Biomater. Appl.*, **24(7)**: 591-606, 2010.

(143) George K.A., **Chirila T.V.** and Wentrup-Byrne E.: Carbodiimide-mediated synthesis of poly(L-lactide)-based networks. *Polymer*, **51(8)**: 1670-1678, 2010.

(144) Keen I., Lambert L., **Chirila T.V.**, Paterson S.M., and Whittaker A.K.: Degradable hydrogels for tissue engineering – Part I: Synthesis by RAFT polymerization and characterization of PHEMA containing enzymatically degradable crosslinks. *J. Biomimetics Biomater. Tissue Eng.*, **6**: 67-85, 2010.

(145) Keen I., **Chirila T.V.**, Barnard Z., Zainuddin and Whittaker A.K.: Degradable hydrogels for tissue engineering – Part II: Responses of fibroblasts and macrophages to linear PHEMA. *J. Biomimetics Biomater. Tissue Eng.*, **8**: 89-102, 2010.

(146) Casadio Y.S., Brown D.H., **Chirila T.V.**, Kraatz H.-B. and Baker M.V.: Biodegradation of poly(2-hydroxyethyl methacrylate) (PHEMA) and poly{(2-hydroxyethyl methacrylate-*co*-[poly(ethylene glycol) methyl ether methacrylate]} containing peptide-based cross-linking agents. *Biomacromolecules*, **11(11)**: 2949-2959, 2010.

(147) Paterson S.M., Brown D.H., **Chirila T.V.**, Keen I., Whittaker A.K. and Baker M.V.: The synthesis of water-soluble PHEMA via ARGET ATRP in protic media. *J. Polym. Sci. A: Polym. Chem.*, **48(18)**: 4084-4092, 2010.

(148) Lee-Wang H., Blakey I., **Chirila T.V.**, Peng H., Rasoul F., Whittaker A.K. and Dargaville B.L.: Novel supramolecular hydrogels as artificial vitreous substitutes. *Macromol. Symp.*, **296(1)**: 229-232, 2010.

2011

(149) Zainuddin, **Chirila T.V.**, Barnard Z., Watson G.S., Toh C., Blakey I., Whittaker A.K. and Hill D.J.T.: F_2 excimer laser (157 nm) radiation modification and surface ablation of PHEMA hydrogels and the effects on bioactivity: surface attachment and proliferation of human corneal epithelial cells. *Radiation Phys. Chem.*, **80(2)**: 219-229, 2011.

(150) Harkin D.G., George K.A., Madden P.W., Schwab I.R., Hutmacher D.W. and **Chirila T.V.**: Silk fibroin in ocular tissue reconstruction [Leading Opinion Paper]. *Biomaterials*, **32(10)**: 2445-2458, 2011.

(151) Madden P.W., Lai J.N.X., George K.A., Giovenco T., Harkin D.G. and **Chirila T.V.**: Human corneal endothelial cell growth on a silk fibroin membrane. *Biomaterials*, **32(17)**: 4076-4084, 2011.

(152) Bray L.J., George K.A., Ainscough S.L., Hutmacher D.W., **Chirila T.V.** and Harkin D.G.: Human corneal epithelial equivalents constructed on *Bombyx mori* silk fibroin membranes. *Biomaterials*, **32(22)**: 5086-5091, 2011.

(153) Madden P.W., George K.A., Lai J.N.X., Rodriguez G., Harkin D.G. and **Chirila T.V.**: Use of silk fibroin as a substratum for human corneal endothelium transplantation. *Histol. Histopathol. Cell. Mol. Biol.*, **26(Suppl. 1)**: 19 [abstract 2O1], 2011.

(154) Bray L.J., George K.A., Hutmacher D.W., **Chirila T.V.** and Harkin D.G.: Fibroin-based materials support co-cultivation of limbal epithelial and stromal cells. *Histol. Histopathol. Cell. Mol. Biol.*, **26(Suppl. 1)**: 339 [abstract 39O2], 2011.

(155) Paterson S.M., Clark J., Stubbs K.A., **Chirila T.V.** and Baker M.V.: Carbohydrate-based crosslinking agents: Potential use in hydrogels. *J. Polym. Sci. A: Polym. Chem.*, **49(20)**: 4312-4315, 2011.

(156) Sun H., Lee H.H., Blakey I., Dargaville B., **Chirila T.V.**, Whittaker A.K. and Smith S.C.: Multiple hydrogen-bonded complexes based on 2-ureido-4[1*H*]-pyrimidinone: A theoretical study. *J. Phys. Chem. B*, **115(38)**: 11053-11062, 2011.

2012

(157) Bray L.J., George K.A., Hutmacher D.W., **Chirila T.V.** and Harkin D.G.: A dual-layer silk fibroin scaffold for reconstructing the human corneal limbus. *Biomaterials*, **33(13)**: 3529-3538, 2012.

(158) Shadforth A.M.A., George K.A., Kwan A.S., **Chirila T.V.** and Harkin D.G.: The cultivation of human retinal pigment epithelial cells on *Bombyx mori* silk fibroin. *Biomaterials*, **33(16)**: 4110-4117, 2012.

(159) **Chirila T**: Miracles of medicine? *The Skeptic (Australia)*, **32(1)**: 26-31, 2012.

(160) George K.A., **Chirila T.V.** and Wentrup-Byrne E.: Effects of crosslink density on hydrolytic degradation of poly(L-lactide)-based networks. *Polym. Degrad. Stab.*, **97(6)**: 964-971, 2012.

(161) **Chirila T.V.**, George K.A., Ghafor W.A.A., Pas S.J. and Hill A.J.: Sequential homo-interpenetrating polymer networks of poly(2-hydroxyethyl methacrylate): synthesis, characterization and calcium uptake. *J. Appl. Polym. Sci.*, **126(S2)**: E455-E466, 2012.

(162) Paterson S.M., Brown D.H., Shaw J. A., **Chirila T.V.** and Baker M.V.: Synthesis of poly(2-hydroxyethyl methacrylate) sponges via activators regenerated by electron-transfer atom-transfer radical polymerization. *Aust. J. Chem.*, **65(7)**: 931-934, 2012.

(163) Paterson S.M., Shadforth A.M.A., Brown D.H., Madden P.W., **Chirila T.V.** and Baker M.V.: The synthesis and degradation of collagenase-degradable poly(2-hydroxyethyl methacrylate)-based hydrogels and sponges for potential applications as scaffolds in tissue engineering. *Mater. Sci. Eng. C*, **32(8)**: 2536-2544, 2012.

(164) **Chirila T.V.**: Silk fibroin as substratum in ocular tissue engineering. *J. Tissue Eng. Regen. Med.*, **6(Suppl. 1)**: 141 [abstract 21.P19], 2012.

(165) Bray L.J., George K.A., Hutmacher D.W., **Chirila T.V.** and Harkin D.G.: Tissue-engineered fibroin scaffolds for ocular tissue reconstruction. *J. Tissue Eng. Regen. Med.*, **6(Suppl. 1)**: 182 [abstract 28.P15], 2012.

(166) Harkin D.G. and **Chirila T.V.**: Silk fibroin in ocular surface reconstruction – what is its potential as a biomaterial in ophthalmics? [Opinion Paper]. *Future Med. Chem.*, **4(17)**: 2145-2147, 2012.

2013

(167) George K.A., Shadforth A.M.A., **Chirila T.V.**, Laurent M.J., Stephenson S.-A., Edwards G.A., Madden P.W., Hutmacher D.W. and Harkin D.G.: Effect of the sterilization method on the properties of *Bombyx mori* silk fibroin films. *Mater. Sci. Eng. C*, **33(2)**: 668-674, 2013.

(168) Paterson S.M., Casadio Y.S., Brown D.H., Shaw J. A., **Chirila T.V.** and Baker M.V.: Laser scanning confocal microscopy versus scanning electron microscopy for characterization of polymer morphology: Sample preparation drastically distorts morphologies of poly(2-hydroxyethyl methacrylate)-based hydrogels. *J. Appl. Polym. Sci.*, **127(6)**: 4296-4304, 2013.

(169) Bray L.J., Suzuki S., Harkin D.G. and **Chirila T.V.**: Incorporation of exogenous RGD peptide and inter-species blending as strategies for enhancing human corneal limbal epithelial cell growth on *Bombyx mori* silk fibroin membranes. *J. Funct. Biomater.*, **4(2)**: 74-88, 2013.

(170) Bray L.J., George K.A., Suzuki S., **Chirila T.V.** and Harkin D.G.: Fabrication of a corneal-limbal tissue substitute using silk fibroin. Chapter 11 in *Corneal Regenerative Medicine. Methods and Protocols*, pp. 165-178. B. Wright and C.J. Connon, editors. Series: Methods in Molecular Biology, Vol. 1014, Humana Press/Springer, New York, USA, 2013. [ISBN: 978-1-62703-431-9].

(171) Paterson S.M., Shadforth A.M.A., Shaw J.A., Brown D.H., **Chirila T.V.** and Baker M.V.: Improving the cellular invasion into PHEMA sponges by incorporation of the RGD peptide ligand: the use of copolymerization as a means to functionalize PHEMA sponges. *Mater. Sci. Eng. C*, **33(8)**: 4917-4922, 2013.

(172) **Chirila T.V.**, Suzuki S., Bray L.J., Barnett N.L. and Harkin D.G.: Evaluation of silk sericin as a biomaterial: in vitro growth of human corneal limbal epithelial cells on Bombyx mori sericin membranes. *Prog. Biomater.*, 2013, **2(1)**: 14. DOI: 10.1186/2194-0517-2-14. *[10 pages]*

(173) **Chirila T.V.**, Nann T., Toimil-Molares M.E. and Trautmann C.: Nanopores in track-etched polymer membranes as substitutes for the tight junctions in a novel concept of an artificial corneal endothelium. *GSI Sci. Rep. 2012*, **2013-1**: 412.

2014

(174) **Chirila T.V.**, Lee H.H., Oddon M., Nieuwenhuizen M.M.L., Blakey I. and Nicholson T.M.: Hydrogen-bonded supramolecular polymers as self-healing hydrogels: effect of a bulky adamantyl substituent in the ureido-pyrimidinone monomer. *J. Appl. Polym. Sci.*, 2014, **131(4)**: 39932. *[22 pages]*

(175) Hogerheyde T.A., Suzuki S., Stephenson S.A., Richardson N.A., **Chirila T.V.**, Harkin D.G. and Bray L.J.: Assessment of freestanding membranes prepared from *Antheraea pernyi* silk fibroin as a potential vehicle for human corneal epithelial cell transplantation. *Biomed. Mater.*, 2014, **9**: 025016. DOI: 10.1088/1748-6041/9/2/025016. *[9 pages]*

(176) Santander-Borrego M., Green D.W., **Chirila T.V.**, Whittaker A.K. and Blakey I.: Click functionalization of methacrylate-based hydrogels and their cellular response. *J. Polym. Sci. A: Polym. Chem.*, **52(13)**: 1781-1789, 2014.

2015

(177) Gillies P.J., Bray L.J., Richardson N.A., **Chirila T.V.** and Harkin D.G.: Isolation of microvascular endothelial cells from cadaveric corneal limbus. *Exp. Eye Res.*, **131(1)**: 20-28, 2015.

(178) Suzuki S., Dawson R.A., **Chirila T.V.**, Shadforth A.M.A., Hogerheyde T.A., Edwards G.A. and Harkin D.G.: Treatment of silk fibroin with poly(ethylene glycol) for the enhancement of corneal epithelial cell growth. *J. Funct. Biomater.*, **6(2)**: 345-366, 2015.

(179) Shadforth A.M.A., Suzuki S., Alzonne R., Edwards G.A., Richardson N.A., **Chirila T.V.** and Harkin D.G.: Incorporation of human recombinant tropoelastin into silk fibroin membranes with the view to repairing Bruch's membrane. *J. Funct. Biomater.*, **6(3)**: 946-962, 2015.

2016

(180) Li F.J., Nili E., Lau C., Richardson N.A., Walshe J., Barnett N.L., Cronin B.G., Hirst L.W., Schwab I.R., **Chirila T.V.** and Harkin D.G.: Evaluation of the AlgerBrush II rotating burr as a tool for inducing ocular surface failure in the New Zealand White rabbit. *Exp. Eye Res.*, **147(6)**: 1-11, 2016.

(181) **Chirila T.V.** and Harkin D.G.: An introduction to ophthalmic biomaterials and their role in tissue engineering and regenerative medicine. Chapter 1 in *Biomaterials and Regenerative Medicine in Ophthalmology*, 2nd edition, pp. 1-14, T.V. Chirila and D.G. Harkin, editors. Elsevier, Amsterdam, 2016. [ISBN: 978-0-08-100147-9].

(182) **Chirila T.V.**, Suzuki S., Hirst L.W. and Harkin D.G.: Reconstruction of the ocular surface using biomaterial templates. Chapter in *Biomaterials and Regenerative Medicine in Ophthalmology*, 2nd edition, pp. 179-218, T.V. Chirila and D.G. Harkin, editors. Elsevier, Amsterdam, 2016. [ISBN: 978-0-08-100147-9].

(183) Shadforth A.M.A., **Chirila T.V.**, Harkin D.G., Kwan A.S.L. and Chen F.K.: Biomaterial templates for the culture and transplantation of retinal pigment epithelial cells: a critical review. Chapter in *Biomaterials and Regenerative Medicine in Ophthalmology*, 2nd edition, pp. 263-289, T.V. Chirila and D.G. Harkin, editors. Elsevier, Amsterdam, 2016. [ISBN: 978-0-08-100147-9].

(184) **Chirila T.V.**, Suzuki S. and McKirdy N.C.: Further development of silk sericin as a biomaterial: comparative investigation of the procedures for its isolation from *Bombyx mori* silk cocoons. *Prog. Biomater.*, **5(2)**: 135-145, 2016.

(185) **Chirila T.V.** and Suzuki S.: The intraocular lens. Chapter B7 (pp. 103-113) in *Handbook of Biomaterial Properties*, 2nd edition, W. Murphy, J. Black and G. Hastings, editors. Springer-Verlag, New York, 2016. [ISBN: 978-1-4939-3303-7].

(186) **Chirila T.V.** and Hong Y.: The vitreous humor. Chapter C2 (pp. 125-134) in *Handbook of Biomaterial Properties*, 2nd edition, W. Murphy, J. Black and G. Hastings, editors. Springer-Verlag, New York, 2016. [ISBN: 978-1-4939-3303-7].

(187) **Chirila T.V.** and Suzuki S.: The cornea. Chapter C3 (pp. 135-148) in *Handbook of Biomaterial Properties*, 2nd edition, W. Murphy, J. Black and G. Hastings, editors. Springer-Verlag, New York, 2016. [ISBN: 978-1-4939-3303-7].

(188) Suzuki S., **Chirila T.V.** and Edwards G.A.: Characterization of *Bombyx mori* and *Antheraea pernyi* silk fibroins and their blends as potential biomaterials. *Prog. Biomater.*, **5(3-4)**: 193-198, 2016.

2017

(189) Santander-Borrego M., Taran E., Shadforth A., Whittaker A.K., **Chirila T.V.** and Blakey I.: Hydrogels with lotus leaf topography: Investigating surface properties and cell adhesion. *Langmuir*, **33(2)**: 485-493, 2017.

(190) Shadforth A.M.A., Suzuki S., Theodoropoulos C., Richardson N.A., **Chirila T.V.** and Harkin D.G.: A Bruch's membrane substitute fabricated from silk fibroin supports the function of retinal pigment epithelial cells in vitro. *J. Tissue Eng. Regen. Med.*, **11(6)**: 1915-1924, 2017.

(191) **Chirila T.V.**, Suzuki S. and Delcroix O.: Enzymatic crosslinking of Bombyx mori silk fibroin biomaterials: An investigation of the gel point by dynamic rheology. *Biomater. Tissue Technol.*, 2017, **1(1)**. DOI: 10.15761/BTT.1000103. *[4 pages]*

(192) **Chirila T.V.**, Suzuki S. and Papolla C.: A comparative investigation of Bombyx mori silk fibroin hydrogels generated by chemical and enzymatic cross-linking. *Biotechnol. Appl. Biochem.*, **64(6)**: 771-781, 2017.

(193) **Chirila T.V.**: Oxygen permeability of silk fibroin membranes: A critical review and personal perspective. *Biomater. Tissue Technol.*, 2017, **1(2)**. DOI: 10.15761/BTT.1000109. *[5 pages]*

2018

(194) Petcu E.B., Midha R., McColl E., Popa-Wagner A., **Chirila T.V.** and Dalton P.D.: 3D printing strategies for peripheral nerve regeneration. *Biofabrication*, **10(3)**: 032001, 2018; https://doi.org/10.1088/1758-5090/aaaf50. *[21 pages]*

(195) Santander-Borrego M., **Chirila T.V.**, Shadforth A.M.A., Whittaker A.K. and Blakey I.: Effect of changes in the surface chemistry and topography of poly(2-hydroxyethyl methacrylate) on the *in vitro* attachment of human corneal epithelial cells. *J. Bioact. Compat. Polym.*, **33(3)**: 321-331, 2018.

(196) Smith T.M., Suzuki S., Cronin B.G., Haghighatpanah M., Petcu E.B., Philippa C.J. and **Chirila T.V.**: Photochemically induced crosslinking of tarsal collagen as a treatment for eyelid laxity: assessing potentiality in animal tissue. *Ophthal. Plast. Reconstr. Surg.*, in press; DOI: 10.1097/IOP.0000000000001063.

SUBMITTED MANUSCRIPTS

BOOKS EDITED

(1) ***Polymer Science and the Eye***, A Special Issue of the journal *Progress in Polymer Science*, vol. 23, issue #3 (1998); Guest Editor: **T. V. Chirila**. Elsevier Science Ltd, Oxford, U.K., 1998. ISSN: 0079-6700. Personal contributions to the book: preface (p. 327), and 2 articles (pp. 447-473 and pp. 475-508). {See list of publications at # 80, 81 and 82}.

(2) ***Biomaterials and Regenerative Medicine in Ophthalmology***, Editor: **T. V. Chirila**. Woodhead Publishing Ltd, Cambridge, U.K. and CRC Press, Boca Raton, U.S.A., 2010. ISBN: 978-1-84569-443-2. Personal contributions to the book: preface (pp. xxiii-xxiv), chapter 1 (pp. 1-13), chapter 8 (pp. 213-242), chapter 15 (pp. 390-408). {See list of publications at # 137, 138, 139 and 140}.

(3) ***Biomaterials and Regenerative Medicine in Ophthalmology***, **2nd Edition**, Editors: **T. V. Chirila and D.G. Harkin**. Elsevier, Amsterdam, 2016. ISBN: 978-0-08-100147-9. Personal contributions to the book: chapter 1 (pp. 1-14), chapter 8 (pp. 179-218), chapter 11 (pp. 263-289). {See list of publications at # 181, 182, and 183}.

PATENTS

(1) "Method for preparation of 2-isopropyl-1,3-dioxolane". **Romanian Patent 62685** (24 Feb. 1976).

(2) "Method for the preparation of a cyclic acetal mixture obtainable in a one-pot procedure, used for paints and varnishes". **Romanian Patent 63233** (26 Oct. 1976).

(3) "Polychloroprene and polyurethane adhesive compositions". **Romanian Patent 65389** (21 June 1977).

(4) "Method for the preparation of an additive for foundry bonded moulding mixtures". **Romanian Patent 74298** (31 March 1980).

(5) "Method for the preparation of 2-ethylhexyl acetate". **Romanian Patent 74314** (31 March 1980).

(6) "Method of making photoprotective hydrophilic polymers and ocular devices thereof". **U. S. Patent 5,252,628** (12 Oct. 1993).

(7) "Keratoprosthesis and method of producing the same". **Australian Patent 650156** (10 Feb. 1994).

(8) "Keratoprosthesis". **U. S. Patent 5,300,116** (5 Apr. 1994).

(9) "Method of producing a keratoprosthesis". **U. S. Patent 5,458,819** (17 Oct. 1995).

(10) "Cross-linking of collagen in situ and uses thereof in wound healing". **Australian Patent 719661** (10 June 1998).

(11) "Ocular socket prosthesis". **Australian Patent 726152** (2 Nov. 2000).

(12) "Ocular socket prosthesis". **U. S. Patent 6,346,121 B1** (12 Feb. 2002).

(13) "Method of insertion of keratoprostheses". **U. S. Patent 6,423,093 B1** (23 July 2002).

(14) "Method of treatment of eyelid laxity". **Australian Patent Appl. No. 2018201200** (20 Feb. 2018).

(15) "Method of treatment of eyelid laxity". **U.S. Patent Appl. No. 15/900,583** (20 Feb. 2018).

(16) "Compositions and methods". **Australian Provisional Patent Appl. No. 2018901266** (16 Apr. 2018).

MISCELLANEOUS

BOOK REVIEWS

(1) Polymers in Medicine-4 (C. Migliaresi et al., Eds, Elsevier, 1991). *RACI Polymer Division News*, **40**:9, August 1992.

(2) Degradation Phenomena on Polymeric Biomaterials (H. Planck et al., Eds, Springer-Verlag, 1992). *RACI Polymer Division News*, **42**:23, May 1993.

(3) Polymers of Biological and Biomedical Significance (S.W. Shalaby et al., Eds, ACS Symp. 540, 1994). *RACI Polymer Division News*, **46**:24-25, September 1994.

(4) Materials Science and Technology. A Comprehensive Treatment. Vol. 14: Medical and Dental Materials (D.F. Williams, Ed., VCH, 1992). *RACI Polymer Division News*, **52**:32, October 1996.

(5) Polymers and Medicine (H.J. Jacobasch, Ed., Hüthig & Wepf, 1996). *RACI Polymer Division News*, **52**:33-34, October 1996.

(6) Blood Substitutes. Physiological Basis of Efficacy (R.M. Winslow et al., Eds., Birkhäuser, 1995). *RACI Polymer Division News*, **52**:40, October 1996.

(7) Hydrogels and Biodegradable Polymers for Bioapplications (R.M. Ottenbrite et al., Eds., ACS Symp. 627, 1996). *Trends Polym. Sci.,* **5(10)**:340, 1997.

(8) High-swelling Gels (J. Kahovec, Ed., Hüthig & Wepf, Zug, 1996). *RACI Polymer Division News*, **54**:37-38, December 1997.

(9) Bioelectrochemistry of Biomacromolecules. Theory and Practice (G. Lenaz & G. Milazzo, Eds., Birkhäuser, Basel, 1997). *RACI Polymer Division News*, **55**: 40, May 1998.

MEDIA RELEASES, EDITORIALS AND INTERVIEWS (Excerpt)

- New insight into cataract problems. *Uniview,* **7(1)**:6, 1988.
- Biocompatible lens. *Chem. Aust.*, **55(5)**:142, 1988.
- People in the news. *Chem. Aust.*, **59(3)**:89, 1992.
- Eyes improve out of sight (by H. Carter). *Herald-Sun (Melbourne)*, Nov. 17, 1992, p.33.
- Presentation as a new Fellow of the Royal Australian Chemical Institute. *Chem. Aust.*, **59(12)**:660, 1992.
- Polymer Division Awards. *Chem. Aust.*, **61(1)**:50, 1994.
- Progress in artificial cornea research at COVS. *Newsletter, Faculty of Medicine and Dentistry, UWA,* **1(2)**:1, 1995.
- With an eye to the future (by S. Ward). *Chemistry & Industry (London)*, June 16, 1997, pp. 470-474.
- Vital WA eye trial (by A. Treweek). *Sunday Times (Perth),* March 15, 1998, p. 2.
- Striving for the perfect keratoprosthesis (by C. Liu and B. Tighe). *Br. J. Ophthalmol.* **82(1)**:3-4, 1998.
- Nationwide (Australia) TV coverage of the artificial cornea on News on Channels 2, 7, 9 and 10, and on "Current Affair" (Channel 9). April 28, 1998.
- Artificial cornea a sight for poor eyes (by W. Pryer). *The West Australian (Perth)*, April 29, 1998, p. 3.
- Cornea artificial, esperanza medica. *La Nacion Digital (San Jose, Costa Rica)*, April 30, 1998. http://www.nacion.co.cr/ln_ee/1998/abril/30/mundo4.html
- Artificial cornea a boon to blind (AFP). *The Straits Time (Singapore)*, April 30, 1998.
- Cornea eye-opener (by B. Hickman). *Weekend Australian*, May 2-3, 1998, p.43.
- UWA "Vision" a world first. *Uniview*, **17(2)**:5, 1998.
- Artificial cornea sees the light of day (by A. Westmore). *Australasian Science*, **19(6)**: 5, 1998.
- Australian researchers develop first flexible artificial cornea. *Insight*, no. 251 (June): 13, 1998.
- Implantan a un hombre la primera cornea artificial. *Boletin de La Ciencia en San Luis, Facultad de Ciencias, Universidad Autonoma de San Luis Potosi*, No. 7 (July 20, 1998); http://www.uaslp.mx/fc/ciencia/lcesl7.html
- Artificial corneas. Risks of complications are high now, but better materials are on the way (by B. Allan). *Br. Med. J.* **318 (7187)**:821-822, 1999.
- National awards 1999. *Chem. Aust.*, **66(4)**:32, 1999.
- Applied Research Award-Don Rivett Medal. *Chem. Aust.*, **66(5)**:30, 1999.
- Soft bio-compatible implant developed in Western Australia. *Insight*, no. 261 (June): 25, 1999.
- Award for artificial cornea. *The West Australian (Perth)*, July 12, 1999, p. 26.
- 1999 National award winners. *Chem. Aust.*, **66(10)**:29, 1999.
- Plastic 'eye' gives hope to millions (by M. Toy). *The Age (Melbourne)*, Nov. 15, 1999, p. 3 (News).
- WA artificial cornea research leader wins chemistry research award. *Insight*, no. 263 (Sep./Oct.): p. 36, 1999.

• The PHEMA keratoprosthesis. BioMedical Industry Services website, Feb. 11, 1999; http://uts.cc.utexas.edu/~cam/BiS/soft-tissue/cornea/BiS-technique.html

• Cientificos australianos crean una nueva cornea artificial. *Diario El Mundo*, Nov. 15, 1999. http://www.el-mundo.es/elmundo/1999/noviembre/15/ciencia/cornea.html

• Esperan devolver vista a millones de persons con cornea artificial. *InfoMed – Red Telematica de Salud en Cuba, Boletin de Informacion Diaria*, **6 (No. 220)**, Nov. 16, 1999; http://www.sld.cu/diaria/161199.html

• Cornea de hidrogel. University of Buenos Aires' website (Universidad de Buenos Aires, Facultad de Ciencias Exactas y Naturales), Nov. 30, 1999. www.fcen.uba.ar/prensa/educyt/1999/ed101b.htm

• TV coverage of the orbital implant on *Quantum* (Channel 2, Australia). March 15, 2001.

•Artificial cornea in testing phase. Eyecare News website, Nov. 2001; http://www.allaboutvision.com/news/2001_11.htm

• Scientists waging war on diseases. *Weekend Australian*, Jan. 12-13, 2002, p. 32 (Health 2002 section).

• TV coverage of AlphaCor™ artificial cornea on *Discovery Channel* (USA). Jan. 30, 2002.

• *A Survey of Medical & Welfare Technology Research in Australia*, Monash University Centre for Biomedical Engineering, March 13, 2002, p. 42.

• Australian company introduces one-piece artificial cornea. *EyeWorld*, March 2002, p. 6.

• Artificial cornea, an alternative and hope. *InfoVision (Indonesia)*, April 2002, part 1, no. 5.

• New cornea safer option (by K. Ryan). *Australian Doctor*, April 26, 2002, p. 19.

• Kunstliche Kornea. Durchbruch in Perth. *Ophthalmologische Nachrichten*, May 2002, p. 23. http://www.apheresis-research.de/pdf/ool052002.pdf

• Cornea offers hope to world (by K. Watts). *The West Australian (Perth)*, June 6, 2002, p. 15.

• Australian artificial cornea ready for world commercial release. *Insight*, no. 283 (June): p. 6, 2002.

• Artificial cornea: Australian team makes breakthrough. *Current Therapeutics*, **43(7)**: 48, 2002.

• Australia achieves world breakthrough in eye surgery. *Asia Pacific Biotech*, **6(9)**: 321, 2002.

• Cornea 2002 (by J. O'Reilly). *Refractive Eye News*, **1(5)**: 21, 2003.

• Help for high-risk corneas (by C. R. Hicks). *Cataract & Refractive Surgery Today*, February 2003. http://www.crstoday.com/03_archive/0203/00011.html

• Emory Eye Center to perform first U.S. artificial cornea transplant with promising new device. Emory Health Sciences Press Release, May 7, 2003. http://www.emory.edu/WHSC/HSNEWS/releases/may03/corneal_trans.html

• Artificial cornea implant done here – for some, new device is last hope to regain sight (by T. Bonfield). *The Cincinnati Enquirer*, May 13, 2003. http://www.enquirer.com/editions/2003/05/13/loc_cornea13.html

• Clearer sight. *Reader's Digest*, **163(975)**: 30, 2003.

• A new R.A.S. member, American Branch. *Rom. Acad. Sci., Am. Branch, Proceedings*, **6**: 169 (2003).

- Artificial cornea. In: *National Health and Medical Research Council. Performance Measurement Report 2000-2003*, Commonwealth of Australia, Canberra, 2003 (ISBN: 1864961910), p. 36.
- WA's Lions Eye Institute sells rights to artificial cornea to Cooper Vision. *Insight*, no. 298 (May): p. 4, 2004.
- Stars shine brightly for health and medical research. NH&MRC media release - July 2007. http://www.nhmrc.gov.au/_files_nhmrc/file/media/Stars_Shine.pdf
- Artificial corneas: where are we today? (by E.L. Chaglasian). *Review of Cornea & Contact Lenses*, Jobson Medical Information LLC, September 23, 2011. http://www.reviewofcontactlenses.com/content/d/irregular_cornea/c/30239
- Entry in Wikipedia: *Traian V. Chirila*, October 2014.
- ABC (Australia) News Broadcast, 24 December 2016. Website text: http://www.abc.net.au/2016-12-24/silk-worms-could-be-the-answer-to-preventing-blindness/8101494
Video link: http://iview.abc.net.au/programs/abc-news-qld/NN1604Q308S00#playing
- Member Spotlight, RACI National Newsletter, 1 February 2017; https://www.raci.org.au/communications/id/1668 (accessed 10 March 2017).