

EMILIO I. ALARCON

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EMPLOYMENT HISTORY (2014-Present)

2020 –	Associate Professor, Department of Biochemistry, Microbiology and Immunology, Faculty of Medicine, University of Ottawa, Ottawa, Ontario, Canada
2019 – 2020	Visiting Professor, Universidad San Sebastian, Chile
2018 – 2019	Invited Professor, University of Talca, Talca, Chile
2017 – 2018	Invited Professor, Pontifical Catholic University of Chile, Santiago, Chile
2016 – 2017	Invited Professor, Universidad de Santiago de Chile, Santiago, Chile
2015 – 2017	Visiting Researcher, Wellman Center for Photomedicine Massachusetts General Hospital, Harvard Medical School
2015 – 2020	Assistant Professor, Department of Biochemistry, Microbiology and Immunology, Faculty of Medicine, University of Ottawa, Ottawa, Ontario, Canada
2014 – Current	Principal Investigator and Laboratory Director, University of Ottawa Heart Institute, Ottawa, Ontario, Canada

EDUCATION

2009/10 – 2014/7	Post-doctorate, Postdoctoral Fellow, Nanomaterials, University of Ottawa
2006/7 – 2009/9	Ph.D., Chemistry, Pontifical Catholic University of Chile
2005/7 – 2008/6	M.Sc., Chemistry, Pontifical Catholic University of Chile
2000/3 – 2005/6	B.Sc., Chemistry, University of Santiago of Chile

RECOGNITIONS

2019	Researcher of the Year, University of Ottawa Heart Institute, Canada
2019	Early Research Award Government of Ontario, Canada
2018	Global Achievement Award, University of Ottawa Heart Institute, Canada
2015	Burroughs Welcome Trust Travel Award

Research Interests: Dr. Alarcon’s lab studies the development of biomaterials for new translational therapies for the treatment of damaged cardiac tissue, cornea and skin. The lab

is also developing new nanostructures to overcome the current limitations of biomimetic tissue scaffolds for regenerative medicine. Listed below are some of the main areas Dr. Alarcon's group is currently focused on: **(i)** Injectable human recombinant human collagen, materials for cardiac tissue regeneration; **(ii)** New light-activated biomatrices for in-situ cornea repair; **(iii)** 3D hybrid scaffolds for regenerative medicine with improved antibacterial properties and neovascularization capabilities for diabetic foot; **(iv)** Spray-on biopolymers for tissue neovascularization, biofilm control of chronically infected tissues, and electroconductive materials; **(v)** Hybrid nano-electro conductive fibers, and hydrogels, for cardiac patches and myocardial regeneration; **(vi)** Development and characterization of specific peptide sequences for improving physiological stability of nanomaterials and as novel therapeutic materials; **(vii)** Effect of metal nanoparticles in biomolecule oxidation and degradation of hybrid nanomaterials for tissue engineering; **(viii)** Rapid disinfection of biomedical devices and PPE.

Research Funding: Dr. Alarcon's distinctive discipline-bridging research has been funded with +\$4.0M by the largest Canadian federal agencies including the Natural Sciences and Engineering Research Council of Canada (NSERC) (2015-2021), NSERC-Alliance COVID (2020-2021), the Canadian Institutes of Health Research (CIHR) Project Grant (2017-2021), two NSERC-CIHR Collaborative Health Research Project (CHRP) Grants (2017-2019 and 2018-2020), the New Frontiers in Research Fund (NFRF, 2019-2021), the Ontario Ministry of Economic Development, Job Creation and Trade (2019-2023), and the Ontario Institute for Regenerative Medicine (2019-2020).

Scientific Track Record: Dr. Alarcon, though early in his career, has already published 83 articles, over 40 of which since 2015 as an independent researcher, (plus two manuscripts currently under review), in prestigious peer-reviewed journals including Nature Communications, ACS Nano, ACS Applied Materials & Interfaces, Chemical Communications, Nanoscale, and Nature Regenerative Medicine. [Dr. Alarcon has an h-index of 25](#), +1,900 total citations, i10 = 50. He has also published a number of book chapters, and acted as a lead editor for two books, Silver Nanoparticles on Biomedicine: Silver Nanoparticle Applications: In the Fabrication and Design of Medical and Biosensing Devices," 2015 (Springer), and "Nanoengineering Materials for Biomedical Uses," 2019 (Springer Nature).

Life-Time Summary (count, h-index: 25; h₁₀: 51 Google Scholar):

	Published & In Press	Under review & In Preparation
<i>Book editorship</i>	2	-
<i>Refereed Journal Papers/Reviews</i>	83	4
<i>Book chapters</i>	+10	-
<i>Contributions presented in conferences</i>	+70	-
<i>Editorials</i>	2	-
<i>Patents</i>	1	1

ACTIVITIES

STUDENT SUPERVISION Life-Time Summary (count):

	In Progress	Completed
<i>Postdocs</i>	2	4
<i>PhD</i>	1	3
<i>MSc</i>	2	4
<i>Honors</i>	2	8
<i>Other undergraduate, MD, and summer students</i>	5	7

Editorial & Organizing Committee Member

- 2019/09- Director and Founder of COVID-SPECTRUM (<http://www.covidspectrum.com>)
- 2019/09- Director and Founder of BEaTS Research Radio (<http://www.beatsresearch.com/Radio.html>).
- 2019/03- Chair Canada-Chile Symposium on Artificial Intelligence and Regenerative Medicine, Santiago, Chile, November 2019 (<https://www.smartmedicine.cl>).
- 2018 – 2019 Lead Editor, Nanoengineering Materials for Biomedical Uses (Book, Springer, 2019)
- 2018/06- Chair and Invited speaker for ESP-IUPB World Congress on Light and Life, Barcelona Spain, August 2019 (<https://www.photobiology2019.org/>).
- 2018/03-2019/01 President Chile-Canada Early career investigators symposium, January 2019.
- 2018/7 – Editor and Scientific Mentor, Frontiers for Young Minds
- 2017/8 – Associate Editor, Frontiers in Biomaterials
- 2016/10 –2019/12 Associate Board Member, Heliyon, Elsevier
- 2015/2 – 2017/8 Guest Editor, New Frontiers for Biomaterials in Regenerative Medicine
- 2014/7 – Reviewing Editor, Frontiers in Bioengineering & Biotechnology & Materials
- 2013/12 – 2014/8 Lead Editor, Silver Nanoparticle Applications: In the Fabrication & Design of Medical & Biosensing Devices (Book, Springer, 2015)

International Collaboration Activities

- 2015/10 International Collaborator USA
International collaborator at Wellman Center for Photomedicine Massachusetts General Hospital, Harvard Medical School. My duties include being the team leader for the design, fabrication and translational uses of new technologies for treating diabetic foot ulcers.
- 2015/3 International Collaborator USA

International collaborator at Nanotechnology Innovation Center of Kansas State Institute of Computational Comparative Medicine Kansas State University. My duties include being the team leader in the design and testing of new peptide sequences for improving the stability, and minimizing toxicity, of nanomaterials in living-organisms.

Reviewer for Scientific Journals & Agencies

Reviewer for Scientific Journals (+450 papers refereed): ACS Applied Materials & Interfaces (2016-2020); ACS Applied Nano Materials (2018); ACS Applied Biomaterials (2018, 2020); ACS Biomaterials Science & Engineering (2019-2020); ACS OMEGA (2017-2018; 2020), ACS Sustainable Chemistry & Engineering (2012); Acta Biomateriala (2020); Aminoacids (2018); Analytical Methods (2014); Analyst (2012-2014); Bioconjugate Chemistry (2019-2020); Biomaterials (2017-2020); Biomaterials Science (2012-2014; 2019-2020); Biomacromolecules (2014); BioMed Research International (2015); Brazilian Journal of Chemical Engineering (2014); Chemical Society Reviews (2015, 2018); Chemosphere (2019); Circulation (2015-2016); Circulation Research (2018); Colloids and Surfaces B: Biointerfaces (2013, 2016, 2018); Combinatorial Chemistry & High Throughput Screening (2012); Environmental Science & Technology (2018); HERMED (2017); Inflammation (2014); Frontiers in Biomaterials (2016, 2017); Frontiers in Chemistry (2020); Frontiers in Immunology (2016); Frontiers in Microbes (2017); Frontiers in Bioengineering and Biotechnology (2018); Frontiers in Chemistry (2020); International Journal of Pharmaceutics (2017); Journal of the American Heart Association (2019); Journal of Biomaterials Science (2015); Journal of Ethnopharmacology (2014-2015, 2019); Journal of Herbal Medicine (2016); Journal of Material Chemistry B (2013-2014); Journal of Materials Science & Engineering C (2020); Journal of Molecular Structure (2010-2014); Journal of Medicinal Food (2010); Journal of Nanoparticle Research (2012-2016); Journal of Nanobiotechnology (2016); Journal of Photochemistry and Photobiology A (2016-2017; 2019); Journal of Photochemistry and Photobiology B (2015-2018); Langmuir (2015-2016; 2018; 2020); Materials (2016); Materials Letters (2018); Materials Science and Engineering C (2020); Molecules (2010;2014); Nanomaterials (2017); Nanoscale (2013, 2017); Nanoscale Horizons (2019); Nanotoxicology (2016); Nature Communications (2017); Nature Scientific Reports (2017); New Journal of Chemistry (2013-2014; 2018); Photochemical and Photobiological Sciences (2015, 2017); Photochemistry and Photobiology (2017); Physical Chemistry Chemical Physics (2013, 2018); PLOS One (2014; 2019); Polymer Chemistry (2013); Progress in Organic Coatings (2013-2015, 2018); RSC Advances (2011-2013; 2015; 2017-2019); RSC Open Science (2019); Scientific Reports (2020); Science Translational Medicine (2020); Soft Materials (2011-2013, 2017-2018); The Journal of Physical Chemistry (2011-2013); Theranostic (2015; 2019).

Reviewer for funding agencies: New Frontiers Research Fund, Canada (2020); Canadian Institutes of Health Research (CIHR), Canada (2018-2020); Austrian Science Fund (2020);

Swiss National Science Foundation (2018); Saskatchewan Health Research Foundation (2018-2019); French National Research Agency (FNRA), France (2014-2015); Indo-Canadian Institute (2020); Integrative Regenerative Medicine (IGEN) Grant program, Linköping University, Linköping, Sweden (2012); National Science and Technology Research Commission (FONDECYT), Chile (2012-2013, 2015-2017); National Science and Technology Research Commission (FONCYT), Argentina (2013, 2017), Saudi Arabia Competitive Research Grants (2017).

Reviewer for Book proposals of Editorial Houses: Elsevier, RSC, and Springer

GRADUATE COURSES

University of Ottawa, Faculty of Sciences (18h)

CHM4381, Winter 2020

Photobiology

University of Ottawa, Faculty of Medicine (18h)

BCH8166, Fall 2018

Special Topics in Biochemistry: Bio and Nanomaterials for Tissue Engineering

University of Talca Chile, Faculty of Sciences (6h)

Winter 2018

Synthesis and characterization of nanomaterials

Pontifical Catholic University of Chile, Faculty of Chemistry (9h)

Winter 2015 & Winter 2017

Synthesis and characterization of nanomaterials

UNDERGRADUATE COURSES

University of Ottawa, Faculty of Sciences (18h)

CHM4381, Winter 2020

Photochemistry and Photobiology

University of Ottawa, Faculty of Medicine (9h)

TMM4300, Fall 2019

Nanomedicine and tissue engineering

University of Ottawa, Faculty of Medicine (6h)

TMM4912, Fall 2019

Advanced Methods in Biomedical Research: Protein Biophysics

University of Ottawa, Faculty of Medicine (9h)

TMM4912, Fall 2018

Advanced Methods in Biomedical Research: Protein Biophysics

University of Ottawa, Faculty of Sciences (18h)

CHM4381, Winter 2018

Photochemistry and Photobiology

University of Ottawa, Faculty of Medicine (9h)

TMM4912, Fall 2017

Advanced Methods in Biomedical Research: Protein Biophysics

University of Ottawa, Faculty of Sciences (18h)

CHM4381, Winter 2016

Photochemistry and Photobiology

RESEARCH FUNDING HISTORY

In Progress (12)

Nominated Principal Investigator

Integrated Photothermal Device for Extending Lifetime of N95 Masks-COVID19

Funding source: NSERC-Alliance

2020/04 – 2021/04 Total funding: \$50,000 CAD

Co-Principal Investigator

Photocatalyst antiviral coatings -COVID19

Funding source: NSERC-Alliance

2020/04 – 2021/04 Total funding: \$50,000 CAD

Nominated Principal Investigator

Hand-held bio-printing device for customized on-the-spot heart repair

Funding source: New Frontiers in Research Fund-Exploration

2019/04 – 2021/04 Total funding: \$197,397 CAD

Nominated Principal Investigator

Bio-inspired Functional Nanomaterials for Tissue Engineering

Funding source: ERA Award, Ministry of Economic Development, Job Creation and Trade

2019/03 – 2023/03 Total funding: \$190,000 CAD

Nominated Principal Investigator

Biologically Responsive Micro-Capsules for Progenitor-Cell Therapies

Funding source: Ontario Institute for Regenerative Medicine

2019/03 – 2020/03 Total funding: \$74,814 CAD

Nominated Principal Investigator	Automated Peptide Synthesizer System for Accelerating discovery of Nanomaterials, Sensors, and Bioactive Compounds Funding source: Research Tools & Instruments NSERC 2019/04 – 2021/04 Total funding: \$146,765 CAD
Co-Principal Investigator	Pro-regeneration Biomimetic Corneal Implants with Anti-microbial & Anti-inflammatory Activity Funding source: Canadian Institutes of Health Research (CIHR) 2018/03 – 2022/03 Total funding: \$774,000 CAD
Co-Principal Investigator (NSERC)	Biosynthetic Alternative to Human Donor Corneal Transplantation Collaborative Health Research Grant (CHRP) Funding sources: Natural Sciences & Engineering Research Council (NSERC) & CIHR 2017/4 – 2020/4 Total funding: \$662,000 CAD
Co-Principal Investigator (NSERC)	Injectable Collagen Matrices for Cardiac Tissue Repair Collaborative Health Research Grant (CHRP) Funding sources: NSERC & CIHR 2018/4 – 2021/4 Total funding: \$1.2M CAD
Nominated Principal Investigator	Multilayered Hybrid Biomaterial for Treatment of Diabetic Foot Ulcers Funding source: CIHR 2017/10 – 2021/10 Total funding: \$367,200 CAD
Co-Supervisor	Investigating the Effects of Recombinant Human Collagen Hydrogel Injection on Heart Function & Infarct Repair Post-Myocardial Infarction (Ms. Sarah McLaughlin) Funding source: Frederick Banting & Charles Best Canada Graduate Scholarship (CIHR) – Doctoral Research Award 2017/10 – 2020/10 Total funding: \$105,000 CAD
Nominated Principal Investigator	Biomimetic Nano-Composite Materials for Tissue Engineering Funding source: NSERC 2015/4 – 2022/4 Total funding: \$125,000 CAD
Completed (5)	

- Principal Investigator** Development of Novel Corneal Implants
Funding source: Lincor Inc.
2015 – 2017 Total funding: \$80,000 CAD
- Principal Investigator** Biopolymer Coated Silver Nanoparticles with Anti-Biofilm
Anti-Inflammatory Properties for Sutureless Wound Closing
Funding source: Burroughs Wellcome Trust
2015/7 – 2016/1 Total funding: \$13,000 CAD
- Principal Investigator** New Hybrid Materials for Regenerative Medicine
Funding source: University of Ottawa Heart Institute
2014/7 – 2016/7 Total funding: \$120,000 CAD
- Co-Investigator** Industrial Research Assistance Program (IRAP) Grant
Funding source: National Research Council (NRC)
2014/7 – 2015/1 Total funding: \$36,246

SELECTED INVITED ORAL PRESENTATIONS (15 from 2015)

Nanoengineered Biomaterials for Tissue and Organ Repair. Invited Speaker, XXVIII International Materials Research Congress, Materials Research Society, August 2019 (18th-23rd).

Nanoengineering polymeric structures for tissue engineering. Invited Speaker, Canadian Biomaterials Society, May 2019 (21-24th).

Translational bio and nanomaterials: Tales from an Early Career Investigator. Invited Speaker, ACerS conference 4th International Conference on Innovations in Biomaterials, Biomanufacturing, and Biotechnologies, July 2019 (21-26th).

Light activated biomimetic polymers for tissue repair: From Proteins to Peptides. Invited Speaker, ESP-IUPB World Congress on Light and Life, Barcelona Spain, August 2019 (25-30th).

Nanoengineered materials for Tissue Engineering. Visiting Scholar, University of Erlanger-Nuremberg, Germany, 2018, October 17th.

Light-mediated Biopolymer Assembling as a new Tool for Regenerative Medicine. Invited talk, ELAFOT, Cordoba, Argentina, 2017, October 23-27th.

Novel Bio and Nanomaterials for tissue repair; Plenary lecture. 4th International Conference on Materials Science, Valdivia, Chile, 2017, October 16-19.

Bio-polymer based tissue photo-bonding using rose Bengal: There is still something new under the sun. 25th Inter-American Photochemical Society, Santiago, Chile, 2016, May 24-27.

New bio-inspired hybrid materials for tissue engineering. 99th Canadian Society for Chemistry, Halifax, Canada, 2016, June 5-9.

PEER REVIEWED JOURNALS (Full List, *Denotes corresponding authorship)

Year 2020

83. I. Guzman-Soto, M. Omole, **E. I. Alarcon,*** and C. D. McTiernan. Lipoic Acid Capped Silver Nanoparticles: A Facile Route to Covalent Protein Capping and Oxidative Stability Within Biological Systems. *RSC Advances*, (2020), 10, 32953-32958.

82. E. Jacques, K. Hosoyama, B. Biniam, C. Eren Cimenci, V. Sedlakova, A. J. Steeves, F. Variola, D. R. Davis, D. J. Stewart, E. J. Suuronen, **E. I. Alarcon.*** Collagen-Based Microcapsules As Therapeutic Materials for Stem Cell Therapies in Infarcted Myocardium. *ACS Biomaterials Science & Engineering*, (2020), 6, 4614-4622.

81. J. Pupkaite, V. Sedlakova, C. Eren Cimenci, M. Bak, S. McLaughlin, M. Ruel, **E. I. Alarcon,*** and E. J. Suuronen. Delivering More of an Injectable Human Recombinant Collagen III Hydrogel Does Not Improve Its Therapeutic Efficacy for Treating Myocardial Infarction. *ACS Biomaterials Science & Engineering*, (2020), 6, 4256-4265.

80. D. Cortes, C. D. McTiernan, M. Ruel, W. Franco, C. Chu, W. Liang, E. J. Suuronen, and **E. I. Alarcon,*** BEaTS- α an open access 3D printed device for in vitro electromechanical stimulation of human induced pluripotent stem cells. *Sci Rep*, (2020), 10, 11274.

79. Z. Khatoun, I. Guzmán-Soto, C. D. McTiernan, C. Lazurko, F. Simpson, L. Zhang, D. Cortes, T.-F. Mah, M. Griffith, **Emilio I. Alarcon.*** Nanoengineering the surface of corneal implants: towards functional anti-microbial and biofilm materials. *RSC Advances*, (2020), 10, 23675-23681.

78. M. Griffith, B. Kumar Poudel, K. Malhotra, N. Akla, M. Gonzalez-Andrades, D. Courtman, V. Hu, **E. I. Alarcon.*** Biosynthetic alternatives for corneal transplant surgery. *Expert Review of Ophthalmology*, (2020), 15, 129-143.

77. P. Kanda, A. Benavente-Babace, D. Courtman, D. J. Stewart, M. Godin, E. I. Alarcon, D. R. Davis. Deterministic Paracrine Repair of Injured Myocardium using Microfluidic-based Cocooning of Heart Explant-Derived Cells Biomaterials. *Biomaterials*, (2020), 247, 120010.

76. C. Lazurko, Z. Khatoun, K. Goel, V. Sedlakova, C. Eren Cimenci, M. Ahumada, L. Zhang, T.-F. Mah, W. Franco, E. Suuronen, **E. I. Alarcon.*** Multifunctional Nano & Collagen-Based Therapeutic Materials for Skin Repair. *ACS Biomaterials Science & Engineering*, (2020), 6, 1124-1134.

Year 2019

75. C. D. McTiernan, D. Cortes, C. Lazurko, S. Amrani, R. Rosales-Rojas, M. Zuñiga-Bustos, V. Sedlakova, H. Poblete, K. Stampelcoskie, E. J. Suuronen, **E. I. Alarcon**.* Light-Activated Peptide-Based Materials for Sutureless Wound Closure. *ACS Applied Materials & Interfaces*, (2019), 48, 45007-45015.

74. S. McLaughlin, B. McNeill, J. Podrebarac, K. Hosoyama, V. Sedlakova, G. Cron, D. Smith, R. Seymour, K. Goel, W. Liang, K. J. Rayner, M. Ruel, E. J. Suuronen, **E. I. Alarcon**.* Injectable human recombinant collagen matrices limit adverse remodeling and improve cardiac function after myocardial infarction. *Nature Communications*, (2019), 4866.

73. K. Hosoyama, C. Lazurko, M. Muñoz, C. D McTiernan, **E. I. Alarcon**.* Peptide-based functional biomaterials for soft-tissue repair. *Frontiers Bioengineering Biotechnology*, (2019), 7, 1-19.

72. R. Hunter, A. Najafi Sohi, Z. Khatoon, V. Berthiaume, **E. I. Alarcon**, M. Godin, H. Anis. Opto-fluidic SERS platform for rapid bacteria detection in biological fluids. *Sensors & Actuators: B. Chemical*, (2019), 300, 126907.

71. A. M. Montagut, A. Granados, C. Lazurko, A. El-Khoury, E. J. Suuronen, **E. I. Alarcon**,* R. M. Sebastián, A. Vallribera. Triazine Mediated Covalent Antibiotic Grafting on Cotton Fabrics as a Modular Approach for Developing Antimicrobial Barriers. *Cellulose*, (2019), 12, 7495–7505.

70. K. Goel, M. Zuñiga-Bustos, C. Lazurko, E. Jacques, C. Galaz-Araya, F. Valenzuela-Henriquez, N. L. Pacioni, J.-F. Couture, H. Poblete, **E. I. Alarcon**.* Nanoparticle Concentration vs. Surface Area in the Interaction of Thiol Containing Molecules: Towards a Rational Nano-Architectural Design of Hybrid-Materials. *ACS Applied Materials & Interfaces*, (2019), 11, 17697-17705.

69. K. Hosoyama, M. Ahumada, K. Goel, M. Ruel, E. J. Suuronen, **E. I. Alarcon**.* Electroconductive materials as biomimetic platforms for tissue regeneration. *Biotechnology Advances*, (2019), 37, 444-458.

Year 2018

68. Z. Khatoon, C. D. McTiernan, E. J. Suuronen, T.-F. Mah, **E. I. Alarcon**.* Bacterial biofilm formation on implantable devices and approaches to its treatment and prevention. *Heliyon*, (2018), <https://doi.org/10.1016/j.heliyon.2018.e01067>.

67. K. Hosoyama, M. Ahumada, C. D. McTiernan, M. Ruel, W. Liang, E. J. Suuronen, **E. I. Alarcon**.* Nanoengineered Electroconductive Collagen-Based Cardiac Patch for Infarcted Myocardium Repair. *ACS Applied Materials & Interfaces*, (2018), 10, 44668–44677.

66. D. Zúñiga-Núñez, R. A. Zamora, P. Barrias, C. Tirapegui, H. Poblete, G. Cárdenas-Jirón, **E. I. Alarcon**, A. Aspée. Theoretical Rationalisation of the Photophysics of TICT Excited State of Coumarin-Benzylideneacetone Derivatives in Homogeneous and

Constrained Microenvironments, *Physical Chemistry Chemical Physics*, (2018), 20, 27621-27629.

65. E. Jacques, M. Ahumada, B. Rector, G. Yousefalizadeh, C. Galaz-Araya, R. Recabarren, K. Stamplecoskie, H. Poblete, **E. I. Alarcon**.* Effect of Nanosilver Surface on Peptide Reactivity Towards Reactive Oxygen Species, *Nanoscale*, (2018), 10, 15911-15917.

64. M. Ahumada, C. Bohne, J. Oake, **E. I. Alarcon**.* Protein Capped Nanosilver Free Radical Oxidation: Role of the Biomolecule Capping on Nanoparticle Stability and Protein Oxidation, *Chemical Communications*, (2018), 54, 4724-4727.

63. P. Kanda, **E. I. Alarcon**, T. Yeuchy, S. Parent, R. A. deKemp, F. Variola, D. Courtman, D. J. Stewart, D. Davis. Deterministic Encapsulation of Human Cardiac Stem Cells in Variable Composition Nanoporous Gel Cocoons to Enhance Therapeutic Repair of Injured Myocardium, *ACS Nano*, (2018), 12, 4338-4350.

62. M. Mirazul Islam, O. Buznyk, Jagadesh C. Reddy, N. Pasychnikova, **E. I. Alarcon**, S. Hayes, P. Lewis, P. Fagerholm, C. He, S. I lakymenko, W. Liu, K. M. Meek, V. S. Sangwan, M. Griffith. Biomaterials-Enabled Cornea Regeneration in Patients at High Risk for Rejection of Donor Tissue Transplantation, *Nature Regenerative Medicine*, (2018), 3, 2.

61. C. Lazurko, M. Ahumada, F. Valenzuela-Henriquez, **E. I. Alarcon**.* NANoPoLC algorithm for correcting nanoparticle concentration by sample polydispersity, *Nanoscale*, (2018), 10, 3166-3170

60. J. R. Jangamreddy, M. K. C. Haagdorens, M. M. Islam, P. Lewis, A. Samanta, P. Fagerholm, A. Liszka, M. K. Ljunggren, O. Buznyk, **E. I. Alarcon**, N. Zakaria, K. M. Meek, M. Griffith. Short Peptide Analogs as Alternatives to Collagen in Pro-Regenerative Corneal Implants, *Acta Biomaterialia*, (2018), 5, 8925-8928.

59. D. Zúñiga-Núñez, P. Barrias, G. Cárdenas-Jirón, M. Soledad Ureta-Zañartu, C. Lopez-Alarcón, F. E. Morán Vieyra, C. D. Borsarelli, **E. I. Alarcon**, A. Aspée, Atypical Antioxidant Activity of Non-Phenolic Amino Coumarins, *RSC Advances*, (2018), 8, 1927-1933.

Year 2017

58. M. Ahumada, E. Jacques, C. Andronic, J. Comer, H. Poblete, **E. I. Alarcon**.* CLK-peptides as superior surface stabilizers for silver nanostructures: Role of peptide chain length, *Journal of Materials Chemistry B*, (2017), 5, 8925-8928.

57. K. Hosoyama, M. Ahumada, C. D. McTiernan, J. Bejjani, F. Variola, M. Ruel, B. Xu, W. Liang, E. J. Suuronen, **E. I. Alarcon**. Multi-functional thermo-crosslinkable collagen-metal nanoparticle composites for tissue regeneration: Nanosilver vs. Nanogold, *RSC Advances*, (2017), 7, 47704-47708.

56. **E. I. Alarcon**, H. Poblete, H.-G. Roh, J.-F. Couture, J. Comer, I. E. Kochevar, Rose Bengal Binding to Collagen and Tissue Photobonding, *ACS OMEGA*, (2017), 2, 6646-6657.

55. A. Aspée, C. Aliaga, L. Maretti, D. Zúñiga-Núñez, J. Godoy, E. Pino, G. Cárdenas-Jirón, C. Lopez-Alarcon, J. C. Scaiano, and **E. I. Alarcon**. Reaction Kinetics of Phenolic Antioxidants Towards Photo-Induced Pyranine Free Radicals in Biological Models, *The Journal of Physical Chemistry B*, (2017), 121, 6331-6340.
54. M. Ahumada, E. Lissi, A. M. Montagut, N. L. Pacioni, and **E. I. Alarcon**.* Revisiting the Binding of Molecules to Nanomaterials: Lessons from the Past to Reshape the Future. *Analyst*, (2017), 142, 2067-2089.
53. S. Allison, M. Ahumada, C. Andronic, B. McNeill, F. Variola, M. Ruel, V. Hamel, W. Liang, E. Suuronen, and **E. I. Alarcon**.* Electroconductive nanoengineered biomimetic hybrid fibers for cardiac tissue engineering. *Journal of Materials Chemistry B*, (2017), 5, 2402-2406.
52. J. Pupkaite, M. Ahumada, S. Mclaughlin, M. Temkit, S. Alaziz, R. Seymour, M. Ruel, I. Kochevar, M. Griffith, E. J. Suuronen, and **E. I. Alarcon**.* Collagen-Based Photoactive Agent for Tissue Bonding. *ACS Applied Materials & Interfaces*, (2017), 9, 9265-9270.
51. K. Maeda, **E. I. Alarcon**, E. J. Suuronen, and M. Ruel. Optimizing the host substrate environment for cardiac vasculogenesis and myogenesis. *Expert Opinion on Biological Therapy*, (2017), 17, 435-447.

Year 2016

50. S. McLaughlin, M. Ahumada, W. Franco, T.-F. Mah, R. Seymour, E. J. Suuronen, and **E. I. Alarcon**.* Sprayable peptide-modified silver nanoparticles as barrier against bacterial colonization. *Nanoscale*, (2016), 8, 19200-19203.
49. M. Garcia, H. de Alwis Weerasekera, S. Pitre, B. McNeill, A. M. Edwards, and **E. I. Alarcon**.* Photodynamic performance of zinc phthalocyanine in HeLa cells: A comparison between DPCC liposomes and BSA as delivery systems. *Journal of Photochemistry and Photobiology B: Biology*, (2016), 163, 385-390.
48. S. Mclaughlin, J. Podrebarac, M. Ruel, E. J. Suuronen, B. McNeill, and **E. I. Alarcon**.* Nano-engineered biomaterials for tissue regeneration: What has been achieved so far?. *Frontiers Materials*, (2016), <https://doi.org/10.3389/fmats.2016.00027>
47. M. Liras, S. Simoncelli, A. Rivas-Arena, O. Garcia, J. C. Scaiano, **E. I. Alarcon**,* and A. Aspee. Nitroxide amide-BODIPY probe behavior in fibroblasts analyzed by advanced fluorescence microscopy. *Organic & Biomolecular Chemistry*, (2016), 14, 4023-6.
46. **E. I. Alarcon**,* B. Vulesevic, A. Argawal, A. Ross, P. Bejjani, J. Podrebarac, R. Ravichandran, J. Phopase, E. J. Suuronen, and M. Griffith. Coloured cornea replacements with anti-infective properties: Expanding the safe use of silver nanoparticles in regenerative medicine. *Nanoscale*, (2016), 8, 6484-9.
45. M. Ahumada, S. McLaughlin, N. L. Pacioni, and **E. I. Alarcon**.* Spherical Silver Nanoparticles in the Detection of Thermally Denatured Collagens. *Analytical and Bioanalytical Chemistry*, (2016), 408, 1993-6.

44. M. Griffith, **E. I. Alarcon**, and I. Brunette. Regenerative Approaches for the Cornea. *Journal of Internal Medicine*, (2016), 9, 111–114.
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