MEHRNOOSH SAGHIZADEH GHIAM, Ph.D.

CURRICULUM VITAE

August 2018

PROFESSIONAL CONTACT INFORMATION:

Cedars-Sinai Medical Center
Board of Governors Regenerative Medicine Institute, Eye Program
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US Citizen
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EDUCATION:

M.S. in Biology California State University Northridge, Northridge, CA. 1995;
Ph.D., University of California, Los Angeles, Boyer Molecular Biology & Jules Stein Eye Institutes, UCLA Biomedical Center, Los Angeles, CA. 2007.

PROFESSIONAL EXPERIENCE:

January 2017-	Associate Professor of Biomedical Sciences, Board of Governors Regenerative Medicine Institute, Eye Program, Cedars-Sinai Medical Center, Los Angeles, CA.
April 2016-	Assistant Professor of Medicine Step III, UCLA School of Medicine, Los Angeles, CA.
April 2015-	Research Scientist II, Biomedical Sciences, Board of Governors Regenerative Medicine Institute, Eye Program**,** Cedars-Sinai Medical Center, Los Angeles, CA.
April 2014-2016	Assistant Professor of Medicine Step II, UCLA School of Medicine, Los Angeles, CA.

April 2012-2017	Assistant Professor of Surgery/Biomedical Sciences, Regenerative Medicine Institute, Eye Program**,** Cedars-Sinai Medical Center, Los Angeles, CA.
April 2011-2015	Research Scientist I**,** Department of Surgery, Ophthalmology Research Laboratories, Regenerative Medicine Institute, Cedars-Sinai Medical Center, Los Angeles, CA.
2007-2011	Postdoctoral Researcher, Department of Surgery, Ophthalmology Research Laboratories, Regenerative Medicine Institute, Cedars-Sinai Medical Center, Los Angeles, CA.
2002-2003	Teaching Assistant (TA), University of California, Los Angeles. Los Angeles, CA.
1995-2007	Research Associate II & III, Department of Surgery, Ophthalmology Research Laboratories, Cedars-Sinai Medical Center, Los Angeles, CA.
1991-1995	Research Associate I, Department of Medicine, Endocrinology Research Laboratory, Cedars-Sinai Medical Center, Los Angeles, CA.
1989-1991	Teaching Assistant (TA), Cal State University Northridge (CSUN). Northridge, CA.

PROFESSIONAL ACTIVITIES

Committee Services:

CSMC

2011-2013	Committee member of Regenerative medicine Institute (RMI), Cedars-Sinai Medical Center. Yearly retreat.
2012-2013	Leading CIRM Bridges program graduate students from CSU Channel Islands to Cedars-Sinai research laboratories for a year research internship
2012-	Cedars High School Outreach Program
2014-	RMI Steer Program

Other Committee Services:

2001-2006	Committee member of UCLA Jules Stein Eye Institute (JSEI) yearly retreat for six years. Chair committee in 2005
2012-2013	Leading CIRM Bridges program graduate students from CSU Channel Islands to Cedars-Sinai research laboratories for a year research internship.

2015-2017	ISER Council member, Young Investigator Representative
2015-	Grant Review Panel, Scientific Review Committee, Dr. Ralph and Marian Falk Medical Research Trust Awards Programs.
2016-	Grant Review Panel, Scientific Review Committee of Science Foundation Ireland (SFI)
2017-	Grant Review Panel, Scientific Review Committee of National Science Center, Poland (NCN).
2017-2020	ARVO member of the Members-in-Training Committee (MIT), three-year term.
2018-2021	ISER's Membership Committee, three-year term.
2018-	NIH Study Section, J 81 Ocular Surface Panel

Professional Associations:

2000-2007	Member, JSEI Affiliates, Vision in School program, Volunteer
2001-	Member, Association for Research in Vision and Ophthalmology (ARVO)
2006-	Member, International Society for Eye Research (ISER)
2007-2011	Member, National Postdoctoral Association (NPA)
2007-	Member, Iranian Society of Ophthalmologists and Vision Scientists (ISOV).
2014-	Member, Cornea, Biology & Pathobiology of the Gordon Research Conference (GRC)
2015-2017	ISER Council, Young Investigator Representative
2015-	UCLA Alumni Mentor Program, UCLA ONE
2017-2018	DGSOM/CSMC Mid-Career Women Faculty Leadership Development Program
2017-2018	The ARVO Leadership Development Program

Editorial Services:

2014-	Editorial Board Member, International Journal of Stem Cell Research & Transplantation (IJST)
2018-	Editorial Board Member, Scientific Reports
2018-	Editorial Board Member, Journal of Clinical Endocrinology and Diabetes

Ad-hoc Reviewer:

2009-	Brain Research Bulletin (BRB)
2010-	Experimental Eye Research (EER)
2012-	Experimental Toxicology and pharmacology
2013-	Investigative Ophthalmology & Visual Science (IOVS)
2013-	PLoS One
2014-	Bioscience Trends
2014-	Genes
2015-	Mol. Vision
2016-	Molecular Therapy Nucleic Acid
2016-	Stem Cell International
2016-	Ophthalmology
2016-	Endocrine, Metabolic and Immune Disorders-Drug Targets
2016-	Healthcare
2016-	Journal of Medicinal Chemistry
2017-	Polymer
2017-	Biomedical and Environmental Sciences
2017-	Diabetic Care
2017-	Acta Biomaterial
2017-	Molecular Medicine Report
2018-	Scientific Reports

Community Services:

2000- 2007	Volunteer Vision in School Program
2012-	Cedars High School Outreach Program
2015-2017	ISER Council, Young Investigator Representative
2015-	UCLA Alumni Mentor Program, UCLA ONE.
2015-	Dr. Ralph and Marian Falk Medical Research Trust Awards Programs, Scientific Review Committee
2015-	CIRM Funded High School Internship Program,
2016-	Science Foundation Ireland (SFI), Scientific Review Committee
2017-	Grant Review Panel, Scientific Review Committee of National Science Center, Poland (NCN).
2017-2020	ARVO member of the Members-in-Training Committee (MIT), three-year term
2018-2021	ISER's Membership Committee, three-year term
2018	Session Moderator, ARVO 2018 in Honolulu, Hawaii

2018-	NIH Study Section, J 81 Ocular Surface Panel

HONORS AND SPECIAL AWARDS:

2000-2005	NIH/NEI Training Grant.
2006-2007	UCLA Dissertation Fellowship.
2006	RD2006 Young Investigator Award (XIIth International Symposium on Retinal Degeneration, San Carlos de Bariloche, Argentina).
2006	ISER2006 Young Investigator Award (XVIIth International Congress of Eye Research, Buenos Aires, Argentina).
2007	APSIH (Association of Professors and Scholars of Iranian Heritage) Academic Achievement Award
2009	NEI ARVO Travel Award
2009	ISOV award for best ARVO abstract
2015-2017	ISER Council, Young Investigator Representative
2017-2020	ARVO member of the Members-in-Training Committee
2018-2019	The ARVO Leadership Development Program
2018	Travel Fellowship Award on submitted abstract ISER 2018, Belfast, Ireland

RESEARCH GRANTS AND FELLOWSHIPS RECEIVED:

Active/Ongoing:

1 R01 EY013431-15 Ljubimov
NIH/NEI 09/01/01 – 08/30/20
Mechanisms of Epithelial Alterations in Diabetic Cornea 700,000.00/year

Major goals: To change phenotypes of cultured stem cells in human diabetic corneas towards more normal ones using nanotechnology-based gene therapy with *c-met* overexpression and proteinase suppression and transplant them back to diabetic corneas. Experiments will be conducted in human corneal organ cultures.

Role: **Co-Investigator**
% Effort: 10%

1 R01 EY025377-01A1 Saghizadeh
NIH/NEI 08/01/15-07/31/20

The Role of MicroRNAs in Normal and Diseased Corneal Epithelial Homeostasis 437,000.00/year

Major goals: Investigating the role of microRNA (miR-146a, -127-3p, and -10b), expressed differentially in the stem cell-enriched limbal epithelium vs. central cornea and in diabetic vs. normal limbus, in corneal epithelial homeostasis and wound healing in vitro and in human organ-cultured corneas.

Role: **Principal Investigator**
% Effort: 45%

Cedars-Sinai Institution Commitment Grant, Saghizadeh
Biomedical Sciences & Regenerative Medicine Institute, Cedars-Sinai 08/01/15-07/30/19
The Role and Mechanisms of Exosomes in Regulation of Limbal Stem Cells 200,000.00

Major goals: Investigating the role of exsomes in corneal epithelial homeostasis and wound healing in vitro and in human organ-cultured corneas.

Role: **Principal Investigator**
% Effort: 35%

Inactive/Completed:

1 R21 EY022771-01 Saghizadeh 07/01/12-06/31/14
The Role and Mechanisms of microRNAs in Diabetic Cornea Impact/Priority Score: 15
247,500.00/year

Major goals: Use of novel quantitative methods to identify the differentially expressed microRNAs in the epithelial cells of diabetic cornea may be important for wound healing and to examine their roles and mechanisms of actions using adenovirus-driven microRNA-based gene therapy.
Role: **Principal Investigator**

RMI Developmental Career Grant Saghizadeh 03/01/12-02/28/13
Use of specialized extracellular matrix to generate corneal epithelial cells from isolated limbal cells and induced pluripotent stem cells. 60,000.00/year

Major goals: To expand and regenerate limbal epithelial stem cells for future transplantation and reliably obtain quality controlled human corneal epithelial cells by differentiating iPSC (induced pluripotent stem cells) lines derived from human corneal limbal cells with the use of specialized extracellular matrices.

Role: **Principal Investigator**

1R01EY023429-03 Ljubimov
NIH/NEI 06/01/13 – 05/31/17
Transplantable limbal cells from induced pluripotent stem cells 430,000.00/year

The major goal of this project is to obtain and characterize limbal-like cells suitable for human

transplantation from limbal-derived induced pluripotent stem cells.

Role: **Co-Investigator**

The Simon and Beatrice Apple Stem Cell Fund for Eye Research 04/01/14 – 03/31/17
Development of iNPC Treatment for Macular Degeneration 250,000/year

Major goals: To determine the mechanism(s) by which human inducible pluropotential stem cells (iNPC) preserve vision in the RCS rat model for retinal degeneration.

Role: **Co-PI**
% Effort: 10%

Pending Grants:

1 R01 EY029829 (Saghizadeh)
NIH/NEI 9/01/18-08/31/23
Regulation of Limbal Niche in Normal and Diabetic Cornea by Extracellular Vesicles 528,000.00/year

Major goals: Investigating the major mechanisms of action of limbal Extracellular Vesicles (EVs), which are taken up by neighboring cells, in stem cell maintenance and wound repair in cell cultures and in normal and diabetic human organ-cultured corneas, and the therapeutic potential of EVs for treatment of corneal injuries and diabetic abnormalities.

Role: **Principal Investigator**
% Effort: 45%

1 R01 EY-030146 (Wang) 03/01/2019-
02/01/2024
NIH/NEI 437,000.00/year
Development of A Combined Stem Cell Therapy for Retinal Degeneration
Major goals: Investigate the mechanism of combined sub retinal injection of iNPCs and intravenous infusion of MSC-exosomes in enhancing vision preservation.

Role: **Co-Investigator**
% Effort: 10%

RESEARCH FOCUS AND INTEREST:

1. Assessment of differentially expressed microRNAs in central and limbal diabetic corneas by deep sequencing and examining their roles and mechanisms of actions by gene therapy in diabetic cornea.

Identification of specific molecular corneal defects associated with diabetes. Employ variety of molecular, functional tests and ex-vivo human organ-cultured corneas to understand the role of microRNAs, in both the differentiated epithelial and stem cells of normal and diabetic corneas and their roles in driving peripheral activation of limbal stem cells in normal and disease corneas.

2. Use of specialized extracellular matrix and soluble factors to generate corneal epithelial cells from induced pluripotent stem (iPS) cells for reconstruction of corneal surface in patients with limbal epithelial stem cell deficiency.

INVITED LECTURES AND PRESENTATIONS:

1. "A Novel Gene Expressed in Human Cones: Its Characterization and Possible Function" Annual Clinical and Research Seminar, Jules Stein Eye Institute, UCLA. May 2006.

2. **"**C-met Overexpression Restores Normal Wound Healing and Marker Patterns in Organ-cultured Human Diabetic Corneas" Annual Meeting of the Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL. May 2009.

3. **"**C-met Overexpression Restores Normal Wound Healing and Marker Patterns in Organ-cultured Human Diabetic Corneas" Iranian Society of Ophthalmologists and Vision, Fort Lauderdale, FL. May 2009.

4. **"**Cytokine and proteinase gene therapy for diabetic corneal wound healing" Biennial Meeting XIX International Conference of Eye Research (ISER), July 2010, Montreal, Canada.

5. "Wound healing related microRNAs differentially expressed in diabetic cornea." Annual Meeting of the Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL, May 2012.

6. **"**MiRNA expression profiling in central and limbal diabetic and normal human corneas using deep sequencing" Annual Meeting of the Association for Research in Vision and Ophthalmology, Seattle, WA. May 2013.

7. "Our window to the world in disease, our approaches and treatment strategies" Regenerative Medicine Institute Retreat, Lake Arrowhead, CA. May 2013.

8. "Identification and characterization of microRNAs expressed in limbal epithelial stem cell compartment of normal and diabetic human corneas using deep sequencing". Gordon Research Conferences, February 15, 2014, Ventura Beach Marriott in Ventura CA United States.

9. "Eye Diseases, Gene and Stem Cell Therapy" High School Outreach Research Day, November 2014, Board of Governors Regenerative Medicine Institute, Cedars-Sinai Medical Center. CA United States.

10. "MicroRNAs expressed in normal and diabetic human corneas". International

Society for Eye Research (ISER) XXI Biennial Meeting, San Francisco, California, July 20-24, 2014.

11. "Differentiation Potential of Limbal Epithelium-derived and Fibroblast-derived iPSCs to Corneal Epithelial Cells". Annual Meeting of the Association for Research in Vision and Ophthalmology, Denver, FL, May 2015.

12. "The Role of miRNAs in Normal and Diseased Corneal Epithelial Homeostasis". Regenerative Medicine Institute Faculty meeting, Cedars-Sinai Medical Center, October 22, 2015.

13. "miRNAs as Powerful Regulators in Normal and Diseased Corneal Epithelial Homeostasis". BATTS Seminar, Cedars-Sinai Medical Center, February 24, 2016.

14. "miRNAs as Powerful Regulators in Normal and Diseased Corneal Epithelial Homeostasis". University of California Irvine (UCI), March 9, 2016.

15. "The Role of microRNAs in Normal and Diseased Corneal Epithelial Homeostasis". XXII International Congress of Eye Research. Tokyo, Japan. September 2016.

16. "miRNAs as Powerful Regulators in Normal and Diseased Corneal Epithelial Homeostasis". Gavin Herbert Eye Institute - 2017 Bench to Bedside Symposium. University of California Irvine (UCI), March 17, 2017.

17. "The Tiny RNA Molecules with Big Impact on Normal and Diabetic Corneal Epithelial Homeostasis" BATTS Seminar, Cedars-Sinai Medical Center, November 8, 2017.

18. "Essential Role of miR-146a in Limbal Epithelial Stem Cell Maintenance via Notch Signaling" Annual Meeting of the Association for Research in Vision and Ophthalmology (ARVO), Honolulu, Hawaii, May 2018.

19. "The Multiple Roles of miR-146a in Limbal Epithelial Homeostasis" XXIII International Congress of Eye Research. Belfast, Ireland. September 2018.

TEACHING/MENTORING ACTIVITIES:

Teaching

1989-1991	Teaching Microbiology Lab course to undergraduate students, Cal State University Northridge (CSUN). Teaching Assistant.
Fall 2002	Teaching Life Science 4 (LS4), Molecular Biology and Genetics, University of California, Los Angeles (UCLA). Teaching Assistant.

Winter 2003	Teaching upper division course MCDB (Molecular, Cell, & Developmental Biology), University of California, Los Angeles (UCLA). Teaching Assistant.
1991-2006	Participation in teaching and presentations of Vision in School program to middle school students. Jules Stein Eye Institute, UCLA.
Fall 2014	Teaching High School Outreach Research program..
Spring 2014	Teaching Graduate Course, Stem Cell Module: Basic Eye Development and Stem Cell Niche, Cedars-Sinai Medical Center,
Fall 2014	Teaching RMI Steer Program, Eye program,
Winter 2015	Teaching Graduate Course, Stem Cell Journal Club, Eye Program.
Summer 2015	Teaching Graduate Course, Neuroscience,
Winter 2016	Teaching Graduate Course, Stem Cell Module, Basic Eye Development and Stem Cell Niche.
Winter 2016	Journal Club, Eye Program. Cedars-Sinai Medical Center.
Summer 2016	Teaching Graduate Course, Neuroscience in vision.
July 2016	Teaching High School Outreach Research Week.
Summer 2016	Teaching CIRM High School Internship
Winter 2017	Teaching Graduate Course, Stem Cell Module, Basic Eye Development and Stem Cell Niche.
Summer 2017	Teaching Graduate Course, Neuroscience in vision

Mentoring and Supervision

2001-2002	Mentoring and supervising Ms. Eva Yeung, Medical Student, Jules Stein Eye Institute, UCLA. Topic: "Gene Expression Profiling Using cDNA Microarray to Identify Genes Expressed in Cone Photoreceptors".
Summer 2003	Mentoring and supervising Mr. K. Nielsen, M.S., Ph. D. student, Aarhus, Denmark, Cedars-Sinai Medical Center. Topic: "RNA isolation from normal and keratoconus corneas".
2004-2005	Mentoring and supervising Mr. Daniel Daneshvar, Pre-Medical Student, UCLA.

Topic: "Identification of Genes expressed in Cone Photoreceptors" (NIH funded).

2005-2006 Mentoring and supervising Ms. L. Regev, Research Internship Program, Cedars-Sinai Medical Center. Topic: "Ocular diabetes" (NIH funded).

2006-2007 Mentoring and supervising Mr. Aslan Pirouzmanesh, Research Internship Program, Cedars-Sinai Medical Center. Topic: "Ocular diabetes" (NIH funded).

2008-2009 Mentoring and supervising Yousha Yaghoobzadeh, Research Internship Program, Cedars-Sinai Medical Center. Topic: "Mechanisms of epithelial alterations in diabetic cornea" (NIH funded)

2009-2010 Mentoring and supervising Mr. Siavash Soleymani, Research Internship Program, Cedars-Sinai Medical Center. Topic: "Stem cell alterations in diabetic cornea" (NIH funded).

2009-2010 Mentoring and supervising Ms. Angel Harounian, Research Internship Program, Cedars-Sinai Medical Center. Topic: "Stem cell alterations in diabetic cornea" (NIH funded).

2010 Mentoring and supervising Mr. B. Bhakta, Research Internship Program, Cedars-Sinai Medical Center. Topic: "Stem cell alterations in diabetic cornea" (NIH funded).

2011 Mentoring and supervising Ms. I. Epifantseva, Rotating Ph.D. student at Cedars-Sinai Medical Center. Topic: "Stem cell alterations in diabetic cornea" (NIH funded).

2012-2013 Mentoring and supervising Mr. David Hemmati, Research Internship Program, Cedars-Sinai Medical Center. Topic: "Use of specialized amniotic membrane to generate corneal epithelial cells from isolated limbal cells and induced pluripotent stem cells. (NIH funded).

Spring 2014 Mentoring and supervising Mr. Dustin Srinivas, Rotating Ph.D. graduate student at Cedars-Sinai Medical Center. Topic: "The role of miR-127 in limbal epithelial stem cells".

2013-2014 Mentoring and supervising Mr. Christian Dib, Research Internship Program, Cedars-Sinai Medical Center. Topic: "Use of specialized amniotic membrane to generate corneal epithelial cells from isolated limbal cells and induced pluripotent stem cells. (NIH funded).

2014-2015 Mentoring and supervising Mr. Kristopher Mendoza, Research Internship Program, Cedars-Sinai Medical Center. Topic: "MicroRNA and Stem cell alterations in diabetic cornea".

2014-2015	Mentoring and supervising Mr. Shawn Sedgh, Research Internship Program, Cedars-Sinai Medical Center. Topic: "MicroRNA and Stem cell alterations in diabetic cornea".
2014	Mentoring and supervising Ms. Melissa Jones, Pre-doctoral fellow at Cedars-Sinai Medical Center, Co-mentoring and supervision. Topic: "Mechanisms of human neural progenitor cells in photoreceptor survival and visual function preservation".
2014-2016	Mentoring and supervising Ms. Gabrielle Wei, Research Internship Program, Cedars-Sinai Medical Center. Topic: "The Role of miRNAs in normal and diseased corneal epithelial homeostasis". (NIH funded).
2015-2016	Mentoring Mr. Daniel Sanford, UCLA undergraduate student. UCLA Alumni Mentor Program, UCLA ONE.
2015-2016	Mentoring Mr. Van Ngo, UCLA undergraduate student, UCLA Alumni Mentor Program. UCLA ONE.
2016- Present	Mentoring and supervising Ms. Kavita Patel, Research Internship Program, Cedars-Sinai Medical Center,. Topic: "The Role of miRNAs in normal and diseased corneal epithelial homeostasis". (NIH funded).
2016-Present	Mentoring and supervising Ms. Talia Barkhordari, Research Internship Program, Cedars-Sinai Medical Center. Topic: "The Role of miRNAs in normal and diseased corneal epithelial homeostasis". (NIH funded).
2016-Present	Mentoring and supervising Mr. Nima Natanzi, Research Internship Program, Cedars-Sinai Medical Center,. Topic: "The Role of miRNAs in normal and diseased corneal epithelial homeostasis". (NIH funded).
Summer 2016	Mentoring and supervising Ms. Tania Perez, Research Internship Program, High School CIRM Funded Internship Program, Cedars-Sinai Medical Center,. "The Role of miRNAs in normal and diseased corneal epithelial homeostasis". (NIH funded).
2017-2018	Mentoring and supervising Mr. Daniel Morovati, Research Internship Program, Cedars-Sinai Medical Center. Topic: "The Role of miRNAs in normal and diseased corneal epithelial homeostasis". (NIH funded).
Summer 2017	Mentoring and supervising Ms. Soah Franklin, Research Internship Program, High School CIRM Funded Internship Program, Cedars-Sinai Medical Center. "The Role of miRNAs in normal and diseased corneal epithelial homeostasis". (NIH funded).

2017-2018	Mentoring and supervising Mr. David Arash Daniali, Research Internship Program, Cedars-Sinai Medical Center. Topic: "The Role of miRNAs in normal and diseased corneal epithelial homeostasis". (NIH funded).
Fall 2017-	Mentoring and supervising Ms. Hong Phan, Research Internship Program, Cedars-Sinai Medical Center. Topic: "The Role of miRNAs in normal and diseased corneal epithelial homeostasis". (NIH funded).
Summer 2018	Mentoring and supervising Ms. Isabella Huang, Research Internship Program, High school CIRM Funded Internship Program, Cedars-Sinai Medical Center, Summer 2018, "The role of miRNAs in normal and diseased corneal epithelial homeostasis". (NIH funded)
Summer 2018	Mentoring and supervising medical student, Mr. Jason Wang, Research Internship Program, Cedars-Sinai Medical Center, summer 2018. Topic: "The Role of miRNAs in normal and diseased corneal epithelial homeostasis". (NIH funded).

BIBLIOGRAPHY/ PUBLICATIONS:

A.) Research Papers- Peer-Reviewed

1. Ong JM, Simsolo RB, **Saghizadeh M**, Pauer A, Kern PA, "Expression of lipoprotein lipase in rat muscle: regulation by feeding and hypothyroidism", J Lipid Res., 35:1542-51 (1994)

2. Ranganathan G, Ong JM, Yukht A, **Saghizadeh M**, Simsolo RB, Pauer A, Kern PA, "Tissue-specific expression of human lipoprotein lipase. Effect of the 3'-untranslated region on translation", J Biol Chem., 270:7149-55 (1995)

3. Kern PA**, Saghizadeh M**, Ong JM, Bosch RJ, Deem R, and Simsolo RB, "The expression of tumor necrosis factor in human adipose tissue. Regulation by obesity, weight loss, and relationship to lipoprotein lipase", J Clin Invest., 95:2111-29 (1995)

4. Simsolo RB, Ezzat S, Ong JM, **Saghizadeh M**, Kern PA, "Effects of acromegaly treatment and growth hormone on adipose tissue lipoprotein lipase", J Clin Endocrinol Metab., 80:3233-38 (1995)

5. Ong JM, Simsolo RB, **Saghizadeh M**, Goers JW, Kern PA, "Effects of exercise training and feeding on lipoprotein lipase gene expression in adipose tissue, heart, and skeletal muscle of the rat. Metabolism", 44:1596-605 (1995)

6. **Saghizadeh M**, Ong JM, Garvey WT, Henry RR, and Kern PA, "The expression of TNF alpha by human muscle. Relationship to insulin resistance", J Clin Invest., 15; 97:1111-6 (1996)

7. Kenney MC, Chwa M, Alba A, **Saghizadeh M**, Huang ZS, Brown DJ, "Localization of TIMP-1, TIMP-2, TIMP-3, gelatinase A and gelatinase B in pathological human corneas", Curr Eye Res, 17:238-46 (1998)

8. Ljubimov AV, **Saghizadeh M,** Spirin KS, Mecham R, Sakai LY, Kenney MC, "Increased expression of fibrillin-1 in human corneas with bullous keratopathy", Cornea, 17:309-14 (1998)

9. **Saghizadeh M,** Khin HL, Bourdon MA, Kenney MC, Ljubimov AV, "Novel splice variants of human tenascin-C mRNA identified in normal and bullous keratopathy corneas", Cornea 17:326-32 (1998)

10. Ljubimov AV, **Saghizadeh M**, Spirin KS, Khin HL, Lewin SL, Zardi L, Bourdon MA, Kenney MC, "Expression of tenascin-C splice variants in normal and bullous keratopathy human corneas" Invest Ophthalmol Vis Sci., 39:1135-42 (1998)

11. Spirin KS, **Saghizadeh M**, Lewin SL, Zardi L, Kenney MC, Ljubimov AV, "Basement membrane and growth factor gene expression in normal and diabetic human retinas", Curr Eye Res., 18:490-9 (1999)

12. **Saghizadeh M**, Brown DJ, Castellon R, Chwa M, Huang GH, Ljubimova JY, Rosenberg S, Spirin KS, Stolitenko RB, Adachi W, Kinoshita S, Murphy G, Windsor LJ, Kenney MC, Ljubimov AV, "Overexpression of matrix metalloproteinase-10 and matrix metalloproteinase-3 in human diabetic corneas: a possible mechanism of basement membrane and integrin alterations", Am J Pathol., 158:723-34 (2001)

13. **Saghizadeh M**, Chwa M, Aoki A, Lin B, Pirouzmanesh A, Brown DJ, Ljubimov AV, Kenney MC, "Altered expression of growth factors and cytokines in keratoconus, bullous keratopathy and diabetic human corneas", Exp Eye Res., 73:179-89 (2001)

14. Ljubimov AV, **Saghizadeh M**, Pytela R, Sheppard D, Kenney MC, "Increased expression of tenascin-C-binding epithelial integrins in human bullous keratopathy corneas", J Histochem Cytochem., 49:1341-50 (2001)

15. **Saghizadeh M**, Brown DJ, Tajbakhsh J, Chen Z, Kenney MC, Farber DB, Nelson SF, "Evaluation of techniques using amplified nucleic acid probes for gene expression profiling," Biomol Eng., 20:97-106 (2003)

16. Kenney MC, Chwa M, Atilano SR, Tran A, Carballo M, **Saghizadeh M**, Vasiliou V, Adachi W, Brown DJ, "Increased levels of catalase and cathepsin V/L2 but decreased TIMP-1 in keratoconus corneas: evidence that oxidative stress plays a role in this disorder", Invest Ophthalmol Vis Sci., 46:823-32 (2005)

17. **Saghizadeh M**, Kramerov AA, Tajbakhsh J, Aoki AM, Wang C, Chai NN, Ljubimova, JY Sasaki S, Sosne G, Carlson MRJ, Nelson SF, Ljubimov AV, "Proteinase and growth factor alterations revealed by gene microarray analysis of human diabetic corneas", Invest Ophthalmol Vis Sci., 46:3604-15 (2005)

18. Kramerov AA, **Saghizadeh M,** Pan H, Kabosova A, Montenarh M, Ahmed K, Penn JS, Chan CK, Hinton DR, Grant MB, Ljubimov AV, "Expression of protein kinase CK2 in astroglial cells of normal and neovascularized retina", Am J Pathol., 168:1722-36 (2006)

19. Maguen E, Rabinowitz YS, Regev L, **Saghizadeh M**, Sasaki T, Ljubimov AV, "Alterations of extracellular matrix components and proteinases in human corneal buttons with INTACS for post-laser in situ keratomileusiskeratectasia and keratoconus", Cornea, 27:565-73 (2008)

20. Kramerov AA, **Saghizadeh M**, Caballero S, Shaw LC, Li Calzi S, Bretner M, Montenarh M, Pinna LA, Grant MB, Ljubimov AV, "Inhibition of protein kinase CK2 suppresses angiogenesis and hematopoietic stem cell recruitment to retinal neovascularization sites", Mol Cell Biochem., 316:177-86 (2008)

21. Liu J, **Saghizadeh M**, Tuli SS, Kramerov AA, Lewin AS. Bloom DC, Hauswirth WW, Castro MG, Schultz GS, Ljubimov AV, "Different tropism of adenoviruses and adeno-associated viruses to corneal cells: implication for corneal gene therapy", Mol Vis., 14:2087-96 (2008)

22. **Saghizadeh M**, Akhmedov NB, Yamashita CK, Gribanova Y, Theendakara V, Mendoza E, Nelson SF, Ljubimov AV, Farber DB, "ZBED4, A BED-type zinc-finger protein in the cones of human retina", Invest Ophthalmol Vis Sci., 50:3580-8 (2009)

23. **Saghizadeh M**, Kramerov AA, Yaghoobzadeh Y, Hu J, Ljubimova JY, Black KL, Castro MG, Ljubimov AV, "Adenovirus-driven overexpression of proteinases in organ-cultured normal human corneas leads to diabetic-like changes", Brain Res Bull 2010, 81:262-72.
24. **Saghizadeh M,** Kramerov AA, Yu FS, Castro MG, Ljubimov AV. Normalization of wound healing and diabetic markers in organ cultured human diabetic corneas by adenoviral delivery of *c-met* gene. Invest Ophthalmol Vis Sci., 51:1970-80 (2010) *

25. **Saghizadeh M,** Akhmedov NB, Gribanova Y and Farber DB. "ZBED4, a cone and Müller cell protein in human retina, has a different cellular expression in mouse", Mol Vis., 17:2011-18 (2011)

26. **Saghizadeh M**, Soleymani S, Harounian A, Bhakta B, Troyanovsky SM, Brunken WJ, Pellegrini G, Ljubimov AV, "Alterations of epithelial stem cell marker patterns in human diabetic corneas and effects of c-met gene therapy", Mol Vis., 17:2177-90 (2011) *

27. **Saghizadeh M,** Winkler MA, Kramerov AA, Sareen D, Ornelas L, David Hemmati D, Ghiam CA, Ghiasi H, Dimitrijevich SD, Brunken WJ, Maguen E, Rabinowitz YS, Svendsen CN, Jirsova K, Ljubimov AV, "A simple alkaline method for decellularizing human amniotic membrane for cell culture", PLoS One, 8:e79632 (2013)

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* <u>The importance of the selected publications, above:</u>

We are a leading group on gene therapy effects on wound healing and marker distribution in normal and diabetic corneas using adenovirus constructs harboring c-met proto-oncogene or several shRNAs in human organ-cultured cornea. We published exciting results on normalization of wound healing rates and altered marker expression patterns of diabetic corneas by specific adenovirus-based single or combined gene therapy. In addition, we documented for the first time-altered expression of limbal epithelial stem cells in human diabetic corneas. We also performed direct gene therapy on diabetic limbal epithelial cells to restore delay wound healing and stem cell marker alterations. Further, we identified several miRNAs such as miR-146a and miR-424 with altered expression in diabetic corneas using gene array and deep sequencing, which correlates with their effects on corneal cell wound healing. We showed that downregulation of miR-146a and miR-424 activates wound healing-related signaling molecules *in vitro*. We also showed that inhibition of miRNA-146a accelerates wound healing in organ-cultured diabetic human cornea and normalizes the diabetic marker expression.

Therefore, miR-based gene therapy allowed us to successfully treat delayed wound healing in human diabetic organ-cultured corneas.

B.) Research Papers- Peer-Reviewed (In Press)

None

C.) Research Papers- Peer-Reviewed (Submitted)

None

Chapters:

1. **Saghizadeh M**, Akhmedov NB, Farber DB. Identification and Characterization of Genes Expressed in Cone Photoreceptors. Advances in Experimental Medicine and Biology, Retinal Degeneration Diseases, 2008, 613:235-44.

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Chapters: In Press

None

Letters to Editor:

None

Reviews:

1. Ljubimov AV., **Saghizadeh M,** "Progress in corneal wound healing", Prog Retin Eye Res., 49:17-45 (2015) PMID: 26197361. *

2. **Saghizadeh M**, Kramerov AA, Svendsen CN, Ljubimov AV. "Concise Review: Stem Cells for Corneal Wound Healing.", Stem Cells, 35:2105-2114 (2017) PMID: 28615632

Editorials:

None

Papers in Preparation (Research Completed):

1. Poe AJ, Kulkarni M, Leszczynska A, Wang J, Tang J, **Saghizadeh M**. (2018) Mir-146a Regulates Notch Signaling In Normal and Diabetic Limbal Epithelial Cells. In Preparation.

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