

Sophie X. Deng, M.D., Ph.D.

Curriculum Vitae

Office: Cornea and Uveitis Division
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Education:

1989-1991 The City College of New York, City University of New York—B.S., Biochemistry
1994-2001 University of Rochester, School of Medicine and Dentistry—MD, PhD
Immunology and Microbiology, May 2001
2001-2002 University of Tennessee at Memphis—Internship, Internal medicine
2002-2005 University of Illinois, Chicago—Residency, Ophthalmology
2005-2006 Jules Stein Eye Institute, University of California, Los Angeles—Fellowship,
Cornea, External Ocular Diseases and Refractive Surgery

Selected Employment:

1991-1994 Research assistant, The Rockefeller University
2005-2006 Associate Physician Dipomat, Jules Stein Eye Institute, UCLA
2006-present Assistant Professor of Ophthalmology, Jules Stein Eye Institute, UCLA

Honors and Awards:

1991 *Phi Beta Kappa*; Arthur G. Levy Award; Seymour Mann Award; Francis Hochman Award; Heymann Scholarship; Marks Neidle Memorial Prize in Physical Chemistry; Sigma XI Summer Fellowship; Research Honors; Dean's List.
1995 John A. Hartford/AFAR Medical Student Geriatric Scholar
1994 Fannie & Henry Rice Scholarship; Helen Kingsbury Medical Student Scholarship; Rochester Prize
2005 Beem-Fisher Award, First Place, Chicago Ophthalmological Society
2005 Excellence in Resident Research, University of Illinois, Chicago
2005 Heed Fellowship

Professional Memberships and Experiences:

2002-present Fellow, American Academy of Ophthalmology
2003-present Member, Association for Research in Vision and Ophthalmology

2005-present Member, California Academy of Ophthalmology
2006-present Associate Member, The Cornea Society
2007-2009 Editorial Board member, Ocular TRUST Program
2010-present Ophthalmic Technology Assessment Committee, Cornea and Anterior Segment Disorders Panel, America Academy of Ophthalmology

Professional Services:

2008-present Reviewer Molecular Vision
2009-present Reviewer Cornea
2010-present Reviewer Investigational Ophthalmologic Vision Sciences
2010-present Reviewer Survey of Ophthalmology
2010 Moderator Breakfast with the Experts, DALK and DSEK, patient selection and surgical techniques, AAO 2010 annual meeting

Current Research:

- Investigate the necessary niche factors for the differentiation and proliferation of corneal epithelial stem cells in human.
- Identification and characterization of corneal epithelial stem cells and their niche in a transgenic mouse model.
- Regeneration of corneal epithelial cells via transdifferentiation from epidermal stem cell and induced pluripotent stem cells.
- Classification and staging of limbal stem cell deficiency using in vivo scanning laser confocal microscopy.
- Corneal epithelial stem cell transplantation and ocular surface reconstruction.

Selected Previous Research Experiences:

June 1989 – May 1991, The City College of New York

- Developed an independent project to clone the gene coding for the enzyme transketolase in *E. coli*.
- Studied the functions of metalloendopeptidase 24.15 in rat brain.

August 1991 – May 1994, The Rockefeller University

- Studied the role of Platelet-Endothelial Cell Adhesion Molecule (PECAM-1) in the process of transendothelial migration of leukocytes *in vitro* and *in vivo*.
- Carried out the cloning of cDNA encoding the vascular adhesion molecule cadherin and characterized the function of cadherin in human endothelial cells *in vitro*.
- Participated in the cloning of cDNA of murine PECAM-1.

August 1996 – August 1999, University of Rochester School of Medicine and Dentistry

Established assays to identify a subset of autoantibodies that are able to enter live cells and translocate into the nucleus. Utilize a variety of cell biological studies to elucidate the mechanism of cell membrane entry and intracellular translocation of these autoantibodies

February 2004 – June 2005, University of Illinois at Chicago

Study the anti-inflammatory effect and antimicrobial activity of intravitreal methotrexate in a rabbit model.

July 2005 – July 2006

- Investigate the relationship of low flare photometry and complication of chronic uveitis in children
- Treatment of chronic anterior uveitis in children with infliximab

Past and Current Research Grants:

2004-2005 Principle Investigator, research grant from Abraham J. & Phyllis Katz Foundation

2004-2005 Co-Investigator, research grant from Illinois Society of Prevention of Blindness

2008-2009 Principle investigator, clinical translational seed grants, Oppenheimer Program

2009-2010 Principle investigator, Faculty Research Grant, UCLA

2010-present Preceptor, NEI training grant, Jules Stein Eye Institute, UCLA

Publications

Peer-Reviewed papers:

Nakatsu, M., Ding, Z., Ng, M., **Deng, S.**, Implication of Wnt Signaling in the Regulation of Human Corneal Epithelial Progenitor Cell Proliferation (senior and corresponding author, manuscript in preparation)

Truong, T., Vu, D., **Deng, S.**, Effects of Different Culture Media in Maintaining the Undifferentiated Features of Human Corneal Epithelial Progenitor Cells (senior and corresponding author, manuscript in preparation)

Baghdasaryan, E., Nguyen, M., Yu, F., **Deng, S.**, Intraocular Pressure Elevation is a Common Complication in Infectious Keratitis (senior and corresponding author, manuscript in preparation)

Deng, S., Sejpal, K., Tang, Q., Aldave, A., Yu, F., Characterization of Cellular Changes in Limbal Stem Cell Deficiency Using *in vivo* Confocal Microscopy (corresponding author, manuscript in preparation)

Tsui, I., Uslan, D., Hubschman, J., **Deng, S.**, *Nocardia farcinica* Infection of a Baerveldt Implant in a Patient with a Boston Type I Keratoprosthesis, *J Glaucoma*. Oct 22; 2009 (Epub ahead of print, senior and corresponding author)

Deng, S., Hollander, D., Successful Treatment of Fungal Keratitis and Endophthalmitis Caused by *Paecilomyces lilacinus* with Combination of Local and Systemic Voriconazole, *J Ocul Pharmacol Ther.* Apr;25(2):175-7, 2009 (corresponding author)

Ding, Z., Dong, J., Liu, J., **Deng, S.**, Preferential Gene Expression of the Limbus in Vervet Monkey, *Mol Vis.*;14:2031-41, 2008 (senior and corresponding author)

Asbell, P., Colby, K., **Deng, S.**, et al. Ocular TRUST: Nationwide Antimicrobial Susceptibility Patterns in Ocular Isolates, *Am J Ophthalmol.* 145(6):951-8, 2008

Deng, S., Pendland, S., Gupta, S., Fiscella, R., Edward, D., Tessler, H., Goldstein, D., Methotrexate reduces the complications of endophthalmitis resulting from intravitreal injection compared with dexamethasone in a rabbit model, *Invest Ophthalmol Vis Sci.* Apr;47(4):1516-21, 2006.

Deng, S., Hanson, E., Sanz, I. *In vivo* Cell Penetration and Intracellular Transport of Anti-Smith and Anti-La Monoclonal Autoantibodies. *Int Immunol*, 12 (4): 415, 2000

Deng S., Panahian N., James H., Gelbard H.A., Federoff H.J., Dewhurst S., Epstein L.G. Luciferase: a sensitive and quantitative probe for blood-brain barrier disruption. *J of Neurosci Methods.* 83(2):159-64, 1998

Bogen S., Pak J., Garifallou M., **Deng X.**, Muller W.A. Monoclonal antibody to murine PECAM-1 (CD31) blocks acute inflammation in vivo. *J of Exp Med.* 179(3):1059-64, 1994

Muller W.A., Weigl S.A., **Deng X.**, Phillips D.M. PECAM-1 is required for transendothelial migration of leukocytes. *J of Exp Med.* 178(2):449-60, 1993

Review and Book Chapter:

Deng, S., Corneal Epithelial Stem Cell Deficiency and Disease, Past, Present and Future, *European Ophthalmic Review*, Dec; 3(2):82-6, 2009

Deng, S., Aldave, A., Bourla, N., Hovanesian, J., Pleyer, U., Mondino, B., Bullous Diseases of the Skin and Mucosal Membrane, Chapter 12, Duane's *Clinical Ophthalmology*, 2008

Selected Oral Presentations

1. Invited Speaker, Descemet Striping Automated Endothelial Keratoplasty in Glaucoma Patients, *The 2nd Asian Cornea Society Biennial Scientific Meeting*, Kyoto, Japan, December 2010
2. Invited Speaker, Descemet Striping Automated Endothelial Keratoplasty in Fuchs Cornea Dystrophy, *The 25th Asian Pacific Association of Ophthalmology Congress*, Beijing, China, September 2010
3. Paper presentation, Evaluation of Structural Changes in Limbal Stem Cell Deficiency Using *in vivo* Confocal Microscopy, *The Association for Research in Vision and Ophthalmology (ARVO) 2010 annual meeting*, May, 2010

4. Paper presentation, Analysis of Cellular Abnormalities in Limbal Stem Cell Deficiency by *in vivo* Confocal Microscopy, *World Cornea Congress VI*, Boston, Massachusetts, March 2010
5. Invited Speaker, Selective Keratoplasty, the Future of Corneal Transplantation? *Cornea and Retina Symposium, Southern California College of Optometry*, Los Angeles, California, January 2010
6. Paper presentation-Best of Show in Anterior Segment Reconstruction, Analysis of the Corneal and Limbal Epithelial Changes in Limbal Stem Cells Deficiency Using *In Vivo* Confocal Microscopy, *ASCRS 2009 annual meeting*, San Francisco, California, April 2009
7. Invited short talk, Activation of Wnt/ β -Catenin Promotes Self-Renewal of Human Limbal Stem Cells, *2009 Gordon Research Conferences on Tissue Repair and Regeneration*, New London, New Hampshire, June 2009
8. Invited speaker, Ex Vivo Expansion of Limbal Stem Cells, The Brasel Basic Science Conference, Los Angeles Biomedical Research Institute at UCLA-Harbor Medical Center, Los Angeles, California, February 2009
9. Invited speaker, Red Eye and Collagen Vascular Diseases, Grand Rounds, Rheumatology Division, Department of Medicine, David Geffen School of Medicine, UCLA, May 2008
10. Invited speaker, Boston Type I Keratoprosthesis, Patient Selection and Post-operative Management, Zhongshan Ophthalmic Center, Guangdong, China, November, 2008
11. Invited speaker, Intravitreal Methotrexate as a Local Therapy for Uveitis, *First Chinese Conference on Uveitis*, Guangzhou, Guangdong, China, May 2007

Selected Abstracts

Truong, T., Vu, D., Ha, D., **Deng, S.**, The Effects of Different Culture Media on the Long-term Preservation of Limbal Epithelial Progenitor Cells (senior author), *ARVO 2010 annual meeting*

Baghdasaryan, E., Yu, F., Lee, G., Aldave, A., Casey, R., **Deng, S.**, Elevated Intraocular Pressure is a common complication during severe infectious keratitis (senior author), *ARVO 2010 annual meeting*

Lee, G., Baghdasaryan, E., Yu, F., **Deng, S.**, Review of Eye Pathogens at a Tertiary Referral Center in Southern California Over a 7-Year Period (senior author), *ARVO 2010 annual meeting*

Baghdasaryan, E., Yu, F., Lee, G., **Deng, S.**, Characteristics of infectious Keratitis associated with high intraocular pressure (senior author), *World Cornea Congress VI*, Boston, Massachusetts, March 2010

Lee, O., Yu, F., **Deng, S.**, Aldave, A., Outcomes of Descemet Striping Endothelial Keratoplasty in Glaucoma Patients, *World Cornea Congress VI*, Boston, Massachusetts, March 2010

Deng, S., Ding, Z., Differential Gene Expression and *Wnt* Signaling in the Human Limbus and Cornea, *Gordon Research Conferences on Biology and Pathobiology of the Cornea*, Ventura, California, 2010

Ding, Z., **Deng, S.**, Differential expression pattern of Wnt signaling molecules in the human limbus (senior author), *ARVO 2009 annual meeting*

Tang, Q., Ng, M., Ding, Z., Truong, T., Vu, D., **Deng, S.**, Expression of Human Embryonic Stem Cell Markers in the Limbal and Corneal Epithelial Cells (senior author), *ARVO 2009 annual meeting*

Ding, Z., Dong, J., Liu, J., **Deng, S.**, Unique Gene Expression in Limbus Compared to That in Cornea and Conjunctiva (senior author), *ARVO 2008 annual meeting*

Nguyen, M., Yu, F, **Deng, S.**, Infectious Keratitis: A 5-Year Review of Cases at a Tertiary Referral Center in Southern California (senior author), *ARVO 2008 annual meeting*

Deng, S., Mohd Kamal, K., Study of Three-dimensional Architecture of Human Limbus in Whole-Mount Tissue by Confocal Microscopy, *ARVO 2008 annual meeting*

Deng, S., Ding, Z., Dong, J., Liu, J., Unique Gene Expression in Limbus Compared to That in Cornea and Conjunctiva, *World Ophthalmology Congress, Hongkong, China, July 2008*

Deng, S., Goldstein, D., Pendland, S., Fiscella, R., Gupta, S., Edward, D., Tessler, H., Antimicrobial Activity of Methotrexate in an Experimental Model of Endophthalmitis, *ARVO 2005 Annual Meeting*

Deng, S., Goldstein, D., Pendland, S., Fiscella, R., Edward, D., Tessler, H., Methotrexate Appeared to Reduce the Complications of Endophthalmitis from Intravitreal Injection Compared to Dexamethasone in a Rabbit Model, *Chicago Ophthalmologic Society 2005 annual meeting*

Civelek, L., Narayana, K., **Deng, S.**, Tessler, H., Goldstein, D. Effects of Intravitreal Methotrexate in a Retinal S-Antigen Induced-Experimental Uveitis Model. *ARVO 2004 Annual Meeting*

Deng, S., Hanson, E., Sanz, I. Penetration of viable cells by anti-La and Anti-Smith autoantibodies. *Scandinavian Journal of Immunology* 50:105, 1999.

Deng, S., Hanson, E., Sanz, I. In vivo intracellular properties of anti-Smith and anti-La monoclonal autoantibodies. *Arthritis and Rheumatism*, 42: S109, 1999.