

Curriculum Vitae
Tueng T. Shen, MD, PhD

Citizenship: United States

Education:

1989 BA Chemistry, Wellesley College
1994 PhD Medical Engineering, Massachusetts Institute of Technology, Cambridge, MA
1997 MD Harvard Medical School, Boston, MA

Postgraduate Training:

1994-1995 NIH Postdoctoral Research Fellow, Department of Radiology, Massachusetts General Hospital, Harvard Medical School, Boston, MA
1997-1998 Internship in Internal Medicine, Mount Auburn Hospital, Harvard Medical School, Cambridge, MA
1998-2001 Residency in Ophthalmology, Massachusetts Eye & Ear Infirmary, Harvard Medical School, Boston, MA
2001-2002 Fellowship in Cornea, Refractive, and External Disease, Moran Eye Center, University of Utah, Salt Lake City, UT

Faculty Positions Held:

2008-date NW Lions Foundation for Sight and Hearing Associate Professor, Department of Ophthalmology, University of Washington, Seattle, WA
2005-date Adjunct, Department of Bioengineering, University of Washington, Seattle, WA
2010-date Adjunct, Department of Global Health, University of Washington
2003-2008 Assistant Professor, Department of Ophthalmology, University of Seattle, WA

Hospital Positions Held:

2003-Date Active Medical Staff, University of Washington Medical Center, Seattle, WA
2003-Date Active Medical Staff, Harborview Medical Center, Seattle, WA
2003-Date Courtesy Medical Staff, Children's Hospital & Regional Medical Center, Seattle, WA
2003-Date Director, Refractive Surgery Center, University of Washington Medical Center, Seattle, WA

Honors and Awards:

1985 Governor's Award for Outstanding Academic Achievements, Boston, MA
1988 Principals' Award in Chemistry, Oxford University (St Anne's). Oxford, UK
1988 Slater Wellesley Scholarship for Studying Abroad

1989	AT&T Bell Laboratories Summer Research Grant, Murray Hill, NJ
1994-95	NIH Postdoctoral Research Fellowship, Department of Radiology, Massachusetts General Hospital, Harvard Medical School, Boston, MA
1997	ARVO Travel Fellowship
2004	Service Excellence Award, Dean, School of Medicine, University of Washington, Seattle, WA
2005	Attending of the Year Award, Department of Ophthalmology, University of Washington, Seattle, WA
2006	Martin L. King Jr. Award for Outstanding Community Service; University of Washington, Seattle, WA
2008	Emerging Inventor of the Year (UW Medicine, Frazier Healthcare Ventures, Washington Research Foundation, WBBA and Seattle biotechnology Venture) Washington, Seattle, WA
2009	Research Prevent Blindness Ernest and Elizabeth Alhouse Special Scholar Award
2010	Allergan Horizon Cornea Research Award

Current Licensure:

1998-2002	Massachusetts
2001-Date	Utah
2001-Date	California
2002-Date	Washington

Professional Memberships:

- American Academy of Ophthalmology
- American Society of Cataract and Refractive Surgery
- Association for Research in Vision and Ophthalmology
- Washington Academy of Eye Physicians and Surgeons
- American Association for Advancement in Science
- American Medical Association
- Sigma Xi, Wellesley Chapter

Teaching Responsibilities:

- Medical Student Rotation Case Reviews (2003-present)
- University of Washington Summer Student Mentorship Program (2003-present)
- Cornea Course Director (BCSC) 2003-2011
- Biomaterials and Biocompatibility (BioE 537) (2008)
- Biomedical Engineering (490) Seminar Series (2007-present)
- MSRTP Summer Research Scholarship Student Advisor (2006-present)

Editorial Responsibilities:

- Reviewer:

- IOVS
- Cornea
- British Journal of Ophthalmology
- Biochem. Biophys. Res. Commun.
- Eye

Committees:

- **National Institute of Health**, Center for Scientific Review, Special Emphasis Panel, Study section on small business, visual systems; 2011 to present
- Expert Group Corresponding Member in the Vision and Hearing Loss , Global Burden of Diseases, Injuries, and Risk Factors Study (GBD Study) Lead: Catherine Michaud at the Harvard School of Public Health; 2006-present
- Dean's Standing Committee on Women Faculty, University of Washington School of Medicine, 2010-present
- Chair, public education committee, Washington Academy of Eye Physicians and Surgeons (WAEPS) 2006-2007
- Graduate School Thesis committees (for PhD General exams and Final Exams)
 - Eric Sussman General Exam Committee, Bioengineering, 2006
 - Teri Greiling, PhD Thesis Committee, Biological Structure, 2009
 - Ethan Yi-Chun Shih, PhD General Exam Committee, Electrical Engineering, 2010
 - Cagdas Varel, PhD General Exam Committee, Electrical Engineering, 2011
 - Drew McUSIC, PhD Thesis Committee, Bioengineering, 2011
 - An Lin, PhD General Exam Committee, Bioengineering, 2012
- Department of Ophthalmology Cornea Search Committee, Seattle, WA; 2008-present
- Department of Ophthalmology Retina Search Committee, Seattle, WA; 2007
- Cosmetic and Refractive Oversight Committee, Seattle, WA

Civic Activities:

- ORBIS International Volunteer Faculty – Kun Ming, People's Republic of China 2005
- ORBIS International Volunteer Faculty – Inner Mongolia 2006
- University of Washington-China Initiative – (Translational Research Institute to be based in China; Responsible for Vision Development) 2008

Invited Lectures

International:

1. Shen TT: "K-pro for severe ocular diseases." The First International Qilu Ophthalmology Conference, Jinan, The People's Republic of China, June 18th, 2005
2. Shen, TT: "PMMA Keratoprosthesis: Hope Beyond Graft Failure, Peri-operative and post-operative management." World Cornea Congress, course faculty. Boston, MA. April 10th, 2010
3. Shen, TT: "Preventing Endophthalmitis: Sustained Release for Ophthalmic Drug Deliveries" ASCRS, Boston, MA. April 11th, 2010
4. Shen, TT: "New development for an artificial cornea" Asia Pacific Association of Ophthalmology (APAO) Annual International Ophthalmology Symposium, Beijing, People's Republic of **China**. September 19th, 2010
5. Shen, TT: "K-pro clinical cases review" 2010 APAO Annual International Ophthalmology Symposium, Beijing, People's Republic of **China**. September 19th, 2010
6. Shen TT: "Material development for artificial cornea" 2011 APAO Annual International Ophthalmology Symposium, Sydney, **Australia**. March 21st, 2011
7. Shen TT: "Wireless microelectronics to improve access of care" 2011 APAO Annual International Ophthalmology Symposium, Sydney, **Australia**. March 22nd, 2011
8. Shen TT: "One chip at a time: wireless microelectronic platform to improve remote access of health care and continuous monitoring", International Symposium: Westlake Forum III – Healthcare Reform in China and the US: Similarities, Differences and Challenges; Atlanta, GA April 2011

National:

9. Shen TT: "Treating Corneal Blindness." AAPA 34th National Conference, San Francisco, CA, May 31st, 2006
10. Shen TT: "Flashes and Floaters: when to refer your patient?" AAPA 34th National Conference, San Francisco, CA, May 31st, 2006
11. Shen TT: "Development of Polymeric material for Artificial Cornea" Cole Eye Institute, Cleveland Clinic Division of Ophthalmology, Cleveland, OH, October 2nd, 2007
12. Shen TT, course faculty: "Boston Kpro course: skill transfer," ASCRS annual national meeting, San Fransico, CA. April 4th, 2009

Regional:

13. Shen TT: "Ocular Surface Disease and Treatment." Annual Meeting of the Washington Academy of Eye Physicians and Surgeons Lecture Series, Seattle, WA, February 2nd, 2004.
14. Shen TT: AARP regional meeting invited lecture: "New Vision for life", Edmond, WA. April. 14th, 2006,
15. Shen, TT: "Biomaterials in Ophthalmology" Biomedical Engineering Society, Seattle, WA Feb. 28th, 2007

16. Shen, TT: "Treating corneal blindness with artificial cornea" Pierce County Ophthalmology Society Multi Care's Department of Continuing Medical Education, Tacoma, WA. Feb. 28th, 2007
 17. Shen, TT: "Window of Opportunity: Artificial cornea development to treat global blindness" University of Washington **Science in Medicine** series, Seattle, WA Oct. 2008
 18. Shen TT: "Modern materials for the development of artificial cornea" Pathology Presents seminar series, University of Washington, Seattle, WA April 14th, 2010
 19. Shen, TT: **Keynote speaker** "Modern Medicine of Vision" the CSBPS Insight: Low vision Expo, Seattle, WA. May 15th, 2010
 20. Shen, TT and Otis, B: "Active electronics for ophthalmology" Gained in Translation, University of Washington, Seattle, WA May 26th, 2010
 21. Shen, TT: "Management of severe ocular surface diseases and the new development of artificial cornea research," Ophthalmic Medical Personnel Program, Annual Meeting of the Washington Academy of Eye Physicians and Surgeons. March 18th, 2011
 22. Shen, TT: "The modern medicine of vision," Gig Harbor Low Vision Symposium, Gig Harbor, WA. September 17th, 2011
 23. Shen, TT: "Science, Engineering and Vision" **ARCS Foundation** Seattle Chapter, Seattle, WA. September 19th, 2011
 24. Shen TT: "Succeeding as a Physician Scientist In Difficult Times" Mid-Career Faculty Development Seminar, University of Washington School of Medicine, Seattle, WA October 21, 2011
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Research Funding

Date	Funding Source	Project	Total direct cost
03/2003	Lions Foundation	Cornea research	\$135,000
04/2006	Coulter Foundation	New Controlled Release Material for Intraocular Drug Delivery: <i>In Vitro</i> Optimization	\$96,000
07/2006	EBAA Scientific Research Grant	OCT Characterization of Eye Bank Cornea for Lamellar Surgery	\$7,200
04/2007	ASCRS Foundation Grant	Freeze Dried Cornea as a Potential Carrier for Boston K-pro	\$5,000
05/2007	TGIF (University of Washington Technology and Innovation Fund)	Intraocular Drug Delivery for Cataract Surgery: <i>In Vivo</i> Studies	\$50,000
03/2008	NIH Technology and Resources Access Fund	Microelectronic contact lens development for health monitoring	\$10,000
04/2008	Coulter Foundation Research Grant	New Controlled Release Material for Intraocular Drug Delivery: In Vivo Optimization	\$110,000
01/2009	Allergan Horizon Cornea Research Award	Artificial cornea development to treat global blindness	\$50,000
04/09	Coulter Foundation Research Grant	Wireless microelectronics for intraocular pressure monitoring	\$165,000
05/2009	Research Prevent Blindness Ernest and Elizabeth Alhouse Special Scholar Award	Development of a new generation of artificial cornea	\$70,000.00
09/2009	NIH 1R41EY019795-01 (STTR) with Heleonics Co.	New materials development for artificial cornea	\$120,000
09/09-2013	National Science Foundation EFR0937710	Second window: wireless contact lens sensing	\$1,994,305.00
05/10-11	University Lions	Cornea research	\$40,000
09/2011	NIH SBIR sub-contract with Inson Medical Co.	Ocular Drug Delivery Devices for Improved Postoperative Cataract Care	\$176,881.50
12/2011	DOD W81XWH-11-1-0735	Scleral Healing and Sphere-templated Polymers"	\$300,000

Bibliography

Peer-Reviewed Publications

1. Weissleder R, Lee AS, Fischman AJ, Shen TT, Reimer P, Wilkinson R, Callahan RJ, Brady T: Polyclonal human immunoglobulin G labeled with polymeric iron oxide: Antibody MR imaging. *Radiology* 1991;181:245-49.
2. Weissleder R, Lee AS, Khaw B, Shen TT, Brady T: Detection of myocardial infarction with MION-antimyosin. *Radiology* 1992;182:381-85.
3. **Shen TT**, Weissleder R, Papisov M, Bogdanov A, Brady TJ: Monocrystalline iron oxide nano-compounds (MION): Physicochemical properties. *Magn Res Med* 1993;29:599-604.
4. Reimer P, Weissleder R, Shen TT, Knofel WT, Brady TJ: Pancreatic receptors: Initial feasibility studies with a targeted contrast agent for MR imaging. *Radiology* 1994;193:527-31.
5. Shen TT, Bogdanov A, Bogdanov A, Poss K, Brady TJ, Weissleder R: Magnetically labeled secretin retains receptor affinity to pancreas acinar cells. *Bioconj Chem* 1996;7:311-16.
6. Haynie GD, Shen TT, Gragoudas ES, Young KH: Flow cytometry analysis of peripheral blood lymphocytes in patients with choroidal melanoma. *Am J Ophthalmol* 1997;123:357-61.
7. Shen TT, Sakai O, Curtin HD, Rizzo JF: Magnetic resonance imaging of primary anterior visual pathway tumors. *Int Ophthalmol Clin* 2001;41(1):171-80.
8. Netto MV, Ambrosio R, **Shen TT**, Wilson SE: Wavefront analysis in normal refractive surgery candidates. *J Cat Refract Surg* 2005;21(4):332-8.
9. Herlihy E, Saperstein DA, Shen TT: Management of severe traumatic LASIK flap dislocation combined with retina surgery. *Techn Ophthalmology* 2005;3(2):77-81.
10. Youssef P, Herlihy E, **Shen TT**: EDTA chelation with epithelial flap and LASEK instruments for ban keratopathy. *Techn Ophthalmology* 2006;4(3):1-4.
11. Ho H, Saeedi E, Kim S, **Shen TT**, Parviz B: "Contact Lens with Integrated Inorganic Semiconductor Devices." 21st IEEE Micro Electro Mechanical Systems (MEMS), DOI: 10.1109/MEMSYS.2008.4443678; 2008 , Page(s): 403 - 406
12. Brown JS, Wang D, Li X, Baluyot F, Iliakis B, Lindquist TD, Shirakawa R, Li XD, **Shen TT**: In situ UHR-OCT characterization of eye bank corneal tissue processed for lamellar keratoplasty. *Cornea*, 2008 Aug;27(7):802-10..
13. Anderson EM, Noble ML, Garty S, Ma H, Bryers JD, **Shen TT***, Ratner BD: Sustained release of antibiotic from poly(2-hydroxyethyl methacrylate) to prevent blinding infections after cataract surgery *Biomaterials* 30 (2009) 5675–5681
14. Zhi ZW, Cepurna W, Johnson E, **Shen TT**, Morrison J, and Wang RK: Volumetric and quantitative imaging of retinal blood flow in rats with optical microangiography. 1 March 2011 / Vol. 2, No. 3 / BIOMEDICAL OPTICS EXPRESS 579-591
15. Kanayama M, Kanayama S, Kim B and **Shen TT**: Microkeratome-assisted lamellar keratoplasty using frozen tissue for management of a post-LASIK corneal stromal scar.

- Jpn J Ophthalmol (2011) 55:420–422 DOI 10.1007/s10384-011-0037-z
16. Thomas N, Lähdesmäki I, Lingley A, Liao Y, Pandey J, Yao H, Afanasiev A, Otis B, **Shen TT**, and B. A. Parviz BA: “Functional Contact Lenses for Remote Health Monitoring in Developing Countries”: Global Humanitarian Technology Conference (GHTC), 2011 IEEE Digital Object Identifier: 10.1109/GHTC.2011.31, Page(s): 212 - 217
 17. An L, Li P, **Shen TT**, and Wang RK. High speed spectral domain optical coherence tomography for retinal imaging at 500,000 A-lines per second. 1 October 2011 / Vol. 2, No. 10 / BIOMEDICAL OPTICS EXPRESS 2770-2783
 18. Garty S, Shirakawa R, Warsen A, Anderson EM, Noble ML, Bryers JD, Ratner BD, and **Shen TT**. Sustained Antibiotic Release from an Intraocular Lens–Hydrogel Assembly for Cataract Surgery Invest Ophthalmol Vis Sci. 2011;52: 6109–6116 DOI:10.1167/iovs.10-6071
 19. Li P, An L, Reif R, **Shen TT**, Johnstone M, and Wang RK. In vivo microstructural and microvascular imaging of the human corneo-scleral limbus using optical coherence tomography. 1 November 2011 / Vol. 2, No. 11 / BIOMEDICAL OPTICS EXPRESS 3109-3118
 20. Kanayama S, Garty S, Kim B, **Shen, TT**: Histological study of graft failure in AlphaCor transplantation Int Ophthalmol DOI 10.1007/s10792-011-9486-0, November 2011
 21. Shih, YC, **Shen, TT**, and Otis BP, A 2.3 W Wireless Intraocular Pressure/Temperature Monitor. IEEE JOURNAL OF SOLID-STATE CIRCUITS, VOL. 46, NO. 11, NOVEMBER 2011
 22. Lingley AR, Ali M, Liao Y, Mirjalili R, Klonner M, Sapanen M, Suihkonen S, **Shen TT**, Otis BP, Lipsanen H and Parviz BA. A single-pixel wireless contact lens display. J. Micromech. Microeng. 21 (2011) 125014 (8pp) doi:10.1088/0960-1317/21/12/125014
 23. Varel C, Shih YC, Otis BP, Shen TT and Böhringer KF: “PACKAGING FOR A WIRELESS INTRAOCULAR PRESSURE SENSOR WITH A SOLDER-FILLED MICROCHANNEL ANTENNA” IEEE Micro Electro Mechanical Systems (MEMS), 2012

Patent applications and invention disclosures through UW Center for Commercialization (C4C):

1. Controlled drug delivery for cataract surgery (2007)
2. Artificial cornea for treating blindness (2008)
3. Functional contact lens for remote sensing (2008)
4. Dynamic treatment of presbyopia (2011)
5. OCT evaluation of glaucoma (2011)

Book Chapters

1. Kinyoun, J, **Shen T**: Vision: Clinical Updates in Women’s Health Care. ACOG, 2008.

Public Educational Program Development:

- 1 Refractive Surgery: What Every Patient Needs to Know, UWTV, 2003.
2. Corneal Transplant Surgery: A Gift of Sight, UWTV, 2004.

3. Inside Access: Refractive Surgery Experience, UWTV, 2007.
4. Mini-medical school lecture series, UWTV, 2008

Mentored Trainees:

- Rachel Reinhardt, MD**, Ophthalmology Resident 2004-2005
Project: Corneal clarity and protection during cataract surgery: case series
Private practice, Seattle, WA
- Sariah Khormae**, University Washington Undergraduate Thesis Student 2004-2006;
Project: Ex-Vivo Generation of Corneal Epithelial Cell Sheets on Temperature Responsive Surfaces
Marshall Scholar 2006, NIH-Cambridge Scholar, 2006
PhD Cambridge University, 2009,
MD candidate at Harvard Medical School, 2010-present
- Erin Anderson**, Summer CREE research student, BioEngineering 2005
Project: Drug Delivery to the Eye Via Injection of Temperature Sensitive In Situ Gels
Graduate student, Harvard University, department of bioengineering 2007
- Jamin Brown, MD**, Ophthalmology resident, 2006
Project: In situ OCT characterization of eye bank cornea tissue
Private Practice as a Retina specialist
- Mark Slabaugh, MD**, Ophthalmology resident 2006
Project: Apoptosis evaluation of corneal endothelial disc for DSEK
Assistant professor, University of Washington, Department of Ophthalmology
- Erin Herlihy, MD**, Ophthalmology resident 2006
Project: Tissue adhesive as an alternative to suture in corneal transplant surgery
Assistant professor, University of Washington, Department of Ophthalmology
- Deb Lam, MD**, Ophthalmology resident 2007
Project: "Lyophilized Corneal Tissue as Potential Carrier for the Boston Keratoprosthesis "
Assistant professor, University of Washington, Department of Ophthalmology
- Ryan Barrett, MD** Summer MSRTP research fellowship student; 2007
Project: A new tissue-polymer hybrid drug delivery system for artificial
Currently Ophthalmology Resident, Baylor 2011
- Rika Shirikawa, MD** cornea research fellow 2006-2008
Project: controlled drug delivery device for cataract surgery

Currently PhD candidate in Ophthalmology, University of Tokyo. 2009

Byan Kim, MD, University of Washington Medical student 2009-2010

Project: Clinical outcomes of descemet stripping automated endothelial keratoplasty,
Resident in Ophthalmology, University of Illinois, 2012

Louis Yang, MD, Ophthalmology resident 2009-2010

Project: Surgical Marking Pen Ink (Gentian Violet) as a Capsular Staining Alternative for
Cataract Surgery

Currently, Glaucoma fellow, British Columbia 2011-2012

Shai Garty, PhD, Post-doctoral fellow, Department of Ophthalmology 2007-2010

Project: The new material for artificial cornea
Research associate, Max Plank Research Institute, Germany 2011

Shintaro Kanayama, MD, PhD, cornea research fellow, 2008-2010

Project: Imaging the dynamics of corneal epithelial cell-polymer integration using
multiphoton microscopy

Faculty member in Ophthalmology, University of Osaka, Japan 2010

Jessica Chen, MD, Ophthalmology resident 2010-2011

Project: Long Term *In Vivo* Implantation Of Artificial Cornea In A Rabbit Model
Fellow in Glaucoma, Bascom Palmer Eye Institute 2011

Amy Van Nortwick, Summer MSRTP research fellowship student 2011

Project: Human lens imaging for early diagnosis of Alzheimer's

Chumei He, MD, PhD, Cornea research fellow 2011-present

Samson Lu, Bioengineering Capstone student, Mary Gates Scholar 2011-2012

Conference Proceedings and Presentations (abstracts):

1. Shen TT, Weissleder R, Papisov M, Brady TJ: "Macromolecular and Particulate Iron Oxide Compounds for MR imaging." 10th Annual Scientific Meeting of Society of Magnetic Resonance in Medicine, San Francisco, CA, August, 1991.
2. Reimer P, Shen TT, Weissleder R, Brady TJ: "Liver-specific Agents for Magnetic Resonance Imaging." 11th Annual Scientific Meeting of Society of Magnetic Resonance in Medicine, Berlin, Germany, August, 1992.
3. Kwong KK, Donahue KM, Ostergaard L, **Shen TT**, Bandettini PA, et al: "Mechanism of MR Brain Signal Increase in Hyperoxia." Third Scientific Meeting of Society of Magnetic Resonance, Nice, France, August, 1995.
4. **Shen TT**, Bogdanov A, Brady TJ, Weissleder R: "Peptide-labeled MION as a Potential

- Receptor-specific MR Contrast Agent for the Pancreas." Third Scientific Meeting of Society of Magnetic Resonance, Nice, France, August, 1995.
5. Hu LK, Shen TT, Kwong K, Perreira de Mata A, Gragoudas ES, Young LHY: "Tissue Oxygenation Characterization of Choroidal Melanoma by MRI." Presented at the Annual Meeting of the Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May, 1997.
 6. **Shen TT**, Hu LK, Kwong K, Perreira de Mata A, Gragoudas ES, Young LHY: "Tissue Oxygenation of Choroidal Melanoma Following Photodynamic Therapy by MRI." Presented at the Annual Meeting of the Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May, 1997.
 7. Krause M, **Shen TT**, Kwong K, Gragopudas ES, Young LHY: "MRI Blood Volume Mapping in an Experimental Choroidal Melanoma Model." Presented at the Annual Meeting of the Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May, 1997.
 8. **Shen TT**, Husain D, Kwong K, Connolly EJ, Gragoudas ES, Miller JA: "MRI Choroidal Oxygenation Mapping of an Experimental Choroidal Neo-vascularization Model Following PDT." Presented at the Annual Meeting of the Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May, 1999.
 9. **Shen TT**, Saperstein DA: "Management of Severe Traumatic LASIK Flap Dislocation Combined with Retina Surgery." Presented at the Annual Meeting of the American Society of Cataract and Refractive Surgery San Diego, CA, April, 2004.
 10. Youssef P, Herlihy E, **Shen TT**: "EDTA Chelation with Epithelial Flap and LASEK Instruments for Band Keratopathy." Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May, 2005.
 11. Herlihy E, Youssef P, Netto M, Shen TT: "Management of Severe Corneal Scar with Lamellar Keratoplasty Using a Standard Hansatome Microkeratome and a Frozen Globe." Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2005.
 12. Khormae S, Ratner BD, Shen TT: "Ex-vivo Generation of Stratified Corneal Epithelial Cell Layer on Temperature Response Polymer Surfaces." Undergraduate Research Symposium, University of Washington, Seattle, WA, May, 2005.
 13. Brown J, Shen TT: Treating Severe Corneal Blindness with Artificial Corneal Implants." American College of Surgeons Annual Clinical Conference, Chelan, WA, June, 2005.
 14. Shen TT: "K-pro for Severe Ocular Diseases." The First International Qilu Ophthalmology Conference, Jinan, People's Republic of China, June, 2005.
 15. Bezold K, Simonovsky F, Naeemi E, Shen TT, Ratner B: "Drug Delivery to the Eye Via Injection of Temperature Sensitive In Situ Gels." CREE Summer Symposium, University of Washington, Seattle, WA August, 2005.
 16. Khormae S, Ratner BD, Shen TT: "Stratified Corneal Epithelial Cell Layer on Temperature Responsive Polymer Surfaces." Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2006.
 17. Lam D, Shen TT: "Lyophilized Corneal Tissue as Potential Carrier for the Boston Keratoprosthesis." American Society of Cataract and Refractive Surgery, San Diego, CA,

- April, 2007.
18. Youssef P, Shen TT: "Boston K-pro Case Series." Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2007.
 19. Herlihy E, Shirika R, Shen TT: "Top Hat PKP with tissue Glue." Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2007.
 20. Shirakawa R, Brown J, Farika M, Lindquist TD, Li X, Shen TT: "OCT Characterization of Eye Bank Tissue Processed for Lamellar Surgery." Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2007.
 21. Shirakawa R, Brown J, Farika M, Lindquist Td, Li X, Shen TT: "Quantitative Analysis of Corneal Tissue Using UHR-OCT for Lamellar Surgery." International Society for Refractive Surgery/American Academy of Ophthalmology Joint Meeting, Beijing, People's Republic of China, May, 2007.
 22. Shen TT, Dohlman CD: "Boston K-pro for Treating Corneal Blindness in the Developing World." International Society for Refractive Surgery/American Academy of Ophthalmology Joint Meeting, Beijing, People's Republic of China, May, 2007.
 23. Parviz, P, Shen TT, Ho H: "Functional Contact Lens with Integrated Inorganic Microstructures." Association o Research in Vision and Ophthalmology, Fort Lauderdale, FL, April, 2008.
 24. Garty, G, Shirakawa, R, Warsen, A, Ratner, B and Shen, T: "Polymeric Material System Development for an Artificial Cornea to Treat Global Blindness" Association o Research in Vision and Ophthalmology, Fort Lauderdale, FL, April, 2008.
 25. Shirakawa, R, Garty, S, Ratner, B and Shen, T: "A Polymeric Device for Sustained Drug Release with Intraocular Lens Implantation for Cataract Surgery" Association of Research in Vision and Ophthalmology, Fort Lauderdale, FL, April, 2008.
 26. Garty, S, Ratner, B and Shen, TT: "Hydrogels for Sustained Drug Release with Intraocular Lens Implantation for Cataract Surgery" SFB Translational Biomaterial Research Symposium, Atlanta, GA, August, 2008
 27. Garty, S, Kanayama S, Ratner, B and Shen, TT: "Toward an Artificial Cornea" Society For Biomaterials Annual Meeting Giving Life to a World of Materials, San Antonio, TX, April 22-25, 2009
 28. Barrett R, Garty S, Lam, D, Shintaro Kanayama S, Yang L, Shirkawa R, Ratner BD, Shen TT: "A NEW TISSUE-POLYMER HYBRID DRUG DELIVERY SYSTEM FOR ARTIFICIAL CORNEAS" Association of Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2009
 29. Kanayama S, Garty S, Shirakawa R, Ratner BD, Shen TT: "In vitro model to evaluate polymeric artificial cornea materials using cellular integration" Association of Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2009
 30. Parviz P, Liao YT, Lingley A, Pandey J, Shen TT, Otis B: "Integration of ultra-high frequency antennas on contact lenses: steps towards energy harvesting and telecommunication" Association of Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2009
 31. Ratner BD, Karp F, Garty S and Shen TT: "An Engineered Hydrogel Device for Intraocular

- Controlled Release of Drugs with Special Relevance to Cataract Surgery in Developing Countries” American Chemical Society symposium, San Francisco, CA April 2010
32. Shen, TT, Kim B, Kanayama S, Garty S, Maginness M, Ratner BD: “New sphere-templated polymeric scaffolds for artificial cornea” World Cornea Congress VI, Boston, MA April, 2010
 33. Shen TT: “Outcomes of Keratoprosthesis in Pacific Northwest: Experience at the University of Washington” ASCRS American Society of Cataract and Refractive Surgery, San Diego, CA, Boston, MA, April, 2010
 34. Kim BY, Gillette T and Shen TT: “Clinical outcomes of descemet stripping automated endothelial keratoplasty (DSEK)”, World Cornea Congress VI, Boston, MA April, 2010
 35. Yang L, Kanayama S, Garty S and Shen TT: “Surgical Marking Pen Ink (Gentian Violet) as a Capsular Staining Alternative for Cataract Surgery” Association of Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2010
 36. Shen TT, Garty S, Kanayama S, Kim BY Ratner BD: “Thermosensitive, Injectable, Biodegradable Polymers for Ocular Drug Delivery” Association of Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2010
 37. Kanayama S, Yoshimatsu T, Garty S, Kim BY, Ratner BD, Wong RO, Shen TT: “Imaging the dynamics of corneal epithelial cell-polymer integration using multiphoton microscopy” Association of Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2010
 38. Chen J, Kanayama S, Kim BY, Maginness M, Marshall A, Liang Y, Zhang J, Shen TT: “Long Term *In Vivo* Implantation Of Artificial Cornea In A Rabbit Model” Association of Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2011
 39. Odell N, Shen TT: “Conjunctival patch graft for repair of acute corneal perforation” Association of Research in Vision and Ophthalmology, Fort Lauderdale, FL, May, 2012

CME Lectures and Courses:

1. Shen TT, Curtin HD, Rizzo JF: “Magnetic Resonance Imaging of Primary Anterior Visual Pathway Tumors.” Harvard Professorship Lecture Series, Boston, MA, March, 1999.
2. Shen TT: “Shaken Baby Syndrome.” Paul Chandler Lecture Series, Massachusetts Eye and Ear Infirmary, Boston, MA, May, 1999.
3. Shen TT, Rubin P: “Intra-orbital Foreign Body.” Longwood Ophthalmology Lecture Series, Boston, MA, June, 1999.
4. Shen TT: “Common Ocular Diseases in the Elderly.” Midtown Medical Lecture Series, Boston, MA, August, 1999.
5. Shen TT: “Cataract, Glaucoma and Retinal Diseases.” Massachusetts College of Pharmacy Invited Lecture Series, Boston, MA, September, 1999.
6. Shen TT, Dohlman C: “Keratoprosthesis.” Paul Chandler Lecture Series, Massachusetts Eye and Ear Infirmary, Boston, MA, March, 2000.
7. Shen TT: “Treating Corneal Blindness.” Lions Professorship Presentation to the Board of Trustees at the Northwest Lions Foundation for Sight and Hearing, Seattle, WA, April, 2003.

8. Shen TT: "20/Happy: Is Refractive Surgery Right for You? University of Washington First Friday Lunch Seminar Series, University of Washington, Seattle, WA, December, 2003.
9. Shen TT: "Ocular Surface Disease and Treatment." Presented at the Annual Meeting of the Washington Academy of Eye Physicians and Surgeons Lecture Series, Seattle, WA, February 2004.
10. Shen TT: "Corneal Transplant Surgery." University Lions Club Seminar Series, Seattle, WA, February, 2004.
11. Shen TT: "Basic Corneal Transplant Surgery: ORBIS International Hospital Based Training for Corneal Surgery, Junming, China, January, 2005.
12. Shen TT: "Window to the Mind: Biomaterials in Ophthalmology." UWEB Seminar Series, Seattle, WA February, 2005.
13. Shen TT: "Delivering the Gift of Sight." Shoreline Lions Club Seminar Series, Shoreline, WA, April, 2005.
14. Shen TT: "Customs Cornea—New Way of Eye Banking." Lions Professorship Presentation to the Board of Trustees, Northwest Lions Foundation for Sight and Hearing, Wenatchee, WA, May, 2005.
15. Shen TT: "Biomaterials in Ophthalmology-Review of Current Applications." BioE 590 Advanced Biomaterials, University of Washington, Seattle, WA, May, 2005.
16. Shen TT: "Refractive Surgery, What Primary Care Physicians Need to Know." UW Department of Medicine, Family Practice Medicine Lecture, Seattle, WA, April, 2006.
17. Shen TT: "Treating Corneal Blindness." AARP Meeting, San Francisco, CA, April, 2006.
18. Shen TT: "New Directions in Corneal Surgery." Washington Women in Ophthalmology Inaugural Seminar, Seattle, WA, February, 2006.
19. Shen TT: "Biomaterials in Ophthalmology." Biomedical Engineering Society (BMES) Seminar Series, Seattle, WA, February, 2006.
20. Shen TT: "Intraocular Drug Delivery for Cataract Surgery." Bioengineering Department Seminar, Seattle, WA, March, 2007.
21. Shen TT: "New Development of Artificial Cornea in the US." ARVO Japanese Society, Fort Lauderdale, FL, May, 2007.
22. Shen TT: "Biomaterials Applications in Ophthalmology." BioE/Cheme 490, University of Washington, Seattle, WA, 2007-present.
23. Shen TT: "Current concepts of Biomaterials in Ophthalmology." BioE 537, University of Washington, Seattle, WA. May, 2008