CURRICULUM VITAE

Yiqin Du, M.D., Ph.D.

Department of Ophthalmology, Morsani College of Medicine, University of South Florida
MDC 2040, 12901 Bruce B. Downs Blvd, Tampa FL 33612
Phone: 813-396-0364 (Office), 813-974-0505 (Lab), 412-482-0615 (Cell)
E-mail: yiqindu@usf.edu

EDUCATION and TRAINING

M.D., Clinical Medicine
Xuzhou Medical University, Jiangsu, China (1982-1987)

Residency, Ophthalmology
Xuzhou Third Hospital, Jiangsu, China (1987-1992)

Ph.D., Ophthalmology
Peking University Health Science Center, Third Hospital, Beijing, China (1997-2001)

Postdoctoral Fellow, Stem Cell Biology
Peking University Stem Cell Research Center, Beijing, China (2001-2003)

Postdoctoral Research Associate, Stem Cells & Tissue Engineering
University of Pittsburgh, Pittsburgh, PA, USA (2003-2008)

APPOINTMENTS and POSITIONS

Attending Ophthalmologist
Department of Ophthalmology, Xuzhou Third Hospital, Jiangsu, China (1992-1997)
Interim Director
Department of Ophthalmology, Xuzhou Third Hospital, Jiangsu, China (1997-1997)
Associate Professor
Department of Ophthalmology, Xuzhou Third Hospital, Jiangsu, China (2001-2003)
Research Assistant Professor
Department of Ophthalmology, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA (2008-2012)
Faculty
McGowan Institute for Regenerative Medicine, University of Pittsburgh, Pittsburgh, PA, USA (2010-present)
Assistant Professor
Departments of Ophthalmology & Developmental Biology, University of Pittsburgh, Pittsburgh, PA, USA (2012-2016)
Associate Professor (Tenured)
Departments of Ophthalmology & Developmental Biology, University of Pittsburgh, Pittsburgh, PA, USA (2016-2023)
Professor (Tenured)
Department of Ophthalmology, Morsani College of Medicine, University of South Florida (2023-present)

CERTIFICATION and LICENSURE

Doctor Certificate and Licensing by the Government of People's Republic of China (tenured).
Specialty: Ophthalmology.

MEMBERSHIPS IN PROFESSIONAL AND SCIENTIFIC SOCIETIES

Member, Chinese Ophthalmological Society (1988-2003)
Inaugural committee member, China Society for Stem Cell Sciences (2001-2003)

Member, Association for Research in Vision and Ophthalmology (ARVO) (2003-present)
Member, American Society for Cell Biology (ASCB) (2003-present)
Member, International Society for Eye Research (ISER) (2008-present)
Member, Trabecular Meshwork Society (2013-present)

HONORS and AWARDS

Excellence Award and IET Scholarship for M.D. & Ph.D. candidates, Peking University, China, 2000
Travel Award for Young Investigators, International Society of Eye Research (ISER), September 2008

PUBLICATIONS (in reverse chronological order)

*Corresponding
#Equal Contribution

61. Ajay Kumar, Petr Baranov, Nirmal Vadgama, Enzhi Yang, Paul R. Kinchington, José Alain Sahel, **Yiqin Du***. Human Retinal Morphogenesis Using a Single Protein. *Cell.* Submitted.

60. Ajay Kumar, Siqi Xiong, Minwen Zhou, Wen Chen, Enzhi Yang, Andrew Price, Owen Clinger, Moira Geary, Chia-Chun Liu, Kun-Che Chang, Liang Le, Ying Zhang, Laurence Florens, Michael Washburn, Akshay Kumar, Yunshu Li, Yi Xu, Kira Lathrop, Katherine Davoli, Yuanyuan Chen, Gulab Zode, Abbot F. Clark, Ting Xie, **Yiqin Du***. Stem cell-free therapy for glaucoma to preserve vision. *JCI Insight.* In review.

59. Satinder Kaur, Peri Sohnen, Sudha Swamynathan, **Yiqin Du**, Edgar Espana, and Shivalingappa K. Swamynathan*. Molecular nature of ocular surface barrier function, diseases that affect it, and its relevance for ocular drug delivery. Ocul Surf. 2023 Aug 3;30:3-13. PMID: 37543173.

58. Gary Hin-Fai Yam, Shaohua Pi, Yiqin Du, Jodhbir S Mehta. Posterior corneoscleral limbus: Architecture, stem cells, and clinical implications. Prog Retin Eye Res. 2022 Sep;90:101063. PMID: 35398015

57. Hin-Fai Yam G, Yang T, Geary ML, Santra M, Funderburgh M, Rubin E, **Du Y**, Sahel JA, Jhanji V, Funderburgh JL. Human corneal stromal stem cells express anti-fibrotic microRNA-29a and 381-5p - a robust cell selection tool for stem cell therapy of corneal scarring. *J Adv Res.* 2022 May 24;S2090-1232(22)00120-5. doi: 10.1016/j.jare.2022.05.008. PMID: 35623612.

56. Rachelle N. Palchesko, **Yiqin Du**, Moira L. Geary, Santiago Carrasquilla, Daniel J. Shiwarski, Irona Khandaker, James L. Funderburgh, Adam W. Feinberg. Injury-Free In Vivo Delivery and Engraftment into the Cornea Endothelium Using Extracellular Matrix Shrink-Wrapped Cells. *Commun Materials.* 2022, 3:25. https://doi.org/10.1038/s43246-022-00247-1.

55. Sara Coulon, Joel Schuman, **Yiqin Du,** Ross Ethier, Dan Stamer. A Novel Glaucoma Approach: Stem Cell Regeneration of the Trabecular Meshwork. Invited review. *Prog Retin Eye Res.* 2022, Apr 6:101063. PMID: 35398015.

54. McDowell CM, Kizhatil K, Elliott MH, Overby DR, van Batenburg-Sherwood J, Millar JC, Kuehn MH, Zode G, Acott TS, Anderson MG, Bhattacharya SK, Bertrand JA, Borras T, Bovenkamp DE, Cheng L, Danias J, De Ieso ML, **Du Y**, Faralli JA, Fuchshofer R, Ganapathy PS, Gong H, Herberg S, Hernandez H, Humphries P, John SWM, Kaufman PL, Keller KE, Kelley MJ, Kelly RA, Krizaj D, Kumar A, Leonard BC, Lieberman RL, Liton P, Liu Y, Liu KC, Lopez NN, Mao W, Mavlyutov T, McDonnell F, McLellan GJ, Mzyk P, Nartey A, Pasquale LR, Patel GC, Pattabiraman PP, Peters DM, Raghunathan V, Rao PV, Rayana N, Raychaudhuri U, Reina-Torres E, Ren R, Rhee D, Chowdhury UR, Samples JR, Samples EG, Sharif N, Schuman JS, Sheffield VC, Stevenson CH, Soundararajan A, Subramanian P, Sugali CK, Sun Y, Toris CB, Torrejon KY, Vahabikashi A, Vranka JA, Wang T, Willoughby CE, Xin C, Yun H, Zhang HF, Fautsch MP, Tamm ER, Clark

AF, Ethier CR, Stamer WD. Consensus Recommendation for Mouse Models of Ocular Hypertension to study aqueous humor outflow and its mechanisms. *Invest Ophthalmol Vis Sci.* 2022, 63(2):12. PMID: 35129590.

53. Ajay Kumar, Hongmin Yun, Martha Funderburgh, **Yiqin Du*.** Regenerative Therapy for Corneal Disease. Invited review. *Prog Retin Eye Res.* 2022, 87:101011. PMID: 34530154.

52. Siqi Xiong, Ajay Kumar, Shenghe Tian, Eman E. Taher, Enzhi Yang, Paul R. Kinchington, Xiaobo Xia, **Yiqin Du***. Stem Cell Transplantation Rescued A Primary Open-Angle Glaucoma Mouse Model. *eLife.* 2021, 10: e63677. PMID: 33506763.

51. Shayshadri Mallick, Malini Sharma, Ajay Kumar, **Yiqin Du***. Cell-Based Therapies for Trabecular Meshwork Regeneration to Treat Glaucoma. Review. *Biomolecules* 2021, *11*(9): 1258. PMID: 34572471.

50. Max K. Colbert, Leon C. Ho, Yolandi van der Merwe, Xiaoling Yang, Gillian J. McLellan, Samuel A. Hurley, Aaron S. Field, Hongmin Yun, **Yiqin Du**, Ian P. Conner, Carlos Parra, Muneeb A. Faiq, John H. Fingert, Gadi Wollstein, Joel S. Schuman, Kevin C. Chan. Diffusion Tensor Imaging of Visual Pathway Abnormalities in Five Glaucoma Models. *Invest. Ophthalmol. Vis. Sci.* 2021, 62(10):21. PMID: 34410298.

49. Ajay Kumar, Yi Xu, **Yiqin Du***. Stem Cells from Human Trabecular Meshwork Hold the Potential to Develop into Ocular and Non-Ocular Lineages After Long-Term Storage. *Stem Cells Dev.* 2020, 29(1): 49-61. PMID: 31680626.

48. Siqi Xiong, Yi Xu, Yiwen Wang, Ajay Kumar, **Yiqin Du*.** Integrin α5β1 Promotes Homing and Anchoring of Trabecular Meshwork Stem Cells. *Stem Cells Dev.* 2020, 29(5): 290-300. PMID: 31854234.

47. Yingzi Tian, Zulang Zhang, Karen Torrejon, John Danias J, Sofya Gindina, Ashima Nayyar, **Yiqin Du,** Yubing Xie. A bioengineering approach to Schlemm's canal-like stem cell differentiation for in vitro glaucoma drug screening. *Acta Biomater.* 2020, 105: 203-213. PMID: 31854234.

46. Yi Zhou, Xiaobo Xia, Enzhi Yang, Yiwen Wang, Kacey Marra, C. Ross Ethier, Joel Schuman, **Yiqin Du*.** *FASEB J.* 2020. 34(5): 7160-7177. PMID: 32259357.

45. Ajay Kumar, Tianyu Cheng, Weitao Song, Brandon Cheuk, Enzhi Yang, Lei Yang, Yubing Xie, **Yiqin Du*.** Two-step induction of trabecular meshwork cells from induced pluripotent stem cells for glaucoma. *Biochem Biophys Res Commun.* 2020, 529(2): 411-17. PMID: 32703444.

44. Yingzi Tian, Zulang Zhang, Karen Torrejon, John Danias J, **Yiqin Du*,** Yubing Xie*. A Biomimetic, Stem Cell-Derived In Vitro Ocular Outflow Model. *Adv Biosyst.* 2020, 4(9): e2000004. PMID: 32734694.

43. Irona Khandaker I, James Funderburgh, Moira Geary, Martha Funderburgh, Vishal Jhanji V, **Yiqin Du*,** Gary Hin-Fai Yam G*. A novel transgenic mouse model for corneal scar visualization. *Exp Eye Res.* 2020. 200: 108270. PMID: 32979396.

42. Lin Weng, James L Funderburgh, Irona Khandaker, Moira L Geary, Tianbing Yang, Rohan Basu, Martha L Funderburgh, **Yiqin Du,** Gary Hin-Fai Yam. The anti-scarring effect of corneal stromal stem cell therapy is mediated by transforming growth factor β3. *Eye and Vision.* 2020, 7(1): 52. PMID: 33292650.

41. Yiwen Wang, Deborah Osakue, Enzhi Yang, Yi Zhou, Haiyan Gong, Xiaobo Xia, **Yiqin Du***. ER Stress Response of Trabecular Meshwork Stem Cells and TM Cells and Protective Effects of Activated PERK Pathway. *Invest. Ophthalmol. Vis. Sci.* 2019, 60(1): 265-73. PMID: 30654386.

40. Alexander Castro, **Yiqin Du***. Trabecular Meshwork Regeneration - A Potential Treatment for Glaucoma. *Curr. Ophthalmol. Rep.* Invited review. 2019, 7(2): 80-88. PMID: 31316866.

39. Ajay Kumar, Yi Xu, Enzhi Yang, Yiwen Wang, **Yiqin Du***. Fidelity of Long-Term Cryopreserved Adipose-Derived Stem Cells for Differentiation into Cells of Ocular and Other Lineages. *Exp. Eye. Res.*

2019, 189:107860. PMID: 31655040.

38. Fatima N. Syed-Picard, **Yiqin Du**, Andrew J. Hertsenberg, Rachelle Palchesko, Martha L. Funderburgh, Adam W. Feinberg, James L. Funderburgh. Scaffold-free tissue engineering of lamellar corneal stromal tissue. *J Tissue Eng Reg Med.* 2018, 12: 59-69. PMID: 27863068.

37. Keller KE, Bhattacharya SK, Borrás T, Brunner TM, Chansangpetch S, Clark AF, Dismuke WM, **Du Y**, Elliott MH, Ethier CR, Faralli JA, Freddo TF, Fuchshofer R, Giovingo M, Gong H, Gonzalez P, Huang A, Johnstone MA, Kaufman PL, Kelley MJ, Knepper PA, Kopczynski CC, Kuchtey JG, Kuchtey RW, Kuehn MH, Lieberman RL, Lin SC, Liton P, Liu Y, Lütjen-Drecoll E, Mao W, Masis-Solano M, McDonnell F, McDowell CM, Overby DR, Pattabiraman PP, Raghunathan VK, Rao PV, Rhee DJ, Chowdhury UR, Russell P, Samples JR, Schwartz D, Stubbs EB, Tamm ER, Tan JC, Toris CB, Torrejon KY, Vranka JA, Wirtz MK, Yorio T, Zhang J, Zode GS, Fautsch MP, Peters DM, Acott TS, Stamer WD. Consensus recommendations for trabecular meshwork cell isolation, characterization and culture. *Exp Eye Res*. 2018, 171:164-73. PMID: 29526795.

36. Golnar Shojaati, Irona Khandaker, Kyle Sylakowski, Martha Funderburgh, **Yiqin Du**, James Funderbugh. Compressed Collagen Enhances Stem Cell Therapy for Corneal Scarring. *Stem Cell Trans Med*. 2018, 7: 487-94. PMID: 29654654.

35. Ajay Kumar, Yi Xu, Enzhi Yang, **Yiqin Du***. Stemness and Regenerative Potential of Corneal Stromal Stem Cells and Secretome after Long Term Storage-Potential Implications for Ocular Regeneration*Invest. Ophthalmol. Vis. Sci.* 2018, 59: 3728-38. PMID: 30046814.

34. Hongmin Yun, Yiwen Wang, Yi Zhou, Ke Wang, Ming Sun, Donna B. Stolz, Xiaobo Xia, C. Ross Ethier, **Yiqin Du*.** Human stem cells home to and repair laser-damaged trabecular meshwork in a mouse model. *Communications Biology*, (2018) 1:216. PMID: 30534608.

33. Hertsenberg AJ, Shojaati G, Funderburgh ML, Mann MM, **Du Y**, Funderburgh JL. Corneal stromal stem cells reduce corneal scarring by mediating neutrophil infiltration after wounding. *PloS One.* 2017 Mar 3;12(3):e0171712. PMID: 28257425.

32. James L. Funderburgh, Martha L. Funderburgh, **Yiqin Du**. Stem Cells in the Limbal Stroma. *Ocul Surf.* 2016, 14:113-20. PMID: 26804252

31. Hongmin Yun, Yi Zhou, Andrew Wills, **Yiqin Du***. Stem Cells in the Trabecular meshwork for Regulating Intraocular Pressure. *J Ocul Pharmacol Ther*. 2016, 32: 253-60. PMID: 27183473.

30. Fatima Syed-Picard, **Yiqin Du,** Kira Lathrop, Mary Mann, Martha L. Funderburgh, James L. Funderburgh. Dental Pulp Stem Cells: a New Cellular Resource for Corneal Stromal Regeneration. *Stem Cell Translational Medicine*. 2015, 4: 276-85. PMID: 25713466

29. Jian Wu, **Yiqin Du**, Mary M. Mann, James L. Funderburgh, William R. Wagner. Corneal stromal stem cells versus corneal fibroblasts in generating structurally appropriate corneal stromal tissue. *Exp Eye Res*. 2014; 120: 71-81. PMID: 24440595

28. Dimitrios Karamichos, Martha L. Funderburgh, Audrey E. K. Hutcheon, James D. Zieske, **Yiqin Du**, Jian Wu, James L. Funderburgh. A Role for Topographic Cues in the Organization of Collagenous Matrix by Corneal Fibroblasts and Stem Cells. *Plos One*. 2014; 9(1): e86260. PMID: 24465995

27. Jian Wu, Jelena Rnjak-Kovacina, **Yiqin Du**, Martha L. Funderburgh, David L. Kaplan, James L. Funderburgh. Corneal stromal bioequivalents secreted on patterned silk substrates. *Biomaterials.* 2014; 35(12): 3744-55. PMID: 24503156

26. Sayan Basu, Andrew J. Hertsenberg, Martha L. Funderburgh, Michael K. Burrow, Mary M. Mann, **Yiqin Du,** Kira L. Lathrop, Fatima N. Syed-Picard, Sheila M. Adams, David E. Birk, James L. Funderburgh.

Human limbal biopsy–derived stromal stem cells prevent corneal scarring. *Sci. Transl. Med.* 2014; 6: 266ra172. PMID: 25504883

25. Hongmin Yun, Enzhi Yang, Ming Sun, Kira L. Lathrop, Larry Kagemann, Valeria Fu, Donna B. Stolz, Joel S. Schuman, **Yiqin Du*.** A Laser-induced Mouse Model with Long-term Intraocular Pressure Elevation. *Plos One.* 2014; 9(9): e107446. PMID: 25216052.

24. Jian Wu, **Yiqin Du**, Mary Mann, Enzhi Yang, James Funderburgh, William Wagner. Bioengineering Organized, Multi-Lamellar Human Corneal Stromal Tissue by Growth Factor Supplementation on Highly Aligned Synthetic Substrates. *Tissue Engineering Part A*. 2013; 19 (17-18): 2063-75. PMID: 23557404.

23. Audrey A. Chan, Andrew J. Hertsenberg, Martha L. Funderburgh, Mary M. Mann, **Yiqin Du**, Katherine A. Davoli, Jocelyn Danielle Mich-Basso, Lei Yang, James L. Funderburgh. Differentiation of human embryonic stem cells into cells with corneal keratocyte phenotype. *Plos One*. 2013; 8(2): e56831. PMID: 23437251.

22. **Yiqin Du***, Hongmin Yun, Enzhi Yang, Joel S. Schuman. Stem cells from trabecular meshwork can home to the TM region in vivo. *Invest. Ophthalmol. Vis. Sci.* 2013; 54 (2): 1450-59. PMID: 23341019.

21. Danny S. Roh, **Yiqin Du**, Michelle L.Gabriele, Andria R. Robinson, Laura J. Niedernhofer, James L. Funderburgh. Age-related Dystrophic Changes in Corneal Endothelium from DNA Repair Deficient. *Aging Cell*. 2013, 12: 1122-31. PMID: 23927039.

20. **Yiqin Du***, Danny S. Roh, Mary M. Mann, Martha L. Funderburgh, James L. Funderburgh, Joel S. Schuman. Multiple stem cells from trabecular meshwork become phagocytic TM cells. *Invest. Ophthalmol. Vis. Sci.* 2012; 53 (3): 1566-75. PMID: 22297497.

19. Craig Boote[#], **Yiqin Du[#],** Sian R. Morgan, Jonathan Harris, Christina S. Kamma-Lorger , Sally Hayes , Kira L. Lathrop, Danny S. Roh, Michael K. Burrow, Jennifer Hiller , Nicholas J. Terrill , James L. Funderburgh, Keith M. Meek. Quantitative Assessment of Ultrastructure and Light Scatter in Mouse Corneal Debridement Wounds. *Invest. Ophthalmol. Vis. Sci*. 2012; 53 (6): 2786-95. PMID: 22467580.

18. Jian Wu, **Yiqin Du**, James L Funderburgh, William R Wagner. The engineering of organized human corneal tissue through the spatial guidance of corneal stromal stem cells. *Biomaterials* 2012, 33 (5): 1343-52. PMID: 22078813.

17. Divya Gupta, **Yiqin Du**, Jordan Piluek, Adam M. Jakub, Kristine Ann Buela, Akshar Abbott, Joel S. Schuman, and Nirmala SundarRaj. Ethyl Pyruvate Ameliorates Endotoxin Induced Corneal Inflammation. *Invest. Ophthalmol. Vis. Sci*. 2012; 53 (10): 6589-99. PMID: 22918642.

16. **Yiqin Du**, Danny Roh, Martha Funderburgh, Mary Mann, Kacey Marra, Peter Rubin, Xuan Li, James Funderburgh. Adipose-Derived Stem Cells Differentiate to Keratocytes in vitro. *Mol. Vis*. 2010; 16:2680-9. PMID: 21179234.

15. Naxin Guo, Xuan Li, Mary Mann, Martha Funderburgh, **Yiqin Du,** James Funderburgh. Hyaluronan systhesis mediates the fibrotic response of keratocytes to transforming growth factor β. *J Biol Chem*. 2010, 285 (42): 32012-9. PMID: 20685654.

14. **Yiqin Du,** Eric Carlson, Martha L. Funderburgh, Naxin Guo, David E. Birk, Winston W. Kao, James L. Funderburgh. Stem Cell Therapy Restores Transparency to Defective Murine Corneas. *Stem Cells.* 2009, 27 (7): 1635-42. PMID: 19544455.

13. **Yiqin Du,** Nirmala Sundarraj, Martha L. Funderburgh, Stephen A. Harvey, David E. Birk, James L. Funderburgh. Secretion and Organization of a Cornea-like Tissue in vitro by Stem Cells from Human Corneal Stroma. *Invest. Ophthalmol. Vis. Sci.* 2007; 48: 5038-45. PMID: 17962455.

12. Naxin Guo, David Kanter, Martha L Funderburgh, Mary M Mann, **Yiqin Du**, James L Funderburgh. A Rapid Transient Increase in Hyaluronan Synthase-2 mRNA Initiates Secretion of Hyaluronan by Corneal Keratocytes in Response to Transforming Growth Factor β. *J. Biol. Chem.,* 2007; 282: 12475 - 83. PMID: 17327235.

11. Yanling Ma, Yongsheng Xu, Zhifeng Xiao, Wei Yang, Chun Zhang, E Song, **Yiqin Du,** Lingsong Li. Reconstruction of chemically burned rat corneal surface by bone marrow-derived human mesenchymal stem cells. *Stem Cells.* 2006; 24: 315 - 21. PMID: 16109757.

10. **Yiqin Du**, Jing Chen, Xiuan Zhu, Lingsong Li. Study on characteristics of cultured limbal stem cells in vitro. *Chinese Ophthalmic Research*. 2006, 24 (4): 389-92.

9. Hong Qi, Weihuan Liu, **Yiqin Du,** Chun Zhang. The Long-term effectiveness of transplanting embryonic corneal epithelial stem cells for treatment of pteryium. *Journal of Injuries and Occupational Diseases of the Eye with Ophthalmic Surgeries.* 2005; 27 (3): 180-182.

8. **Yiqin Du**, Martha L Funderburgh, Mary M Mann, Nirmala SundarRaj, James L Funderburgh. Multipotent Stem Cells in Human Corneal Stroma. *Stem Cells*. 2005; 23: 1266-1275. PMID: 16059757.

7. Martha L. Funderburgh, **Yiqin Du**, Mary M. Mann, Nirmala SundarRaj, James L Funderburgh. PAX6 Expression Identifies Progenitor Cells for Corneal Keratocytes. *FASEB J.* 2005; 19: 1371-1373. PMID: 15901670.

6. **Yiqin Du***, Jing Chen, James L Funderburgh, Xiuan Zhu, Lingsong Li. Functional reconstruction of rabbit corneal epithelium by human limbal cells cultured on amniotic membrane. *Mol Vis*. 2003; 9:635-643. PMID: 14685149.

5. **Yiqin Du**, Xiuan Zhu. Pseudoexfoliation syndrome and surgical complication. *Journal of Injuries and Occupational Diseases of the Eye with Ophthalmic Surgeries.* 2001; 23(5): 490-2.

4. **Yiqin Du**, Huirong Zhang. A case of Fundus Albipunctatus. *Chinese Journal of Ocular Fundus Diseases.* 2001; 17 (1): 17.

3. Xiujin Xia, Huanqing Zhang, **Yiqin Du**, Lingsong Li. Progress in the clinical application of stem cells. *Chinese Journal of Internal Medicine*, 2001; 40(9),638-639.

2. Lingsong Li, Jianjian Zhu, **Yiqin Du**, Jian Tang, Lingheng Li. Advance in stem cell research and clinical application. *Progress in Physiological Sciences*. 2001; 32 (2): 138-140.

1. **Yiqin Du**, Xianhua Liu: Cephalo-injuries and blindness*. Journal of Injuries and Occupational Diseases of the Eye with Ophthalmic Surgeries.* 1995; 17(2): 119-20.

BOOK CHAPTERS (in reverse chronological order)

8. Ajay Kumar, Enzhi Yang, **Yiqin Du*.** Trabecular Meshwork Regeneration for Glaucoma Treatment Using Stem Cell-Derived Trophic Factors. Methods in Molecular Biology. Editor: Gross J. Springer. Invited and submitted.

7. Yiqin Du*, Sridhar Bammidi, Enzhi Yang. Trabecular Meshwork Stem Cells for Glaucoma Treatment. Methods in Molecular Biology. Editor: Liton P. Springer. Invited and submitted.

6. Brandon S. Cheuk, Ajay Kumar, **Yiqin Du***. iPSCs for Modeling of Open-Angle Glaucoma. Editor: Birbrair A. Novel Concepts in iPSC Disease Modeling. 2022. Elsevier. 85-104.

5. Kunal Gandhi, Ajay Kumar, **Yiqin Du***. Trabecular Meshwork Regeneration by Stem Cells for Glaucoma Treatment: Rational, Feasibility and Mechanisms. Chapter 9. Eds: Samples JR, Knepper PA. Glaucoma Research and Clinical Advances 2020 to 2022. Kugler Publications. 95-104.

4. Hongmin Yun, Joel S. Schuman, **Yiqin Du***. Trabecular Meshwork Stem Cells. Chapter 10. Ed. Alice Pebay. Regenerative Biology of the Eye. Springer. ISBN: 978-1-4939-0787-8. 2014.

3. Yiqin Du, James L. Funderburgh. Stem Cells of the Ocular Surface. Eds. Darlene A. Dartt, Joseph C. Besharse, Reza Dana. Encyclopedia of the Eye, Volume4. Elsevier. ISBN: 978-0-12-374198-1. 2010.

2. Maria Notara, **Yiqin Du,** G. Astrid Limb, James L. Funderburgh, Julie T. Daniels. Eye. Chapter 5. Eds. John R. Masters, Bernhard Palsson. Human Adult Stem Cells. Springer, Dordrecht Heidelberg London New York. ISSN: 1389-2142, ISBN: 978-481-2268-4. 2009.

1. Yiqin Du, James L Funderburgh. Culture of Human Corneal Stem Cells. Chapter 11. Eds. R. Ian Freshney, Glyn N. Stacey, Jonathan M. Auerbach. Culture of Human Stem Cells. John Wiley & Sons, Hoboken, NJ. ISBN: 978-0-470-05246-4. 2007.

PUBLISHED ABSTRACTS (in reverse chronological order)

52. Yiqin Du; Ajay Kumar; Sridhar Bammidi; Enzhi Yang. Trabecular Meshwork Regeneration by Stem Cell-Derived Trophic Factors and Endogenous Stem Cell Activation. *Invest. Ophthalmol. Vis. Sci.,* June 2023, Vol.64, 2431.

51. Sridhar Bammidi; Ajay Kumar; Enzhi Yang; **Yiqin Du.** Corneal stromal stem cell secretome promotes corneal wound healing by dampening immune response and rescuing sensory neurons. *Invest. Ophthalmol. Vis. Sci.,* June 2023, Vol.64, 3137.

50. Owen Duane Clinger; Bing Feng; Christian Kim; John Hulleman; **Yiqin Du;** Yuanyuan Chen. High-throughput screening detects pharmacologic compounds rescuing mutant myocilin secretion. Investigative Ophthalmology & Visual Science June 2023, Vol.64, 3768.

49. Gary Hin-Fai Yam; Mithun Santra**; Yiqin Du**; Deepinder K. Dhaliwal; Vishal Jhanji. In vitro quality screening of human corneal stromal stem cells for cell-based therapy of corneal scarring. *Invest. Ophthalmol. Vis. Sci.,* June 2023, Vol.64, 505.

48. Yiqin Du; Ajay Kumar. Therapeutics of stem cell secretome in dexamethasone-induced ocular hypertension mice. *Invest. Ophthalmol. Vis. Sci.,* June 2022, Vol.63, 2646.

47. Yiqin Du. Intracamerally transplanted stem cellschanged the segmental outflow pattern and reduced intraocular pressure in a mouse glaucoma model. *Invest. Ophthalmol. Vis. Sci.,* June 2021, Vol.62, 482.

46. Gary Hin-Fai Yam; Tianbing Yang; Moira L Geary; Martha L Funderburgh; **Yiqin Du**; Vishal Jhanji. Human corneal stromal stem cells express specific microRNAs with anti-inflammatory and anti-fibrotic activities: a novelmechanism to reduce corneal scarring. *Invest. Ophthalmol. Vis. Sci.,* June 2021, Vol.62,925.

45. Kunal Gandhi; Ajay Kumar; **Yiqin Du**. Differentiation of Trabecular Meshwork StemCells into Retinal Ganglion Cells. *Invest. Ophthalmol. Vis. Sci.,* June 2020, Vol.61, 2520.

44. Yiqin Du, Wetiao Song, Ajay Kumar. Human Embryonic Stem Cells Differentiateinto Trabecular Meshwork Cells. *Invest. Ophthalmol. Vis. Sci.,* July 2019, Vol.60, 5151.

43. Yiqin Du, Hongmin Yun. Detection and Activation of Endogenous Trabecular Meshwork Stem Cells in Mice for TM Regeneration. *Invest. Ophthalmol. Vis. Sci.,* July 2018, Vol.59, 4729.

42. Ajay Kumar, **Yiqin Du.** Stemness and regenerative effects of trabecular meshwork stem cells/secretome after long-term storage. *Invest. Ophthalmol. Vis. Sci.,* July 2018, Vol.59, 4732.

41. Enzhi Yang, Ajay Kumar, **Yiqin Du.** Possible Autologous Stem Cell Resources for Trabecular Meshwork Regeneration. *Invest. Ophthalmol. Vis. Sci.,* July 2018, Vol.59, 4733.

40. Yangzi Isabel Tian; Karen Torrejon; John Danias; **Yiqin Du**; Yubing Xie. Stem Cell-Derived Schlemm's Canal-like Cells for in vitro Glaucoma Drug Screening. *Invest. Ophthalmol. Vis. Sci.,*July 2018, Vol.59, 3538.

39. **Yiqin Du**, Yi Zhou, Hongmin Yun, Enzhi Yang. Mechanisms of Stem Cell Homing for Trabecular Meshwork Regeneration. *Invest. Ophthalmol. Vis. Sci.,*June 2017, Vol.58, 3498.

38. Ruiyi Ren; Yi Zhou; Thuy Duong Le; Enzhi Yang; **Yiqin Du**; Haiyan Gong. Morphologic Changes in Trabecular Meshwork Associated with Thapsigargin Induced Mouse Glaucoma Model. *Invest. Ophthalmol. Vis. Sci.,* June 2017, Vol.58, 3473.

37. Yiqin Du; Hongmin Yun; Yi Zhou; Enzhi Yang. Trabecular Meshwork Regeneration by Stem Cells. *Invest. Ophthalmol. Vis. Sci.,* September 2016, Vol.57, 4675.

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PROFESSIONAL ACTIVITIES

TEACHING ACTIVITIES

Lectures

- Lectures on “Stem Cell Biology” in MSCMP3740 for graduate students, 2018-prsent, 7-14 graduate students/year.
- Lectures in INTBP2100 as a part of the T32 EY017271 Interdisciplinary Visual Science Training Program on the “Biology of Vision”, 2011-present, ~10 registered and ~ 20 non-registered students per year from University of Pittsburgh and Carnegie Mellon University.
- Annual departmental seminar on “stem cell biology and mechanisms for glaucoma treatment”, 2012-present. 30-40 participants/year.
- Presiding the departmental Evening Data Club, 2014-present, ~30-40 participants.
- Presiding the weekly departmental Corneal Task Meeting, 2020-present, to adjust experimental approaches and advise on progress of the Corneal Task Team members consisting of scientists, clinicians, program manager, postdocs, and technicians.

- Lectures in medical student classes in Peking University Health Science Center, six hours a year for two years in 2001 and 2002. ~ 50 students/class/year.

Mentoring

- Mentored the senior-year medical students as interns in the Ophthalmology Department in Peking University Third Hospital from 2000 to 2001, 10 students/year.
- Mentored Ophthalmology residents in Peking University Third Hospital from 2000 to 2001, three residents each year.
- Co-mentored with Drs. James L. Funderburgh and Joel S. Schuman one PhD candidate (Andrew Hertsenberg, 09/2010-04/2015, who went to Harvard as a postdoc); one MD, PhD candidate (Danny Roh, 09/2008-07/2011, who went to Harvard as a resident); one MD candidate (Igor Bussel, 06/2012-06/2013, Doris Duke Fellowship, who went to UPMC as an Ophthalmology resident).
- Co-mentored with Drs. James L. Funderburgh, William R. Wagner, Adam W. Feinberg.two OTERO (Ocular Tissue Engineering and Regenerative Ophthalmology Research Program) postdoctoral fellows: Jian Wu, PhD, 02/2010-01/2012 and Rachelle Palchesko, PhD, 01/2011-12/2012, who went to CMU as a faculty.
- Served as a career consultant for “Women in Medicine & Science Career” at University of Pittsburgh, 03/2014.
- Participating as a mentor of National Research Mentoring Network (NRMN) program, 2016-present.
- Mentored one postdoctoral fellow (Hongmin Yun, MD, PhD, 10/2011-02/2015, who is a departmental faculty).
- Co-mentored with Dr. Xiangyun Wei one postdoctoral fellow (Chuanyu Guo, PhD, 06/2016-06/2020, who went back to China as a research faculty).
- Mentored one postdoctoral fellow (Ajay Kumor, PhD, 07/2017- 12/2021) who was awarded the Weigand Fellowship (07/01/2018-06/30/2019, the only one in the Department of Ophthalmology) and has received a Ramalingaswami Re-entry Fellowship Programme in India, one of the two awardees among applicants around the world.
- Mentoring one postdoctoral fellow (Sridhar Bammidi, 12/2021-current).
- Mentored two visiting scholars (LinLin Zhen, MD, PhD, 01/2012-04/2012, who went back to China, as a department Chair; Xuejiao Yang, MD, 11/2012-10/2013, who went back to China as a Clinician Scientist in Ophthalmology)
- Mentored two Xiangya visiting research scholars for the exchange program (2 years) between University of Pittsburgh School of Medicine and Central South University Xiangya Medical School (Yi Zhou, MD candidate, 07/2014-06/2016; Yiwen Wang, PhD candidate, 01/2017- 12/2019. Both went back, graduated, are currently clinician scientists in China).
- Co-mentored a PhD candidate from Xiangya Medical School (Ye He, 04/2017- 05/2018, who went back to Xiangya, China and received her PhD in June 2018, currently a practicing ophthalmologist)
- Mentored two visiting scholars (Weitao Song, MD, PhD, 04/2017-05/2018, who went back to Xiangya Hospital as the deputy Chair of the Department of Ophthalmology, Changsha, China; Minwen Zhou, MD, PhD, 05/2017- 05/2018, who went back to Shanghai First Hospital, Shanghai, China)
- Mentored two visiting scholars (Siqi Xiong, MD, PhD, 05/2018-11/2019; Wen Chen, MD, 01/2017-12/2017, both went back as clinician scientists and now professors and faculty of the graduate program).
- Mentored a visiting scholar (Eman E. Taher, PhD, 03/2019-08/2019, who went back to the Research Institute of Ophthalmology, Giza, Egypt as a full professor)
- Mentored pre-medical students for the “Summer Pre-medical Academic Enrichment Program (SPEAP)” at University of Pittsburgh (Andrew Wills, 2014; Deborah Osakue, 2016; Alexandra Castro, 2017; Azra Deez, 2019). Most of them were admitted to medical schools and co-authors in publications. Deborah Osakue received a travel award to attend ABRCMS from FASEB/MARC program.
- Mentored a student from the Summer Undergraduate Research Program (SURP) supported by the CBMP (Akanksha Chilkuri, 05/2019-07/2019) who went to University of Pittsburgh Medical School.
- Mentored a student (Malini Sharma, 06/2021-08/2021) for the PSTP (Physician Scientist Training Program) at University of Pittsburgh Medical School.
- Mentored an undergraduate student (Kunal Gandhi, 05/2018-05/2020) who is the co-first author of a book chapter.

- Mentored an undergraduate student (Brandon Cheuk, 05/2019-04/2020) who was admitted to the Osteopathic Medicine program at Kentucky College.
- Mentoring a hard-working undergraduate student (Shayshadri Mallick, 05/2019-current) in the lab.
- Mentored two students from the First Experiences in Research program at University of Pittsburgh (Dwarkesh Amin, Brooke Vulcano, 01/2017-05/2017). Both of them gave poster presentations at the Celebration of Research at Pitt.
- Mentored 6 high school students in the lab in the past four years including Hillman Research Program.
- As a faculty of CBMP graduate program, helps to recruit graduate students and serves on the PhD candidate's comprehensive exam committee.

Mentored and funded grant
Ajay Kumar, PhD. Postdoc. Funding: Weigand Fellowship in Ophthalmology
Assessing the neuroprotective role of stem cell secretome on retinal ganglion cells - an in vitro approach
7/01/2018-6/30/2019

PROFESSIONAL DEVELOPMENT

- Participated in most lectures of the "Health Sciences Faculty Professional Development Series" hosted by the Office of Academic Career Development, University of Pittsburgh, 2012-2019.
- Participated in the Course in Scientific Management & Leadership, 2013.
- Participated in the Sunrise Series for Women Faculty and Fellows, 2013.
- Participated in the annual Women in Medicine and Science Forum, 2014-present.
- Participated in the Career Coaching Workshop for the Professional Mentoring Skills Enhancing Diversity (PROMISED) Program, 09/2016 and remain in the program "PROMISED Career Coaching Reflection" for improvement of coaching skills.
- Attended the mentoring meeting hosted by Department of Ophthalmology, 2019.

SEMINARS and INVITED LECTURES

Local (in reverse chronological order)
- "Trabecular Meshwork Regeneration by Stem Cells for Glaucoma Treatment" at the sixth conference of "Vision Restoration: Regenerative Medicine in Ophthalmology", Pittsburgh, PA, June 2016.
- "Autologous and Allogeneic Stem Cell Therapy for Glaucoma" at the fifth conference of "Vision Restoration: Regenerative Medicine in Ophthalmology", Pittsburgh, PA, June 2015.
- "Stem Cell-based Therapy for Controlling Intraocular Pressure" at the fourth conference of "Vision Restoration: Regenerative Medicine in Ophthalmology", Pittsburgh, PA, June 2014.
- "Perspective on TM Stem Cells" at the 36th Annual Midwest Glaucoma Symposium "Setting New Standards in Glaucoma", Pittsburgh, PA, September 2013.
- "Trabecular Meshwork Stem Cells and Cell Therapy for Glaucoma" at the Innovations in Vision Research lecture series at the Louis J. Fox Center for Vision Restoration of UPMC and the University of Pittsburgh, Pittsburgh, PA, September 2013. (National and international invitees in the series, 4 lectures a year)
- "Stem cells in the eye for glaucoma and corneal disease", in the Department of Developmental Biology University of Pittsburgh, Pittsburgh, PA, January 2013.
- "Trabecular Meshwork Stem Cells: A Hope for Glaucoma Treatment" at the first conference of "Vision Restoration: Regenerative Medicine in Ophthalmology", Pittsburgh, PA, May 2011.
- "Curing Glaucoma by Stem Cells" at the "Foundation Fighting Blindness", Pittsburgh, PA, September 2010.

National (in reverse chronological order)
- "Trabecular Meshwork Regeneration by Stem Cell-Derived Trophic Factors and a Potential Mechanism". Trabecular Meshwork Study Club. Washington DC, 12/1-12/4/2022.
- "STEM CELL EFFECTS ON MYOCILIN MUTANT TM CELLS AND ON A MOUSE MODEL WITH MYOCILIN MUTATION." ISER/BrightFocus Glaucoma Symposium, Atlanta, GA. 5/24-5/27/2022.
- "Corneal stromal stem cells: stemness and regenerative potential" invited speaker in the

minisymposium “Update on stem cells in corneal development, diseases, and regeneration”, ARVO, Denver, CO, 4/30-5/4/2022

- “Stem cell-based therapy for IOP reduction and RGC protection in a mouse glaucoma model” in the Satellite Symposium “Novel Pharmacologic Approaches to Glaucoma Treatment Without Eyedrops”, ARVO, Denver, CO, 4/30-5/4/2022
- “A Potential Mechanism of Trabecular Meshwork Stem Cells’ Effects on Trabecular Meshwork Regeneration.” Trabecular Meshwork Study Club. San Diego, CA. 12/9-12/11/2021.
- “Vision regeneration: stem cell- and stem cell-free therapies with bioengineering for corneal disease and glaucoma” at SUNY Poly CNSE Colloquium, Albany, NY, October 2021.
- “Transplantation of Trabecular Meshwork Stem Cells Rescued a Mouse Glaucoma Model” at the 17th Trabecular Meshwork Study Club, Washington DC, December 2019.
- “Schwalbe Line’s Cells: Leading to Novel Glaucoma Therapies”. Invited speaker at the 31st annual Giuseppina d’Elia Raviola Memorial Day, Department of Anatomy & Neurobiology, Boston University, Boston, MA. April 2019.
- “Trabecular meshwork regeneration by Stem Cells for Glaucoma” at the 8th Glaucoma 360 New Horizons Forum, hosted by Glaucoma Research Foundation, San Francisco, CA, February 2019.
- “Regenerative Potential of Long-Term Cryopreserved Trabecular Meshwork Stem Cells and their Secretome” at the 16th Trabecular Meshwork Study Club, San Diego, CA, December 2018.
- “Mechanisms of Trabecular Meshwork Stem Cell Homing and Regeneration” at the 15th Trabecular Meshwork Study Club, Portland, OR, December 2017.
- “Mechanisms of Stem Cell Homing for Trabecular Meshwork Regeneration” at the ISER Glaucoma Symposium in Atlanta, GA, October 2017
- Invited attendee to discuss at the 24th Annual “Glaucoma Foundation Optic Nerve Rescue and Restoration Think Tank,” New York, NY, June 2017.
- “Stem Cell Therapy for Trabecular Meshwork Regeneration” at the 2nd “Trabecular Meshwork and Aqueous Humor Dynamics Think Tank”, Cleveland, OH, March 2017.
- “Reconstruction of Conventional Outflow Pathway by Stem Cells” at the 14th Trabecular Meshwork Study Club, San Francisco, CA, December 2016.
- “Animal Models and Stem Cells for Glaucoma” at the 23rd Annual Glaucoma Foundation Optic Nerve Rescue and Restoration Think Tank meeting, New York, NY, June 2016.
- “Stem Cell Therapy for Outflow Pathway Regeneration” for the 2016 Research Lecture Series at SUNY Downstate, New York, NY, June 2016.
- “Trabecular Meshwork Stem Cells Reconstruct Laser-damaged TM Tissue” at the 13th Trabecular Meshwork Study Club, San Diego, CA, December 2015.
- “Animal Models for Anterior Segment Regeneration” at the 22nd Annual “Glaucoma Foundation Optic Nerve Rescue and Restoration Think Tank” meeting, New York, NY, September 2015.
- “Ocular Anterior Segment Regeneration by Stem Cells” for the Fall 2015 Seminar Research Series at Wayne State University, September 2015.
- “Trabecular Meshwork Regeneration by Stem Cells” at The First Biennial Glaucoma Research Symposium, Nantucket Island, MA, August 2015.
- “Ocular Anterior Segment Regeneration by Stem Cells” at Boston University, Boston, MA, August 2015.
- “Trabecular Meshwork Stem Cells Home to Laser-Damaged TM Region and Reduce Intraocular Pressure in Mice” at the 12th “Trabecular Meshwork Study Club”, Fort Worth, TX, December 2014.
- “Trabecular Meshwork Stem Cells Treating Glaucoma” at the 11th “Trabecular Meshwork Study Club”, New Orleans, LA, December 2013.

International (in reverse chronological order)

- “Glaucoma pathophysiology and potential treatment options”. XXV ISER Biennial Meeting, in the session “Defective anterior segment development and eye diseases”, Gold Coast, Australia, February, 2023.
- “Stem cells and anterior segment regeneration”, Division of Life Science, Hong Kong University of Science and Technology. February, Hong Kong, 2023

- "Stem cell- and stem cell-free therapies for reducing IOP and preserving vision in glaucoma". The Third Xiangya International Ophthalmology Conference. Online. December 2021.
- "Potential of corneal stromal stem cells for ocular regeneration" at the 2020 Cornea and Ocular Surface Biology and Pathology Gordon Research Conference, Tuscany, Italy, February 2020.
- "Stem Cells for Glaucoma" at the 2nd Xiangya International Forum of Ophthalmology, Changsha, Hunan, China, June 2019.
- "Trabecular meshwork regeneration and intraocular pressure reduction by stem cells-a potential novel treatment for glaucoma" at the Chinese Congress in Research in Vision and Ophthalmology. Changsha, China, April 2018.
- "Stem Cells for Anterior Segment Regeneration" at the First Xiangya International Forum of Ophthalmology, Changsha, China, November 2016.
- "Trabecular Meshwork Regeneration and Intraocular Pressure Regulation by Stem Cells" at the 12th Chinese glaucoma conference in the Minimally Invasive Glaucoma Surgery (MIGS) symposium, Changsha, China, November 2016.
- "Trabecular Meshwork Regeneration by Stem Cells" "Restoring Conventional Outflow" at the XXII International Society of Eye Research (ISER) meeting in a session entitled "Restoring Conventional Outflow", Tokyo, Japan, September 2016.
- "Animal Models for Anterior Segment Regeneration" at the 31st Asia-Pacific Academy of Ophthalmology (APAO), Chinese Taipei, China, March 2016.
- "Stem Cell-Based Therapy for Restoration of Trabecular Meshwork" at the 20th Congress of Chinese Ophthalmological Society (CCOS2015), Guangzhou, China, April 2015.
- "Stem Cells for Glaucoma Treatments" at the XXI International Society of Eye Research (ISER) meeting in a session entitled "Novel Engineered therapies for glaucoma", San Francisco, CA, July 2014.
- "Trabecular Meshwork Stem Cells" at the 5th World Glaucoma Congress, Vancouver, Canada, July 2013.

RESEARCH

Current Grant Support

R01 EY025643 (NIH/NEI) Yiqin Du (PI) 09/01/2015-3/31/2027
Mechanisms of Trabecular Meshwork Regeneration by Stem Cells
The goal of this project is to elucidate the cellular and molecular mechanisms of regeneration potential of the trabecular meshwork by stem cells.
Role: PI

R01 EY024642 (NIH/NEI) Yiqin Du (Multi-PI) 05/01/2016-03/31/2027
Bioengineering Cornea with Autologous Stem Cells
The goal of this project is to utilize autologous stem cells, such corneal stromal stem cells, and biomaterials to develop transplantable corneal endothelium as well as corneal stroma to provide therapy for individuals with corneal blindness.
Role: multi-PI
Contact PI: Adam Feinberg (CMU)

Completed Research Support

W81XWH1910778 Yiqin Du (PI) 9/15/2019- 9/14/2022 (in NCE)
DOD- USAMRAA
Early Intervention Stem Cell-Based Therapy (EISCBT) for Corneal Burns and Trauma
This project is to develop a proof of concept in a large animal model using corneal stromal stem cells for early intervention to prevent corneal scar formation and preserve vision.
Role: PI

PSF/MTF Biologics Allograft Tissue Research Grant 09/01/2021-08/31/2023
Engineering Vascularized Soft Tissues for Definitive Complex Wound Reconstruction
Role: Co-I

PI: Mario Solari, Plastic Surgery, Pitt

Anonymous Private Foundation Yiqin Du (PI) 6/01/2011-06/30/2016
The goal of this project is to establish the glaucoma lab in the Department of Ophthalmology and investigate the stem cells from trabecular meshwork and new therapy for glaucoma.
Role: PI

G2014086 (BrightFocus Foundation) Yiqin Du (PI) 7/01/2014-6/30/2016
A Mouse Glaucoma Model and Stem Cell-Based Therapy for Glaucoma
Total Amount: $100,000
The goal of this project is to develop and characterize a mouse glaucoma model with a suitable chemical endoplasmic reticular stressor to induce TM cell death and abnormal extracellular matrix, hence to decrease outflow facility which can be used to study stem cell-based therapy to reduce intraocular pressure.
Role: PI

R01 EY016415-10A1 (NIH/NEI) Funderburgh (PI), Du (Co-PI) 2/01/2016- 1/31/2020
Stem Cells for Corneal Engineering
Total Amount: $348,468x3
The goal of the project is develop stem cell-based therapeutic applications that can treat or reverse corneal scarring reducing the need for PK.
Role: Co-PI

W81XWH-14-1-0465 (DOD-CDMRP) Funderburgh (PI) , Du (Co-PI) 9/22/2014-3/21/2019
Early intervention Stem cell-based therapy for corneal burns and trauma
Total Amount: $100,000
The goal of this project is to characterize corneal pathophysiological changes after chemical burns and trauma, especially the wounds in modern battlefields and utilize stem cells for early treatment to prevent corneal scar formation and prevent corneal blindness.
Role: Co-PI

R01 EY016415 Co-I 4/01/2011- 12/31/2015 NIH/NEI
Stem Cells for Corneal Engineering
Long term goals of this project are to elucidate the biological properties of adult stem cells form the human corneal stroma and to examine their role in corneal maintenance and healing.

R21 EY024133-01 Co-I 12/1/2013-11/30/2015 NIH/NEI
A pluripotent stem cell reagent for corneal regeneration
This project will develop a stable line of corneal progenitor cells from embryonic stem cells.

OTERO Louis J, Fox Center for Vision Restoration, McGowan Institute for Regenerative Medicine.
Overall goals of OTERO grants are training of new vision scientists for translational research.
Wagner, Funderburgh, Du, Dhaliwal (Co-Mentors) 2/01/2010-1/31/2012
“Bioengineering of Corneal Stroma”
The goal of this project is to develop a custom-designed polymeric scaffolding to reconstruct bioengineered corneal stroma using corneal stromal stem cells.

Feinberg, Funderbugh, Du, Dhaliwal (Co-Mentors) 1/01/2011-12 /31/2012
“Engineering basement membranes for regeneration of the corneal endothelium”
The goal of this project was to develop a custom-designed basement membrane to regenerate a corneal endothelium for both clinic application and for reconstruction of bioengineered cornea.

PATENT

- Hin-Fai Yam; Vishal Jhanji; Jose Sahel; Martha Funderburgh; **Yiqin Du.** Stem cell-derived microRNAs to treat corneal inflammation and fibrosis. Provisional patent application submitted.

- **Yiqin Du**, Ajay Kumar. Stem Cell Secretome Promotes Scarless Corneal Wound Healing and Rescues Corneal Sensory Nerves. Provisional patent application submitted.
- **Yiqin Du,** Ajay Kumar. Making 3D human Retina in a dish using a single protein. Provisional patent application submitted.
- **Yiqin Du,** Ajay Kumar. Trabecular Meshwork Stem Cell Secretome and use thereof for Treatment of Glaucoma. Patent No. WO2021178977 (Granted on 9/10/2021)
- **Yiqin Du,** James L. Funderburgh, William R. Wagner, Jian Wu. Bioengineered Human Corneal Stromal Tissue. Patent No.: US 9597358. USA (Granted on 3/21/2017).
- **Yiqin Du,** James L. Funderburgh, Joel S. Schuman. Trabecular Meshwork Stem Cells. Patent No.: US10004766, USA (Granted on 6/26/2018).
- **Yiqin Du**, Joel S. Schuman. Use of Adipose-derived stem cells for glaucoma treatment. Submitted to the OTM office at Pitt in May 2015. Filed a Response to the Outstanding Office Action in March 2017. US Patent Application No. 62/302,483
- **Yiqin Du**, Lingsong Li. Superficial Cornea Equivalent Derived from Limbal Stem Cells and the Application on Cornea Transplantation. Publication No. CN1398644. P.R.China

SERVICE

Departmental and Institutional

Member, Departmental Grant Review Committee, UPitt, 2019-2023.
Director, Departmental ERG Facility, UPitt, 2019-2023.
Poster Judge, Annual Scientific Retreat at McGowan Institute for Regenerative Medicine, University of Pittsburgh, 2015-2023.
Advisor, Pitt Undergraduate Student Club: Panther Strides 2011-2021
UPMC Dean's Year-Off Fellowship Grants, 2013

National

2023, *Ad Hoc* Grant Reviewer for:
VA RR&D scientific merit review panel, August 2023
NIH ZEY1 VSN (03) NEI Pathway to Independence (K99) Grant Review, March 2023.
NIH PED1 Study Section, February 2023

2022, *Ad Hoc* Grant Reviewer for:
VA RR&D scientific merit review panel, August 2022
NIH F05-D Study Section: Cell Biology, Developmental Biology, and Bioengineering, July 2022
Fight for Sight grants, 2022

2021, *Ad Hoc* Grant Reviewer for:
VA RR&D scientific merit review panel, August 2021
DoD: Vision Research Program (VRP) on the Anterior Segment Injury panel, December 2021
Fight for Sight grants, 2021
Allen Distinguished Investigator Award: Mammalian Synthetic Development Research, 2021

2020, *Ad Hoc* Grant Reviewer for:
DoD VRP scientist review panel, February 2020
Fight for Sight grants, 2020

2019, *Ad Hoc* Grant Reviewer for:
The International Space Station U.S. National Laboratory-Center for the Advancement of Science in Space (ISS-CASIS), 2019
Fight for Sight grants, 2019

2018, *Ad Hoc* Grant Reviewer for:
NIH BCND-J Study Section, 2018
ISS-CASIS, 2018
Fight for Sight grants, 2018

UC Irvine Institute for Clinical and Translational Science (UCI ICTS) grant review panel, 2018

2017, *Ad Hoc* Grant Reviewer for:
NEI mentored training grants (K99s) review, 2017

2016, *Ad Hoc* Grant Reviewer for:
ISS-CASIS, 2016

2015, *Ad Hoc* Grant Reviewer for:
ISS-CASIS, 2015
Fight for Sight grants, 2015

2014, *Ad Hoc* Grant Reviewer for:
US Army Medical Research and Materiel Command (USAMRMC), 2014

2013, *Ad Hoc* Grant Reviewer for:
U.S. Army Clinical and Rehabilitative Medicine Research Program (CRMRP), 2013
Fight for Sight grants, 2013

2012, *Ad Hoc* Grant Reviewer for:
U.S. Army Clinical and Rehabilitative Medicine Research Program (CRMRP), 2012

International Grant Reviewer for
2023: French National Regency, May 2023
2022: French National Regency, April 2022
Moorfields Eye Charity, April 2022.
2018: United Kingdom Medical Research Council

Editorial Board Member of:
- JOVE guest editor
- Frontiers in Ophthalmology: Rising Star in Glaucoma special topic associate editor
- Frontiers in Cell and Developmental Biology
- Journal of Regenerative Medicine
-

Reviewer for:
- Acta Biomaterialia
- Acta Ophthalmologica Scandinavica
- Biomaterials
- Clinical Ophthalmology
- Cornea
- Current Eye Research
- Experimental Eye Research
- FASEB Journal
- IOVS: Investigative Ophthalmology and Visual Science
- Journal of Tissue Engineering
- Molecular Therapy-Methods & Clinical Development
- Molecular Vision
- Nanomedicine: NBM
- Neuroscience
- Ocular Surface
- Ophthalmology Science
- Ophthalmic Research
- Plos One
- PNAS
- Progress in Retinal and Eye Research

- Stem Cells
- Stem Cell Research
- Stem Cell Research & Therapy
- Stem Cells Translational Medicine
- Scientific Reports
- Tissue Engineering