

## BIOGRAPHICAL SKETCH

NAME Anand Swaroop	POSITION TITLE <b>Senior Investigator and Chief, Neurobiology- Neurodegeneration and Repair Laboratory</b>
INSTITUTION <b>National Eye Institute/National Institutes of Health</b>	DATE OF APPOINTMENT: 09-07-2007

### EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY AND Mentor Name(s)
G.B. Pant University, Pantnagar, India	M.Sc.	1975-77	Biochemistry
Indian Institute of Science, Bangalore, India	Ph.D.	1977-82	Biochemistry (Laboratory of Prof. T. Ramasarma)
Department of Molecular Biophysics & Biochemistry Yale University, New Haven, CT	Post-doc	1982-86	Laboratory of Prof. Alan Garen
Department of Human Genetics, Yale University School of Medicine, New Haven, CT	Assoc. Res Scientist	1986-87	Laboratory of Prof. Uta Francke.
Department of Human Genetics, Yale University School of Medicine	NRSA Post-doc	1987-88	Laboratory of Prof. Sherman M. Weissman
Department of Human Genetics, Yale University School of Medicine	Assoc. Res. Scientist	1988-89	Laboratory of Prof. Sherman M. Weissman

### Professional Appointments

1990-96	Assistant Professor, Department of Ophthalmology, University of Michigan, Ann Arbor, MI.
1990-98	Assistant Professor, Department of Human Genetics, University of Michigan, Ann Arbor, MI.
1991-2007	Faculty Member, Graduate Program in Cellular & Molecular Biology.
1996-2000	Associate Professor, Department of Ophthalmology & Visual Sciences.
1996-2007	Faculty Member, Neuroscience Graduate Program.
1998-2002	Associate Professor, Department of Human Genetics
2000-2007	Professor, Department of Ophthalmology and Visual Sciences
2000-2000	Scientist (on sabbatical for 6 months), Laboratory of Genetics, Salk Institute, La Jolla, CA
2001-2007	Coordinator/Director, Center for Retinal and Macular Degeneration, University of Michigan
2002-2007	Professor, Department of Human Genetics
2003-2007	Harold F. Falls Collegiate Professor of Ophthalmology & Visual Sciences
Sept 2007–	Senior Investigator and Chief, Neurobiology-Neurodegeneration and Repair Laboratory (N-NRL), National Eye Institute, National Institutes of Health, Bethesda, MD.
2014–2017	Clinical Professor (part-time), Institute of Biomedical Sciences, The George Washington University, Washington, D.C.
2015–2016	Distinguishing Medical Scientist (visiting) for Prof. P.N. Chhuttani Chair, Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh, India.
05/2017–	Adjunct Professor, Department of Bioengineering, College of Engineering, Temple University, Philadelphia, PA.

### CURRENT/PRIMARY RESEARCH FOCUS

Genetic and epigenetic control of retinal development and aging  
 Gene- and stem cell- based therapies of retinitis pigmentosa and Leber congenital amaurosis  
 Genetics, genomics and biology of retinal and macular degeneration  
 Mitochondria and proteostasis

## AWARDS/HONORS & MEMBERSHIPS

- The Foundation Fighting Blindness Board of Directors Award in recognition of outstanding research achievements, January 26, 2007.
- Distinguished Faculty Lectureship Award, 2007. The highest honor bestowed by the Univ of Michigan Medical School on a scientist/faculty member.
- Bireswar Chakrabarti Memorial Oration, awarded by Indian Eye Research Group at their 17<sup>th</sup> annual meeting in Madurai, India. July 26-27, 2008.
- Inducted in the inaugural class of ARVO Fellows, ARVO Silver Fellow, 2009. ARVO Gold Fellow, 2012.
- Director's Award, National Eye Institute, 2010.
- Alcon Research Institute Award, 2011.
- NIH Director's Ruth L. Kirschstein Award "For exemplary performance while demonstrating significant leadership, skill and ability in serving as a mentor," June 2013.
- Chair, Appointments and Promotions Committee at UM Ophthalmology & Visual Sciences, 2005–2007.
- Member, UM Medical School Advisory Committee for Appointments, Promotions and Tenure, 2006–2007.
- Reviewer for several journals, including Cell journals, PLoS journals, Nature journals, Science, AJHG, IOVS, HMG, JBC, PNAS, JCI, J. Neurosci, NEJM.
- Editorial Boards. *IOVS*, June 2002–Dec 2007. *Molecular Vision*, 1995– . *Cilia*, 2011 – . PLoS One, 2012-. Advisory Board Member, *EBioMedicine*, 2017– ; Guest Editor, Special Issue on Vision and Novel Therapeutics, *Clinical Genetics*, Wiley. August 2013. Guest Editor for manuscripts: *PNAS*, *PLoS Genetics*. Member, Editorial Advisory Board, *Progress in Retinal and Eye Research*, March 2018 – .
- Reviewer: The Foundation Fighting Blindness; The Wellcome Trust, U.K.; Comitato Promotore Telethon, Italy; The South Africa Retinitis Pigmentosa Foundation; The Medical Research Council of Canada; Canadian Foundation Fighting Blindness; ANR-BBSRC, UK; Juvenile Diabetes Research Foundation, National Science Foundation; Austrian Science Fund; ANR/ French National Research Agency, France. German Research Foundation (Deutsche Forschungsgemeinschaft), Germany; Action Medical Research for Children, U.K.; Medical Research Council, UK.; Swiss National Science Foundation, Bern, Switzerland; Israel Science Foundation, Jerusalem, Israel; Netherlands Organisation for Scientific Research (ZonMw), Netherlands; Neuroscience and Mental Health Board, Medical Research Council, Wiltshire, UK.
- Chair, Organizing Committee, NEI 40<sup>th</sup> Anniversary Symposia on “Genetics and Genomics in Vision”, April 16-17, 2009; “Neuroscience and Vision”, November 19-20, 2009; “Focus on Glaucoma”, February 18-19, 2010; “Translational Research and Vision”, June 24-25, 2010; Search Committee for Basic Science Tenure Track Investigator(s), NINDS. 2010; Review Committee for NiPSCC, NIH. 2010; Search Committee for NEI Clinical Tenure Track position, 2010-11. Scientific Advisory Board and Selection Committee of the Institut de la Vision, Paris, France. 2011. Genetics of Health and Disease study section, 2012. Reviewer for NIH Director's Challenge Awards, 2012. The Thiel Foundation, 2012. Federal Panel for NEI Audacious Goals Initiative, 2012-13. International Advisory Committee, Asia-ARVO in New Delhi, India, 2013. Genetics Advisory Committee, The Diabetic Retinopathy Clinical Research Network (DRCR.net). Scientific Advisory Board, GenSight Biologics, Paris, France. 2014. NEI-IRP Planning Committee 2014. Scientific Advisory Board, FFB Usher Syndrome therapy, 2014. Federal Evaluator, “Follow that Cell” Challenge. NIH Common Fund, NIH. 3D Retina Organoid Challenge, NEI/NIH.
- Member: American Association for the Advancement of Science, American Society of Human Genetics, Association for Research in Vision and Ophthalmology, Society for Neuroscience
- Distinguished Medical Scientist (visiting), Prof. P.N. Chhuttani Chair, Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh, India. 2015-2016.

## PATENTS AND INVENTIONS

- NPHP Nucleic Acids and Proteins. The USPTO patent number is 7,838,231.
- Photoreceptor Precursor Cells (Provisional Patent applications).
- Compositions and Methods for Diagnosing and Treating Macular Degeneration. The USPTO patent number is 8,119,348.
- RP2 and RPGR Vectors for Treating X-linked Retinitis Pigmentosa. US Patent Application number: 62/131,661 filed March 11, 2015. Filed by NIH/HHS.

## SELECTED RESEARCH PUBLICATIONS (SINCE 2006)

Total 328 publications; peer reviewed ~300; Scopus *h*-index: 66; Scopus citations 18,011 (as of 031918)

1. Akimoto M, Cheng H, Zhu D, Brzezinski JA, ..... Brooks M, Zarepari S, Mears AJ, Hero A, Glaser T, **Swaroop A**: Targeting of GFP to newborn rods by Nrl promoter and temporal expression profiling of flow-sorted photoreceptors. *Proc Natl Acad Sci USA* 103:3890-3895, 2006. [Cover]. PMID: 16505381
2. Li M, Atmaca-Sonmez P, Othman M, ..... Liang L, Zarepari S, **Swaroop A\***, Abecasis GR\*: CFH haplotypes without Y402H coding variant show strong association with susceptibility to age-related macular degeneration. *Nature Genet.* 38:1049-1054, 2006 (\*co-corresponding authors) PMID: 16936733
3. MacLaren RE, Pearson RA, MacNeil A, Douglas RH, Salt TE, Akimoto M, **Swaroop A\***, Sowden JC, Ali RR\*: Retinal repair by transplantation of photoreceptor precursors. *Nature* 444:203-207, 2006 (\*co-corresponding authors). [Cover] PMID: 17093405
4. Oh ECT, Khan N, Novelli E, Khanna H, Strettoi E, **Swaroop A**: Transformation of cone precursors to functional rod photoreceptors by bZIP transcription factor NRL. *Proc Natl Acad Sci USA* 104:1679-1684, 2007. [Cover] PMID: 17242361
5. **Swaroop A**, Chew EY, Bowes Rickman C, Abecasis GR: Unraveling a multifactorial late-onset disease: From genetic susceptibility to disease mechanisms for age-related macular degeneration. *Annu Rev Genomics Hum Genet.* 10:19-43, 2009. PMID: 19405847
6. Chen W, Stambolian D, Edwards AO, ..... Iyengar SK, Francis PJ, Katsanis N, Seddon JM, Haines JL, Gorin MB, Abecasis GR\*, **Swaroop A\***: Genetic variants near TIMP3 and high-density lipoprotein-associated loci influence susceptibility to age-related macular degeneration. *Proc Natl Acad Sci USA.* 107:7401-7406, 2010. (\*co-corresponding authors) PMID: 20385819
7. **Swaroop A**, Kim D, Forrest D: Transcriptional regulation of photoreceptor development and homeostasis in the mammalian retina. *Nature Reviews Neuroscience.* 11:563-576, 2010. PMID: 20648062
8. Beltran WA, Cideciyan AV, Lewin AS, Iwabe S, Khanna H, Sumaroka A, Chiodo VA, Fajardo DS, Roman AJ, Deng WT, Swider M, Aleman TS, Boye SL, Genini S, **Swaroop A**, Hauswirth WW, Jacobson SG, Aguirre GD: Gene therapy rescues photoreceptor blindness in dogs and paves the way for treating human X-linked retinitis pigmentosa. *Proc Natl Acad Sci USA.* 109:2132-2137, 2012. PMID: 22308428
9. Rachel RA, May-Simera HL, Veleri S, Gotoh N, ..... Marek J, Lopez I, Hackett A, Brooks M, den Hollander A, Beales PL, Li T, Jacobson SG, Sood R, Martens JR, Liu P, Friedman TB, Khanna H, Koenekoop RK, Kelley MW, **Swaroop A**: Combining *Cep290* and *Mkks* ciliopathy alleles in mice rescues sensory defects and restores ciliogenesis. *J Clin Invest.* 122:1233-1245, 2012. PMID: 22446187
10. Hao H, Kim DS, Klocke B, Johnson KR, Cui K, Gotoh N, Zang C, Gregorski J, Gieser L, Peng W, Fann Y, Seifert M, Zhao K, **Swaroop A**: Transcriptional regulation of rod photoreceptor homeostasis revealed by in vivo NRL targetome analysis. *PLoS Genet.* 8:e1002649, 2012. PMID: 22511886
11. Fritsche LG, Chen W, Schu M, ..., **Swaroop A**, Weber BHF, Kubo M, DeAngelis MM, Léveillard T, Thorsteinsdottir U, Haines JL, Farrer LA, Heid IM, Abecasis GR & The AMD Gene Consortium (**AS** is one of the 18 group leaders): Seven new loci associated with age-related macular degeneration. *Nat Genet.* 45:433-439, 2013. PMID: 23455636
15. Nasonkin IO, Merbs SL, Lazo K, Oliver VF, Brooks M, Patel K, Enke RA, Nellisery J, Jamrich M, Le YZ, Bharti K, Fariss RN, Rachel RA, Zack DJ, Rodriguez-Boulan EJ, **Swaroop A**: Conditional knockdown of DNA methyltransferase 1 (*Dnmt1*) reveals a key role of retinal pigment epithelium integrity in photoreceptor outer segment morphogenesis. *Development.* 140:1330-1341, 2013. PMID: 23406904
16. Zhan X, Larson DE, Wang C, ..... Stambolian D, Mardis ER\*, **Swaroop A\***, Abecasis GR\*: Identification of a rare coding variant in complement 3 associated with age-related macular degeneration. *Nat Genet.* 45:1375-1379, 2013. (\* co-corresponding authors). PMID: 24036949
17. Roger JE, Hiriyan A, Gotoh N, Hao H, Cheng DF, Ratnapriya R, Kautzmann MA, Chang B, **Swaroop A**: OTX2 loss causes rod differentiation defect in CRX-associated congenital blindness. *J Clin Invest.* 124:631-643, 2014. PMID: 24382353
18. Fritsche LG, Farris RN, Stambolian D, Abecasis GR, Curcio CA, **Swaroop A**: Age-Related Macular Degeneration: Genetics and Biology Coming Together. *Annu Rev Genomics Hum Genet.* 15:5.1-5.21, 2014. PMID: 24773320.
19. Veleri S, Manjunath SH, Fariss RN, May-Simera H, Brooks M, ..... Nagashima K, Rachel RA, Li T, Dong L, **Swaroop A**: Ciliopathy-associated gene *Cc2d2a* promotes assembly of subdistal appendages on the mother centriole during cilia biogenesis. *Nat Commun.* 5:4207, 2014. PMID: 24947469.

20. Ratnapriya R, Zhan X, Fariss RN, ....., Bhattacharya SS, Chew EY, Heckenlively JR, Abecasis GR, **Swaroop A**: Rare and common variants in extracellular matrix gene Fibrillin 2 (*FBN2*) are associated with macular degeneration. *Hum Mol Genet.* 2014 Jun 4. PMID: 24899048.
21. Kim SY, Yang HJ, Chang YS, Kim JW, Brooks M, Chew EY, Wong WT, Fariss RN, Rachel RA, Cogliati T, Qian H, **Swaroop A**: Deletion of aryl hydrocarbon receptor AHR in mice leads to subretinal accumulation of microglia and RPE atrophy. *Invest Ophthalmol Vis Sci.* 55:6031-6040, 2014. PMID: 25159211.
22. Veleri S, Lazar CH, Chang B, Sieving PA, Banin E, **Swaroop A**: Biology and therapy of inherited retinal degenerative disease: insights from mouse models. *Dis Model Mech.* 8:109-129, 2015. PMID: 25650393
23. Yang H-J, Ratnapriya R, Cogliati T, Kim JW, **Swaroop A**: Vision from next generation sequencing: Multi-dimensional genome-wide analysis for producing gene regulatory networks underlying retinal development, aging and disease. *Prog Retin Eye Res.* 46:1-30, 2015. PMID: 25668385.
24. Rachel RA, Yamamoto EA, Dewanjee M, ..... Munasinghe J, Gotoh N, Wickstead B, Fariss RN, Dong L, Li T, **Swaroop A**: *CEP290* alleles in mice disrupt tissue-specific cilia biogenesis and recapitulate features of syndromic ciliopathies. *Hum Mol. Genet.* 24:3775-3791, 2015. PMID: 25859007.
25. Wu Z\*, Hiriyanna S, Qian H, Mookherjee S, Campos M, Gao C, Fariss R, Sieving PA, Li T, Colosi P, **Swaroop A\***: A long-term efficacy study of gene replacement therapy for *RPGR*-associated retinal degeneration. *Hum Mol Genet.* 24:3956-3970, 2015. PMID: 25877300. [\* co-corresponding authors].
26. Kaewkhaw R, Kaya KD, Brooks M, Homma K, Zou J, Chaitankar V, Rao M, **Swaroop A**: Transcriptome dynamics of developing photoreceptors in 3-D retina cultures recapitulates temporal sequence of human cone and rod differentiation revealing cell surface markers and gene networks. *Stem Cells* 2015 Jul 31. doi: 10.1002/stem.2122. PMID: 26235913.
27. The 1000 Genomes Project Consortium (**AS** is a consortium author): A global reference for human genetic variation. *Nature* 526:68-74, 2015. PMID: 26432245.
28. Fritsche L, Igl W, Cooke Bailey JN, ..... Hewitt AW, **Swaroop A**, Chew EY, Pericak-Vance MA, DeAngelis M, Stambolian D, Haines JL, Iyengar SK, Weber BHF, Abecasis GR, Heid IM: Insights into rare genetic variation from a large study of age-related macular degeneration. *Nat Genet.* 48:134-143, 2016. [AS is one of the 18 group leaders for AMDGene Consortium] PMID: 26691988.
29. Mookherjee S, Hiriyanna S, ..... Qian H, Li T, Khanna H, Colosi P, **Swaroop A\***, Wu Z\*: Long term rescue of cone photoreceptor degeneration in retinitis pigmentosa 2 (*RP2*) knockout mice by gene replacement therapy. *Hum Mol Genet.* 24:6446-6458, 2015. [\*co-corresponding authors] PMID: 26358772.
30. Kooragayala K, Gotoh N, Cogliati T, Nellissey J, Kaden TR, French S, Balaban R, Li W, Covian R\*, **Swaroop A\***: Quantification of oxygen consumption in retina ex vivo demonstrates limited reserve capacity of photoreceptor mitochondria. *Invest Ophthalmol Vis Sci.* 56:8428-8436, 2015. PMID: 26747773.
31. Yadav SP, Sharma NK, Liu C, Dong L, Li T, **Swaroop A**: Centrosomal protein CP110 controls maturation of the mother centriole during cilia biogenesis. *Development.* 143:1491-1501, 2016. PMID: 26965371.
32. Kaewkhaw R, Swaroop M, ..... Rao M, Zheng W, Cogliati T, **Swaroop A**: Treatment paradigms for retinal and macular diseases using 3-D retina cultures derived from human reporter pluripotent stem cell lines. *Invest Ophthalmol Vis Sci.* 57:ORSF11, 2016. DOI:10.1167/iovs.15-17639. PMID: 27116668.
33. Kim J-W, Yang H-J, Oel AP, Brooks MJ, Jia L, Li W, Allison WT, **Swaroop A**: Recruitment of rod photoreceptors from short-wavelength-sensitive cones during the evolution of nocturnal vision in mammals. *Dev Cell* 37, 520-532, 2016. PMID: 27326930
34. Chaitankar V, Karakulah G, Brooks MJ, Giuste FO, Ratnapriya R, **Swaroop A**: Next generation sequencing technology and genomewide data analysis: Perspectives for retinal research. *Prog Retin Eye Res.* 2016 Jun 10. PMID: 27297499
35. McCarthy S, et al.: A reference panel of 64,976 haplotypes for genotype imputation. *Nat Genet.* Published online August 22, 2016. doi:10.1038/ng.3643. PMID: 27548312
36. Das S, Forer L, Schonherr S, .... Iacono WG, **Swaroop A**, Scott LJ, Cucca F, Kronenberg F, Boehnke M, Abecasis GR, Fuchsberger C: Next-generation genotype imputation service and methods. *Nat Genet.* Published online 29 August 2016. doi:10.1038/ng.3656. PMID: 27571263
37. Namburi P, Ratnapriya R, ...Gross M, **Swaroop A\***, Banin E\*, Sharon D\*: Bi-allelic truncating mutations in *CEP78*, encoding centrosomal protein 78, cause cone-rod degeneration with sensoryneural hearing loss. *Am J Hum Genet.* 99:777-784, 2016. PMID: 27588452 [\*Equal contribution]
38. Chen Y, Palczewska G, Masuho I, Gao S, Jin H, Dong Z, Gieser L, Brooks MJ, Kiser PD, Kern TS, Martemyanov KA, **Swaroop A**, Palczewski K: Synergistic agonists and antagonists of G-protein-coupled receptors prevent photoreceptor cell degeneration. *Sci Signal.* 9:ra74, 2016. PMID: 27460988

39. McCarthy S, et al.: A reference panel of 64,976 haplotypes for genotype imputation. *Nat Genet.* 2016. doi:10.1038/ng.3643. PMID: 27548312
40. Chen HY, Kaya KD, Dong L, **Swaroop A**: Three-dimensional retinal organoids from mouse pluripotent stem cells mimic *in vivo* development with enhanced stratification and rod photoreceptor differentiation. *Mol Vis.* 22:1077-1094, 2016. PMID: 27667917
41. Kim J-W, Yang H-J, Brooks MJ, .....Chaitankar V, Cogliati T, **Swaroop A**: NRL-regulated transcriptome dynamics of developing rod photoreceptors. *Cell Reports* 17:2460-2473, 2016. PMID: 27880916 [Cover]
42. Yu W, Mookherjee S, Chaitankar V, ..... Li T, **Swaroop A**, Wu Z: Nrl-knockdown by AAV-delivered CRISPR/Cas9 rescues retinal degeneration. *Nat Commun.* 8:14716, 2017. PMID: 28291770
43. Veleri S, Nellisery J, ... Bin ZB, Fariss RN, Ratnapriya R, Jacobson SG, **Swaroop A**: REEP6 mediates trafficking of a subset of Clathrin-coated vesicles and is critical for rod photoreceptor function and survival. *Hum Mol Genet.* 26:2218-2230, 2017. PMID: 28369466
44. Pierrache LHM, Kimchi A, Ratnapriya R, Roberts L, Astuti GDN, Obolensky A, Beryozkin A, Tjon-Fo-Sang MJH, Klaver CCW, Bongers EMHF, Haer-Wigman L, Schalij N, Breuning MH, Fischer GM, Banin E\*, Ramesar RS\*, **Swaroop A\***, van den Born LI\*, Sharon D\*, Cremers FPM\*: Whole-exome sequencing identifies biallelic IDH3A variants as a cause of retinitis pigmentosa accompanied by pseudo-coloboma. *Ophthalmology* 124:992-1003, 2017. PMID: 28412069 [\* Co-corresponding authors]
45. Campla CK, Breit H, Dong L, Gumerson JD, Roger JE\*, **Swaroop A\***: Pias3 is necessary for dorso-ventral patterning and visual response of retinal cones but is not required for rod photoreceptor differentiation. *Biol Open*, 6:881-890, 2017. PMID: 28495965 [\* Co-corresponding authors]
46. Zelinger L, Karakulah G, Chaitankar V, Kim JW, Yang HJ, Brooks M, **Swaroop A**: Regulation of non-coding transcriptome in developing photoreceptors by rod differentiation factor NRL. *Invest Ophthalmol Vis Sci.* 58:4422-4435, 2017. PMID: 28863214
47. Freekje van A, Simmons M, Singhal A, Keenan TD, Ratnapriya R, Agron E, Clemons TE, **Swaroop A**, Lu Z, Chew EY, Age-Related Eye Disease Study 2 Research Group: A Deep Phenotype Association Study reveals specific phenotype associations with genetic variants involved in age-related macular degeneration: Age-Related Eye Disease Study 2 (AREDS2) Report No. 14. *Ophthalmology*, 2017 Oct 30. doi: 10.1016/j.ophtha.2017.09.023. PMID: 29096998
48. Pietraszkiewicz A, van Asten F, Kwong A, Ratnapriya R, Abecasis G, **Swaroop A**, Chew E: Association of Rare Predicted Loss-of-Function Variants in Cellular Pathways with Sub-Phenotypes in Age-Related Macular Degeneration. *Ophthalmology* 2017 Dec 7. doi: 10.1016/j.ophtha.2017.10.027. PMID: 29224928
49. Hoshino A, Ratnapriya R, Brooks MJ, Chaitankar V, Wilken MS, Zhang C, Starostik M, Gieser L, Torre AL, Nishio M, Bates O, Walton A, Birmingham-McDonogh O, Glass I, Wong ROL, **Swaroop A\***, and Reh TA\*: Molecular anatomy of the developing human retina. *Dev Cell* 43:763-779, 2017. PMID: 29233477 [\*co-corresponding authors]
50. DiStefano T, Chen HY, Panebianco C, Kaya KD, Brooks MJ, Gieser L, Morgan NY, Pohida T, **Swaroop A**: Accelerated and improved differentiation of retinal organoids from mouse pluripotent stem cells in rotating wall bioreactors. *Stem Cell Rep.* 10:300-313, 2018. PMID: 29233554 [On the Cover]
51. Yan Q, Ding Y, Liu Y, Sun T, Fritsche LG, Clemons T, Ratnapriya R, Klein ML, Cook RJ, Liu Y, Fan R, Wei L, Abecasis GR, **Swaroop A**, Chew EY, AREDS2 research group, Weeks DE, Chen W: Genome-wide analysis of disease progression in age-related macular degeneration. *Hum Mol Genet.* 27:929-940, 2018. PMID: 29346644
52. Zelinger L, **Swaroop A**: RNA biology in retinal development and disease. *Trends Genet.* 2018 Jan 30. doi: 10.1016/j.tig.2018.01.002. PMID: 29395379 [On the Cover]
53. Corso-Diaz X, Jaeger C, Chaitankar V, **Swaroop A**: Epigenetic control of gene regulation during development and disease: A view from the retina. *Prog Retin Eye Res.* 2018 Mar 12. doi: 10.1016/j.preteyeres.2018.03.002. PMID: 29544768