

Curriculum Vitae

Rachel M. Huckfeldt, M.D., Ph.D.

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Education

- 2001 B.A. in Biology and Psychology
Washington University, St. Louis, MO
Summa Cum Laude
- 2009 M.D., Ph.D. (Neuroscience)
Washington University, St. Louis, MO
Advisor: Rachel Wong, Ph.D.

Postdoctoral Training

- 2009-2010 Internship/Transitional Year
Newton-Wellesley Hospital, Newton, MA
- 2010-2013 Residency in Ophthalmology
Massachusetts Eye and Ear, Boston, MA
- 2013-2014 Research fellowship in the laboratory of Jean Bennett M.D., Ph.D.
University of Pennsylvania, Philadelphia, PA
- 2014-2015 Clinical fellowship in Medical Retina
University of Iowa, Iowa City, IA
- 2015-2016 Clinical fellowship in Inherited Retinal Degenerations
Massachusetts Eye and Ear, Boston, MA

Professional and Clinical Activities

Licensure and Certification

- 2015- Massachusetts Medical License
2015- Board certification by the American Board of Ophthalmology

Professional Experience

- 2013-2014 Clinical Associate in Ophthalmology, Scheie Eye Institute, Philadelphia, PA
2015- Instructor in Ophthalmology, Massachusetts Eye and Ear/Department of
Ophthalmology, Harvard Medical School

Administrative Positions

- 2018- Director, Inherited Retinal Disorders Fellowship, Massachusetts Eye and Ear

Professional Organizations

- American Academy of Ophthalmology

Association for Research and Vision in Ophthalmology
New England Ophthalmological Society

Editorial Activities: Ad hoc Reviewer

American Journal of Ophthalmology
Digital Journal of Ophthalmology
Genetics in Medicine
Journal of the American Association for Pediatric Ophthalmology and Strabismus
Investigative Ophthalmology and Visual Science
Molecular Therapy
PLOS One
Retina
Translational Vision Science and Technology

Local Teaching

2015 Clinical preceptor in Mass Eye and Ear Emergency Department
2016- Periodic lectures on inherited retinal dystrophies to Mass Eye and Ear residents
2016- Emergency Department chart rounds with residents
2016- Clinical teaching and supervision of residents and fellows on the Mass Eye and Ear
Inherited Retinal Disorders Service
2017- Faculty moderator for Mass Eye and Ear Macula Conference (1-2 times per year)

Invited Teaching and Presentations

2016 Gene therapy for inherited retinal disorders
The Eye and the Chip: 9th Biennial World Congress on the Relationship Between
Neurobiology and Nano-Electronics Focusing on Artificial Vision
Detroit, MI
2017- Retinal physiology and inherited retinal disorders
Lancaster Course in Ophthalmology
Colby College, Waterville, ME
2018 Clinical trials of gene therapies
Medical Population Genetics group, Broad Institute, Cambridge, MA
2018 Lecture on Diabetic Retinopathy to MGH Endocrinology Fellows

Awards and Honorary Societies

1997-2001 Lien Scholar, Washington University in St. Louis
2001 Phi Beta Kappa
2001 Stern Award for best undergraduate research in Psychology, Washington University
2009 Alpha Omega Alpha
2010 Hospitalist Award for Excellence on the Medicine Service, Newton-Wellesley
Hospital
2011 Travel Award, Association for Research in Vision and Ophthalmology/National
Eye Institute
2013 Heed Resident Retreat Attendee
2013 Society of Heed Fellows

Research Activities

Past Grant Support

- 2006-2008 Role of horizontal cells in retinal circuit assembly
NIH/NINDS F31 NS053054-01A1
PI (mentored training grant)
- 2015-2016 Multimodal phenotypic characterization and genotypic correlation in retinitis pigmentosa
Foundation Fighting Blindness Clinical/Research Fellowship Award
PI (mentored training grant)

Current Grant Support

- 2018 Mechanisms and novel therapies for cystoid macular edema associated with retinitis pigmentosa
Foundation Fighting Blindness Career Development Award
PI

Clinical Trials

- 2015- Safety and dose escalation study of AAV2-hCHM in subjects with CHM gene mutations
Spark Therapeutics, NCT02341807
Site PI (2016 onward)
- 2015- Safety and tolerability of hRPC in retinitis pigmentosa
ReNeuron, NCT02464436
Investigator (Site PI: Dr. Eric Pierce)
- 2015- Safety and efficacy of rAAV-hRS1 in patients with X-linked retinoschisis
Applied Genetic Technologies Corp, NCT02416622
Investigator (Site PI: Dr. Jason Comander)
- 2016- Safety and efficacy trial of AAV gene therapy in patients with CNGA3 achromatopsia
Applied Genetic Technologies Corp, NCT02935517
Site PI
- 2017- Rate of progression in USH2A-related retinal degeneration
Foundation Fighting Blindness-Clinical Research Institute, NCT03146078
Site PI
- 2017- Natural history study of patients with X-linked retinitis pigmentosa (XLRP) associated with mutations in retinitis pigmentosa GTPase regulator (RPGR)
MeiraGTx UK II Ltd, NCT03349242
Site PI
- 2017- Natural history study of CEP290-related retinal degeneration
Editas Medicine, Inc., NCT03396042
Investigator (Site PI: Dr. Eric Pierce)

Scholarship

Peer-Reviewed Research

1. Herzog ED, **Huckfeldt RM**. Circadian entrainment to temperature, but not light, in the isolated suprachiasmatic nucleus. *J Neurophysiol*. 2003;90(2):763-770.
2. Blankenship MR, **Huckfeldt R**, Steinmetz JJ, Steinmetz JE. The effects of amygdala lesions on hippocampal activity and classical eyeblink conditioning in rats. *Brain Res*. 2005;1035(2):120-30.
3. **Huckfeldt RM**, Schubert T, Morgan JL, Godinho L, Di Cristo G, Huang ZJ, Wong RO. Transient neurites of retinal horizontal cells exhibit columnar tiling via homotypic interactions. *Nat Neurosci*. 2009;12(1):35-43.
4. Schubert T*, **Huckfeldt RM***, Parker E, Campbell JE, Wong RO. Assembly of the outer retina in the absence of GABA synthesis in horizontal cells. *Neural Dev*. 2010;5:15.*Co-first authorship.
5. Cronin T, Vandenbergh LH, Hantz P, Juttner J, Reimann A, Kacsó AE, **Huckfeldt RM**, Buskamp V, Kohler H, Lagali PS, Roska B, Bennett J. Efficient transduction and optogenetic stimulation of retinal bipolar cells by a synthetic adeno-associated virus capsid and promoter. *EMBO Mol Med*. 2014;6(9):1175-1190.
6. Ramachandran PS, Lee V, Wei Z, Song HY, Casal G, Cronin T, Willett K, **Huckfeldt R**, Morgan JIW, Aleman TS, Maguire AM, Bennett J. Evaluation of dose and safety of AAV7m8 and AAV8b in the non-human primate retina. *Human Gene Therapy*. 2017;28(2):154-167.

Other Peer-Reviewed Publications

1. **Huckfeldt RM**, Shah AS. Sterile subperiosteal fluid collections accompanying orbital wall infarction in sickle-cell disease. *JAAPOS* 2014;18(5):485-7.
2. **Huckfeldt RM**, East JS, Stone EM, Sohn EH. Phenotypic variation in a family with pseudo-dominant Stargardt disease. *JAMA Oph*. 2016;134(5):580-583
3. Roybal CN, Kucukevcilioglu M, **Huckfeldt R**, Elshatory Y, Thurtell MJ, Folk JC. Treatment of retinopathy and macular edema secondary to a carotid-cavernous fistula. *Retin Cases Brief Rep*. 2016;10(3):225-228.
4. Gupta P, **Huckfeldt RM**. "Gene therapy for inherited retinal degenerations: Initial successes and future challenges. *J Neural Eng*. 2017;14(5):051002.

Reviews, Chapters, and Commentaries

1. Morgan J, **Huckfeldt R**, Wong RO. Imaging techniques in retinal research. *Exp Eye Res*. 2005;80(3):297-306.
2. **Huckfeldt RM**, Vavvas DG. Neuroprotection for retinal detachment. *Int Ophthalmol Clin*. Fall 2013;53(4):105-117.
3. **Huckfeldt RM**, Bennett J. Promising first steps in gene therapy for choroideremia. *Hum Gene Ther*. 2014;25(2):96-97.
4. **Huckfeldt RM**, Remenschneider AK, chapter eds. Ophthalmology and ENT. In: Chong C & Kiefer M (Eds.) *Pocket Primary Care: A Massachusetts General Hospital handbook*. Philadelphia: Lippincott Williams & Wilkins, 2014. Chapters currently under revision for 2nd edition to be published in 2018.
5. **Huckfeldt RM**, Comander J. Management of cystoid macular edema in retinitis pigmentosa. *Seminars in Ophthalmology* 2017;32(1):43-51.

Professional educational materials or reports, in print or other media:

1. Reddy S, Huckfeldt RM. Masquerades of age-related macular degeneration. 2018 American Academy of Ophthalmology Focal Points series.

Thesis

Huckfeldt, Rachel M. Developmental mechanisms regulating the spatial organization of retinal horizontal cells. Ph.D. diss., Washington University in St. Louis, 2009.

Recent Abstracts and Presentations

1. Huckfeldt RM, Stone, EM. Case presentation at Ophthalmic Genetics Study Club Annual Meeting, Chicago, IL, October 2014.
2. **Huckfeldt RM**, Murphy CM, Place E, Comander JC. Case presentation at Ophthalmic Genetics Study Club Annual Meeting, New Orleans, LA, November 2017.
3. **Huckfeldt RM**. Case presentation at Atlantic Coast Retina Club Annual Meeting, Philadelphia, PA, January 2018.
4. **Huckfeldt RM**, Murphy C, Hafler B, Vavvas D, Young L, Pierce EA, Place E. Phenotypic variability in patients with *RP1* mutations. Poster presentation at Association for Research in Vision and Ophthalmology 2018 Annual Meeting.