BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Henry J. Klassen, M.D., Ph.D.	Principal Investigator

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of California-Berkeley, CA	B.A.	1979	Neurobiology
University of California-Santa Cruz	M.S.	1983	Psychology
University of Pittsburgh	Ph.D.	1989	Neurobiology, Anatomy & Cell Science
University of Pittsburgh	M.D.	1991	Medicine

A. Positions and Honors

Positions and Employment

1991-1992	Internship, Cambridge Hospital, Cambridge, MA
1992-1995	Residency in Ophthalmology, Yale University
1994	Visiting Ophthalmologist, Prince Margaret Hospital, Nassau, Bahamas.
1995-1997	Fellowship, Medical Retina and Retinal Research, Moorfields Eye Hospital and Institute of Ophthalmology, London, United Kingdom.
1998-2006	Director, Stem Cell Research, Children's Hospital of Orange County
2006	Senior Clinician-Scientist, Singapore Eye Research Institute, Singapore
2006-present	Assistant Professor and Director of Stem Cell & Retinal Regeneration Program, Dept. of Ophthalmology, University of California, Irvine

Honors

1979 B.A. degree with Distinction in General Scholarship
1987 Pittsburgh Neuroscience Society Annual Award for Excellence in Basic Science Research
1989 Citation for Excellence in Research, University of Pittsburgh School of Medicine
1989 Outstanding Presentation of the 1989 Eastern Student Research Forum
1989 Certificate of Recognition for excellence in Medical Student Research, AMA
1994 Yale Alumni in Ophthalmology Resident Research Prize

B. Peer-reviewed publications (chronological order)

1. Bridgeman, B. and **Klassen, H.**: (1983). On the origin of stroboscopic induced motion. Percep. Psychophys. 34:149-154.
2. **Klassen, H.** and Lund, R: (1987) Retinal transplants can drive a pupillary reflex in host rat brains. Proc. Natl. Acad. Sci. USA 84:6958-6960.
3. **Klassen, H.** and Lund, R: (1988) Anatomical and behavioral correlates of a xenograft-mediated papillary reflex. Exp. Neurol. 102:102-108.
4. **Klassen, H.** and Lund R: (1990) Retinal graft-mediated pupillary responses in rats: restoration of a reflex function in the mature mammalian brain. J. Neurosci. 10:578-587.
5. **Klassen, H.** and Lund R: (1990) Parameters of retinal graft-mediated responses are related to underlying targt innervation. Brain Res. 533:181-191.
6. Huncharek, M., **Klassen, H.** and Klassen, M: (1994) Splenic artery aneurysm and upper gastrointestinal bleeding in a nulliparous woman—a case history. Angiology 45:733-735.

7. Filatov, V., Tom, D., Alexandrakis, G., Skolik, S., **Klassen, H.** and Liggett, P.: (1995) Branch retinal artery occlusion associated with directional coronary atherectomy after percutaneous transluminal coronary angioplasty. Am. J. Ophthalmol. 120:391-393.
8. **Klassen, H.**, Klassen, M. and Huncharek, M: (1995) Group B streptococcal meningitis presenting as stroke in a nondebilitated man. Yale J. of Biol. and Med. 68:1-6.
9. Suave, Y., **Klassen, H.**, Whiteley, S. and Lund, R: (1998) Visual field loss in RCS rats and the effect of RPE cell transplantation. Exp. Neurol. 152(2):243-250.
10. Schnell, L., Fearn, S., **Klassen, H.**, Schwab, M. and Perry, V.H.: (1999) Acute inflammatory responses to mechanical lesions in the CNS: differences between brain and spinal cord. Eur. J. Neurosci. 11:3648-3658.
11. Suave, Y., **Klassen, H.**, Whiteley, S. and Lund, R: (1999) Age-dependent visual field loss in RCS rats and the relative benefits of subretinal over intravitreal RPE transplantation. Dig. J. Ophthalmol. 5(1).
12. Young, M., Ray, J., Whiteley, S., **Klassen, H.** and Gage, F: (2000) Neuronal differentiation and morphological integration of hippocampal progenitor cells transplanted to the retina of immature and mature dystrophic rats. Mol. Cell. Neurosci. 16(3):1997-2005.
13. Shatos, M., Mizumoto, K., Mizumoto, H., Kurimoto, Y., **Klassen, H.** and Young, M: (2001) Multipotent stem cells from the brain and retina of green mice. E-biomed: The Journal of Regenerative Medicine 2:13-15.
14. Mizumoto, H., Mizumoto, K., Whiteley, S., Shatos, S., **Klassen, H.** and Young, M: (2001) Transplantation of human neural progenitor cells to the vitreous cavity of the Royal College of the Surgeons rat. Cell Transplant 10:223-233.
15. **Klassen, H.,** Whiteley, S., Young, M. and Lund, R: (2001) Graft location affects functional rescue following RPE cell transplantation in the RCS rat. Exp. Neurol. 169:114-121.
16. **Klassen, H.**, Schwartz, M., Bailey, A., Young, M. (2001) Surface markers expressed by multipotent human and mouse neural progenitor cells include tetraspanins and non-protein epitopes. *Neurosci. Lett.* 312: 180-182.
17. Whiteley, S., **Klassen, H**., Coffey, P., Young, M. (2001) Photoreceptor rescue after low dose intravitreal interleukin-1β injection in the RCS rat. *Exp. Eye Res.* 73: 557-568.
18. Huncharek, M., **Klassen, H**., Kupelnick, B. (2001) Dietary beta-carotene intake and the risk of epithelial ovarian cancer: a meta-analysis of 3,782 subjects from five observational studies. *In Vivo* 15: 339-343.
19. Huncharek, M., Kupelnick, B., **Klassen, H.** (2001) Paternal smoking during pregnancy and the risk of childhood brain tumors: Results of a meta-analysis. *In Vivo* 15: 535-542.
20. Huncharek, M., Kupelnick, B., **Klassen, H.** (2002) Maternal smoking during pregnancy and the risk of childhood brain tumors. *J. Neurooncol.* 57(1): 51-57.
21. **Klassen, H**., Imfeld, K., Ray, J., Young, Gage, F., M., Berman, M. (2003) The immunological properties of adult hippocampal progenitor cells. *Vision Res.* 43(8): 947-956.
22. Mizumoto, H., Mizumoto, K., Shatos, M., **Klassen, H**., Young, M. (2003) Retinal transplantation of neural progenitor cells derived from the brain of GFP transgenic mice. *Vision Res.* 43(16): 1699-1708.
23. **Klassen, H.**, Imfeld, K., Kirov, I., Gage, F., Young, M., Berman, M. (2003) Expression of cytokines by multipotent human neural progenitor cells. *Cytokine*. 22(3-4): 101-106.
24. Hori, J., Ng, T.-F., Shatos, M., **Klassen, H**., Streilein, J. W., Young, M. (2003) Neural stem cells lack immunogenicity and resist destruction as allografts. *Stem Cells.* 21(4): 405-416.
25. Schwartz, P., Bryant, P., Fuja, T., Su, H., O'Dowd, D., **Klassen, H.** (2003) Isolation and characterization of neural progenitor cells from post-mortem human cortex. *J. Neurosci. Res.* 74: 838-851.
26. **Klassen, H.**, Sakaguchi, D., Young, M. (2004) Stem cells and retinal repair. *Prog. Retinal Eye Res.* 23:149-181.
27. **Klassen, H.**, Ziaeian, B., Kirov, I., Young, M., Schwartz, P. (2004) Isolation of retinal progenitor cells from postmortem human tissue with comparison to autol. brain progenitors. *J. Neurosci. Res.* 77(3):334-343.
28. **Klassen, H.**, Shatos, M., Ng, T.-F., Kurimoto, Y., Kirov, I., Coffey, P., Young, M. (2004) Multipotent progenitor cells from the retina express developmental markers, differentiate into neurons, and preserve visually mediated behavior. *Invest. Ophthalmol. Vis. Sci.* 45:4167-4173.

29. Lavik, E., **Klassen, H.**, Warfvinge, K., Langer, R., Young, M. (2005) Fabrication of degradable polymer scaffolds to direct the integration and differentiation of retinal progenitors. *Biomaterials* 26:3187-3196.
30. Zahir, T., **Klassen, H.**, Young, M. (2005) Effects of ciliary neurotrophic factor on differentiation of late retinal progenitor cells. *Stem Cells* 23: 424-432.
31. Warfvinge, K., Kiilgaard, J., Lavik, E., Scherfig, E., Langer, R., **Klassen, H.**, Young, M. (2005) Retinal progenitor cell xenografts to the pig retina: morphological integration and cytochemical differentiation. *Arch. Ophthalmol.* 123:1385-1393.
32. Schwartz, P, Nethercott, H., Kirov, I., Ziaeian, B., Young, M., **Klassen, H.** (2005) Expression of neurodevelopmental markers by cultured porcine neural precursor cells. *Stem Cells* 23:1286-1294.
33. Tomita, M., Lavik, E., **Klassen, H.**, Zahir, T., Langer, R., and Young, M. (2005) Biodegradable polymer composite grafts promote the survival and differentiation of retinal progenitor cells. *Stem Cells* 23:1579-1588.
34. **Klassen, H.** (2006) Transplantation of cultured progenitor cells to the mammalian retina. *Expert Opin. Biol. Ther.* 6:443-451.
35. Warfvinge, K., Kiilgaard, J., **Klassen, H.**, Zamiri, P., Scherfig, E., Streilein, J.W., Prause, J., Young, M. (2006) Retinal progenitor cell xenografts to the pig retina: immunological reactions. *Cell Transplant.* 15(7):603-612.
36. Yang, J., **Klassen, H.**, Pries, M., Wang, W., Nissen, M. (2006) Aqueous humor enhances the proliferation of rat retinal precursor cells in culture and this effect is partially reproduced by ascorbic acid. *Stem Cells* 24:2766-2775.
37. Zahir, T., Tomita, M., **Klassen, H.**, Young, M. (2006) Sorbitol promotes differentiation of late retinal progenitor cells into Müller glia in vitro. *Molec. Vis.* 12:1606-1614.
38. **Klassen, H.**, Schwartz, P, Nethercott, H., Ziaeian, B., Young, M., Narfstrom, K. Neural precursors isolated from the developing cat brain show retinal integration following transplantation to the retina of the dystrophic cat. *Vet. Ophthalmol.* In press.
39. **Klassen, H.** (2007) Recruitment of endogenous neural progenitor cells by malignant neoplasms of the central nervous system. *Curr. Stem Cell Res. & Ther.* 2: In press.
40. **Klassen, H.,** Kiilgaard, J., Zahir, T., Ziaeian, B., Kirov, I., Scherfig, E., Warfvinge, K., Young, M. (2007) Progenitor cells from the porcine neural retina express photoreceptor markers after transplantation to the subretinal space of allorecipients. *Stem Cells* 25:1222-1230.
41. Zhang, Y., **Klassen, H.**, Tucker, B., Perez, M-T, Young, M. (2007) CNS progenitor cells promote a permissive environment for neurite outgrowth via an MMP-dependent mechanism. *J. Neurosci.* 27:4499-4506.
42. Tao, S., Young, C., Redenti, S., Zhang, Y., **Klassen, H.**, Desai, T., Young, M. (2007) Survival, migration and differentiation of retinal progenitor cells transplanted on micro-machined poly(methyl methacrylate) scaffolds to the subretinal space. *Lab Chip* 7:695-701.
43. **Klassen, H.**, Schwartz, P, Nethercott, H., Ziaeian, B., Young, M., Narfstrom, K. (2007) Neural precursors isolated from the developing cat brain show retinal integration following transplantation to the retina of the dystrophic cat. *Vet. Ophthalmol.* 10: 245-253.
44. Jiang, C., Moore, M., Zhang, X., **Klassen, H.**, Langer, R., Young, M. (2007) Intravitreal injections of GDNF-loaded biodegradable microspheres are neuroprotective in a rat model of glaucoma. *Molec. Vis.* 13:1783-1792.
45. Neeley, W., Redenti, S., **Klassen, H.**, Young, M., Langer, R. (2008) A microfabricated poly(glycerol-sebacate) scaffold for retinal progenitor cell grafting. *Biomaterials* 29: 418-426.
46. Tucker, B., **Klassen, H.**, Yang, L., Chen, DF, Young, M. (2008) Elevated MMP expression in the MRL mouse retina creates a permissive environment for retinal regeneration. *Invest. Ophthalmol. Vis. Sci.* 49:1686-1695.
47. Redenti, S., Tao, S., Yang , J., Gu, P., **Klassen, H.**, Saigal, S., Desai, T., Young, M. (2008) Retinal tissue engineering using mouse retinal progenitor cells and a novel biodegradable, thin-film poly(e-caprolactone) nanowire scaffold. *J. Oc. Biol. Dis. Informat.* In press.

48. **Klassen, H.**, Warfvinge, K., Schwartz, P, Kiilgaard, J., Shamie. N., Jiang, C., Samuel, M., Scherfig, E., Prather, R., Young, M. Isolation of multiple progenitor cell types from GFP-transgenic pigs and transplantation to the retina of allorecipients. In press.

Research Support

Stem Cell Research Foundation, Isolation of stem cells from the human neural retina, 2002-2003, renewed 2003-2004.

NIH/NINDS, Characterization of transgenic neural stem cells, R21 NS44060-01, 2002-2004

NIH/NINDS, Administrative supplement 3 R21 NS44060-01S1 for study of human embryonic stem cells, one time award

NIH/NINDS, Human embryonic stem cell culture training course, T15 HL074286-01, (Co-PI)

Hoag Foundation, Development of a therapy for degeneration of the central retina, 2004-2005

NIST Advanced Technology Program, Novel technologies for adult stem cell therapeutics, Proposal Number 2004-00-6034, 2005-2008 (Collaborator)

Foundation Fighting Blindness, Multipotent progenitor cells: isolation and transplantation to the retina, 2006.

Biomedical Research Council (A*Star BMRC Grant, Singapore), Isolation of multipotent progenitor cells from the retina of the GFP-transgenic pig and transplantation to the pig retina in conjunction with biodegradable polymer scaffolds, 2006.

Lincy Foundation/Discovery Eye Foundation. Development of composite grafts for treatment of age-related retinal degeneration, 2007-2010.