

**BIOGRAPHICAL SKETCH**

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Susan L. Semple-Rowland		POSITION TITLE Professor	
eRA COMMONS USER NAME Semple-Rowland			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Gustavus Adolphus College, St. Peter, MN	BA	1977	Biology/Psychology
University of Pittsburgh, Pittsburgh, PA	MSc	1979	Psychobiology
University of Florida, Gainesville, FL	PhD	1986	Neuroscience
University of Florida, Gainesville, FL	Post-Doc	1986-1989	Ophthalmology

**A. Positions and Honors****Professional positions and employment**

1979-1981 Teaching Fellow, University of Pittsburgh, Pittsburgh, PA  
 1990-1995 Assistant Research Scientist, Department of Neuroscience, University of Florida College of Medicine, Gainesville, FL  
 1995-1997 Associate Research Professor, Department of Neuroscience, University of Florida College of Medicine, Gainesville, FL  
 1998-2006 Associate Professor, Department of Neuroscience, University of Florida College of Medicine, Gainesville, FL  
 2006 – present Professor, Department of Neuroscience, University of Florida College of Medicine, Gainesville, FL  
 2000 – present Director, UF McKnight Brain Institute BSL-3 facility, University of Florida College of Medicine, Gainesville, FL  
 2003 – present Director IDP Neuroscience Graduate Program, University of Florida College of Medicine, Gainesville, FL

**Selected experience and activities** (federal committees underlined)

1998 NIH/NEI VISB Study section/Special Emphasis panel  
 1998-2000 Biochemistry/Molecular Biology Programming Committee for ARVO  
 2000 NIH/NEI VISB Study section/Special Emphasis panel  
 2001 NEI Board of Scientific Counselors, review Laboratory of Retinal Cell and Molecular Biology, NIH (Dec. 3-4)  
 2001 Ad hoc member of NINDS Training grant and Career Development Study section  
 2001 Reviewer for NSF Division of Sensory Biology and for the Division of Behavioral Neuroscience and NSF Behavioral Neuroscience  
 2001 – present Executive Editor for Experimental Eye Research  
 2002 NSF Sensory Systems and Computational Neuroscience Advisory Panel  
 2003-2006 Fight-for-Sight Grant Review Board  
 2004 NEI special emphasis review panel  
 2004 – present Editorial Board Member – Molecular Vision

**Selected honors**

1997 Invited speaker for FASEB Summer Conference - Biology and Chemistry of Vision  
 1998 Lecture for Distinguished Scientist Seminar Series, University of Southern Alabama.  
 2000 Alcon Foundation Lecture in Ophthalmology a - Emory University School of Medicine.  
 2000 Invited seminar at Vision Quest 2000 11<sup>th</sup> World Congress, July 14-16, Toronto Canada

- 2000 Invited seminars at IX Retinal Degeneration Meeting, Durango, CO and at the XIV International Congress of Eye Research, Santa Fe, NM.
- 2001 Invited speaker Glaucoma Foundation 8<sup>th</sup> Annual Think Tank meeting on Gene Therapy
- 2003 University of Florida College of Medicine Exemplary Teacher Award
- 2005 UF College of Medicine Award for Outstanding Doctoral Dissertation Mentor Award
- 2006 Distinguished Alumni Citation in the field of Neuroscience –Gustavus Adolphus College, St. Peter, MN
- 2006 University of Florida College of Medicine Exemplary Teacher Award
- 2006 Invited Speaker – June 9, 2006, National Eye Institute, NIH, Bethesda, MD
- 2006 Invited Speaker – Sept 25, 2006, Vision Research Center, University of Pennsylvania, Philadelphia, PA

## B. Selected Peer-Reviewed Publications (since 1996)

- Semple-Rowland, S.L.**, Mahatme, A., Rowland, N.E. (1996). Effects of dexfenfluramine or 5,7-dihydroxytryptamine on tryptophan hydroxylase and serotonin transporter mRNA in rat dorsal raphe. Brain Res Molec. Brain Res. 41, 121-127.
- Semple-Rowland, S.L.**, Gorczyca, W.A., Buczylo, J., Helekar, B.S., Ruiz, C.C., Subbaraya, I., Palczewski, K. and Baehr, W. (1996). Expression of GCAP1 and GCAP2 in the *retinal degeneration (rd)* mutant chicken retina. FEBS Lett., 385, 47-52.
- Semple-Rowland, S.L.**, Lee, N.R., van Hooser, J.P., Palczewski, K. and Baehr, W. (1998). The photoreceptor guanylate cyclase (GC1) gene is null in the *retinal degeneration (rd)* chicken. Proc. Natl. Acad. Sci. USA, 95, 1271-1276.
- Streit, W.J., **Semple-Rowland, S.L.**, Hurley, S.D., Miller, R.C., Popovich, P.G., and Stokes, B.T. (1998). Comparative analysis of cytokine mRNA expression patterns in spinal cord injury and after axotomy supports a pro-regenerative role for inflammation and gliosis. Exp. Neurol. 152, 74-87.
- Huang, Y., Cideciyan, A.V., Papastergiou, G.I., Banin, E., **Semple-Rowland, S.L.**, Milam, A.H., and Jabcobson, S.G. (1998). Relation of optical coherence tomography retinal images to retinal microanatomy in normal and rd chickens. Invest. Ophthalmol. Vis. Sci. 39, 2405-2416.
- Larkin, P., Baehr, W., and **Semple-Rowland, S.L.** (1999). Circadian regulation of iodopsin and *Clock* is altered in the *retinal degeneration (rd)* chicken retina. Brain Res. Mol. Brain Res., 70, 253-263.
- Semple-Rowland, S.L.**, Larkin, P., Bronson, J.D., Nykamp, K., Streit, W.J. and Baehr, W. (1999). Characterization of the chicken GCAP gene array and analyses of the expression of the GCAPs and GC1 in pineal gland. Mol. Vision, 5, 14 <<http://www.molvis.org/molvis/v5/p14>>
- Semple-Rowland, S.L.** and Cheng, K.M. (1999). *rd* and *rc* chickens carry the same GC1 null mutation (GUCY1\*). Exp. Eye Res. 69, 579-581.
- Streit, W.J., Hurley, S.D., McGraw, T.S., and **Semple-Rowland, S.L.** (2000). Comparative evaluation of cytokine profiles and reactive gliosis supports a critical role for interleukin-6 in neuron-glia signaling during regeneration. J. Neurosci. Res. 61, 10-20.
- Semple-Rowland, S.L.** and Lee, N.R. (2000). Avian models of inherited retinal disease. Meth. Enzymol. 316, 526-536.
- Larkin, P. and **Semple-Rowland, S.L.** (2001). A null mutation in guanylate cyclase –1 alters the temporal dynamics and light entrainment properties of the iodopsin rhythm in cone photoreceptor cells. Brain Res. Mol. Brain Res 92, 49-57.
- Semple-Rowland SL**, Tepedino M, and Coleman JE (2001). Pinopsin mRNA levels are significantly elevated in the pineal glands of chickens carrying a null mutation in guanylate cyclase – 1. Brain Res. Mol. Brain Res 97, 51-58.
- Coleman JE, Fuchs GE, and **Semple-Rowland** (2002) Analyses of the guanylate cyclase activating protein –1 (GCAP1) gene promoter in developing chicken retina. Invest. Ophthalmol. Vis Sci. 43, 1335-1343.
- Coleman JE, Huentelman MJ, Kasparov S, Metcalfe BL, Paton JF, Katovich MJ, **Semple-Rowland SL**, Raizada MK (2003) Efficient large-scale production and concentration of HIV-1-based lentiviral vectors for use in vivo. Physiol. Genomics, 12, 221-228.
- Zhang Y, Coleman JE, Fuchs GE, and **Semple-Rowland SL**. (2003) Circadian oscillator function in embryonic retina and retinal explant cultures. Brain Res. Mol. Brain Res., 114, 9-19.

- Coleman JE, Zhang Y, Brown GAJ, **Semple-Rowland SL** (2004) Cone cell survival and downregulation of GCAP1 protein in the retinas of GC1 knockout mice. Invest. Ophthalmol. Vis Sci. 45, 3397-3403.
- Coleman JE, Wu K, Fulle, H-J, **Semple-Rowland SL**. (2004). The 5' flanking sequence of the human retGC1 gene acquires a photoreceptor cell restricted activity pattern over the course of retinal development. Mol Vis 10:720-727.
- Coleman JE and **Semple-Rowland SL** (2005). GC1 deletion prevents light-dependent arrestin translocation in mouse cone photoreceptor cells. Invest Ophthalmol Vis Sci. 46, 12-16.
- Zhang Y, **Semple-Rowland SL** (2005). Rhythmic expression of clock-controlled genes in retinal photoreceptors is sensitive to 18-beta-glycyrrhetic acid and 18-alpha-glycyrrhetic acid-3-hemisuccinate. Brain Res. Mol. Brain Res., 135, 30-39.
- Williams ML, Coleman JE, Haire SE, Aleman TS, Cideciyan AV, Sokal I, Palczewski K, Jacobson SG, and **Semple-Rowland SL** (2006) Lentiviral expression of retinal guanylate cyclase-1 (RetGC1) in retina restores vision in an avian model of childhood blindness. PLoS Med 3(6): e201 (<http://medicine.plosjournals.org/perlserv?request=get-document&doi=10.1371/journal.pmed.0030201>)
- Haire SE, Pang J, Boye SL, Sokal I, Craft CM, Palczewski K, Hauswirth WW, **Semple-Rowland SL** (2006) Light-driven cone arrestin translocation in cones of postnatal guanylate cyclase-1 knockout mouse retina treated with AAV-GC1. Invest Ophthalmol Vis Sci 47:3745-3753.

## C. Research Support.

### Ongoing Research Support

#### **Title: "Rescue of GUCY1\*B Phenotype Using Somatic Gene Therapy"**

Principal Investigator: Susan L. Semple-Rowland, Ph.D.

Agency: NIH/NEI

Type RO1 (EY11388, Years 7-12) Period: 4/01/03 – 3/31/07

The goals of this project, which represent an extension of the work conducted from years 04-06 are (1) to rescue the retinal degeneration phenotype in GUCY1\*B chickens using lentivirus to deliver a GC1 transgene to retinal progenitor cells and (2) to determine the temporal relationship between disease progression in GUCY1\*B retina and the ability of GC1 gene therapy to restore photoreceptor function.

**Overlap: none**

#### **Title: "Estrogen and cognition over the lifespan"**

Principal Investigator: Thomas C. Foster, Ph.D.

Role on Project: Co-investigator

Agency: NIH/NIA

Type RO1 (MH59891, Years 6-10) Period: 12/04 – 12/09

The long-term goal is to understand mechanisms of estrogen action on the hippocampus, which influence memory over the life span. The experiments outlined in this proposal will determine which hippocampal genes are linked to ER $\alpha$  activity. It is hypothesized that ER $\alpha$ -linked genes are associated with functional brain aging including transcription of age-related genes we have previously characterized. Second, we will test the hypothesis that ER $\alpha$ -linked genes maintain memory function. Finally, we will test the hypothesis that ER $\alpha$ -linked genes regulate the responsiveness of rapid E<sub>2</sub> effects. Dr. Semple-Rowland will be designing, constructing and preparing lentiviral vectors that will be used to replace the mER $\alpha$  receptor in targeted brain areas. She will also assist with analyses of injected neural tissues.

**Overlap: none**

### Completed Research Support (past three years)