

CURRICULUM VITAE

Anna Martí-Subirana

EDUCATION

Master of Arts (MA) English Literature, American Modern and Contemporary Poetry. Arizona State University, Tempe, AZ, November 2007.

My thesis explored the dialogic models of intellectual exchange between Alice Fulton poetics and modern science. Quantum theories allow Fulton to examine the debate self/many, or subject/object under the perspective of a non-discrete, non-linear, and fluid universal framework, whereas chaos theory provides the paradigms for Fulton's self-defined *fractal poetics*. Complexity theory invests Fulton's poetry of a cogent macrocosmic preoccupation that crystallizes into what she defines as *poetry of the inconvenient knowledge*. Such a poetics examines an array of emotions and behavioral patterns under the perspective of *emergence*, a paradigm that enables Fulton to develop a consciousness-raising poetry opposed to poetry only concerned with the self.

Doctor of Philosophy (PhD) Neurobiology, Molecular Biology, and Developmental Biology, Universitat Autònoma Barcelona, December 1993.

My dissertation focused on the identification and description of the structural development of intercellular junctions that occur between neurons and glial cells as the central nervous system (CNS) of the freshwater crayfish *Procambarus* develops from postnatal stages into adulthood. A structural and functional characterization of the CNS neural and glial populations was also performed in order to correlate neural and glial function to the occurrence of specific intercellular junctions. Desmosomes, hemidesmosomes, tight junctions, and gap junctions were identified and correlated with neural developmental migratory processes, which entail the neural-glial exchange of protein products responsible for the correct final location of neurons.

Master of Science (MS) Cell Biology, Molecular Biology, and Genetics, Universitat Autònoma Barcelona, November 1984.

My thesis focused on the identification and description of ectopic neural populations located in the *fascia dentata* of the rat hippocampus. The mammalian hippocampus is a structure involved in memory processes and, as all of the other anatomical nervous structures, exhibits a highly structured array of neuronal populations organized in discrete layers. Outlayer (or ectopic) neuronal populations have been recently interpreted as clusters of neurons that leave their layer in response to environmental stimuli — a process that has been referred to as neuronal plasticity.

TEACHING EXPERIENCE

Residencial Faculty. August 2001 – current. Biology Department, Phoenix College. **Courses taught:** BIO 181 (General Biology for Majors I), BIO 182 (General Biology for Majors II), BIO 247 (Applied Biosciences: Biotechnology).

Adjunt Faculty. August 1997- May 2001. Math and Sciences Department, Chandler-Gilbert Community College. **Courses taught:** BIO 100 ((Biology Concepts), BIO 181, BIO 182.

Visiting Assistant Profesor. January 1993 – December 1993. Universitat Autònoma Barcelona. **Courses taught:** Cell Biology and Histology (lower division course with emphasis on tissue and cell structure and function), Developmental Biology Lab (upper division lab course with emphasis on cellular and molecular aspects of developmental processes).

Teaching Assistant. September 1986 – December 1992. Universitat Autònoma de Barcelona. **Courses taught:** Cell Biology and Histology, Developmental Biology Lab, Cell Biology and Histology Lab.

CURRICULUM DEVELOPMENT EXPERIENCE

Biology 181 Hybrid, Biology for Majors I. Phoenix College, Spring/Summer 2006. This course combines classroom and on-line instruction.

Biology 249, Applied Biosciences: Biotechnology Internship. Phoenix College, Summer 2005. Course designed for pursuing internships at biological and biomedical research institutions.

Biology 247, Applied Biosciences: Biotechnology. Phoenix College, Spring 2005. This course combines theoretical concepts in Cellular and Molecular Biology with state-of-the-art laboratory protocols currently used in biosciences.

Biology 182, Biology for Majors II Seamless Lecture/Lab. Chandler-

Gilbert Community College, Summer 2000. Developed course materials for a seamless lecture/lab BIO 182 course.

Biology 105, Environmental Biology Seamless Lecture/Lab. Chandler-Gilbert Community College, Summer 2000. Developed course materials for a seamless lecture/lab BIO 105 course.

Seamless Lecture/Lab in the Science Classroom. Chandler-Gilbert Community College, Spring 2000. Developer course materials for seamless lecture/lab BIO 100 and BIO 181 courses.

PROFESSIONAL DEVELOPMENT

Hughes/ACEPT (Arizona Collaborative for Excellence in the Preparation of Teachers) Program Teaching Strategies Workshop. Arizona State University, June 5- 25, 1999. Tempe, AZ.

Cooperative Learning- Foundations. Chandler-Gilbert Community College. January- March, 1999. Chandler, AZ.

RESEARCH TRAINING

Master Thesis (MS) and Doctoral Dissertation. My training was in Cell Biology, Molecular Biology and Genetics, with an emphasis on Neurobiology and Developmental Biology. My work was focused on the study of neuronal plasticity in the rat hippocampus (Master Thesis), and on the characterization of intercellular communications that establish between glial cells and neuron during the development of the crayfish nervous system (Doctoral Dissertation).

Techniques: Light Microscopy and Electron Microscopy (Transmission, and Scanning Electron Microscopy) and all of the related procedures, including antibody staining. Genetic Screens and related procedures. Classical Anatomical Techniques in Developmental Biology and related procedures.

Postdoctoral Research Training. My work as a research fellow was focused on elucidating the role of the segment polarity gene *gooseberry*, and of the transcription factor Drifter in the development of the *Drosophila* nervous

system. I also initiated the molecular characterization of the *Drosophila* gene *quiver*, a gene involved in neuro-muscular coordination. **Techniques:** Cell Culture, Genetic Transformation and Genetic Engineering (microinjection of DNA, cloning and subcloning, PCR amplification, DNA isolation, electrophoresis and sequencing). Molecular Characterization (Southern blotting, Western blotting, protein electrophoresis and purification). Genetic Screening and Phenotype Analysis. Confocal Microscopy and all of the related techniques and procedures, such as antibody staining, antibody production and purification.

Research Scientist. My collaboration with Sudhir Kumar (Center for Evolutionary Functional Genomics, The Biodesign Institute at Arizona State University) focused on the design of a database of *Drosophila* gene expression patterns during early development. **Techniques:** Database design and management.

RESEARCH EXPERIENCE

Research Scientist. Center for Evolutionary Genomics, The Biodesign Institute, Arizona State University. Summer 2002, Summer 2003.

Postdoctoral Fellow. Dept. of Physiology and Biophysics, The University of Iowa College of Medicine. October 1996- June 1997.

Postdoctoral Fellow. Biochemistry, Molecular Biology and Cellular Biology Department, Northwestern University. January 1994- September 1996.

GRANTS and AWARDS

Instructional Awards

Sabbatical Leave. Academic Year 2007-08

Phoenix College Capital Request Funding Award. "Student Response System for Furnishing Biology Classrooms and Laboratories," Spring 2007.

Phoenix College Teaching and Learning Grant “Developing a BIO 181, Biology for Majors I, Hybrid Course, Second and Final Stage,” Summer 2006.

Phoenix College Teaching and Learning Grant “Learning Community for Pre- Professionals” (co-awarded), Spring 2006.

Phoenix College Teaching and Learning Grant “Developing a BIO 181, Biology for Majors I, Hybrid Course, First Stage,” Spring 2006.

Proposition 301 Funding Award “Introducing DNA Diagnostic Techniques and Immunological Based Laboratory Assays in Bioscience Laboratory Curricula,” Fall 2005.

Phoenix College Technology and Instruction Grant “Developing an Image Database for Manipulating and Analyzing Optical and Electron Micrographs in Biology Classrooms and Laboratories,” Spring 2003.

Phoenix College Technology and Instruction Grant “Exploration in Biotechnology Using Biological Databases,” Summer 2002.

Maricopa Center for Learning and Instruction (MCLI) Grant “Exploration in Biotechnology Using Biological Databases in Biology Majors Courses,” Summer 2002.

Maricopa Center for Learning and Instruction (MCLI) Grant “Biotechnology in the Classroom,” Fall 2000 - Spring 2001.

Research Awards

National Institutes of Health (NIH) Research Grant “Computational Analysis of Gene Expression Pattern Images (Principal Investigator: Sudhir Kumar) 2002-2005.

National Institutes of Health (NIH) Postdoctoral Fellowship, 1997-1999.

Cardiovascular Interdisciplinary Research Postdoctoral Fellowship from Institutional National Research Service Award (NRSA), 1997-1998.

FPI Postdoctoral Fellowship, 1994-1995.

PROFESSIONAL SERVICE

Phoenix College Staffing Committee Chair. 2006-2007

Maricopa Community Colleges District Biology Instructional Council,
Phoenix College Representative. 2004-2005.

Phoenix College Staffing Committee Member. 2003-2007

Phoenix College Curriculum Committee Member. 2002-2004

PROFESSIONAL SOCIETIES

The American Society for Cell Biology

The Genetics Society of America

European Neuroscience Association

PUBLICATIONS

1. **Cuadras, J. and Martí-Subirana, A.** 1984. Systems for neuron-glia communication and exchange in *Procambarus*. *Trabajos del Instituto Cajal LXXV-Fasc. 1-4*, 85-90.
2. **Cuadras, J. and Martí-Subirana, A.** 1985. Glial cells in abdominal ganglia of crayfish. *Acta Zoologica (Stockh.)* **66**, 217-228.
3. **Martí-Subirana, A., Soriano, E. and García-Verdugo, J. M.** 1986. Morphological aspects of the ectopic granule-like cellular populations in the albino rat hippocampal formation: a Golgi study. *Journal of Anatomy* **144**, 31-

47.

4. **Cuadras, J. and Martí-Subirana, A.** 1987. Elements other than neurons or glia of nervous abdominal ganglia of crayfish (Decapoda, Astacidea). *Crustaceana* **52**, 187-193.
5. **Cuadras, J. and Martí-Subirana, A.** 1987. Glial cells of the crayfish and their relationships with neurons. An ultrastructural study. *Journal of Physiology* **82**, 196-217.
6. **Cuadras, J. and Martí-Subirana, A.** 1992. Granule containing cells in the crayfish third abdominal ganglion. *Comparative Biochemistry and Physiology* **101A (3)**, 453-457.
7. **Cuadras, J. and Martí-Subirana, A.** 1992. Relationships between cell size and nuclear morphology in crayfish neurons. *Tissue and Cell* **24**, 191-202.
8. **Martí-Subirana, A. and Cuadras, J.** 1996. Neurons in the third abdominal ganglion of the early postnatal crayfish: a quantitative and ultrastructural study. *Tissue and Cell* **29**, 11-19.
9. **Kumar, S., Jayaraman, K., Panchanathan, S., Gurunathan, R., Martí-Subirana, A. & Newfeld, S. J.** 2002. BEST: A novel computational approach for comparing gene expression patterns from early stages of *Drosophila melanogaster* development. *Genetics* **162**, 2037- 2047.