

## **Mary Jo Koroly, Ph.D.**

Research Associate Professor

Department of Biochemistry and Molecular Biology, College of Medicine  
Director, Center for Precollegiate Education and Training, Academic Affairs  
PO Box 112010, University of Florida, Gainesville, FL 32611

### **Education/Training**

- 1964            B.A. in Biology, Rosemont College, Rosemont, PA  
1969            Ph.D. in Biology/Biochemistry, Bryn Mawr College, Bryn Mawr, PA  
1970            Postdoctoral Fellow in Medical Biochemistry, University of Minnesota, Minneapolis, MN

### **Professional Experience**

- 1970 – 1973    Research Associate, Bryn Mawr College  
1971 – 1973    Lecturer, Rosemont College  
1974 – 1977    Assistant Professor, Department of Biology, Bryn Mawr College  
1977 – 1979    Assistant Professor, Departments of Anatomy and Surgery, Harvard Medical School  
1980 – 1984    Visiting Assistant Professor, Biochemistry/Molecular Biology, College of Medicine, UF  
1985 – 1994    Assistant Scientist, Biochemistry & Molecular Biology, College of Medicine, UF  
1989 – 1994    Director, Biotechnology Education and Training Program, Interdisciplinary Center for Biotechnology Research, UF  
1994 – 2000    CEO, Florida Foundation for Future Scientists (State Science and Engineering Fair)  
1994 --        Director, Center for Precollegiate Education and Training, Academic Affairs, UF  
1994 – 1996    Associate Scientist, Biochemistry/Molecular Biology, College of Medicine, UF  
1996 --        Research Associate Professor, Biochemistry/Molecular Biology, College of Medicine, UF  
1993 --        Exemplary Teacher, annual

### **Activities Related to this Proposal**

- 1989 – 1994    Founding Scientific Director, Education and Training Program of the State-funded Interdisciplinary Center for Biotechnology Research, with a mission to design and implement a series of multi-level laboratory-based workshops to teach introductory and advanced concepts, research methodologies, and applications of biotechnology to biomedical research scientists, clinical faculty, professional students, college and high school teachers and administrators, and media, law, and other non-science professionals (about 2000 participants attended these 1-5 week intensive laboratory workshops through 1994, and the program continues to be highly successful).
- 1993 -        Course Director, Biochemistry and Molecular Biology of Health and Disease, for first-year medical students (135 students, 6 credit course). I serve(d) on College of Medicine and Department of Biochemistry and Molecular Biology Curriculum Committees, and College of Medicine Committees for Academic Status, Student Advocacy, Curriculum Evaluation, and Course Directors. I served two terms as President, Women Faculty Association, and two years as Chair, Basic Science Course Directors.
- 1994 -        Director, Center for Precollegiate Education and Training (UF CPET), the University of Florida umbrella for precollege programs in Science, Technology, Engineering and Math for inservice teachers (grades 5-14) and motivated students (grades 6-12), as described in the proposal. UF CPET's mission is to provide infrastructure and expertise to initiate and support University-school partnership programs linking current research and precollege science learning and teaching.
- 1996-        Advisory Committees/Councils for (a) Biotechnology Laboratory Program, Santa Fe, Central Florida and Florida Community Colleges (in Gainesville, Ocala and Jacksonville), 2000 to present; (b) Florida Alliance (partner with UF College of Education and low performing schools

throughout FL), 2003-present; Northeast FL Area Center for Educational Enhancement, a 21 district rural consortium, one of 6 FDOE-designated regions in FL, 1996-2003; and Higher Education Consortium of NE Florida, representing community colleges, colleges and universities, 1996-2003.  
2006 - BioFlorida Education and Outreach Committee  
2006- Florida Association of Science Teachers (FAST) Host Chair for annual meeting at UF

### **Selected Publications/Presentations:**

- Raub, T.J., M.J. Koroly and R.M. Roberts, (1990) *Endocytosis of Wheat Germ Agglutinin Binding Sites from the Cell Surface into a Tubular Endosomal Network*, J. Cell. Physiol., 143: 1-12.
- Raub, T.J., M.J. Koroly and R.M. Roberts, (1990) *Rapid Endocytosis and Recycling of Wheat Germ Agglutinin Binding Sites on CHO Cells: Evidence for Two Compartments in a Nondegradative Pathway*, J. Cell Physiol., 144: 52-61.
- Farmerie, W.G., N. Denslow, D.M. Amador and M.J. Koroly, (1995) *Gene Diagnostic Laboratory for Medical Students*, Innovations in Medical Education. American Association Medical Colleges, 6.
- Koroly, M.J., N.D.Denslow, W.G.Farmerie and S.S.Ingram, (1996) *Teacher Training in Biotechnology*, American Chemical Society Conference on Chemical Education, 56.
- Koroly, M.J. and S.S.Ingram, (1998) *Science Teacher/Research Faculty Partnership: NSF Teacher Research Update Experience at University of Florida*. The FASEB Journal, American Society for Biochemistry and Molecular Biology, A1337.
- Teacher Research Update Experience (TRUE) Share-a-Thon: *TRUE Science Content*, (1999) National Science Teachers Association Convention, 255.
- Teacher Research Update Experience (TRUE) Share-a-Thon: *TRUE Scientists in the Classroom*, (2000) National Science Teachers Association Convention, 169.
- Koroly, M.J., S.M. Roberts, J.R. Bokor, and C.D. Lawrence, (2001) *Environmental Health Partnership: Linking Teachers and Superfund Researchers for Outreach to Schools and Communities*, NIEHS/EPA Superfund Basic Research Program Annual Symposium, Poster Abstracts, 20.
- Koroly, M.J. and S.M.Roberts, (2001) *Environmental Health Partnership: A Model Program for Integrating Human and Environmental Toxicology into Classrooms and Communities*, NIEHS/EPA Superfund Basic Research Program Annual Symposium, Speaker Abstracts, 9.
- Demirel, H.A., K.L.Hamilton, R.A.Shanely, N.Tumer, M.J.Koroly, S.K.Powers, (2003) *Age and Attenuation of Exercise-Induced Myocardial HSP72 Accumulation*, American J Physiology, 285, H1609-H1615.
- Lawrence, C.D., V.J.Hatfield, J.Bokor, M.J.Koroly, (2003) *Environmental Health Partnership at University of Florida*, Florida Association of Science Teachers (FAST), presentation
- Koroly, M.J., C.D.Lawrence, V.J.Hatfield, S.Shepard, J. Bokor, (2004) *The Superfund Summer Environmental Experience and Its Classroom Applications*, National Science Teachers Association (NSTA)Convention, presentation
- Koroly, M.J., (2004) *Biochemistry and Molecular Biology: Course Structure, Function and Integration in an Evolving Competency-based Curriculum*, The FASEB Journal, 18, C311.
- Tennant, M.R. and Koroly, M.J., (2005) *A Library-based Bioinformatics program for first-year Medical Students*, 9<sup>th</sup> International Congress on Medical Librarianship, invited presentation, Brazil
- Barnes, M, E.M.Hodge, R.Smith, M. Parker, M.J.Koroly, (2006) *The Teacher Research Update Experience at the University of Florida: Perceptions of Practicing Science, Mathematics and Technology Teachers*, Journal of Science Teacher Education, in press.

### **Professional Memberships**

American Association for Advancement of Science, American Society for Biochemistry and Molecular Biology, National Science Teacher Association, Florida Association of Science Teachers, and others.

## Current Courses Taught

BMS 6204: Biochemistry and Molecular Biology of Health and Disease required for medical students – direct and teach in this 6-credit, multi-modality (basic science lectures, gene diagnostic lab, Bioinformatics, small group seminars and Frontiers in Molecular Medicine lectures) with a biochemistry prerequisite.

GMS 7002: Biomedical Science Education Practicum: for biomedical graduate students who have completed a Fundamentals in Education course and are selected to instruct IDH 2931 (see below).

IDH 2931: Interdisciplinary Honors Seminar in Scientific Inquiry: for ~90 talented high school research students in summer residence at UF and interning in faculty laboratories (CPET's Student Science Training Program (SSTP)); each student participates in one of eight 15-hour seminar courses (3 college honors credits may be earned). Each course is led by selected grad student pairs who choose a topic, develop and implement the curriculum, and evaluate the students. I developed and direct this course, and select from a large pool of science student applicants. The biomedical topics in 2006 were *Infectious & Parasitic Diseases, Take Heart: Intro to Cardiovascular Physiology, Neuroimmunology*.

IDH 3931: Interdisciplinary Junior Honors: up to 3 college credits may be earned for mentored research in labs by students whose high schools have articulation agreements.

## Research Support

- Assisting faculty across campus with infrastructure for Broader Impact Statements for NSF awards.

- Howard Hughes Medical Institute, 9/06 – 9/10

**Science for Life: Enhancing Undergraduate and Precollegiate Students' Experiences in the Life Sciences.** A University-wide collaboration to provide enhancement experiences in the life sciences for undergraduates (freshmen and sophomores) and for twelve precollege teachers from Florida Alliance Schools (six failing urban minority schools).

Role: Co-PI, Co-Director of Precollege and Teacher Outreach; Total Award: \$1,500,000.

- National Science Foundation (969663814), 2/20/06 – 2/19/09

**EEC- Partnerships for Innovation: Florida Partnership for Industrial Biotechnology Career Development and Training.** Collaboration in Industrial Biotechnology Education between University of Florida, three local school districts, two community colleges, and multiple industry and education partners for instructor professional development and school/ college curriculum development and implementation in an authentic laboratory site. Outcomes of this proposal include new magnet programs and courses in biotechnology for high school and community college students to prepare them for newly emerging pharmaceutical manufacturing jobs in this region.

Role: Project Director (key personnel; R. Snyder, PI); 10% time; Total Award: \$599,997

- National Science Foundation (GK-12) (DGE 023 1856), 1/01/03 – 12/31/05

**Science Partners in Inquiry-based Collaborative Education (SPICE).** SPICE partners graduate students with teachers of middle school children from underserved populations in an innovative and highly collaborative school-based program to improve the interest and ability of children through inquiry, hands-on learning, of teachers through new skills and resources, and of graduate students through new opportunities for communication and outreach.

Role: Co-PI (D. Levey, PI); Total Award: \$1,445,499

- National Science Foundation, GK-12 (DGE-0538407), 8/06 – 8/11

**Science Partners in Inquiry-based Collaborative Education II (SPICE II)**

SPICE increases number and disciplines of graduate students in middle school classroom; reorients grad student/teacher partners, and moves towards institutionalization, with CPET assuming increasing programmatic and administrative responsibilities.

Role: Co-PI (D. Levey, PI); Total Award: \$1,993,025

- Florida Department of Education, Title II Math and Science Partnership Grant, 7/05 - 6/06

**Learning Community Partnerships.** CPET offered two one-week laboratory workshops for Alachua County Middle School Teachers: *Basic Biotechnology* and *Environmental Explorations*. This program is designed to update teacher knowledge, improve student achievement in STEM subjects and to promote STEM teaching as a career choice.

Role: Co-PI (Alachua County School Board, PI); Total Award: \$1.1 million

- National Institutes of Environmental Health Sciences, 4/01/00 - 3/31/04

**Superfund Program Project, Outreach Core: Environmental Health Partnership**

This week-long residential program links project scientists, graduate students and lead teachers from schools near Florida Superfund sites for campus workshops, teacher action plans and follow-up presentations of classroom outcomes.

Role: Co-PI (M. James and S. Roberts, Project PIs); Total Award for Core: \$200,000

- Woodrow Wilson Foundation, 1/02 -

**Teachers as Scholars at University of Florida**

UF is a site for the WWF national Teachers as Scholars, a program that provides a series of exciting, academic seminars (of at least 15 contact hours) on a variety of topics for local teachers. It links K-12 teachers with faculty members in different colleges to offer enrichment and University access.

Role: PI ; Total Award: \$25,000

- US Army, Navy, Air Force, annual, 1959 - present

**Junior Science, Engineering and Humanities Symposium of Florida**

Annual three-day State Symposium brings about 400 teachers and students onto campus for research competitions and presentations, laboratory visits, and academic and career exploration. It involves about 150 faculty. The current proposal utilizes this well-respected Symposium as one platform for teacher presentations of classroom outcomes and evaluation of the project.

Role: PI; Total Award: \$19,925/year

- Medical Guild, University of Florida, annual, 2000 - present

**Mini Medical School for Teachers**

Mini Med School is an opportunity for middle and high school teachers to experience some of the many facets of the UF College of Medicine through interactive visits to clinical and research laboratories, attending lectures, engaging in thought-provoking discussions, sharing ideas with peers, and gaining an appreciation for the breadth of knowledge and discovery at UF. This program occurs annually, and hosts about 95 teachers. Theme for 2006 is *Emerging Pathogens*

Role: PI; Total Award: ~\$5000/year

- FI DOE Challenge Grant, 8/05-6/06

**Gifted Student Programs, grades 6-12**

This grant was led by the Gilchrist County School Board for children in the gifted programs at the county schools to visit UF for CPET "SETS" programs.

Role: Key Personnel (Lisa Roland, PI)

- National Science Foundation (ESI 9554180), 4/96 - 3/01

**Teacher Research Update Experience**

175 National teachers spent seven weeks at UF doing research as the main component of an integrated, extensive program with very positive outcomes for UF, teachers, schools and communities.

Role: PI; Total Award: \$954,632