

## UFGI Annual Report 2007-2008

### 1. Mission and Areas of Focus

The primary goal of the University of Florida Genetics Institute (UFGI) is to harness the diverse academic talents and resources of the genetic research community at UF to improve the health and well-being of our citizenry. As such this mission is integral to the mission of the State University System as a whole. The Genetics Institute offers a cohesive and unified systems biology program for the entire campus, devoted to excellence in teaching and research that will foster inter-disciplinary interactions and collaborations.

The Genetics Institute's members have primary appointments in the College of Medicine and throughout the Health Science Center, the Institute of Food and Agricultural Sciences, the College of Veterinary Medicine, the College of Liberal Arts and Sciences, the College of Engineering and beyond, ranging even to the College of Law. This year's membership in the UFGI numbered 200 faculty.

In order to build on existing strengths and improve UF's position in genetics nationally and internationally, four key areas were targeted for faculty recruitment. The four research areas are listed below with brief definitions.

- Bioinformatics – the analysis of sequence/structure/expression data
- Comparative genomics – the comparison of genomes, genes, and gene functions across organisms
- Population and statistical genetics – computational and statistical methods for analyzing and interpreting genetic data
- Epigenetics – the analysis of mechanisms governing heritable patterns of differential gene expression

There is considerable intellectual and organizational/departmental overlap in these fields that will fuel the synergy that has been a key feature of the UFGI and also ensures a healthy return on investment on faculty in these fields. Specifically, these research areas share a focus on downstream analysis of genomic and genetic data and an emphasis on the correlation of genotype with phenotype. All fields are sufficiently young that UFGI can be competitive with other, more established genetics programs. The first three fields are primarily computer-based and, therefore, a small number of faculty members can have a great impact at minimal cost since large research laboratories are not necessary. Furthermore, many researchers on campus use methods from the first three areas but do not develop such methods, meaning that hires in these areas will directly benefit the research programs of a disproportionately large part of the faculty.

The recombinant DNA revolution of the 1970's created renewed interest in genetics research, in particular as to how it could be applied to improve human life, and to meet the twin challenges of increasing food production and conserving natural resources without harming the environment. The hundreds of billions of dollars invested by the

private and public sectors since then have begun to pay rich dividends in the form of powerful new drugs, the elucidation of the genetic basis of many diseases, gene therapy, improved food crops, and many other beneficial effects of these technologies on human health and the environment. It has also spawned the whole biotechnology industry. The four focal areas of research outlined above will further enhance the University of Florida's current strengths in these technologies for the benefit of humankind.

The new Graduate Program in Genetics will serve to utilize the combined talents of the University of Florida faculty to offer a comprehensive genetics training program that will afford students unique opportunities and insights into fundamental aspects of genetics. As we face global challenges in agriculture, medicine, and society during the twenty-first century, the UFGI will broadly train students to participate in and lead the ongoing biological revolution to the benefit of society.

## 2. Activities – Prior Year (2007-2008)

### **New Faculty in CGRC**

Four new faculty were hired and placed in the Cancer/Genetics Research Complex during the 2007-2008 fiscal year. They are: Malcolm Maden, Zoology; Brad Barbazuk, Botany; Graciela Lorca and Claudio Gonzalez, Microbiology and Cell Science.

### **Graduate Program in Genetics**

The two graduate level courses that were spawned by the new graduate program in genetics/genomics now have permanent course numbers and have been evolving to meet student needs and trends in the field. For example, the bioinformatics course now focuses from the outset with hands-on problem solving, starting with next generation sequence data and moving on to proteomics. The ethics course has been expanded to include an extensive online discussion section in the e-learning environment, and requires a final team project aimed at educating and engaging the general public (i.e. pod cast, social networking site, etc.). Applications for two training grants were submitted, but did not get funded.

In September the second class of five new genetics graduate students was welcomed with a picnic at Lake Wauberg which was attended by the first year graduate students, UFGI faculty and their families.

In the spring of 2008 the program received 25 applicants for fall admission, 6 US and 19 international. Applicants' median GRE was 1295, with a median quantitative score of 780. The admissions committee extended offers to twelve students and six accepted for fall 2008. One student was the recipient of an alumni award.

### **Symposium**

Attendance at Florida Genetics 2007 was excellent, with a record breaking 422 who checked in at the registration table. A total of 79 posters were submitted. Most sessions

were standing room only. University entities joining the UFGI to sponsor the symposium included the Graduate Program in Plant Molecular and Cellular Biology, the Evelyn F. and William L McKnight Brain Institute, the College of Engineering, Health Science Center Libraries, the Center for Mammalian Genetics, the Department of Molecular Genetics and Microbiology and the Interdisciplinary Center for Biotechnology Research

The following outside speakers gave presentations:

Henry C Harpending,  
Thomas Chair, Distinguished Professor of Anthropology, University of Utah

Michael Snyder,  
Department of Molecular, Cellular and Developmental Biology, Yale University

Vicki Rosen,  
Professor and Chair Department of Developmental Biology, Harvard School of Dental Medicine

Elizabeth Kellogg,  
Department of Biology, University of Missouri – St. Louis

Thomas G. Whitman,  
Regents' Professor, Ecology and Evolution, Northern Arizona University.

They were joined by the following UF speakers:  
Martin Cohn, Brian D. Harfe, Matias Kirst and David G. Oppenheimer.

## **Research**

Research funding as of December 2007 for UFGI researchers housed in the newly completed building totaled \$18,020,109, up from the previous year's total of \$13,879,585, with \$3,980,859 of that total being the indirect costs, compared to the previous year's amount of \$2,914,376. The institute is planning to support the genetics graduate program with their portion of indirect monies. With total square feet of lab and lab service areas for UFGI members in CGRC being 48,597, the total external funding per square foot for this group of researchers was \$375, making the total amount of indirect costs recovered per square foot \$83.

Total award amount of external funding for all UFGI members was \$103,444,856.

## **Researchers Make News**

From an editorial cartoon in the Boston Herald to an article in the Los Angeles Times, discoveries by UF Genetics Institute scientists have resulted in nationwide attention for the University of Florida during 2007-2008.

More than 20 major news releases featured scientists from throughout the University, including the Health Science Center, the Institute of Food and Agriculture Sciences, and

the College of Liberal Arts and Sciences. Summaries of these news releases can be found in Appendix 1.

Highlights include a discovery that reveals details about the ancient migration of humans from the Old World into North America—a finding featured prominently by the National Geographic, the Los Angeles Times and international media. Similarly, a discovery employing microRNA and bioinformatic analyses to explain why males evolve more quickly than females resulted in the aforementioned playful editorial cartoon and other favorable recognition to the university.

Many of the discoveries bode well for UF's efforts to translate scientific discoveries into practical human applications.

Notably, the beginning of a landmark gene therapy trial to treat a heritable disease called Leber's congenital amaurosis has helped UF capture the world's attention. In addition to producing news releases and feature stories, the Genetics Institute has worked closely with the National Eye Institute to develop written and video materials to explain this accomplishment. Much of this work will become visible after initial results of the trial are published.

Appropriately enough, a recent discovery involving the AAV gene therapy agent being used in the blindness trial has been published in the Proceedings of the National Academy of Sciences. UF geneticists say they have developed a new version of the adeno-associated virus used in gene therapy that works about 30 times more efficiently in mice than vectors scientists currently use.

### **Scientific Advisory Board**

The second meeting of the SAB boasted all seven members of the board in attendance to hear about the bioinformatics group, the statistical genomics group, the graduate program and the new initiative in Systems Biology. The board's report significantly aided the Institute in determining how best to focus its efforts and thereby enhance and increase effectiveness. Computational infrastructure was pinpointed as an area needing attention, as well as Systems Biology.

### **UFGI Seminar Series**

The UFGI Seminar Series continued to provide a variety of genetics-related topics presented by various on campus and off campus speakers. The lists of seminars for fall 2007 semester and spring 2008 semester are attached in Appendix 2.

### **Publications**

Members of the UFGI enjoyed well-publicized research via publications in professional journals. Institute members published a total of 39 papers in one of the premier journals, such as PNAS, Science, Nature, Cell, Genetics, NEJM, JAMA and BMJ. Their publications are listed in Appendix 3.

### 3. Activities – Coming Year (2008-2009)

#### **Graduate Program**

The 2008-2009 year's activities included matriculating the class of 6 new students into the graduate program in genetics and genomics. The students were welcomed by UFGI faculty at a reception in the lobby of the CGRC and per the suggestion on the Scientific Advisory Board, assigned big brothers/sisters from among the senior students in the program to assist in their orientation and acclimation to Gainesville. Although President Machen and Provost Fouke agreed that the program should be funded from a percentage of the indirect costs of the UFGI membership, logistics for this process remain undefined.

#### **Florida Genetics 2008 Symposium**

In the short period of four years, the Florida Genetics symposium has grown rapidly and become a signature event of the Genetics Institute. By offering a high quality scientific program, and an excellent opportunity to interact with colleagues, it attracts a large number of faculty and students from all across campus. Sponsorship has also increased and gold sponsorship for Florida Genetics 2008 was provided by the University of Florida Genetics Institute, the Center for Epigenetics, the College of Engineering, the Department of Molecular Genetics and Microbiology, the Graduate Program in Plant Molecular and Cellular Biology, Health Science Center Libraries, and the Interdisciplinary Center for Biotechnology Research. Silver sponsors included the Center for Research in Pediatric Immune Deficiency, Clinical and Translational Science Institute, the Evelyn F. and William L. McKnight Brain Institute, and the Florida Center for AIDS Research. This annual symposium was held October 29-30, 2008, at the UF Cancer & Genetics Research Complex. It included three overarching sessions dealing with human genetics, quantitative and computational genomics, and plant functional genomics. A poster session showcased research by the University of Florida genetics community and featured 120 posters. All interested University of Florida faculty, students, and staff were invited to participate and registration totaled 486.

This year's program added two pre-conference discussion sessions, one led by David Lipman, Director of NCBI at the NIH, and the other led by William Farmerie, ICBR. These sessions received positive feedback from attendees and the informal setting provided an opportunity for more dialogue.

The following outside speakers gave presentations:

Francis S. Collins, Director, National Human Genome Research Institute

Joseph R. Ecker, Professor, Plant Molecular and Cellular Biology, Salk Institute for Biological Studies

Trudy F. C. Mackay, William Neal Reynolds Professor of Genetics, North Carolina State University

John Coffin, Professor, Molecular Biology and Microbiology, Tufts University

David J. Lipman, Director, NCBI, NLM, NIH.

William Hauswirth, Charles Baer, Lauren McIntyre, Mark Settles and Kevin Folta were UF speakers who completed the program.

### **Scientific Advisory Board Meeting**

The external scientific advisory board will meet at the Cancer/Genetics Research Complex on February 16-17, 2009, and four of the six board members have confirmed their plans to attend. The board's insightful comments and recommendations have provided beneficial guidance for the institute, and it is anticipated that this year's visit will continue in that vein. Because of their interplay with Genetics Institute researchers, the ICBR will also meet with the board as they seek guidance in determining the future direction of their core facilities.

Eric Olson resigned from the board shortly after the beginning of the fiscal year, citing pressing responsibilities at his home institution, and no one has as yet been named to succeed him.

### **Research**

Research funding as of December 2008 for UFGI researchers housed in the CGRC was \$19,034,234, with indirect costs totaling \$4, 532,370. Current funding for all UFGI faculty totaled \$100,641,100, with \$16,907,528 indirect costs.

### **UFGI Seminar Series**

The UFGI seminar series will continue to present both on-campus and off-campus speakers representing diverse areas of genetics research.

#### 4. Position Data (Organizational Chart attached)

## Appendix 1.

### UF Genetics Institute FY 08 Press Releases

#### **Whether plant or animal, UF's new genetic model can predict its future**

**July 18, 2007; Rongling Wu, professor of statistical genetics, IFAS**

Scientists are developing a technique that will help farmers predict how fast crops will grow. And thanks to an \$855,000 grant from the National Science Foundation, they will soon use the same technology to speed the process of creating new lifesaving drugs.

#### **Molecular detectors may refine cancer treatment**

**July 19, 2007; Weihong Tan, professor of chemistry, CLAS**

University of Florida researchers have successfully used molecular probes to detect subtle differences in leukemia cells from patient samples, an achievement that could lead to more effective ways to diagnose and treat cancer.

#### **New center explores influence of nature versus nurture on genes**

**Aug. 2, 2007; Thomas Yang, professor of biochemistry and molecular biology, COM**

The age-old debate of nature versus nurture has a new twist: Scientists say the two N's may be so entwined that their influence on our genes combines to shape our health and development in ways we never imagined.

#### **UF, French scientists seek test to detect gene doping in athletes**

**Aug. 6, 2007; Richard Snyder, assistant professor of microbiology and molecular genetics, COM**

Gene doping has the potential to spawn athletes capable of out-running, out-jumping and out-cycling the strongest of champions. But research under way at the University of Florida could help level the playing field by detecting the first cases of gene doping in professional athletes before the practice enters the mainstream.

#### **Genetic phonetics could be the trick to sounding out DNA's meaning**

**Aug. 16, 2007; Rongling Wu, professor of statistical genetics, IFAS**

Most modern attempts to decipher how portions of genetic code are translated into physical characteristics are akin to a first-grader trying to sound out a word letter by letter -- or, in this case, base pair by base pair. But University of Florida researchers have developed a computational method that's more like reading whole words at a time.

#### **Conquest of land began in shark genome**

**Aug. 15, 2007; Martin Cohn, associate professor of zoology, CLAS**

When the first four-legged animals sprouted fingers and toes, they took an ancient genetic recipe and simply extended the cooking time, say University of Florida scientists writing in Wednesday's issue of the journal PLoS ONE. Even sharks - which have existed for more than half a billion years- have the recipe for fingers in their genetic cookbook - not to eat them, but to grow them.

#### **Parkinson's researchers focus on 'designer' cells**

**Oct. 1, 2007; Kenneth Berns, professor of molecular genetics and microbiology, COM**

University of Florida regenerative medicine researchers have received a \$1.6 million federal grant to study whether "designer" cells can be used to rescue the brain from Parkinson's and other neurological diseases.

Using cell cultures and a rodent model of Parkinson's disease, scientists want to study whether stemlike cells from mice and from adult human brains and bone marrow can be adapted to deliver a potentially protective protein to the brain.

### **UF researchers devise way to calculate rates of evolution**

**Oct. 3, 2007; James Gillooly, assistant professor of zoology, CLAS**

"Survival of the fittest" has popularly described evolution for more than a century, but a new study published in the Royal Society journal *Biology Letters* provides further evidence that random genetic mutations over millions of years may also play a powerful role. Writing online Wednesday (Oct. 3), Florida and California scientists are the first to link the evolution of proteins - the organic compounds that determine the structure and function of living things - to a species' metabolic rate.

### **UF researchers track genetic journey of HIV from birth to death**

**Oct. 16, 2007; Maureen Goodenow, Stephany W. Holloway university chair for AIDS research, COM**

University of Florida scientists have discovered how HIV evolves over the course of a person's lifetime into a more deadly form that heralds the onset of full-blown AIDS. The findings could pave the way for new therapeutic agents that target the virus earlier in the disease process, before it takes a lethal turn, researchers say.

### **Simple reason helps males evolve more quickly**

**Nov. 14, 2007; Marta Wayne, associate professor of zoology, CLAS**

The observation that males evolve more quickly than females has been around since 19th century biologist Charles Darwin noted the majesty of a peacock's tail feather in comparison with the plainness of the peahen's. Why males are in evolutionary overdrive even though they have essentially the same genes as females has been a mystery, but an explanation by University of Florida Genetics Institute researchers to appear online in the *Proceedings of the National Academy of Sciences* this week may shed light on the subject.

### **Gene therapy safety trial for childhood blindness under way**

**Nov. 19, 2007; William Hauswirth, professor of ophthalmology and molecular genetics, COM**

Three decades have passed since gene therapy pioneer William W. Hauswirth, Ph.D., and his colleagues at the University of Florida began work on a virus that could safely deliver corrective genes into living animals. It's been six years since a multi-university team used gene therapy to give sight to puppies born with a defect that causes blindness. Now the gene-transfer technique is being tested for safety in people in a phase 1 clinical research study conducted by the University of Pennsylvania and the University of Florida with support from the National Eye Institute of the National Institutes of Health.

### **UF botanists: Flowering plants evolved very quickly into five groups**

**Nov. 26, 2007; Doug Soltis, professor of botany, CLAS, and Pam Soltis, curator at Florida's Museum for Natural History**

GAINESVILLE, Fla. — University of Florida and University of Texas at Austin scientists have shed light on what Charles Darwin called the “abominable mystery” of early plant evolution.

**UF researchers identify gene that helps Chinese fern tolerate arsenic**

**Jan. 9, 2008; Bala Rathinasabapathi, associate professor of horticultural sciences, IFAS**

Arsenic is notorious for its toxic effects on people, but it can be just as dangerous to plants—most of them, anyway. One exception is the Chinese brake fern, a nondescript-looking bracken that can soak up huge quantities of the toxic metal without apparent harm. Years after discovering the fern’s remarkable ability, known as hyperaccumulation, University of Florida researchers have pinpointed the first gene that makes it possible.

**Scientists rebuild proteins to reveal primordial earth’s temperature**

**Feb. 6, 2008, Omjoy Ganesh, biochemistry and molecular biology, COM**

Using the genetic equivalent of an ancient thermometer, a team of scientists has determined that the Earth endured a massive cooling period between 500 million and 3.5 billion years ago.

**Humans inhabited new world's doorstep for 20,000 years**

**Feb. 12, 2008; Connie Mulligan, associate professor of anthropology, CLAS**

The human journey from Asia to the New World was interrupted by a 20,000-year layover in Beringia, a once-habitable region that today lies submerged under the icy waters of the Bering Strait.

Furthermore, the New World was colonized by approximately 1,000 to 5,000 people - a substantially higher number than the 100 or fewer individuals of previous estimates.

**Out-of-whack protein may boost Parkinson’s**

**Feb. 26, 2008; Nicholas Muzyczka, professor of molecular genetics and microbiology; COM**

A single change in a protein may play a role in whether someone develops Parkinson's disease, say University of Florida Genetics Institute researchers writing in a recent issue of the Proceedings of the National Academy of Sciences.

**Viruses use microRNAs to take over human cells**

**March, 2008; Rolf Renne, associate professor of molecular genetics and microbiology, COM**

Rolf Renne answers some questions about his recent paper in the Journal of Virology. His work dealing with Kaposi’s Sarcoma herpesvirus and microRNAs was also discussed in Cell Host & Microbe in January.

**Scientists: New technique identifies molecular ‘biomarkers’ for disease**

**March 31, 2008; Weihong Tan, professor of chemistry, CLAS**

University of Florida chemists are the first to use a new tool to identify the molecular signatures of serious diseases — without any previous knowledge of what these microscopic signatures or “biomarkers” should look like.

**Discovery could lead to better-tasting foods**

**April 2008; Harry Klee, professor of horticultural sciences, IFAS**

University of Florida scientists have developed methods for determining what an important enzyme does in plants — that it is responsible for getting rid of a wide range of carotenoids from plant tissue. The products created by this enzyme are among the most important flavor compounds in a wide range of plant-derived foods. Knowing how the enzyme works makes it an obvious target for improving flavors of foods such as tomatoes.

**‘Destruct’ triggers may be jammed in tumor cells, UF geneticists say**

**April 30, 2008; Lei Zhou, associate professor of molecular genetics and microbiology, COM**

Tumor cells living in the cross hairs of radiation or chemotherapy may be able to escape death because their self-destruct mechanisms are jammed, say University of Florida scientists writing in a recent issue of *Developmental Cell*.

**MicroRNAs appear to be essential for retinal health**

**May 7, 2008; Brian Harfe, assistant professor of molecular genetics and microbiology, COM**

Retinas in newborn mice appear perfectly fine without any help from tiny bits of genetic material called microRNAs except for one thing — the retinas do not work. In the first-ever study of the effects of the absence of microRNAs in the mammalian eye, an international team of researchers directed by the University of Florida and the Italian National Research Council describes a gradual structural decline in retinas that lack microRNAs.

**UF researchers develop improved gene therapy agent**

**May 19, 2008; Arun Srivastava, professor of genetics and chief of cellular and molecular therapy, COM**

Replacing one amino acid on the surface of a virus that shepherds corrective genes into cells could be the breakthrough scientists have needed to make gene therapy a more viable option for treating genetic diseases such as hemophilia, University of Florida researchers say.

**Genetic pesticide developed in UF lab**

**May 28, 2007; Michael Scharf, assistant professor of entomology and nematology, IFAS**

Each year in the United States, termites gnaw away more than \$1 billion in structural damage despite an ever growing array of insect control techniques. In this battle, the next generation of weapons could target the termite’s very genes.

**Appendix 2.**

# University of Florida Genetics Institute

## 2007 FALL SEMINAR SERIES

**Room C/G 101****Cancer/Genetics Research Complex****2 to 3 p.m.***Refreshments will be served at 3:00 p.m.**August 28:*

"Chemical biology of the Ic1R one-component system: one regulator, two native ligands"

[Graciela Lorca](#), Ph.D., Assistant Professor,  
Department of Microbiology and Cell Science, University of Florida  
([PubMed search](#))

*September 11:*

"Phenylketonuria: gene therapy, enzyme therapy, or?"

[Philip J. Laipis](#), Ph.D., Professor and Associate Chair,  
Department of Biochemistry and Molecular Biology, University of Florida  
([PubMed search](#))

*September 25:*

"Generation, characterization and risk assessment of transgenic Bahia grass"

[Fredy Altpeter](#), Ph.D., Assistant Professor,  
Agronomy Department, University of Florida  
([PubMed search](#))

*October 9:*

"Genetic analysis of systemic lupus erythematosus in a mouse model"

[Laurence Morel](#), M.D., Ph.D., Associate Professor,  
Department of Pathology, Immunology and Laboratory Medicine, University of Florida  
([PubMed search](#))

*October 23:*

"Biochemical, physiological and genetic engineering studies of trypsin modulating oostatic factor: a potential new larvicide"

[Dov Borovsky](#), Ph.D., Research Foundation Professor,  
Florida Medical Entomology Laboratory and University of Florida  
([PubMed search](#))

*October 30:*

"Coordinated regulation of alternative splicing during development and its disruption in myotonic dystrophy"

[Thomas A. Cooper](#), M.D., S. Donald Greenberg Professor of Pathology,  
Baylor College of Medicine  
([PubMed search](#))

*November 7-8 [Note daylong schedule, location - Cancer/Genetics Research Complex, registration required]:*

[Florida Genetics 2007 \(FG2007\)](#)

Co-sponsored with the Center for Mammalian Genetics, the College of Engineering, the Department of Molecular Genetics and Microbiology, the Evelyn F. and William L. McKnight Brain Institute, the Graduate Program in Plant Molecular and Cellular Biology, Health Science Center Libraries and the Interdisciplinary Center for Biotechnology Research

*November 13:*

"14-3-3 interactomics - signal transduction regulation by the numbers"

[Robert J. Ferl](#), Ph.D., Professor, Department of Horticultural Sciences, and  
Director, Interdisciplinary Center for Biotechnology Research (ICBR), University of Florida  
([PubMed search](#))

*November 27:*

"Noise in the quorum sensing network of *Vibrio fischeri*"

[Stephen J. Hagen](#), Ph.D., Associate Professor,  
Physics Department, University of Florida  
([PubMed search](#))

*December 4:*

"Model selection in Bayesian phylogenetics"

[Paul O. Lewis](#), Ph.D., Associate Professor,  
Department of Ecology & Evolutionary Biology, The University of Connecticut  
([PubMed search](#))

*December 5 [Note special day and time - Wednesday, 3:30-4:30]:*

"Phylogenetic diversity and evolution of green algae from desert biotic crust communities"

[Louise A. Lewis](#), Ph.D., Associate Professor,  
Department of Ecology & Evolutionary Biology, The University of Connecticut  
([PubMed search](#))

*December 11:*

"Gene therapy for autosomal dominant retinitis pigmentosa"

[Marina Gorbatyuk](#), Ph.D., Research Assistant Professor,  
Department of Molecular Genetics and Microbiology, University of Florida  
([PubMed search](#))

# University of Florida Genetics Institute

## 2008 SPRING SEMINAR SERIES

### Room C/G 133

#### Cancer/Genetics Research Complex

2 to 3 p.m.

*January 8:*

"Toward a universal platform for autologous stem cell gene therapy"  
Roger Bertolotti, PhD, Head, Gene Therapy and Regulation Research,  
Faculty of Medicine, University of Nice Sophia Antipolis

*January 15:*

"MicroRNAs encoded by Kaposi's sarcoma-associated herpesvirus and their potential role in viral biology and pathogenesis"  
[Rolf F. Renne](#), PhD, Associate Professor,  
Department of Molecular Genetics and Microbiology, University of Florida  
([PubMed search](#))

*January 29:*

"Oncogenic properties of an alternative splicing factor"  
[Adrian R. Krainer](#), PhD, Professor,  
Cold Spring Harbor Laboratory  
([PubMed search](#))

*February 12:*

"Regulation of cellular growth control and gene expression by SV40 large T antigen"  
[James M. Pipas](#), PhD, Professor,  
Department of Biological Sciences, University of Pittsburgh  
([PubMed search](#))

*February 19:*

"Developing therapeutics for retinal diseases"  
[Sharesh Kaushal](#), MD, PhD, Assistant Professor,  
Department of Ophthalmology, University of Florida  
([PubMed search](#))

*March 18:*

"The evolution of a disease resistance locus in *Phaseolus vulgaris*"  
C. Eduardo Vallejos, PhD, Associate Professor,  
Department of Horticultural Sciences, University of Florida  
([PubMed Search](#))

*April 1:*

"Chromatin barriers and epigenetic regulation of gene expression"  
[Suming Huang](#), PhD, Assistant Professor,  
Department of Biochemistry and Molecular Biology, University of Florida  
([PubMed Search](#))

*April 8:*

"Mechanisms of development in modern marine microbialites"  
[Jamie S. Foster](#), PhD, Assistant Professor,  
Department of Microbiology and Cell Science, University of Florida  
([PubMed search](#))

*April 22:*

"Mechanisms underlying antigenic variation in *Babesia bovis*"  
[David R. Allred](#), PhD, Associate Professor,  
Department of Infectious Diseases and Pathology, University of Florida  
([PubMed search](#))

*April 29:*

"The therapeutic potential of retinoic acid signalling in nervous system regeneration and neurodegeneration"  
Malcolm Maden, PhD, Professor,  
Department of Zoology, University of Florida  
([PubMed search](#))

*May 27:*

"Molecular biology of foamy viruses"  
[Axel Rethwilm](#), MD, Professor,  
Institute of Virology and Immunobiology, University of Würzburg  
([PubMed search](#))

### Appendix 3.

UFGI Publications for FY 20072008

Aiken KJ, Bickford JS, **Kilberg MS**, **Nick HS**.

Metabolic regulation of manganese superoxide dismutase expression via essential amino acid deprivation.

*J Biol Chem*. 2008 Apr 18;283(16):10252-63.

Ao A, Wang H, Kamarajugadda S, **Lu J**.

Involvement of estrogen-related receptors in transcriptional response to hypoxia and growth of solid tumors.

*Proc Natl Acad Sci U S A*. 2008 Jun 3;105(22):7821-6.

**Baer CF**, **Miyamoto MM**, Denver DR.

Mutation rate variation in multicellular eukaryotes: causes and consequences.

*Nat Rev Genet*. 2007 Aug;8(8):619-31.

Bai MY, Zhang LY, Gampala SS, Zhu SW, **Song WY**, Chong K, Wang ZY.

Functions of OsBZR1 and 14-3-3 proteins in brassinosteroid signaling in rice.

*Proc Natl Acad Sci U S A*. 2007 Aug 21;104(34):13839-44.

Cuellar TL, Davis TH, Nelson PT, Loeb GB, **Harfe BD**, Ullian E, McManus MT.

Dicer loss in striatal neurons produces behavioral and neuroanatomical phenotypes in the absence of neurodegeneration.

*Proc Natl Acad Sci U S A*. 2008 Apr 8;105(14):5614-9

D'Costa SM, Bainbridge TW, **Condit RC**.

Purification and properties of the vaccinia virus mRNA processing factor.

*J Biol Chem*. 2008 Feb 29;283(9):5267-75.

Gampala SS, Kim TW, He JX, Tang W, Deng Z, Bai MY, Guan S, Lalonde S, Sun Y, Gendron JM, Chen H, Shibagaki N, **Ferl RJ**, Ehrhardt D, Chong K, Burlingame AL, Wang ZY.

An essential role for 14-3-3 proteins in brassinosteroid signal transduction in *Arabidopsis*.

*Dev Cell*. 2007 Aug;13(2):177-89.

Giordani NV, Neumann DM, Kwiatkowski DL, Bhattacharjee PS, McAnany PK, Hill JM, **Bloom DC**.

During herpes simplex virus type 1 infection of rabbits, the ability to express the latency-associated transcript increases latent-phase transcription of lytic genes.

*J Virol*. 2008 Jun;82(12):6056-60.

Gorbatyuk OS, Li S, Sullivan LF, Chen W, Kondrikova G, Manfredsson FP, **Mandel RJ**, **Muzyczka N**.

The phosphorylation state of Ser-129 in human {alpha}-synuclein determines neurodegeneration in a rat model of Parkinson disease.

*Proc Natl Acad Sci USA*. 2008 Jan 15;105(2):763-8.

Guo M, **Jin S**, Sun D, Hew CL, Pan SQ.

Recruitment of conjugative DNA transfer substrate to *Agrobacterium* type IV secretion apparatus.

*Proc Natl Acad Sci U S A*. 2007 Dec 11;104(50):20019-24.

Hackett SJ, Kimball RT, Reddy S, Bowie RC, **Braun EL**, Braun MJ, Chojnowski JL, Cox WA, Han KL, Harshman J, Huddleston CJ, Marks BD, Miglia KJ, Moore WS, Sheldon FH, Steadman DW, Witt CC, Yuri T.

A phylogenomic study of birds reveals their evolutionary history.

*Science*. 2008 Jun 27;320(5884):1763-8.

Han S, Wang B, Cotter MJ, Yang LJ, Zucali J, Moreb JS, **Chang LJ**.

Overcoming immune tolerance against multiple myeloma with lentiviral calnexin-engineered dendritic cells.

*Mol Ther*. 2008 Feb;16(2):269-79.

Kim Y, Cao Z, **Tan W**.

Molecular assembly for high-performance bivalent nucleic acid inhibitor.

*Proc Natl Acad Sci U S A*. 2008 Apr 15;105(15):5664-9.

Kitchen A, **Miyamoto MM**, **Mulligan CJ**.

A three-stage colonization model for the peopling of the Americas.

*PLoS ONE*. 2008 Feb 13;3(2):e1596.

Knudsen B, **Miyamoto MM**.

Incorporating experimental design and error into coalescent/mutation models of population history.

*Genetics*. 2007 Aug;176(4):2335-42.

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*Proc Natl Acad Sci U S A*. 2007 Nov 20;104(47):18577-82.

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## UFGI Annual Report 2006-2007

### 1. Mission and Areas of Focus

The primary goal of the University of Florida Genetics Institute (UFGI) is to harness the diverse academic talents and resources of the genetic research community at UF to improve the health and well-being of our citizenry. As such this mission is integral to the mission of the State University System as a whole. The Genetics Institute offers a cohesive and unified systems biology program for the entire campus, devoted to excellence in teaching and research that will foster inter-disciplinary interactions and collaborations.

The Genetics Institute's researchers are based in the College of Medicine and throughout the Health Science Center, the Institute of Food and Agricultural Sciences, the College of Veterinary Medicine, the College of Liberal Arts and Sciences, the College of Engineering and beyond, ranging even to the College of Law. This year's membership in the UFGI numbered 183 faculty.

In order to build on existing strengths and improve UF's position in genetics nationally and internationally, four key areas were targeted for faculty recruitment. The four research areas are listed below with brief definitions.

- Bioinformatics – the analysis of sequence/structure/expression data
- Comparative genomics – the comparison of genomes, genes, and gene functions across organisms
- Population and statistical genetics – computational and statistical methods for analyzing and interpreting genetic data
- Epigenetics – the analysis of mechanisms governing heritable patterns of differential gene expression

There is considerable intellectual and organizational/departmental overlap in these fields that will fuel the synergy that has been a key feature of the UFGI and also ensures a healthy return on investment on faculty in these fields. Specifically, these research areas share a focus on downstream analysis of genomic and genetic data and an emphasis on the correlation of genotype with phenotype. All fields are sufficiently young that UFGI can be competitive with other, more established genetics programs. The first three fields are primarily computer-based and, therefore, a small number of faculty members can have a great impact at minimal cost since large research laboratories are not necessary. Furthermore, many researchers on campus use methods from the first three areas but do not develop such methods, meaning that hires in these areas will directly benefit the research programs of a disproportionately large part of the faculty.

The recombinant DNA revolution of the 1970's created renewed interest in genetics research, in particular as to how it could be applied to improve human life, and to meet the twin challenges of increasing food production and conserving natural resources without harming the environment. The hundreds of billions of dollars invested by the

private and public sectors since then have begun to pay rich dividends in the form of powerful new drugs, the elucidation of the genetic basis of many diseases, gene therapy, improved food crops, and many other beneficial effects of these technologies on human health and the environment. It has also spawned the whole biotechnology industry. The four focal areas of research outlined above will further enhance the University of Florida's current strengths in these technologies for the benefit of humankind.

The new Graduate Program in Genetics will serve to utilize the combined talents of the University of Florida faculty to offer a comprehensive genetics training program that will afford students unique opportunities and insights into fundamental aspects of genetics. As we face global challenges in agriculture, medicine, and society during the twenty-first century, the UFGI will broadly train students to participate in and lead the ongoing biological revolution to the benefit of society.

## 2. Activities – Prior Year

### **New Faculty**

The beginning of the new fiscal year (2006-2007) marked the starting date for another bioinformaticist, Luciano Brocchieri, who is the College of Medicine's fourth and final faculty appointment on the faculty lines that were provided by the Provost for the institute. Silvia Tornaletti, Anatomy and Cell Biology, also joined the university's faculty as a trailing spouse.

### **New Graduate Program in Genetics**

As a result of the genetics graduate program, two new graduate level courses were designed and offered during the 2006-2007 academic year. One class is a genomics and bioinformatics course, and enrolled students from 19 different programs, and the other class is an ethics for genetics researchers class that includes the topic of intellectual property. The genetics graduate program served as a catalyst for the submission of four graduate student training grants.

In September the first class of genetics graduate students was welcomed with a picnic at Lake Wauberg which was attended by UFGI faculty and their families. These four students, who matriculated through either the College of Medicine's IDP program or IFAS' PMCB program, successfully completed their first year's rotations and final exams. They have now been placed in labs in four different colleges: CLAS, COM, COP, and IFAS.

In the spring of 2007 the program received 20 applicants for fall admission, 6 US and 14 international. Applicants' median GRE was 1300, with a median quantitative score of 720. The admissions committee extended offers to six students and five accepted for fall 2007. One of the accepted students was recently awarded an NSF predoctoral fellowship.

At the June meeting of the Board of Governors the graduate program in Genetics and Genomics was unanimously approved, thus giving the program the ability to matriculate students directly.

### **New UFGI Website**

This year the institute updated its website to conform with the University of Florida's template, and information became more readily accessible for anyone who visits the site at [www.ufgi.ufl.edu](http://www.ufgi.ufl.edu).

### **Building Dedication & Symposium**

November 15, 2006, marked the grand opening ceremonies for the Cancer/Genetics Research Complex, with Governor Jeb Bush addressing faculty, staff and distinguished guests. Tours of the labs were given so visitors could see some of the \$1.75 million worth of common equipment used by researchers in the building complex. Later that same month Florida Genetics 2006, cosponsored by the University of Florida Genetics Institute, the College of Engineering, the Evelyn F. and William L. McKnight Brain Institute, the Graduate Program in Plant Molecular and Cellular Biology, and the Health Science Center Libraries, was held at the Reitz Union. This symposium had 253 registrants, 63 posters and included 5 speakers from other institutions and 5 UF researchers. Four of the five guest presenters were members of the National Academy of Sciences.

### **Research**

Research funding as of December 2006 for UFGI researchers housed in the newly completed building totaled \$13,879,585, with \$2,914,376 of that total being the indirect costs. The institute is planning to support the genetics graduate program with their portion of indirect monies. As an example of the collaborative efforts the institute fosters, Lauren McIntyre, Department of Molecular Genetics and Microbiology in COM, a recently hired statistical geneticist housed in the new building, was awarded an NIH grant in January 2007 that includes Marta Wayne, Department of Zoology, and another researcher from the University of California, Davis. Their research is entitled "Genetic variation of allele-specific transcriptome in *Drosophila*."

To foster interdisciplinary collaborations between genetics and engineering faculty, in the fall of 2005 the Genetics Institute and the Office of Sponsored Research awarded two seed money grants of \$50,000/year for two years. To be eligible for funding the proposals had to be new research and include investigators from more than one UF college. Winning applicants were expected to submit a federal grant proposal by the end of the second year of the award. This incentive resulted in thirteen collaborative proposals whose quality made the selection of only two a difficult decision for the seed grants committee. Recipients were:

AM Settles (IFAS) and T Kahveci (COE), "Sequence indexed maize transposon insertion sites for cereal functional genomics" and

A Banerjee (COE), L Xiao (COM), L Zhou (COM): "Modeling DNA damage induced cell death responses – streamlining basic research information for clinical applications."

Both groups have made excellent progress, with the Settles and Kahveci collaboration receiving a million dollar plus NSF genome grant.

New research funding awarded during 2006-2007 for all UFGI faculty totaled \$36,956,748, with \$4,731,744 in indirect costs.

### **Scientific Advisory Board**

Three of the members of the newly appointed UFGI external Scientific Advisory Board, composed of Peter Howley (Harvard), Jeffrey Bennetzen (University of Georgia), Yoram Groner (Weizmann Institute, Rehovot, Israel), Rebecca Doerge (Purdue), and Ron Davis (Stanford), convened here on February 19-20, 2007, for their first meeting. The board listened to several groups of researchers from the institute explain their work, met with the genetics graduate students, and provided the UFGI Executive Committee with their recommendations for future goals. The board was very enthusiastic about the graduate program, and in response to their report Marta Wayne formed a focus group of UFGI affiliated faculty across campus to explore the development of a graduate course, for our students but open to others, that would cross train geneticists and engineers. The group also discussed intersections between systems biology and synthetic biology, with the ultimate goal of developing a concentration or mini-curriculum in this area.

Before the year's end, two more members were added to the board: Patricia Spear (Northwestern) and Eric Olson (UT Southwestern Medical Center, Dallas). The next meeting of the board will be in February of 2008.

### **Publications**

Members of the UFGI enjoyed well-publicized research via publications in professional journals. A total of 48 members had papers published in one of the premier journals, such as PNAS, Science, Nature, Cell, Genetics, NEJM, JAMA and BMJ.

### **UFGI Seminar Series**

The UFGI Seminar Series continued to provide a variety of genetics-related topics presented by various on campus and off campus speakers. The lists of seminars for Fall 2006 semester and Spring 2007 semester are attached in the Appendix.

### 3. Activities – Coming Year (2007-2008)

#### **Graduate Program**

The coming year's activities include matriculating the class of 5 new students into the graduate program in genetics and genomics. Although President Machen and Provost Fouke agreed that the program should be funded from a percentage of the indirect costs of the UFGI membership, logistics for this process will need to be determined.

#### **Florida Genetics 2007 Symposium**

The University of Florida Genetics Institute, the Center for Mammalian Genetics, the College of Engineering, the Department of Molecular Genetics and Microbiology, the Evelyn F. and William L. McKnight Brain Institute, the Graduate Program in Plant Molecular and Cellular Biology, Health Science Center Libraries and the Interdisciplinary Center for Biotechnology Research cosponsored Florida Genetics 2007. This annual symposium was held Nov. 7-8, 2007, at the UF Cancer & Genetics Research Complex. It included three overarching sessions dealing with Developmental Genetics,

Plant Genetics and Evolution, and Evolutionary Genetics. A poster session showcased research by the University of Florida genetics community and featured 79 posters. All interested University of Florida faculty, students, and staff were invited to participate and attendance totaled 422. We had an outstanding series of presentations from the five special speakers who attended, as well as the six UFGI faculty members who presented their research.

### **Scientific Advisory Board Meeting**

The external scientific advisory board will meet at the Cancer/Genetics Research Complex on February 21-22, 2008, and all but one of the seven board members have confirmed their plans to attend, with the seventh member tentatively planning to be here. This year the board will again meet with the graduate students and also hear about UFGI faculty members' current research. The board's insightful comments and recommendations have provided beneficial guidance for the institute.

### **Seed Grant Awards**

The seed grant awards that were awarded in the fall of 2005 by the Genetics Institute and the Office of Sponsored Research to foster interdisciplinary collaborations between genetics and engineering faculty were completed by the end of November 2007. To be eligible for funding the proposals had to be new research and include investigators from more than one UF college. The award amount was \$50,000 per year per group for two years, with a goal of obtaining extramural funding for ongoing research. One group received extramural funding and the second group intends to apply for an RO1 by June of 2008, conditional on progress in narrowing the identified set of genes. Copies of their final reports are included in separate PDF files..

### **Research**

Research funding as of December 2007 for UFGI researchers housed in the newly completed building totaled \$18,020,109, with \$3,980,859 of that total being the indirect costs. Current research funding as of December 2007 for all UFGI researchers is \$103,444,856, with \$14,434,979 indirect costs.

### **UFGI Seminar Series**

The UFGI seminar series will continue to present both on-campus and off-campus speakers representing diverse areas of genetics research.

#### 4. Position Data (Organizational Chart attached)

Appendix 1.

## University of Florida Genetics Institute 2006 FALL SEMINAR SERIES

### Room C/G 101

#### Cancer/Genetics Research Complex

2 to 3 p.m.

*Refreshments will be served at 3:00 p.m.*

*August 29:*

"Proteasomes from structure to function: perspectives from Archaea"

[Julie Maupin-Furlow](#), Ph.D., Associate Professor,  
Department of Microbiology and Cell Science, University of Florida  
([PubMed Search](#))

*September 12:*

"Genes involved in synthesis of tomato volatile chemicals. Flavor and more"

[Harry J. Klee](#), Ph.D., Eminent Scholar,  
Department of Horticultural Sciences, University of Florida  
([PubMed search](#))

**September 26:**

"Dynamics of loading the *E. coli* DNA polymerase processivity clamp"

[Linda B. Bloom](#), Ph.D., Associate Professor,  
Department of Biochemistry and Molecular Biology, University of Florida  
([PubMed search](#))

*October 10:*

"AAV-mediated gene therapy for glycogen storage disease type II"

[Cathryn S. Mah](#), Ph.D., Assistant Professor,  
Department of Pediatrics, Division of Cell and Molecular Therapy, University of Florida  
([PubMed search](#))

*October 24:*

"Consistent biclustering via fractional 0-1 programming"

[Panos M. Pardalos](#), Ph.D., Distinguished Professor and Co-Director, Center for Applied Optimization,  
Industrial and Systems Engineering and Biomedical Engineering Departments, University of Florida

[\(PubMed search\)](#)

*November 1-2 [Note daylong schedule, location - J. Wayne Reitz Union, registration required]:*

[Florida Genetics 2006 \(FG2006\)](#)

Co-sponsored with the Graduate Program in Plant Molecular and Cellular Biology, the Evelyn F. and William L. McKnight Brain Institute, the College of Engineering, and the Health Science Center Libraries

*November 7:*

"Pair of lice lost: inferring human evolutionary history from host-specific parasites"

[David L. Reed](#), Ph.D., Assistant Curator of Mammals,  
Florida Museum of Natural History, University of Florida

[\(PubMed search\)](#)

*November 14 [Note special location - C/G 101 (Cancer/Genetics Research Complex Auditorium)]:*

"Title TBA"

Stefano Monti, Ph.D., Computational Biologist,  
Cancer Program, Broad Institute

[\(PubMed search\)](#)

*November 14 [Note special time and location - 3:30-4:30 pm, 211 Bartram]:*

"Title TBA"

[Marcy K. Uyenoyama](#), Ph.D., Professor,  
Department of Biology, Duke University

[\(PubMed search\)](#)

Co-sponsored with the Departments of Statistics and Zoology

*November 21:*

"Genetic and environmental controls of fungal multicellular development"

[Jeffrey A. Rollins](#), Ph.D., Assistant Professor,  
Department of Plant Pathology, University of Florida

[\(PubMed search\)](#), [\(UFGI New Faculty Profile\)](#)

*November 28 [Note special location - C/G 101 (Cancer/Genetics Research Complex Auditorium)]:*

"Small ribonucleoproteins in spinal muscular atrophy and germ cell development"

[Greg Matera](#), Ph.D., Professor,  
Department of Genetics, Case Western Reserve University

[\(PubMed search\)](#)

*December 5:*

"Association of *CYP3A5* polymorphisms with hypertension and antihypertensive response to verapamil"

[Taimour Y. Langae](#), MSPH, Ph.D., Research Assistant Professor,  
Departments of Pharmacy Practice and Pharmaceutics, University of Florida  
([PubMed search](#))

## University of Florida Genetics Institute 2007 SPRING SEMINAR SERIES

### **Room C/G 133**

#### **Cancer/Genetics Research Complex**

**2 to 3 p.m.**

*Refreshments will be served at 1:45 p.m.*

*January 23 [Note special location - C/G 101 (Cancer/Genetics Research Complex Auditorium)]:*

"The Puzzling Notion of Human-Chimpanzee Hybrids"

[John R. Wakeley](#), Ph.D., Professor,  
Department of Organismic and Evolutionary Biology, Harvard University  
([PubMed search](#))

*January 30:*

"Evolutionary enzymological and physiological aspects of adenosine diphosphate glucose pyrophosphorylase"

[Larkin C. Hannah](#), Ph.D., Professor,  
Department of Horticultural Science & Program in Plant Molecular and Cellular Biology,  
University of Florida  
([PubMed search](#))

*February 6:*

"Molecular Genetics of HIV-1: the Prototypic Emerging Pathogen"

[Maureen M. Goodenow](#), Ph.D., Stephany W. Holloway University Chair for AIDS  
Research,  
Department of Pathology, Immunology, and Laboratory Medicine, University of Florida  
([PubMed search](#))

### **February 13:**

"Lentiviral Gene Transfer Reverses Blindness in the Avian Model of Leber Congenital Amaurosis (LCA1)"

[Susan L. Semple-Rowland](#), Ph.D., Professor,  
Department of Neuroscience, University of Florida  
([PubMed search](#))

*February 20 [Note special location - C/G 101 (Cancer/Genetics Research Complex Auditorium)]:*

"CUTting Down on Transcriptional Noise: The yeast RNA Pol II Non-poly(A) Termination Pathway"

[Jeffrey L. Corden](#), Ph.D., Professor,  
Department of Molecular Biology and Genetics, Johns Hopkins School of Medicine  
([PubMed search](#))

*February 27:*

"Energetic Controls on Rates of Evolution"

[James F. Gillooly](#), Ph.D., Assistant Professor,  
Department of Zoology, University of Florida  
([PubMed search](#))

*March 20:*

"Phenylketonuria: Gene Therapy, Enzyme Therapy, or ?"

[Phillip J. Laipis](#), Ph.D., Professor and Associate Chair,  
Department of Biochemistry and Molecular Biology, University of Florida  
([PubMed Search](#))

*April 3:*

"Modeling virus assembly avoiding dynamics"

[Meera Sitharam](#), Ph.D., Associate Professor,  
Department of Computer and Information Science and Engineering, University of Florida

*April 17:*

"Prader-Willi Syndrome and Early-onset Morbid Obesity Genetics and Neurocognitive Findings"

[Daniel J. Driscoll](#), M.D. Ph.D., Professor,  
Departments of Pediatrics & Molecular Genetics and Microbiology, University of Florida  
([PubMed search](#))

*April 24 [Note special location - C/G 101 (Cancer/Genetics Research Complex Auditorium)]:*

"Exploring genomic medicine using integrative biology"

[Atul Butte](#), Ph.D., Assistant Professor,

Departments of Medical Informatics & Pediatrics, Stanford University Schhol of Medicine  
([PubMed search](#))

*May 1:*

"A Kinase-Protein Interaction Network in Rice"

[Wen-Yuan Song](#), Ph.D., Assistant Professor,  
Department of Plant Pathology, University of Florida  
([PubMed search](#))

## UFGI Annual Report 2005 - 2006

### 1. Mission and Areas of Focus

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The Genetics Institute's researchers are based in the College of Medicine and throughout the Health Science Center, the Institute of Food and Agricultural Sciences, the College of Veterinary Medicine, the College of Liberal Arts and Sciences, the College of Engineering and beyond, ranging even to the College of Law. This year's membership in the UFGI numbered 162 faculty.

In order to build on existing strengths and improve UF's position in genetics nationally and internationally, four key areas were targeted for faculty recruitment. The four research areas are listed below with brief definitions.

- Bioinformatics – the analysis of sequence/structure/expression data
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There is considerable intellectual and organizational/departmental overlap in these fields that will fuel the synergy that has been a key feature of the UFGI and also ensures a healthy return on investment on faculty in these fields. Specifically, these research areas share a focus on downstream analysis of genomic and genetic data and an emphasis on the correlation of genotype with phenotype. All fields are sufficiently young that UFGI can be competitive with other, more established genetics programs. The first three fields are primarily computer-based and, therefore, a small number of faculty members can have a great impact at minimal cost since large research laboratories are not necessary. Furthermore, many researchers on campus use methods from the first three areas but do not develop such methods, meaning that hires in these areas will directly benefit the research programs of a disproportionately large part of the faculty.

The recombinant DNA revolution of the 1970's created renewed interest in genetics research, in particular as to how it could be applied to improve human life, and to meet the twin challenges of increasing food production and conserving natural resources without harming the environment. The hundreds of billions of dollars invested by the

private and public sectors since then have begun to pay rich dividends in the form of powerful new drugs, the elucidation of the genetic basis of many diseases, gene therapy, improved food crops, and many other beneficial effects of these technologies on human health and the environment. It has also spawned the whole biotechnology industry. The four focal areas of research outlined above will further enhance the University of Florida's current strengths in these technologies for the benefit of humankind.

The new Graduate Program in Genetics will serve to utilize the combined talents of the University of Florida faculty to offer a comprehensive genetics training program that will afford students unique opportunities and insights into fundamental aspects of genetics. As we face global challenges in agriculture, medicine, and society during the twenty-first century, the UFGI will broadly train students to participate in and lead the ongoing biological revolution to the benefit of society.

## 2. Activities – Prior Year

The UF Genetics Institute has been fortunate in hiring additional faculty to help push forward the boundaries of multidisciplinary research. Our goals from the strategic plan focused on two important areas, (1) the application of mathematics and statistics to genetics and (2) the area of epigenetics. To that end, six new faculty were hired into this first area and one faculty member was hired in epigenetics. Since the UF Cancer Center was also recruiting in epigenetics and successfully hired three or four epigeneticists, the Genetics Institute did not continue recruiting in that area. The University of Florida now has at least 10 epigenetics faculty who constitute a critical mass in this area.

In the College of Medicine three of the four faculty lines given by the Provost were filled this year by hiring two bioinformaticists; Lauren McIntyre and Alberto Riva, and one epigeneticist, Suming Huang. In IFAS, Valerie de Crecy Lagard, bioinformatics and molecular genetics, and Zhonglin Mou, molecular genetics, were hired in the Department of Microbiology and Cell Science, and Matias Kirst, a quantitative geneticist, was hired in the School of Forestry. In the College of Liberal Arts and Sciences, Sixue Chen, plant proteomics, joined the Department of Botany and Xueli Liu was hired in Statistics.

With these hires two trailing spouses, Wilfred Vermerris, Agronomy, and Yi Qiu, Anatomy and Cell Biology, have also joined the University of Florida as faculty members. Both are new residents in the Cancer/Genetics Research Complex.

To foster interdisciplinary collaborations between genetics and engineering faculty, and to obtain longer-term federal funding for such research at UF, in the fall of 2005 the Genetics Institute and the Office of Sponsored Research awarded two seed money grants of \$50,000/year for two years. To be eligible for funding the proposals had to be new research and include investigators from more than one UF college. Winning applicants were expected to submit a federal grant proposal by the end of the second year of the award. This incentive resulted in thirteen collaborative proposals whose quality made the selection of only two a difficult decision for the seed grants committee. Recipients were:

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Both groups have made excellent progress, with the Settles and Kahveci collaboration receiving a million dollar plus NSF genome grant.

In addition to the continued success of the UFGI Seminar Series (see attached Appendix 1), which featured presentations by UF faculty from diverse disciplines, as well as respected researchers from other institutions, the Institute sponsored Florida Genetics 2005, a symposium held at the Reitz Union November 30 – December 1, 2005. Registration totaled 262, with 66 abstracts presented and a program that included 4 nationally recognized speakers from other institutions as well as 8 UF faculty.

An accompanying excel file shows UFGI members’ grant funding that commenced during the 2005-2006 fiscal year. These awards totaled \$29,805,925.00, with \$5,242,803.00 of this as indirect costs.

The genetics graduate program accepted four students out of 12 applicants for the fall 2006 semester, thanks to the cooperative leadership in IFAS’ PMCB program and the College of Medicine’s IDP program. The genetics program is distinct due to its interdisciplinary nature and emphasis on quantitative training.

June of 2006 saw the first occupants move into the new Cancer/Genetics Research Complex, with remaining researchers planning to move in the coming fiscal year. To further facilitate interdisciplinary research we have provided housing in the new Cancer/Genetics Research Complex to Sanjay Ranka and Su-Shing Chen, faculty from Computer and Information Science in the College of Engineering. On a temporary basis, biomedical engineering has placed a new faculty member, Brandi Ormerod, in space leased from CLAS.

### 3. Activities – Coming Year

The beginning of the new fiscal year (2006-2007) marked the starting date for another bioinformaticist, Luciano Brocchieri, who is the College of Medicine’s fourth and final faculty appointment on the faculty lines that were provided by the Provost for the institute. Silvia Tornaletti, Anatomy and Cell Biology, also joined the university’s faculty as a trailing spouse.

As a result of the genetics graduate program, two new graduate level courses were designed and offered during the 2006-2007 academic year. One class is a genomics and bioinformatics course, and enrolled students from 19 different programs, and the other class is an ethics for genetics researchers class that includes the topic of intellectual property. A third class in systems biology is currently being developed. The genetics

graduate program has already served as a catalyst for the submission of three graduate student training grants, and another one will be submitted before the end of this fiscal year.

In September the first class of genetics graduate students was welcomed with a picnic at Lake Wauberg which was attended by UFGI faculty and their families. These four students will be finishing their first year's rotations and they have been placed in labs in four different colleges: CLAS, COM, COP, and IFAS. In the spring of 2007, the program received 20 applicants, 6 US and 14 international. Applicants' median GRE was 1300, with a median quantitative score of 720. The admissions committee extended offers to five students; three have accepted, one has yet to respond, and one declined. One of the accepted students was recently awarded an NSF predoctoral fellowship.

November 15, 2006, marked the grand opening ceremonies for the Cancer/Genetics Research Complex, with Governor Jeb Bush addressing faculty, staff and distinguished guests. Tours of the labs were given with visitors having an opportunity to see some of the \$1.75 million worth of common equipment used by researchers in the building complex. Later that same month Florida Genetics 2006 was held at the Reitz Union. This symposium had 253 registrants, 63 posters and included 5 speakers from other institutions and 5 UF researchers. Four of the five guest presenters were members of the National Academies of Science.

Current research funding as of December 2006 for UFGI researchers housed in the newly completed building totaled \$13,879,585, with \$2,914,376 of that total being the indirect costs. The institute is planning to support the genetics graduate program with their portion of indirect monies. As an example of the collaborative efforts the institute fosters, Lauren McIntyre, Department of Molecular Genetics and Microbiology in COM, a recently hired statistical geneticist housed in the new building, was awarded an NIH grant in January 2007 that includes Marta Wayne, Department of Zoology, and another research from the University of California, Davis. Their research is entitled "Genetic variation of allele-specific transcriptome in *Drosophila*."

Three of the members of the newly appointed UFGI external Scientific Advisory Board, composed of Peter Howley (Harvard), Jeffrey Bennetzen (University of Georgia), Yoram Groner (Weizmann Institute, Rehovot, Israel), Rebecca Doerge (Purdue), and Ron Davis (Stanford), convened here on February 19-20, 2007, for their first meeting. The board listened to several groups of researchers from the institute explain their work, met with the genetics graduate students, and provided the UFGI Executive Committee with their recommendations for future goals. The board was very enthusiastic about the graduate program, and in response to their report Marta Wayne has already formed a focus group of UFGI affiliated faculty across campus to explore developing a graduate course, for our students but open to others, that would cross train geneticists and engineers. The group is also discussing intersections between systems biology and synthetic biology, with the ultimate goal of developing a concentration or mini-curriculum in this area.

The UFGI Seminar Series continues to provide a variety of genetics-related topics presented by various on campus and off campus speakers.

4. Position Data (Organizational Chart attached)

Appendix 1.

# University of Florida Genetics Institute 2005 FALL SEMINAR SERIES

## Room R4-265

### Academic Research Building

2 to 3 p.m.

*Refreshments will be served at 1:45 p.m.*

*August 30:*

"RNA-mediated disease"

[Maurice S. Swanson](#), Ph.D., Professor,

Department of Molecular Genetics and Microbiology, University of Florida

([Pubmed Search](#))

*September 1 [Note special day, time and location - Thursday, 4:00 pm, LG-101A (Brain Institute Auditorium)]:*

"Bioinformatics tools for human genetics"

[Alberto Riva](#), Ph.D., Research Associate, Informatics Program, Children's Hospital,  
and Instructor, Pediatrics, Harvard Medical School

([PubMed search](#))

*September 13:*

"Comparative mutational biology of self-fertile Rhabditid nematodes"

[Charles F. Baer](#), Ph.D., Assistant Professor,

Department of Zoology, University of Florida

([PubMed search](#))

**September 27:**

"Linking gene and function by comparative genomics: the tRNA modification goldmine"

[Valerie de Crecy-Lagard](#), Ph.D., Assistant Professor,

Department of Microbiology and Cell Science, University of Florida

([PubMed search](#))

*October 4 [Note special time and location - noon, LG-101A (Brain Institute Auditorium)]:*

"Regulation of genomic rearrangement in the developing immune system"

[Stephen Desiderio](#), Ph.D., Professor,

Department of Molecular Biology and Genetics, Johns Hopkins University

([PubMed search](#))

*October 10 [Note special day, time and location - Monday, 1:00 pm, R3-265]:*

"Gene compositional biases and gene finding in herpesvirus and prokaryotic genomes"

[Luciano Brocchieri](#), Ph.D., Senior Research Scientist,  
Department of Mathematics, Stanford University  
([PubMed search](#))

*October 11:*

"Fast and accurate methods for analysis of biosequences"

[Tamer Kahveci](#), Ph.D., Assistant Professor,  
Department of Computer and Information Science and Engineering, University of Florida  
([PubMed search](#))

*October 25:*

"Genome-wide mapping of in vivo transcription factor loci in *Arabidopsis*"

[Maria Gallo](#), Ph.D., Associate Professor,  
Department of Agronomy & Program in Plant Molecular and Cellular Biology, University  
of Florida  
([PubMed search](#))

*November 8:*

"Utilization of mRNA and protein biomarkers to understand mechanisms of toxicity in  
wildlife"

Nancy D. Denslow, Ph.D., Associate Professor,  
Department of Physiological Sciences & Center for Environmental and Human  
Toxicology, University of Florida  
([PubMed search](#))

*November 15:*

"Chromatin insulators and nuclear organization"

[Victor G. Corces](#), Ph.D., Professor,  
Department of Biology, Johns Hopkins University  
([PubMed search](#))

*November 22:*

"Origins of marine megadiversity: spatio-temporal dynamics of speciation on coral reefs"

Gustav Paulay, Ph.D., Curator,  
Marine Malacology, Florida Museum of Natural History  
([PubMed search](#))

*November 30-December 1 [Note daylong schedule, location - J. Wayne Reitz Union, registration required]:*

"Florida Genetics 2005 (FG2005)"

[Click](#) for schedule of events

Co-sponsored with the Center for Mammalian Genetics, Plant Molecular and Cellular Biology Program, and Health Science Center Libraries

**December 6:**

"Genetic models for human vascular diseases"

[S. Paul Oh](#), Ph.D., Associate Professor,

Department of Physiology and Functional Genomics, University of Florida

([PubMed search](#))

*December 8-9 {Note - registration required}:*

"National Center for Biotechnology Information (NCBI) Field Guide Workshop"

[Click](#) for registration information and schedule.

Co-sponsored with the Health Science Center Libraries

([Field Guide Workshop](#))

*December 13 [Note special time and location - 3:00 pm, LG-101A (Brain Institute Auditorium)]:*

"A comparison of Bayesian and likelihood estimation of population genetic parameters"

[Peter Beerli](#), Ph.D., Assistant Professor,

Computational Evolutionary Biology Group, School of Computational Science, & Department of Biological Sciences, Florida State University

([PubMed search](#))

## University of Florida Genetics Institute 2006 SPRING SEMINAR SERIES

### **Room R4-265**

#### **Academic Research Building**

**2 to 3 p.m.**

*Refreshments will be served at 1:45 p.m.*

*January 24 [Note special time and location - noon, LG-101A (Brain Institute Auditorium)]:*

"What makes a eukaryote a eukaryote? On the origin of mitochondria and the nucleus"

[William F. Martin](#), Ph.D., Professor

Institute of Botany, Heinrich-Heine University, Dusseldorf

[\(PubMed Search\)](#)

*January 31:*

"Avian phylogenomics"

[Rebecca T. Kimball](#), Ph.D., Assistant Professor,  
Department of Zoology, University of Florida  
[\(PubMed search\)](#)

**February 14:**

"Functional genomics and the biology of trauma"

[Lyle L. Moldawer](#), Ph.D., Professor and Vice Chairman  
Department of Surgery, University of Florida  
[\(PubMed search\)](#)

*February 21 [Note special time and location - noon, LG-101A (Brain Institute Auditorium)]:*

"Gene expression studies in hybrid versus inbred maize lines"

Stephen A. Goff, Ph.D., Senior Syngenta Fellow  
Syngenta Biotechnology, Research Triangle Park, North Carolina  
[\(PubMed Search\)](#)

*February 28:*

"Genetic analyses of an arthropod natural enemy of spider mites: parahaploidy, multiple genomes, and transgenesis"

[Marjorie A. Hoy](#), Ph.D., Eminent Scholar,  
Department of Nematology and Entomology, University of Florida  
[\(PubMed search\)](#)

*March 21:*

"Intracellular RNA monitoring in live single cells"

[Weihong Tan](#), Ph.D., Professor,  
Department of Chemistry, University of Florida  
[\(PubMed search\)](#)

*March 27 [Note special day and time - Monday, noon]:*

"The splicing factor SF2/ASF controls cell motility through alternative splicing of Ron protooncogene"

Silvano Riva, Director,  
Institute of Molecular Genetics - CNR, Pavia, Italy  
[\(PubMed search\)](#)

*April 12 [Note special day - Wednesday]:*

"Glucosinolate metabolism and systems biology"

[Sixue Chen](#), Ph.D., Assistant Professor,  
Department of Botany, University of Florida  
([PubMed search](#))

*April 18 [Note special time and location - 1:00 pm, LG-101A (Brain Institute Auditorium)]:*

"Human and bacterial hyper-mutation"

[Myron F. Goodman](#), Ph.D., Professor,  
Departments of Biological Sciences and Chemistry, University of Southern California  
([PubMed search](#))  
Co-sponsored with the Department of Biochemistry and Molecular Biology

*April 25:*

"Genomic regulation of transcription in plant development and evolution"

Matias Kirst, Ph.D., Assistant Professor,  
School of Forest Resources and Conservation & Program in Plant Molecular and Cellular  
Biology, University of Florida  
([PubMed search](#))

*May 2 [Note special time and location - noon, LG-101A (Brain Institute Auditorium)]:*

"Genome syntax: punctuation marks for DNA replication"

[Sergei M. Mirkin](#), Ph.D., Professor,  
Department of Biochemistry and Molecular Genetics, University of Illinois at Chicago,  
College of Medicine  
([PubMed Search](#))

*May 9:*

"Comparative genomics of single cells and cell compartments: molecular dissection of  
memory mechanisms"

[Leonid L. Moroz](#), Ph.D., Associate Professor,  
Department of Neuroscience, Whitney Laboratory for Marine Biosciences, University of  
Florida  
([PubMed search](#))

*May 25 [Note special day, time and location - Thursday, 3:00 pm, LG-101A (Brain  
Institute Auditorium)]:*

"Targeting herpes simplex viruses for therapy of glioblastoma multiforme"

[Bernard Roizman](#), Sc.D., Joseph Regenstein Distinguished Service Professor,  
Departments of Microbiology, Molecular Genetics and Cell Biology, & Biochemistry and  
Molecular Biology, University of Chicago  
([PubMed search](#))

## UF Genetics Institute Annual Report, 2004-2005

The primary goal of the University of Florida Genetics Institute (UFGI) is to harness the diverse academic talents and resources of the genetic research community at UF to improve the health and well-being of our citizenry. As such this mission is integral to the mission of the State University System as a whole.

In order to build on existing strengths and improve UF's position in genetics nationally and internationally, four key areas were targeted for faculty recruitment. The four research areas are listed below with brief definitions.

- Bioinformatics – the analysis of sequence/structure/expression data
- Comparative genomics – the comparison of genomes, genes, and gene functions across organisms
- Population and statistical genetics – computational and statistical methods for analyzing and interpreting genetic data
- Epigenetics – the analysis of mechanisms governing heritable patterns of differential gene expression

There is considerable intellectual and organizational/departmental overlap in these fields that will fuel the synergy that has been a key feature of the UFGI and also ensures a healthy return on investment on faculty in these fields. Specifically, these research areas share a focus on downstream analysis of genomic and genetic data and an emphasis on the correlation of genotype with phenotype. All fields are sufficiently young that UFGI can be competitive with other, more established genetics programs. The first three fields are primarily computer-based and, therefore, a small number of faculty members can have a great impact at minimal cost since large research laboratories are not necessary. Furthermore, many researchers on campus use methods from the first three areas but do not develop such methods, meaning that hires in these areas will directly benefit the research programs of a disproportionately large part of the faculty.

The Genetics Institute continued to successfully recruit new faculty who are well suited to make significant contributions in these targeted research areas. Newly recruited UFGI faculty Sixue Chen, proteomics, joined last year's new UFGI faculty recruits Matias Kirst, quantitative genetics; Zhonglin Mou and Valerie de Crecy-Lagard, Department of Microbiology and Cell Science. UFGI is currently negotiating with another bioinformaticist who may be added to this emerging team.

As construction of the new Genetics Institute Building has moved inside to include outfitting research laboratories with state of the art facilities in preparation for April 2006 occupancy, other faculty from the various colleges who will occupy those labs have been identified. (See Appendix I.)

This year the Graduate Program in Genetics proposal received approval by the Graduate Council and the UF Faculty Senate. This program will serve to utilize the combined talents of the University of Florida faculty to offer a comprehensive genetics training

program that will afford students unique opportunities and insights into fundamental aspects of genetics. As we face global challenges to agriculture, medicine, and society during the twenty-first century, the UFGI will broadly train students to participate in and lead the ongoing biological revolution to the benefit of society. Recruitment of students for Fall 2006 enrollment in this new training program will be a major focus in the coming year.

Of special note this year were two collaborative workshops, co-sponsored with the College of Engineering, which brought together faculty from various colleges to share ideas and expertise with the intent of spawning new multidisciplinary research initiatives. One workshop in September focused on Bioinformatics; the second in November on Nanobiotechnology. Both workshops resulted in enhanced interaction with faculty members from the College of Engineering and included faculty from UF's Whitney Laboratory at St. Augustine, as well as faculty from the Departments of Statistics, Anthropology and Chemistry, IFAS and the College of Medicine. Attendance at each workshop totaled approximately 50 faculty.

The UFGI partnered again with the College of Engineering to sponsor at no charge Florida Bioinformatics Workshop 2005, which was held at the Reitz Union February 21 – 22, 2005. Over 120 registrants attended and had the opportunity to hear eight nationally recognized experts in the field of bioinformatics including Steven Benner from the UFGI. This also provided researchers at UF an opportunity to present their abstracts in the poster session, which had 23 entrants.

The UFGI Executive Committee's monthly meetings afforded representatives from the College of Liberal Arts and Sciences, Health Sciences, Institute of Food and Agricultural Sciences and College of Engineering the opportunity to contribute to these UFGI inaugural events and plan other new initiatives. Preliminary groundwork was laid for two future activities to take place in the coming fiscal year; a symposium, Florida Genetics 2005, and a seed grant funding opportunity for collaborative research. The symposium on epigenetics will be held November 30 – December 1, 2005, in the Reitz Union and includes four nationally recognized leaders in the field. This will offer UF researchers a venue for showcasing their research, and sixty-six abstracts will be featured. The seed grant funding proposals for interdisciplinary researchers interested in genetics and bioinformatics or nanotechnology will be awarded in the fall of 2005. Two proposals for new and innovative research, which must include investigators from more than one UF college, will be funded with \$50,000 from the Office of Sponsored Research for two years and the intent is to enable investigators to generate sufficient preliminary data to allow submission of a program project or center grant to a federal funding agency (e.g. NIH, NSF, DOE, USDA, etc.).

The fall semester's UFGI faculty meeting took place on December 2, 2004, and centered on the presentation and subsequent animated discussion of curricula for the graduate program in genetics.

The UFGI's seminar series has continued to enjoy popular response and has included both on-campus speakers and noted off-campus speakers. The fall semester featured two respected lecturers from other institutions, plus nine UF researchers, while the spring semester included five UF researchers and 5 prominent researchers from other institutions, one a Nobel laureate. (See Appendix II for speakers.)

## **Appendix I**

### UFGI Faculty for New Genetics Building

Steven Benner  
Martin Cohn  
Alice Harmon  
Sixue Chen (N)  
Kenneth Berns  
Henry Baker  
Nicholas Muzyczka  
Maurice Swanson  
Jorg Bungert  
Lauren McIntyre  
Wilfred Vermerris (N)(BI)  
Suming Huang (N)  
Brian Harfe  
V. Ramiya (N)  
Catherine Mah (N)  
Sergei Zolotukhin  
Kenneth Warrington (N)  
Alberto Riva (N) (BI)  
George Casella (BI)  
Su-Shing Chen (BI)  
Harry Klee  
Don McCarty  
Eric Triplett  
Julie Maupin  
Valerie de Crecy Lagard (N)  
Zhonglin Mou (N)  
John Davis  
Gary Peter  
Matias Kirst (N)  
Maria Gallo  
Fredy Altpeter  
Kevin Kenworthy  
Ken Quesenberry  
David Wofford  
Prem Chourey

N= new, BI=bioinformatics

## Appendix II

### Fall 2004 and Spring 2005 Seminars

8/31/04

“Using evolutionary models to reconstruct and deconstruct the last universal common ancestor of life”

Edward L. Braun, Ph.D., Assistant Professor, Dept. of Zoology, UF

9/7/04

“Genetics and the conservation of Florida *Ziziphus*”

Matthew A. Gitzendanner, Ph.D., Assistant Scientist, Dept. of Botany and the Florida Museum of Natural History, UF

9/21/04

“Three-dimensional structure to function correlations for adeno-associated viruses”

Mavis Agbandje-McKenna, Ph.D., Assistant Professor, Dept. of Biochemistry and Molecular Biology, UF

10/5/04

“Enabling genomics – postcards from the ground floor”

William G. Farmerie, Ph.D., Scientific Director, ICBR, UF

10/12/04

"Multiprotein complexes conduct multiple coordinated steps in Trypanosome RNA editing"

Kenneth D. Stuart, Ph.D., Director and President, Seattle Biomedical Research Institute, and Professor, Department of Pathobiology, University of Washington

Co-sponsored with the Dept. of Pathobiology, College of Veterinary Medicine

10/12-13/04

Workshop – “Meeting the information requirements of the Animal Welfare Act”

Co-sponsored with the Institutional Animal Care and Use Committee and the Health Science Center Libraries

10/19/04

“Functional genomics of the plant cell wall”

Karen E. Koch, Ph.D., Professor, Plant Molecular and Cellular Biology Program, and Dept. of Horticultural Sciences, UF

10/26/04

“Viruses and the immune system: who is the pupil and who is the teacher?”

Grant McFadden, Ph.D., Professor, Dept. of Microbiology and Immunology, University of Western Ontario, and Co-director, Biotherapeutics and Immunopathogenesis Group, John P. Robarts Research Institute

11/2/04

“Gene and cell-based treatments for arthritis”

Steven C. Ghivizzani, Ph.D., Associate Professor, Dept. of Orthopaedics and Rehabilitation, UF

11/16/04

“Culture conditions alter reprogramming of nuclei utilized in bovine somatic cell nuclear transfer”

Karen Moore, Ph.D., Assistant Professor, Dept. of Animal Sciences, UF

11/30/04

“*Beauveria bassiana* versus ticks (Acare:Ixodidae): molecular mechanisms of fungal-arthropod pathogenesis”

Nemat O. Keyhani, Ph.D., Assistant Professor, Dept. of Microbiology and Cell Science, UF

12/9-10/04

“National Center for Biotechnology Information (NCBI) Field Guide Workshop”

Co-sponsored with the Health Science Center Libraries

12/14/04

“Patterning of the vertebrate embryo”

Brian D. Harfe, Ph.D., Assistant Professor, Dept. of Molecular Genetics and Microbiology, UF

1/11/05

“DNA-Functionalized Nanotubes – Ion-Channel Mimics and Membranes for Bioseparations”

Charles R. Martin, Ph.D., Colonel Allen R. and Margaret G. Crow Professor of Chemistry, Depts. Of Chemistry and Anesthesiology, and Director, Center for Research at the Bio/Nano Interface, UF

1/18/05

“Designing a Minimal Synthetic Bacterial Genome”

Hamilton O. Smith, M.D., Scientific Director, Synthetic Biology and Biological Energy Groups, J. Craig Venter Institute, and Nobel Laureate

2/1/05

“Toxicoproteomic Profiling of Serum Proteins in Animals and Humans after Acetaminophen Exposure”

B. Alex Merrick, Ph.D., Head, Proteomics Group, National Center for Toxicogenomics, National Institute of Environmental Health Sciences

Co-sponsored with the Center for Environmental and Human Toxicology

2/2-4/05

“Conference on Systems Analysis, Data Mining and Optimization in Biomedicine”

Co-Sponsored with the College of Engineering, McKnight Brain Institute, Center for Applied Optimization, and Cumulative Inquiry, Inc.

2/8/05

“Genetic Assessments of Parentage, Mating Systems, and Reproductive Behaviors of Fishes in Nature”

John C. Avise, Ph.D., Research Professor, Dept. of Genetics, University of Georgia

2/14/05

"RNA Interference and the Epigenome"

Robert Martienssen, Ph.D., Professor, Cold Spring Harbor Laboratory

2/21-22/05

“Florida Bioinformatics Workshop 2005”

Co-sponsored with the Colleges of Engineering, Liberal Arts and Sciences, and Medicine, IFAS – Florida Agricultural Experiment Station, and Office of Research and Graduate Programs

3/8/05

“Linking Genotype and Phenotype in Pine Trees”

John M. Davis, Ph.D., Associate Professor, School of Forest Resources and Conservation and Plant Molecular and Cellular Biology Program, UF

3/22/05

“Parvovirus B19 Vectors for Human Gene Therapy”

Kirsten Weigel-Kelley, M.D., Assistant Professor, Division of Cellular and Molecular Therapy, Dept. of Pediatrics, UF

3/24/05

“Eukaryotic DNA Replication: Origins and Checkpoints”

Thomas J. Kelly, M.D., Ph.D., Director, Sloan-Kettering Institute

Co-sponsored with the Interdisciplinary Program in Biomedical Sciences

4/12/05

“Regulation of the p53 Tumor Suppressor Pathway by Cellular and Viral Oncogenes”

Daiqing Liao, Ph.D., Assistant Professor, Dept. of Anatomy and Cell Biology, UF

4/19/05

"A method for identification of co-regulated transcripts affecting phenotype: A statistical approach to pathway analysis"

Lauren M. McIntyre, Ph.D., Associate Professor, Department of Agronomy and Computational Genomics Group, Purdue University, West Lafayette, Indiana

4/26/05

“Deciphering Rules Governing Enhancer Functional Evolution”

Martin Kreitman, Ph.D., Professor, Dept. of Ecology and Evolution, University of Chicago

5/3/05

"The Evolution of Social Behavior: Individual and Species Differences in Candidate Gene Expression"

Steven M. Phelps, Ph.D., Assistant Professor, Department of Zoology, UF