



Pig Genome Update

No. 61 July 1, 2003

The Center for Animal Functional Genomics (CAFG) of Michigan State University hosted its first International Symposium on Animal Functional Genomics at the Kellogg Center in East Lansing, Michigan on May 9-11, 2003. The symposium brought together 130 scientists from institutions representing 18 countries engaged in high throughput gene expression profiling for the study of cells, organ systems, and phenotypes in multiple animal models of health and infectious diseases, growth and metabolism, reproduction, and bioinformatics/data reduction (see <http://www.isafg.msu.edu> for abstracts). Dr. Brad Fenwick (Chief Scientist, USDA/CSREES/CP/NRI-CGP) opened the symposium with current information on NRI funding opportunities in the area of animal functional genomics. Dr. John Gibson (Program Co-ordinator Livestock Genetics and Genomics, International Livestock Research Organisation, Nairobi, Kenya) presented an intriguing opening lecture focused on functional genomics research as it applies to the significant human and animal health problems in developing countries. The remainder of the symposium highlighted lectures delivered by a diverse cadre of outstanding invited speakers, including Dr. Michael Katze (University of Washington), Dr. Lorraine Sordillo (The Pennsylvania State University), Dr. Robin Morgan (University of Delaware), Dr. Daniel Pomp (University of Nebraska), Dr. Tomas Prolla (University of Wisconsin), Dr. Jerome Strauss (University of Pennsylvania), Dr. James Pru (Harvard Medical School), Dr. Kathleen Kerr (University of Washington), and Dr. Bruce Craig (Purdue University). The symposium also hosted a poster session focused on research of the participants, and exhibits for its numerous corporate sponsors. Given the symposium's overwhelming success, CAFG will host a 2nd International Symposium on Animal Functional Genomics at Michigan State University in spring, 2004. Please check the symposium web site soon for future dates and details.

The Animal Breeding and Genetics group at Iowa State University and the Iowa Beef Center hosted the John M. Airy Beef Cattle Symposium, Visions For Genetics and Breeding on May 15 – 17, 2003 at the Carver Center of Pioneer Hi-Bred International, Inc. The symposium was sponsored by John Airy, a well know former Pioneer employee and addressed primarily genetics questions as they related to the beef industry. However a number of talks touched on subjects of importance to all molecular genetic discovery programs. A total of 95 individuals from 13 countries attended and were not disappointed. The talks and discussion was quite informative and lively. The keynote speaker was Dr. Michel Georges who presented a fascinating talk entitled "Towards Transgenic Engineering of the Myostatin Gene in Livestock". Other talks were outstanding and some had real relevance to pigs. The speakers included Dr. Jim Womack on "Exploiting Our Knowledge of Genome Evolution: The Past, Present and Future of Comparative Genomics", Dr. John Pollak on "Thoughts on Future Directions in Genetic Evaluation of Beef Cattle", Dr. Moshe Soller on "QTL Mapping and Cloning in Beef Cattle", Dr. Sue DeNise on "Whole-genome Association Studies to Determine the Molecular Genetic Value of Cattle", Dr. Graham Plastow on "The Role of Breeding Companies in Delivering Change: Lessons from the Pig Industry", Dr. Steve Kappes "Challenges of beef Cattle Genetics Research", Jay Hetzel on "Delivery of Gene Marker Technology to the Beef Industry", Dr. Merete Fredholm on "Beyond the Sequenced Swine Genome: The Swine Transcriptome", Dr. Steve Bishop on "Current Status and Future of Disease Genetics and Animal Health Research in Relation to Beef Cattle Production" Dr. Doyle Wilson on "The Road to a New Set of EPDs", Dr. John Gibson on "Exploiting Genetic Technologies for Global Benefits" and an informative and amusing wrap-up by Dr. Jerry Taylor. A copy of the proceedings is now available at a nominal cost by writing jreecy@iastate.edu and may be on the web at a later date.

An outstanding NC1004 meeting was held at MARC, Clay Center, NE on May 29-31. Hosted by Brad Freking and Daniel Pomp the meeting featured tours of the facility and talks by a number of MARC scientists on pig genome work. In addition many stations gave useful and informative reports of their research efforts. Of particular importance was that this meeting represented the joining of the previous NC regional projects on pig gene mapping/molecular genetics and quantitative genetics. Attended by nearly 40 individuals the group made excellent progress on developing shared goals and project objectives related to this area. Two major items of discussion included bioinformatics needs and achieving the outreach component of NC-1004. The NC-1004 Bioinformatics Working Committee of Chris Tuggle (Co-Chair), Diane Moody, Scott Fahrenkrug (Co-Chair) and Cathie Ernst was appointed. John Keele (US-MARC) will be asked if he is willing to join the committee. Also, Max Rothschild will serve as an ex officio member and Peter Brayton will be kept informed of committee progress. The committee's first task will be to develop guidelines for the shared oligonucleotide arrays that will be distributed soon. Later the committee will consider other informatics sharing issues. The NC-1004 Outreach Committee of Rodger Johnson (Chair), Ron Bates, Tom Baas and Steve Moeller was appointed to consider outreach activities. The committee is supporting ISU efforts to present a QTL related workshop to industry. Other accomplishments include working toward a joint effort to collect health data in pig herds. Our hosts and their colleagues at MARC deserve a big thank you!

Pig arrays almost ready to share. Materials needed to produce a 13,000 element oligo array have been produced. Thanks to the activities of a committee from NRSP (Chris Tuggle, Daniel Pomp (co-chairs), Mike Murtaugh, Diane Moody, Jon Beever and Cathy Ernst) the arrays are nearly ready for distribution to NRSP-8 and NC1004 members. Pig Genome Coordinator funds were used to buy the oligos and will be used to partially fund printing of these oligos on to glass slides. Initial printing of about 400 slides for the community will take place. To insure that the arrays are not wasted, individual researchers can request 20 free arrays and later up to 50 additional ones but they will be responsible for the printing costs of the additional ones. To order, please go to the following WWW site: http://www.genome.iastate.edu/resources/array_request.html and place an order. Shipping will occur after some initial tests on the arrays are completed. We owe a big thank you to all that have helped offer opinions and help, especially the committee for their good work.

New Functional Genomics of Agriculturally Important Organisms grants program is now available. Research in this area should focus on tissue-specific DNA microarrays for gene expression profiling as these gene products are temporally expressed in animals used for the production of food and fiber, including horse and aquaculture species. Projects are expected to evaluate the interaction between specific genetic characteristics and the environmental, social, or physiological factors that influence the phenotypic expression of characteristics important for animal production or health. It is anticipated that approximately \$2 million will be available for animal functional genomics. This program area seeks to support proposals that integrate research, extension, and education or projects that are multistate, multi-institutional, or multidisciplinary. Research goals for each of the supported organismal groups are described below. Extension activities may include, but are not limited to, collaboration with plant or animal breeders regarding the application of genomics to the development of improved agricultural products, or consultation with disease/pest diagnosticians regarding the development of improved pathogen/pest detection methods. An example of a multidisciplinary project would be a project that incorporates computational expertise, model building, and molecular biology. Applicants are strongly encouraged to contact National Program Leaders with questions about the suitability of proposals. Questions regarding the functional genomics of animals section should be directed to Peter Brayton (pbrayton@csrees.usda.gov; telephone: (202) 401-4399; fax: (202) 205-3641).

Producers, sales persons, scientists, and the lay public all attended the World Pork Expo in Des Moines June 5-7. This provided persons with good food, ideas of the industry and application of technologies, including molecular genetics, to the pig industry. The trade fair reflected financial concerns in the industry and the need for increased retail prices.

Your help in sharing microsatellite primers is needed!! We have been sharing over 11 primer sets world wide for the past 10 years and have run out of them. However, the demand continues from many places around the world. If you have unused sets and the documentation is still good and you reside in the US please return them to Max Rothschild, 2255 Kildee Hall, Iowa State University, Ames Iowa 50011.

Next year's PAG-XII will be held January 10-14, 2004 again in San Diego at the same location. Plenary speakers will begin to be invited soon. If you have speaker suggestions or other comments, please contact one of the organizing committee representatives (Abel Ponce de Leon, apl@umn.edu; Cathy Ernst, ernstc@msu.edu; Bhanu Chowdhary, bchowdhary@cvm.tamu.edu; Noelle Cockett, fanoelle@cc.usu.edu; or Martien Groenen, martien.groenen@alg.vf.wau.nl).

Upcoming meetings (see: <http://www.genome.iastate.edu/community/meetings.html>)

- 13th North American Colloquium on Animal Cytogenetics and Gene Mapping, Louisville Zoo, Louisville, KY, July 13-17, 2003. For more information please see <http://www.uky.edu/Ag/VetScience/NACACGM/> or contact Teri Lear at equigene@uky.edu.
- Transgenic Animal Research Conference IV, August 10-14, 2003, Granlibakken Resort, Lake Tahoe, California. Register at <http://conferences.ucdavis.edu/transgenic>
- 15th Int'l. Genome Sequencing and Analysis Conference, Sept. 21-24, 2003, Savannah, GA. See www.tigr.org/gpac for further information.
- Plant, Animal and Microbial Genome XII, joint with the NAGRP annual meetings, Jan. 10-14, 2004, Town & Country Convention Center, San Diego, CA. Please see www.intl-pag.org/ for more information.
- ISAG 2004, 29th International Conference on Animal Genetics, Sept. 11-16, 2004, Surugadai Campus, Meiji University, Tokyo, Japan. For more information see <http://www2.kobe-u.ac.jp/~isag2004/>

Additional items can be found at: <http://www.agbiotechnet.com/calendar/index.asp>.

Items for *Pig Genome Update 62* can be sent to me by no later than August 15 please.

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