



# Pig Genome Update

## No. 77 March 1, 2006

**The PAG XIV meeting and the swine genetics and genome committee meetings again were held in sunny San Diego.** Despite the cooler than normal weather the meetings were well attended. Saturday the joint NRSP8 and NC1004 committees met with over 75 people attending the invited talks which highlighted reports from younger scientists. Mr. Tsai (NC State) examined epigenetics involving porcine clones based on gene expression profiling using Affymetrix Porcine, Affymetrix Human, and spotted glass oligonucleotide microarray platforms. Their work revealed a number of differentially expressed known imprinted genes among their clones. Dr. Wang (Iowa State) presented their work on the host transcriptional response to infection with *S. enterica* serotype Choleraesuis (SC) and Typhimurium (ST) in pigs. Mr. Ramos (Iowa State) reported fine mapping of QTLs for meat quality on SSC17. A contig of ~7.1 Mb was assembled and used for developing high density markers for narrowing down the QTL intervals. Dr. Grapes (Monsanto Choice Genetics) reported a construction of an ultra high-density linkage map in pigs with a total of 6,000 single nucleotide polymorphisms (SNP) and microsatellite (SSR) markers. Dr. Damgaard (Danish institute for Ag Sci) showed how to use survival models to infer phenotypic and genetic aspects of longevity in sows. Dr. Hu (Iowa State) presented their continued research on the Pig QTL Database (PigQTLdb) that include its new data collection/curation/editing/release functions, alignment of QTL maps to pig RH maps, pig BAC FPC maps, human maps, and tools for pig trait ontology management. Ms. Demars (INRA) reported new micro rearrangements between the porcine and human genomes in the region surrounding the MHC that contains QTL influencing many traits. Administrative reports by Dr. Hamernik, Dr. Qureshi, and Dr. Stromberg covered budget items and reports due. The swine genome coordinator discussed resources and materials available to the swine genome community. These were then followed by station reports from several stations on QTL and expression research. The efforts of the two chairs, Joe Cassidy and Zhihua Jiang in organizing this very good program are much appreciated.

**Awarding of the \$10 million USDA grant for sequencing the pig genome took center stage on Sunday** at the International Swine Genome Consortium workshop organized by Larry Schook. Several speakers including Larry Schook, Jon Beaver (University of Illinois), Jane Rogers, Sean Humphray (Wellcome Trust Sanger Institute), Craig Beattie (University of Nevada-Reno), Patrick Chardon (INRA), Gary Rohrer (USDA-MARC), Max Rothschild (Iowa State) and Kellye Eversole, (Alliance for Animal Genome Research) presented the plans for sequencing, SNP detection, map results and plans for informing the public and acquiring additional funds for future research. Undersecretary Dr. Joseph Jen announced the grant being awarded to the University of Illinois and their collaborators from US and foreign labs. Sequencing has already begun and updates can be seen daily at <http://www.animalgenome.org/pigs/genomesequence/>. These updates are provided as part of the Bioinformatic Coordinator's team effort. Other information about the sequencing can be seen at that page and web pages at the Sanger Institute and the University of Illinois.

**Other activities at PAGXIV were quite varied.** The main PAG-XIV meeting opened with a plenary talk from Ari Patrinos, head of the Office of Biological and Environmental Research at the Department of Energy's Office of Science and a key player in the human genome project. A recurring theme of the plenary talks was higher order systems biology and integration of genomic information with other data pipelines. Among the highlights were talks by Ariel Darvasi (mouse QTL searches), Bernhard Palsson (multidimensional genome annotation/prokaryotic genome evolution), and Rob Martienssen (RNAi/heterochromatin silencing). In addition to plenary talks and industry workshops, a poster session with nearly 1000 posters was held. There will likely be several changes to improve the meeting next year. In order to meet the ever-growing demand for workshop space, plenary lectures will be reduced to two each on Tuesday and Wednesday, with an earlier start (8 a.m.), and workshops will be added between 10 a.m. and lunchtime. A single keynote/plenary speaker will be added to the program after the opening reception/poster session on Sunday night. Anyone with suggestions about PAG-XV speakers or other aspects of PAG should contact PAG animal reps, including Hans Cheng, Max Rothschild, Claire Gill, Mary Delany, Michel Georges and Jim Reecy.

**Pig Genome I was held at Lodi Italy.** The meeting was attended by over 130 people and brought together primarily individuals from the European team working on the pig genome. Invited talks, presentations and posters provided for a very stimulating meeting and the organizers and hosts should be thanked for an outstanding meeting. While Pig Genome II has yet to be planned it is likely there will be follow-up meetings.

**USDA CSREES FY 2006 National Research Initiative (competitive grant program) information** can be found at <http://www.csrees.usda.gov/fo/fundview.cfm?fonum=3D1112>. Total FY 2006 NRI funding was estimated at \$183M, but this will likely be reduced by across the board cuts of 1% (to end up at about the same level as last year). Note that there are some changes in the FY2006 NRI. The Program 43.0, Animal Genome, has been divided into Applied Animal Genomics, Tools and Reagents, Bioinformatics, and Functional Genomics. (Functional Genomics will appear on alternate years beginning in FY 2006.) The due date for all is June 15, 2006. As mentioned in the last issue and discussed again at PAG-XIV, CSREES officials are concerned about the low overall NRI success rate (14 of 73 proposals funded in the 2005 Animal Genome Program or 19%). Efforts (sometimes controversial) have been made to focus the NRI RFA to reduce the effort going into preparing and reviewing unsuccessful proposals. However, we all agree that, absent a significant increase in Federal and other sources of financial support for agricultural research, the scientific community will have little choice but to compete as best they can for all those funds that remain available. Most of us also agree that a fair and open competition, followed by rigorous peer review and careful allocation of resources, is the best way to ensure the future of animal genomics and agricultural research, in general. A report provided by CSREES's Peter Burfening at PAG-XIV showed that, over the last 7 years, the success rate by species emphasis area has been remarkably close to the overall average of 23% for all species for which enough applications were submitted to be statistically meaningful (kindly provided by Jerry Dodgson)

**Upcoming meetings (see: <http://www.animalgenome.org/pigs/community/meetings.html>)**

Pig Breeders Roundtable, March 29-31 in Wye, Kent, England. For details please contact [chris.haley@bbsrc.ac.uk](mailto:chris.haley@bbsrc.ac.uk)

Workshop on Chicken Genomics & Development, May 7-10, 2006, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. See <http://meetings.cshl.edu/meetings/chick06.shtml>

The Biology of Genomes, May 10-14, 2006, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. See <http://meetings.cshl.edu/meetings/genome06.shtml>

2nd International Symposium on Animal Functional Genomics, May 16-19, 2006, Henry Center, Michigan State U., East Lansing, MI. See <http://www.isafg.msu.edu>

17th European Colloquium on Animal Cytogenetics and Gene Mapping, June 18-21, 2006, Lisbon, Portugal. See [http://www.realvitur.pt/17\\_ecacgm.php](http://www.realvitur.pt/17_ecacgm.php)

The 8th World Congress on Genetics Applied to Livestock Production Belo Horizonte, MG, Brazil, August 13- 18, 2006. For information please contact Fernando E. Madalena at [iprocincia@terra.com.br](mailto:iprocincia@terra.com.br)

ISAG 2006, 30th International Conference on Animal Genetics, August 20-25, 2006, Porto Seguro - Brazil. See <http://www.cbra.org.br/eventos/XXXisag.do>

24th Stadler Genetics Symposium, "Genomics of Disease." October 2-4, 2006. University of Missouri, Columbia, MO. Please see <http://muconf.missouri.edu/stadler/>

Items for *Pig Genome Update 78* can be sent to me by no later than April 15 please.

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