



POULTRY GENOME NEWSLETTER 2009

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Some poultry geneticists at the Illumina PAG reception at the San Diego Zoo

PAG XVII & NAGRP/NC-1170 Meeting report

PAG-XVII and the NRSP-8/NC-1008 meetings were held **January 10-14, 2009** in sunny San Diego. The Poultry Workshop was led by NC1170/NRSP-8 Poultry chairs **Eric Wong** and **Huanmin Zhang**. In addition to a full slate of excellent Station reports, guest speakers included **Martien Groenen**, **Richard Crooijmans**, **Hyun Lillehoj**, and **Rami Dalloul**. Martien updated the group on the status of supplemental chicken genome sequencing at Washington U., his own reduced representation sequencing of four commercial chickens for SNP discovery and the design of the 60K Illumina chicken SNP chip. Richard described the copy number variation landscape of the chicken genome. Hyun outlined the discovery and analysis of coccidiosis susceptibility QTL, and Rami described current turkey genome sequencing efforts at Virginia Tech (see below). **Jim Reecy** also spoke about the NRSP-8 bioinformatics program and solicited input/requests in the area of poultry bioinformatics. **Carl**

Schmidt described the Gallus Gbrowse web site (listed as a guest, but we believe he is now the Delaware Station rep.). The poultry workshop was followed by a combined NRSP-8 scientific symposium and business meeting. The main PAG meeting included many additional workshops and plenary speakers including **Lee Hood, George Church, Andy Clark, Ewan Birnery, and Steve Briggs**, among others. PAG poster sessions featured many posters relevant to poultry genomics, presented mostly by a strong contingent of student representatives. It appeared to this biased eye that these attracted some of the largest audiences for posters at PAG. Congratulations to **Tom O'Hare**, U.C. Davis, this year's **Neal Jorgensen Travel Award** winner for poultry. NRSP-8 and NC-1170 again will meet next year with PAG-XVIII, in San Diego, **Jan. 9-13, 2010**. Suggestions for invited speakers and/or other changes to the meetings are needed as soon as possible. Send these to **Hans Cheng** at hcheng@msu.edu. See <http://www.intl-pag.org/> for PAG-XVII abstracts and other information.

Other Poultry Species Joining the Genome Sequencing Club



A variety of work continues to demonstrate the surprisingly high level of homology and synteny between the turkey and chicken genomes, such that it is now apparent that the **turkey** genome can be cost effectively sequenced using high throughput sequencing technologies and alignment by comparison to the chicken genome sequence. The **Virginia Bioinformatics Institute** at **Virginia Tech** announced on Nov. 19, 2008 their project to sequence the turkey ("Hokie") genome using Roche/454 technology and led by **Otto Folkerts**. Another project (using Illumina/Solexa technology) to sequence the turkey genome is underway at **Beltsville Agricultural Research Center**, led by **Julie Long, Curt Van Tassel, Tad Sonstegard** and **Martien Groenen**. A portion of the NRSP-8 poultry coordination 2009 budget has assisted in the turkey genome sequencing effort.

Meanwhile, the **Beijing Genomics Institute-Shenzhen** hosted a meeting including **Ning Li, Dave Burt, Martien Groenen, Alain Vignal** and others to discuss their plan to sequence the **duck** genome. Illumina/Solexa paired end reads along with other clone libraries will be used. BGI Shenzhen also recently sequenced the Panda genome, as described at a reception hosted by Illumina at the San Diego Zoo during PAG.

WASHINGTON UPDATE

Due to the establishment of the **National Institute for Food & Agriculture (NIFA)** that consolidates USDA competitive research, education and extension programs, a **new competitive grant program, the Agriculture and Food Research Initiative (AFRI)**, will replace the **National Research Initiative** for FY 2009. The program announcement is available at <http://www.csrees.usda.gov/funding/afri/afri.html>, including the likely application deadlines. Several programs require submission of a letter of intent in advance. The actual 2009 AFRI RFA is expected very soon. The exact amount of funding available is uncertain, since it's unclear when (if ever) a FY 2009 budget bill will be passed by Congress. Best guesses are similar dollar levels to FY 2008.

ON THE ROAD AGAIN. UPCOMING MEETINGS:

NOTE: Regularly updated poultry meeting information is now available at http://www.animalgenome.org/share/mtg_chic.html. Meeting organizers can enter their own meeting information on-line at www.animalgenome.org/cgi-bin/angenmap/mtg_new.

Gordon Conference on Quantitative Genetics and Genomics, Feb. 22-26, 2009. Hotel Galvez, Galveston Island, TX. Register at <https://www.grc.org/application.aspx?id=3D8785>

Statistical Genetics of Livestock for the Post-Genomic Era, May 4-6, 2009. U. of Wisconsin, Madison, WI. Meeting information available on-line soon.

Systems Biology: Integrative, Comparative, and Multi-Scale Modeling: The 18th Annual Growth Factor and Signal Transduction Conference, June 11-14, 2009, Iowa State U., Ames, Iowa. See <http://www.bb.iastate.edu/~gfst/phomepg.html>

Poultry Science Association Meeting, July 20 - 23, 2009. Raleigh Convention Center, Raleigh, NC. See <http://www.poultryscience.org/psa09/> for more details.

7th U.C. Davis Transgenic Animal Research Conf., Aug. 17-22, 2009, Granlibakken Resort and Conference Center, Tahoe City, CA. See <http://conferences.ucdavis.edu/transgenic>

6th European Poultry Genetics Symposium, Sept. 30-Oct. 2, 2009, Bedlewo/Poznan, Poland. For further information, contact Dr. Tomasz Szwaczkowski, tomasz@jay.au.poznan.pl.

Plant & Animal Genome Conference, PAG XVIII, Jan. 9-13, 2010, Town & Country Hotel, San Diego, CA. Information available at <http://www.intl-pag.org/>.

CHICKEN SNPS!

A consortium with funding from a USDA NRI grant, Cobb Vantress, and Hendrix Genetics has developed an array to genotype chicken SNPs, mainly for the purpose of testing Genome-wide Marker-Assisted Selection in commercial chickens. The array will be an Illumina iSelect array. Genotyping services have been contracted through DNA Landmarks, Inc.

CHICKEN CHIPS!

The 13K chicken spotted cDNA glass slide array (Burnside *et al.*, *BMC Genomics* 6:13, 2005) will no longer be available from the Array Facility at the Fred Hutchinson Cancer Research Center (genomics@fhcrc.org). However, they will offer hybridization services to the **44K Agilent Technologies** (www.agilent.com) **long oligonucleotide microarray** at a comparable price. Agilent also developed a 244K whole genome long oligo array that can be used for comparative genome hybridization (CGH) and whole genome transcriptional profiles, among other things. Another long oligo array is available at the **U. of Arizona**, www.grl.steelecenter.arizona.edu, and can also be purchased on a custom basis from **Nimblegen**, www.nimblegen.com. **Affymetrix, Inc.** sells a chicken genome array that measures levels of 32,773 chicken and 684 viral transcripts, <http://www.affymetrix.com/products/arrays/specific/chicken.affx>.

Poultry Coordination funds were used in FY 2008 to purchase and distribute a number of Agilent 44K expression and 244K CGH arrays and some Affymetrix expression arrays for use by NRSP-8 members. If you want us to continue this effort, please let us know asap.

Jan Gavora

Regretfully, for anyone who did not see this earlier, we must report the death of **Jan Gavora**, a long time participant in our community and a close friend and collaborator of many of us, who is widely known for his pioneering work on poultry genetics and virology at the Centre for Food and Animal Research, Agriculture Canada. **Alan Emsley** put it best by saying that **“Jan’s legacy is one of tremendous magnitude among those of us who benefited from his highly-focused scientific efforts on disease resistance and who also benefited from his friendship and unselfish collegiality. He will be greatly missed.”**

THE BAC PAGE!

Chicken BAC libraries have been constructed at Texas A&M (~39,400 each in three sublibraries called TAM31, TAM32, and TAM33, respectively; Lee et al., *Animal Genetics* 34: 151) and by **Pieter de Jong** (CHORI-261: ~73,700 BACs with ~195 kb inserts). Pieter has also generated a **turkey BAC library (CHORI-260)**. If interested in either CHORI library, see <http://bacpac.chori.org>. Some free filter sets with spotted arrays of CHORI-260, CHORI-261, TAM31 and TAM33 BACs are still available, email dodgson@msu.edu.

Please note. As described previously, an extensive table is available of Turkey BACs (from CHORI-260, see above) assigned to turkey markers and genes at our Resources page at <http://poultry.mph.msu.edu/resources/Resources.htm> as well as a Table listing the Genbank assignment numbers for Turkey BAC (CHORI-260) end sequences and the corresponding BACs that were sequenced. In addition, a multi-spreadsheet table is provided that lists the orthologous location in the chicken genome (Build 2) for the turkey BACs. This information soon will be updated to include a similar number of new BAC end sequences and orthologous locations of turkey BACs from the new library constructed by **Hongbin Zhang** and colleagues at Texas A&M U. **Turkey BAC filters from a new library from this library will soon be available!**

For those interested in other avian species, CHORI now has made two new BAC libraries:

CHORI-263: Budgerigar (*Melopsittacus undulatus*) BAC Library
<http://bacpac.chori.org/library.php?id=465> and **CHORI-264: White-throated Sparrow**
(*Zonotrichia albicollis*) <http://bacpac.chori.org/library.php?id=469>

Poultry Genome Newsletter Archive

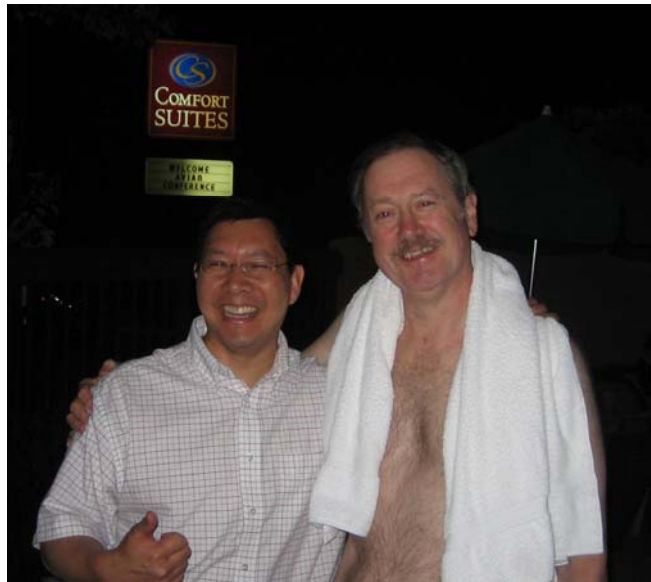
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PLEASE PROVIDE YOUR INPUT

The Poultry Coordinators are always glad to hear from NRSP-8 members and other readers about ways that we can improve the coordination effort or provide resources that are needed and with which we may be able to help. Also, let us know if you have items of general interest to the poultry genetics community that we can include in this Newsletter. PICTURES and GRAPHICS are especially welcome for our new .pdf versions of the newsletter.

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