



POULTRY GENOME NEWSLETTER 2009

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PAG XVIII & NAGRP/NC-1170 Meeting

PAG-XVIII and the **NRSP-8/NC-1008** meetings will be held again in San Diego, **Jan. 9-13, 2010**. Information will be mailed out soon or see <http://www.intl-pag.org/> for information. Abstract submissions will begin sometime in September with a deadline in **early** October. Scheduled PAG XVIII plenary speakers include **Eric Schadt, Peter Raven, Howard Jacob, Evan Eichler, Joanne Chory, Robb Fraley** and **Vicki Chandler**. The **NRSP-8/NC-1008 Poultry Workshop** will begin bright and early at **8 a.m. on Saturday, Jan. 9**, wrapping up at mid-day on Sunday. The poultry workshop will be co-chaired by **Huanmin Zhang** and **Eric Wong**. Please respond promptly when they contact you to arrange the schedule! The **NRSP8 Animal Genome Workshop** and business meeting will be held 1:30-6:00 p.m. on Sunday afternoon, to be chaired by **Cecilia Penedo**. As usual, **coordinators have some funds to help with travel support for NAGRP members or their lab members - contact us promptly**. (Remember, the deadline for reduced registration is usually Nov. 1.) In particular, students are encouraged to apply for the **Neal Jorgensen Travel Award** for poultry (see the PAG website listed above or contact dodgson@msu.edu).

Poultry Bioinformatics: New Resources Available

Gallus GBrowse has been updated, adding several new sets of data.

Genes: Tiles identifying Exons, Coding Exons, Start codons & Stop codons have been added.

Gene Expression:

GEISHA links have been corrected and updated.

Chicken ESTs have been added

“Other Avian” species” has been changed to “**Other Archosauria**” and been updated to include:

Turkey Microsatellites

Crocodylian ESTs

Leiposaura ESTs have been added including: Snake ESTs and Anole ESTs

New tracks have been added describing **Copy Number Variations** from: Red Jungle Fowl, Silkie and White Leghorn (all from **Mary Delany**), and Araucana, Blue Hen, UIUC Heritage line, and Ross 708. This analysis is unpublished (**Carl Schmidt** and **Larry Cogburn**) but we thought the data might be useful to others in the field. We are currently working on a manuscript. The CNV data is derived using the Red Jungle Fowl genomic DNA as reference. The Red Jungle Fowl CNV track compares genomic DNA between the “reference RJF genomic DNA” and a second RJF.

General Tracks: In collaboration with **Zhiliang Hu** and **James Reecy** (Animal QTLdb) we have added chicken QTL mappings to Gallus Gbrowse.

The new Gallus GBrowse 2009 can be accessed at: <http://birdbase.net/cgi-bin/gbrowse/gallus08/> or get to it from Bird Base at <http://birdbase.net/>). The previous version can still be accessed at:

<http://birdbase.net/cgi-bin/gbrowse/gallus/>. We have also created **Turkey GBrowse 2010** to aid in mapping the Turkey BACs to the chicken genome. The mapping was done by **Jerry Dodgson**, **Hongbin Zhang** and **colleagues**. Turkey GBrowse can be found at: <http://birdbase.net/cgi-bin/gbrowse/turkey10/>. Thanks to **Carl Schmidt**, schmidtc@udel.edu, for the above information and spearheading the development of Gallus GBrowse.

GallusReactome Knowledgebase (version 1) has been released at <http://gallus.reactome.org>.

GallusReactome is a free, online, open-source, curated resource of core pathways and reactions in chicken biology. Information is authored by expert biological researchers, maintained by the GallusReactome editorial staff and cross-referenced to the NCBI Entrez Gene, Ensembl and UniProt databases, the KEGG and ChEBI small molecule databases, PubMed, and the Gene Ontology (GO). **New content:** This first release features pathways of energy metabolism (carbohydrate and pyruvate metabolism, the TCA cycle) and linked reactions of amino acid and lipid metabolism, together with an extensive annotation of the process of DNA repair. Data are drawn from the extensive experimental studies of these aspects of avian biology, supplemented with orthology projections from mammalian systems. Work is now underway to annotate telomere replication as well as porphyrin and nucleotide metabolism.

Data access: The web interface allows users to view all annotations of chicken biological processes. GallusReactome data can be exported in SMBL, Protégé, and BioPAX formats. Like everything in GallusReactome, these downloaded and exported materials can be modified and reused freely. Users can subscribe to the Reactome announcement list from the webpage at <http://mail.reactome.org/mailman/listinfo/reactome-announce>.

Work in progress: GallusReactome is seeking expert help for the curation of new modules. Ones now underway are listed in our editorial calendar. The Reactome knowledgebase relies on collaborations with research biologists to construct expert consensus views of key biological processes and to integrate these with other processes already in Reactome. We are seeking new author-collaborators. If you're interested, or would like more information about our data acquisition process, please contact us at galluseditorial@reactome.org. Thanks to **Peter D'Eustachio** on behalf of **The GallusReactome team**.

POULTRY SCIENCE ASSN. MEETING REPORT

The PSA Annual Meeting that just wrapped up in Raleigh, NC, was a great success thanks to the Program Committee and local hosts from NC State. The meeting kicked off with the **Keynote Symposium** that emphasized the role of breeding and genomics in responding to issues related to animal welfare. Among the speakers were **Heng-Wei Cheng** and **Bill Muir** from ARS and Purdue, respectively, who featured the famous KGB (kinder but gentler birds) line developed using group selection methods, and **Wayne Kuenzel**, who spoke on the neuroendocrine basis of poultry stress. Several representatives of the breeding companies provided their perspectives, demonstrating that animal well-being was already a major factor in their selection strategies. The Genetics, Immunology and Physiology, Endocrinology and Reproduction sessions included several talks of interest to poultry genomics and genome modification researchers. Congratulations go out to **Sue Lamont**, who received the **Embrex Fundamental Science Award** and **Sandy Velleman** who awarded the **Evonik Degussa Award for Achievement in Poultry Science**.

ON THE ROAD AGAIN. UPCOMING MEETINGS:

NOTE: Updated meeting information is 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.

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.

Next Generation Sequencing: Challenges and Opportunities, Oct. 1-3, 2009, Casa Convalescencia, Barcelona, Spain. See <http://ngs2009.uab.es>

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

Poultry Science Association Meeting (joint with ASAS and ADSA) July 11-15, 2010. Denver, Colorado

THE BAC PAGE!

Chicken BAC libraries have been constructed at Texas A&M (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)** and **Hongbin Zhang** and colleagues have generated a new **78-TKNMI turkey BAC library**. If interested in either CHORI library, see <http://bacpac.chori.org>. Some free filter sets with spotted arrays of 78-TKNMI and CHORI-260 turkey BACs or CHORI-261, TAM31 and TAM33 chicken BACs are still available, email dodgson@msu.edu.

Turkey BAC – Chicken sequence Comparative Map. A new turkey-chicken comparative map developed by **Dodgson, Zhang and colleagues** has been added to other BAC information available on our Resources page at <http://poultry.mph.msu.edu/resources/Resources.htm>. This map contains nearly 47,000 turkey BAC alignments with their most likely orthologous location in the chicken genome sequence (Build 2) as determined by turkey BAC end sequences and/or hybridization to BAC filter arrays. The information is provided as a searchable and sortable Excel file across the whole genome, and it has been extensively manually annotated. It also includes the current fingerprint contig assignments for CHORI-260 BACs in the first generation turkey BAC contig map developed by Zhang and colleagues. In addition, as noted above, the turkey BAC alignments can be accessed in a graphical fashion using **Turkey GBrowse** at: <http://birdbase.net/cgi-bin/gbrowse/turkey10/>.

Poultry Genome Newsletter Archive

Poultry Genome Newsletters are distributed electronically through Angenmap, the Animal Genome Discussion Group (<http://www.animalgenome.org/community/discuss.html>). Previous newsletters are archived as .pdf files at <http://poultry.mph.msu.edu/newsltrs/newsltrs.htm>.

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 .pdf versions of the newsletter.

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Jerry Dodgson, Poultry Coordinator
Dept. of Micro. & Molecular Genetics
2209 Biomed. & Phys. Sciences Bldg
Michigan State University
East Lansing, MI 48824
email: dodgson@msu.edu

Hans Cheng, Co-Coord.
USDA-ARS ADOL
3606 E. Mt. Hope Ave.
East Lansing, MI 48823
email: hcheng@msu.edu