



# POULTRY GENOME NEWSLETTER 2005

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## Chicken Genome Sequence Update and Where to View It

A second “build” of the chicken genome sequence is presently underway. In about a month, this should be sent to browsers at **Ensembl**, [http://www.ensembl.org/Gallus\\_gallus/](http://www.ensembl.org/Gallus_gallus/); **NCBI**, <http://www.ncbi.nlm.nih.gov/genome/guide/chicken/>; and **UCSC**, <http://genome.ucsc.edu/cgi-bin/hgGateway?org=Chicken&db=0&hgsid=30948908>). You’ll also be able to download it at the **Wash. U. Genome Seq. Ctr.**, <http://genome.wustl.edu/genome.cgi?GENOME=Gallus%20gallus>  
NOTE: **Val Curwen** ([vac@sanger.ac.uk](mailto:vac@sanger.ac.uk)) has taken over as the lead at Ensembl for their chicken genome resources. Welcome, Val!

### PAG XIV & NAGRP/NC-1008 Meeting

PAG-XIV will be held **January 14-18, 2006** at the usual spot, the **Town and Country Hotel, San Diego, CA**. Registration on-line and the program are available at [www.intl-pag.org/](http://www.intl-pag.org/). The **NC-1008 Multistate Research project committee and the National Animal Genome Research Program, NRSP-8**, will again meet concurrently, beginning on Saturday morning (9:00 am, Jan. 14). **Chris Ashwell**, chair for NRSP8-Poultry, and **Doug Foster**, chair of NC-1008, are co-hosting the Poultry Workshop. Doug ([foste001@umn.edu](mailto:foste001@umn.edu)) needs the titles for member talks asap. **Coordinators again have some funds to help with travel support for NAGRP members or their lab members** (contact [dodgson@msu.edu](mailto:dodgson@msu.edu) or [hcheng@msu.edu](mailto:hcheng@msu.edu)) .

### WANT TO GET AWAY?

If PAG isn’t long enough for you to escape your local weather, **consider combining your PAG trip with one or all of the following:**

**January 5-7, 2006, Genetic Analysis: Model Organisms to Human Biology**, Genetics Society of America, Town and Country Hotel, San Diego, CA. See [www.gsa-modelorganisms.org](http://www.gsa-modelorganisms.org).

**January 8-13, 2006, Genome Sequence Variation and the Inherited Basis of Common Disease and Complex Traits**, Keystone Symposium, Big Sky Resort, Big Sky, Montana. See [www.keystonesymposia.org](http://www.keystonesymposia.org).

**January 12-14, 2006, Genomics of Closely Related Organisms**, Marriott University Park Hotel, Tucson, Arizona. See [www.genomics.arizona.edu/meeting2006.html](http://www.genomics.arizona.edu/meeting2006.html)

### SEND YOUR SUCCESS STORIES TO CSREES

**Muquarrab Qureshi**, NAGRP Leader, is revising the CSREES Animal Breeding, Genetics and Genomics webpage, <http://www.csrees.usda.gov/ProgView.cfm?prnum=4467> . He requests short features that highlight the impact of your research on animal agriculture and wellbeing. Pictures and/or web links, links to key publications or other stories are welcome. Please indicate if the work was supported by USDA and/or any federal or industry partnership. Send your material to [mqureshi@csrees.usda.gov](mailto:mqureshi@csrees.usda.gov) . Thanks in advance for your help.

## WASHINGTON FUNDING UPDATE:

Agriculture Appropriations legislation has been passed by both the U.S. House and Senate, but differences remain to be resolved in Conference Committee and final outcomes remain in doubt. **CSREES will soon issue the FY 2006 National Research Initiative RFA (competitive grant program).** Watch <http://www.csrees.usda.gov/fo/funding.cfm> for the notice to appear. The House approved almost \$215 million for the NRI, whereas the Senate approved \$190M. Either would be an increase over this year's \$179.55M, but with recent emergencies, the final outcome could be no increase, or even worse. Stay tuned.

**Expect some changes in the FY2006 NRI.** (The due date for animal genetics and genomics should remain June 15 next year.) In general, CSREES wishes to focus research priorities in the program description, hoping to receive a more targeted set of applications. Concern has been expressed due to the low overall NRI success rate (14.7%). [To this observer, the success rate primarily reflects the expanding number of research opportunities/cost arising from modern technology vs. the diminishing (in real dollars) State, Federal and industry financial support for agricultural research.] As reported last issue, the **Animal Genome Reagent & Tool Development Program** is expected to continue. **At CSREES' request, Coordinators collected and submitted input regarding the top Tools & Reagents priorities for their respective species.** The letter to CSREES is at <http://poultry.mph.msu.edu/about/nritools.html>

## HEALTHY PRIORITIES

ARS/CSREES recently held an animal health **Stakeholders' Meeting (2005 National Animal Health Program Planning Workshop)**. An overall priority was to use microbial and animal genomics to address animal health issues. **Poultry-related priorities** (in rank order):

### POULTRY BROILERS Priority Issues:

- ❖ Inability to use antibiotics and probiotics increases diseases like necrotic enteritis
- ❖ Avian influenza, exotic Newcastle Disease, viral IBD and other emerging diseases
- ❖ Respiratory diseases
- ❖ Enteric diseases
- ❖ Immunosuppression
- ❖ Tumor viruses
- ❖ Metabolic diseases
- ❖ Non-health related issues (waste disposal, stress/welfare, food safety)

### POULTRY LAYERS Priority Issues:

- ❖ Avian influenza, exotic Newcastle Disease
- ❖ Marek's Disease
- ❖ *Mycoplasma gallisepticum* / *Mycoplasma synoviae*
- ❖ Avian Leukosis Virus

## ON THE ROAD AGAIN. UPCOMING MEETINGS:

IMPORTANT NOTE: Regularly updated poultry meeting information is now available at [http://www.animalgenome.org/share/mtg\\_chic.html](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](http://www.animalgenome.org/cgi-bin/angenmap/mtg_new).

Genetic Analysis: Model Organisms to Human Biology, January 5-7, 2006, sponsored by the Genetics Society of America, Town and Country Hotel, San Diego, CA. See [www.gsa-modelorganisms.org](http://www.gsa-modelorganisms.org).

Genome Sequence Variation and the Inherited Basis of Common Disease and Complex Traits, January 8-13, 2006, Keystone Symposia, Big Sky Resort, Big Sky, Montana. See [www.keystonesymposia.org](http://www.keystonesymposia.org).

Genomics of Closely Related Organisms, January 12-14, 2006, Marriott University Park Hotel, Tucson, Arizona. See [www.genomics.arizona.edu/meeting2006.html](http://www.genomics.arizona.edu/meeting2006.html)

Plant and Animal Genome XIV, joint with NC-1008 and NAGRP annual meetings, Jan. 14-18, 2006, Town & Country Convention Center, San Diego, CA. See [www.intl-pag.org/](http://www.intl-pag.org/).

7<sup>th</sup> Annual Advances in Genome Biology and Technology Conf., Feb. 8-11, 2006, Marco Island Resort & Golf Club, Marco Island, FL. See [www.agbt.org](http://www.agbt.org)

Poultry Science Association Annual Meeting, July 16-19, 2006, University of Alberta, Edmonton, Canada, see <http://www.poultryscience.org/>

8<sup>th</sup> World Congress on Genetics Applied to Livestock Production, August 13-18, 2006, Belo Horizonte, MG, Brazil. See [www.wcgalp8.org.br](http://www.wcgalp8.org.br)

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

XII European Poultry Conference, Sept. 10-14, 2006, Verona, Italy. See <http://www.epc2006.veronafiere.it>

## CHICKEN CHIPS

The 13K chicken spotted cDNA glass slide array is still available from the Array Facility at the Fred Hutchinson Cancer Research Center, FHCRC. FHCRC arrays are available at \$150 per array. Email requests to [genomics@fhcrc.org](mailto:genomics@fhcrc.org). **NAGRP Coordination funds have been used to make limited numbers of free test arrays available to NAGRP members.** Additional sets have been secured; contact [dodgson@msu.edu](mailto:dodgson@msu.edu) if interested. WE HAVE A FEW FREE SETS LEFT THAT WE ARE ANXIOUS TO GET DISTRIBUTED SOON: FIRST COME - FIRST SERVE. See **Burnside *et al.*, BMC Genomics** (<http://www.biomedcentral.com/bmcgenomics>) 6:13 (2005) for more details. **Affymetrix, Inc.** is marketing the GeneChip® Chicken Genome Array that measures levels of 32,773 chicken transcripts and 684 chicken viral transcripts from 17 different avian viruses. See <http://www.affymetrix.com/products/arrays/specific/chicken.affx>.

## CHICKEN SNPs

As reported last issue, a consortium with funding from USDA-ARS and -CSREES, industry and other sources contracted with **Illumina Corp** to genotype ~3000 SNP genotypes, each, from ~2400 birds. Coordination funds provided support to allow Committee members to piggyback on this project and add a limited number (184) of birds to that pool. Thanks to everyone who responded to our invitational email. The SNP genotypes were received very recently. About 88% of the SNPs assays (2733) worked and almost all of the submitted DNAs were successfully typed. Results have been distributed. We hope this will provide a unique view of the genetic diversity and genome composition of commercial and experimental chickens. **Thanks to Hans Cheng for leading this effort and to Huanmin Zhang for assistance with data processing.**

**Leif Andersson** is coordinating a parallel SNP project, genotyping approximately 10,000 SNPs in his Red Jungle Fowl x White Leghorn F2 cross (Carlborg *et al.*, *Genome Res.* 13:413-21, 2003) in **Paul Siegel's** divergently selected growth lines (Ka *et al.*, *Ann N Y Acad Sci.* 1040:357-9, 2005) and in a "diversity panel" under study by the European **AvianDiv** consortium.

## POULTRY MICROSATELLITES

**Microsatellite primer kits:** Information on chicken microsatellite primer pairs is at <http://poultry.mph.msu.edu/resources/microkits.htm>. The framework primer kit (147 well-spaced microsatellite primer pairs) called the "Comprehensive Mapping Kit #7" and the Population Tester Kit, designed for the rapid testing of the suitability of populations and/or chicken microsatellites for a given application, are still available. If interested, contact: [hcheng@msu.edu](mailto:hcheng@msu.edu) or [dodgson@msu.edu](mailto:dodgson@msu.edu), describing your intended use.

## BAC AT YOU!

**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 for ~12x coverage). Pieter has also generated a **turkey BAC library (CHORI-260)**. If interested in either library, see [www.chori.org/bacpac/](http://www.chori.org/bacpac/). Some free filter sets with spotted arrays of CHORI-260, CHORI-261, TAM31 and TAM33 BACs are still available, email [dodgson@msu.edu](mailto:dodgson@msu.edu).

**BAC Contig Physical Map; ChickFPC and ChickAce.** A BAC contig physical map comprised of about 260 contigs, nearly 80% of which have been anchored to the genetic linkage/chromosome map has been described (Wallis et al., *Nature* 432:761-764, 2004). The **ChickFPC** browser at <http://www.bioinformatics.nl/gbrowse/cgi-bin/gbrowse/ChickFPC> allows one to search the map. BAC locations can also be found on the sequence browsers mentioned above. At ChickFPC, BACs from the TAMU libraries have the prefix JB, JE, or JH for the TAM31, TAM32, and TAM33 libraries, respectively. CHORI-261 BACs have the prefix JA. White Leghorn BACs from the Crooijmans et al. library (*Mammalian Genome* 11: 360-363, 2000) have the prefix bW.

### Poultry Genome Newsletter Archive

Poultry Genome Newsletters are distributed electronically through Angenmap, the Animal Genome Discussion Group (<http://www.animalgenome.org/community/discuss.html>) and by hard copy to those on our mailing list. If you wish to be added to or removed from the hard copy mail list, please email [dodgson@msu.edu](mailto:dodgson@msu.edu). All previous newsletters are archived at <http://poultry.mph.msu.edu/newsltrs/newsltrs.htm>. The newsletter archive can be a good place to find that URL or other useful genome-related resource or factoid that you can't quite remember.

### 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. Please email your Newsletter contributions to us by December 15 for the next issue.

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