

ANNUAL SUMMARY REPORT

PROJECT: NRSP-8
PROJECT TITLE: National Animal Genome Research Project
PERIOD COVERED: January 1 to December 31, 2017
ANNUAL MEETING DATE: January 13-17, 2018

Leadership

Mohamed (Moh) Salem, Chair
Molly McCue, Chair-elect

OBJECTIVES

- Objective 1: Advance the status of reference genomes for all species, including basic annotation of worldwide genetic variation, by broad sequencing among different lines and breeds of animals.
- Objective 2: Develop strategies to identify and exploit genes and allelic variation that contribute to economically relevant phenotypes and traits, in part through improving functional annotation of the genomes of our species.
- Objective 3: Facilitate analysis, curation, storage, distribution and application of the enormous datasets now being generated by next-generation sequencing and related "omics" technologies with regard to animal species of agricultural interest.

MINUTES OF THE ANNUAL BUSINESS MEETING:

The NRSP-8 business meeting was preceded by two days of species workshops, area subcommittees, and the combined Animal Genome Workshop presented on Sunday afternoon. More than 150 participants from about 20 countries attend the workshop.

The combined workshop included four plenary presentations as follows:

Christopher K. Tuggle, Iowa State University, presented “Towards Understanding the Function of the Porcine Genome”. Dr. David E. MacHugh, University College Dublin presented “Comparative and Integrative Genomics of Bovine and Human Tuberculosis: A One Health Perspective”. Dr. Erez Lieberman Aiden, Baylor College of Medicine, presented “De novo Assembly of Plant and Animal Genomes with Chromosome-Length Scaffolds using Hi-C”. Dr. Jack Dekkers, Iowa State University, presented “Training the Next Generation of Animal Breeders in the Genomics Era”. Mrs. Katherine CH Amrine, Insight Data Science, presented “Emerging Careers in Data Science and Genomics”. Dr. Caird E. Rexroad III, USDA, and Dr. James M. Reecy, Iowa State University, presented “Genome to Phenome: A USDA Blueprint for Animal Production”

The business meeting was called to order by the Chair, Dr. Mohamed Salem (Middle Tennessee State University), and was recorded by the Secretary, Molly McCue (University of Minnesota). Coordinator reports were presented:

- Juan Medrano — Cattle update—updated cattle genome assembly, water buffalo and Brahman draft sequences being built. FAANG in cattle is growing with additional NIFA funding. Green database — repository of phenotypic data from any livestock species. Data, DN, tissue etc. can be stored and will provide continuity into the future. Students and speakers to PAG have been

supported by the coordinator funds. Brenda Murdock was the workshop organizer and put together a great program.

- Swine — Chris Tuggle: 68 folks at the workshop. Coordinator funds used for speakers and students. New assembly and annotation of the new assembly. 5 station reports. 3 FAANG projects were funded by NIFA.
- Sheep/Goat — Noelle Cockett and Steven White. Continued to run a joint workshop with the cattle group. FAANG sheep happening. Looking at CNVs in both sheep and goat. Working on annotation in the sheep and goat genomes. Great international input for conference calls. Noelle added — hallmarks of the meeting is sharing results about identifying what additional resources are needed. She commented that a single year of FAANG funding would not be enough and that continued funding needs to happen. And she asked that other species should also do the same. She re-iterated that we need to rally our commodity groups and Noelle proposed that we use the letters and videos to carry forward for more support.
- Poultry — Hans Chen poultry workshop coordinators have funded a mini-symposium on gene editing in birds and things look really promising. Gal 6.0 will be out shortly. Being annotated by NCBI.
- Ernie Bailey, Molly McCue and Sam Brooks — Jessica Petersen and Stephen Coleman organized the workshop. 90 attendees on Saturday and 45 on Sunday. 18 station reports. EqCab 3at NCBI and is being annotated should be up in 2 weeks. Funded 20 students to attend the meeting. Annette McCoy is the next co-chair. Havemeyer Foundation meeting in Paloma Italy Sept. 12-15th.
- Jim Reecy — bioinformatics. Thanks to Zhiliang Hu for another year of great work at AnimalGenome.org. Dramatic increase in data hosting at animal genome.org, but also encouraging that open science be used since you also get a DOI citation index. Over the next year will be bringing a post-doc on board to help by training on the FAANG data analysis pipelines including hands on and hack-a-thon training. Carl Schmitz asked about fees for open science — Jim reported no fees.
- Steven Roberts — aquaculture John Liu stepped down as a co-coordinator. Eric Patman stepped into that role. Added an industry supported poster session, new Eastern oyster genome. 50x affy SNP in salmon. FAANG for all salmonid genomes. Supported 6 seed projects.

USDA administrative reports:

- Eric Young — lead admin advisor. Updated us on the new project proposal. Peer reviews were very positive and the writing committee is working on revisions from the peer review. Will go to the next stage of review this week. Then goes to the NRSP review committee to look for alignment of the various criteria. Final decision made in September at the national meeting of the Ag Experiment Station directors. After this week there will be a call to fill out appendix E to become an official member of the new project. Everyone has to renew with the new project. In the next couple months, the call for nominations for coordinators and/or co-coordinators. Process will be described in an email from Eric Young.
- Jerry Taylor asked why coordinator decisions were made by the advisors and there was not a vote. Eric said there has not been reasons to vote in the past, except on rare occasions when the species community has been asked to vote.
- Mark Mirando — Parag was headed to the airport, so Mark is giving the report. AFRI science coordinator and PO for reproduction. He is filling in for Lakshmi. 2017, 2018 and 2019 budgets.

May 2016 — 2017 fiscal year budget that started in Oct 2016; 25 million increase. AFRI biggest competitive program. FY18 — NIFA explanatory notes discusses the president's proposal. NIFA lost only ~6% compared to up to 25% elsewhere. The final is ultimately up to the congress and what they add to the appropriations bill. President has proposed nearly 350 million and house and senate has ~375. FY19 process underway. AFRI RFAs should be out in ~ 2 months. 3 RFAs — foundational, ag system

- Dr. Alison Van Eenennaamu, University of California, Davis, is the chair elect for 2018.
- Moh Salem passed the gavel to Molly McCue as the incoming NRSP-8 chair. Meeting adjourned.