

PIG TALES

Newsletter of the International Swine Genome Sequencing Consortium (SGSC) Pig Genome Sequence Project

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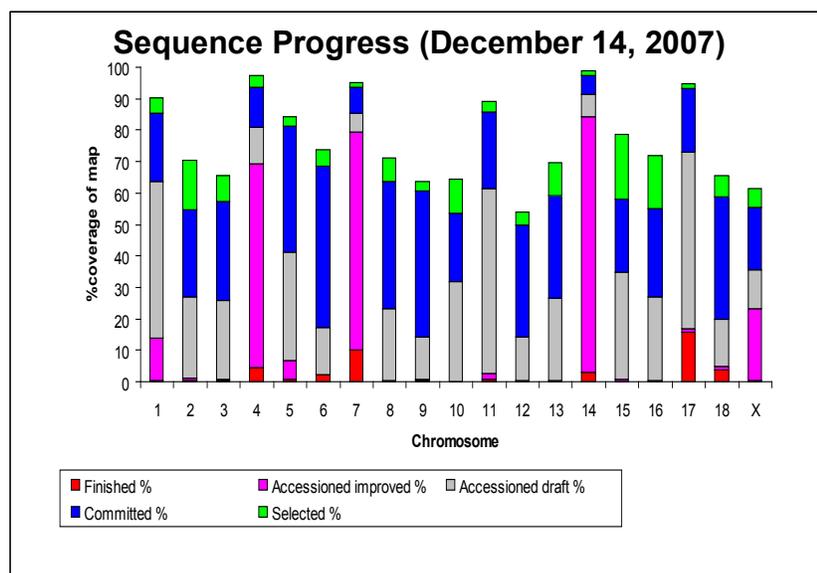
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October SGSC Paris Meeting

The SGSC met during the OIE hosted Animal Genomics for Animal Health in Paris, October 26, 2007. The SGSC workshop was hosted by Patrick Chardon and Denis Milan (INRA) and over 40 participants convened to address sequencing progress and to assure a high quality assembly, holding an annotation workshop, and integrating global SNP discovery and coordinated SNP chip development. Larry Schook and Patrick Chardon, convened the meeting and reviewed the SGSC 2007 activities. Sean Humphray and Jane Rogers then provided an update on sequencing progress. They have established a pipeline of constructing approximately 550 BAC libraries/month. [Current progress as of December 14, 2007 is provided in the figure below.] An update on assembly and annotation efforts was provided by Mario Caccamo (Esembl) and Alan Archibald (Roslin). In order to support broad community involvement it was decided that a workshop would be convened to provide annotation training. It was suggested that the training session be held at Hinxton and scheduled either before or after the International Society of Animal Genetics (ISAG) meeting being held in Amsterdam from July 20 to 24, 2008. This would permit more individuals, particularly students, to participate in the training workshop. Specific dates and the tentative program will be announced at the SGSC Workshop on January 13, 2008 at the Plant and Animal Genome Meeting in San Diego. Martien Gronen and Patrick Chardon then provided updates on SNP discovery projects to support the development of a high-density pig SNP chip. Larry Schook and Martien announced that they had been successful in obtaining a \$1M grant from the USDA National Research Initiative to support the development of a high-density SNP chip. The project is intended to encourage the development of a single global chip that integrates existing and new SNP discovery. Patrick provided an update on his collaboration with Denis Milan for SNP discovery in boars used in QTL discovery. Alan Archibald provided an update on his SNP discovery platform developed in collaboration with Christian Bendixen in Denmark. An update of full-length cDNA sequencing was provided by Hirohide Uenishi. It was decided that he would begin to work with tissue samples from TJ Tabasco, the original Duroc 2-14 used for BAC construction, being used for genome sequencing. Larry Schook will forward samples to Hirohide. Lars Bolund and Wang Jun then provided an update on the second phase of the Sino-Danish Pig Genome Project. They will target specific regions for sequencing and will use selected CHORI-242 BACS. The Sanger will forward to them for use in evaluating new sequencing technologies and for directed sequencing. Frank Panitz, Denmark, represented Christian Bendixen



12,328 clones has been selected and sent for sequencing that provide 76.8% coverage of the map. The total sequence is 1,115 Mb from 6,902 sequenced clones and 2,902 have improved/finished, thus 49.7 Mb is finished.

and discussed their efforts on ESTs and SNP discovery. Finally, Kellye Eversole and Ronnie Green provided updates on funding opportunities and in particular how we can best engage Genome Canada to join the SGSC efforts. Muquarab Qureshi, USDA, provided an update on the Agriculture Blueprint for USDA Efforts in Agricultural Animal Genomics 2008–2017.

Best Wishes and Welcome

The SGSC would like to express their gratitude and best wishes to Jane Rogers and Sean Humphray. Jane has served as the Co-Director of the USDA Pig Genome Sequencing Project and has left the Wellcome Trust Sanger Institute as Director of Sequencing. Her leadership and counsel will be missed but she will continue to serve an important consultant role for the project. Sean has accepted a new role at Illumina with new sequencing technologies. His contributions to the high standards and progress to date have been significant. The SGSC wishes them both the best in their new activities. The SGSC also wishes to welcome, Dr. Mike Stratton, Deputy Director, Wellcome Trust Sanger Institute, as the new Co-Director of the USDA Pig Genome Sequencing Project. Mike will serve as the project leader until a new director of sequencing is identified at the Sanger. Ronnie Green and Larry Schook met with Mike in October and were impressed with his vision and commitment to the pig genome project.

SPONSORS

ARS-USDA
 European Union SABRE Funding
 Institute for Pig Genetics (TOPIGS), Netherlands
 INRA Genoscope
 Iowa Pork Producers Association
 Iowa State University
 Korean National Livestock Research Institute
 National Institute of Agrobiological Sciences, Japan
 National Pork Board, U.S.A.
 North Carolina Pork Council
 North Carolina State University
 University of Illinois
 Wellcome Trust Sanger Institute



The 3X BAC skim of the porcine genome is supported by the National Research Initiative of the USDA Cooperative State Research, Education and Extension Service, grant number

New Contact Information

Sanger has created a new email address (sanger-pig@sanger.ac.uk) which may be used to contact the key sequencing staff on the pig project. This is the email address which you should send details of conference calls, questions, etc.

ARS-USDA \$1M Funding

The ARS-USDA has provided a \$1M supplemental grant in support of the pig genome project. The award was made to the University of Illinois to support targeted sequencing and to ensure high quality assembly. Dr. Ronnie Green, ARS-USDA, coordinated the securing of the funding that will contribute to the whole genome shotgun sequence reads from the Duroc 2-14 genome that was selected for the pig genome project.

Pig 50K SNP Chip: A new high density SNP chip development is underway

A consortium from the USDA (ARS, CSREES), University of Illinois, Iowa State University and the National Pork Board is currently undertaking a concerted effort to develop a high density (~50K) SNP chip for pigs. The consortium is aiming to develop this research tool by mid-2008. It is envisioned that this chip will be employed widely by the porcine research community to drive gene discovery and association analyses and eventually whole genome selection. The SNPs included for this project will be selected from those in public databases on February 1, 2008. The consortium invites researchers interested in access in this technology to join their group. In addition, investigators possessing SNP information that has not been placed in public databases are encouraged to submit their information as soon as possible so that the most useful set of SNPs can be included in the final product. At present, neither the cost per chip nor the commercial provider of the technology has been finalized. To help define both of these, the consortium is now seeking to quantify the likely demand for the finished chip. Please contact either Mohammad Koochmarai (Mohammad.Koochmarai@ARS.USDA.GOV), Max Rothschild (mfrothsc@iastate.edu) or Larry Schook (schook@uiuc.edu) if your research program/institution would consider purchasing and employing a 50K pig SNP chip. Also, please indicate the approximate number of chips required initially and per year so that we can include you in the mailing list concerning chip production and supply. Our aim is to achieve the maximum economy of scale across the pig genomic community and in turn achieve the lowest unit cost per chip. Please don't hesitate to contact any of the individuals for additional information.

SGSC CALENDAR OF EVENTS

Next SGSC Workshop is scheduled for Sunday, January 13, 2008 from 12:45 to 3:25 at the Plant and Animal Genome Meeting. Please plan to attend!

Happy Holidays!