



ISAG
CONFERENCE 2014, Xi'an, China

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| Pig Genetics and Genomics |
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STANDING COMMITTEES / WORKSHOPS Information will be posted online

Organised by a standing committee yes **no**

Date and meeting time: Thursday 31 July 2014 (14:00 – 16:20)

Chair, name and contact email: co-chaired by Elisabetta Giuffra (elisabetta.giuffra@jouy.inra.fr) and Jun Heon Lee (junheon@cnu.ac.kr)

Agenda / programme attached

Number of participants at meeting: 80-120

Summary of the meeting including votes, decisions taken and plans for future conferences:

The workshop was organized by the Committee Coordinator (B. Harzilius) in collaboration with the two standing committee members (E. Giuffra and J-H. Lee). All the talks planned in agenda (see below) were presented.

Elections: following previously defined guidelines two new members of the standing committee were elected: Romi Pena (associate professor at University of Lleida, Spain) and Kyle Schachtschneider (US scientist, currently holding a postdoctoral position at Wageningen University). As B. Harzilius completed her four-year appointment, E. Giuffra was appointed as new chair.

All the current members of the standing committee will work with the chair to organize the workshop for the ISAG 2016 conference, based on selection of submitted abstracts. The members are also encouraged to propose speakers to the organizers of the next ISAG conference.

Following decisions after ISAG 2012 conference, the following Parentage Test session was independently organized by Vincenzo Landi. This session was chaired by Amparo Martinez. The separation of the workshop and Parentage test sessions will be formalized on occasion of the next ISAG conference (2016, Salt Lake City, Utah - US).

Committee members (the new committee)

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|-----------------------|-----------------|--|
| Chair | term of service | E mail address: |
| Elisabetta Giuffra | 2016 | elisabetta.giuffra@jouy.inra.fr |
| Other members | term of service | E mail address: |
| Jun Heon Lee | 2016 | junheon@cnu.ac.kr |
| Romi Pena | 2017 | romi.pena@prodan.udl.cat |
| Kyle Schachtschneider | 2017 | kyle.schachtschneider@wur.nl |

Pig genetics and Genomics Workshop - PROGRAM

| Time | First name | Author name | Presentation topic | Abstract n. |
|-------------|-------------------|--------------------|--|--------------------|
| 14.05 | Claus | Jorgensen | Global Analysis of Epigenetic Differences Related to Porcine Obesity | abs567s1 |
| 14.20 | Kyle | Schachtschneider | The International Swine Methylome Consortium (ISMC): Supporting epigenomics and biomedical research | abs113s1 |
| 14.35 | Ana | Fernández | Studying growth and fatness regulation through hypothalamic and hepatic transcriptome analyses in a porcine experimental backcross | abs123s1 |
| 14.50 | Paolo | Zambonelli | Identification of transcription profile of pig backfat and characterization of gene network influencing fat deposition by next generation sequencing | abs685s1 |
| 15.05 | Break | | | |
| 15.20 | Qian | Dong | Identification of the SNPs and miRNAs associated with meat quality traits in Yorkshire pigs based on GWAS and deep sequencing | abs408s1 |
| 15.35 | Laurence | Liaubet | Systems biology of piglet maturity with focus on muscle metabolism | abs595s1 |
| 15.50 | Dinh Truong | Nguyen | The extreme genetic diversity of olfactory receptor genes in pigs indicates the importance of maintaining olfaction capacity to diverse olfactants for the species | abs658s1 |
| 16.05 | Hye-sun | Cho | Effects of natural resistance-associated macrophage protein 1 and toll-like receptor 2 gene polymorphisms to the post-weaning piglet survivability | abs652s1 |
| 16.15 | | | Elections | |
| 16.20 | Amparo | Martinez | Parentage Comparison test | |



ISAG
CONFERENCE 2014, Xi'an, China

Pig Genetics and Genomics Workshop-Parentage Comparison Test

STANDING COMMITTEES / WORKSHOPS Information will be posted online

Organised by a standing committee **yes**

Date and meeting time: 31st July 2014, 4:00-5:00 pm

Chair:

- Vincenzo Landi, Animal Breeding Consulting S.L./University of Cordoba (Spain)
landivincenzo@yahoo.it

Members:

- Attila Zsolnai, Research Institute for Animal Breeding and Nutrition Herceghalom (Hungary)
- Marcela Martinez, Laboratorio de Genética Aplicada, Sociedad Rural de Argentina (Argentina)
- José Luis Vega Pla, Laboratorio de Investigación Aplicada, Ministerio de Defensa (Spain)
- Amparo Martinez (Computing laboratory), Animal Breeding Consulting S.L./University of Cordoba (Spain), amparomartinezuco@gmail.com

Agenda / programme attached

- Welcome
- 2013-2014 CT PIG Duty Lab presentation: Amparo Martinez
- 2013-2014 CT PIG Computing Lab presentation: Amparo Martinez
- Questions and proposals.
- Next Pig CT

Number of participants at meeting: 35

Summary of the meeting including votes, decisions taken and plans for future conferences

- 2013-2014 CT PIG Duty Lab presentation (Responsible person: Vincenzo Landi):

A total of 30 laboratories joined the initiative, a total of 20 (PCT1 to PCT20) pig samples (Iberian Pig crossbreeding, commercial crossbreeds) extracted from liver or blood tissue with phenol chloroform method were sent. Shipment company used were Fedex, UPS, World Courier, and DHL. No Problems with Consignment Forms, Shipment, Customs. Six Laboratories requested for a second batch of samples because they detected some signs of contamination on samples PCT09 and PCT10. DNA samples were shipped March 10th 2014 to all the Labs. The deadline established to send results was May 31st 2014.

A main set composed from the following 15 microsatellites loci was recommended: *S0005*, *S0090*, *S0101*, *S0155*, *S0227*, *S0228*, *S0355*, *S0386*, *SW24*, *SW240*, *SW72*, *SW857*, *SW911*, *SW936*, and *SW951*. Additionally, seven loci for a secondary panel were proposed: *IGF1*, *S0002*, *S0026*, *S0215*, *S0225*, *S0226*, and *SW632*. Primer sequences for all markers and genotype of the reference sample (PCT01) was supplied to all the participating Labs.

- 2013-2014 CT PIG Computing Lab presentation

Only 22 laboratories reported results on time (May, 31). An e-mail was sent to the eight labs that did not send results and results from 2 of them were received. Six labs did not send any results:

- Three Labs answered that they couldn't complete the Test for different reasons.
- No response from other three Labs.

The final number of Laboratories that reported results was 24. The computing lab sent out final compilation to all reporting labs. A total of 19 Labs reported the main set (79%), 11 Labs reported the additional set (48%). In the final report and calculation samples 9 and 10 were removed from calculations due to contamination problems reported by several Laboratories.

Marker Performance

| Marker | Count of Genotypes | Genotype Errors | Error Rate | Marker Accuracy (%) |
|---------------|---------------------------|------------------------|-------------------|----------------------------|
| <i>S0386</i> | 378 | 61 | 0.161 | 83.9 |
| <i>S0005</i> | 432 | 58 | 0.134 | 86.6 |
| <i>S0355</i> | 396 | 20 | 0.051 | 94.9 |
| <i>SW24</i> | 431 | 16 | 0.037 | 96.3 |
| <i>SW72</i> | 378 | 10 | 0.026 | 97.4 |
| <i>S0101</i> | 414 | 6 | 0.014 | 98.6 |
| <i>SW936</i> | 396 | 4 | 0.010 | 99.0 |
| <i>S0228</i> | 395 | 1 | 0.003 | 99.7 |
| <i>SW951</i> | 414 | 1 | 0.002 | 99.8 |
| <i>SW857</i> | 432 | 1 | 0.002 | 99.8 |
| <i>S0090</i> | 360 | 0 | 0.000 | 100.0 |
| <i>S0155</i> | 432 | 0 | 0.000 | 100.0 |
| <i>S0227</i> | 360 | 0 | 0.000 | 100.0 |
| <i>SW240</i> | 432 | 0 | 0.000 | 100.0 |
| <i>SW911</i> | 378 | 0 | 0.000 | 100.0 |
| <i>IGF1</i> | 198 | 1 | 0.005 | 99.5 |
| <i>S0002</i> | 234 | 1 | 0.004 | 99.6 |
| <i>S0026</i> | 234 | 0 | 0.000 | 100.0 |
| <i>S0215</i> | 234 | 0 | 0.000 | 100.0 |
| <i>S0225</i> | 252 | 0 | 0.000 | 100.0 |
| <i>S0226</i> | 234 | 0 | 0.000 | 100.0 |
| <i>SW632</i> | 252 | 0 | 0.000 | 100.0 |

Additional comments about markers.

In the marker *S0386* several discrepancies were found for samples PCT02, PCT07, GCT14 and GCT16. Six labs reported heterocigote types (169/177) and the rest of the labs as homocigotes (169). Upon retesting the marker with different PCR conditions, the heterozygote calls were the correct result for these 4 samples. This marker is thus sensitive to PCR conditions which may lead to genotyping errors. Furthermore, some labs used primer sequences recommended by Nechtelberger et al. (2001) instead FAO recommended sequences (*Riquet, J., Milan, D. 1995. A linkage map with microsatellites isolated from swine flow-sorted Chromosome 11. Mamm. Genome 6: 623-628*). The modified primer sequence was proposed in: DNA microsatellite analysis for parentage control in Austrian pigs. **Nechtberger D, Kaltwasser C, Stur I, Meyer JN, Brem G, Mueller M, Mueller S.**, Anim Biotechnol. 2001. Nov; 12(2):141-4. PMID: 11808629.

Another issue was that some Labs reported disagree concerning the allele calling of 275/277 and 277/279 of the microsatellite *S0005*. In this case the problem is that Labs used different binding and they called these alleles in a different way.

Laboratories performances

- Number of samples was set as 17.
- Samples PCT09 and PCT10 were removed from the statistics.
- Reference sample has not been considered.
- Absolute Accuracy calculated based on total expected genotypes considering ISAG main panel
- Relative Accuracy considers only reported loci and genotypes.

Final results:

| | | |
|--------|--------|-----|
| RANK 1 | 9 Labs | 38% |
| RANK 2 | 6 Labs | 25% |
| RANK 3 | 3 Labs | 13% |
| RANK 4 | 1 Lab | 4% |
| RANK 5 | 5 Labs | 20% |

Questions and proposals

- Not considering allele **177** of *S0386* as a genotyping error in the final calculation of the absolute accuracy of the labs: we recommend use primer sequences reported by Nechtelberger et al. (2001). The proposal was voted and approved (seven votes in favor, no votes against).
- Not considering alleles **275/277** and **277/279** of *S0005* as genotyping errors in the final calculation of the absolute accuracy of the labs: we recommend defining the allele calling of these alleles for next comparison tests. The proposal was voted and approved (eight votes in favor, no votes against).

These two approved proposals will be considerate in the final Markers and Laboratories performance calculations.

Next Comparison Tests 2015/2016 and 2017

The ISAG conferences will change from even years into odd years, starting in 2017. The next conference will be in 2016, then 2017 and then 2019. It is decided by the representatives of the institutional members in the workshop that the next Pig Comparison Test will be organized in 2017.

- Duty Lab: Animal Breeding Consulting S.L./University of Cordoba (Spain). Contact person Vincenzo Landi (landivincenzo@yahoo.it)
- Computing laboratory: Animal Breeding Consulting S.L./University of Cordoba (Spain). Contact person Amparo Martinez (amparomartinezuco@gmail.com)

ISAG/FASS is going to give more support in organizing the future comparison tests, e.g. consignment online, reporting/uploading results online, analysis of results together with computer labs, downloading of certificates online.

On the ISAG website (<http://www.isag.us/business.asp>) new draft guidelines for standing committees can be found. Address comments to the Chair of the Standing committee before October 1st 2014. On the ISAG website also new draft guidelines for comparison tests can be found. In those guidelines a paragraph about **liabilities** is included. A document describing the procedure of the comparison needs to be generated to add to the guidelines. Participants of future comparison test must accept the new guidelines.

Committee members

Chair:

- Vincenzo Landi, Animal Breeding Consulting S.L./University of Cordoba (Spain) landivincenzo@yahoo.it. Elected in 2012 for 2nd term

Members:

- Attila Zsolnai, Research Institute for Animal Breeding and Nutrition Herceghalom (Hungary) Elected in 2012 for 2nd term
- Marcela Martinez, Laboratorio de Genética Aplicada, Sociedad Rural de Argentina (Argentina) Elected in 2012 for 2nd term
- José Luis Vega Pla, Laboratorio de Investigación Aplicada, Ministerio de Defensa (Spain) Elected in 2012 for 2nd term
- Amparo Martinez (Computing laboratory), Animal Breeding Consulting S.L./University of Cordoba (Spain), amparomartinezuco@gmail.com Elected in 2012 for 2nd term

COMPARISON TEST (2013-2014)

yes

If yes: Number of enquiries – requests for consignment forms 30
 Number of participants receiving samples 30
 Number of samples 20
 Number of participants reporting results 24

Duty laboratory name and email address

- **Animal Breeding Consulting S.L./University of Cordoba (Spain), Vincenzo Landi, landivincenzo@yahoo.it**

Computing Laboratory name and email address

- **Animal Breeding Consulting S.L./University of Cordoba (Spain), Amparo Martinez (Computing laboratory), amparomartinezuco@gmail.com**

List of recommended markers with primer information

| Marker | Cro. | Size range | Primer (5'-3'): Forward | Primer (5'-3'): Reverse |
|--------|------|------------|--------------------------------|--|
| IGF1 | 5 | 197-209 | GCTTGGATGGACCATGTTG | CATATTTTTCTGCATAACTTGAACCT |
| S0002 | 3q | 190-216 | GAAGCCCAAAGAGACAACCTGC | GTTCTTTACCCACTGAGCCA |
| S0005 | 5 | 205-248 | TCCTTCCCTCCTGGTAACTA | GCACTTCCCTGATTCTGGGTA |
| S0026 | 16 | 92-106 | AACCTTCCCTTCCCAATCAC | CACAGACTGCTTTTTACTCC |
| S0090 | 12 | 244-251 | CCAAGACTGCCTTGTAGGTGAATA | GCTATCAAGTATTGTACCATTAGG |
| S0101 | 7 | 197-216 | GAATGCAAAGAGTTCAGTGTAGG | GTCTCCCTCACACTTACCGCAG |
| S0155 | 1q | 150-166 | TGTTCTCTGTTTCTCCTCTGTTTG | AAAGTGGAAGAGTCAATGGCTAT |
| S0215 | 13 | 135-169 | TAGGCTCAGACCCTGCTGCAT | TGGGAGGCTGAAGGATTGGGT |
| S0225 | 8 | 170-196 | GCTAATGCCAGAGAAATGCAGA | CAGGTGGAAAGAATGGAATGAA |
| S0226 | 2q | 181-205 | GCACTTTTAACTTTTCATGATACTCC | GGTTAAACTTTTNCCTCAATACA |
| S0227 | 4 | 231-256 | GATCCATTTATAATTTTAGCACAAAGT | GCATGGTGTGATGCTATGTCAAGC |
| S0228 | 6 | 222-249 | GGCATAGGCTGGCAGCAACA | AGCCACCTCATCTTATCTACACT |
| S0355 | 15 | 243-277 | TCTGGCTCCTACACTCCTTCTTGATG | TTGGGTGGGTGCTGAAAAATAGGA |
| S0386 | 11 | 156-174 | GAA CTC CTG GGT CTT ATT TTC TA | GTC AAA AAT CTT TTT ATC TCC AAC AGT AT |
| SW24 | 17 | 96-121 | CTTTGGGTGGAGTGTGTGC | ATCCAAATGCTGCAAGCG |
| SW240 | 2p | 96-115 | AGAAATTAGTGCCTCAAATTGG | AAACCATTAAGTCCCTAGCAAA |
| SW632 | 7 | 159-180 | TGGGTTGAAAGATTTCCCAA | GGAGTCAGTACTTTGGCTTGA |
| SW72 | 3p | 100-116 | ATCAGAACAGTGCGCCGT | TTTGAAAATGGGGTGTTC |
| SW857 | 14 | 144-160 | TGAGAGGTCAGTTACAGAAGACC | GATCCTCCTCCAAATCCCAT |
| SW911 | 9 | 153-177 | CTCAGTTCTTTGGGACTGAACC | CATCTGTGGAAAAAAAAAAGCC |
| SW936 | 15 | 80-117 | TCTGGAGCTAGCATAAGTGCC | GTGCAAGTACACATGCAGGG |
| SW951 | 10 | 125-133 | TTTCACTACTCTGGCACCAG | GATCGTGCCCAAATGGAC |

Duty laboratory for the next comparison test with contact details

- **Animal Breeding Consulting S.L./University of Cordoba (Spain), Vincenzo Landi, landivincenzo@yahoo.it**

Computing laboratory for the next comparison test with contact details

- **Animal Breeding Consulting S.L./University of Cordoba (Spain), Amparo Martinez (Computing laboratory), amparomartinezuco@gmail.com**

SIGNATURES

Chair

Duty laboratory

Computing laboratory



Vincenzo Landi

Vincenzo Landi

Amparo Martinez

IMPORTANT INFORMATION FROM THE WORKSHOP AND STANDING COMMITTEE GUIDELINES:

All members of a standing committee need to have individual membership of ISAG throughout the time of service. If new committee members are not ISAG members when elected it is necessary to become so as soon as possible.

The workshop Chair has to compile the report of the workshop and then circulate it to the members of the Standing Committee for any comment and revision. The report then has to be mailed to the ISAG secretary within the noted deadline.

PLEASE EMAIL A WORD VERSION AND A SIGNED PDF VERSION OF THIS REPORT TO THE ISAG SECRETARY: [Ingrid Olsaker ISAGsecretary@assochq.org](mailto:Ingrid.Olsaker@assochq.org)

DEADLINE AUGUST 22nd 2014

The secretary will take care of sending this report to the ISAG members having participated in the workshop. Participants are allowed to comment and may ask for revision. Such a request for revision has to be given including relevant reasons and arguments. The Secretary will send these requests to the Chair for dispute in the Standing Committee. Within two weeks the Standing Committee has to answer the Secretary

If no comments from participants have been received within TEN days , the report is considered to be approved and will be published on the ISAG web.

For more information please see the committee guidelines.