ISAG

CONFERENCE 2017, Dublin, Ireland

Applied Genetics and Genomics In Other Species of Economic Interest Workshop

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STANDING COMMITTEES / WORKSHOPS

Organised by a standing committee   yes

Date and meeting time: July 17th 2017, 2:30 – 6:00 pm

Chair, name and contact email: Leanne van de Goor, (lgo@vhladmin.nl)

Agenda / programme attached
- Welcoming Remarks
- Pig Comparison test
- Selection of new Duty Labs for 2018-2019 Comparison tests
- Oral presentations
- Election of Committee
- Close

Number of participants at meeting: 57

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

1. Welcoming Remarks

This was the second workshop with the name Applied Genetics and Genomics In other Species of Economic Interest. In the last workshop (2016 ISAG Conference), it was decided that CT for pigeons, camels and llama/alpaca species were not carried out for the 2017 meeting in Dublin due to the closeness between the two conferences.

2. Pig Comparison test

The Duty lab was Laboratorio de Genética Aplicada from Spain (Cordoba). Thirty three (33) labs requested samples. Thirty labs reported results. Twenty-one samples (including 2 references) were submitted to all participants. Several participants informed amplification problems with sample 13, so it was pulled out from the final ranking. Thirty labs reported results for some or all markers of the Core Panel (15 markers: S0005, S0090, S0101, S0155, S0227, S0228, S0355, S0386, SW24, SW240, SW72, SW857, SW911, SW936, SW951) and the Additional Panel (7 markers: IGF1, S0002, S0026, S0215, S0225, S0226, SW632). Four (4) other labs reported some extra markers (S0068, S0141, SJ029, SW122, SW1332, SW1514, SW2126, SW2410, SW2443, SW2456, SW2623, SW787, SWR2516, SWR783, MHS, AME, CGA1, S0001, S0070, S0097, S0143, S0178, S0218, S0230, S0301, SW1067, SW1828, SW2008, SW210, SW2406, SW61, SW830, SW980, SWR1941). Markers from the Core Panel were included in the ranking system. Clerical errors such as 106/106 instead of 106/ were not considered as mistakes for the ranking

system. However, labs need to pay attention to such nomenclature issues when reporting their results as it is a lot of extra work to correct for such mistakes.

The overall marker concordance among labs was good (>94%). Markers S0005, S0386 and SW951 showed a lower concordance: S0005 (91.65%) due to extreme alleles missed by some labs. Wrong call of these alleles was also cause of discrepancy, even when the reference sample 06 included the extreme allele 279 to help standardization of this marker. The low concordance for marker S0386 (87%) was mainly caused by labs missing the allele 177 from samples 1, 9, 17 and 21. This could be explained for using primers unable to amplify this allele in some samples. The 2014 workshop report described this issue advising to change primer sequences as proposed in: DNA microsatellite analysis for parentage control in Austrian pigs. Nechtelberger D, Kaltwasser C, Stur I, Meyer JN, Brem G, Mueller M, Mueller S., Anim Biotechnol. 2001. Nov; 12(2):141-4. PMID: 11808629. The recommended primers are: Fw: 5'-GAA CTC CTG GGT CTT ATT TTC TA, Rv: 5'-GTC AAA AAT CTT TTT ATC TCC AAC AGT AT. Since this situation has previously arisen, missing this allele was considered a mistake in the ranking system. SW951 (94.43%) showed a lower performance than in previous CT because many labs missed the allele 135 in samples 03 and 07 due to low amplification. Since it was the first time this issue came up, missing this allele was not considered as mistake for the ranking system. If this allele is present in a future comparison test it will be included in the ranking system. Parentage questions included in the CT were correctly answered by all participants.

In the past the Pig comparison test was organized by the Pig Genetics and Genomics committee. The results of this year's Pig comparison were, on request of the Pig Genetics and Genomics committee discussed within the Applied Genetics and Genomics in other Species of Economic Interest workshop. The following motion was accepted: Future Pig comparison tests will be organized by the Applied Genetics and Genomics in other Species of Economic Interest committee and discussed within their workshop.

3. **Selection of new Duty Labs for 2018-2019 Comparison tests**
Volunteers for Duty Lab CT of Pigeon, Dromedary, Alpaca/Llama and Pigs were requested. Chris Lamberigts, from KU Leuven lab informed that they might be able to be duty lab for pigs but confirmation is required. Dr. Hanaa Abd El-Kader Ahmed from Qatar genetic lab volunteered as Dromedary Duty Lab. No volunteers for Llama/Alpaca or Pigeon CT were found yet, a mailing request will be sent to all participants of the previous CT.

4. **Oral Presentations**
    -   An evaluation of the ISAG recommended parentage and identification panel for the domestic pigeon (*Columba livia domestica*). M. de Groot, VHLGenetics, the Netherlands.
    -   Selection of SNP markers for a dromedary camel genotyping array. Mohammed Al Abri, Sultan Qaboos University, Oman
    -   Characterisation of a family of alpacas exhibiting disproportionate dwarfism. Kylie Munyard, School of Biomedical Sciences, Curtin University, Australia.
    -   Genomic selection for performance and reproduction traits in American mink. K. Karimi, Dalhousie University, Canada.
    -   SNP genotyping of reindeer (*Rangifer tarandus*) using BovineHD BeadChips. Veronika Kharzinova, Ernst Institute of Animal Husbandry, Russia.

One additional presentation that was not mentioned in the program was included: Camel genotyping and parentage verification in Qatar by Dr. Hanaa A. Ahmed. During this presentation,

Dr Hanna explained that a larger standarized panel of markers is required for the population of camels tested in her lab to be able to solve all parentage cases.

Committee members (the new committee)

Chair	term of service	E mail address:
Leanne van de Goor	2017-2021 (2nd term)	lgo@vhladmin.nl

Other members	term of service	E mail address:
Deanne Waine	2016-2019 (2nd term)	d.waine@uq.edu.au
Cecilia Penedo	2016-2019 (2nd term)	mctorrespenedo@ucdavis.edu
Marcela Martinez	2016-2019 (2nd term)	mmartinez@sra.org.ar
Amparo Martinez	2017-2021(1st term)	amparomartinezuco@gmail.com
Ntanganedzeni Mapholi	2017-2021 (1st term)	maphon@unisa.ac.za
Younes Miar	2017-2021 (1st term)	miar@dal.ca

COMPARISON TEST (2016-2017)   **yes**

Duty laboratory
Pig: Laboratorio de Genética Aplicada from Spain (amparomartinezuco@gmail.com)
Dromedary: was not carried out
Alpaca/Llama: was not carried out
Pigeon: was not carried out

Comments (issues rising)
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List of recommended markers with primer information

Dromedary:

ISAG STR Core Panel - Dromedary

Locus	Forward	Reverse
LCA8	GCTGAACCACAATGCAAAGA	AATGCAGATGTGCCTCAGTT
LCA37	AAACCTAATTACCTCCCCCA	CCATGTAGTTGCAGGACACG
LCA56	ATGGTGTTTACAGGGCGTTG	GCATTACTGAAAAGCCCAGG
LCA65	TTTTTCCCCTGTGGTTGAAT	AACTCAGCTGTTGTCAGGGG
LCA66	GTGCAGCGTCCAAATAGTCA	CCAGCATCGTCCAGTATTCA
YWLL29	GAAGGCAGGAGAAAGGTAG	CAGAGGCTTAATAACTTGCAG
YWLL44	CTCAACAATGCTAGACCTTGG	GAGAACACAGGCTGGTGAATA

ISAG Additional Markers - Dromedary

Locus	Forward	Reverse
CVLR01	GAAGAGGTTGGGGCACTAC	CAGGCAGATATCCATTGAA
CVLR04	CCCTACCTCTGGACTTTG	CCTTTTTGGGTATTTTCAG
CVLR05	CCTTGGACCTCCTTGCTCTG	GCCACTGGTCCCTGTCATT
LCA99	CAGGTATCAGGAGACGGGCT	AGCATTTATCAAGGAACACCAGC
LGU49	TCTAGGTCCATCCCTGTTGC	GTGCTGGAATAGTGCCCAGT
VOLP3	AGACGGTTGGGAAGGTGGTA	CGACAGCAAGGCACAGGA
VOLP32	GTGATCGGAATGGCTTGAAA	CAGCGAGCACCTGAAAGAA
VOLP59	CCTTCCTCAGAATCCGCCACC	CCCGCGCACCAAGCAG
YWLL08	ATCAAGTTTGAGGTGCTTTCC	CCATGGCATTGTGTTGAAGAC
YWLL36	AGTCTTGGTGTGGTGGTAGAA	TGCCAGGATACTGACAGTGAT

Alpaca/Llama:

ISAG STR Core Panel - Llamas and Alpacas

Locus	Forward	Reverse
LCA5	GTGGTTTTTGCCCAAGCTC	ACCTCCAGTCTGGGGATTTC
LCA8	GCTGAACCACAATGCAAAGA	AATGCAGATGTGCCTCAGTT
LCA19	TAAGTCCAGCCCCACACTCA	GGTGAAGGGGCTTGATCTTC
LCA37	AAACCTAATTACCTCCCCCA	CCATGTAGTTGCAGGACACG
LCA56	ATGGTGTTTACAGGGCGTTG	GCATTACTGAAAAGCCCAGG
LCA65	TTTTTCCCCTGTGGTTGAAT	AACTCAGCTGTTGTCAGGGG
LCA66	GTGCAGCGTCCAAATAGTCA	CCAGCATCGTCCAGTATTCA

LCA94	GTCCATTCATCCAGCACAGG	ACATTTGGCAATCTCTGGAGAA
LCA99	CAGGTATCAGGAGACGGGCT	AGCATTTATCAAGGAACACCAGC
YWLL29	GAAGGCAGGAGAAAAGGTAG	CAGAGGCTTAATAACTTGCAG
YWLL40	CACATGACCATGTCCCCTTAT	CCAGTGACAGTGTGACTAAGA
YWLL44	CTCAACAATGCTAGACCTTGG	GAGAACACAGGCTGGTGAATA
LGU49	TCTAGGTCCATCCCTGTTGC	GTGCTGGAATAGTGCCCAGT
LGU50	CTGCTGTGCTTGTCACCCTA	AGCACCACATGCCTCTAAGT

ISAG Additional Markers - Llamas and Alpacas

Locus	Forward	Reverse
LCA24	ACTCACGGGTGACATACAGTG	GAGCAGTGTTTGGTTTGCATT
YWLL08	ATCAAGTTTGAGGTGCTTTCC	CCATGGCATTGTGTTGAAGAC
YWLL36	AGTCTTGGTGTGGTGGTAGAA	TGCCAGGATACTGACAGTGAT
YWLL43 (X-linked)	ATACCTCTCTTGCTCTCTCTC	CCTCTACAACCATGTTAGCCA
YWLL46	AAGCAGAGTGATTTAACCGTG	GGATGACTAAGACTGCTCTGA

Pigeon:

ISAG STR Core Panel - Pigeons

Locus	Forward	Reverse
CliµD11	CCAATCCCAAAGAGGATTAT	ACTGTCCTATGGCTGAAGTG
CliµT43	GGGAAAGGAAATTTGACACTG	ACTGTCGATGCCATTAAGAC
CliµD01	GATTCTCAAGCTGTAGGACT	GTTTGATTTGGTTGGGCCATC
PIGN57	CTCTTGTATGTCCATCTGAAC	ACCCATTTACCACTCTCTAA
CliµT13	CTGTCGAGCAGTAACAGTCC	GTTTGCAAGCCCTGGTTATCTCA
CliµD16	GCAGTGATAAAGTTCTGGAACA	GTTTGCCTCACCGTGACATCA
CliµD19	CTGCCCGTTTCTTCTAATGCAC	GTTTGGATTTCTGGGAGTGTATG
CliµT02	AGTTTTAATGAAGGCACCTCT	TGTAGCATGTCAGAAATTGG
CliµD17	TCTTACACACTCTCGACAAG	GTTTCCACCCAAATGAGCAAG
CliµD35	GGGAGCTTAAGGGATTATTG	ATTCCTTGCATGCCTACTTA
CliµT17	ATGGGTTTGGAGATGTTTTG	GTTTGATGGAGTTGCTATTTTGCT
PIGN04	GGTTTTCTGTTTCCTCACG	GGGATTCTGGGATTATTTTTC

ISAG Additional Markers - Pigeons

Locus	Forward	Reverse
PIGN15	TTTCCTTTCATTTGCTGTGG	AACCAGGCATTGGAGTCTTT
PIGN10	TTCCACTGAATGGGTCTCAG	CTGCCAGAAGGTAAATGACAC
PIGN26	TCACTGTATTCACCAAAGTCTG	CAATGTGGGGGCGTCTATG
PIGN12	CAGATCCAGCAGTCTTGAAG	CCCATCTAATGCGATAAATCC

Pig:

ISAG STR Core Panel - Pig

Locus	Forward	Reverse
S0005	TCCTTCCCTCCTGGTAACTA	GCACTTCCTGATTCTGGGTA
S0090	CCAAGACTGCCTTGTAGGTGAATA	GCTATCAAGTATTGTACCATTAGG
S0101	GAATGCAAAGAGTTCAGTGTAGG	GTCTCCCTCACACTTACCGCAG

S0155	TGTTCTCTGTTTCTCCTCTGTTTG	AAAGTGGAAAGAGTCAATGGCTAT
S0227	GATCCATTTATAATTTTAGCACAAAGT	GCATGGTGTGATGCTATGTCAAGC
S0228	GGCATAGGCTGGCAGCAACA	AGCCCACCTCATCTTATCTACACT
S0355	TCTGGCTCCTACACTCCTTCTTGATG	TTGGGTGGGTGCTGAAAAATAGGA
S0386	GAACTCCTGGGTCTTATTTTCTA	GTCAAAAATCTTTTTATCTCCAACAGTAT
SW24	CTTTGGGTGGAGTGTGTGC	ATCCAAATGCTGCAAGCG
SW240	AGAAATTAGTGCCTCAAATTGG	AAACCATTAAGTCCCTAGCAAA
SW72	ATCAGAACAGTGCGCCGT	TTTGAAAATGGGGTGTTTCC
SW857	TGAGAGGTCAGTTACAGAAGACC	GATCCTCCTCCAAATCCCAT
SW911	CTCAGTTCTTTGGGACTGAACC	CATCTGTGGAAAAAAAAAGCC
SW936	TCTGGAGCTAGCATAAGTGCC	GTGCAAGTACACATGCAGGG
SW951	TTTCACAACTCTGGCACCAG	GATCGTGCCCAAATGGAC

ISAG Additional Markers - Pig

Locus	Forward	Reverse
IGF1	GCTTGGATGGACCATGTTG	CATATTTTTCTGCATAACTTGAACCT
S0002	GAAGCCCAAAGAGACAACTGC	GTTCTTTACCCACTGAGCCA
S0026	AACCTTCCCTTCCCAATCAC	CACAGACTGCTTTTTACTCC
S0215	TAGGCTCAGACCCTGCTGCAT	TGGGAGGCTGAAGGATTGGGT
S0225	GCTAATGCCAGAGAAATGCAGA	CAGGTGGAAAGAATGGAATGAA
S0226	GCACTTTTAACTTTCATGATACTCC	GGTTAAACTTTTNCCCCAATACA
SW632	TGGGTTGAAAGATTTCCCAA	GGAGTCAGTACTTTGGCTTGA

Duty laboratory for the next comparison test
Dromedary: Qatar genetic lab (hanaakader@hotmail.com)
Alpaca/Llama: Duty lab not yet found
Pigeon: Duty lab not yet found
Pig: Duty lab not yet found

SIGNATURES

Chair   **Duty laboratory**