

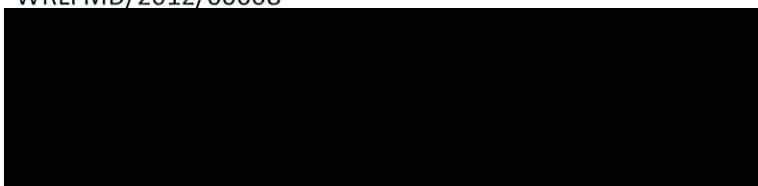


INSTITUTE FOR ANIMAL HEALTH
Director: Professor John Fazakerley BSc, MBA, PhD, FRCPath
PIRBRIGHT LABORATORY
Ash Road,
Pirbright,
Surrey,
GU24 0NF
Intn Tel: 00 44 1483 232441
Tel: 01483 232441 Fax: 01483 232621

FMD Genotyping Report

Lab Reference WRL Batch Number: WRLFMD/2012/00008

Sender Details:



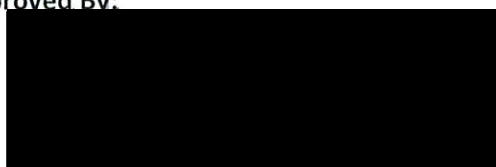
Date Received: 16th February 2012
Country of Origin: Pakistan
Date Reported: 15th March 2012

Dear Dr Khan,

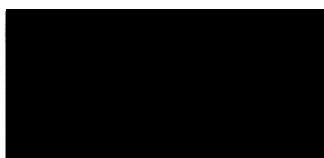
Sequencing work has now been completed in respect of the samples you submitted and the details are as attached. Please note that all of our phylogenetic trees can be accessed via the internet at:

<http://www.wrlfmd.org/>

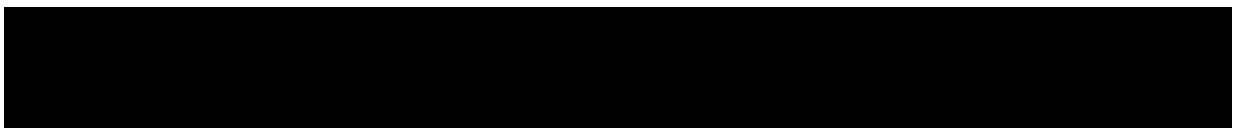
Results Approved By:



Official Stamp:



Date: 15 / 3 / 12



A UKAS accredited testing laboratory No. 4025.

To help us improve the quality of our service, please send any suggestions or requests to the Reference Laboratory by fax (+44 (0) 1483 232621 or email: gareth.shimmon@iah.ac.uk. IAH actively seeks and appreciates feedback, if you would like to offer feedback please complete the WRLFMD survey here: <http://www.surveymonkey.com/s/WRLFMD>

FAO World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD)

Genotyping Report

Report Date for this Batch: 12 March 2012

FMDV type A

Country: Pakistan

Period: 2012

No. of samples: 3

BATCH: WRLFMD/2012/00008



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FAO World Reference Laboratory for FMD Genotyping Report

IAH-P-EP-MEG-FOR-005-3

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Serotype: A	Report date: 08/03/2012
WRLFMD Ref No: PAK/6/2012	Reported by: N.J. Knowles
Batch No: WRLFMD/2012/00008	Checked by: D.P. King
Sender Ref: 08	
Location: Peshawar, KPK, Pakistan	Topotype: ASIA
Date collected: 16/01/2012	Genotype/strain: Iran-05 ^{HER-10}
Date received by WRLFMD: 16/02/2012	Sequence filename: PAK12-06.SEQ
Date received for sequencing: 27/02/2012	Date sequence last updated: 06/03/2012
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: A-1C562F/EUR-2B52R	Total no. of comparisons: 1381
A-1C612F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 21 days
	Sequencing time: 10 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	A/PAK/7/2012	PAK12-07	639	639	0	100.00	0.00	ASIA	Iran-05 ^{HER-10}
2	A/PAK/8/2012	PAK12-08	639	639	0	100.00	0.00	ASIA	Iran-05 ^{HER-10}
3	A/AFG/69/2011	AFG11-69	639	629	0	98.44	1.56	ASIA	Iran-05 ^{HER-10}
4	A/AFG/71/2011	AFG11-71	639	629	0	98.44	1.56	ASIA	Iran-05 ^{HER-10}
5	A/AFG/74/2011	AFG11-74	639	629	0	98.44	1.56	ASIA	Iran-05 ^{HER-10}
6	A/AFG/75/2011	AFG11-75	639	629	0	98.44	1.56	ASIA	Iran-05 ^{HER-10}
7	A/AFG/20/2011	AFG11-20	639	627	0	98.12	1.88	ASIA	Iran-05 ^{HER-10}
8	A/AFG/22/2011	AFG11-22	639	627	0	98.12	1.88	ASIA	Iran-05 ^{HER-10}
9	A/AFG/24/2011	AFG11-24	639	627	0	98.12	1.88	ASIA	Iran-05 ^{HER-10}
10	A/AFG/25/2011	AFG11-25	639	627	0	98.12	1.88	ASIA	Iran-05 ^{HER-10}
Most Closely Related Reference Viruses									
(see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm)									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	A/AFG/10/2010	AFG10-10	639	624	0	97.65	2.35	ASIA	Iran-05 ^{HER-10}
2	A/AFG/6/2007	AFG07-06	639	605	0	94.68	5.32	ASIA	Iran-05 ^{AFG-07}
3	A/IRN/78/2009	IRN09-78	639	595	0	93.11	6.89	ASIA	Iran-05 ^{FAR-09}
4	A/IRN/1/2005 (EF208769)	IRN05-01	639	594	0	92.96	7.04	ASIA	Iran-05
5	A/BAR/6/2008	BAR08-06	639	593	0	92.80	7.20	ASIA	Iran-05 ^{BAR-08}
6	A/TUR/1/2008	TUR08-01	639	591	0	92.49	7.51	ASIA	Iran-05 ^{ARD-07}
7	A/IRN/125/2010	IRN10125	639	589	0	92.18	7.82	ASIA	Iran-05 ^{SIS-10}
8	A/TUR/33/2008	TUR08-33	639	586	0	91.71	8.29	ASIA	Iran-05 ^{EZM-07}
9	A/IRN/9/2010	IRN10-09	639	583	0	91.24	8.76	ASIA	Iran-05 ^{ESF-10}
10	A/IRN/9/2011	IRN11-09	639	581	0	90.92	9.08	ASIA	Iran-05 ^{QAZ-11}

nt, nucleotides

*, not a WRLFMD reference number

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FAO World Reference Laboratory for FMD Genotyping Report

IAH-P-EP-MEG-FOR-005-3

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Serotype: A	Report date: 08/03/2012
WRLFMD Ref No: PAK/7/2012	Reported by: N.J. Knowles
Batch No: WRLFMD/2012/00008	Checked by: D.P. King
Sender Ref: 09	
Location: Peshawar, KPK, Pakistan	Topotype: ASIA
Date collected: 16/01/2012	Genotype/strain: Iran-05 ^{HER-10}
Date received by WRLFMD: 16/02/2012	Sequence filename: PAK12-07.SEQ
Date received for sequencing: 27/02/2012	Date sequence last updated: 28/02/2012
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: A-1C562F/EUR-2B52R	Total no. of comparisons: 1381
A-1C612F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 21 days
	Sequencing time: 10 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	A/PAK/6/2012	PAK12-06	639	639	0	100.00	0.00	ASIA	Iran-05 ^{HER-10}
2	A/PAK/8/2012	PAK12-08	639	639	0	100.00	0.00	ASIA	Iran-05 ^{HER-10}
3	A/AFG/69/2011	AFG11-69	639	629	0	98.44	1.56	ASIA	Iran-05 ^{HER-10}
4	A/AFG/71/2011	AFG11-71	639	629	0	98.44	1.56	ASIA	Iran-05 ^{HER-10}
5	A/AFG/74/2011	AFG11-74	639	629	0	98.44	1.56	ASIA	Iran-05 ^{HER-10}
6	A/AFG/75/2011	AFG11-75	639	629	0	98.44	1.56	ASIA	Iran-05 ^{HER-10}
7	A/AFG/20/2011	AFG11-20	639	627	0	98.12	1.88	ASIA	Iran-05 ^{HER-10}
8	A/AFG/22/2011	AFG11-22	639	627	0	98.12	1.88	ASIA	Iran-05 ^{HER-10}
9	A/AFG/24/2011	AFG11-24	639	627	0	98.12	1.88	ASIA	Iran-05 ^{HER-10}
10	A/AFG/25/2011	AFG11-25	639	627	0	98.12	1.88	ASIA	Iran-05 ^{HER-10}
Most Closely Related Reference Viruses									
(see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm)									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	A/AFG/10/2010	AFG10-10	639	624	0	97.65	2.35	ASIA	Iran-05 ^{HER-10}
2	A/AFG/6/2007	AFG07-06	639	605	0	94.68	5.32	ASIA	Iran-05 ^{AFG-07}
3	A/IRN/78/2009	IRN09-78	639	595	0	93.11	6.89	ASIA	Iran-05 ^{FAR-09}
4	A/IRN/1/2005 (EF208769)	IRN05-01	639	594	0	92.96	7.04	ASIA	Iran-05
5	A/BAR/6/2008	BAR08-06	639	593	0	92.80	7.20	ASIA	Iran-05 ^{BAR-08}
6	A/TUR/1/2008	TUR08-01	639	591	0	92.49	7.51	ASIA	Iran-05 ^{ARD-07}
7	A/IRN/125/2010	IRN10125	639	589	0	92.18	7.82	ASIA	Iran-05 ^{SIS-10}
8	A/TUR/33/2008	TUR08-33	639	586	0	91.71	8.29	ASIA	Iran-05 ^{EZM-07}
9	A/IRN/9/2010	IRN10-09	639	583	0	91.24	8.76	ASIA	Iran-05 ^{ESF-10}
10	A/IRN/9/2011	IRN11-09	639	581	0	90.92	9.08	ASIA	Iran-05 ^{QAZ-11}

nt, nucleotides

*, not a WRLFMD reference number

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FAO World Reference Laboratory for FMD Genotyping Report

IAH-P-EP-MEG-FOR-005-3

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Serotype: A	Report date: 08/03/2012
WRLFMD Ref No: PAK/8/2012	Reported by: N.J. Knowles
Batch No: WRLFMD/2012/00008	Checked by: D.P. King
Sender Ref: 10	
Location: Peshawar, KPK, Pakistan	Topotype: ASIA
Date collected: 16/01/2012	Genotype/strain: Iran-05 ^{HER-10}
Date received by WRLFMD: 16/02/2012	Sequence filename: PAK12-08.SEQ
Date received for sequencing: 27/02/2012	Date sequence last updated: 28/02/2012
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: A-1C612F/EUR-2B52R	Total no. of comparisons: 1381
	Min. no. of nt for comparison: 600
	Total turn-around time: 21 days
	Sequencing time: 10 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	A/PAK/6/2012	PAK12-06	639	639	0	100.00	0.00	ASIA	Iran-05 ^{HER-10}
2	A/PAK/7/2012	PAK12-07	639	639	0	100.00	0.00	ASIA	Iran-05 ^{HER-10}
3	A/AFG/69/2011	AFG11-69	639	629	0	98.44	1.56	ASIA	Iran-05 ^{HER-10}
4	A/AFG/71/2011	AFG11-71	639	629	0	98.44	1.56	ASIA	Iran-05 ^{HER-10}
5	A/AFG/74/2011	AFG11-74	639	629	0	98.44	1.56	ASIA	Iran-05 ^{HER-10}
6	A/AFG/75/2011	AFG11-75	639	629	0	98.44	1.56	ASIA	Iran-05 ^{HER-10}
7	A/AFG/20/2011	AFG11-20	639	627	0	98.12	1.88	ASIA	Iran-05 ^{HER-10}
8	A/AFG/22/2011	AFG11-22	639	627	0	98.12	1.88	ASIA	Iran-05 ^{HER-10}
9	A/AFG/24/2011	AFG11-24	639	627	0	98.12	1.88	ASIA	Iran-05 ^{HER-10}
10	A/AFG/25/2011	AFG11-25	639	627	0	98.12	1.88	ASIA	Iran-05 ^{HER-10}
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2	A/AFG/6/2007	AFG07-06	639	605	0	94.68	5.32	ASIA	Iran-05 ^{AFG-07}
3	A/IRN/78/2009	IRN09-78	639	595	0	93.11	6.89	ASIA	Iran-05 ^{FAR-09}
4	A/IRN/1/2005 (EF208769)	IRN05-01	639	594	0	92.96	7.04	ASIA	Iran-05
5	A/BAR/6/2008	BAR08-06	639	593	0	92.80	7.20	ASIA	Iran-05 ^{BAR-08}
6	A/TUR/1/2008	TUR08-01	639	591	0	92.49	7.51	ASIA	Iran-05 ^{ARD-07}
7	A/IRN/125/2010	IRN10125	639	589	0	92.18	7.82	ASIA	Iran-05 ^{SIS-10}
8	A/TUR/33/2008	TUR08-33	639	586	0	91.71	8.29	ASIA	Iran-05 ^{EZM-07}
9	A/IRN/9/2010	IRN10-09	639	583	0	91.24	8.76	ASIA	Iran-05 ^{ESF-10}
10	A/IRN/9/2011	IRN11-09	639	581	0	90.92	9.08	ASIA	Iran-05 ^{QAZ-11}

nt, nucleotides

*, not a WRLFMD reference number

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Report on FMDV A in Pakistan in 2012

Batch: WRLFMD/2012/00008

◆ indicates viruses in this batch

Software: MEGA 5.0

Analysis

Analysis ----- Phylogeny Reconstruction

Scope ----- All Selected Taxa

Statistical Method ----- Neighbor-joining

Phylogeny Test

Test of Phylogeny ----- Bootstrap method

No. of Bootstrap Replications ----- 1000

Substitution Model

Substitutions Type ----- Nucleotide

Model/Method ----- Kimura 2-parameter model

Substitutions to Include ----- d: Transitions + Transversions

Rates and Patterns

Rates among Sites ----- Uniform rates

Pattern among Lineages ----- Same (Homogeneous)

Data Subset to Use

Gaps/Missing Data Treatment ----- Pairwise deletion

Codons Included ----- 1st+2nd+3rd+Non-Coding

No. of Sites : 639

No Of Bootstrap Reps = 1000

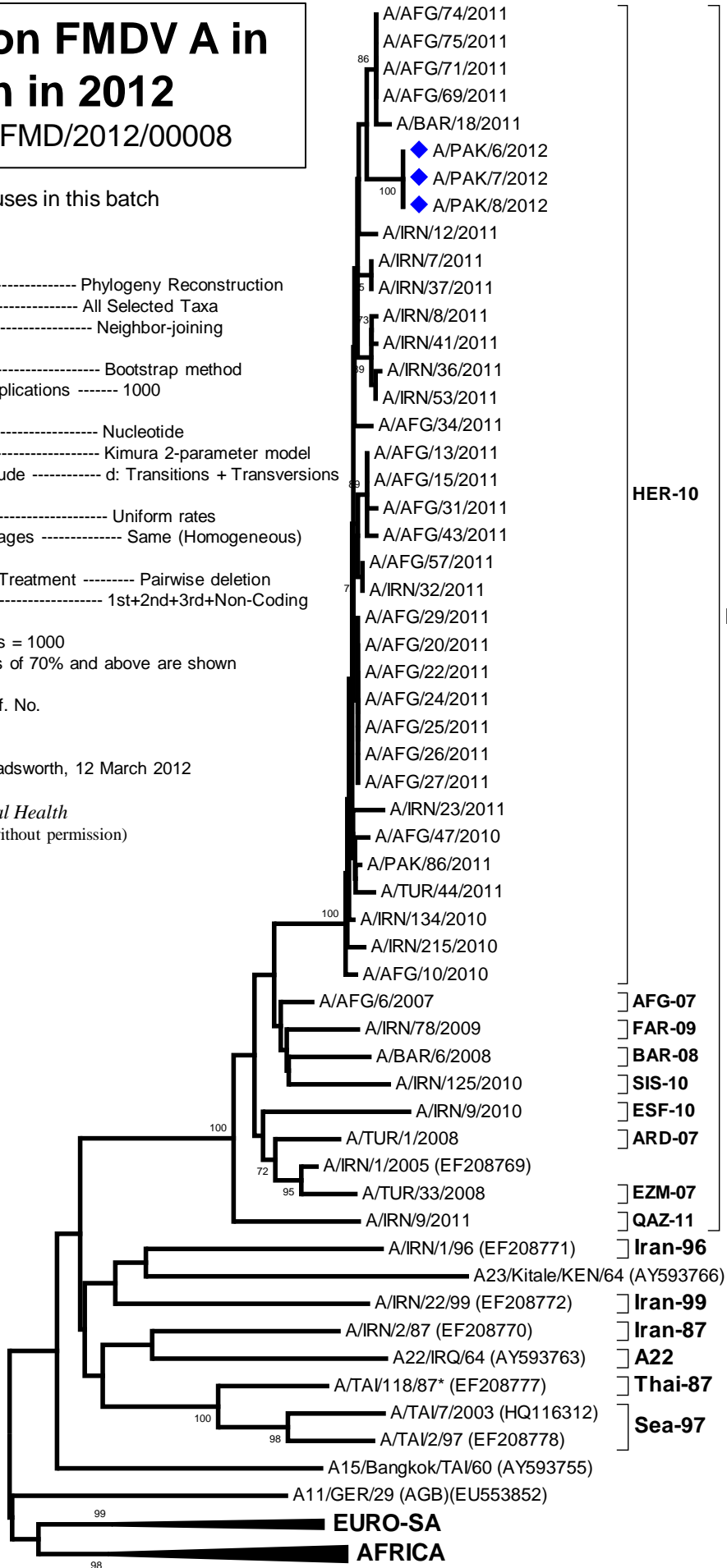
Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

N.J. Knowles & J. Wadsworth, 12 March 2012

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0.02