



INSTITUTE FOR ANIMAL HEALTH
Director: Professor Martin W. Shirley, PhD
PIRBRIGHT LABORATORY
Ash Road,
Pirbright,
Surrey,
GU24 0NF
Intn Tel: 00 44 1483 232441
Tel: 01483 232441 Fax: 01483 232621

FMD Sequencing Report

Lab Reference WRL Batch Number: WRLFMD/2009/00054

Sender Details:

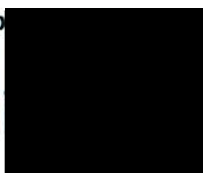


Date Received: 4th December 2009
Country of Origin: Iran
Date Reported: 18th of January 2010

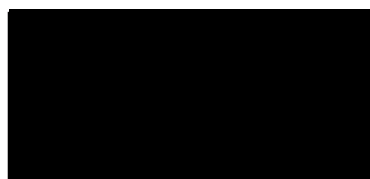
Dear Sir,

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 Ap



Official Stamp:



Date: 18.1.2010



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: elizabeth.wilson@bbsrc.ac.uk)

Molecular Epidemiology Report Form

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Serotype: A WRL Ref No: IRN/50/2009 Sender Ref: IR-88-70 Date collected: 16/07/2009 Date received by WRLFMD: 04/12/2009 Date received for sequencing: 12/01/2010 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: A-1C562F/EUR-2B52R; A-1C612F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 15/01/2010 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Iran-05 ^{ARG-07} Sequence filename: IRN09-50.SEQ Date sequence last updated: 15/01/2010 Total no. of comparisons: 1209 Min. no. of nt for comparison: 300 Total turn-around time: 42 days Sequencing time: 3 days																																																																																								
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Serotype: A WRL Ref No: IRN/53/2009 Sender Ref: IR-88-57 Date collected: 20/07/2009 Date received by WRLFMD: 04/12/2009 Date received for sequencing: 12/01/2010 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: A-1C562F/EUR-2B52R; A-1C612F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 15/01/2010 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Iran-05 ^{ARG-07} Sequence filename: IRN09-53.SEQ Date sequence last updated: 15/01/2010 Total no. of comparisons: 1209 Min. no. of nt for comparison: 300 Total turn-around time: 42 days Sequencing time: 3 days																																																																																								
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Serotype: A WRL Ref No: IRN/55/2009 Sender Ref: IR-88-62 Date collected: 23/07/2009 Date received by WRLFMD: 04/12/2009 Date received for sequencing: 12/01/2010 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: A-1C562F/EUR-2B52R; A-1C612F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 15/01/2010 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Iran-05 ^{ARG-07} Sequence filename: IRN09-55.SEQ Date sequence last updated: 15/01/2010 Total no. of comparisons: 1209 Min. no. of nt for comparison: 300 Total turn-around time: 42 days Sequencing time: 3 days																																																																																								
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Ten Most Closely Related Viruses																																																																																									
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Molecular Epidemiology Report Form

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8	A/IRN/1/96 (EF208771)	IRN96-01	638	526	1	82.45	17.55																																																																																		
9	A/TAI/2/97 (EF208778)	TAI97-02	636	523	0	82.23	17.77																																																																																		
10	A24/Cruzeiro/BRA/55 (AJ251476)	BRA55--C	639	515	0	80.59	19.41																																																																																		
nt, nucleotides *, not a WRLFMD reference number																																																																																									

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Serotype: A WRL Ref No: IRN/63/2009 Sender Ref: IR-88-52 Date collected: 02/08/2009 Date received by WRLFMD: 04/12/2009 Date received for sequencing: 12/01/2010 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: A-1C562F/EUR-2B52R; A-1C612F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 15/01/2010 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Iran-05 ^{BAR-08} Sequence filename: IRN09-63.SEQ Date sequence last updated: 15/01/2010 Total no. of comparisons: 1209 Min. no. of nt for comparison: 300 Total turn-around time: 42 days Sequencing time: 3 days																																																																																								
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8	A/IRQ/11/2009	IRQ09-11	639	629	0	98.44	1.56																																																																																		
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<p>Serotype: A WRL Ref No: IRN/67/2009 Sender Ref: IR-88-72 Date collected: 01/09/2009 Date received by WRLFMD: 04/12/2009 Date received for sequencing: 12/01/2010 Species: Sheep Material used: BTy2 Region sequenced: VP1 RT-PCR primers: A-1C562F/EUR-2B52R; A-1C612F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639</p>	<p>Report date: 15/01/2010 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Iran-05^{ARG-07} Sequence filename: IRN09-67.SEQ Date sequence last updated: 15/01/2010 Total no. of comparisons: 1209 Min. no. of nt for comparison: 300 Total turn-around time: 42 days Sequencing time: 3 days</p>																																																																																								
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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Pos.</th> <th style="text-align: left;">Virus name</th> <th style="text-align: left;">Filename</th> <th style="text-align: center;">No. nt compared</th> <th style="text-align: center;">No. nt matched</th> <th style="text-align: center;">No. of ambiguities</th> <th style="text-align: center;">% Identity</th> <th style="text-align: center;">% Difference</th> </tr> </thead> <tbody> <tr><td>1</td><td>A/IRN/1/2005 (EF208769)</td><td>IRN05-01</td><td style="text-align: center;">639</td><td style="text-align: center;">608</td><td style="text-align: center;">0</td><td style="text-align: center;">95.15</td><td style="text-align: center;">4.85</td></tr> <tr><td>2</td><td>A/IRN/2/87 (EF208770)</td><td>IRN87-02</td><td style="text-align: center;">636</td><td style="text-align: center;">544</td><td style="text-align: center;">0</td><td style="text-align: center;">85.53</td><td style="text-align: center;">14.47</td></tr> <tr><td>3</td><td>A/SAU/41/91 (FJ755085)</td><td>SAU91-41</td><td style="text-align: center;">636</td><td style="text-align: center;">539</td><td style="text-align: center;">0</td><td style="text-align: center;">84.75</td><td style="text-align: center;">15.25</td></tr> <tr><td>4</td><td>A/TAI/118/87* (EF208777)</td><td>TAI87-AD</td><td style="text-align: center;">636</td><td style="text-align: center;">538</td><td style="text-align: center;">0</td><td style="text-align: center;">84.59</td><td style="text-align: center;">15.41</td></tr> <tr><td>5</td><td>A/IRN/22/99 (EF208772)</td><td>IRN99-22</td><td style="text-align: center;">636</td><td style="text-align: center;">533</td><td style="text-align: center;">0</td><td style="text-align: center;">83.81</td><td style="text-align: center;">16.19</td></tr> <tr><td>6</td><td>A/SAU/23/86 (EU414536)</td><td>SAU86-23</td><td style="text-align: center;">639</td><td style="text-align: center;">535</td><td style="text-align: center;">0</td><td style="text-align: center;">83.72</td><td style="text-align: center;">16.28</td></tr> <tr><td>7</td><td>A/IRN/1/96 (EF208771)</td><td>IRN96-01</td><td style="text-align: center;">638</td><td style="text-align: center;">534</td><td style="text-align: center;">1</td><td style="text-align: center;">83.7</td><td style="text-align: center;">16.3</td></tr> <tr><td>8</td><td>A/TAI/2/97 (EF208778)</td><td>TAI97-02</td><td style="text-align: center;">636</td><td style="text-align: center;">531</td><td style="text-align: center;">0</td><td style="text-align: center;">83.49</td><td style="text-align: center;">16.51</td></tr> <tr><td>9</td><td>A22/IRQ/24/64 (AJ251474)</td><td>IRQ64-24</td><td style="text-align: center;">639</td><td style="text-align: center;">533</td><td style="text-align: center;">0</td><td style="text-align: center;">83.41</td><td style="text-align: center;">16.59</td></tr> <tr><td>10</td><td>A24/Cruzeiro/BRA/55 (AJ251476)</td><td>BRA55--C</td><td style="text-align: center;">639</td><td style="text-align: center;">516</td><td style="text-align: center;">0</td><td style="text-align: center;">80.75</td><td style="text-align: center;">19.25</td></tr> </tbody> </table>		Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference	1	A/IRN/1/2005 (EF208769)	IRN05-01	639	608	0	95.15	4.85	2	A/IRN/2/87 (EF208770)	IRN87-02	636	544	0	85.53	14.47	3	A/SAU/41/91 (FJ755085)	SAU91-41	636	539	0	84.75	15.25	4	A/TAI/118/87* (EF208777)	TAI87-AD	636	538	0	84.59	15.41	5	A/IRN/22/99 (EF208772)	IRN99-22	636	533	0	83.81	16.19	6	A/SAU/23/86 (EU414536)	SAU86-23	639	535	0	83.72	16.28	7	A/IRN/1/96 (EF208771)	IRN96-01	638	534	1	83.7	16.3	8	A/TAI/2/97 (EF208778)	TAI97-02	636	531	0	83.49	16.51	9	A22/IRQ/24/64 (AJ251474)	IRQ64-24	639	533	0	83.41	16.59	10	A24/Cruzeiro/BRA/55 (AJ251476)	BRA55--C	639	516	0	80.75	19.25
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nt, nucleotides *, not a WRLFMD reference number																																																																																									

Molecular Epidemiology Report Form

IAH-P-EP-MEG-FOR-005-1

Page 1 of 1

Serotype: A WRL Ref No: IRN/73/2009 Sender Ref: IR-88-55 Date collected: 01/01/2009 Date received by WRLFMD: 04/12/2009 Date received for sequencing: 12/01/2010 Species: Not Known Material used: BTy1 Region sequenced: VP1 RT-PCR primers: A-1C562F/EUR-2B52R; A-1C612F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 15/01/2010 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Iran-05 ^{ARG-07} Sequence filename: IRN09-73.SEQ Date sequence last updated: 15/01/2010 Total no. of comparisons: 1209 Min. no. of nt for comparison: 300 Total turn-around time: 42 days Sequencing time: 3 days
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Comments:

Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	A/IRN/30/2009	IRN09-30	639	626	0	97.97	2.03
2	A/IRN/26/2009	IRN09-26	639	625	0	97.81	2.19
3	A/IRN/9/2009	IRN09-09	639	624	0	97.65	2.35
4	A/IRN/1/2009	IRN09-01	639	623	0	97.5	2.5
5	A/IRN/15/2009	IRN09-15	639	623	0	97.5	2.5
6	A/IRN/20/2009	IRN09-20	639	623	0	97.5	2.5
7	A/IRN/4/2009	IRN09-04	639	623	0	97.5	2.5
8	A/BAR/2/2009	BAR09-02	639	622	0	97.34	2.66
9	A/BAR/4/2009	BAR09-04	639	622	0	97.34	2.66
10	A/IRN/17/2009	IRN09-17	639	620	0	97.03	2.97

Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	A/IRN/1/2005 (EF208769)	IRN05-01	639	603	0	94.37	5.63
2	A/IRN/2/87 (EF208770)	IRN87-02	636	539	0	84.75	15.25
3	A/SAU/41/91 (FJ755085)	SAU91-41	636	535	0	84.12	15.88
4	A/TAI/118/87* (EF208777)	TAI87-AD	636	530	0	83.33	16.67
5	A/IRN/22/99 (EF208772)	IRN99-22	636	526	0	82.7	17.3
6	A/SAU/23/86 (EU414536)	SAU86-23	639	528	0	82.63	17.37
7	A/TAI/2/97 (EF208778)	TAI97-02	636	525	0	82.55	17.45
8	A22/IRQ/24/64 (AJ251474)	IRQ64-24	639	527	0	82.47	17.53
9	A/IRN/1/96 (EF208771)	IRN96-01	638	526	1	82.45	17.55
10	A24/Cruzeiro/BRA/55 (AJ251476)	BRA55--C	639	515	0	80.59	19.41

nt, nucleotides

*, not a WRLFMD reference number

Report on FMDV A in Iran in 2009

Batch: WRLFMD/2009/00054

Software: MEGA 4.0

No. of Taxa : 191

Data File : n:\evd\meg\db\fmdv\al\IRN2009d.meg

Data Title : A Iran 2009

Data Type : Nucleotide (Coding)

Analysis : Phylogeny reconstruction

Tree Inference :

->Method : Neighbor-Joining

->Phylogeny Test and options : Bootstrap (1000 replicates; seed=4705)

Include Sites :

->Gaps/Missing Data : Pairwise Deletion

->Codon Positions : 1st+2nd+3rd+Noncoding
Substitution Model :

->Model : Nucleotide: Kimura 2-parameter

->Substitutions to Include : d: Transitions +
Transversions

->Pattern among Lineages : Same (Homogeneous)

->Rates among sites : Uniform rates

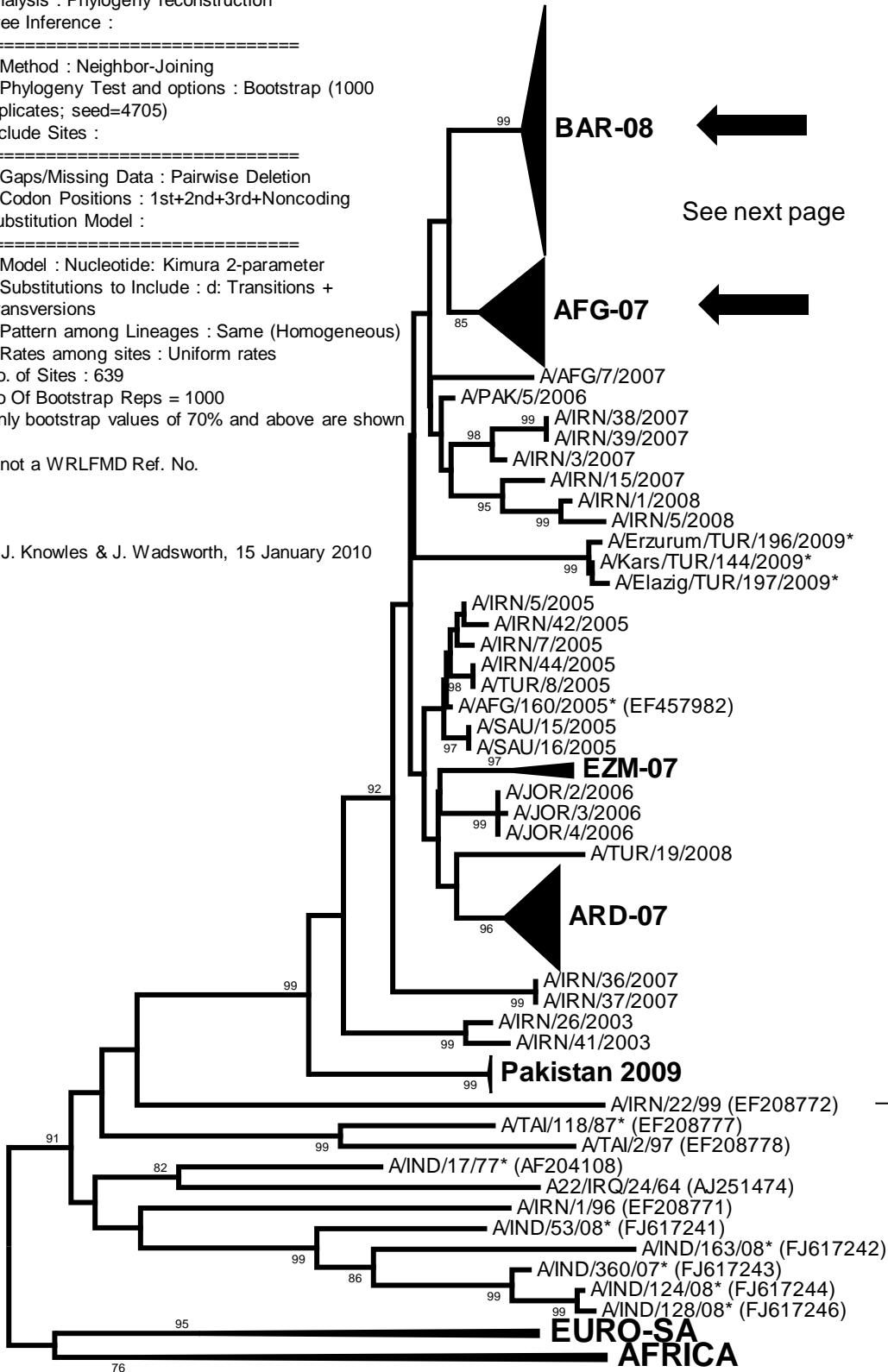
No. of Sites : 639

No Of Bootstrap Reps = 1000

Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

N.J. Knowles & J. Wadsworth, 15 January 2010



0.02

Report on FMDV A in Iran in 2009

Batch: WRLFMD/2009/00054

