



INSTITUTE FOR ANIMAL HEALTH
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FMD Sequencing Report

Lab Reference WRL Batch Number: WRLFMD/2011/00010
Sender Details: [REDACTED]
Date Received: 26th January 2011
Country of Origin: Iran
Date Reported: 2nd June 2011

Dear Dr. Abdollah,

Re.: Serotype A

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:

[REDACTED]

Official Stamp:

[REDACTED]

Date: 02/06/2011

[REDACTED]

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: elizabeth.wilson@bbsrc.ac.uk)

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

Genotyping Report

Report Date for this Batch: 24 May 2011

FMDV type A

Country: Iran

Period: 2011

No. of samples: 10

BATCH: WRLFMD/2011/000010



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Serotype: A	Report date: 24/05/2011
WRLFMD Ref No: IRN/1/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00010	Checked by: D.P. King
Sender Ref: IR-89-245	
Location: Fasa, Fars, Iran	Topotype: ASIA
Date collected: 02/01/2011	Genotype/strain: Iran-05 ^{AFG-07}
Date received by WRLFMD: 26/01/2011	Sequence filename: IRN11-01.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
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: 1298
A-1C612F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 118 days
	Sequencing time: 36 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/23/2010	PAK10-23	639	620	0	97.03	2.97	ASIA	Iran-05 ^{AFG-07}
2	A/PAK/13/2008	PAK08-13	639	618	0	96.71	3.29	ASIA	Iran-05 ^{AFG-07}
3	A/AFG/14/2009	AFG09-14	639	617	0	96.56	3.44	ASIA	Iran-05 ^{AFG-07}
4	A/AFG/15/2009	AFG09-15	639	617	0	96.56	3.44	ASIA	Iran-05 ^{AFG-07}
5	A/AFG/232/2010	AFG10232	639	617	0	96.56	3.44	ASIA	Iran-05 ^{AFG-07}
6	A/AFG/8/2009	AFG09-08	639	617	0	96.56	3.44	ASIA	Iran-05 ^{AFG-07}
7	A/PAK/1/2009	PAK09-01	639	617	0	96.56	3.44	ASIA	Iran-05 ^{AFG-07}
8	A/PAK/12/2010	PAK10-12	639	617	0	96.56	3.44	ASIA	Iran-05 ^{AFG-07}
9	A/PAK/2/2009	PAK09-02	639	617	0	96.56	3.44	ASIA	Iran-05 ^{AFG-07}
10	A/AFG/13/2009	AFG09-13	639	615	0	96.24	3.76	ASIA	Iran-05 ^{AFG-07}
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/6/2007	AFG07-06	639	608	0	95.15	4.85	ASIA	Iran-05 ^{AFG-07}
2	A/IRN/1/2005 (EF208769)	IRN05-01	639	600	0	93.90	6.10	ASIA	Iran-05
3	A/BAR/6/2008	BAR08-06	639	598	0	93.58	6.42	ASIA	Iran-05 ^{BAR-08}
4	A/TUR/1/2008	TUR08-01	639	598	0	93.58	6.42	ASIA	Iran-05 ^{ARD-07}
5	A/TUR/33/2008	TUR08-33	639	591	0	92.49	7.51	ASIA	Iran-05 ^{EZM-07}
6	A/IRN/9/2010	IRN10-09	639	587	0	91.86	8.14	ASIA	Iran-05 ^{ESF-10}
7	A/IRN/9/2011	IRN11-09	639	586	0	91.71	8.29	ASIA	Iran-05 ^{QAZ-11}
8	A/IRN/2/87 (EF208770)	IRN87-02	636	542	0	85.22	14.78	ASIA	Iran-87
9	A/TAI/118/87* (EF208777)	TAI87-AD	636	537	0	84.43	15.57	ASIA	Thai-87
10	A/TAI/2/97 (EF208778)	TAI97-02	636	533	0	83.81	16.19	ASIA	Thai-97

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: A	Report date: 24/05/2011
WRLFMD Ref No: IRN/4/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00010	Checked by: D.P. King
Sender Ref: IR-89-241	
Location: Farsan, Chaharmahal and Bakhtiari, Iran	Topotype: ASIA
Date collected: 04/01/2011	Genotype/strain: Iran-05 ^{AFG-07}
Date received by WRLFMD: 26/01/2011	Sequence filename: IRN11-04.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
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: 1298
A-1C612F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 118 days
	Sequencing time: 36 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/IRN/5/2011	IRN11-05	639	638	0	99.84	0.16	ASIA	Iran-05 ^{AFG-07}
2	A/TUR/5/2011	TUR11-05	639	637	0	99.69	0.31	ASIA	Iran-05 ^{AFG-07}
3	A/IRN/125/2010	IRN10125	639	636	0	99.53	0.47	ASIA	Iran-05 ^{AFG-07}
4	A/IRN/18/2011	IRN11-18	639	636	0	99.53	0.47	ASIA	Iran-05 ^{AFG-07}
5	A/PAK/37/2010	PAK10-37	639	636	0	99.53	0.47	ASIA	Iran-05 ^{AFG-07}
6	A/TUR/10/2011	TUR11-10	639	636	0	99.53	0.47	ASIA	Iran-05 ^{AFG-07}
7	A/TUR/13/2011	TUR11-13	639	636	0	99.53	0.47	ASIA	Iran-05 ^{AFG-07}
8	A/TUR/16/2011	TUR11-16	639	636	0	99.53	0.47	ASIA	Iran-05 ^{AFG-07}
9	A/TUR/18/2011	TUR11-18	639	636	0	99.53	0.47	ASIA	Iran-05 ^{AFG-07}
10	A/TUR/21/2011	TUR11-21	639	636	0	99.53	0.47	ASIA	Iran-05 ^{AFG-07}
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/6/2007	AFG07-06	639	606	0	94.84	5.16	ASIA	Iran-05 ^{AFG-07}
2	A/BAR/6/2008	BAR08-06	639	598	0	93.58	6.42	ASIA	Iran-05 ^{BAR-08}
3	A/IRN/1/2005 (EF208769)	IRN05-01	639	596	0	93.27	6.73	ASIA	Iran-05
4	A/TUR/33/2008	TUR08-33	639	595	0	93.11	6.89	ASIA	Iran-05 ^{EZM-07}
5	A/TUR/1/2008	TUR08-01	639	594	0	92.96	7.04	ASIA	Iran-05 ^{ARD-07}
6	A/IRN/9/2011	IRN11-09	639	580	0	90.77	9.23	ASIA	Iran-05 ^{QAZ-11}
7	A/IRN/9/2010	IRN10-09	639	579	0	90.61	9.39	ASIA	Iran-05 ^{ESF-10}
8	A/IRN/22/99 (EF208772)	IRN99-22	636	539	0	84.75	15.25	ASIA	Iran-99
9	A/IRN/2/87 (EF208770)	IRN87-02	636	532	0	83.65	16.35	ASIA	Iran-87
10	A/TAI/118/87* (EF208777)	TAI87-AD	636	529	0	83.18	16.82	ASIA	Thai-87

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: A	Report date: 24/05/2011
WRLFMD Ref No: IRN/5/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00010	Checked by: D.P. King
Sender Ref: IR-89-247	
Location: Yazd, Iran	Topotype: ASIA
Date collected: 04/01/2011	Genotype/strain: Iran-05 ^{AFG-07}
Date received by WRLFMD: 26/01/2011	Sequence filename: IRN11-05.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
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: 1298
A-1C612F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 118 days
	Sequencing time: 36 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/IRN/4/2011	IRN11-04	639	638	0	99.84	0.16	ASIA	Iran-05 ^{AFG-07}
2	A/TUR/5/2011	TUR11-05	639	636	0	99.53	0.47	ASIA	Iran-05 ^{AFG-07}
3	A/IRN/125/2010	IRN10125	639	635	0	99.37	0.63	ASIA	Iran-05 ^{AFG-07}
4	A/IRN/18/2011	IRN11-18	639	635	0	99.37	0.63	ASIA	Iran-05 ^{AFG-07}
5	A/PAK/37/2010	PAK10-37	639	635	0	99.37	0.63	ASIA	Iran-05 ^{AFG-07}
6	A/TUR/10/2011	TUR11-10	639	635	0	99.37	0.63	ASIA	Iran-05 ^{AFG-07}
7	A/TUR/13/2011	TUR11-13	639	635	0	99.37	0.63	ASIA	Iran-05 ^{AFG-07}
8	A/TUR/16/2011	TUR11-16	639	635	0	99.37	0.63	ASIA	Iran-05 ^{AFG-07}
9	A/TUR/18/2011	TUR11-18	639	635	0	99.37	0.63	ASIA	Iran-05 ^{AFG-07}
10	A/TUR/21/2011	TUR11-21	639	635	0	99.37	0.63	ASIA	Iran-05 ^{AFG-07}
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/6/2007	AFG07-06	639	605	0	94.68	5.32	ASIA	Iran-05 ^{AFG-07}
2	A/BAR/6/2008	BAR08-06	639	597	0	93.43	6.57	ASIA	Iran-05 ^{BAR-08}
3	A/IRN/1/2005 (EF208769)	IRN05-01	639	595	0	93.11	6.89	ASIA	Iran-05
4	A/TUR/33/2008	TUR08-33	639	594	0	92.96	7.04	ASIA	Iran-05 ^{EZM-07}
5	A/TUR/1/2008	TUR08-01	639	593	0	92.80	7.20	ASIA	Iran-05 ^{ARD-07}
6	A/IRN/9/2011	IRN11-09	639	579	0	90.61	9.39	ASIA	Iran-05 ^{QAZ-11}
7	A/IRN/9/2010	IRN10-09	639	578	0	90.45	9.55	ASIA	Iran-05 ^{ESF-10}
8	A/IRN/22/99 (EF208772)	IRN99-22	636	538	0	84.59	15.41	ASIA	Iran-99
9	A/IRN/2/87 (EF208770)	IRN87-02	636	531	0	83.49	16.51	ASIA	Iran-87
10	A/TAI/118/87* (EF208777)	TAI87-AD	636	528	0	83.02	16.98	ASIA	Thai-87

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: A	Report date: 24/05/2011
WRLFMD Ref No: IRN/7/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00010	Checked by: D.P. King
Sender Ref: IR-89-240	
Location: Shushtar, Khozestan, Iran	Topotype: ASIA
Date collected: 05/01/2011	Genotype/strain: Iran-05 ^{AFG-07}
Date received by WRLFMD: 26/01/2011	Sequence filename: IRN11-07.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
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: 1298
A-1C612F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 118 days
	Sequencing time: 36 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/IRN/37/2011	IRN11-37	639	639	0	100.00	0.00	ASIA	Iran-05 ^{AFG-07}
2	A/IRN/134/2010	IRN10134	639	635	0	99.37	0.63	ASIA	Iran-05 ^{AFG-07}
3	A/IRN/32/2011	IRN11-32	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
4	A/IRN/12/2011	IRN11-12	639	632	0	98.90	1.10	ASIA	Iran-05 ^{AFG-07}
5	A/IRN/41/2011	IRN11-41	639	632	0	98.90	1.10	ASIA	Iran-05 ^{AFG-07}
6	A/IRN/53/2011	IRN11-53	639	632	0	98.90	1.10	ASIA	Iran-05 ^{AFG-07}
7	A/IRN/8/2011	IRN11-08	639	632	0	98.90	1.10	ASIA	Iran-05 ^{AFG-07}
8	A/AFG/10/2010	AFG10-10	639	631	0	98.75	1.25	ASIA	Iran-05 ^{AFG-07}
9	A/AFG/47/2010	AFG10-47	639	631	0	98.75	1.25	ASIA	Iran-05 ^{AFG-07}
10	A/IRN/36/2011	IRN11-36	639	631	0	98.75	1.25	ASIA	Iran-05 ^{AFG-07}
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/6/2007	AFG07-06	639	610	0	95.46	4.54	ASIA	Iran-05 ^{AFG-07}
2	A/IRN/1/2005 (EF208769)	IRN05-01	639	602	0	94.21	5.79	ASIA	Iran-05
3	A/BAR/6/2008	BAR08-06	639	598	0	93.58	6.42	ASIA	Iran-05 ^{BAR-08}
4	A/TUR/1/2008	TUR08-01	639	597	0	93.43	6.57	ASIA	Iran-05 ^{ARD-07}
5	A/TUR/33/2008	TUR08-33	639	594	0	92.96	7.04	ASIA	Iran-05 ^{EZM-07}
6	A/IRN/9/2011	IRN11-09	639	585	0	91.55	8.45	ASIA	Iran-05 ^{QAZ-11}
7	A/IRN/9/2010	IRN10-09	639	583	0	91.24	8.76	ASIA	Iran-05 ^{ESF-10}
8	A/TAI/118/87* (EF208777)	TAI87-AD	636	537	0	84.43	15.57	ASIA	Thai-87
9	A/IRN/2/87 (EF208770)	IRN87-02	636	535	0	84.12	15.88	ASIA	Iran-87
10	A15/Bangkok/TAI/60 (AY593755)	TAI60--D	639	530	0	82.94	17.06	ASIA	A ₁₅

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: A	Report date: 24/05/2011
WRLFMD Ref No: IRN/8/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00010	Checked by: D.P. King
Sender Ref: IR-89-243	
Location: Qom, Iran	Topotype: ASIA
Date collected: 05/01/2011	Genotype/strain: Iran-05 ^{AFG-07}
Date received by WRLFMD: 26/01/2011	Sequence filename: IRN11-08.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
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: 1298
A-1C612F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 118 days
	Sequencing time: 36 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/IRN/41/2011	IRN11-41	639	637	0	99.69	0.31	ASIA	Iran-05 ^{AFG-07}
2	A/IRN/53/2011	IRN11-53	639	637	0	99.69	0.31	ASIA	Iran-05 ^{AFG-07}
3	A/IRN/36/2011	IRN11-36	639	636	0	99.53	0.47	ASIA	Iran-05 ^{AFG-07}
4	A/IRN/134/2010	IRN10134	639	632	0	98.90	1.10	ASIA	Iran-05 ^{AFG-07}
5	A/IRN/32/2011	IRN11-32	639	632	0	98.90	1.10	ASIA	Iran-05 ^{AFG-07}
6	A/IRN/37/2011	IRN11-37	639	632	0	98.90	1.10	ASIA	Iran-05 ^{AFG-07}
7	A/IRN/7/2011	IRN11-07	639	632	0	98.90	1.10	ASIA	Iran-05 ^{AFG-07}
8	A/IRN/12/2011	IRN11-12	639	631	0	98.75	1.25	ASIA	Iran-05 ^{AFG-07}
9	A/AFG/10/2010	AFG10-10	639	630	0	98.59	1.41	ASIA	Iran-05 ^{AFG-07}
10	A/AFG/47/2010	AFG10-47	639	630	0	98.59	1.41	ASIA	Iran-05 ^{AFG-07}
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/6/2007	AFG07-06	639	609	0	95.31	4.69	ASIA	Iran-05 ^{AFG-07}
2	A/IRN/1/2005 (EF208769)	IRN05-01	639	600	0	93.90	6.10	ASIA	Iran-05
3	A/BAR/6/2008	BAR08-06	639	597	0	93.43	6.57	ASIA	Iran-05 ^{BAR-08}
4	A/TUR/1/2008	TUR08-01	639	597	0	93.43	6.57	ASIA	Iran-05 ^{ARD-07}
5	A/TUR/33/2008	TUR08-33	639	594	0	92.96	7.04	ASIA	Iran-05 ^{EZM-07}
6	A/IRN/9/2010	IRN10-09	639	583	0	91.24	8.76	ASIA	Iran-05 ^{ESF-10}
7	A/IRN/9/2011	IRN11-09	639	583	0	91.24	8.76	ASIA	Iran-05 ^{QAZ-11}
8	A/TAI/118/87* (EF208777)	TAI87-AD	636	534	0	83.96	16.04	ASIA	Thai-87
9	A/IRN/2/87 (EF208770)	IRN87-02	636	531	0	83.49	16.51	ASIA	Iran-87
10	A/IRN/22/99 (EF208772)	IRN99-22	636	527	0	82.86	17.14	ASIA	Iran-99

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: A	Report date: 24/05/2011
WRLFMD Ref No: IRN/9/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00010	Checked by: D.P. King
Sender Ref: IR-89-250	
Location: Qazvin, Iran	Topotype: ASIA
Date collected: 05/01/2011	Genotype/strain: Iran-05 ^{QAZ-11}
Date received by WRLFMD: 26/01/2011	Sequence filename: IRN11-09.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
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: 1298
A-1C612F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 118 days
	Sequencing time: 36 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/IRN/17/2011	IRN11-17	639	635	0	99.37	0.63	ASIA	Iran-05 ^{QAZ-11}
2	A/IRN/31/2011	IRN11-31	639	634	0	99.22	0.78	ASIA	Iran-05 ^{QAZ-11}
3	A/IRN/45/2011	IRN11-45	639	634	0	99.22	0.78	ASIA	Iran-05 ^{QAZ-11}
4	A/IRN/51/2011	IRN11-51	639	634	0	99.22	0.78	ASIA	Iran-05 ^{QAZ-11}
5	A/IRN/40/2011	IRN11-40	639	633	0	99.06	0.94	ASIA	Iran-05 ^{QAZ-11}
6	A/PAK/5/2006 (EF494488)	PAK06-AC	639	602	0	94.21	5.79	ASIA	Iran-05
7	A/PAK/5/2006 (FJ755084)	PAK06-05	639	602	0	94.21	5.79	ASIA	Iran-05
8	A/AFG/160/2005* (EF457982)	AFG05-AA	639	600	0	93.90	6.10	ASIA	Iran-05
9	A/IRN/50/2005 (FJ755051)	IRN05-50	639	600	0	93.90	6.10	ASIA	Iran-05
10	A/IRN/53/2005 (FJ755053)	IRN05-53	639	600	0	93.90	6.10	ASIA	Iran-05
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/IRN/9/2011	IRN11-09	639	639	0	100.00	100.00	ASIA	Iran-05 ^{QAZ-11}
2	A/AFG/6/2007	AFG07-06	639	597	0	93.43	6.57	ASIA	Iran-05 ^{AFG-07}
3	A/IRN/1/2005 (EF208769)	IRN05-01	639	596	0	93.27	6.73	ASIA	Iran-05
4	A/BAR/6/2008	BAR08-06	639	593	0	92.80	7.20	ASIA	Iran-05 ^{BAR-08}
5	A/TUR/1/2008	TUR08-01	639	591	0	92.49	7.51	ASIA	Iran-05 ^{ARD-07}
6	A/TUR/33/2008	TUR08-33	639	585	0	91.55	8.45	ASIA	Iran-05 ^{EZM-07}
7	A/IRN/9/2010	IRN10-09	639	577	0	90.30	9.70	ASIA	Iran-05 ^{ESF-10}
8	A/TAI/118/87* (EF208777)	TAI87-AD	636	535	0	84.12	15.88	ASIA	Thai-87
9	A15/Bangkok/TAI/60 (AY593755)	TAI60--D	639	537	0	84.04	15.96	ASIA	A15
10	A/IRN/2/87 (EF208770)	IRN87-02	636	534	0	83.96	16.04	ASIA	Iran-87

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: A	Report date: 24/05/2011
WRLFMD Ref No: IRN/12/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00010	Checked by: D.P. King
Sender Ref: IR-89-252	
Location: Jafareyh, Qom, Iran	Topotype: ASIA
Date collected: 08/01/2011	Genotype/strain: Iran-05 ^{AFG-07}
Date received by WRLFMD: 26/01/2011	Sequence filename: IRN11-12.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
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: 1298
A-1C612F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 118 days
	Sequencing time: 36 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/IRN/134/2010	IRN10134	639	632	0	98.90	1.10	ASIA	Iran-05 ^{AFG-07}
2	A/IRN/32/2011	IRN11-32	639	632	0	98.90	1.10	ASIA	Iran-05 ^{AFG-07}
3	A/IRN/37/2011	IRN11-37	639	632	0	98.90	1.10	ASIA	Iran-05 ^{AFG-07}
4	A/IRN/7/2011	IRN11-07	639	632	0	98.90	1.10	ASIA	Iran-05 ^{AFG-07}
5	A/IRN/41/2011	IRN11-41	639	631	0	98.75	1.25	ASIA	Iran-05 ^{AFG-07}
6	A/IRN/53/2011	IRN11-53	639	631	0	98.75	1.25	ASIA	Iran-05 ^{AFG-07}
7	A/IRN/8/2011	IRN11-08	639	631	0	98.75	1.25	ASIA	Iran-05 ^{AFG-07}
8	A/AFG/10/2010	AFG10-10	639	630	0	98.59	1.41	ASIA	Iran-05 ^{AFG-07}
9	A/AFG/47/2010	AFG10-47	639	630	0	98.59	1.41	ASIA	Iran-05 ^{AFG-07}
10	A/IRN/36/2011	IRN11-36	639	630	0	98.59	1.41	ASIA	Iran-05 ^{AFG-07}
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/6/2007	AFG07-06	639	609	0	95.31	4.69	ASIA	Iran-05 ^{AFG-07}
2	A/IRN/1/2005 (EF208769)	IRN05-01	639	600	0	93.90	6.10	ASIA	Iran-05
3	A/BAR/6/2008	BAR08-06	639	599	0	93.74	6.26	ASIA	Iran-05 ^{BAR-08}
4	A/TUR/1/2008	TUR08-01	639	599	0	93.74	6.26	ASIA	Iran-05 ^{ARD-07}
5	A/TUR/33/2008	TUR08-33	639	592	0	92.64	7.36	ASIA	Iran-05 ^{EZM-07}
6	A/IRN/9/2011	IRN11-09	639	589	0	92.18	7.82	ASIA	Iran-05 ^{QAZ-11}
7	A/IRN/9/2010	IRN10-09	639	584	0	91.39	8.61	ASIA	Iran-05 ^{ESF-10}
8	A/TAI/118/87* (EF208777)	TAI87-AD	636	533	0	83.81	16.19	ASIA	Thai-87
9	A/IRN/2/87 (EF208770)	IRN87-02	636	531	0	83.49	16.51	ASIA	Iran-87
10	A/IRN/22/99 (EF208772)	IRN99-22	636	527	0	82.86	17.14	ASIA	Iran-99

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: A	Report date: 24/05/2011
WRLFMD Ref No: IRN/17/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00010	Checked by: D.P. King
Sender Ref: IR-89-251	
Location: Sarab, East Azerbaijan, Iran	Topotype: ASIA
Date collected: 12/01/2011	Genotype/strain: Iran-05 ^{QAZ-11}
Date received by WRLFMD: 26/01/2011	Sequence filename: IRN11-17.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
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: 1298
A-1C612F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 118 days
	Sequencing time: 36 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/IRN/31/2011	IRN11-31	639	636	0	99.53	0.47	ASIA	Iran-05 ^{QAZ-11}
2	A/IRN/45/2011	IRN11-45	639	636	0	99.53	0.47	ASIA	Iran-05 ^{QAZ-11}
3	A/IRN/51/2011	IRN11-51	639	636	0	99.53	0.47	ASIA	Iran-05 ^{QAZ-11}
4	A/IRN/40/2011	IRN11-40	639	635	0	99.37	0.63	ASIA	Iran-05 ^{QAZ-11}
5	A/IRN/9/2011	IRN11-09	639	635	0	99.37	0.63	ASIA	Iran-05 ^{QAZ-11}
6	A/PAK/5/2006 (EF494488)	PAK06-AC	639	602	0	94.21	5.79	ASIA	Iran-05
7	A/PAK/5/2006 (FJ755084)	PAK06-05	639	602	0	94.21	5.79	ASIA	Iran-05
8	A/AFG/160/2005* (EF457982)	AFG05-AA	639	598	0	93.58	6.42	ASIA	Iran-05
9	A/AFG/44/2007	AFG07-44	639	598	0	93.58	6.42	ASIA	Iran-05 ^{AFG-07}
10	A/IRN/50/2005 (FJ755051)	IRN05-50	639	598	0	93.58	6.42	ASIA	Iran-05
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/IRN/9/2011	IRN11-09	639	635	0	99.37	0.63	ASIA	Iran-05 ^{QAZ-11}
2	A/AFG/6/2007	AFG07-06	639	597	0	93.43	6.57	ASIA	Iran-05 ^{AFG-07}
3	A/IRN/1/2005 (EF208769)	IRN05-01	639	596	0	93.27	6.73	ASIA	Iran-05
4	A/BAR/6/2008	BAR08-06	639	591	0	92.49	7.51	ASIA	Iran-05 ^{BAR-08}
5	A/TUR/1/2008	TUR08-01	639	591	0	92.49	7.51	ASIA	Iran-05 ^{ARD-07}
6	A/TUR/33/2008	TUR08-33	639	587	0	91.86	8.14	ASIA	Iran-05 ^{EZM-07}
7	A/IRN/9/2010	IRN10-09	639	577	0	90.30	9.70	ASIA	Iran-05 ^{ESF-10}
8	A/TAI/118/87* (EF208777)	TAI87-AD	636	535	0	84.12	15.88	ASIA	Thai-87
9	A15/Bangkok/TAI/60 (AY593755)	TAI60--D	639	537	0	84.04	15.96	ASIA	A15
10	A/IRN/2/87 (EF208770)	IRN87-02	636	534	0	83.96	16.04	ASIA	Iran-87

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: A	Report date: 24/05/2011
WRLFMD Ref No: IRN/18/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00010	Checked by: D.P. King
Sender Ref: IR-89-231	
Location: Eslamshar, Tehran, Iran	Topotype: ASIA
Date collected: 16/01/2011	Genotype/strain: Iran-05 ^{AFG-07}
Date received by WRLFMD: 26/01/2011	Sequence filename: IRN11-18.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
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: 1298
A-1C612F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 118 days
	Sequencing time: 36 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/IRN/4/2011	IRN11-04	639	636	0	99.53	0.47	ASIA	Iran-05 ^{AFG-07}
2	A/IRN/5/2011	IRN11-05	639	635	0	99.37	0.63	ASIA	Iran-05 ^{AFG-07}
3	A/TUR/9/2011* (FMDI)	TUR11-AB	639	635	0	99.37	0.63	ASIA	Iran-05 ^{AFG-07}
4	A/TUR/5/2011	TUR11-05	639	634	0	99.22	0.78	ASIA	Iran-05 ^{AFG-07}
5	A/IRN/125/2010	IRN10125	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
6	A/PAK/37/2010	PAK10-37	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
7	A/TUR/10/2011	TUR11-10	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
8	A/TUR/13/2011	TUR11-13	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
9	A/TUR/16/2011	TUR11-16	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
10	A/TUR/18/2011	TUR11-18	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
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/6/2007	AFG07-06	639	605	0	94.68	5.32	ASIA	Iran-05 ^{AFG-07}
2	A/BAR/6/2008	BAR08-06	639	595	0	93.11	6.89	ASIA	Iran-05 ^{BAR-08}
3	A/TUR/33/2008	TUR08-33	639	594	0	92.96	7.04	ASIA	Iran-05 ^{EZM-07}
4	A/IRN/1/2005 (EF208769)	IRN05-01	639	593	0	92.80	7.20	ASIA	Iran-05
5	A/TUR/1/2008	TUR08-01	639	593	0	92.80	7.20	ASIA	Iran-05 ^{ARD-07}
6	A/IRN/9/2010	IRN10-09	639	578	0	90.45	9.55	ASIA	Iran-05 ^{ESF-10}
7	A/IRN/9/2011	IRN11-09	639	577	0	90.30	9.70	ASIA	Iran-05 ^{QAZ-11}
8	A/IRN/22/99 (EF208772)	IRN99-22	636	537	0	84.43	15.57	ASIA	Iran-99
9	A/IRN/2/87 (EF208770)	IRN87-02	636	531	0	83.49	16.51	ASIA	Iran-87
10	A/TAI/118/87* (EF208777)	TAI87-AD	636	529	0	83.18	16.82	ASIA	Thai-87

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: A	Report date: 24/05/2011
WRLFMD Ref No: IRN/20/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00010	Checked by: D.P. King
Sender Ref: IR-89-258	
Location: Robatkarim, Tehran, Iran	Topotype: ASIA
Date collected: 18/01/2011	Genotype/strain: Iran-05 ^{AFG-07}
Date received by WRLFMD: 26/01/2011	Sequence filename: IRN11-20.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
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: 1298
A-1C612F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 118 days
	Sequencing time: 36 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/IRN/52/2011	IRN11-52	639	638	0	99.84	0.16	ASIA	Iran-05 ^{AFG-07}
2	A/TUR/14/2011	TUR11-14	639	637	0	99.69	0.31	ASIA	Iran-05 ^{AFG-07}
3	A/IRN/4/2011	IRN11-04	639	634	0	99.22	0.78	ASIA	Iran-05 ^{AFG-07}
4	A/TUR/5/2011	TUR11-05	639	634	0	99.22	0.78	ASIA	Iran-05 ^{AFG-07}
5	A/IRN/125/2010	IRN10125	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
6	A/IRN/5/2011	IRN11-05	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
7	A/PAK/37/2010	PAK10-37	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
8	A/TUR/10/2011	TUR11-10	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
9	A/TUR/13/2011	TUR11-13	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
10	A/TUR/16/2011	TUR11-16	639	633	0	99.06	0.94	ASIA	Iran-05 ^{AFG-07}
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/6/2007	AFG07-06	639	604	0	94.52	5.48	ASIA	Iran-05 ^{AFG-07}
2	A/BAR/6/2008	BAR08-06	639	595	0	93.11	6.89	ASIA	Iran-05 ^{BAR-08}
3	A/TUR/33/2008	TUR08-33	639	595	0	93.11	6.89	ASIA	Iran-05 ^{EZM-07}
4	A/IRN/1/2005 (EF208769)	IRN05-01	639	593	0	92.80	7.20	ASIA	Iran-05
5	A/TUR/1/2008	TUR08-01	639	592	0	92.64	7.36	ASIA	Iran-05 ^{ARD-07}
6	A/IRN/9/2010	IRN10-09	639	581	0	90.92	9.08	ASIA	Iran-05 ^{ESF-10}
7	A/IRN/9/2011	IRN11-09	639	579	0	90.61	9.39	ASIA	Iran-05 ^{QAZ-11}
8	A/IRN/22/99 (EF208772)	IRN99-22	636	539	0	84.75	15.25	ASIA	Iran-99
9	A/IRN/2/87 (EF208770)	IRN87-02	636	534	0	83.96	16.04	ASIA	Iran-87
10	A/TAI/118/87* (EF208777)	TAI87-AD	636	533	0	83.81	16.19	ASIA	Thai-87

nt, nucleotides

*, not a WRLFMD reference number

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Report on FMDV A in Iran in 2011

Batch: WRLFMD/2011/00010

◆ 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

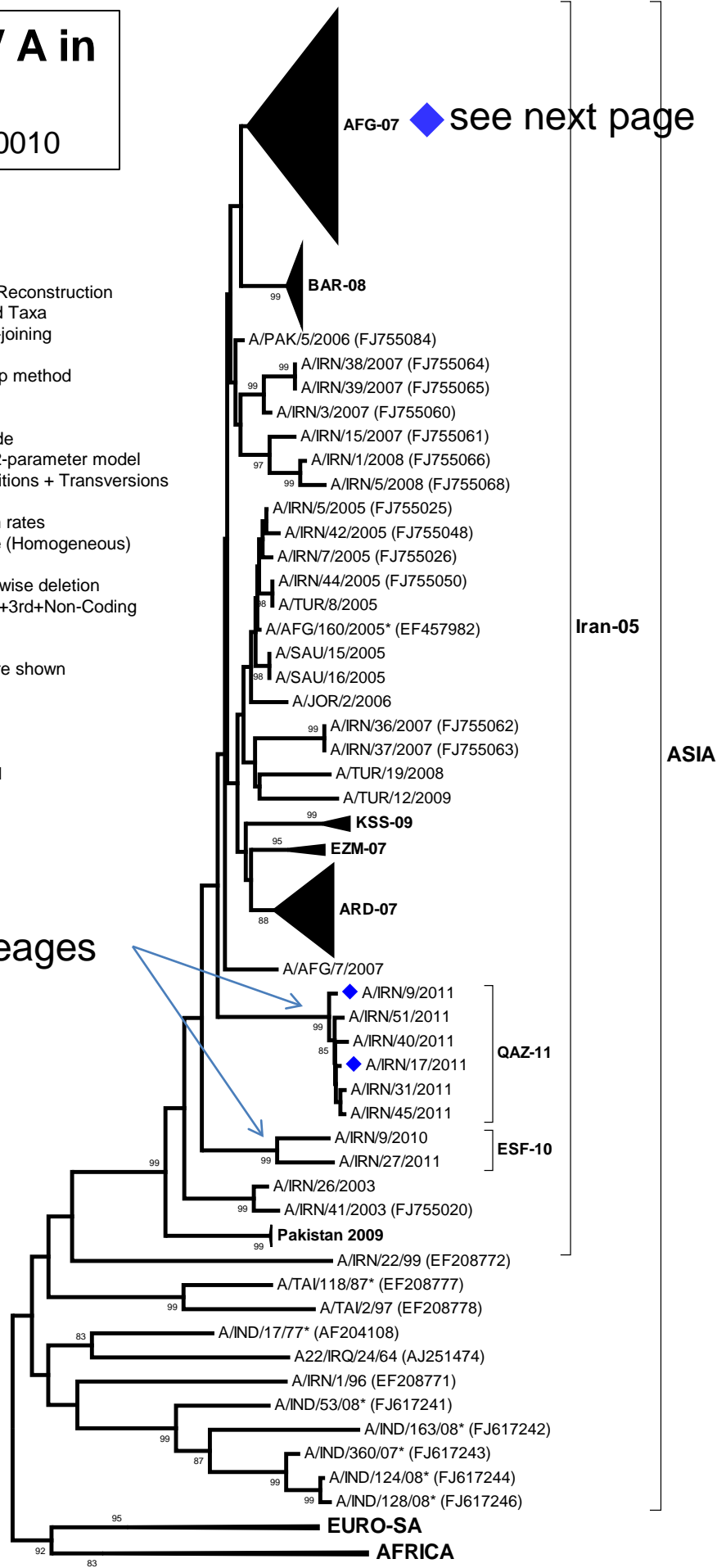
Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

N.J. Knowles & J. Wadsworth, 24 May 2011

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New Iran-05 sub-lineages



AFG-07 ◆ see next page

Iran-05

ASIA

QAZ-11

ESF-10

Report on FMDV A in Iran in 2011

Batch: WRLFMD/2011/00010

◆ indicates viruses in this batch

A/ASIA/Iran-05^{AFG-07}

