



**INSTITUTE FOR ANIMAL HEALTH**  
Acting Director: Professor David Paton MA, VetMB, PhD, MRCVS  
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/2011/00010  
Sender Details: [REDACTED]  
Date Received: 26<sup>th</sup> January 2011  
Country of Origin: Iran  
Date Reported: 2<sup>nd</sup> June 2011

Dear Dr. Abdollah,

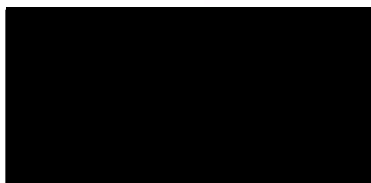
**Re.: Serotype O**

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: 02/06/2011



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](mailto: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 O

Country: Iran

Period: 2011

No. of samples: 7

BATCH: WRLFMD/2011/00020



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# FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: O	Report date: 24/05/2011
WRLFMD Ref No: IRN/25/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00020	Checked by: D.P. King
Sender Ref: IR-89-286	
Location: Ardabil, Iran	Topotype: ME-SA
Date collected: 13/01/2011	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 10/03/2011	Sequence filename: IRN11-25.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: O-1C244F/EUR-2B52R	Total no. of comparisons: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 75 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	O/IRN/219/2010	IRN10219	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/100/2010	IRN10100	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/IRN/101/2010	IRN10101	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/IRN/142/2010	IRN10142	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/IRN/181/2010	IRN10181	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/20/2010	IRN10-20	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/33/2010	IRN10-33	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/34/2010	IRN10-34	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/37/2010	IRN10-37	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/38/2010	IRN10-38	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
Most Closely Related Reference Viruses									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/IRN/88/2009	IRN09-88	639	630	0	98.59	1.41	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	601	0	94.05	5.95	ME-SA	PanAsia-2
3	O/TUR/257/2008* (FMDI)	TUR08-AD	639	599	0	93.74	6.26	ME-SA	PanAsia-2 <sup>TER-08</sup>
4	O/IRN/31/2009	IRN09-31	639	598	0	93.58	6.42	ME-SA	PanAsia-2 <sup>FAR-09</sup>
5	O/IRN/18/2010	IRN10-18	639	593	0	92.80	7.20	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	592	0	92.64	7.36	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	587	0	91.86	8.14	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	582	0	91.08	8.92	ME-SA	PanAsia
9	O/IRN/61/2001 (DQ164896)	IRN01-61	638	569	1	89.18	10.82	ME-SA	Irn-2001
10	O/OMN/7/2001 (DQ164941)	OMN01-07	639	567	0	88.73	11.27	ME-SA	Ind-2001b

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

Page 1 of 1

Serotype: O	Report date: 24/05/2011
WRLFMD Ref No: IRN/28/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00020	Checked by: D.P. King
Sender Ref: IR-89-283	
Location: Fars, Iran	Topotype: ME-SA
Date collected: 20/01/2011	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 10/03/2011	Sequence filename: IRN11-28.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: O-1C244F/EUR-2B52R	Total no. of comparisons: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 75 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	O/PAK/1/2010	PAK10-01	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/2/2010	PAK10-02	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/5/2010	PAK10-05	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/8/2010	PAK10-08	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/IRN/30/2010	IRN10-30	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/4/2010	IRN10-04	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/PAK/3/2010	PAK10-03	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/4/2010	PAK10-04	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/PAK/9/2010	PAK10-09	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/AFG/242/2010	AFG10242	630	625	9	99.21	0.79	ME-SA	PanAsia-2 <sup>ANT-10</sup>
Most Closely Related Reference Viruses									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/IRN/88/2009	IRN09-88	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	604	0	94.52	5.48	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	603	0	94.37	5.63	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	603	0	94.37	5.63	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	596	0	93.27	6.73	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	596	0	93.27	6.73	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	595	0	93.11	6.89	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	585	0	91.55	8.45	ME-SA	PanAsia
9	O/IRN/61/2001 (DQ164896)	IRN01-61	638	570	1	89.34	10.66	ME-SA	Irn-2001
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a

nt, nucleotides

\*, not a WRLFMD reference number

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

Page 1 of 1

Serotype: O	Report date: 24/05/2011
WRLFMD Ref No: IRN/29/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00020	Checked by: D.P. King
Sender Ref: IR-89-284	
Location: Esfahan, Iran	Topotype: ME-SA
Date collected: 22/01/2011	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 10/03/2011	Sequence filename: IRN11-29.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
Species: Sheep	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 75 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	O/IRN/114/2010	IRN10114	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/TUR/153/2010* (FMDI)	TUR10-AR	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/TUR/154/2010* (FMDI)	TUR10-AS	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/IRN/92/2010	IRN10-92	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/IRN/94/2010	IRN10-94	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/95/2010	IRN10-95	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/TUR/1003/2010* (FMDI)	TUR10-BG	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/TUR/1086/2010* (FMDI)	TUR10-BI	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/TUR/18/2010	TUR10-18	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/TUR/840/2010* (FMDI)	TUR10-AZ	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
Most Closely Related Reference Viruses									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/IRN/88/2009	IRN09-88	639	629	0	98.44	1.56	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/31/2009	IRN09-31	639	602	0	94.21	5.79	ME-SA	PanAsia-2 <sup>FAR-09</sup>
3	O/IRN/8/2005	IRN05-08	639	602	0	94.21	5.79	ME-SA	PanAsia-2
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	600	0	93.90	6.10	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	595	0	93.11	6.89	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	595	0	93.11	6.89	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	583	0	91.24	8.76	ME-SA	PanAsia
9	O/KUW/3/97 (DQ164904)	KUW97-03	639	572	0	89.51	10.49	ME-SA	Ind-2001a
10	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b

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

Page 1 of 1

Serotype: O	Report date: 24/05/2011
WRLFMD Ref No: IRN/34/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00020	Checked by: D.P. King
Sender Ref: IR-89-266	
Location: Semnan, Iran	Topotype: ME-SA
Date collected: 03/02/2011	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 10/03/2011	Sequence filename: IRN11-34.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
Species: Sheep	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 75 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	O/IRN/208/2010	IRN10208	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/AFG/217/2010	AFG10217	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/AFG/219/2010	AFG10219	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/AFG/221/2010	AFG10221	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/IRN/100/2010	IRN10100	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/101/2010	IRN10101	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/142/2010	IRN10142	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/20/2010	IRN10-20	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/33/2010	IRN10-33	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/34/2010	IRN10-34	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
Most Closely Related Reference Viruses									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/IRN/88/2009	IRN09-88	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	602	0	94.21	5.79	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	600	0	93.90	6.10	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	600	0	93.90	6.10	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/TUR/264/2009* (FMDI)	TUR09-AK	639	595	0	93.11	6.89	ME-SA	PanAsia-2 <sup>SAN-09</sup>
6	O/IRN/18/2010	IRN10-18	639	593	0	92.80	7.20	ME-SA	PanAsia-2 <sup>BAL-09</sup>
7	O/PAK/16/2010	PAK10-16	639	592	0	92.64	7.36	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	581	0	90.92	9.08	ME-SA	PanAsia
9	O/KUW/3/97 (DQ164904)	KUW97-03	639	569	0	89.05	10.95	ME-SA	Ind-2001a
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	568	1	89.03	10.97	ME-SA	Iran-2001

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

Page 1 of 1

Serotype: O	Report date: 24/05/2011
WRLFMD Ref No: IRN/35/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00020	Checked by: D.P. King
Sender Ref: IR-89-272	
Location: Jiroft, Kerman, Iran	Topotype: ME-SA
Date collected: 06/02/2011	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 10/03/2011	Sequence filename: IRN11-35.SEQ
Date received for sequencing: 18/04/2011	Date sequence last updated: 21/04/2011
Species: Sheep	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 75 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	O/AFG/256/2010	AFG10256	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/AFG/259/2010	AFG10259	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/IRN/10/2011	IRN11-10	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/103/2010	PAK10103	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/104/2010	PAK10104	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/AFG/262/2010	AFG10262	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/AFG/263/2010	AFG10263	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/AFG/264/2010	AFG10264	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/AFG/265/2010	AFG10265	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/AFG/266/2010	AFG10266	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
Most Closely Related Reference Viruses									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/IRN/88/2009	IRN09-88	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/31/2009	IRN09-31	639	601	0	94.05	5.95	ME-SA	PanAsia-2 <sup>FAR-09</sup>
3	O/IRN/8/2005	IRN05-08	639	601	0	94.05	5.95	ME-SA	PanAsia-2
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	599	0	93.74	6.26	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	597	0	93.43	6.57	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/PAK/16/2010	PAK10-16	639	595	0	93.11	6.89	ME-SA	PanAsia-2 <sup>PUN-10</sup>
7	O/TUR/264/2009* (FMDI)	TUR09-AK	639	595	0	93.11	6.89	ME-SA	PanAsia-2 <sup>SAN-09</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	584	0	91.39	8.61	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
10	O/PAK/16/2003 (DQ165068)	PAK03-16	639	571	0	89.36	10.64	ME-SA	Pak-98

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

Page 1 of 1

Serotype: O	Report date: 24/05/2011
WRLFMD Ref No: IRN/44/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00020	Checked by: D.P. King
Sender Ref: IR-89-268	
Location: West Azerbaijan, Iran	Topotype: ME-SA
Date collected: 20/02/2011	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 10/03/2011	Sequence filename: IRN11-44.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: O-1C244F/EUR-2B52R	Total no. of comparisons: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 75 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	O/IRN/182/2010	IRN10182	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/AFG/110/2010	AFG10110	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/IRN/62/2010	IRN10-62	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/AFG/126/2010	AFG10126	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/AFG/145/2010	AFG10145	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/AFG/39/2010	AFG10-39	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/AFG/59/2010	AFG10-59	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/AFG/61/2010	AFG10-61	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/AFG/65/2010	AFG10-65	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/AFG/66/2010	AFG10-66	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
Most Closely Related Reference Viruses									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/IRN/88/2009	IRN09-88	639	627	0	98.12	1.88	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	602	0	94.21	5.79	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	598	0	93.58	6.42	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	598	0	93.58	6.42	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	593	0	92.80	7.20	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	593	0	92.80	7.20	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	590	0	92.33	7.67	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	581	0	90.92	9.08	ME-SA	PanAsia
9	O/IRN/61/2001 (DQ164896)	IRN01-61	638	570	1	89.34	10.66	ME-SA	Irn-2001
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	568	0	88.89	11.11	ME-SA	Ind-2001a

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

Page 1 of 1

Serotype: O	Report date: 24/05/2011
WRLFMD Ref No: IRN/50/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00020	Checked by: D.P. King
Sender Ref: IR-89-262	
Location: Qazvin, Iran	Topotype: ME-SA
Date collected: 25/02/2011	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 10/03/2011	Sequence filename: IRN11-50.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: O-1C244F/EUR-2B52R	Total no. of comparisons: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 75 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	O/IRN/209/2010	IRN10209	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/83/2010	IRN10-83	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/AFG/110/2010	AFG10110	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/IRN/62/2010	IRN10-62	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/IRN/67/2010	IRN10-67	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/68/2010	IRN10-68	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/AFG/126/2010	AFG10126	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/AFG/145/2010	AFG10145	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/AFG/59/2010	AFG10-59	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/AFG/61/2010	AFG10-61	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
Most Closely Related Reference Viruses									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/IRN/88/2009	IRN09-88	639	629	0	98.44	1.56	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/31/2009	IRN09-31	639	602	0	94.21	5.79	ME-SA	PanAsia-2 <sup>FAR-09</sup>
3	O/IRN/8/2005	IRN05-08	639	602	0	94.21	5.79	ME-SA	PanAsia-2
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	600	0	93.90	6.10	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	593	0	92.80	7.20	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	591	0	92.49	7.51	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	590	0	92.33	7.67	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	581	0	90.92	9.08	ME-SA	PanAsia
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	568	0	88.89	11.11	ME-SA	Pak-98
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	566	1	88.71	11.29	ME-SA	Irn-2001

nt, nucleotides

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# Report on FMDV O in Iran in 2011

Batch: WRLFMD/2011/00020

◆ 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

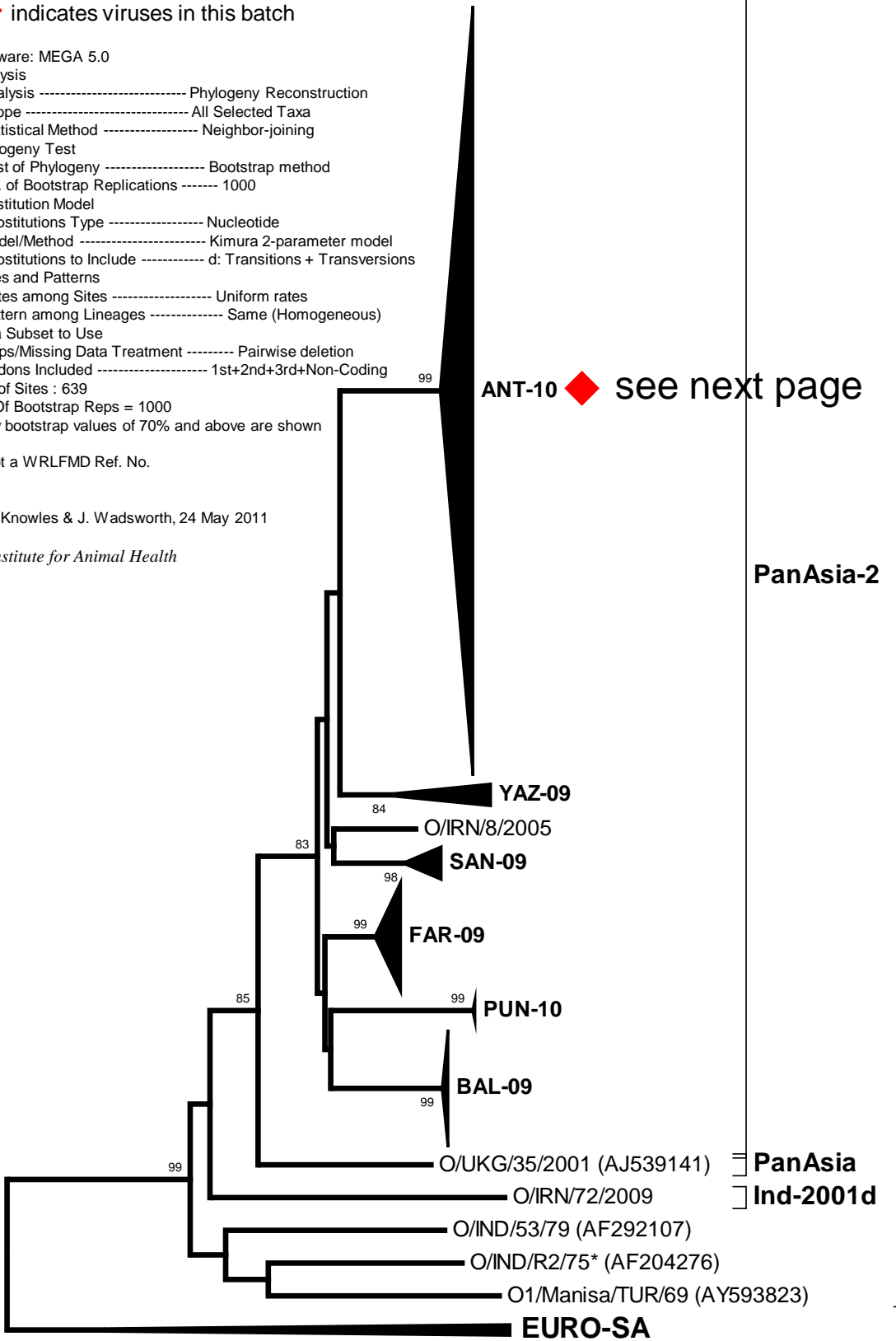
No Of Bootstrap Reps = 1000

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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0.02

# Report on FMDV O in Iran in 2011

Batch: WRLFMD/2011/00020

◆ indicates viruses in this batch

O/ME-SA/PanAsia-2<sup>ANT</sup>-10

