



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/2010/00032
Sender Details: [REDACTED]
Date Received: 29th September 2010
Country of Origin: Iran
Date Reported: 25th October 2010

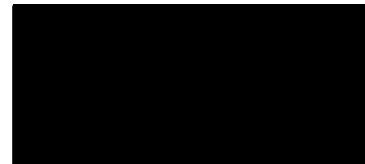
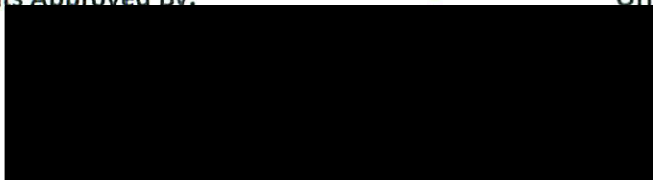
Dear Dr. Abdollah,

Re: Serotype A & 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: 26th October 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)

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

Genotyping Report

Report Date for this Batch: 25 October 2010

FMDV type O

Country: Iran

Period: 2010

No. of isolates: 11

BATCH: WRLFMD/2010/00032



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FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: O	Report date: 25/10/2010
WRLFMD Ref No: IRN/174/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00032	Checked by: V. Mioulet
Sender Ref: IR-89-148	
Location: North Khorasan, Iran	Topotype: ME-SA
Date collected: 21/07/2010	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 29/09/2010	Sequence filename: IRN10174.SEQ
Date received for sequencing: 20/10/2010	Date sequence last updated: 22/10/2010
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: 2387
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 26 days
	Sequencing time: 5 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/136/2010	IRN10136	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/180/2010	IRN10180	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
3	O/IRN/92/2010	IRN10-92	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
4	O/IRN/64/2010	IRN10-64	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/82/2010	IRN10-82	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
6	O/TUR/153/2010* (FMDI)	TUR10-AR	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
7	O/TUR/154/2010* (FMDI)	TUR10-AS	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
8	O/IRN/132/2010	IRN10132	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
9	O/IRN/139/2010	IRN10139	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/150/2010	IRN10150	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-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	O/IRN/88/2009	IRN09-88	639	629	0	98.44	1.56	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/8/2005	IRN05-08	639	603	0	94.37	5.63	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	602	0	94.21	5.79	ME-SA	PanAsia-2 ^{FAR-09}
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	600	0	93.90	6.10	ME-SA	PanAsia-2 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	595	0	93.11	6.89	ME-SA	PanAsia-2 ^{BAL-09}
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	595	0	93.11	6.89	ME-SA	PanAsia-2 ^{SAN-09}
7	O/PAK/16/2010	PAK10-16	639	594	0	92.96	7.04	ME-SA	PanAsia-2 ^{PUN-10}
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	571	0	89.36	10.64	ME-SA	Pak-98
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	570	1	89.34	10.66	ME-SA	Irn-2001

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 25/10/2010
WRLFMD Ref No: IRN/175/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00032	Checked by: V. Mioulet
Sender Ref: IR-89-147	
Location: Esfahan, Iran	Topotype: ME-SA
Date collected: 26/07/2010	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 29/09/2010	Sequence filename: IRN10175.SEQ
Date received for sequencing: 20/10/2010	Date sequence last updated: 22/10/2010
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: 2387
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 26 days
	Sequencing time: 5 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/TUR/153/2010* (FMDI)	TUR10-AR	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
2	O/TUR/154/2010* (FMDI)	TUR10-AS	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
3	O/IRN/92/2010	IRN10-92	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
4	O/IRN/94/2010	IRN10-94	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/95/2010	IRN10-95	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
6	O/TUR/18/2010	TUR10-18	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
7	O/IRN/104/2010	IRN10104	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
8	O/IRN/114/2010	IRN10114	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
9	O/IRN/180/2010	IRN10180	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/184/2010	IRN10184	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-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	O/IRN/88/2009	IRN09-88	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/31/2009	IRN09-31	639	601	0	94.05	5.95	ME-SA	PanAsia-2 ^{FAR-09}
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 ^{TER-08}
5	O/TUR/264/2009* (FMDI)	TUR09-AK	639	596	0	93.27	6.73	ME-SA	PanAsia-2 ^{SAN-09}
6	O/PAK/16/2010	PAK10-16	639	595	0	93.11	6.89	ME-SA	PanAsia-2 ^{PUN-10}
7	O/IRN/18/2010	IRN10-18	639	594	0	92.96	7.04	ME-SA	PanAsia-2 ^{BAL-09}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	582	0	91.08	8.92	ME-SA	PanAsia
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	570	0	89.20	10.80	ME-SA	Pak-98
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	569	1	89.18	10.82	ME-SA	Iran-2001

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 25/10/2010
WRLFMD Ref No: IRN/178/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00032	Checked by: V. Mioulet
Sender Ref: IR-89-151	
Location: Zanjan, Iran	Topotype: ME-SA
Date collected: 21/08/2010	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 29/09/2010	Sequence filename: IRN10178.SEQ
Date received for sequencing: 20/10/2010	Date sequence last updated: 22/10/2010
Species: Cattle	No. of Nt determined: 639
Material used: OS	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2387
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 26 days
	Sequencing time: 5 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/179/2010	IRN10179	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/62/2010	IRN10-62	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
3	O/IRN/106/2010	IRN10106	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
4	O/IRN/120/2010	IRN10120	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/126/2010	IRN10126	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
6	O/IRN/146/2010	IRN10146	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
7	O/IRN/148/2010	IRN10148	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
8	O/IRN/149/2010	IRN10149	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
9	O/IRN/170/2010	IRN10170	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/182/2010	IRN10182	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-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	O/IRN/88/2009	IRN09-88	639	629	0	98.44	1.56	ME-SA	PanAsia-2 ^{ANT-10}
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 ^{FAR-09}
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	598	0	93.58	6.42	ME-SA	PanAsia-2 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	593	0	92.80	7.20	ME-SA	PanAsia-2 ^{BAL-09}
6	O/PAK/16/2010	PAK10-16	639	592	0	92.64	7.36	ME-SA	PanAsia-2 ^{PUN-10}
7	O/TUR/264/2009* (FMDI)	TUR09-AK	639	591	0	92.49	7.51	ME-SA	PanAsia-2 ^{SAN-09}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	579	0	90.61	9.39	ME-SA	PanAsia
9	O/IRN/61/2001 (DQ164896)	IRN01-61	638	568	1	89.03	10.97	ME-SA	Im-2001
10	O/OMN/7/2001 (DQ164941)	OMN01-07	639	568	0	88.89	11.11	ME-SA	Ind-2001b

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 25/10/2010
WRLFMD Ref No: IRN/179/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00032	Checked by: V. Mioulet
Sender Ref: IR-89-150	
Location: Zanjan, Iran	Topotype: ME-SA
Date collected: 22/08/2010	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 29/09/2010	Sequence filename: IRN10179.SEQ
Date received for sequencing: 20/10/2010	Date sequence last updated: 22/10/2010
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: 2387
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 26 days
	Sequencing time: 5 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/178/2010	IRN10178	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/62/2010	IRN10-62	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
3	O/IRN/106/2010	IRN10106	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
4	O/IRN/120/2010	IRN10120	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/126/2010	IRN10126	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
6	O/IRN/146/2010	IRN10146	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
7	O/IRN/148/2010	IRN10148	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
8	O/IRN/149/2010	IRN10149	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
9	O/IRN/170/2010	IRN10170	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/182/2010	IRN10182	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-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	O/IRN/88/2009	IRN09-88	639	629	0	98.44	1.56	ME-SA	PanAsia-2 ^{ANT-10}
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 ^{FAR-09}
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	598	0	93.58	6.42	ME-SA	PanAsia-2 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	593	0	92.80	7.20	ME-SA	PanAsia-2 ^{BAL-09}
6	O/PAK/16/2010	PAK10-16	639	592	0	92.64	7.36	ME-SA	PanAsia-2 ^{PUN-10}
7	O/TUR/264/2009* (FMDI)	TUR09-AK	639	591	0	92.49	7.51	ME-SA	PanAsia-2 ^{SAN-09}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	579	0	90.61	9.39	ME-SA	PanAsia
9	O/IRN/61/2001 (DQ164896)	IRN01-61	638	568	1	89.03	10.97	ME-SA	Im-2001
10	O/OMN/7/2001 (DQ164941)	OMN01-07	639	568	0	88.89	11.11	ME-SA	Ind-2001b

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 25/10/2010
WRLFMD Ref No: IRN/180/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00032	Checked by: V. Mioulet
Sender Ref: IR-89-154	
Location: Qom, Iran	Topotype: ME-SA
Date collected: 22/08/2010	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 29/09/2010	Sequence filename: IRN10180.SEQ
Date received for sequencing: 20/10/2010	Date sequence last updated: 22/10/2010
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: 2387
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 26 days
	Sequencing time: 5 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/92/2010	IRN10-92	639	638	0	99.84	0.16	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/136/2010	IRN10136	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
3	O/IRN/174/2010	IRN10174	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
4	O/IRN/64/2010	IRN10-64	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
5	O/TUR/153/2010* (FMDI)	TUR10-AR	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
6	O/TUR/154/2010* (FMDI)	TUR10-AS	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
7	O/IRN/132/2010	IRN10132	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
8	O/IRN/139/2010	IRN10139	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
9	O/IRN/150/2010	IRN10150	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/66/2010	IRN10-66	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-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	O/IRN/88/2009	IRN09-88	639	631	0	98.75	1.25	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/31/2009	IRN09-31	639	604	0	94.52	5.48	ME-SA	PanAsia-2 ^{FAR-09}
3	O/IRN/8/2005	IRN05-08	639	604	0	94.52	5.48	ME-SA	PanAsia-2
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	600	0	93.90	6.10	ME-SA	PanAsia-2 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	597	0	93.43	6.57	ME-SA	PanAsia-2 ^{BAL-09}
6	O/PAK/16/2010	PAK10-16	639	596	0	93.27	6.73	ME-SA	PanAsia-2 ^{PUN-10}
7	O/TUR/264/2009* (FMDI)	TUR09-AK	639	595	0	93.11	6.89	ME-SA	PanAsia-2 ^{SAN-09}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	583	0	91.24	8.76	ME-SA	PanAsia
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	573	0	89.67	10.33	ME-SA	Pak-98
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	570	1	89.34	10.66	ME-SA	Iran-2001

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 25/10/2010
WRLFMD Ref No: IRN/181/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00032	Checked by: V. Mioulet
Sender Ref: IR-89-149	
Location: Ardebil, Iran	Topotype: ME-SA
Date collected: 23/08/2010	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 29/09/2010	Sequence filename: IRN10181.SEQ
Date received for sequencing: 20/10/2010	Date sequence last updated: 22/10/2010
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: 2387
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 26 days
	Sequencing time: 5 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/100/2010	IRN10100	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/101/2010	IRN10101	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
3	O/IRN/142/2010	IRN10142	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
4	O/IRN/20/2010	IRN10-20	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/33/2010	IRN10-33	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
6	O/IRN/34/2010	IRN10-34	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
7	O/IRN/37/2010	IRN10-37	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
8	O/IRN/38/2010	IRN10-38	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
9	O/IRN/39/2010	IRN10-39	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/59/2010	IRN10-59	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-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	O/IRN/88/2009	IRN09-88	639	632	0	98.90	1.10	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/8/2005	IRN05-08	639	603	0	94.37	5.63	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	602	0	94.21	5.79	ME-SA	PanAsia-2 ^{FAR-09}
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	601	0	94.05	5.95	ME-SA	PanAsia-2 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	596	0	93.27	6.73	ME-SA	PanAsia-2 ^{BAL-09}
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	596	0	93.27	6.73	ME-SA	PanAsia-2 ^{SAN-09}
7	O/PAK/16/2010	PAK10-16	639	591	0	92.49	7.51	ME-SA	PanAsia-2 ^{PUN-10}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	586	0	91.71	8.29	ME-SA	PanAsia
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	572	0	89.51	10.49	ME-SA	Pak-98
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	571	1	89.50	10.50	ME-SA	Irn-2001

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 25/10/2010
WRLFMD Ref No: IRN/182/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00032	Checked by: V. Mioulet
Sender Ref: IR-89-159	
Location: Lorestan, Iran	Topotype: ME-SA
Date collected: 23/08/2010	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 29/09/2010	Sequence filename: IRN10182.SEQ
Date received for sequencing: 20/10/2010	Date sequence last updated: 22/10/2010
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: 2387
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 26 days
	Sequencing time: 5 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/62/2010	IRN10-62	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/106/2010	IRN10106	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
3	O/IRN/120/2010	IRN10120	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
4	O/IRN/126/2010	IRN10126	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/146/2010	IRN10146	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
6	O/IRN/148/2010	IRN10148	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
7	O/IRN/149/2010	IRN10149	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
8	O/IRN/170/2010	IRN10170	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
9	O/IRN/26/2010	IRN10-26	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/50/2010	IRN10-50	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-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	O/IRN/88/2009	IRN09-88	639	631	0	98.75	1.25	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/8/2005	IRN05-08	639	606	0	94.84	5.16	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	602	0	94.21	5.79	ME-SA	PanAsia-2 ^{FAR-09}
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	600	0	93.90	6.10	ME-SA	PanAsia-2 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	595	0	93.11	6.89	ME-SA	PanAsia-2 ^{BAL-09}
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	595	0	93.11	6.89	ME-SA	PanAsia-2 ^{SAN-09}
7	O/PAK/16/2010	PAK10-16	639	594	0	92.96	7.04	ME-SA	PanAsia-2 ^{PUN-10}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	583	0	91.24	8.76	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	570	1	89.34	10.66	ME-SA	Iran-2001

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 25/10/2010
WRLFMD Ref No: IRN/183/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00032	Checked by: V. Mioulet
Sender Ref: IR-89-157	
Location: Tehran, Iran	Topotype: ME-SA
Date collected: 27/08/2010	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 29/09/2010	Sequence filename: IRN10183.SEQ
Date received for sequencing: 20/10/2010	Date sequence last updated: 22/10/2010
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: 2387
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 26 days
	Sequencing time: 5 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/148/2010	IRN10148	639	638	0	99.84	0.16	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/187/2010	IRN10187	639	638	0	99.84	0.16	ME-SA	PanAsia-2 ^{ANT-10}
3	O/IRN/76/2010	IRN10-76	639	638	0	99.84	0.16	ME-SA	PanAsia-2 ^{ANT-10}
4	O/IRN/96/2010	IRN10-96	639	638	0	99.84	0.16	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/139/2010	IRN10139	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
6	O/IRN/62/2010	IRN10-62	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
7	O/IRN/97/2010	IRN10-97	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
8	O/PAK/36/2010	PAK10-36	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
9	O/IRN/106/2010	IRN10106	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/120/2010	IRN10120	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-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	O/IRN/88/2009	IRN09-88	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/8/2005	IRN05-08	639	609	0	95.31	4.69	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	607	0	94.99	5.01	ME-SA	PanAsia-2 ^{FAR-09}
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	605	0	94.68	5.32	ME-SA	PanAsia-2 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	598	0	93.58	6.42	ME-SA	PanAsia-2 ^{BAL-09}
6	O/PAK/16/2010	PAK10-16	639	597	0	93.43	6.57	ME-SA	PanAsia-2 ^{PUN-10}
7	O/TUR/264/2009* (FMDI)	TUR09-AK	639	596	0	93.27	6.73	ME-SA	PanAsia-2 ^{SAN-09}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	586	0	91.71	8.29	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	573	0	89.67	10.33	ME-SA	Ind-2001b
10	O/PAK/16/2003 (DQ165068)	PAK03-16	639	572	0	89.51	10.49	ME-SA	Pak-98

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: IRN/184/2010 Batch No: WRLFMD/2010/00032 Sender Ref: IR-89-152 Location: West Azerbaijan, Iran Date collected: 28/08/2010 Date received by WRLFMD: 29/09/2010 Date received for sequencing: 20/10/2010 Species: Sheep Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 25/10/2010 Reported by: N.J. Knowles Checked by: V. Mioulet Topotype: ME-SA Genotype/strain: PanAsia-2 ^{ANT-10} Sequence filename: IRN10184.SEQ Date sequence last updated: 22/10/2010 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 2387 Min. no. of nt for comparison: 600 Total turn-around time: 26 days Sequencing time: 5 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/TUR/153/2010* (FMDI)	TUR10-AR	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
2	O/TUR/154/2010* (FMDI)	TUR10-AS	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
3	O/IRN/92/2010	IRN10-92	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
4	O/IRN/94/2010	IRN10-94	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/95/2010	IRN10-95	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
6	O/TUR/18/2010	TUR10-18	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
7	O/IRN/104/2010	IRN10104	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
8	O/IRN/114/2010	IRN10114	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
9	O/IRN/180/2010	IRN10180	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/64/2010	IRN10-64	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-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	O/IRN/88/2009	IRN09-88	639	629	0	98.44	1.56	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/31/2009	IRN09-31	639	602	0	94.21	5.79	ME-SA	PanAsia-2 ^{FAR-09}
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 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	595	0	93.11	6.89	ME-SA	PanAsia-2 ^{BAL-09}
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	595	0	93.11	6.89	ME-SA	PanAsia-2 ^{SAN-09}
7	O/PAK/16/2010	PAK10-16	639	594	0	92.96	7.04	ME-SA	PanAsia-2 ^{PUN-10}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	583	0	91.24	8.76	ME-SA	PanAsia
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	572	0	89.51	10.49	ME-SA	Pak-98
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	569	1	89.18	10.82	ME-SA	Iran-2001

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 25/10/2010
WRLFMD Ref No: IRN/186/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00032	Checked by: V. Mioulet
Sender Ref: IR-89-153	
Location: West Azerbaijan, Iran	Topotype: ME-SA
Date collected: 30/08/2010	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 29/09/2010	Sequence filename: IRN10186.SEQ
Date received for sequencing: 20/10/2010	Date sequence last updated: 22/10/2010
Species: Goat	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: 2387
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 26 days
	Sequencing time: 5 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/83/2010	IRN10-83	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/62/2010	IRN10-62	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
3	O/IRN/67/2010	IRN10-67	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
4	O/IRN/68/2010	IRN10-68	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/106/2010	IRN10106	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
6	O/IRN/120/2010	IRN10120	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
7	O/IRN/126/2010	IRN10126	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
8	O/IRN/140/2010	IRN10140	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
9	O/IRN/146/2010	IRN10146	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/148/2010	IRN10148	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-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	O/IRN/88/2009	IRN09-88	639	629	0	98.44	1.56	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/31/2009	IRN09-31	639	602	0	94.21	5.79	ME-SA	PanAsia-2 ^{FAR-09}
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 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	593	0	92.80	7.20	ME-SA	PanAsia-2 ^{BAL-09}
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	593	0	92.80	7.20	ME-SA	PanAsia-2 ^{SAN-09}
7	O/PAK/16/2010	PAK10-16	639	590	0	92.33	7.67	ME-SA	PanAsia-2 ^{PUN-10}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	580	0	90.77	9.23	ME-SA	PanAsia
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	571	0	89.36	10.64	ME-SA	Pak-98
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	570	1	89.34	10.66	ME-SA	Irn-2001

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 25/10/2010
WRLFMD Ref No: IRN/187/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00032	Checked by: V. Mioulet
Sender Ref: IR-89-158	
Location: Tehran, Iran	Topotype: ME-SA
Date collected: 31/08/2010	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 29/09/2010	Sequence filename: IRN10187.SEQ
Date received for sequencing: 20/10/2010	Date sequence last updated: 22/10/2010
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: 2387
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 26 days
	Sequencing time: 5 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/183/2010	IRN10183	639	638	0	99.84	0.16	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/148/2010	IRN10148	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
3	O/IRN/76/2010	IRN10-76	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
4	O/IRN/96/2010	IRN10-96	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/139/2010	IRN10139	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
6	O/IRN/62/2010	IRN10-62	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
7	O/IRN/97/2010	IRN10-97	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
8	O/PAK/36/2010	PAK10-36	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
9	O/IRN/106/2010	IRN10106	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/120/2010	IRN10120	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-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	O/IRN/88/2009	IRN09-88	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/8/2005	IRN05-08	639	608	0	95.15	4.85	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	606	0	94.84	5.16	ME-SA	PanAsia-2 ^{FAR-09}
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	604	0	94.52	5.48	ME-SA	PanAsia-2 ^{TER-08}
5	O/PAK/16/2010	PAK10-16	639	598	0	93.58	6.42	ME-SA	PanAsia-2 ^{PUN-10}
6	O/IRN/18/2010	IRN10-18	639	597	0	93.43	6.57	ME-SA	PanAsia-2 ^{BAL-09}
7	O/TUR/264/2009* (FMDI)	TUR09-AK	639	595	0	93.11	6.89	ME-SA	PanAsia-2 ^{SAN-09}
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	572	1	89.66	10.34	ME-SA	Irn-2001
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	572	0	89.51	10.49	ME-SA	Ind-2001a

nt, nucleotides

*, not a WRLFMD reference number

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Report on FMDV O in Iran in 2010

Batch: WRLFMD/2010/00032

Software: MEGA 4.0

No. of Taxa : 364

Data File : n:\evd\meg\db\fmdv\o\IRN2010d.meg

Data Title : O Iran 2010

Data Type : Nucleotide (Coding)

Analysis : Phylogeny reconstruction

Tree Inference : =====

->Method : Neighbor-Joining

->Phylogeny Test and options : Bootstrap (1000 replicates; seed=64238)

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, 25 October 2010

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