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## FMD Sequencing Report

Lab Reference WRL Batch Number: WRLFMD/2010/00045

Sender Details:

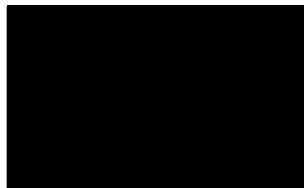


Date Received: 30<sup>th</sup> November 2010  
Country of Origin: Pakistan  
Date Reported: 12<sup>th</sup> January 2011

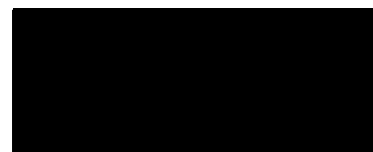
Dear Dr. E Ul Haq Khan,

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

Results Approved By:

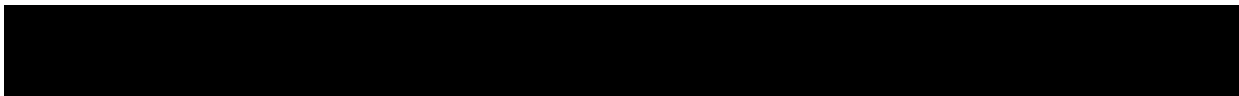


Official Stamp:



Date:

12/1/11



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: 11 January 2011

FMDV type O

Country: Pakistan

Period: 2010

No. of isolates: 26

BATCH: WRLFMD/2010/00045



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# FAO World Reference Laboratory for FMD Genotyping Report

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

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/46/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PJH 1	
Location: Pindadankhan, Punjab, Pakistan	Topotype: ME-SA
Date collected: 08/08/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-46.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
Species: Buffalo	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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/63/2010	PAK10-63	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/64/2010	PAK10-64	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/70/2010	PAK10-70	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/AFG/70/2010	AFG10-70	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/AFG/91/2010	AFG10-91	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/100/2010	IRN10100	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/101/2010	IRN10101	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/142/2010	IRN10142	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/20/2010	IRN10-20	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/33/2010	IRN10-33	639	635	0	99.37	0.63	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	634	0	99.22	0.78	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	601	0	94.05	5.95	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	601	0	94.05	5.95	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	591	0	92.49	7.51	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/OMN/7/2001 (DQ164941)	OMN01-07	639	568	0	88.89	11.11	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	567	1	88.87	11.13	ME-SA	Irn-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

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/47/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PJH 2	
Location: Pindadankhan, Punjab, Pakistan	Topotype: ME-SA
Date collected: 08/08/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-47.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
Species: Buffalo	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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/48/2010	PAK10-48	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/49/2010	PAK10-49	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/58/2010	PAK10-58	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/59/2010	PAK10-59	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/65/2010	PAK10-65	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/85/2010	IRN10-85	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/100/2010	IRN10100	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/101/2010	IRN10101	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/142/2010	IRN10142	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/20/2010	IRN10-20	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/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	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	579	0	90.61	9.39	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	569	0	89.05	10.95	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	566	1	88.71	11.29	ME-SA	Iran-2001

nt, nucleotides

\*, not a WRLFMD reference number

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/48/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PJH 3	
Location: Pindadankhan, Punjab, Pakistan	Topotype: ME-SA
Date collected: 08/08/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-48.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 11/01/2011
Species: Buffalo	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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/PAK/47/2010	PAK10-47	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/49/2010	PAK10-49	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/58/2010	PAK10-58	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/59/2010	PAK10-59	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/65/2010	PAK10-65	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/85/2010	IRN10-85	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/100/2010	IRN10100	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/101/2010	IRN10101	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/142/2010	IRN10142	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/20/2010	IRN10-20	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
<b>Most Closely Related Reference Viruses</b>									
(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/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	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	579	0	90.61	9.39	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	569	0	89.05	10.95	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	566	1	88.71	11.29	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/49/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: GBT 5	
Location: Thaserka, Gilgit, Baletstan, Pakistan	Topotype: ME-SA
Date collected: 11/09/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-49.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/PAK/47/2010	PAK10-47	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/48/2010	PAK10-48	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/58/2010	PAK10-58	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/59/2010	PAK10-59	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/65/2010	PAK10-65	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/85/2010	IRN10-85	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/100/2010	IRN10100	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/101/2010	IRN10101	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/142/2010	IRN10142	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/20/2010	IRN10-20	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
<b>Most Closely Related Reference Viruses</b>									
(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/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	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	579	0	90.61	9.39	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	569	0	89.05	10.95	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	566	1	88.71	11.29	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/51/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: GBT 7	
Location: Goi, Gilgit, Baletstan, Pakistan	Topotype: ME-SA
Date collected: 11/09/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-51.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/57/2010	PAK10-57	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/67/2010	PAK10-67	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/62/2010	PAK10-62	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/AFG/59/2010	AFG10-59	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/AFG/61/2010	AFG10-61	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/AFG/89/2010	AFG10-89	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/96/2010	IRN10-96	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/42/2010	PAK10-42	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/AFG/32/2010	AFG10-32	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/AFG/34/2010	AFG10-34	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	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	610	0	95.46	4.54	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	606	0	94.84	5.16	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	606	0	94.84	5.16	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	601	0	94.05	5.95	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	599	0	93.74	6.26	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	598	0	93.58	6.42	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
9	O/KUW/3/97 (DQ164904)	KUW97-03	639	574	0	89.83	10.17	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

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/53/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PBW 2	
Location: Bahawalpur, Punjab, Pakistan	Topotype: ME-SA
Date collected: 14/09/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-53.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
Species: Buffalo	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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/54/2010	PAK10-54	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/60/2010	PAK10-60	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/61/2010	PAK10-61	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/68/2010	PAK10-68	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/71/2010	PAK10-71	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/PAK/75/2010	PAK10-75	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/PAK/76/2010	PAK10-76	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/74/2010	PAK10-74	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/191/2010	IRN10191	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/198/2010	IRN10198	639	635	0	99.37	0.63	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	600	0	93.90	6.10	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	594	0	92.96	7.04	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	592	0	92.64	7.36	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/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
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: 11/01/2011
WRLFMD Ref No: PAK/54/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PBW 3	
Location: Bahawalpur, Punjab, Pakistan	Topotype: ME-SA
Date collected: 14/09/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-54.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
Species: Buffalo	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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/53/2010	PAK10-53	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/60/2010	PAK10-60	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/61/2010	PAK10-61	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/68/2010	PAK10-68	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/71/2010	PAK10-71	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/PAK/75/2010	PAK10-75	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/PAK/76/2010	PAK10-76	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/74/2010	PAK10-74	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/191/2010	IRN10191	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/198/2010	IRN10198	639	635	0	99.37	0.63	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	600	0	93.90	6.10	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	594	0	92.96	7.04	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	592	0	92.64	7.36	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/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
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: 11/01/2011
WRLFMD Ref No: PAK/57/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PBW 6	
Location: Bahawalpur, Punjab, Pakistan	Topotype: ME-SA
Date collected: 15/09/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-57.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
Species: Buffalo	No. of Nt determined: 639
Material used: RS2	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/51/2010	PAK10-51	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/67/2010	PAK10-67	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/62/2010	PAK10-62	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/AFG/59/2010	AFG10-59	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/AFG/61/2010	AFG10-61	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/AFG/89/2010	AFG10-89	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/96/2010	IRN10-96	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/42/2010	PAK10-42	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/AFG/32/2010	AFG10-32	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/AFG/34/2010	AFG10-34	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	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	610	0	95.46	4.54	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	606	0	94.84	5.16	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	606	0	94.84	5.16	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	601	0	94.05	5.95	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	599	0	93.74	6.26	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	598	0	93.58	6.42	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
9	O/KUW/3/97 (DQ164904)	KUW97-03	639	574	0	89.83	10.17	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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Serotype: O WRLFMD Ref No: PAK/58/2010 Batch No: WRLFMD/2010/00045 Sender Ref: PS9 13 Location: Sargodha (96/S.B), Punjab, Pakistan Date collected: 04/10/2010 Date received by WRLFMD: 30/11/2010 Date received for sequencing: 04/01/2011 Species: Buffalo Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 11/01/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: PAK10-58.SEQ Date sequence last updated: 06/01/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 2580 Min. no. of nt for comparison: 600 Total turn-around time: 42 days Sequencing time: 7 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/47/2010	PAK10-47	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/48/2010	PAK10-48	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/49/2010	PAK10-49	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/59/2010	PAK10-59	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/65/2010	PAK10-65	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/85/2010	IRN10-85	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/100/2010	IRN10100	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/101/2010	IRN10101	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/142/2010	IRN10142	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/20/2010	IRN10-20	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/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	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	579	0	90.61	9.39	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	569	0	89.05	10.95	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	566	1	88.71	11.29	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: PAK/59/2010 Batch No: WRLFMD/2010/00045 Sender Ref: PS9 14 Location: Sargodha (96/S.B), Punjab, Pakistan Date collected: 04/10/2010 Date received by WRLFMD: 30/11/2010 Date received for sequencing: 04/01/2011 Species: Buffalo Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 11/01/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: PAK10-59.SEQ Date sequence last updated: 11/01/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 2580 Min. no. of nt for comparison: 600 Total turn-around time: 42 days Sequencing time: 7 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/47/2010	PAK10-47	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/48/2010	PAK10-48	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/49/2010	PAK10-49	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/58/2010	PAK10-58	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/65/2010	PAK10-65	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/85/2010	IRN10-85	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/100/2010	IRN10100	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/101/2010	IRN10101	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/142/2010	IRN10142	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/20/2010	IRN10-20	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/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	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	579	0	90.61	9.39	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	569	0	89.05	10.95	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	566	1	88.71	11.29	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/60/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PSW 5	
Location: Chichawatani, Punjab, Pakistan	Topotype: ME-SA
Date collected: 06/10/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-60.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
Species: Buffalo	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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/53/2010	PAK10-53	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/54/2010	PAK10-54	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/61/2010	PAK10-61	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/68/2010	PAK10-68	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/71/2010	PAK10-71	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/PAK/75/2010	PAK10-75	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/PAK/76/2010	PAK10-76	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/74/2010	PAK10-74	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/191/2010	IRN10191	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/198/2010	IRN10198	639	635	0	99.37	0.63	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	600	0	93.90	6.10	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	594	0	92.96	7.04	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	592	0	92.64	7.36	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/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
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: 11/01/2011
WRLFMD Ref No: PAK/61/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PSW 6	
Location: Chichawatani, Punjab, Pakistan	Topotype: ME-SA
Date collected: 06/10/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-61.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
Species: Buffalo	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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/53/2010	PAK10-53	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/54/2010	PAK10-54	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/60/2010	PAK10-60	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/68/2010	PAK10-68	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/71/2010	PAK10-71	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/PAK/75/2010	PAK10-75	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/PAK/76/2010	PAK10-76	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/74/2010	PAK10-74	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/191/2010	IRN10191	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/198/2010	IRN10198	639	635	0	99.37	0.63	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	600	0	93.90	6.10	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	594	0	92.96	7.04	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	592	0	92.64	7.36	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/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
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: 11/01/2011
WRLFMD Ref No: PAK/62/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PSW 7	
Location: Chichawatani, Punjab, Pakistan	Topotype: ME-SA
Date collected: 06/10/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-62.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
Species: Buffalo	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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/51/2010	PAK10-51	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/57/2010	PAK10-57	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/67/2010	PAK10-67	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/AFG/59/2010	AFG10-59	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/AFG/61/2010	AFG10-61	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/AFG/89/2010	AFG10-89	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/96/2010	IRN10-96	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/42/2010	PAK10-42	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/AFG/32/2010	AFG10-32	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/AFG/34/2010	AFG10-34	639	635	0	99.37	0.63	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	609	0	95.31	4.69	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	605	0	94.68	5.32	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	605	0	94.68	5.32	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	600	0	93.90	6.10	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	598	0	93.58	6.42	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	597	0	93.43	6.57	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	586	0	91.71	8.29	ME-SA	PanAsia
9	O/KUW/3/97 (DQ164904)	KUW97-03	639	573	0	89.67	10.33	ME-SA	Ind-2001a
10	O/OMN/7/2001 (DQ164941)	OMN01-07	639	571	0	89.36	10.64	ME-SA	Ind-2001b

nt, nucleotides

\*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: PAK/63/2010 Batch No: WRLFMD/2010/00045 Sender Ref: PSG 15 Location: Sarghodha (Sabarwag), Punjab, Pakistan Date collected: 07/10/2010 Date received by WRLFMD: 30/11/2010 Date received for sequencing: 04/01/2011 Species: Buffalo Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 11/01/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: PAK10-63.SEQ Date sequence last updated: 06/01/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 2580 Min. no. of nt for comparison: 600 Total turn-around time: 42 days Sequencing time: 7 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/46/2010	PAK10-46	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/64/2010	PAK10-64	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/70/2010	PAK10-70	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/AFG/70/2010	AFG10-70	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/AFG/91/2010	AFG10-91	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/100/2010	IRN10100	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/101/2010	IRN10101	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/142/2010	IRN10142	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/20/2010	IRN10-20	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/33/2010	IRN10-33	639	635	0	99.37	0.63	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	634	0	99.22	0.78	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	601	0	94.05	5.95	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	601	0	94.05	5.95	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	591	0	92.49	7.51	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/OMN/7/2001 (DQ164941)	OMN01-07	639	568	0	88.89	11.11	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	567	1	88.87	11.13	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: PAK/64/2010 Batch No: WRLFMD/2010/00045 Sender Ref: PSG 16 Location: Sargodha (Kana Wali), Punjab, Pakistan Date collected: 07/10/2010 Date received by WRLFMD: 30/11/2010 Date received for sequencing: 04/01/2011 Species: Buffalo Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 11/01/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: PAK10-64.SEQ Date sequence last updated: 06/01/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 2580 Min. no. of nt for comparison: 600 Total turn-around time: 42 days Sequencing time: 7 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/46/2010	PAK10-46	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/63/2010	PAK10-63	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/70/2010	PAK10-70	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/AFG/70/2010	AFG10-70	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/AFG/91/2010	AFG10-91	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/100/2010	IRN10100	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/101/2010	IRN10101	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/142/2010	IRN10142	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/20/2010	IRN10-20	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/33/2010	IRN10-33	639	635	0	99.37	0.63	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	634	0	99.22	0.78	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	601	0	94.05	5.95	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	601	0	94.05	5.95	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	591	0	92.49	7.51	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/OMN/7/2001 (DQ164941)	OMN01-07	639	568	0	88.89	11.11	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	567	1	88.87	11.13	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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# FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/65/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PSG 17	
Location: Sargodha (Wadi), Punjab, Pakistan	Topotype: ME-SA
Date collected: 07/10/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-65.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
Species: Buffalo	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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/PAK/47/2010	PAK10-47	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/48/2010	PAK10-48	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/49/2010	PAK10-49	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/58/2010	PAK10-58	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/59/2010	PAK10-59	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/85/2010	IRN10-85	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/100/2010	IRN10100	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/101/2010	IRN10101	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/142/2010	IRN10142	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/20/2010	IRN10-20	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
<b>Most Closely Related Reference Viruses</b>									
(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/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	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	579	0	90.61	9.39	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	569	0	89.05	10.95	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	566	1	88.71	11.29	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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# FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/67/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PSW 9	
Location: Chichawatani, Punjab, Pakistan	Topotype: ME-SA
Date collected: 10/10/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-67.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
Species: Buffalo	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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/51/2010	PAK10-51	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/57/2010	PAK10-57	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/62/2010	PAK10-62	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/AFG/59/2010	AFG10-59	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/AFG/61/2010	AFG10-61	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/AFG/89/2010	AFG10-89	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/96/2010	IRN10-96	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/42/2010	PAK10-42	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/AFG/32/2010	AFG10-32	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/AFG/34/2010	AFG10-34	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	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	610	0	95.46	4.54	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	606	0	94.84	5.16	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	606	0	94.84	5.16	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	601	0	94.05	5.95	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	599	0	93.74	6.26	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	598	0	93.58	6.42	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
9	O/KUW/3/97 (DQ164904)	KUW97-03	639	574	0	89.83	10.17	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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Serotype: O WRLFMD Ref No: PAK/68/2010 Batch No: WRLFMD/2010/00045 Sender Ref: GBT 10 Location: Warothore, Gilgit, Baltistan, Pakistan Date collected: 11/10/2010 Date received by WRLFMD: 30/11/2010 Date received for sequencing: 04/01/2011 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 11/01/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: PAK10-68.SEQ Date sequence last updated: 06/01/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 2580 Min. no. of nt for comparison: 600 Total turn-around time: 42 days Sequencing time: 7 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/53/2010	PAK10-53	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/54/2010	PAK10-54	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/60/2010	PAK10-60	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/61/2010	PAK10-61	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/71/2010	PAK10-71	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/PAK/75/2010	PAK10-75	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/PAK/76/2010	PAK10-76	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/74/2010	PAK10-74	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/191/2010	IRN10191	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/198/2010	IRN10198	639	635	0	99.37	0.63	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	600	0	93.90	6.10	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	594	0	92.96	7.04	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	592	0	92.64	7.36	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/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	569	1	89.18	10.82	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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# FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/69/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: GBT 8	
Location: Goi, Gilgit, Baltistan, Pakistan	Topotype: ME-SA
Date collected: 15/10/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-69.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/PAK/73/2010	PAK10-73	639	639	0	100.00	0.00	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/20/2010	IRN10-20	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/33/2010	IRN10-33	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/34/2010	IRN10-34	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/37/2010	IRN10-37	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/38/2010	IRN10-38	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/39/2010	IRN10-39	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
<b>Most Closely Related Reference Viruses</b>									
(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	601	0	94.05	5.95	ME-SA	PanAsia-2 <sup>TER-08</sup>
4	O/IRN/31/2009	IRN09-31	639	599	0	93.74	6.26	ME-SA	PanAsia-2 <sup>FAR-09</sup>
5	O/IRN/18/2010	IRN10-18	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	589	0	92.18	7.82	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	580	0	90.77	9.23	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	569	1	89.18	10.82	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/70/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: GBT 9	
Location: Goi, Gilgit, Baltistan, Pakistan	Topotype: ME-SA
Date collected: 15/10/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-70.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/46/2010	PAK10-46	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/63/2010	PAK10-63	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/64/2010	PAK10-64	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/AFG/70/2010	AFG10-70	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/AFG/91/2010	AFG10-91	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/100/2010	IRN10100	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/101/2010	IRN10101	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/142/2010	IRN10142	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/20/2010	IRN10-20	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/33/2010	IRN10-33	639	634	0	99.22	0.78	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	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
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	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/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/OMN/7/2001 (DQ164941)	OMN01-07	639	567	0	88.73	11.27	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	566	1	88.71	11.29	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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# FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: O WRLFMD Ref No: PAK/71/2010 Batch No: WRLFMD/2010/00045 Sender Ref: GBT 11 Location: Warothore, Gilgit, Baltistan, Pakistan Date collected: 17/10/2010 Date received by WRLFMD: 30/11/2010 Date received for sequencing: 04/01/2011 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 11/01/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: PAK10-71.SEQ Date sequence last updated: 06/01/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 2580 Min. no. of nt for comparison: 600 Total turn-around time: 42 days Sequencing time: 7 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/53/2010	PAK10-53	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/54/2010	PAK10-54	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/60/2010	PAK10-60	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/61/2010	PAK10-61	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/68/2010	PAK10-68	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/PAK/75/2010	PAK10-75	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/PAK/76/2010	PAK10-76	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/74/2010	PAK10-74	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/191/2010	IRN10191	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/198/2010	IRN10198	639	635	0	99.37	0.63	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	600	0	93.90	6.10	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	594	0	92.96	7.04	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	592	0	92.64	7.36	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/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	569	1	89.18	10.82	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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# FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/72/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PSG 18	
Location: Sargodha (Wadi), Punjab, Pakistan	Topotype: ME-SA
Date collected: 19/10/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-72.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
Species: Buffalo	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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/59/2010	AFG10-59	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/AFG/61/2010	AFG10-61	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/AFG/89/2010	AFG10-89	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/IRN/96/2010	IRN10-96	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/AFG/32/2010	AFG10-32	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/AFG/34/2010	AFG10-34	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/139/2010	IRN10139	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/183/2010	IRN10183	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/62/2010	IRN10-62	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/97/2010	IRN10-97	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	629	0	98.44	1.56	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	600	0	93.90	6.10	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/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	580	0	90.77	9.23	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	571	0	89.36	10.64	ME-SA	Ind-2001b
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: 11/01/2011
WRLFMD Ref No: PAK/73/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: PSG 19	
Location: Sargodha (37.NB), Pu8njab, Pakistan	Topotype: ME-SA
Date collected: 19/10/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-73.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
Species: Buffalo	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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/PAK/69/2010	PAK10-69	639	639	0	100.00	0.00	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/20/2010	IRN10-20	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/IRN/33/2010	IRN10-33	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/IRN/34/2010	IRN10-34	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/IRN/37/2010	IRN10-37	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/38/2010	IRN10-38	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/39/2010	IRN10-39	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-10</sup>
<b>Most Closely Related Reference Viruses</b>									
(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	601	0	94.05	5.95	ME-SA	PanAsia-2 <sup>TER-08</sup>
4	O/IRN/31/2009	IRN09-31	639	599	0	93.74	6.26	ME-SA	PanAsia-2 <sup>FAR-09</sup>
5	O/IRN/18/2010	IRN10-18	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	589	0	92.18	7.82	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	580	0	90.77	9.23	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	569	1	89.18	10.82	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/74/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: ISB 2	
Location: Chirah, Fedreal Area, Pakistan	Topotype: ME-SA
Date collected: 19/10/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-74.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/53/2010	PAK10-53	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/54/2010	PAK10-54	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/60/2010	PAK10-60	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/61/2010	PAK10-61	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/68/2010	PAK10-68	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/PAK/71/2010	PAK10-71	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/PAK/75/2010	PAK10-75	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/76/2010	PAK10-76	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/43/2010	IRN10-43	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/93/2010	IRN10-93	639	635	0	99.37	0.63	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	633	0	99.06	0.94	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/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/OMN/7/2001 (DQ164941)	OMN01-07	639	571	0	89.36	10.64	ME-SA	Ind-2001b
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: 11/01/2011
WRLFMD Ref No: PAK/75/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: ISB 3	
Location: Chirah, Fedreal Area, Pakistan	Topotype: ME-SA
Date collected: 19/10/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-75.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 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/53/2010	PAK10-53	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/54/2010	PAK10-54	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/60/2010	PAK10-60	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/61/2010	PAK10-61	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/68/2010	PAK10-68	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/PAK/71/2010	PAK10-71	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/PAK/76/2010	PAK10-76	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/74/2010	PAK10-74	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/191/2010	IRN10191	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/198/2010	IRN10198	639	635	0	99.37	0.63	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	600	0	93.90	6.10	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	594	0	92.96	7.04	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	592	0	92.64	7.36	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/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	569	1	89.18	10.82	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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# FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: O	Report date: 11/01/2011
WRLFMD Ref No: PAK/76/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00045	Checked by: D.P. King
Sender Ref: ISB 4	
Location: Chirah, Fedreal Area, Pakistan	Topotype: ME-SA
Date collected: 19/10/2010	Genotype/strain: PanAsia-2 <sup>ANT-10</sup>
Date received by WRLFMD: 30/11/2010	Sequence filename: PAK10-76.SEQ
Date received for sequencing: 04/01/2011	Date sequence last updated: 06/01/2011
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: 2580
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 42 days
	Sequencing time: 7 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/PAK/53/2010	PAK10-53	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/PAK/54/2010	PAK10-54	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/PAK/60/2010	PAK10-60	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/PAK/61/2010	PAK10-61	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/PAK/68/2010	PAK10-68	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/PAK/71/2010	PAK10-71	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/PAK/75/2010	PAK10-75	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/PAK/74/2010	PAK10-74	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/IRN/191/2010	IRN10191	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/198/2010	IRN10198	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
<b>Most Closely Related Reference Viruses</b>									
(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	600	0	93.90	6.10	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	594	0	92.96	7.04	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	592	0	92.64	7.36	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/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	569	1	89.18	10.82	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

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# Report on FMDV O in Pakistan in 2010

Batch: WRLFMD/2010/00045

Software: MEGA 4.0

No. of Taxa : 410

Data File : n:\evd\meg\db\fmv\o\PAK2010b.meg

Data Title : O Pakistan 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

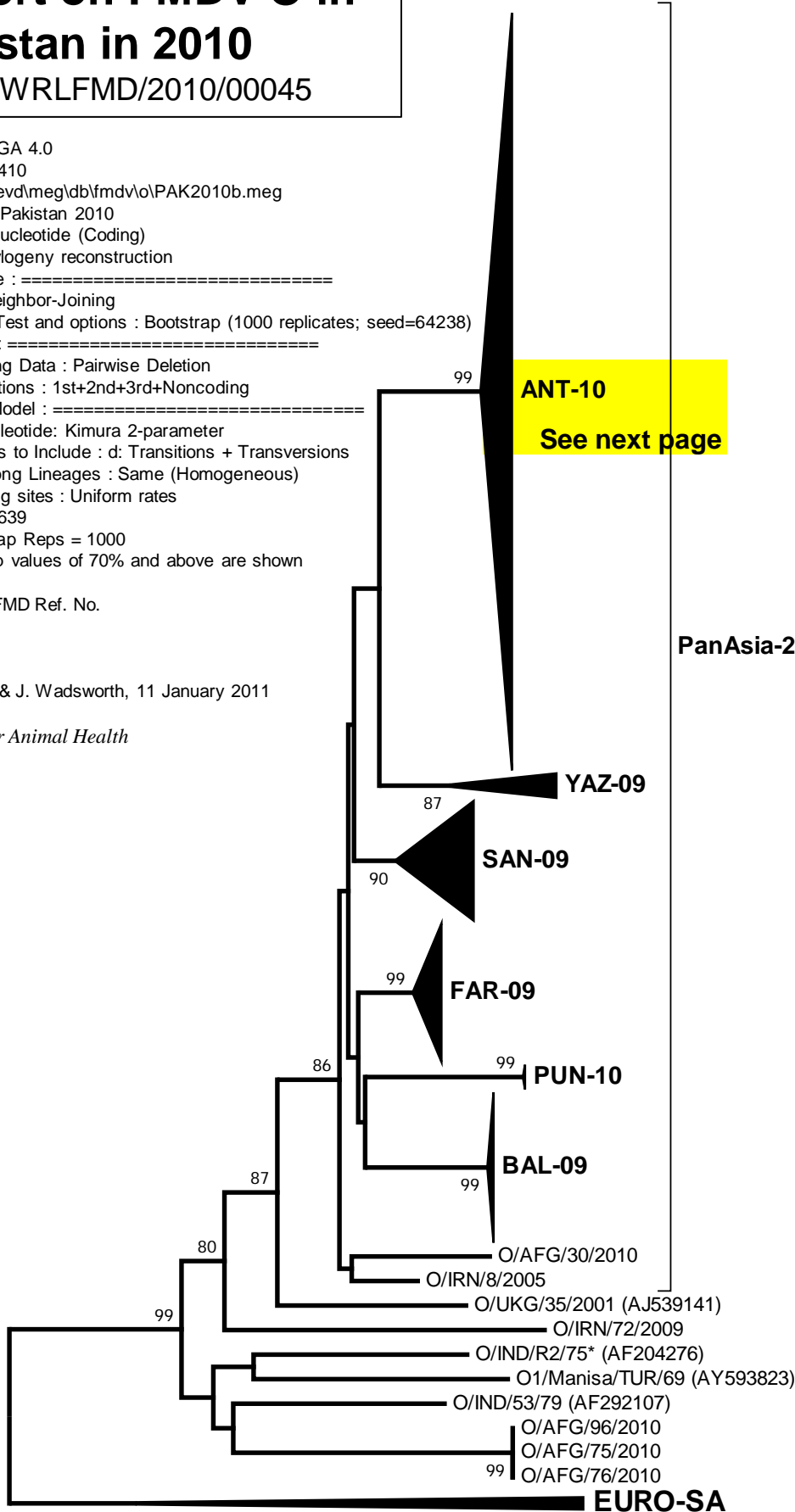
No Of Bootstrap Reps = 1000

Only bootstrap values of 70% and above are shown

\*, not a WRLFMD Ref. No.

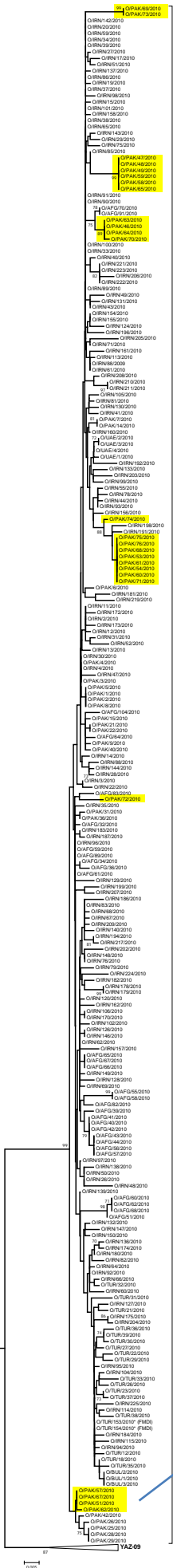
N.J. Knowles & J. Wadsworth, 11 January 2011

© Institute for Animal Health

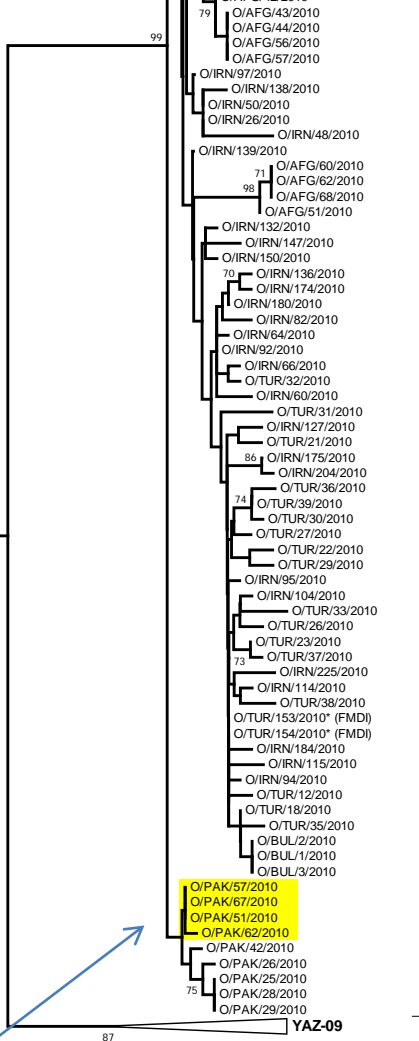


# Report on FMDV O in Pakistan in 2010

Batch: WRLFMD/2010/00045

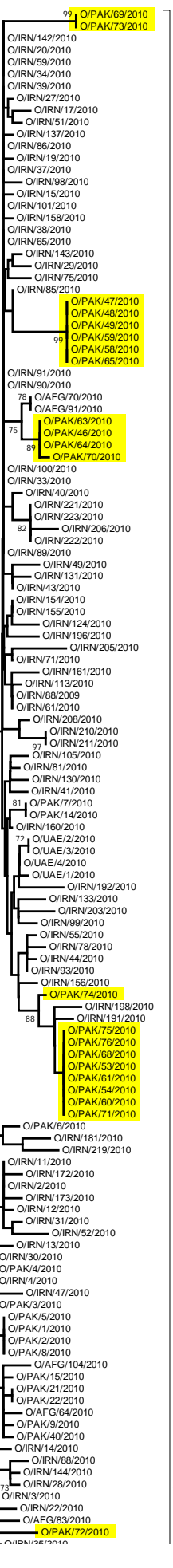


ANT-10



O/PAK/57/2010  
O/PAK/67/2010  
O/PAK/51/2010  
O/PAK/62/2010

YAZ-09



ANT-10