

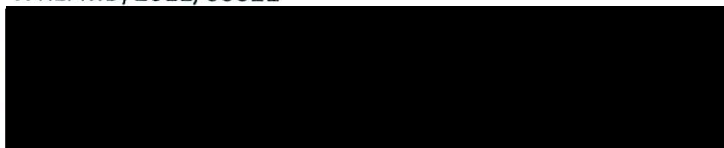


INSTITUTE FOR ANIMAL HEALTH
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FMD Sequencing Report

Lab Reference WRL Batch Number: WRLFMD/2011/00021

Sender Details:



Date Received: 31st March 2011

Country of Origin: Pakistan

Date Reported: 26th May 2011

Dear Dr. Ehtisham Khan,

Re.: Serotype O

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

<http://www.wrlfmd.org/>

Results Approved By:



Official Stamp:



Date: 26/5/11

A UKAS accredited testing laboratory No. 4025.

To help us improve the quality of our service, please send any suggestions or requests to the Reference Laboratory by fax (+44 (0) 1483 232621 or email: elizabeth.wilson@bbsrc.ac.uk)

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

Genotyping Report

Report Date for this Batch: 24 May 2011

FMDV type O

Country: Pakistan

Period: 2011

No. of samples: 9

BATCH: WRLFMD/2011/00021



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FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: O	Report date: 24/05/2011
WRLFMD Ref No: PAK/62/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00021	Checked by: D.P. King
Sender Ref: PKO 1	
Location: Okara, Punjab, Pakistan	Topotype: ME-SA
Date collected: 12/02/2011	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 31/03/2011	Sequence filename: PAK11-62.SEQ
Date received for sequencing: 21/04/2011	Date sequence last updated: 05/05/2011
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: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 54 days
	Sequencing time: 33 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/AFG/256/2010	AFG10256	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
2	O/AFG/259/2010	AFG10259	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
3	O/IRN/10/2011	IRN11-10	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
4	O/IRN/35/2011	IRN11-35	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
5	O/PAK/103/2010	PAK10103	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
6	O/PAK/104/2010	PAK10104	639	637	0	99.69	0.31	ME-SA	PanAsia-2 ^{ANT-10}
7	O/AFG/262/2010	AFG10262	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
8	O/AFG/263/2010	AFG10263	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
9	O/AFG/264/2010	AFG10264	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
10	O/AFG/265/2010	AFG10265	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	629	0	98.44	1.56	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	599	0	93.74	6.26	ME-SA	PanAsia-2
4	O/IRN/18/2010	IRN10-18	639	597	0	93.43	6.57	ME-SA	PanAsia-2 ^{BAL-09}
5	O/TUR/257/2008* (FMDI)	TUR08-AD	639	597	0	93.43	6.57	ME-SA	PanAsia-2 ^{TER-08}
6	O/PAK/16/2010	PAK10-16	639	595	0	93.11	6.89	ME-SA	PanAsia-2 ^{PUN-10}
7	O/TUR/264/2009* (FMDI)	TUR09-AK	639	593	0	92.80	7.20	ME-SA	PanAsia-2 ^{SAN-09}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	584	0	91.39	8.61	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
10	O/PAK/16/2003 (DQ165068)	PAK03-16	639	571	0	89.36	10.64	ME-SA	Pak-98

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 24/05/2011
WRLFMD Ref No: PAK/63/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00021	Checked by: D.P. King
Sender Ref: PKO 2	
Location: Okara, Punjab, Pakistan	Topotype: ME-SA
Date collected: 12/02/2011	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 31/03/2011	Sequence filename: PAK11-63.SEQ
Date received for sequencing: 21/04/2011	Date sequence last updated: 05/05/2011
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: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 54 days
	Sequencing time: 33 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/235/2010	AFG10235	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
2	O/AFG/244/2010	AFG10244	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
3	O/AFG/253/2010	AFG10253	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
4	O/PAK/112/2010	PAK10112	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
5	O/PAK/74/2011	PAK11-74	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
6	O/PAK/77/2010	PAK10-77	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
7	O/PAK/78/2010	PAK10-78	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
8	O/PAK/79/2010	PAK10-79	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
9	O/PAK/80/2010	PAK10-80	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
10	O/PAK/88/2010	PAK10-88	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	630	0	98.59	1.41	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/8/2005	IRN05-08	639	599	0	93.74	6.26	ME-SA	PanAsia-2
3	O/TUR/257/2008* (FMDI)	TUR08-AD	639	599	0	93.74	6.26	ME-SA	PanAsia-2 ^{TER-08}
4	O/IRN/31/2009	IRN09-31	639	597	0	93.43	6.57	ME-SA	PanAsia-2 ^{FAR-09}
5	O/TUR/264/2009* (FMDI)	TUR09-AK	639	594	0	92.96	7.04	ME-SA	PanAsia-2 ^{SAN-09}
6	O/IRN/18/2010	IRN10-18	639	592	0	92.64	7.36	ME-SA	PanAsia-2 ^{BAL-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	582	0	91.08	8.92	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 WRLFMD Ref No: PAK/70/2011 Batch No: WRLFMD/2011/00021 Sender Ref: PSG 35 Location: Sargodha, Punjab, Pakistan Date collected: 14/02/2011 Date received by WRLFMD: 31/03/2011 Date received for sequencing: 03/05/2011 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 24/05/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 ^{ANT-10} Sequence filename: PAK11-70.SEQ Date sequence last updated: 05/05/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 2880 Min. no. of nt for comparison: 600 Total turn-around time: 54 days Sequencing time: 21 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/71/2011	PAK11-71	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
2	O/PAK/73/2011	PAK11-73	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
3	O/AFG/256/2010	AFG10256	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
4	O/AFG/259/2010	AFG10259	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/10/2011	IRN11-10	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
6	O/IRN/35/2011	IRN11-35	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
7	O/PAK/103/2010	PAK10103	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
8	O/PAK/104/2010	PAK10104	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
9	O/AFG/262/2010	AFG10262	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
10	O/AFG/263/2010	AFG10263	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	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/31/2009	IRN09-31	639	600	0	93.90	6.10	ME-SA	PanAsia-2 ^{FAR-09}
3	O/IRN/8/2005	IRN05-08	639	598	0	93.58	6.42	ME-SA	PanAsia-2
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	596	0	93.27	6.73	ME-SA	PanAsia-2 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	594	0	92.96	7.04	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	592	0	92.64	7.36	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/OMN/7/2001 (DQ164941)	OMN01-07	639	573	0	89.67	10.33	ME-SA	Ind-2001b
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a

nt, nucleotides

* , not a WRLFMD reference number

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Serotype: O	Report date: 24/05/2011
WRLFMD Ref No: PAK/71/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00021	Checked by: D.P. King
Sender Ref: PSG 36	
Location: Sargodha, Punjab, Pakistan	Topotype: ME-SA
Date collected: 14/02/2011	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 31/03/2011	Sequence filename: PAK11-71.SEQ
Date received for sequencing: 21/04/2011	Date sequence last updated: 05/05/2011
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 54 days
	Sequencing time: 33 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/70/2011	PAK11-70	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
2	O/PAK/73/2011	PAK11-73	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
3	O/AFG/256/2010	AFG10256	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
4	O/AFG/259/2010	AFG10259	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/10/2011	IRN11-10	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
6	O/IRN/35/2011	IRN11-35	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
7	O/PAK/103/2010	PAK10103	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
8	O/PAK/104/2010	PAK10104	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
9	O/AFG/262/2010	AFG10262	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
10	O/AFG/263/2010	AFG10263	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	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/31/2009	IRN09-31	639	600	0	93.90	6.10	ME-SA	PanAsia-2 ^{FAR-09}
3	O/IRN/8/2005	IRN05-08	639	598	0	93.58	6.42	ME-SA	PanAsia-2
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	596	0	93.27	6.73	ME-SA	PanAsia-2 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	594	0	92.96	7.04	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	592	0	92.64	7.36	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/OMN/7/2001 (DQ164941)	OMN01-07	639	573	0	89.67	10.33	ME-SA	Ind-2001b
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: PAK/73/2011 Batch No: WRLFMD/2011/00021 Sender Ref: PSG 38 Location: Sargodha, Punjab, Pakistan Date collected: 14/02/2011 Date received by WRLFMD: 31/03/2011 Date received for sequencing: 21/04/2011 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 24/05/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 ^{ANT-10} Sequence filename: PAK11-73.SEQ Date sequence last updated: 05/05/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 2880 Min. no. of nt for comparison: 600 Total turn-around time: 54 days Sequencing time: 33 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/70/2011	PAK11-70	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
2	O/PAK/71/2011	PAK11-71	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
3	O/AFG/256/2010	AFG10256	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
4	O/AFG/259/2010	AFG10259	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
5	O/IRN/10/2011	IRN11-10	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
6	O/IRN/35/2011	IRN11-35	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
7	O/PAK/103/2010	PAK10103	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
8	O/PAK/104/2010	PAK10104	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
9	O/AFG/262/2010	AFG10262	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
10	O/AFG/263/2010	AFG10263	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	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/31/2009	IRN09-31	639	600	0	93.90	6.10	ME-SA	PanAsia-2 ^{FAR-09}
3	O/IRN/8/2005	IRN05-08	639	598	0	93.58	6.42	ME-SA	PanAsia-2
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	596	0	93.27	6.73	ME-SA	PanAsia-2 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	594	0	92.96	7.04	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	592	0	92.64	7.36	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/OMN/7/2001 (DQ164941)	OMN01-07	639	573	0	89.67	10.33	ME-SA	Ind-2001b
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a

nt, nucleotides

* , not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: PAK/74/2011 Batch No: WRLFMD/2011/00021 Sender Ref: PSG 31 Location: Sargodha, Punjab, Pakistan Date collected: 16/02/2011 Date received by WRLFMD: 31/03/2011 Date received for sequencing: 03/05/2011 Species: Cattle Material used: BTy2 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 24/05/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 ^{ANT-10} Sequence filename: PAK11-74.SEQ Date sequence last updated: 05/05/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 2880 Min. no. of nt for comparison: 600 Total turn-around time: 54 days Sequencing time: 21 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/253/2010	AFG10253	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
2	O/PAK/112/2010	PAK10112	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
3	O/PAK/77/2010	PAK10-77	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
4	O/PAK/78/2010	PAK10-78	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
5	O/PAK/79/2010	PAK10-79	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
6	O/PAK/80/2010	PAK10-80	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
7	O/PAK/88/2010	PAK10-88	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
8	O/PAK/89/2010	PAK10-89	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
9	O/PAK/98/2010	PAK10-98	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
10	O/PAK/102/2010	PAK10102	639	638	0	99.84	0.16	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	600	0	93.90	6.10	ME-SA	PanAsia-2
3	O/TUR/257/2008* (FMDI)	TUR08-AD	639	600	0	93.90	6.10	ME-SA	PanAsia-2 ^{TER-08}
4	O/IRN/31/2009	IRN09-31	639	598	0	93.58	6.42	ME-SA	PanAsia-2 ^{FAR-09}
5	O/TUR/264/2009* (FMDI)	TUR09-AK	639	597	0	93.43	6.57	ME-SA	PanAsia-2 ^{SAN-09}
6	O/IRN/18/2010	IRN10-18	639	593	0	92.80	7.20	ME-SA	PanAsia-2 ^{BAL-09}
7	O/PAK/16/2010	PAK10-16	639	592	0	92.64	7.36	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/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
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	Report date: 24/05/2011
WRLFMD Ref No: PAK/75/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00021	Checked by: D.P. King
Sender Ref: PSG 32	
Location: Sargodha, Punjab, Pakistan	Topotype: ME-SA
Date collected: 16/02/2011	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 31/03/2011	Sequence filename: PAK11-75.SEQ
Date received for sequencing: 03/05/2011	Date sequence last updated: 05/05/2011
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 54 days
	Sequencing time: 21 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/160/2010b	AFG10160B	639	632	0	98.90	1.10	ME-SA	PanAsia-2 ^{ANT-10}
2	O/AFG/193/2010b	AFG10193B	639	632	0	98.90	1.10	ME-SA	PanAsia-2 ^{ANT-10}
3	O/AFG/59/2010	AFG10-59	639	631	0	98.75	1.25	ME-SA	PanAsia-2 ^{ANT-10}
4	O/AFG/61/2010	AFG10-61	639	631	0	98.75	1.25	ME-SA	PanAsia-2 ^{ANT-10}
5	O/AFG/89/2010	AFG10-89	639	631	0	98.75	1.25	ME-SA	PanAsia-2 ^{ANT-10}
6	O/IRN/96/2010	IRN10-96	639	631	0	98.75	1.25	ME-SA	PanAsia-2 ^{ANT-10}
7	O/AFG/110/2010	AFG10110	639	630	0	98.59	1.41	ME-SA	PanAsia-2 ^{ANT-10}
8	O/AFG/32/2010	AFG10-32	639	630	0	98.59	1.41	ME-SA	PanAsia-2 ^{ANT-10}
9	O/AFG/34/2010	AFG10-34	639	630	0	98.59	1.41	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/139/2010	IRN10139	639	630	0	98.59	1.41	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	627	0	98.12	1.88	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	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	595	0	93.11	6.89	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/KUW/3/97 (DQ164904)	KUW97-03	639	566	0	88.58	11.42	ME-SA	Ind-2001a
10	O/OMN/7/2001 (DQ164941)	OMN01-07	639	566	0	88.58	11.42	ME-SA	Ind-2001b

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 24/05/2011
WRLFMD Ref No: PAK/76/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00021	Checked by: D.P. King
Sender Ref: PSG 33	
Location: Sargodha, Punjab, Pakistan	Topotype: ME-SA
Date collected: 16/02/2011	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 31/03/2011	Sequence filename: PAK11-76.SEQ
Date received for sequencing: 03/05/2011	Date sequence last updated: 05/05/2011
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 54 days
	Sequencing time: 21 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/84/2011	PAK11-84	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
2	O/PAK/86/2010	PAK10-86	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
3	O/PAK/94/2010	PAK10-94	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
4	O/PAK/95/2010	PAK10-95	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
5	O/AFG/160/2010b	AFG10160B	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
6	O/AFG/193/2010b	AFG10193B	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
7	O/AFG/59/2010	AFG10-59	639	632	0	98.90	1.10	ME-SA	PanAsia-2 ^{ANT-10}
8	O/AFG/61/2010	AFG10-61	639	632	0	98.90	1.10	ME-SA	PanAsia-2 ^{ANT-10}
9	O/AFG/83/2010	AFG10-83	639	632	0	98.90	1.10	ME-SA	PanAsia-2 ^{ANT-10}
10	O/AFG/89/2010	AFG10-89	639	632	0	98.90	1.10	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	630	0	98.59	1.41	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	603	0	94.37	5.63	ME-SA	PanAsia-2 ^{FAR-09}
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	602	0	94.21	5.79	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/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	593	0	92.80	7.20	ME-SA	PanAsia-2 ^{PUN-10}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	584	0	91.39	8.61	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	569	0	89.05	10.95	ME-SA	Ind-2001a

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 24/05/2011
WRLFMD Ref No: PAK/84/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00021	Checked by: D.P. King
Sender Ref: PSG 40	
Location: Sargodha, Punjab, Pakistan	Topotype: ME-SA
Date collected: 20/02/2011	Genotype/strain: PanAsia-2 ^{ANT-10}
Date received by WRLFMD: 31/03/2011	Sequence filename: PAK11-84.SEQ
Date received for sequencing: 03/05/2011	Date sequence last updated: 05/05/2011
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: 2880
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 54 days
	Sequencing time: 21 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/76/2011	PAK11-76	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
2	O/PAK/86/2010	PAK10-86	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
3	O/PAK/94/2010	PAK10-94	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
4	O/PAK/95/2010	PAK10-95	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
5	O/AFG/160/2010b	AFG10160B	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
6	O/AFG/193/2010b	AFG10193B	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
7	O/AFG/59/2010	AFG10-59	639	632	0	98.90	1.10	ME-SA	PanAsia-2 ^{ANT-10}
8	O/AFG/61/2010	AFG10-61	639	632	0	98.90	1.10	ME-SA	PanAsia-2 ^{ANT-10}
9	O/AFG/83/2010	AFG10-83	639	632	0	98.90	1.10	ME-SA	PanAsia-2 ^{ANT-10}
10	O/AFG/89/2010	AFG10-89	639	632	0	98.90	1.10	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	630	0	98.59	1.41	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	603	0	94.37	5.63	ME-SA	PanAsia-2 ^{FAR-09}
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	602	0	94.21	5.79	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/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	593	0	92.80	7.20	ME-SA	PanAsia-2 ^{PUN-10}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	584	0	91.39	8.61	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	569	0	89.05	10.95	ME-SA	Ind-2001a

nt, nucleotides

*, not a WRLFMD reference number

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Report on FMDV O in Pakistan in 2011

Batch: WRLFMD/2011/00021

◆ indicates viruses in this batch

Software: MEGA 5.0

Analysis

Analysis ----- Phylogeny Reconstruction

Scope ----- All Selected Taxa

Statistical Method ----- Neighbor-joining

Phylogeny Test

Test of Phylogeny ----- Bootstrap method

No. of Bootstrap Replications ----- 1000

Substitution Model

Substitutions Type ----- Nucleotide

Model/Method ----- Kimura 2-parameter model

Substitutions to Include ----- d: Transitions + Transversions

Rates and Patterns

Rates among Sites ----- Uniform rates

Pattern among Lineages ----- Same (Homogeneous)

Data Subset to Use

Gaps/Missing Data Treatment ----- Pairwise deletion

Codons Included ----- 1st+2nd+3rd+Non-Coding

No. of Sites : 639

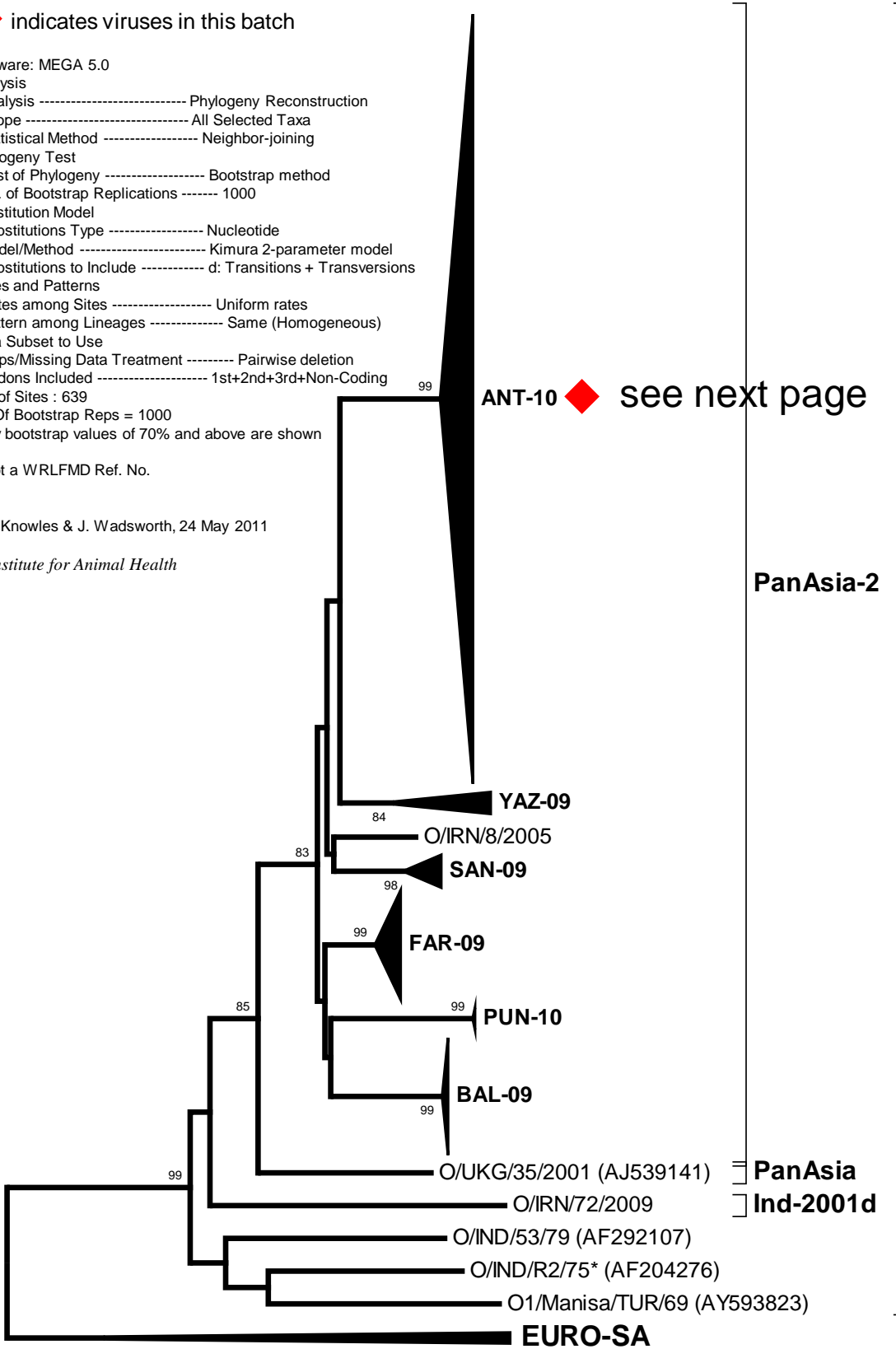
No Of Bootstrap Reps = 1000

Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

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

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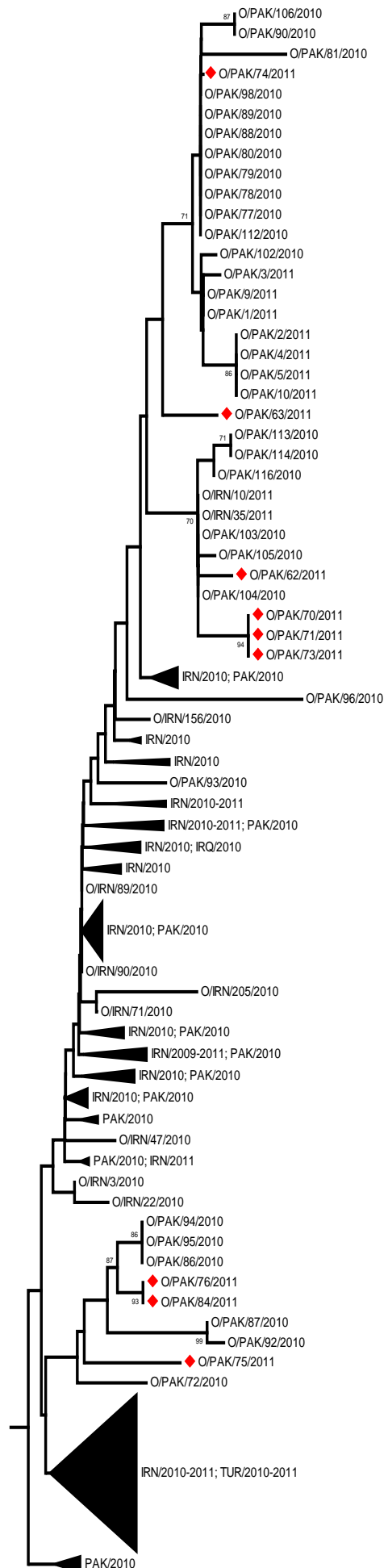


0.02

Report on FMDV O in Pakistan in 2011

Batch: WRLFMD/2011/00021

◆ indicates viruses in this batch



O/ME-SA/PanAsia-2^{ANT}-10