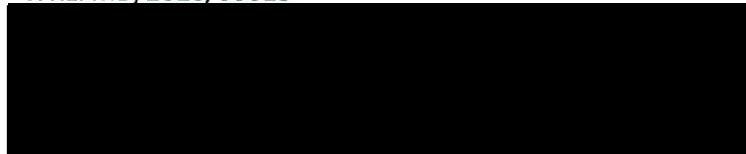




INSTITUTE FOR ANIMAL HEALTH
Director: Professor Martin W. Shirley, PhD
PIRBRIGHT LABORATORY
Ash Road,
Pirbright,
Surrey,
GU24 0NF
Intn Tel: 00 44 1483 232441
Tel: 01483 232441 Fax: 01483 232621

FMD Sequencing Report

Lab Reference WRL Batch Number: WRLFMD/2010/00015
Sender Details:

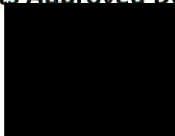


Date Received: 9th April 2010
Country of Origin: Pakistan
Date Reported: 21st May 2010

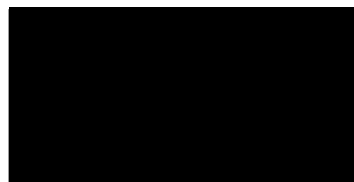
Dear Dr. Ehtisham Khan,

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: 21/05/2010



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

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

Genotyping Report

Date: 20 May 2010

FMDV type O

Country: Pakistan

Period: 2010

No. of isolates: 18

BATCH: WRLFMD/2010/00015



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FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/1/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PKR1	
Location: Karachi, Pakistan	Topotype: ME-SA
Date collected: 15/02/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-01.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 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/2/2010	PAK10-02	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/PAK/5/2010	PAK10-05	639	639	0	100.00	0.00	ME-SA	PanAsia-2
3	O/PAK/8/2010	PAK10-08	639	639	0	100.00	0.00	ME-SA	PanAsia-2
4	O/IRN/30/2010	IRN10-30	639	638	0	99.84	0.16	ME-SA	PanAsia-2
5	O/IRN/4/2010	IRN10-04	639	638	0	99.84	0.16	ME-SA	PanAsia-2
6	O/PAK/3/2010	PAK10-03	639	638	0	99.84	0.16	ME-SA	PanAsia-2
7	O/PAK/4/2010	PAK10-04	639	638	0	99.84	0.16	ME-SA	PanAsia-2
8	O/IRN/11/2010	IRN10-11	639	637	0	99.69	0.31	ME-SA	PanAsia-2
9	O/IRN/2/2010	IRN10-02	639	637	0	99.69	0.31	ME-SA	PanAsia-2
10	O/IRN/20/2010	IRN10-20	639	637	0	99.69	0.31	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	608	0	95.15	4.85	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
3	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
5	O/PAK/16/2003 (DQ165068)	PAK03-16	639	572	0	89.51	10.49	ME-SA	Pak-98
6	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a
7	O/UAE/4/2008	UAE08-04	636	566	0	88.99	11.01	ME-SA	Ind-2001c
8	O/BHU/3/2009	BHU09-03	639	567	0	88.73	11.27	ME-SA	Ind-2001d
9	O/IND/53/79 (AF292107)	IND79A53	639	566	0	88.58	11.42	ME-SA	unnamed
10	O/IND/R2/75* (AF204276)	IND75--A	639	565	0	88.42	11.58	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/2/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PKR2	
Location: Karachi, Pakistan	Topotype: ME-SA
Date collected: 15/02/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-02.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/PAK/1/2010	PAK10-01	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/PAK/5/2010	PAK10-05	639	639	0	100.00	0.00	ME-SA	PanAsia-2
3	O/PAK/8/2010	PAK10-08	639	639	0	100.00	0.00	ME-SA	PanAsia-2
4	O/IRN/30/2010	IRN10-30	639	638	0	99.84	0.16	ME-SA	PanAsia-2
5	O/IRN/4/2010	IRN10-04	639	638	0	99.84	0.16	ME-SA	PanAsia-2
6	O/PAK/3/2010	PAK10-03	639	638	0	99.84	0.16	ME-SA	PanAsia-2
7	O/PAK/4/2010	PAK10-04	639	638	0	99.84	0.16	ME-SA	PanAsia-2
8	O/IRN/11/2010	IRN10-11	639	637	0	99.69	0.31	ME-SA	PanAsia-2
9	O/IRN/2/2010	IRN10-02	639	637	0	99.69	0.31	ME-SA	PanAsia-2
10	O/IRN/20/2010	IRN10-20	639	637	0	99.69	0.31	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	608	0	95.15	4.85	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
3	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
5	O/PAK/16/2003 (DQ165068)	PAK03-16	639	572	0	89.51	10.49	ME-SA	Pak-98
6	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a
7	O/UAE/4/2008	UAE08-04	636	566	0	88.99	11.01	ME-SA	Ind-2001c
8	O/BHU/3/2009	BHU09-03	639	567	0	88.73	11.27	ME-SA	Ind-2001d
9	O/IND/53/79 (AF292107)	IND79A53	639	566	0	88.58	11.42	ME-SA	unnamed
10	O/IND/R2/75* (AF204276)	IND75--A	639	565	0	88.42	11.58	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/3/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PKR3	
Location: Karachi, Pakistan	Topotype: ME-SA
Date collected: 15/02/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-03.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/IRN/30/2010	IRN10-30	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/IRN/4/2010	IRN10-04	639	639	0	100.00	0.00	ME-SA	PanAsia-2
3	O/PAK/4/2010	PAK10-04	639	639	0	100.00	0.00	ME-SA	PanAsia-2
4	O/IRN/11/2010	IRN10-11	639	638	0	99.84	0.16	ME-SA	PanAsia-2
5	O/IRN/2/2010	IRN10-02	639	638	0	99.84	0.16	ME-SA	PanAsia-2
6	O/IRN/20/2010	IRN10-20	639	638	0	99.84	0.16	ME-SA	PanAsia-2
7	O/IRN/33/2010	IRN10-33	639	638	0	99.84	0.16	ME-SA	PanAsia-2
8	O/IRN/34/2010	IRN10-34	639	638	0	99.84	0.16	ME-SA	PanAsia-2
9	O/IRN/37/2010	IRN10-37	639	638	0	99.84	0.16	ME-SA	PanAsia-2
10	O/IRN/38/2010	IRN10-38	639	638	0	99.84	0.16	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	608	0	95.15	4.85	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
3	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
5	O/PAK/16/2003 (DQ165068)	PAK03-16	639	572	0	89.51	10.49	ME-SA	Pak-98
6	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a
7	O/UAE/4/2008	UAE08-04	636	566	0	88.99	11.01	ME-SA	Ind-2001c
8	O/BHU/3/2009	BHU09-03	639	566	0	88.58	11.42	ME-SA	Ind-2001d
9	O/IND/53/79 (AF292107)	IND79A53	639	566	0	88.58	11.42	ME-SA	unnamed
10	O/IND/R2/75* (AF204276)	IND75--A	639	565	0	88.42	11.58	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/4/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PKR4	
Location: Not known, Pakistan	Topotype: ME-SA
Date collected: 15/02/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-04.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/IRN/30/2010	IRN10-30	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/IRN/4/2010	IRN10-04	639	639	0	100.00	0.00	ME-SA	PanAsia-2
3	O/PAK/3/2010	PAK10-03	639	639	0	100.00	0.00	ME-SA	PanAsia-2
4	O/IRN/11/2010	IRN10-11	639	638	0	99.84	0.16	ME-SA	PanAsia-2
5	O/IRN/2/2010	IRN10-02	639	638	0	99.84	0.16	ME-SA	PanAsia-2
6	O/IRN/20/2010	IRN10-20	639	638	0	99.84	0.16	ME-SA	PanAsia-2
7	O/IRN/33/2010	IRN10-33	639	638	0	99.84	0.16	ME-SA	PanAsia-2
8	O/IRN/34/2010	IRN10-34	639	638	0	99.84	0.16	ME-SA	PanAsia-2
9	O/IRN/37/2010	IRN10-37	639	638	0	99.84	0.16	ME-SA	PanAsia-2
10	O/IRN/38/2010	IRN10-38	639	638	0	99.84	0.16	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	608	0	95.15	4.85	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
3	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
5	O/PAK/16/2003 (DQ165068)	PAK03-16	639	572	0	89.51	10.49	ME-SA	Pak-98
6	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a
7	O/UAE/4/2008	UAE08-04	636	566	0	88.99	11.01	ME-SA	Ind-2001c
8	O/BHU/3/2009	BHU09-03	639	566	0	88.58	11.42	ME-SA	Ind-2001d
9	O/IND/53/79 (AF292107)	IND79A53	639	566	0	88.58	11.42	ME-SA	unnamed
10	O/IND/R2/75* (AF204276)	IND75--A	639	565	0	88.42	11.58	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/5/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PKR5	
Location: Karachi, Pakistan	Topotype: ME-SA
Date collected: 15/02/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-05.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/PAK/1/2010	PAK10-01	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/PAK/2/2010	PAK10-02	639	639	0	100.00	0.00	ME-SA	PanAsia-2
3	O/PAK/8/2010	PAK10-08	639	639	0	100.00	0.00	ME-SA	PanAsia-2
4	O/IRN/30/2010	IRN10-30	639	638	0	99.84	0.16	ME-SA	PanAsia-2
5	O/IRN/4/2010	IRN10-04	639	638	0	99.84	0.16	ME-SA	PanAsia-2
6	O/PAK/3/2010	PAK10-03	639	638	0	99.84	0.16	ME-SA	PanAsia-2
7	O/PAK/4/2010	PAK10-04	639	638	0	99.84	0.16	ME-SA	PanAsia-2
8	O/IRN/11/2010	IRN10-11	639	637	0	99.69	0.31	ME-SA	PanAsia-2
9	O/IRN/2/2010	IRN10-02	639	637	0	99.69	0.31	ME-SA	PanAsia-2
10	O/IRN/20/2010	IRN10-20	639	637	0	99.69	0.31	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	608	0	95.15	4.85	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
3	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
5	O/PAK/16/2003 (DQ165068)	PAK03-16	639	572	0	89.51	10.49	ME-SA	Pak-98
6	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a
7	O/UAE/4/2008	UAE08-04	636	566	0	88.99	11.01	ME-SA	Ind-2001c
8	O/BHU/3/2009	BHU09-03	639	567	0	88.73	11.27	ME-SA	Ind-2001d
9	O/IND/53/79 (AF292107)	IND79A53	639	566	0	88.58	11.42	ME-SA	unnamed
10	O/IND/R2/75* (AF204276)	IND75--A	639	565	0	88.42	11.58	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/6/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PKR7	
Location: Karachi, Pakistan	Topotype: ME-SA
Date collected: 15/02/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-06.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	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: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/IRN/30/2010	IRN10-30	639	637	0	99.69	0.31	ME-SA	PanAsia-2
2	O/IRN/4/2010	IRN10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
3	O/PAK/3/2010	PAK10-03	639	637	0	99.69	0.31	ME-SA	PanAsia-2
4	O/PAK/4/2010	PAK10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
5	O/IRN/11/2010	IRN10-11	639	636	0	99.53	0.47	ME-SA	PanAsia-2
6	O/IRN/2/2010	IRN10-02	639	636	0	99.53	0.47	ME-SA	PanAsia-2
7	O/IRN/20/2010	IRN10-20	639	636	0	99.53	0.47	ME-SA	PanAsia-2
8	O/IRN/33/2010	IRN10-33	639	636	0	99.53	0.47	ME-SA	PanAsia-2
9	O/IRN/34/2010	IRN10-34	639	636	0	99.53	0.47	ME-SA	PanAsia-2
10	O/IRN/37/2010	IRN10-37	639	636	0	99.53	0.47	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	608	0	95.15	4.85	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
3	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
4	O/PAK/16/2003 (DQ165068)	PAK03-16	639	572	0	89.51	10.49	ME-SA	Pak-98
5	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a
6	O/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
7	O/UAE/4/2008	UAE08-04	636	566	0	88.99	11.01	ME-SA	Ind-2001c
8	O/BHU/3/2009	BHU09-03	639	566	0	88.58	11.42	ME-SA	Ind-2001d
9	O/IND/53/79 (AF292107)	IND79A53	639	564	0	88.26	11.74	ME-SA	unnamed
10	O/IND/R2/75* (AF204276)	IND75--A	639	563	0	88.11	11.89	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/7/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PS98	
Location: Sarghoda, Pakistan	Topotype: ME-SA
Date collected: 17/02/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-07.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 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/14/2010	PAK10-14	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/IRN/30/2010	IRN10-30	639	637	0	99.69	0.31	ME-SA	PanAsia-2
3	O/IRN/4/2010	IRN10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
4	O/PAK/3/2010	PAK10-03	639	637	0	99.69	0.31	ME-SA	PanAsia-2
5	O/PAK/4/2010	PAK10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
6	O/IRN/11/2010	IRN10-11	639	636	0	99.53	0.47	ME-SA	PanAsia-2
7	O/IRN/2/2010	IRN10-02	639	636	0	99.53	0.47	ME-SA	PanAsia-2
8	O/IRN/20/2010	IRN10-20	639	636	0	99.53	0.47	ME-SA	PanAsia-2
9	O/IRN/33/2010	IRN10-33	639	636	0	99.53	0.47	ME-SA	PanAsia-2
10	O/IRN/34/2010	IRN10-34	639	636	0	99.53	0.47	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	606	0	94.84	5.16	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	585	0	91.55	8.45	ME-SA	PanAsia
3	O/IRN/61/2001 (DQ164896)	IRN01-61	638	570	1	89.34	10.66	ME-SA	Irn-2001
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
5	O/PAK/16/2003 (DQ165068)	PAK03-16	639	570	0	89.20	10.80	ME-SA	Pak-98
6	O/UAE/4/2008	UAE08-04	636	566	0	88.99	11.01	ME-SA	Ind-2001c
7	O/KUW/3/97 (DQ164904)	KUW97-03	639	568	0	88.89	11.11	ME-SA	Ind-2001a
8	O/IND/R2/75* (AF204276)	IND75--A	639	565	0	88.42	11.58	ME-SA	unnamed
9	O/BHU/3/2009	BHU09-03	639	564	0	88.26	11.74	ME-SA	Ind-2001d
10	O/IND/53/79 (AF292107)	IND79A53	639	564	0	88.26	11.74	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/8/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PKR6	
Location: Karachi, Pakistan	Topotype: ME-SA
Date collected: 22/02/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-08.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/PAK/1/2010	PAK10-01	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/PAK/2/2010	PAK10-02	639	639	0	100.00	0.00	ME-SA	PanAsia-2
3	O/PAK/5/2010	PAK10-05	639	639	0	100.00	0.00	ME-SA	PanAsia-2
4	O/IRN/30/2010	IRN10-30	639	638	0	99.84	0.16	ME-SA	PanAsia-2
5	O/IRN/4/2010	IRN10-04	639	638	0	99.84	0.16	ME-SA	PanAsia-2
6	O/PAK/3/2010	PAK10-03	639	638	0	99.84	0.16	ME-SA	PanAsia-2
7	O/PAK/4/2010	PAK10-04	639	638	0	99.84	0.16	ME-SA	PanAsia-2
8	O/IRN/11/2010	IRN10-11	639	637	0	99.69	0.31	ME-SA	PanAsia-2
9	O/IRN/2/2010	IRN10-02	639	637	0	99.69	0.31	ME-SA	PanAsia-2
10	O/IRN/20/2010	IRN10-20	639	637	0	99.69	0.31	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	608	0	95.15	4.85	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
3	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
5	O/PAK/16/2003 (DQ165068)	PAK03-16	639	572	0	89.51	10.49	ME-SA	Pak-98
6	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a
7	O/UAE/4/2008	UAE08-04	636	566	0	88.99	11.01	ME-SA	Ind-2001c
8	O/BHU/3/2009	BHU09-03	639	567	0	88.73	11.27	ME-SA	Ind-2001d
9	O/IND/53/79 (AF292107)	IND79A53	639	566	0	88.58	11.42	ME-SA	unnamed
10	O/IND/R2/75* (AF204276)	IND75--A	639	565	0	88.42	11.58	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/9/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PS96	
Location: Sarghoda, Pakistan	Topotype: ME-SA
Date collected: 25/02/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-09.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/IRN/30/2010	IRN10-30	639	637	0	99.69	0.31	ME-SA	PanAsia-2
2	O/IRN/4/2010	IRN10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
3	O/PAK/15/2010	PAK10-15	639	637	0	99.69	0.31	ME-SA	PanAsia-2
4	O/PAK/21/2010	PAK10-21	639	637	0	99.69	0.31	ME-SA	PanAsia-2
5	O/PAK/22/2010	PAK10-22	639	637	0	99.69	0.31	ME-SA	PanAsia-2
6	O/PAK/3/2010	PAK10-03	639	637	0	99.69	0.31	ME-SA	PanAsia-2
7	O/PAK/4/2010	PAK10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
8	O/IRN/11/2010	IRN10-11	639	636	0	99.53	0.47	ME-SA	PanAsia-2
9	O/IRN/2/2010	IRN10-02	639	636	0	99.53	0.47	ME-SA	PanAsia-2
10	O/IRN/20/2010	IRN10-20	639	636	0	99.53	0.47	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	606	0	94.84	5.16	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	585	0	91.55	8.45	ME-SA	PanAsia
3	O/PAK/16/2003 (DQ165068)	PAK03-16	639	571	0	89.36	10.64	ME-SA	Pak-98
4	O/IRN/61/2001 (DQ164896)	IRN01-61	638	570	1	89.34	10.66	ME-SA	Irn-2001
5	O/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
6	O/UAE/4/2008	UAE08-04	636	566	0	88.99	11.01	ME-SA	Ind-2001c
7	O/KUW/3/97 (DQ164904)	KUW97-03	639	568	0	88.89	11.11	ME-SA	Ind-2001a
8	O/BHU/3/2009	BHU09-03	639	566	0	88.58	11.42	ME-SA	Ind-2001d
9	O/IND/53/79 (AF292107)	IND79A53	639	565	0	88.42	11.58	ME-SA	unnamed
10	O/IND/R2/75* (AF204276)	IND75--A	639	564	0	88.26	11.74	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/14/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PKB5	
Location: Khushab, Pakistan	Topotype: ME-SA
Date collected: 26/02/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-14.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy2	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 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/7/2010	PAK10-07	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/IRN/30/2010	IRN10-30	639	637	0	99.69	0.31	ME-SA	PanAsia-2
3	O/IRN/4/2010	IRN10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
4	O/PAK/3/2010	PAK10-03	639	637	0	99.69	0.31	ME-SA	PanAsia-2
5	O/PAK/4/2010	PAK10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
6	O/IRN/11/2010	IRN10-11	639	636	0	99.53	0.47	ME-SA	PanAsia-2
7	O/IRN/2/2010	IRN10-02	639	636	0	99.53	0.47	ME-SA	PanAsia-2
8	O/IRN/20/2010	IRN10-20	639	636	0	99.53	0.47	ME-SA	PanAsia-2
9	O/IRN/33/2010	IRN10-33	639	636	0	99.53	0.47	ME-SA	PanAsia-2
10	O/IRN/34/2010	IRN10-34	639	636	0	99.53	0.47	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	606	0	94.84	5.16	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	585	0	91.55	8.45	ME-SA	PanAsia
3	O/IRN/61/2001 (DQ164896)	IRN01-61	638	570	1	89.34	10.66	ME-SA	Irn-2001
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
5	O/PAK/16/2003 (DQ165068)	PAK03-16	639	570	0	89.20	10.80	ME-SA	Pak-98
6	O/UAE/4/2008	UAE08-04	636	566	0	88.99	11.01	ME-SA	Ind-2001c
7	O/KUW/3/97 (DQ164904)	KUW97-03	639	568	0	88.89	11.11	ME-SA	Ind-2001a
8	O/IND/R2/75* (AF204276)	IND75--A	639	565	0	88.42	11.58	ME-SA	unnamed
9	O/BHU/3/2009	BHU09-03	639	564	0	88.26	11.74	ME-SA	Ind-2001d
10	O/IND/53/79 (AF292107)	IND79A53	639	564	0	88.26	11.74	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/15/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PS97	
Location: Sarghoda, Pakistan	Topotype: ME-SA
Date collected: 10/03/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-15.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/IRN/30/2010	IRN10-30	639	637	0	99.69	0.31	ME-SA	PanAsia-2
2	O/IRN/4/2010	IRN10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
3	O/PAK/21/2010	PAK10-21	639	637	0	99.69	0.31	ME-SA	PanAsia-2
4	O/PAK/22/2010	PAK10-22	639	637	0	99.69	0.31	ME-SA	PanAsia-2
5	O/PAK/3/2010	PAK10-03	639	637	0	99.69	0.31	ME-SA	PanAsia-2
6	O/PAK/4/2010	PAK10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
7	O/PAK/9/2010	PAK10-09	639	637	0	99.69	0.31	ME-SA	PanAsia-2
8	O/IRN/11/2010	IRN10-11	639	636	0	99.53	0.47	ME-SA	PanAsia-2
9	O/IRN/2/2010	IRN10-02	639	636	0	99.53	0.47	ME-SA	PanAsia-2
10	O/IRN/20/2010	IRN10-20	639	636	0	99.53	0.47	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	608	0	95.15	4.85	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
3	O/IRN/61/2001 (DQ164896)	IRN01-61	638	571	1	89.50	10.50	ME-SA	Irn-2001
4	O/PAK/16/2003 (DQ165068)	PAK03-16	639	571	0	89.36	10.64	ME-SA	Pak-98
5	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a
6	O/OMN/7/2001 (DQ164941)	OMN01-07	639	570	0	89.20	10.80	ME-SA	Ind-2001b
7	O/IND/53/79 (AF292107)	IND79A53	639	567	0	88.73	11.27	ME-SA	unnamed
8	O/UAE/4/2008	UAE08-04	636	564	0	88.68	11.32	ME-SA	Ind-2001c
9	O/BHU/3/2009	BHU09-03	639	564	0	88.26	11.74	ME-SA	Ind-2001d
10	O/IND/R2/75* (AF204276)	IND75--A	639	564	0	88.26	11.74	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/16/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PSG1	
Location: Sarghoda, Pakistan	Topotype: ME-SA
Date collected: 12/03/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-16.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 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/17/2010	PAK10-17	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/PAK/18/2010	PAK10-18	639	639	0	100.00	0.00	ME-SA	PanAsia-2
3	O/PAK/19/2010	PAK10-19	639	639	0	100.00	0.00	ME-SA	PanAsia-2
4	O/PAK/20/2010	PAK10-20	639	638	0	99.84	0.16	ME-SA	PanAsia-2
5	O/PAK/28/2007	PAK07-28	639	615	0	96.24	3.76	ME-SA	PanAsia-2
6	O/PAK/50/2007	PAK07-50	639	615	0	96.24	3.76	ME-SA	PanAsia-2
7	O/PAK/22/2007	PAK07-22	639	614	0	96.09	3.91	ME-SA	PanAsia-2
8	O/PAK/23/2007	PAK07-23	639	614	0	96.09	3.91	ME-SA	PanAsia-2
9	O/IRN/45/2006	IRN06-45	639	613	0	95.93	4.07	ME-SA	PanAsia-2
10	O/PAK/49/2007	PAK07-49	639	613	0	95.93	4.07	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	601	0	94.05	5.95	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	586	0	91.71	8.29	ME-SA	PanAsia
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	577	0	90.30	9.70	ME-SA	Ind-2001a
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	573	0	89.67	10.33	ME-SA	Ind-2001b
5	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
6	O/IND/53/79 (AF292107)	IND79A53	639	569	0	89.05	10.95	ME-SA	unnamed
7	O/BHU/3/2009	BHU09-03	639	566	0	88.58	11.42	ME-SA	Ind-2001d
8	O/UAE/4/2008	UAE08-04	636	562	0	88.36	11.64	ME-SA	Ind-2001c
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	564	0	88.26	11.74	ME-SA	Pak-98
10	O/IND/R2/75* (AF204276)	IND75--A	639	560	0	87.64	12.36	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/17/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PSG2	
Location: Sarghoda, Pakistan	Topotype: ME-SA
Date collected: 12/03/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-17.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 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/16/2010	PAK10-16	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/PAK/18/2010	PAK10-18	639	639	0	100.00	0.00	ME-SA	PanAsia-2
3	O/PAK/19/2010	PAK10-19	639	639	0	100.00	0.00	ME-SA	PanAsia-2
4	O/PAK/20/2010	PAK10-20	639	638	0	99.84	0.16	ME-SA	PanAsia-2
5	O/PAK/28/2007	PAK07-28	639	615	0	96.24	3.76	ME-SA	PanAsia-2
6	O/PAK/50/2007	PAK07-50	639	615	0	96.24	3.76	ME-SA	PanAsia-2
7	O/PAK/22/2007	PAK07-22	639	614	0	96.09	3.91	ME-SA	PanAsia-2
8	O/PAK/23/2007	PAK07-23	639	614	0	96.09	3.91	ME-SA	PanAsia-2
9	O/IRN/45/2006	IRN06-45	639	613	0	95.93	4.07	ME-SA	PanAsia-2
10	O/PAK/49/2007	PAK07-49	639	613	0	95.93	4.07	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	601	0	94.05	5.95	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	586	0	91.71	8.29	ME-SA	PanAsia
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	577	0	90.30	9.70	ME-SA	Ind-2001a
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	573	0	89.67	10.33	ME-SA	Ind-2001b
5	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
6	O/IND/53/79 (AF292107)	IND79A53	639	569	0	89.05	10.95	ME-SA	unnamed
7	O/BHU/3/2009	BHU09-03	639	566	0	88.58	11.42	ME-SA	Ind-2001d
8	O/UAE/4/2008	UAE08-04	636	562	0	88.36	11.64	ME-SA	Ind-2001c
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	564	0	88.26	11.74	ME-SA	Pak-98
10	O/IND/R2/75* (AF204276)	IND75--A	639	560	0	87.64	12.36	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/18/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PSG3	
Location: Sarghoda, Pakistan	Topotype: ME-SA
Date collected: 12/03/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-18.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 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/16/2010	PAK10-16	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/PAK/17/2010	PAK10-17	639	639	0	100.00	0.00	ME-SA	PanAsia-2
3	O/PAK/19/2010	PAK10-19	639	639	0	100.00	0.00	ME-SA	PanAsia-2
4	O/PAK/20/2010	PAK10-20	639	638	0	99.84	0.16	ME-SA	PanAsia-2
5	O/PAK/28/2007	PAK07-28	639	615	0	96.24	3.76	ME-SA	PanAsia-2
6	O/PAK/50/2007	PAK07-50	639	615	0	96.24	3.76	ME-SA	PanAsia-2
7	O/PAK/22/2007	PAK07-22	639	614	0	96.09	3.91	ME-SA	PanAsia-2
8	O/PAK/23/2007	PAK07-23	639	614	0	96.09	3.91	ME-SA	PanAsia-2
9	O/IRN/45/2006	IRN06-45	639	613	0	95.93	4.07	ME-SA	PanAsia-2
10	O/PAK/49/2007	PAK07-49	639	613	0	95.93	4.07	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	601	0	94.05	5.95	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	586	0	91.71	8.29	ME-SA	PanAsia
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	577	0	90.30	9.70	ME-SA	Ind-2001a
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	573	0	89.67	10.33	ME-SA	Ind-2001b
5	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
6	O/IND/53/79 (AF292107)	IND79A53	639	569	0	89.05	10.95	ME-SA	unnamed
7	O/BHU/3/2009	BHU09-03	639	566	0	88.58	11.42	ME-SA	Ind-2001d
8	O/UAE/4/2008	UAE08-04	636	562	0	88.36	11.64	ME-SA	Ind-2001c
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	564	0	88.26	11.74	ME-SA	Pak-98
10	O/IND/R2/75* (AF204276)	IND75--A	639	560	0	87.64	12.36	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/19/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PSG4	
Location: Sarghoda, Pakistan	Topotype: ME-SA
Date collected: 12/03/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-19.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy2	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 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/16/2010	PAK10-16	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/PAK/17/2010	PAK10-17	639	639	0	100.00	0.00	ME-SA	PanAsia-2
3	O/PAK/18/2010	PAK10-18	639	639	0	100.00	0.00	ME-SA	PanAsia-2
4	O/PAK/20/2010	PAK10-20	639	638	0	99.84	0.16	ME-SA	PanAsia-2
5	O/PAK/28/2007	PAK07-28	639	615	0	96.24	3.76	ME-SA	PanAsia-2
6	O/PAK/50/2007	PAK07-50	639	615	0	96.24	3.76	ME-SA	PanAsia-2
7	O/PAK/22/2007	PAK07-22	639	614	0	96.09	3.91	ME-SA	PanAsia-2
8	O/PAK/23/2007	PAK07-23	639	614	0	96.09	3.91	ME-SA	PanAsia-2
9	O/IRN/45/2006	IRN06-45	639	613	0	95.93	4.07	ME-SA	PanAsia-2
10	O/PAK/49/2007	PAK07-49	639	613	0	95.93	4.07	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	601	0	94.05	5.95	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	586	0	91.71	8.29	ME-SA	PanAsia
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	577	0	90.30	9.70	ME-SA	Ind-2001a
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	573	0	89.67	10.33	ME-SA	Ind-2001b
5	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
6	O/IND/53/79 (AF292107)	IND79A53	639	569	0	89.05	10.95	ME-SA	unnamed
7	O/BHU/3/2009	BHU09-03	639	566	0	88.58	11.42	ME-SA	Ind-2001d
8	O/UAE/4/2008	UAE08-04	636	562	0	88.36	11.64	ME-SA	Ind-2001c
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	564	0	88.26	11.74	ME-SA	Pak-98
10	O/IND/R2/75* (AF204276)	IND75--A	639	560	0	87.64	12.36	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/20/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PSG5	
Location: Sarghoda, Pakistan	Topotype: ME-SA
Date collected: 12/03/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-20.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy2	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 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/16/2010	PAK10-16	639	638	0	99.84	0.16	ME-SA	PanAsia-2
2	O/PAK/17/2010	PAK10-17	639	638	0	99.84	0.16	ME-SA	PanAsia-2
3	O/PAK/18/2010	PAK10-18	639	638	0	99.84	0.16	ME-SA	PanAsia-2
4	O/PAK/19/2010	PAK10-19	639	638	0	99.84	0.16	ME-SA	PanAsia-2
5	O/PAK/28/2007	PAK07-28	639	614	0	96.09	3.91	ME-SA	PanAsia-2
6	O/PAK/50/2007	PAK07-50	639	614	0	96.09	3.91	ME-SA	PanAsia-2
7	O/PAK/22/2007	PAK07-22	639	613	0	95.93	4.07	ME-SA	PanAsia-2
8	O/PAK/23/2007	PAK07-23	639	613	0	95.93	4.07	ME-SA	PanAsia-2
9	O/IRN/45/2006	IRN06-45	639	612	0	95.77	4.23	ME-SA	PanAsia-2
10	O/PAK/49/2007	PAK07-49	639	612	0	95.77	4.23	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	600	0	93.90	6.10	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	585	0	91.55	8.45	ME-SA	PanAsia
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	576	0	90.14	9.86	ME-SA	Ind-2001a
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
5	O/IRN/61/2001 (DQ164896)	IRN01-61	638	571	1	89.50	10.50	ME-SA	Irn-2001
6	O/IND/53/79 (AF292107)	IND79A53	639	568	0	88.89	11.11	ME-SA	unnamed
7	O/BHU/3/2009	BHU09-03	639	565	0	88.42	11.58	ME-SA	Ind-2001d
8	O/UAE/4/2008	UAE08-04	636	561	0	88.21	11.79	ME-SA	Ind-2001c
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	563	0	88.11	11.89	ME-SA	Pak-98
10	O/IND/R2/75* (AF204276)	IND75--A	639	559	0	87.48	12.52	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/21/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PTX1	
Location: Karachi, Pakistan	Topotype: ME-SA
Date collected: 22/03/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-21.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
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: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 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/22/2010	PAK10-22	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/IRN/30/2010	IRN10-30	639	637	0	99.69	0.31	ME-SA	PanAsia-2
3	O/IRN/4/2010	IRN10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
4	O/PAK/15/2010	PAK10-15	639	637	0	99.69	0.31	ME-SA	PanAsia-2
5	O/PAK/3/2010	PAK10-03	639	637	0	99.69	0.31	ME-SA	PanAsia-2
6	O/PAK/4/2010	PAK10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
7	O/PAK/9/2010	PAK10-09	639	637	0	99.69	0.31	ME-SA	PanAsia-2
8	O/IRN/11/2010	IRN10-11	639	636	0	99.53	0.47	ME-SA	PanAsia-2
9	O/IRN/2/2010	IRN10-02	639	636	0	99.53	0.47	ME-SA	PanAsia-2
10	O/IRN/20/2010	IRN10-20	639	636	0	99.53	0.47	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	608	0	95.15	4.85	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
3	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
5	O/PAK/16/2003 (DQ165068)	PAK03-16	639	571	0	89.36	10.64	ME-SA	Pak-98
6	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a
7	O/IND/53/79 (AF292107)	IND79A53	639	567	0	88.73	11.27	ME-SA	unnamed
8	O/UAE/4/2008	UAE08-04	636	564	0	88.68	11.32	ME-SA	Ind-2001c
9	O/BHU/3/2009	BHU09-03	639	566	0	88.58	11.42	ME-SA	Ind-2001d
10	O/IND/R2/75* (AF204276)	IND75--A	639	564	0	88.26	11.74	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 20/05/2010
WRLFMD Ref No: PAK/22/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2010/00015	Checked by: D.P. King
Sender Ref: PTX2	
Location: Taxilla, Pakistan	Topotype: ME-SA
Date collected: 22/03/2010	Genotype/strain: PanAsia-2
Date received by WRLFMD: 09/04/2010	Sequence filename: PAK10-22.SEQ
Date received for sequencing: 10/05/2010	Date sequence last updated: 20/05/2010
Species: Cattle	No. of Nt determined: 639
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 2408
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 300
	Total turn-around time: 41 days
	Sequencing time: 10 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/21/2010	PAK10-21	639	639	0	100.00	0.00	ME-SA	PanAsia-2
2	O/IRN/30/2010	IRN10-30	639	637	0	99.69	0.31	ME-SA	PanAsia-2
3	O/IRN/4/2010	IRN10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
4	O/PAK/15/2010	PAK10-15	639	637	0	99.69	0.31	ME-SA	PanAsia-2
5	O/PAK/3/2010	PAK10-03	639	637	0	99.69	0.31	ME-SA	PanAsia-2
6	O/PAK/4/2010	PAK10-04	639	637	0	99.69	0.31	ME-SA	PanAsia-2
7	O/PAK/9/2010	PAK10-09	639	637	0	99.69	0.31	ME-SA	PanAsia-2
8	O/IRN/11/2010	IRN10-11	639	636	0	99.53	0.47	ME-SA	PanAsia-2
9	O/IRN/2/2010	IRN10-02	639	636	0	99.53	0.47	ME-SA	PanAsia-2
10	O/IRN/20/2010	IRN10-20	639	636	0	99.53	0.47	ME-SA	PanAsia-2
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/8/2005	IRN05-08	639	608	0	95.15	4.85	ME-SA	PanAsia-2
2	O/UKG/35/2001 (AJ539141)	UKG01-35	639	587	0	91.86	8.14	ME-SA	PanAsia
3	O/IRN/61/2001 (DQ164896)	IRN01-61	638	572	1	89.66	10.34	ME-SA	Irn-2001
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
5	O/PAK/16/2003 (DQ165068)	PAK03-16	639	571	0	89.36	10.64	ME-SA	Pak-98
6	O/KUW/3/97 (DQ164904)	KUW97-03	639	570	0	89.20	10.80	ME-SA	Ind-2001a
7	O/IND/53/79 (AF292107)	IND79A53	639	567	0	88.73	11.27	ME-SA	unnamed
8	O/UAE/4/2008	UAE08-04	636	564	0	88.68	11.32	ME-SA	Ind-2001c
9	O/BHU/3/2009	BHU09-03	639	566	0	88.58	11.42	ME-SA	Ind-2001d
10	O/IND/R2/75* (AF204276)	IND75--A	639	564	0	88.26	11.74	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

Assembled with Report Generator v3.1

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Report on FMDV O in Pakistan in 2010

Batch: WRLFMD/2010/00015

Software: MEGA 4.0
 No. of Taxa : 212
 Data File : n:\evd\meg\db\fmvd\o\IRN2010b.meg
 Data Title : O Iran 2010
 Data Type : Nucleotide (Coding)
 Analysis : Phylogeny reconstruction
 Tree Inference : =====
 ->Method : Neighbor-Joining
 ->Phylogeny Test and options : Bootstrap (1000 replicates; seed=64238)
 Include Sites : =====
 ->Gaps/Missing Data : Pairwise Deletion
 ->Codon Positions : 1st+2nd+3rd+Noncoding
 Substitution Model : =====
 ->Model : Nucleotide: Kimura 2-parameter
 ->Substitutions to Include : d: Transitions + Transversions
 ->Pattern among Lineages : Same (Homogeneous)
 ->Rates among sites : Uniform rates
 No. of Sites : 639
 No Of Bootstrap Reps = 1000
 Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

N.J. Knowles & J. Wadsworth, 20 May 2010

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