

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

Genotyping Report

Report Date for this Batch: 19 December 2013

FMDV type O

Country: Vietnam

Period: 2013

No. of samples: 19

BATCH: WRLFMD/2013/00025

A number of samples from which FMD virus could not be isolated, but which were positive by real-time RT-PCR, are under further investigation.



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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: 19/12/2013
WRLFMD Ref No: VIT/22/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVD-F13-04	
Location: Son La, Vietnam	Topotype: ME-SA
Date collected: 04/01/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-22.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Pig	No. of Nt determined: 639
Material used: BTy1 28/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/23/2013	VIT13-23	639	639	0	100.00	0.00	ME-SA	PanAsia
2	O/VIT/28/2013	VIT13-28	639	638	0	99.84	0.16	ME-SA	PanAsia
3	O/VIT/24/2013	VIT13-24	639	637	0	99.69	0.31	ME-SA	PanAsia
4	O/VIT/27/2013	VIT13-27	639	637	0	99.69	0.31	ME-SA	PanAsia
5	O/VIT/30/2013	VIT13-30	639	633	0	99.06	0.94	ME-SA	PanAsia
6	O/VIT/31/2013	VIT13-31	639	633	0	99.06	0.94	ME-SA	PanAsia
7	O/VIT/4/2012	VIT12-04	639	631	0	98.75	1.25	ME-SA	PanAsia
8	O/VIT/6/2012	VIT12-06	639	631	0	98.75	1.25	ME-SA	PanAsia
9	O/VIT/11/2012	VIT12-11	639	630	0	98.59	1.41	ME-SA	PanAsia
10	O/VIT/9/2012	VIT12-09	639	630	0	98.59	1.41	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	593	0	92.80	7.20	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	581	0	90.92	9.08	ME-SA	Ind-2001a
3	O/IRN/31/2009	IRN09-31	639	578	0	90.45	9.55	ME-SA	PanAsia-2 ^{FAR-09}
4	O/IRN/8/2005	IRN05-08	639	578	0	90.45	9.55	ME-SA	PanAsia-2
5	O/IRN/18/2010	IRN10-18	639	576	0	90.14	9.86	ME-SA	PanAsia-2 ^{BAL-09}
6	O/BHU/3/2009	BHU09-03	639	572	0	89.51	10.49	ME-SA	Ind-2001d
7	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
8	O/BHU/1/2013	BHU13-01	639	571	0	89.36	10.64	ME-SA	Ind-2001 ^{KAR-13}
9	O/TUR/257/2008* (FMDI)	TUR08-AD	639	571	0	89.36	10.64	ME-SA	PanAsia-2 ^{TER-08}
10	O/TUR/264/2009* (FMDI)	TUR09-AK	639	571	0	89.36	10.64	ME-SA	PanAsia-2 ^{SAN-09}

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: 19/12/2013
WRLFMD Ref No: VIT/23/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVD-F13-05	
Location: Son La, Vietnam	Topotype: ME-SA
Date collected: 04/02/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-23.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Pig	No. of Nt determined: 639
Material used: BTy1 30/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/22/2013	VIT13-22	639	639	0	100.00	0.00	ME-SA	PanAsia
2	O/VIT/28/2013	VIT13-28	639	638	0	99.84	0.16	ME-SA	PanAsia
3	O/VIT/24/2013	VIT13-24	639	637	0	99.69	0.31	ME-SA	PanAsia
4	O/VIT/27/2013	VIT13-27	639	637	0	99.69	0.31	ME-SA	PanAsia
5	O/VIT/30/2013	VIT13-30	639	633	0	99.06	0.94	ME-SA	PanAsia
6	O/VIT/31/2013	VIT13-31	639	633	0	99.06	0.94	ME-SA	PanAsia
7	O/VIT/4/2012	VIT12-04	639	631	0	98.75	1.25	ME-SA	PanAsia
8	O/VIT/6/2012	VIT12-06	639	631	0	98.75	1.25	ME-SA	PanAsia
9	O/VIT/11/2012	VIT12-11	639	630	0	98.59	1.41	ME-SA	PanAsia
10	O/VIT/9/2012	VIT12-09	639	630	0	98.59	1.41	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	593	0	92.80	7.20	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	581	0	90.92	9.08	ME-SA	Ind-2001a
3	O/IRN/31/2009	IRN09-31	639	578	0	90.45	9.55	ME-SA	PanAsia-2 ^{FAR-09}
4	O/IRN/8/2005	IRN05-08	639	578	0	90.45	9.55	ME-SA	PanAsia-2
5	O/IRN/18/2010	IRN10-18	639	576	0	90.14	9.86	ME-SA	PanAsia-2 ^{BAL-09}
6	O/BHU/3/2009	BHU09-03	639	572	0	89.51	10.49	ME-SA	Ind-2001d
7	O/OMN/7/2001 (DQ164941)	OMN01-07	639	572	0	89.51	10.49	ME-SA	Ind-2001b
8	O/BHU/1/2013	BHU13-01	639	571	0	89.36	10.64	ME-SA	Ind-2001 ^{KAR-13}
9	O/TUR/257/2008* (FMDI)	TUR08-AD	639	571	0	89.36	10.64	ME-SA	PanAsia-2 ^{TER-08}
10	O/TUR/264/2009* (FMDI)	TUR09-AK	639	571	0	89.36	10.64	ME-SA	PanAsia-2 ^{SAN-09}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/24/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVD-F13-11	
Location: Bac Ninh, Vietnam	Topotype: ME-SA
Date collected: 23/02/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-24.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Pig	No. of Nt determined: 639
Material used: BTy1 29/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/27/2013	VIT13-27	639	639	0	100.00	0.00	ME-SA	PanAsia
2	O/VIT/28/2013	VIT13-28	639	638	0	99.84	0.16	ME-SA	PanAsia
3	O/VIT/22/2013	VIT13-22	639	637	0	99.69	0.31	ME-SA	PanAsia
4	O/VIT/23/2013	VIT13-23	639	637	0	99.69	0.31	ME-SA	PanAsia
5	O/VIT/30/2013	VIT13-30	639	633	0	99.06	0.94	ME-SA	PanAsia
6	O/VIT/31/2013	VIT13-31	639	633	0	99.06	0.94	ME-SA	PanAsia
7	O/VIT/4/2012	VIT12-04	639	633	0	99.06	0.94	ME-SA	PanAsia
8	O/VIT/6/2012	VIT12-06	639	633	0	99.06	0.94	ME-SA	PanAsia
9	O/VIT/11/2012	VIT12-11	639	632	0	98.90	1.10	ME-SA	PanAsia
10	O/VIT/9/2012	VIT12-09	639	632	0	98.90	1.10	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	593	0	92.80	7.20	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	583	0	91.24	8.76	ME-SA	Ind-2001a
3	O/IRN/31/2009	IRN09-31	639	578	0	90.45	9.55	ME-SA	PanAsia-2 ^{FAR-09}
4	O/IRN/8/2005	IRN05-08	639	578	0	90.45	9.55	ME-SA	PanAsia-2
5	O/IRN/18/2010	IRN10-18	639	576	0	90.14	9.86	ME-SA	PanAsia-2 ^{BAL-09}
6	O/OMN/7/2001 (DQ164941)	OMN01-07	639	574	0	89.83	10.17	ME-SA	Ind-2001b
7	O/BHU/3/2009	BHU09-03	639	572	0	89.51	10.49	ME-SA	Ind-2001d
8	O/UAE/4/2008	UAE08-04	636	569	0	89.47	10.53	ME-SA	Ind-2001c
9	O/BHU/1/2013	BHU13-01	639	571	0	89.36	10.64	ME-SA	Ind-2001 ^{KAR-13}
10	O/TUR/257/2008* (FMDI)	TUR08-AD	639	571	0	89.36	10.64	ME-SA	PanAsia-2 ^{TER-08}

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/25/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVD-F13-13	
Location: Son La, Vietnam	Topotype: ME-SA
Date collected: 01/03/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-25.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Pig	No. of Nt determined: 639
Material used: BTy1 29/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 days
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Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/VIT/3/2012	VIT12-03	639	634	0	99.22	0.78	ME-SA	PanAsia
2	O/VIT/4/2012	VIT12-04	639	634	0	99.22	0.78	ME-SA	PanAsia
3	O/VIT/8/2012	VIT12-08	639	634	0	99.22	0.78	ME-SA	PanAsia
4	O/VIT/1/2012	VIT12-01	639	633	0	99.06	0.94	ME-SA	PanAsia
5	O/VIT/10/2012	VIT12-10	639	633	0	99.06	0.94	ME-SA	PanAsia
6	O/VIT/5/2012	VIT12-05	639	633	0	99.06	0.94	ME-SA	PanAsia
7	O/VIT/9/2012	VIT12-09	639	633	0	99.06	0.94	ME-SA	PanAsia
8	O/VIT/16/2011	VIT11-16	639	632	0	98.90	1.10	ME-SA	PanAsia
9	O/VIT/29/2011	VIT11-29	639	632	0	98.90	1.10	ME-SA	PanAsia
10	O/VIT/31/2011	VIT11-31	639	632	0	98.90	1.10	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	596	0	93.27	6.73	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	584	0	91.39	8.61	ME-SA	Ind-2001a
3	O/IRN/31/2009	IRN09-31	639	582	0	91.08	8.92	ME-SA	PanAsia-2 ^{FAR-09}
4	O/IRN/8/2005	IRN05-08	639	580	0	90.77	9.23	ME-SA	PanAsia-2
5	O/IRN/18/2010	IRN10-18	639	579	0	90.61	9.39	ME-SA	PanAsia-2 ^{BAL-09}
6	O/BHU/3/2009	BHU09-03	639	576	0	90.14	9.86	ME-SA	Ind-2001d
7	O/OMN/7/2001 (DQ164941)	OMN01-07	639	576	0	90.14	9.86	ME-SA	Ind-2001b
8	O/BHU/1/2013	BHU13-01	639	575	0	89.98	10.02	ME-SA	Ind-2001 ^{KAR-13}
9	O/TUR/257/2008* (FMDI)	TUR08-AD	639	575	0	89.98	10.02	ME-SA	PanAsia-2 ^{TER-08}
10	O/TUR/264/2009* (FMDI)	TUR09-AK	639	574	0	89.83	10.17	ME-SA	PanAsia-2 ^{SAN-09}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/27/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVD-F13-17	
Location: Bac Ninh, Vietnam	Topotype: ME-SA
Date collected: 03/03/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-27.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Pig	No. of Nt determined: 639
Material used: BTy1 30/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/24/2013	VIT13-24	639	639	0	100.00	0.00	ME-SA	PanAsia
2	O/VIT/28/2013	VIT13-28	639	638	0	99.84	0.16	ME-SA	PanAsia
3	O/VIT/22/2013	VIT13-22	639	637	0	99.69	0.31	ME-SA	PanAsia
4	O/VIT/23/2013	VIT13-23	639	637	0	99.69	0.31	ME-SA	PanAsia
5	O/VIT/30/2013	VIT13-30	639	633	0	99.06	0.94	ME-SA	PanAsia
6	O/VIT/31/2013	VIT13-31	639	633	0	99.06	0.94	ME-SA	PanAsia
7	O/VIT/4/2012	VIT12-04	639	633	0	99.06	0.94	ME-SA	PanAsia
8	O/VIT/6/2012	VIT12-06	639	633	0	99.06	0.94	ME-SA	PanAsia
9	O/VIT/11/2012	VIT12-11	639	632	0	98.90	1.10	ME-SA	PanAsia
10	O/VIT/9/2012	VIT12-09	639	632	0	98.90	1.10	ME-SA	PanAsia
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2	O/KUW/3/97 (DQ164904)	KUW97-03	639	583	0	91.24	8.76	ME-SA	Ind-2001a
3	O/IRN/31/2009	IRN09-31	639	578	0	90.45	9.55	ME-SA	PanAsia-2 ^{FAR-09}
4	O/IRN/8/2005	IRN05-08	639	578	0	90.45	9.55	ME-SA	PanAsia-2
5	O/IRN/18/2010	IRN10-18	639	576	0	90.14	9.86	ME-SA	PanAsia-2 ^{BAL-09}
6	O/OMN/7/2001 (DQ164941)	OMN01-07	639	574	0	89.83	10.17	ME-SA	Ind-2001b
7	O/BHU/3/2009	BHU09-03	639	572	0	89.51	10.49	ME-SA	Ind-2001d
8	O/UAE/4/2008	UAE08-04	636	569	0	89.47	10.53	ME-SA	Ind-2001c
9	O/BHU/1/2013	BHU13-01	639	571	0	89.36	10.64	ME-SA	Ind-2001 ^{KAR-13}
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nt, nucleotides

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/28/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVD-F13-19	
Location: Son La, Vietnam	Topotype: ME-SA
Date collected: 08/04/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-28.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Pig	No. of Nt determined: 639
Material used: BTy1 29/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 days
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Comments:	

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1	O/VIT/22/2013	VIT13-22	639	638	0	99.84	0.16	ME-SA	PanAsia
2	O/VIT/23/2013	VIT13-23	639	638	0	99.84	0.16	ME-SA	PanAsia
3	O/VIT/24/2013	VIT13-24	639	638	0	99.84	0.16	ME-SA	PanAsia
4	O/VIT/27/2013	VIT13-27	639	638	0	99.84	0.16	ME-SA	PanAsia
5	O/VIT/30/2013	VIT13-30	639	634	0	99.22	0.78	ME-SA	PanAsia
6	O/VIT/31/2013	VIT13-31	639	634	0	99.22	0.78	ME-SA	PanAsia
7	O/VIT/4/2012	VIT12-04	639	632	0	98.90	1.10	ME-SA	PanAsia
8	O/VIT/6/2012	VIT12-06	639	632	0	98.90	1.10	ME-SA	PanAsia
9	O/VIT/11/2012	VIT12-11	639	631	0	98.75	1.25	ME-SA	PanAsia
10	O/VIT/9/2012	VIT12-09	639	631	0	98.75	1.25	ME-SA	PanAsia
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(see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm)									
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2	O/KUW/3/97 (DQ164904)	KUW97-03	639	582	0	91.08	8.92	ME-SA	Ind-2001a
3	O/IRN/31/2009	IRN09-31	639	579	0	90.61	9.39	ME-SA	PanAsia-2 ^{FAR-09}
4	O/IRN/8/2005	IRN05-08	639	579	0	90.61	9.39	ME-SA	PanAsia-2
5	O/IRN/18/2010	IRN10-18	639	577	0	90.30	9.70	ME-SA	PanAsia-2 ^{BAL-09}
6	O/OMN/7/2001 (DQ164941)	OMN01-07	639	573	0	89.67	10.33	ME-SA	Ind-2001b
7	O/TUR/257/2008* (FMDI)	TUR08-AD	639	572	0	89.51	10.49	ME-SA	PanAsia-2 ^{TER-08}
8	O/TUR/264/2009* (FMDI)	TUR09-AK	639	572	0	89.51	10.49	ME-SA	PanAsia-2 ^{SAN-09}
9	O/BHU/3/2009	BHU09-03	639	571	0	89.36	10.64	ME-SA	Ind-2001d
10	O/IRN/88/2009	IRN09-88	639	571	0	89.36	10.64	ME-SA	PanAsia-2 ^{ANT-10}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/30/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVD-F13-25	
Location: Son La, Vietnam	Topotype: ME-SA
Date collected: 23/05/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-30.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Pig	No. of Nt determined: 639
Material used: BTy1 30/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/31/2013	VIT13-31	639	639	0	100.00	0.00	ME-SA	PanAsia
2	O/VIT/28/2013	VIT13-28	639	634	0	99.22	0.78	ME-SA	PanAsia
3	O/VIT/22/2013	VIT13-22	639	633	0	99.06	0.94	ME-SA	PanAsia
4	O/VIT/23/2013	VIT13-23	639	633	0	99.06	0.94	ME-SA	PanAsia
5	O/VIT/24/2013	VIT13-24	639	633	0	99.06	0.94	ME-SA	PanAsia
6	O/VIT/27/2013	VIT13-27	639	633	0	99.06	0.94	ME-SA	PanAsia
7	O/VIT/4/2012	VIT12-04	639	627	0	98.12	1.88	ME-SA	PanAsia
8	O/VIT/6/2012	VIT12-06	639	627	0	98.12	1.88	ME-SA	PanAsia
9	O/VIT/10/2012	VIT12-10	639	626	0	97.97	2.03	ME-SA	PanAsia
10	O/VIT/11/2012	VIT12-11	639	626	0	97.97	2.03	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	591	0	92.49	7.51	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	579	0	90.61	9.39	ME-SA	Ind-2001a
3	O/IRN/31/2009	IRN09-31	639	576	0	90.14	9.86	ME-SA	PanAsia-2 ^{FAR-09}
4	O/IRN/8/2005	IRN05-08	639	576	0	90.14	9.86	ME-SA	PanAsia-2
5	O/IRN/18/2010	IRN10-18	639	574	0	89.83	10.17	ME-SA	PanAsia-2 ^{BAL-09}
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	567	0	89.15	10.85	ME-SA	Ind-2001c
8	O/BHU/1/2013	BHU13-01	639	569	0	89.05	10.95	ME-SA	Ind-2001 ^{KAR-13}
9	O/TUR/257/2008* (FMDI)	TUR08-AD	639	569	0	89.05	10.95	ME-SA	PanAsia-2 ^{TER-08}
10	O/TUR/264/2009* (FMDI)	TUR09-AK	639	569	0	89.05	10.95	ME-SA	PanAsia-2 ^{SAN-09}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/31/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVD-F13-26	
Location: Son La, Vietnam	Topotype: ME-SA
Date collected: 25/05/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-31.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Pig	No. of Nt determined: 639
Material used: BTy1 30/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/30/2013	VIT13-30	639	639	0	100.00	0.00	ME-SA	PanAsia
2	O/VIT/28/2013	VIT13-28	639	634	0	99.22	0.78	ME-SA	PanAsia
3	O/VIT/22/2013	VIT13-22	639	633	0	99.06	0.94	ME-SA	PanAsia
4	O/VIT/23/2013	VIT13-23	639	633	0	99.06	0.94	ME-SA	PanAsia
5	O/VIT/24/2013	VIT13-24	639	633	0	99.06	0.94	ME-SA	PanAsia
6	O/VIT/27/2013	VIT13-27	639	633	0	99.06	0.94	ME-SA	PanAsia
7	O/VIT/4/2012	VIT12-04	639	627	0	98.12	1.88	ME-SA	PanAsia
8	O/VIT/6/2012	VIT12-06	639	627	0	98.12	1.88	ME-SA	PanAsia
9	O/VIT/10/2012	VIT12-10	639	626	0	97.97	2.03	ME-SA	PanAsia
10	O/VIT/11/2012	VIT12-11	639	626	0	97.97	2.03	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	591	0	92.49	7.51	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	579	0	90.61	9.39	ME-SA	Ind-2001a
3	O/IRN/31/2009	IRN09-31	639	576	0	90.14	9.86	ME-SA	PanAsia-2 ^{FAR-09}
4	O/IRN/8/2005	IRN05-08	639	576	0	90.14	9.86	ME-SA	PanAsia-2
5	O/IRN/18/2010	IRN10-18	639	574	0	89.83	10.17	ME-SA	PanAsia-2 ^{BAL-09}
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	567	0	89.15	10.85	ME-SA	Ind-2001c
8	O/BHU/1/2013	BHU13-01	639	569	0	89.05	10.95	ME-SA	Ind-2001 ^{KAR-13}
9	O/TUR/257/2008* (FMDI)	TUR08-AD	639	569	0	89.05	10.95	ME-SA	PanAsia-2 ^{TER-08}
10	O/TUR/264/2009* (FMDI)	TUR09-AK	639	569	0	89.05	10.95	ME-SA	PanAsia-2 ^{SAN-09}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/32/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVD-F13-29	
Location: Son La, Vietnam	Topotype: ME-SA
Date collected: 30/05/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-32.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 29/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/33/2013	VIT13-33	639	639	0	100.00	0.00	ME-SA	PanAsia
2	O/VIT/13/2013	VIT13-13	639	636	0	99.53	0.47	ME-SA	PanAsia
3	O/VIT/15/2013	VIT13-15	639	636	0	99.53	0.47	ME-SA	PanAsia
4	O/VIT/40/2013	VIT13-40	639	635	0	99.37	0.63	ME-SA	PanAsia
5	O/VIT/11/2013	VIT13-11	639	634	0	99.22	0.78	ME-SA	PanAsia
6	O/VIT/12/2013	VIT13-12	639	634	0	99.22	0.78	ME-SA	PanAsia
7	O/VIT/38/2013	VIT13-38	639	634	0	99.22	0.78	ME-SA	PanAsia
8	O/VIT/46/2013	VIT13-46	639	633	0	99.06	0.94	ME-SA	PanAsia
9	O/VIT/47/2013	VIT13-47	639	633	0	99.06	0.94	ME-SA	PanAsia
10	O/VIT/51/2013	VIT13-51	639	633	0	99.06	0.94	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	595	0	93.11	6.89	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	589	0	92.18	7.82	ME-SA	Ind-2001a
3	O/IRN/8/2005	IRN05-08	639	584	0	91.39	8.61	ME-SA	PanAsia-2
4	O/UAE/4/2008	UAE08-04	636	581	0	91.35	8.65	ME-SA	Ind-2001c
5	O/BHU/3/2009	BHU09-03	639	583	0	91.24	8.76	ME-SA	Ind-2001d
6	O/OMN/7/2001 (DQ164941)	OMN01-07	639	583	0	91.24	8.76	ME-SA	Ind-2001b
7	O/BHU/1/2013	BHU13-01	639	580	0	90.77	9.23	ME-SA	Ind-2001 ^{KAR-13}
8	O/IRN/61/2001 (DQ164896)	IRN01-61	638	578	1	90.60	9.40	ME-SA	Irn-2001
9	O/IRN/31/2009	IRN09-31	639	578	0	90.45	9.55	ME-SA	PanAsia-2 ^{FAR-09}
10	O/PAK/16/2010	PAK10-16	639	575	0	89.98	10.02	ME-SA	PanAsia-2 ^{PUN-10}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/33/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVD-F13-31	
Location: Son La, Vietnam	Topotype: ME-SA
Date collected: 30/06/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-33.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 29/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/32/2013	VIT13-32	639	639	0	100.00	0.00	ME-SA	PanAsia
2	O/VIT/13/2013	VIT13-13	639	636	0	99.53	0.47	ME-SA	PanAsia
3	O/VIT/15/2013	VIT13-15	639	636	0	99.53	0.47	ME-SA	PanAsia
4	O/VIT/40/2013	VIT13-40	639	635	0	99.37	0.63	ME-SA	PanAsia
5	O/VIT/11/2013	VIT13-11	639	634	0	99.22	0.78	ME-SA	PanAsia
6	O/VIT/12/2013	VIT13-12	639	634	0	99.22	0.78	ME-SA	PanAsia
7	O/VIT/38/2013	VIT13-38	639	634	0	99.22	0.78	ME-SA	PanAsia
8	O/VIT/46/2013	VIT13-46	639	633	0	99.06	0.94	ME-SA	PanAsia
9	O/VIT/47/2013	VIT13-47	639	633	0	99.06	0.94	ME-SA	PanAsia
10	O/VIT/51/2013	VIT13-51	639	633	0	99.06	0.94	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	595	0	93.11	6.89	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	589	0	92.18	7.82	ME-SA	Ind-2001a
3	O/IRN/8/2005	IRN05-08	639	584	0	91.39	8.61	ME-SA	PanAsia-2
4	O/UAE/4/2008	UAE08-04	636	581	0	91.35	8.65	ME-SA	Ind-2001c
5	O/BHU/3/2009	BHU09-03	639	583	0	91.24	8.76	ME-SA	Ind-2001d
6	O/OMN/7/2001 (DQ164941)	OMN01-07	639	583	0	91.24	8.76	ME-SA	Ind-2001b
7	O/BHU/1/2013	BHU13-01	639	580	0	90.77	9.23	ME-SA	Ind-2001 ^{KAR-13}
8	O/IRN/61/2001 (DQ164896)	IRN01-61	638	578	1	90.60	9.40	ME-SA	Irn-2001
9	O/IRN/31/2009	IRN09-31	639	578	0	90.45	9.55	ME-SA	PanAsia-2 ^{FAR-09}
10	O/PAK/16/2010	PAK10-16	639	575	0	89.98	10.02	ME-SA	PanAsia-2 ^{PUN-10}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/36/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVD-F13-38	
Location: Lang Son, Vietnam	Topotype: ME-SA
Date collected: 01/08/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-36.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 29/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/39/2013	VIT13-39	639	637	0	99.69	0.31	ME-SA	PanAsia
2	O/VIT/14/2013	VIT13-14	639	636	0	99.53	0.47	ME-SA	PanAsia
3	O/VIT/16/2013	VIT13-16	639	636	0	99.53	0.47	ME-SA	PanAsia
4	O/VIT/13/2013	VIT13-13	639	635	0	99.37	0.63	ME-SA	PanAsia
5	O/VIT/15/2013	VIT13-15	639	635	0	99.37	0.63	ME-SA	PanAsia
6	O/VIT/40/2013	VIT13-40	639	634	0	99.22	0.78	ME-SA	PanAsia
7	O/VIT/11/2013	VIT13-11	639	633	0	99.06	0.94	ME-SA	PanAsia
8	O/VIT/12/2013	VIT13-12	639	633	0	99.06	0.94	ME-SA	PanAsia
9	O/VIT/38/2013	VIT13-38	639	633	0	99.06	0.94	ME-SA	PanAsia
10	O/VIT/32/2013	VIT13-32	639	632	0	98.90	1.10	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	598	0	93.58	6.42	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	590	0	92.33	7.67	ME-SA	Ind-2001a
3	O/IRN/8/2005	IRN05-08	639	585	0	91.55	8.45	ME-SA	PanAsia-2
4	O/OMN/7/2001 (DQ164941)	OMN01-07	639	584	0	91.39	8.61	ME-SA	Ind-2001b
5	O/UAE/4/2008	UAE08-04	636	580	0	91.19	8.81	ME-SA	Ind-2001c
6	O/BHU/3/2009	BHU09-03	639	582	0	91.08	8.92	ME-SA	Ind-2001d
7	O/BHU/1/2013	BHU13-01	639	581	0	90.92	9.08	ME-SA	Ind-2001 ^{KAR-13}
8	O/IRN/61/2001 (DQ164896)	IRN01-61	638	579	1	90.75	9.25	ME-SA	Irn-2001
9	O/IRN/31/2009	IRN09-31	639	579	0	90.61	9.39	ME-SA	PanAsia-2 ^{FAR-09}
10	O/PAK/16/2010	PAK10-16	639	578	0	90.45	9.55	ME-SA	PanAsia-2 ^{PUN-10}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/37/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVD-F13-40	
Location: Bac Ninh, Vietnam	Topotype: ME-SA
Date collected: 13/08/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-37.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Cattle	No. of Nt determined: 638
Material used: BTy1 29/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3742
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/40/2013	VIT13-40	634	475	0	74.92	25.08	ME-SA	PanAsia
2	O/VIT/13/2013	VIT13-13	634	474	0	74.76	25.24	ME-SA	PanAsia
3	O/VIT/15/2013	VIT13-15	634	474	0	74.76	25.24	ME-SA	PanAsia
4	O/VIT/46/2013	VIT13-46	634	473	0	74.61	25.39	ME-SA	PanAsia
5	O/VIT/47/2013	VIT13-47	634	473	0	74.61	25.39	ME-SA	PanAsia
6	O/VIT/51/2013	VIT13-51	634	473	0	74.61	25.39	ME-SA	PanAsia
7	O/VIT/11/2013	VIT13-11	634	472	0	74.45	25.55	ME-SA	PanAsia
8	O/VIT/12/2013	VIT13-12	634	472	0	74.45	25.55	ME-SA	PanAsia
9	O/VIT/32/2013	VIT13-32	634	472	0	74.45	25.55	ME-SA	PanAsia
10	O/VIT/33/2013	VIT13-33	634	472	0	74.45	25.55	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	634	452	0	71.29	28.71	ME-SA	PanAsia
2	O/IRN/31/2009	IRN09-31	634	444	0	70.03	29.97	ME-SA	PanAsia-2 ^{FAR-09}
3	O/PAK/16/2010	PAK10-16	634	442	0	69.72	30.28	ME-SA	PanAsia-2 ^{PUN-10}
4	O/IRN/8/2005	IRN05-08	634	439	0	69.24	30.76	ME-SA	PanAsia-2
5	O/BHU/1/2013	BHU13-01	634	438	0	69.09	30.91	ME-SA	Ind-2001 ^{KAR-13}
6	O/KUW/3/97 (DQ164904)	KUW97-03	634	438	0	69.09	30.91	ME-SA	Ind-2001a
7	O/UAE/4/2008	UAE08-04	631	435	0	68.94	31.06	ME-SA	Ind-2001c
8	O/PAK/16/2003 (DQ165068)	PAK03-16	634	437	0	68.93	31.07	ME-SA	Pak-98
9	O/IRN/88/2009	IRN09-88	634	436	0	68.77	31.23	ME-SA	PanAsia-2 ^{ANT-10}
10	O/OMN/7/2001 (DQ164941)	OMN01-07	634	436	0	68.77	31.23	ME-SA	Ind-2001b

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/38/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: 13-10613/1	
Location: Daklak, Vietnam	Topotype: ME-SA
Date collected: 17/08/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-38.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 30/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/13/2013	VIT13-13	639	637	0	99.69	0.31	ME-SA	PanAsia
2	O/VIT/15/2013	VIT13-15	639	637	0	99.69	0.31	ME-SA	PanAsia
3	O/VIT/40/2013	VIT13-40	639	636	0	99.53	0.47	ME-SA	PanAsia
4	O/VIT/11/2013	VIT13-11	639	635	0	99.37	0.63	ME-SA	PanAsia
5	O/VIT/12/2013	VIT13-12	639	635	0	99.37	0.63	ME-SA	PanAsia
6	O/VIT/32/2013	VIT13-32	639	634	0	99.22	0.78	ME-SA	PanAsia
7	O/VIT/33/2013	VIT13-33	639	634	0	99.22	0.78	ME-SA	PanAsia
8	O/VIT/46/2013	VIT13-46	639	634	0	99.22	0.78	ME-SA	PanAsia
9	O/VIT/47/2013	VIT13-47	639	634	0	99.22	0.78	ME-SA	PanAsia
10	O/VIT/51/2013	VIT13-51	639	634	0	99.22	0.78	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	594	0	92.96	7.04	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	586	0	91.71	8.29	ME-SA	Ind-2001a
3	O/IRN/8/2005	IRN05-08	639	583	0	91.24	8.76	ME-SA	PanAsia-2
4	O/BHU/3/2009	BHU09-03	639	582	0	91.08	8.92	ME-SA	Ind-2001d
5	O/OMN/7/2001 (DQ164941)	OMN01-07	639	580	0	90.77	9.23	ME-SA	Ind-2001b
6	O/UAE/4/2008	UAE08-04	636	577	0	90.72	9.28	ME-SA	Ind-2001c
7	O/BHU/1/2013	BHU13-01	639	577	0	90.30	9.70	ME-SA	Ind-2001 ^{KAR-13}
8	O/IRN/31/2009	IRN09-31	639	577	0	90.30	9.70	ME-SA	PanAsia-2 ^{FAR-09}
9	O/IRN/61/2001 (DQ164896)	IRN01-61	638	575	1	90.13	9.87	ME-SA	Irn-2001
10	O/PAK/16/2010	PAK10-16	639	572	0	89.51	10.49	ME-SA	PanAsia-2 ^{PUN-10}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/39/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: NCVF-F13-54	
Location: Bac Can, Vietnam	Topotype: ME-SA
Date collected: 24/08/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-39.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 30/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/36/2013	VIT13-36	639	637	0	99.69	0.31	ME-SA	PanAsia
2	O/VIT/14/2013	VIT13-14	639	634	0	99.22	0.78	ME-SA	PanAsia
3	O/VIT/16/2013	VIT13-16	639	634	0	99.22	0.78	ME-SA	PanAsia
4	O/VIT/13/2013	VIT13-13	639	633	0	99.06	0.94	ME-SA	PanAsia
5	O/VIT/15/2013	VIT13-15	639	633	0	99.06	0.94	ME-SA	PanAsia
6	O/VIT/40/2013	VIT13-40	639	632	0	98.90	1.10	ME-SA	PanAsia
7	O/VIT/11/2013	VIT13-11	639	631	0	98.75	1.25	ME-SA	PanAsia
8	O/VIT/12/2013	VIT13-12	639	631	0	98.75	1.25	ME-SA	PanAsia
9	O/VIT/38/2013	VIT13-38	639	631	0	98.75	1.25	ME-SA	PanAsia
10	O/VIT/32/2013	VIT13-32	639	630	0	98.59	1.41	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	596	0	93.27	6.73	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	588	0	92.02	7.98	ME-SA	Ind-2001a
3	O/IRN/8/2005	IRN05-08	639	583	0	91.24	8.76	ME-SA	PanAsia-2
4	O/UAE/4/2008	UAE08-04	636	580	0	91.19	8.81	ME-SA	Ind-2001c
5	O/OMN/7/2001 (DQ164941)	OMN01-07	639	582	0	91.08	8.92	ME-SA	Ind-2001b
6	O/BHU/1/2013	BHU13-01	639	580	0	90.77	9.23	ME-SA	Ind-2001 ^{KAR-13}
7	O/BHU/3/2009	BHU09-03	639	580	0	90.77	9.23	ME-SA	Ind-2001d
8	O/PAK/16/2010	PAK10-16	639	578	0	90.45	9.55	ME-SA	PanAsia-2 ^{PUN-10}
9	O/IRN/61/2001 (DQ164896)	IRN01-61	638	577	1	90.44	9.56	ME-SA	Irn-2001
10	O/IRN/31/2009	IRN09-31	639	577	0	90.30	9.70	ME-SA	PanAsia-2 ^{FAR-09}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/40/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: 13-12070	
Location: Quang Nam, Vietnam	Topotype: ME-SA
Date collected: 17/09/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-40.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 30/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/13/2013	VIT13-13	639	638	0	99.84	0.16	ME-SA	PanAsia
2	O/VIT/15/2013	VIT13-15	639	638	0	99.84	0.16	ME-SA	PanAsia
3	O/VIT/46/2013	VIT13-46	639	637	0	99.69	0.31	ME-SA	PanAsia
4	O/VIT/47/2013	VIT13-47	639	637	0	99.69	0.31	ME-SA	PanAsia
5	O/VIT/51/2013	VIT13-51	639	637	0	99.69	0.31	ME-SA	PanAsia
6	O/VIT/11/2013	VIT13-11	639	636	0	99.53	0.47	ME-SA	PanAsia
7	O/VIT/12/2013	VIT13-12	639	636	0	99.53	0.47	ME-SA	PanAsia
8	O/VIT/38/2013	VIT13-38	639	636	0	99.53	0.47	ME-SA	PanAsia
9	O/VIT/32/2013	VIT13-32	639	635	0	99.37	0.63	ME-SA	PanAsia
10	O/VIT/33/2013	VIT13-33	639	635	0	99.37	0.63	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	595	0	93.11	6.89	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	587	0	91.86	8.14	ME-SA	Ind-2001a
3	O/IRN/8/2005	IRN05-08	639	582	0	91.08	8.92	ME-SA	PanAsia-2
4	O/BHU/3/2009	BHU09-03	639	581	0	90.92	9.08	ME-SA	Ind-2001d
5	O/OMN/7/2001 (DQ164941)	OMN01-07	639	581	0	90.92	9.08	ME-SA	Ind-2001b
6	O/BHU/1/2013	BHU13-01	639	580	0	90.77	9.23	ME-SA	Ind-2001 ^{KAR-13}
7	O/UAE/4/2008	UAE08-04	636	577	0	90.72	9.28	ME-SA	Ind-2001c
8	O/IRN/61/2001 (DQ164896)	IRN01-61	638	576	1	90.28	9.72	ME-SA	Irn-2001
9	O/IRN/31/2009	IRN09-31	639	576	0	90.14	9.86	ME-SA	PanAsia-2 ^{FAR-09}
10	O/PAK/16/2010	PAK10-16	639	573	0	89.67	10.33	ME-SA	PanAsia-2 ^{PUN-10}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/45/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: 13-13869/1814	
Location: Quang Tri, Vietnam	Topotype: ME-SA
Date collected: 23/10/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-45.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Water Buffalo	No. of Nt determined: 639
Material used: BTy1 01/12/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/20/2013	VIT13-20	639	638	0	99.84	0.16	ME-SA	PanAsia
2	O/LAO/1/2011	LAO11-01	639	621	0	97.18	2.82	ME-SA	PanAsia
3	O/LAO/2/2011	LAO11-02	639	621	0	97.18	2.82	ME-SA	PanAsia
4	O/VIT/19/2010	VIT10-19	639	621	0	97.18	2.82	ME-SA	PanAsia
5	O/VIT/22/2010	VIT10-22	639	621	0	97.18	2.82	ME-SA	PanAsia
6	O/VIT/7/2010	VIT10-07	639	621	0	97.18	2.82	ME-SA	PanAsia
7	O/VIT/8/2010	VIT10-08	639	621	0	97.18	2.82	ME-SA	PanAsia
8	O/VIT/9/2010	VIT10-09	639	621	0	97.18	2.82	ME-SA	PanAsia
9	O/CAM/2/2010	CAM10-02	639	620	0	97.03	2.97	ME-SA	PanAsia
10	O/CAM/4/2010	CAM10-04	639	620	0	97.03	2.97	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	591	0	92.49	7.51	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	581	0	90.92	9.08	ME-SA	Ind-2001a
3	O/BHU/3/2009	BHU09-03	639	580	0	90.77	9.23	ME-SA	Ind-2001d
4	O/IRN/8/2005	IRN05-08	639	580	0	90.77	9.23	ME-SA	PanAsia-2
5	O/IRN/31/2009	IRN09-31	639	579	0	90.61	9.39	ME-SA	PanAsia-2 ^{FAR-09}
6	O/OMN/7/2001 (DQ164941)	OMN01-07	639	578	0	90.45	9.55	ME-SA	Ind-2001b
7	O/BHU/1/2013	BHU13-01	639	577	0	90.30	9.70	ME-SA	Ind-2001 ^{KAR-13}
8	O/IRN/18/2010	IRN10-18	639	576	0	90.14	9.86	ME-SA	PanAsia-2 ^{BAL-09}
9	O/IRN/88/2009	IRN09-88	639	572	0	89.51	10.49	ME-SA	PanAsia-2 ^{ANT-10}
10	O/PAK/16/2003 (DQ165068)	PAK03-16	639	572	0	89.51	10.49	ME-SA	Pak-98

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/46/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: 13-13939	
Location: Quang nam, Vietnam	Topotype: ME-SA
Date collected: 25/10/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-46.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 30/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/47/2013	VIT13-47	639	639	0	100.00	0.00	ME-SA	PanAsia
2	O/VIT/40/2013	VIT13-40	639	637	0	99.69	0.31	ME-SA	PanAsia
3	O/VIT/51/2013	VIT13-51	639	637	0	99.69	0.31	ME-SA	PanAsia
4	O/VIT/13/2013	VIT13-13	639	636	0	99.53	0.47	ME-SA	PanAsia
5	O/VIT/15/2013	VIT13-15	639	636	0	99.53	0.47	ME-SA	PanAsia
6	O/VIT/11/2013	VIT13-11	639	634	0	99.22	0.78	ME-SA	PanAsia
7	O/VIT/12/2013	VIT13-12	639	634	0	99.22	0.78	ME-SA	PanAsia
8	O/VIT/38/2013	VIT13-38	639	634	0	99.22	0.78	ME-SA	PanAsia
9	O/VIT/32/2013	VIT13-32	639	633	0	99.06	0.94	ME-SA	PanAsia
10	O/VIT/33/2013	VIT13-33	639	633	0	99.06	0.94	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	593	0	92.80	7.20	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	586	0	91.71	8.29	ME-SA	Ind-2001a
3	O/IRN/8/2005	IRN05-08	639	582	0	91.08	8.92	ME-SA	PanAsia-2
4	O/BHU/3/2009	BHU09-03	639	580	0	90.77	9.23	ME-SA	Ind-2001d
5	O/OMN/7/2001 (DQ164941)	OMN01-07	639	580	0	90.77	9.23	ME-SA	Ind-2001b
6	O/BHU/1/2013	BHU13-01	639	579	0	90.61	9.39	ME-SA	Ind-2001 ^{KAR-13}
7	O/UAE/4/2008	UAE08-04	636	576	0	90.57	9.43	ME-SA	Ind-2001c
8	O/IRN/61/2001 (DQ164896)	IRN01-61	638	575	1	90.13	9.87	ME-SA	Irn-2001
9	O/IRN/31/2009	IRN09-31	639	575	0	89.98	10.02	ME-SA	PanAsia-2 ^{FAR-09}
10	O/PAK/16/2010	PAK10-16	639	572	0	89.51	10.49	ME-SA	PanAsia-2 ^{PUN-10}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 19/12/2013
WRLFMD Ref No: VIT/47/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: 13-13939A	
Location: Quang nam, Vietnam	Topotype: ME-SA
Date collected: 25/10/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-47.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 30/11/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/46/2013	VIT13-46	639	639	0	100.00	0.00	ME-SA	PanAsia
2	O/VIT/40/2013	VIT13-40	639	637	0	99.69	0.31	ME-SA	PanAsia
3	O/VIT/51/2013	VIT13-51	639	637	0	99.69	0.31	ME-SA	PanAsia
4	O/VIT/13/2013	VIT13-13	639	636	0	99.53	0.47	ME-SA	PanAsia
5	O/VIT/15/2013	VIT13-15	639	636	0	99.53	0.47	ME-SA	PanAsia
6	O/VIT/11/2013	VIT13-11	639	634	0	99.22	0.78	ME-SA	PanAsia
7	O/VIT/12/2013	VIT13-12	639	634	0	99.22	0.78	ME-SA	PanAsia
8	O/VIT/38/2013	VIT13-38	639	634	0	99.22	0.78	ME-SA	PanAsia
9	O/VIT/32/2013	VIT13-32	639	633	0	99.06	0.94	ME-SA	PanAsia
10	O/VIT/33/2013	VIT13-33	639	633	0	99.06	0.94	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	593	0	92.80	7.20	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	586	0	91.71	8.29	ME-SA	Ind-2001a
3	O/IRN/8/2005	IRN05-08	639	582	0	91.08	8.92	ME-SA	PanAsia-2
4	O/BHU/3/2009	BHU09-03	639	580	0	90.77	9.23	ME-SA	Ind-2001d
5	O/OMN/7/2001 (DQ164941)	OMN01-07	639	580	0	90.77	9.23	ME-SA	Ind-2001b
6	O/BHU/1/2013	BHU13-01	639	579	0	90.61	9.39	ME-SA	Ind-2001 ^{KAR-13}
7	O/UAE/4/2008	UAE08-04	636	576	0	90.57	9.43	ME-SA	Ind-2001c
8	O/IRN/61/2001 (DQ164896)	IRN01-61	638	575	1	90.13	9.87	ME-SA	Irn-2001
9	O/IRN/31/2009	IRN09-31	639	575	0	89.98	10.02	ME-SA	PanAsia-2 ^{FAR-09}
10	O/PAK/16/2010	PAK10-16	639	572	0	89.51	10.49	ME-SA	PanAsia-2 ^{PUN-10}

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: 19/12/2013
WRLFMD Ref No: VIT/51/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00025	Checked by: K. Bachanek-Bankowska
Sender Ref: 13-14146	
Location: Lam Dong, Vietnam	Topotype: ME-SA
Date collected: 30/10/2013	Genotype/strain: PanAsia
Date received by WRLFMD: 26/11/2013	Sequence filename: VIT13-51.SEQ
Date received for sequencing: 09/12/2013	Date sequence last updated: 12/12/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 01/12/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3748
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 23 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/VIT/40/2013	VIT13-40	639	637	0	99.69	0.31	ME-SA	PanAsia
2	O/VIT/46/2013	VIT13-46	639	637	0	99.69	0.31	ME-SA	PanAsia
3	O/VIT/47/2013	VIT13-47	639	637	0	99.69	0.31	ME-SA	PanAsia
4	O/VIT/13/2013	VIT13-13	639	636	0	99.53	0.47	ME-SA	PanAsia
5	O/VIT/15/2013	VIT13-15	639	636	0	99.53	0.47	ME-SA	PanAsia
6	O/VIT/11/2013	VIT13-11	639	634	0	99.22	0.78	ME-SA	PanAsia
7	O/VIT/12/2013	VIT13-12	639	634	0	99.22	0.78	ME-SA	PanAsia
8	O/VIT/38/2013	VIT13-38	639	634	0	99.22	0.78	ME-SA	PanAsia
9	O/VIT/32/2013	VIT13-32	639	633	0	99.06	0.94	ME-SA	PanAsia
10	O/VIT/33/2013	VIT13-33	639	633	0	99.06	0.94	ME-SA	PanAsia
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/UKG/35/2001 (AJ539141)	UKG01-35	639	593	0	92.80	7.20	ME-SA	PanAsia
2	O/KUW/3/97 (DQ164904)	KUW97-03	639	585	0	91.55	8.45	ME-SA	Ind-2001a
3	O/IRN/8/2005	IRN05-08	639	581	0	90.92	9.08	ME-SA	PanAsia-2
4	O/BHU/3/2009	BHU09-03	639	579	0	90.61	9.39	ME-SA	Ind-2001d
5	O/OMN/7/2001 (DQ164941)	OMN01-07	639	579	0	90.61	9.39	ME-SA	Ind-2001b
6	O/BHU/1/2013	BHU13-01	639	578	0	90.45	9.55	ME-SA	Ind-2001 ^{KAR-13}
7	O/UAE/4/2008	UAE08-04	636	575	0	90.41	9.59	ME-SA	Ind-2001c
8	O/IRN/61/2001 (DQ164896)	IRN01-61	638	574	1	89.97	10.03	ME-SA	Irn-2001
9	O/IRN/31/2009	IRN09-31	639	574	0	89.83	10.17	ME-SA	PanAsia-2 ^{FAR-09}
10	O/PAK/16/2010	PAK10-16	639	571	0	89.36	10.64	ME-SA	PanAsia-2 ^{PUN-10}

nt, nucleotides

*, not a WRLFMD reference number

Assembled with Report Generator v4.1

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Report on FMDV O in Vietnam in 2013

Batch: WRLFMD/2013/00025

◆ indicates viruses in this batch

Software: MEGA 5.2

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 : 642

No Of Bootstrap Reps = 1000

Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

N.J. Knowles, J. Wadsworth & K. Bachanek-Bankowska,
19 December 2013

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