

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

Genotyping Report

Report Date for this Batch: 15 September 2014

FMDV type O

Country: Malaysia

Period: 2012-2014

No. of samples: 10

BATCH: WRLFMD/2014/00026



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FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: O WRLFMD Ref No: MAY/24/2012 Batch No: WRLFMD/2014/00026 Sender Ref: 4610/12 Location: Kuala Sungai, Alor Setar, Kedah, Malaysia Date collected: 11/10/2012 Date received by WRLFMD: 19/06/2014 Date received for sequencing: 04/09/2014 Species: Cattle Material used: BTy1 28/08/2014 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/09/2014 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: MAY12-24.SEQ Date sequence last updated: 13/09/2014 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3987 Min. no. of nt for comparison: 600 Total turn-around time: 87 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/TAI/1/2013	TAI13-01	639	637	0	99.69	0.31	SEA	Mya-98
2	O/TAI/17/2012	TAI12-17	639	637	0	99.69	0.31	SEA	Mya-98
3	O/MAY/35/2012	MAY12-35	639	635	0	99.37	0.63	SEA	Mya-98
4	O/VIT/5/2010 (JQ070323)	VIT10-05	639	626	0	97.97	2.03	SEA	Mya-98
5	O/TAI/2/2010	TAI10-02	639	625	0	97.81	2.19	SEA	Mya-98
6	O/TAI/27/2009	TAI09-27	639	625	0	97.81	2.19	SEA	Mya-98
7	O/TAI/5/2010	TAI10-05	639	625	0	97.81	2.19	SEA	Mya-98
8	O/TAI/6/2010	TAI10-06	639	625	0	97.81	2.19	SEA	Mya-98
9	O/VIT/18/2010	VIT10-18	639	625	0	97.81	2.19	SEA	Mya-98
10	O-GD/MAY/12/2010	MAY10-12	639	625	0	97.81	2.19	SEA	Mya-98
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/MYA/7/98 (DQ164925)	MYA98-07	639	586	0	91.71	8.29	SEA	Mya-98
2	O/TAI/189/87* (TRRL)	TAI87-AC	639	571	0	89.36	10.64	SEA	unnamed
3	O/CAM/3/98 (AJ294910)	CAM98-03	639	542	0	84.82	15.18	SEA	Cam-94
4	O/IRN/31/2009	IRN09-31	639	541	0	84.66	15.34	ME-SA	PanAsia-2 ^{FAR-09}
5	O/UKG/35/2001 (AJ539141)	UKG01-35	639	541	0	84.66	15.34	ME-SA	PanAsia
6	O/IND/R2/75* (AF204276)	IND75--A	639	540	0	84.51	15.49	ME-SA	unnamed
7	O/PAK/16/2010	PAK10-16	639	539	0	84.35	15.65	ME-SA	PanAsia-2 ^{PUN-10}
8	O/IND/53/79 (AF292107)	IND79A53	639	538	0	84.19	15.81	ME-SA	unnamed
9	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	536	0	83.88	16.12	ME-SA	unnamed
10	O/IRN/8/2005	IRN05-08	639	534	0	83.57	16.43	ME-SA	PanAsia-2

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: MAY/25/2012 Batch No: WRLFMD/2014/00026 Sender Ref: 4838/12 Location: Kampong Ayer Molek, Melaka Tengah, Melaka, Malaysia Date collected: 03/11/2012 Date received by WRLFMD: 19/06/2014 Date received for sequencing: 04/09/2014 Species: Cattle Material used: BTy1 28/08/2014 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/09/2014 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: MAY12-25.SEQ Date sequence last updated: 13/09/2014 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3987 Min. no. of nt for comparison: 600 Total turn-around time: 87 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/MAY/1/2013	MAY13-01	639	639	0	100.00	0.00	SEA	Mya-98
2	O/LAO/2/2013	LAO13-02	639	638	0	99.84	0.16	SEA	Mya-98
3	O/TAI/14/2012	TAI12-14	639	637	0	99.69	0.31	SEA	Mya-98
4	O/TAI/18/2012	TAI12-18	639	637	0	99.69	0.31	SEA	Mya-98
5	O/LAO/1/2013	LAO13-01	639	636	0	99.53	0.47	SEA	Mya-98
6	O/MAY/34/2012	MAY12-34	639	636	0	99.53	0.47	SEA	Mya-98
7	O/MAY/2/2014	MAY14-02	639	628	0	98.28	1.72	SEA	Mya-98
8	O/MAY/9/2014	MAY14-09	639	626	0	97.97	2.03	SEA	Mya-98
9	O/LAO/1/2010	LAO10-01	639	613	0	95.93	4.07	SEA	Mya-98
10	O/TAI/12/2009 (HQ116260)	TAI09-12	639	613	0	95.93	4.07	SEA	Mya-98
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/MYA/7/98 (DQ164925)	MYA98-07	639	584	0	91.39	8.61	SEA	Mya-98
2	O/TAI/189/87* (TRRL)	TAI87-AC	639	566	0	88.58	11.42	SEA	unnamed
3	O/PAK/16/2003 (DQ165068)	PAK03-16	639	554	0	86.70	13.30	ME-SA	Pak-98
4	O/CAM/3/98 (AJ294910)	CAM98-03	639	550	0	86.07	13.93	SEA	Cam-94
5	O/IND/R2/75* (AF204276)	IND75--A	639	550	0	86.07	13.93	ME-SA	unnamed
6	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	547	0	85.60	14.40	ME-SA	unnamed
7	O/UAE/4/2008	UAE08-04	636	543	0	85.38	14.62	ME-SA	Ind-2001c
8	O/IRN/31/2009	IRN09-31	639	543	0	84.98	15.02	ME-SA	PanAsia-2 ^{FAR-09}
9	O/TUR/264/2009* (FMDI)	TUR09-AK	639	543	0	84.98	15.02	ME-SA	PanAsia-2 ^{SAN-09}
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	542	0	84.82	15.18	ME-SA	Ind-2001a

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 14/09/2014
WRLFMD Ref No: MAY/34/2012	Reported by: N.J. Knowles
Batch No: WRLFMD/2014/00026	Checked by: K. Bachanek-Bankowska
Sender Ref: 5267/12	
Location: Kampong Bali, Jasin, Melaka, Malaysia	Topotype: SEA
Date collected: 10/12/2012	Genotype/strain: Mya-98
Date received by WRLFMD: 19/06/2014	Sequence filename: MAY12-34.SEQ
Date received for sequencing: 04/09/2014	Date sequence last updated: 09/09/2014
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 29/08/2014	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3987
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 87 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/MAY/1/2013	MAY13-01	639	636	0	99.53	0.47	SEA	Mya-98
2	O/MAY/25/2012	MAY12-25	639	636	0	99.53	0.47	SEA	Mya-98
3	O/TAI/14/2012	TAI12-14	639	636	0	99.53	0.47	SEA	Mya-98
4	O/TAI/18/2012	TAI12-18	639	636	0	99.53	0.47	SEA	Mya-98
5	O/LAO/2/2013	LAO13-02	639	635	0	99.37	0.63	SEA	Mya-98
6	O/LAO/1/2013	LAO13-01	639	633	0	99.06	0.94	SEA	Mya-98
7	O/MAY/2/2014	MAY14-02	639	627	0	98.12	1.88	SEA	Mya-98
8	O/MAY/9/2014	MAY14-09	639	625	0	97.81	2.19	SEA	Mya-98
9	O/LAO/1/2010	LAO10-01	639	614	0	96.09	3.91	SEA	Mya-98
10	O/TAI/12/2009 (HQ116260)	TAI09-12	639	614	0	96.09	3.91	SEA	Mya-98
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/MYA/7/98 (DQ164925)	MYA98-07	639	583	0	91.24	8.76	SEA	Mya-98
2	O/TAI/189/87* (TRRL)	TAI87-AC	639	565	0	88.42	11.58	SEA	unnamed
3	O/PAK/16/2003 (DQ165068)	PAK03-16	639	555	0	86.85	13.15	ME-SA	Pak-98
4	O/CAM/3/98 (AJ294910)	CAM98-03	639	549	0	85.92	14.08	SEA	Cam-94
5	O/IND/R2/75* (AF204276)	IND75--A	639	549	0	85.92	14.08	ME-SA	unnamed
6	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	546	0	85.45	14.55	ME-SA	unnamed
7	O/UAE/4/2008	UAE08-04	636	542	0	85.22	14.78	ME-SA	Ind-2001c
8	O/IRN/31/2009	IRN09-31	639	544	0	85.13	14.87	ME-SA	PanAsia-2 ^{FAR-09}
9	O/IRN/88/2009	IRN09-88	639	542	0	84.82	15.18	ME-SA	PanAsia-2 ^{ANT-10}
10	O/TUR/264/2009* (FMDI)	TUR09-AK	639	542	0	84.82	15.18	ME-SA	PanAsia-2 ^{SAN-09}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: MAY/35/2012 Batch No: WRLFMD/2014/00026 Sender Ref: 5308/12 Location: Kampong pengpat Hijau, Klang, Selangor, Malaysia Date collected: 14/12/2012 Date received by WRLFMD: 19/06/2014 Date received for sequencing: 04/09/2014 Species: Cattle Material used: BTy1 28/08/2014 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/09/2014 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: MAY12-35.SEQ Date sequence last updated: 12/09/2014 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3987 Min. no. of nt for comparison: 600 Total turn-around time: 87 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/MAY/24/2012	MAY12-24	639	635	0	99.37	0.63	SEA	Mya-98
2	O/TAI/1/2013	TAI13-01	639	635	0	99.37	0.63	SEA	Mya-98
3	O/TAI/17/2012	TAI12-17	639	635	0	99.37	0.63	SEA	Mya-98
4	O/VIT/5/2010 (JQ070323)	VIT10-05	639	624	0	97.65	2.35	SEA	Mya-98
5	O/TAI/2/2010	TAI10-02	639	623	0	97.50	2.50	SEA	Mya-98
6	O/TAI/27/2009	TAI09-27	639	623	0	97.50	2.50	SEA	Mya-98
7	O/TAI/5/2010	TAI10-05	639	623	0	97.50	2.50	SEA	Mya-98
8	O/TAI/6/2010	TAI10-06	639	623	0	97.50	2.50	SEA	Mya-98
9	O/VIT/18/2010	VIT10-18	639	623	0	97.50	2.50	SEA	Mya-98
10	O-GD/MAY/12/2010	MAY10-12	639	623	0	97.50	2.50	SEA	Mya-98
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/MYA/7/98 (DQ164925)	MYA98-07	639	584	0	91.39	8.61	SEA	Mya-98
2	O/TAI/189/87* (TRRL)	TAI87-AC	639	569	0	89.05	10.95	SEA	unnamed
3	O/CAM/3/98 (AJ294910)	CAM98-03	639	543	0	84.98	15.02	SEA	Cam-94
4	O/IRN/31/2009	IRN09-31	639	541	0	84.66	15.34	ME-SA	PanAsia-2 ^{FAR-09}
5	O/UKG/35/2001 (AJ539141)	UKG01-35	639	541	0	84.66	15.34	ME-SA	PanAsia
6	O/PAK/16/2010	PAK10-16	639	539	0	84.35	15.65	ME-SA	PanAsia-2 ^{PUN-10}
7	O/IND/R2/75* (AF204276)	IND75--A	639	538	0	84.19	15.81	ME-SA	unnamed
8	O/IND/53/79 (AF292107)	IND79A53	639	537	0	84.04	15.96	ME-SA	unnamed
9	O/IRN/8/2005	IRN05-08	639	536	0	83.88	16.12	ME-SA	PanAsia-2
10	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	536	0	83.88	16.12	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: MAY/1/2013 Batch No: WRLFMD/2014/00026 Sender Ref: 187/13 Location: Ladang Kelapa Sawit, Kulaijaya, Johor, Malaysia Date collected: 06/01/2013 Date received by WRLFMD: 19/06/2014 Date received for sequencing: 04/09/2014 Species: Cattle Material used: BTy1 28/08/2014 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/09/2014 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: MAY13-01.SEQ Date sequence last updated: 09/09/2014 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3987 Min. no. of nt for comparison: 600 Total turn-around time: 87 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/MAY/25/2012	MAY12-25	639	639	0	100.00	0.00	SEA	Mya-98
2	O/LAO/2/2013	LAO13-02	639	638	0	99.84	0.16	SEA	Mya-98
3	O/TAI/14/2012	TAI12-14	639	637	0	99.69	0.31	SEA	Mya-98
4	O/TAI/18/2012	TAI12-18	639	637	0	99.69	0.31	SEA	Mya-98
5	O/LAO/1/2013	LAO13-01	639	636	0	99.53	0.47	SEA	Mya-98
6	O/MAY/34/2012	MAY12-34	639	636	0	99.53	0.47	SEA	Mya-98
7	O/MAY/2/2014	MAY14-02	639	628	0	98.28	1.72	SEA	Mya-98
8	O/MAY/9/2014	MAY14-09	639	626	0	97.97	2.03	SEA	Mya-98
9	O/LAO/1/2010	LAO10-01	639	613	0	95.93	4.07	SEA	Mya-98
10	O/TAI/12/2009 (HQ116260)	TAI09-12	639	613	0	95.93	4.07	SEA	Mya-98
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/MYA/7/98 (DQ164925)	MYA98-07	639	584	0	91.39	8.61	SEA	Mya-98
2	O/TAI/189/87* (TRRL)	TAI87-AC	639	566	0	88.58	11.42	SEA	unnamed
3	O/PAK/16/2003 (DQ165068)	PAK03-16	639	554	0	86.70	13.30	ME-SA	Pak-98
4	O/CAM/3/98 (AJ294910)	CAM98-03	639	550	0	86.07	13.93	SEA	Cam-94
5	O/IND/R2/75* (AF204276)	IND75--A	639	550	0	86.07	13.93	ME-SA	unnamed
6	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	547	0	85.60	14.40	ME-SA	unnamed
7	O/UAE/4/2008	UAE08-04	636	543	0	85.38	14.62	ME-SA	Ind-2001c
8	O/IRN/31/2009	IRN09-31	639	543	0	84.98	15.02	ME-SA	PanAsia-2 ^{FAR-09}
9	O/TUR/264/2009* (FMDI)	TUR09-AK	639	543	0	84.98	15.02	ME-SA	PanAsia-2 ^{SAN-09}
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	542	0	84.82	15.18	ME-SA	Ind-2001a

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: MAY/22/2013 Batch No: WRLFMD/2014/00026 Sender Ref: 5205/13 Location: Padang Satu, Chanlun, Kedah, Malaysia Date collected: 16/12/2013 Date received by WRLFMD: 19/06/2014 Date received for sequencing: 11/09/2014 Species: Cattle Material used: BTy1 05/09/2014 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/09/2014 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: MAY13-22.SEQ Date sequence last updated: 13/09/2014 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3987 Min. no. of nt for comparison: 600 Total turn-around time: 87 days Sequencing time: 3 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/TAI/10/2013	TAI13-10	639	635	0	99.37	0.63	SEA	Mya-98
2	O/TAI/11/2013	TAI13-11	639	633	0	99.06	0.94	SEA	Mya-98
3	O/TAI/2/2010	TAI10-02	639	621	0	97.18	2.82	SEA	Mya-98
4	O/TAI/27/2009	TAI09-27	639	621	0	97.18	2.82	SEA	Mya-98
5	O/TAI/5/2010	TAI10-05	639	621	0	97.18	2.82	SEA	Mya-98
6	O/TAI/3/2010	TAI10-03	639	620	0	97.03	2.97	SEA	Mya-98
7	O/VIT/5/2010 (JQ070323)	VIT10-05	639	620	0	97.03	2.97	SEA	Mya-98
8	O/TAI/4/2010	TAI10-04	639	619	0	96.87	3.13	SEA	Mya-98
9	O/TAI/6/2010	TAI10-06	639	619	0	96.87	3.13	SEA	Mya-98
10	O/TAI/9/2010	TAI10-09	639	619	0	96.87	3.13	SEA	Mya-98
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/MYA/7/98 (DQ164925)	MYA98-07	639	585	0	91.55	8.45	SEA	Mya-98
2	O/TAI/189/87* (TRRL)	TAI87-AC	639	568	0	88.89	11.11	SEA	unnamed
3	O/IRN/31/2009	IRN09-31	639	547	0	85.60	14.40	ME-SA	PanAsia-2 ^{FAR-09}
4	O/PAK/16/2010	PAK10-16	639	545	0	85.29	14.71	ME-SA	PanAsia-2 ^{PUN-10}
5	O/UKG/35/2001 (AJ539141)	UKG01-35	639	545	0	85.29	14.71	ME-SA	PanAsia
6	O/IRN/8/2005	IRN05-08	639	542	0	84.82	15.18	ME-SA	PanAsia-2
7	O/IND/R/2/75* (AF204276)	IND75--A	639	541	0	84.66	15.34	ME-SA	unnamed
8	O/CAM/3/98 (AJ294910)	CAM98-03	639	540	0	84.51	15.49	SEA	Cam-94
9	O/IND/53/79 (AF292107)	IND79A53	639	538	0	84.19	15.81	ME-SA	unnamed
10	O/IRN/18/2010	IRN10-18	639	538	0	84.19	15.81	ME-SA	PanAsia-2 ^{BAL-09}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: MAY/2/2014 Batch No: WRLFMD/2014/00026 Sender Ref: 492/14 Location: Bukit Pak Junoh, Pasir Mas, Kelantan, Malaysia Date collected: 06/02/2014 Date received by WRLFMD: 19/06/2014 Date received for sequencing: 11/09/2014 Species: Cattle Material used: BTy1 05/09/2014 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/09/2014 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: MAY14-02.SEQ Date sequence last updated: 13/09/2014 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3987 Min. no. of nt for comparison: 600 Total turn-around time: 87 days Sequencing time: 3 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/MAY/9/2014	MAY14-09	639	635	0	99.37	0.63	SEA	Mya-98
2	O/MAY/1/2013	MAY13-01	639	628	0	98.28	1.72	SEA	Mya-98
3	O/MAY/25/2012	MAY12-25	639	628	0	98.28	1.72	SEA	Mya-98
4	O/TAI/14/2012	TAI12-14	639	628	0	98.28	1.72	SEA	Mya-98
5	O/TAI/18/2012	TAI12-18	639	628	0	98.28	1.72	SEA	Mya-98
6	O/LAO/2/2013	LAO13-02	639	627	0	98.12	1.88	SEA	Mya-98
7	O/MAY/34/2012	MAY12-34	639	627	0	98.12	1.88	SEA	Mya-98
8	O/LAO/1/2013	LAO13-01	639	625	0	97.81	2.19	SEA	Mya-98
9	O/LAO/1/2010	LAO10-01	639	609	0	95.31	4.69	SEA	Mya-98
10	O/TAI/12/2009 (HQ116260)	TAI09-12	639	609	0	95.31	4.69	SEA	Mya-98
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/MYA/7/98 (DQ164925)	MYA98-07	639	592	0	92.64	7.36	SEA	Mya-98
2	O/TAI/189/87* (TRRL)	TAI87-AC	639	572	0	89.51	10.49	SEA	unnamed
3	O/PAK/16/2003 (DQ165068)	PAK03-16	639	560	0	87.64	12.36	ME-SA	Pak-98
4	O/IND/R2/75* (AF204276)	IND75--A	639	558	0	87.32	12.68	ME-SA	unnamed
5	O/CAM/3/98 (AJ294910)	CAM98-03	639	555	0	86.85	13.15	SEA	Cam-94
6	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	552	0	86.38	13.62	ME-SA	unnamed
7	O/IRN/31/2009	IRN09-31	639	549	0	85.92	14.08	ME-SA	PanAsia-2 ^{FAR-09}
8	O/TUR/264/2009* (FMDI)	TUR09-AK	639	549	0	85.92	14.08	ME-SA	PanAsia-2 ^{SAN-09}
9	O/UAE/4/2008	UAE08-04	636	546	0	85.85	14.15	ME-SA	Ind-2001c
10	O/UKG/35/2001 (AJ539141)	UKG01-35	639	548	0	85.76	14.24	ME-SA	PanAsia

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: MAY/3/2014 Batch No: WRLFMD/2014/00026 Sender Ref: 919/14 Location: Kampung Lubok Sengkuang, Bukit Kayu Hitam, Kedah, Malaysia Date collected: 25/02/2014 Date received by WRLFMD: 19/06/2014 Date received for sequencing: 11/09/2014 Species: Cattle Material used: BTy1 05/09/2014 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/09/2014 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: unnamed Sequence filename: MAY14-03.SEQ Date sequence last updated: 13/09/2014 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3987 Min. no. of nt for comparison: 600 Total turn-around time: 87 days Sequencing time: 3 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/MYA/1/04* (TRRL)	MYA04-AA	639	596	0	93.27	6.73	SEA	unnamed
2	O/MYA/2/04* (TRRL)	MYA04-AB	639	596	0	93.27	6.73	SEA	unnamed
3	O/MYA/3/2010 (JQ070319)	MYA10-03	639	593	0	92.80	7.20	SEA	Mya-98
4	O/SKR/8/2011	SKR11-08	639	591	0	92.49	7.51	SEA	Mya-98
5	O/Yeoncheon/SKR/2010 (NVRQS)	SKR10-AE	639	591	0	92.49	7.51	SEA	Mya-98
6	O/CHA/114/2010* (LVRI)	CHA10-AQ	639	590	0	92.33	7.67	SEA	Mya-98
7	O/CHA/84/2010* (LVRI)	CHA10-AK	639	590	0	92.33	7.67	SEA	Mya-98
8	O/HKN/13/2010	HKN10-13	639	590	0	92.33	7.67	SEA	Mya-98
9	O/HKN/14/2010	HKN10-14	639	590	0	92.33	7.67	SEA	Mya-98
10	O/HKN/15/2010	HKN10-15	639	590	0	92.33	7.67	SEA	Mya-98
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/TAI/189/87* (TRRL)	TAI87-AC	639	589	0	92.18	7.82	SEA	unnamed
2	O/MYA/7/98 (DQ164925)	MYA98-07	639	585	0	91.55	8.45	SEA	Mya-98
3	O/CAM/3/98 (AJ294910)	CAM98-03	639	555	0	86.85	13.15	SEA	Cam-94
4	O/PAK/16/2010	PAK10-16	639	555	0	86.85	13.15	ME-SA	PanAsia-2 ^{PUN-10}
5	O/ETH/3/2004 (FJ798109)	ETH04-03	639	552	0	86.38	13.62	EA-3	unnamed
6	O/IND/53/79 (AF292107)	IND79A53	639	552	0	86.38	13.62	ME-SA	unnamed
7	O/IND/R2/75* (AF204276)	IND75--A	639	550	0	86.07	13.93	ME-SA	unnamed
8	O/IRN/8/2005	IRN05-08	639	550	0	86.07	13.93	ME-SA	PanAsia-2
9	O/ETH/1/2007 (FJ798137)	ETH07-01	639	549	0	85.92	14.08	EA-3	unnamed
10	O/TUR/264/2009* (FMDI)	TUR09-AK	639	549	0	85.92	14.08	ME-SA	PanAsia-2 ^{SAN-09}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: MAY/8/2014 Batch No: WRLFMD/2014/00026 Sender Ref: 2993/13 Location: Taman Mas Jaya Falin, Kinta, Perak, Malaysia Date collected: 10/06/2014 Date received by WRLFMD: 19/06/2014 Date received for sequencing: 11/09/2014 Species: Cattle Material used: BTy1 05/09/2014 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/09/2014 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: MAY14-08.SEQ Date sequence last updated: 13/09/2014 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3987 Min. no. of nt for comparison: 600 Total turn-around time: 87 days Sequencing time: 3 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/TAI/12/2008 (HQ116255)	TAI08-12	639	601	0	94.05	5.95	SEA	Mya-98
2	O/TAI/4/2009 (HQ116259)	TAI09-04	639	601	0	94.05	5.95	SEA	Mya-98
3	O/TAI/5/2008 (HQ116252)	TAI08-05	639	600	0	93.90	6.10	SEA	Mya-98
4	O/TAI 44/08* (TRRL)	TAI08-AF	639	600	0	93.90	6.10	SEA	Mya-98
5	O/LAO/081/2008*	LAO08-AI	639	599	0	93.74	6.26	SEA	Mya-98
6	O/LAO/091/2008*	LAO08-AK	639	599	0	93.74	6.26	SEA	Mya-98
7	O/TAI/2/2008 (HQ116250)	TAI08-02	639	599	0	93.74	6.26	SEA	Mya-98
8	O/TAI/3/2008 (HQ116251)	TAI08-03	639	599	0	93.74	6.26	SEA	Mya-98
9	O/TAI/7/2008 (HQ116254)	TAI08-07	639	599	0	93.74	6.26	SEA	Mya-98
10	O/TAI 60/08* (TRRL)	TAI08-AH	639	599	0	93.74	6.26	SEA	Mya-98
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/MYA/7/98 (DQ164925)	MYA98-07	639	580	0	90.77	9.23	SEA	Mya-98
2	O/TAI/189/87* (TRRL)	TAI87-AC	639	557	0	87.17	12.83	SEA	unnamed
3	O/IND/R2/75* (AF204276)	IND75--A	639	542	0	84.82	15.18	ME-SA	unnamed
4	O/PAK/16/2010	PAK10-16	639	542	0	84.82	15.18	ME-SA	PanAsia-2 ^{PUN-10}
5	O/TUR/257/2008* (FMDI)	TUR08-AD	639	540	0	84.51	15.49	ME-SA	PanAsia-2 ^{TER-08}
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	539	0	84.35	15.65	ME-SA	PanAsia-2 ^{SAN-09}
7	O/UKG/35/2001 (AJ539141)	UKG01-35	639	539	0	84.35	15.65	ME-SA	PanAsia
8	O/PAK/16/2003 (DQ165068)	PAK03-16	639	538	0	84.19	15.81	ME-SA	Pak-98
9	O/IRN/18/2010	IRN10-18	639	537	0	84.04	15.96	ME-SA	PanAsia-2 ^{BAL-09}
10	O/IRN/31/2009	IRN09-31	639	537	0	84.04	15.96	ME-SA	PanAsia-2 ^{FAR-09}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: MAY/9/2014 Batch No: WRLFMD/2014/00026 Sender Ref: 3602/14 Location: Kampong Serberang Merbau, Pasir Mas, Kelantan, Malaysia Date collected: 15/06/2014 Date received by WRLFMD: 19/06/2014 Date received for sequencing: 04/09/2014 Species: Cattle Material used: BTy1 22/08/2014 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/09/2014 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: MAY14-09.SEQ Date sequence last updated: 09/09/2014 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3987 Min. no. of nt for comparison: 600 Total turn-around time: 87 days Sequencing time: 10 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/MAY/2/2014	MAY14-02	639	635	0	99.37	0.63	SEA	Mya-98
2	O/MAY/1/2013	MAY13-01	639	626	0	97.97	2.03	SEA	Mya-98
3	O/MAY/25/2012	MAY12-25	639	626	0	97.97	2.03	SEA	Mya-98
4	O/TAI/14/2012	TAI12-14	639	626	0	97.97	2.03	SEA	Mya-98
5	O/TAI/18/2012	TAI12-18	639	626	0	97.97	2.03	SEA	Mya-98
6	O/LAO/2/2013	LAO13-02	639	625	0	97.81	2.19	SEA	Mya-98
7	O/MAY/34/2012	MAY12-34	639	625	0	97.81	2.19	SEA	Mya-98
8	O/LAO/1/2013	LAO13-01	639	623	0	97.50	2.50	SEA	Mya-98
9	O/LAO/1/2010	LAO10-01	639	609	0	95.31	4.69	SEA	Mya-98
10	O/TAI/19/2009 (HQ116266)	TAI09-19	639	608	0	95.15	4.85	SEA	Mya-98
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/MYA/7/98 (DQ164925)	MYA98-07	639	588	0	92.02	7.98	SEA	Mya-98
2	O/TAI/189/87* (TRRL)	TAI87-AC	639	570	0	89.20	10.80	SEA	unnamed
3	O/PAK/16/2003 (DQ165068)	PAK03-16	639	558	0	87.32	12.68	ME-SA	Pak-98
4	O/IND/R2/75* (AF204276)	IND75--A	639	556	0	87.01	12.99	ME-SA	unnamed
5	O/CAM/3/98 (AJ294910)	CAM98-03	639	553	0	86.54	13.46	SEA	Cam-94
6	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	552	0	86.38	13.62	ME-SA	unnamed
7	O/UAE/4/2008	UAE08-04	636	548	0	86.16	13.84	ME-SA	Ind-2001c
8	O/TUR/264/2009* (FMDI)	TUR09-AK	639	549	0	85.92	14.08	ME-SA	PanAsia-2 ^{SAN-09}
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	547	0	85.60	14.40	ME-SA	Ind-2001b
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	546	0	85.45	14.55	ME-SA	Ind-2001a

nt, nucleotides

*, not a WRLFMD reference number

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Report on FMDV O in Malaysia in 2012-2014

Batch: WRLFMD/2014/00026

◆ indicates viruses in this batch

Software: MEGA 6.06

Analysis

----- Phylogeny Reconstruction

Scope ----- All Selected Taxa

Statistical Method ----- Neighbor-joining

Phylogeny Test

----- Bootstrap method

No. of Bootstrap Replications ----- 1000

Substitution Model

----- Nucleotide

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

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

Rates and Patterns

----- Uniform rates

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

Data Subset to Use

----- Pairwise deletion

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

No. of Sites : 642

No Of Bootstrap Reps = 1000

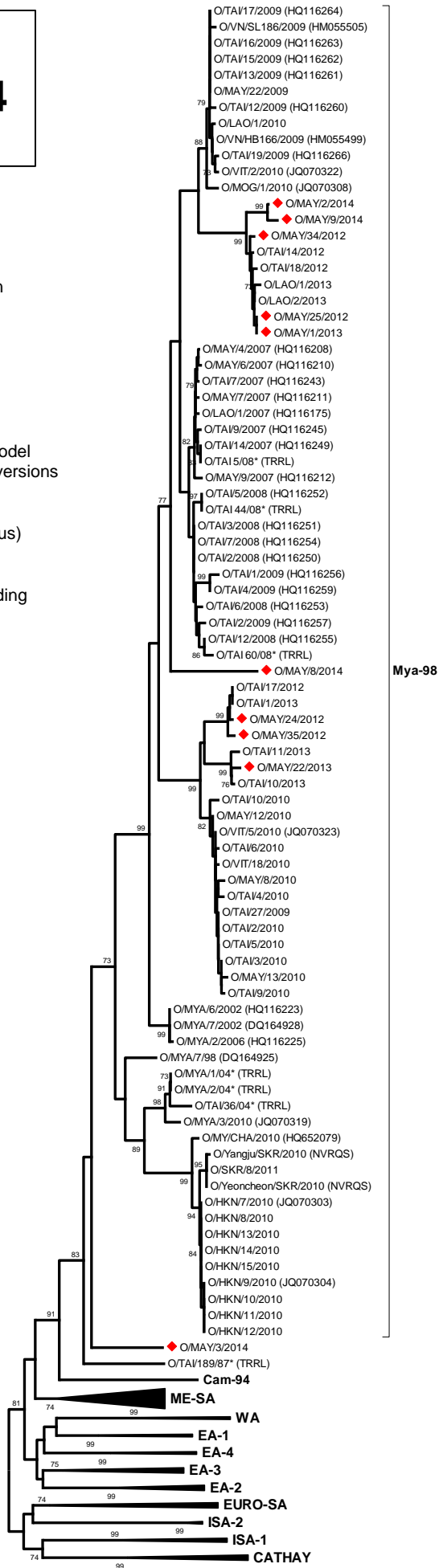
Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

N.J. Knowles, J. Wadsworth & K. Bachanek-Bankowska,
14 September 2014

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SEA

0.02