

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

Genotyping Report

Report Date for this Batch: 8 July 2013

FMDV type O

Country: Thailand

Period: 2012-2013

No. of samples: 5

BATCH: WRLFMD/2013/00015



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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: 08/07/2013
WRLFMD Ref No: TAI/14/2012	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00015	Checked by: D.P. King
Sender Ref: 37/12R1B1	
Location: Suphanburi, Thailand	Topotype: SEA
Date collected: 03/10/2012	Genotype/strain: Mya-98
Date received by WRLFMD: 17/06/2013	Sequence filename: TAI12-14.SEQ
Date received for sequencing: 03/07/2013	Date sequence last updated: 05/07/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 19/06/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3683
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 21 days
	Sequencing time: 5 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/18/2012	TAI12-18	639	637	0	99.69	0.31	SEA	Mya-98
2	O/LAO/1/2010	LAO10-01	639	615	0	96.24	3.76	SEA	Mya-98
3	O/TAI/12/2009 (HQ116260)	TAI09-12	639	615	0	96.24	3.76	SEA	Mya-98
4	O/TAI/13/2009 (HQ116261)	TAI09-13	639	615	0	96.24	3.76	SEA	Mya-98
5	O/TAI/15/2009 (HQ116262)	TAI09-15	639	615	0	96.24	3.76	SEA	Mya-98
6	O/TAI/16/2009 (HQ116263)	TAI09-16	639	615	0	96.24	3.76	SEA	Mya-98
7	O/TAI/17/2009 (HQ116264)	TAI09-17	639	615	0	96.24	3.76	SEA	Mya-98
8	O/VN/SL186/2009 (HM055505)	VIT09-AL	639	615	0	96.24	3.76	SEA	Mya-98
9	O/MAY/22/2009	MAY09-22	639	615	0	96.24	3.76	SEA	Mya-98
10	O/TAI/19/2009 (HQ116266)	TAI09-19	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	585	0	91.55	8.45	SEA	Mya-98
2	O/TAI/189/87* (TRRL)	TAI87-AC	639	567	0	88.73	11.27	SEA	unnamed
3	O/PAK/16/2003 (DQ165068)	PAK03-16	639	555	0	86.85	13.15	ME-SA	Pak-98
4	O/IND/R2/75* (AF204276)	IND75--A	639	551	0	86.23	13.77	ME-SA	unnamed
5	O/CAM/3/98 (AJ294910)	CAM98-03	639	549	0	85.92	14.08	SEA	Cam-94
6	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	548	0	85.76	14.24	ME-SA	unnamed
7	O/UAE/4/2008	UAE08-04	636	544	0	85.53	14.47	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/TUR/264/2009* (FMDI)	TUR09-AK	639	544	0	85.13	14.87	ME-SA	PanAsia-2 ^{SAN-09}
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	543	0	84.98	15.02	ME-SA	Ind-2001a

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 08/07/2013
WRLFMD Ref No: TAI/17/2012	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00015	Checked by: D.P. King
Sender Ref: 43-2/12R1B1	
Location: Prajuabkirikhan, Thailand	Topotype: SEA
Date collected: 12/10/2012	Genotype/strain: Mya-98
Date received by WRLFMD: 17/06/2013	Sequence filename: TAI12-17.SEQ
Date received for sequencing: 03/07/2013	Date sequence last updated: 05/07/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 19/06/2013	No. of ambiguities: 0
Region sequenced: VPI	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3683
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 21 days
	Sequencing time: 5 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	639	0	100.00	0.00	SEA	Mya-98
2	O/VIT/5/2010 (JQ070323)	VIT10-05	639	626	0	97.97	2.03	SEA	Mya-98
3	O/TAI/2/2010	TAI10-02	639	625	0	97.81	2.19	SEA	Mya-98
4	O/TAI/27/2009	TAI09-27	639	625	0	97.81	2.19	SEA	Mya-98
5	O/TAI/5/2010	TAI10-05	639	625	0	97.81	2.19	SEA	Mya-98
6	O/TAI/6/2010	TAI10-06	639	625	0	97.81	2.19	SEA	Mya-98
7	O/VIT/18/2010	VIT10-18	639	625	0	97.81	2.19	SEA	Mya-98
8	O-GD/MAY/12/2010	MAY10-12	639	625	0	97.81	2.19	SEA	Mya-98
9	O-GD/MAY/8/2010	MAY10-08	639	625	0	97.81	2.19	SEA	Mya-98
10	O/TAI/3/2010	TAI10-03	639	624	0	97.65	2.35	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	541	0	84.66	15.34	SEA	Cam-94
4	O/IND/R2/75* (AF204276)	IND75--A	639	541	0	84.66	15.34	ME-SA	unnamed
5	O/IRN/31/2009	IRN09-31	639	541	0	84.66	15.34	ME-SA	PanAsia-2 ^{FAR-09}
6	O/UKG/35/2001 (AJ539141)	UKG01-35	639	541	0	84.66	15.34	ME-SA	PanAsia
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	537	0	84.04	15.96	ME-SA	unnamed
10	O/IRN/18/2010	IRN10-18	639	534	0	83.57	16.43	ME-SA	PanAsia-2 ^{BAL-09}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 08/07/2013
WRLFMD Ref No: TAI/18/2012	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00015	Checked by: D.P. King
Sender Ref: 44/12R1	
Location: Ratchaburi, Thailand	Topotype: SEA
Date collected: 29/10/2012	Genotype/strain: Mya-98
Date received by WRLFMD: 17/06/2013	Sequence filename: TAI12-18.SEQ
Date received for sequencing: 03/07/2013	Date sequence last updated: 05/07/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy2 24/06/2013	No. of ambiguities: 0
Region sequenced: VPI	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3683
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 21 days
	Sequencing time: 5 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/14/2012	TAI12-14	639	637	0	99.69	0.31	SEA	Mya-98
2	O/LAO/1/2010	LAO10-01	639	613	0	95.93	4.07	SEA	Mya-98
3	O/TAI/12/2009 (HQ116260)	TAI09-12	639	613	0	95.93	4.07	SEA	Mya-98
4	O/TAI/13/2009 (HQ116261)	TAI09-13	639	613	0	95.93	4.07	SEA	Mya-98
5	O/TAI/15/2009 (HQ116262)	TAI09-15	639	613	0	95.93	4.07	SEA	Mya-98
6	O/TAI/16/2009 (HQ116263)	TAI09-16	639	613	0	95.93	4.07	SEA	Mya-98
7	O/TAI/17/2009 (HQ116264)	TAI09-17	639	613	0	95.93	4.07	SEA	Mya-98
8	O/VN/SL186/2009 (HM055505)	VIT09-AL	639	613	0	95.93	4.07	SEA	Mya-98
9	O-GD/MAY/22/2009	MAY09-22	639	613	0	95.93	4.07	SEA	Mya-98
10	O/TAI/19/2009 (HQ116266)	TAI09-19	639	612	0	95.77	4.23	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	568	0	88.89	11.11	SEA	unnamed
3	O/PAK/16/2003 (DQ165068)	PAK03-16	639	554	0	86.70	13.30	ME-SA	Pak-98
4	O/IND/R2/75* (AF204276)	IND75--A	639	550	0	86.07	13.93	ME-SA	unnamed
5	O/CAM/3/98 (AJ294910)	CAM98-03	639	549	0	85.92	14.08	SEA	Cam-94
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	544	0	85.53	14.47	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/TUR/264/2009* (FMDI)	TUR09-AK	639	544	0	85.13	14.87	ME-SA	PanAsia-2 ^{SAN-09}
10	O/KUW/3/97 (DQ164904)	KUW97-03	639	543	0	84.98	15.02	ME-SA	Ind-2001a

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 08/07/2013
WRLFMD Ref No: TAI/19/2012	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00015	Checked by: D.P. King
Sender Ref: 48-2/12R1	
Location: Ratchaburi, Thailand	Topotype: CATHAY
Date collected: 23/11/2012	Genotype/strain: unnamed
Date received by WRLFMD: 17/06/2013	Sequence filename: TAI12-19.SEQ
Date received for sequencing: 03/07/2013	Date sequence last updated: 05/07/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 21/06/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3683
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 21 days
	Sequencing time: 5 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/Bangkok/TAI/60	TAI60-AA	639	636	0	99.53	0.47	CATHAY	unnamed
2	O/Akesu/CHA/58 (AF511039)	CHA58--C	639	595	0	93.11	6.89	CATHAY	unnamed
3	O/OMIII/Akesu/CHA/58 (AY359854)	CHA58--D	639	591	0	92.49	7.51	CATHAY	unnamed
4	O/HKN/21/70 (AJ294911)	HKN70A21	637	583	2	91.52	8.48	CATHAY	unnamed
5	O/HKN/27/77	HKN77-27	635	579	4	91.18	8.82	CATHAY	unnamed
6	O/CHA/F29 (AF403048)	CHA00F29	636	571	3	89.78	10.22	CATHAY	unnamed
7	O/HKN/1/73 (AJ294912)	HKN73-01	639	573	0	89.67	10.33	CATHAY	unnamed
8	O/HKN/19/73 (AJ294913)	HKN73-19	639	569	0	89.05	10.95	CATHAY	unnamed
9	O/HKN/3/75	HKN75-03	638	564	1	88.4	11.6	CATHAY	unnamed
10	O/HKN/33/77 (AJ294916)	HKN77-33	639	562	0	87.95	12.05	CATHAY	unnamed
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/HKN/21/70 (AJ294911)	HKN70A21	637	583	2	91.52	8.48	CATHAY	unnamed
2	O/HKN/6/83 (AJ294919)	HKN83-06	637	548	2	86.03	13.97	CATHAY	unnamed
3	O/Yunlin/TAW/97 (AF308157)	TAW97--B	639	545	0	85.29	14.71	CATHAY	unnamed
4	O/TUR/264/2009* (FMDI)	TUR09-AK	639	538	0	84.19	15.81	ME-SA	PanAsia-2 ^{SAN-09}
5	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	538	0	84.19	15.81	ME-SA	unnamed
6	O/CAM/3/98 (AJ294910)	CAM98-03	639	537	0	84.04	15.96	SEA	Cam-94
7	O/IND/R2/75* (AF204276)	IND75--A	639	536	0	83.88	16.12	ME-SA	unnamed
8	O/PHI/7/96 (AJ294926)	PHI96-07	639	536	0	83.88	16.12	CATHAY	unnamed
9	O/UKG/35/2001 (AJ539141)	UKG01-35	639	536	0	83.88	16.12	ME-SA	PanAsia
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	535	1	83.86	16.14	ME-SA	Irn-2001

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 08/07/2013
WRLFMD Ref No: TAI/1/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00015	Checked by: D.P. King
Sender Ref: 2/13R3B1	
Location: Nakhon Si Thammarat, Thailand	Topotype: SEA
Date collected: 04/01/2013	Genotype/strain: Mya-98
Date received by WRLFMD: 17/06/2013	Sequence filename: TAI13-01.SEQ
Date received for sequencing: 03/07/2013	Date sequence last updated: 05/07/2013
Species: Cattle	No. of Nt determined: 639
Material used: BTy1 21/06/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3683
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 21 days
	Sequencing time: 5 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/17/2012	TAI12-17	639	639	0	100.00	0.00	SEA	Mya-98
2	O/VIT/5/2010 (JQ070323)	VIT10-05	639	626	0	97.97	2.03	SEA	Mya-98
3	O/TAI/2/2010	TAI10-02	639	625	0	97.81	2.19	SEA	Mya-98
4	O/TAI/27/2009	TAI09-27	639	625	0	97.81	2.19	SEA	Mya-98
5	O/TAI/5/2010	TAI10-05	639	625	0	97.81	2.19	SEA	Mya-98
6	O/TAI/6/2010	TAI10-06	639	625	0	97.81	2.19	SEA	Mya-98
7	O/VIT/18/2010	VIT10-18	639	625	0	97.81	2.19	SEA	Mya-98
8	O/MAY/12/2010	MAY10-12	639	625	0	97.81	2.19	SEA	Mya-98
9	O/MAY/8/2010	MAY10-08	639	625	0	97.81	2.19	SEA	Mya-98
10	O/TAI/3/2010	TAI10-03	639	624	0	97.65	2.35	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	541	0	84.66	15.34	SEA	Cam-94
4	O/IND/R2/75* (AF204276)	IND75--A	639	541	0	84.66	15.34	ME-SA	unnamed
5	O/IRN/31/2009	IRN09-31	639	541	0	84.66	15.34	ME-SA	PanAsia-2 ^{FAR-09}
6	O/UKG/35/2001 (AJ539141)	UKG01-35	639	541	0	84.66	15.34	ME-SA	PanAsia
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	537	0	84.04	15.96	ME-SA	unnamed
10	O/IRN/18/2010	IRN10-18	639	534	0	83.57	16.43	ME-SA	PanAsia-2 ^{BAL-09}

nt, nucleotides

*. not a WRLFMD reference number

Assembled with Report Generator v4.1

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Report on FMDV O in Thailand in 2012-2013

Batch: WRLFMD/2013/00015

◆ 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, K. Bachanek-Bankowska & J. Wadsworth,
08 July 2013

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