

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

Genotyping Report

Report Date for this Batch: 24 May 2016

FMDV type O

Country: Thailand

Period: 2015-2016

No. of samples: 5

BATCH: WRLFMD/2016/00013



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FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: O WRLFMD Ref No: TAI/30/2015 Batch No: WRLFMD/2016/00013 Sender Ref: 198/15R3B1 Location: Chachang, Sunkumpang, Chaing Mai, Thailand Date collected: 13/11/2015 Date received by WRLFMD: 21/04/2016 Date received for sequencing: 09/05/2016 Species: Cattle Material used: BTy1 26/04/2016 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 13/05/2016 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: TAI15-30.SEQ Date sequence last updated: 11/05/2016 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 4209 Min. no. of nt for comparison: 600 Total turn-around time: 22 days Sequencing time: 4 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/22/2015	TAI15-22	639	636	0	99.53	0.47	SEA	Mya-98
2	O/MYA/1/2015	MYA15-01	639	635	0	99.37	0.63	SEA	Mya-98
3	O/TAI/25/2015	TAI15-25	630	626	9	99.37	0.63	SEA	Mya-98
4	O/MAY/11/2012	MAY12-11	639	605	0	94.68	5.32	SEA	Mya-98
5	O/MAY/12/2012	MAY12-12	639	605	0	94.68	5.32	SEA	Mya-98
6	O/MAY/13/2012	MAY12-13	639	605	0	94.68	5.32	SEA	Mya-98
7	O/MAY/14/2012	MAY12-14	639	605	0	94.68	5.32	SEA	Mya-98
8	O/MAY/15/2012	MAY12-15	639	605	0	94.68	5.32	SEA	Mya-98
9	O/MAY/16/2012	MAY12-16	639	605	0	94.68	5.32	SEA	Mya-98
10	O/MAY/17/2012	MAY12-17	639	605	0	94.68	5.32	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	587	0	91.86	8.14	SEA	Mya-98
2	O/TAI/189/87* (TRRL)	TAI87-AC	639	564	0	88.26	11.74	SEA	unnamed
3	O/CAM/3/98 (AJ294910)	CAM98-03	639	537	0	84.04	15.96	SEA	Cam-94
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	536	0	83.88	16.12	ME-SA	PanAsia-2 ^{TER-08}
5	O/IRN/88/2009	IRN09-88	639	535	0	83.72	16.28	ME-SA	PanAsia-2 ^{ANT-10}
6	O/IRN/31/2009	IRN09-31	639	533	0	83.41	16.59	ME-SA	PanAsia-2 ^{FAR-09}
7	O/TUR/264/2009* (FMDI)	TUR09-AK	639	533	0	83.41	16.59	ME-SA	PanAsia-2 ^{SAN-09}
8	O/PAK/16/2010	PAK10-16	639	532	0	83.26	16.74	ME-SA	PanAsia-2 ^{PUN-10}
9	O/UKG/35/2001 (AJ539141)	UKG01-35	639	532	0	83.26	16.74	ME-SA	PanAsia
10	O/IND/R2/75* (AF204276)	IND75--A	639	531	0	83.10	16.90	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: TAI/2/2016 Batch No: WRLFMD/2016/00013 Sender Ref: 4-1/16R3 Location: Huanadum, Kanoun, Khonkean, Thailand Date collected: 11/01/2016 Date received by WRLFMD: 21/04/2016 Date received for sequencing: 09/05/2016 Species: Cattle Material used: BTy1 26/04/2016 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 13/05/2016 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: TAI16-02.SEQ Date sequence last updated: 11/05/2016 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 4209 Min. no. of nt for comparison: 600 Total turn-around time: 22 days Sequencing time: 4 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/28/2015	TAI15-28	639	633	0	99.06	0.94	SEA	Mya-98
2	O/TAI/4/2016	TAI16-04	639	631	0	98.75	1.25	SEA	Mya-98
3	O/VIT/21/2014	VIT14-21	639	625	0	97.81	2.19	SEA	Mya-98
4	O/VIT/26/2014	VIT14-26	639	625	0	97.81	2.19	SEA	Mya-98
5	O/VIT/27/2014	VIT14-27	639	625	0	97.81	2.19	SEA	Mya-98
6	O/MAY/2/2014	MAY14-02	639	623	0	97.50	2.50	SEA	Mya-98
7	O/TAI/10/2014	TAI14-10	639	623	0	97.50	2.50	SEA	Mya-98
8	O/VIT/18/2014	VIT14-18	639	623	0	97.50	2.50	SEA	Mya-98
9	O/TAI/9/2015	TAI15-09	639	622	0	97.34	2.66	SEA	Mya-98
10	O/VIT/13/2014	VIT14-13	639	622	0	97.34	2.66	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	564	0	88.26	11.74	SEA	unnamed
3	O/IND/R2/75* (AF204276)	IND75--A	639	548	0	85.76	14.24	ME-SA	unnamed
4	O/CAM/3/98 (AJ294910)	CAM98-03	639	545	0	85.29	14.71	SEA	Cam-94
5	O/UAE/4/2008 (KM921876)	UAE08-04	636	542	0	85.22	14.78	ME-SA	Ind-2001c
6	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	543	0	84.98	15.02	ME-SA	unnamed
7	O/KUW/3/97 (DQ164904)	KUW97-03	639	541	0	84.66	15.34	ME-SA	Ind-2001a
8	O/IRN/31/2009	IRN09-31	639	540	0	84.51	15.49	ME-SA	PanAsia-2 ^{FAR-09}
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	540	0	84.51	15.49	ME-SA	Ind-2001b
10	O/TUR/264/2009* (FMDI)	TUR09-AK	639	540	0	84.51	15.49	ME-SA	PanAsia-2 ^{SAN-09}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: TAI/4/2016 Batch No: WRLFMD/2016/00013 Sender Ref: 10/16R2 Location: Wong Sai, Pak Chong, Nakhonratchsima, Thailand Date collected: 14/01/2016 Date received by WRLFMD: 21/04/2016 Date received for sequencing: 09/05/2016 Species: Cattle Material used: BTy1 26/04/2016 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 13/05/2016 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: TAI16-04.SEQ Date sequence last updated: 11/05/2016 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 4209 Min. no. of nt for comparison: 600 Total turn-around time: 22 days Sequencing time: 4 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/28/2015	TAI15-28	639	637	0	99.69	0.31	SEA	Mya-98
2	O/TAI/2/2016	TAI16-02	639	631	0	98.75	1.25	SEA	Mya-98
3	O/VIT/21/2014	VIT14-21	639	629	0	98.44	1.56	SEA	Mya-98
4	O/VIT/26/2014	VIT14-26	639	629	0	98.44	1.56	SEA	Mya-98
5	O/VIT/27/2014	VIT14-27	639	629	0	98.44	1.56	SEA	Mya-98
6	O/MAY/2/2014	MAY14-02	639	627	0	98.12	1.88	SEA	Mya-98
7	O/TAI/10/2014	TAI14-10	639	627	0	98.12	1.88	SEA	Mya-98
8	O/VIT/18/2014	VIT14-18	639	627	0	98.12	1.88	SEA	Mya-98
9	O/TAI/8/2015	TAI15-08	639	626	0	97.97	2.03	SEA	Mya-98
10	O/TAI/9/2015	TAI15-09	639	626	0	97.97	2.03	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	566	0	88.58	11.42	SEA	unnamed
3	O/IND/R2/75* (AF204276)	IND75--A	639	550	0	86.07	13.93	ME-SA	unnamed
4	O/CAM/3/98 (AJ294910)	CAM98-03	639	547	0	85.60	14.40	SEA	Cam-94
5	O/UAE/4/2008 (KM921876)	UAE08-04	636	543	0	85.38	14.62	ME-SA	Ind-2001c
6	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	545	0	85.29	14.71	ME-SA	unnamed
7	O/IRN/31/2009	IRN09-31	639	544	0	85.13	14.87	ME-SA	PanAsia-2 ^{FAR-09}
8	O/TUR/264/2009* (FMDI)	TUR09-AK	639	544	0	85.13	14.87	ME-SA	PanAsia-2 ^{SAN-09}
9	O/IRN/88/2009	IRN09-88	639	543	0	84.98	15.02	ME-SA	PanAsia-2 ^{ANT-10}
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 WRLFMD Ref No: TAI/5/2016 Batch No: WRLFMD/2016/00013 Sender Ref: 23-1/16R3B3 Location: Nong Or, Ban Pong, Ratchburi, Thailand Date collected: 26/01/2016 Date received by WRLFMD: 21/04/2016 Date received for sequencing: 09/05/2016 Species: Pigs Material used: BTy1 26/04/2016 & RS1 27/04/2016 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 13/05/2016 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: TAI16-05.SEQ Date sequence last updated: 11/05/2016 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 4209 Min. no. of nt for comparison: 600 Total turn-around time: 22 days Sequencing time: 4 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/27/2015	TAI15-27	639	636	0	99.53	0.47	SEA	Mya-98
2	O/MYA/5/2015	MYA15-05	639	632	0	98.90	1.10	SEA	Mya-98
3	O/TAI/14/2016	TAI16-14	639	632	0	98.90	1.10	SEA	Mya-98
4	O/TAI/26/2015	TAI15-26	639	632	0	98.90	1.10	SEA	Mya-98
5	O/TAI/29/2015	TAI15-29	639	631	0	98.75	1.25	SEA	Mya-98
6	O/VN/LC169/2009 (HM055510)	VIT09-AQ	639	599	0	93.74	6.26	SEA	Mya-98
7	O/TAI/25/2015	TAI15-25	630	590	9	93.65	6.35	SEA	Mya-98
8	O/MYA/5/2009 (HQ116228)	MYA09-05	639	598	0	93.58	6.42	SEA	Mya-98
9	O/MYA/6/2009 (HQ116229)	MYA09-06	639	598	0	93.58	6.42	SEA	Mya-98
10	O/VIT/NCVD-19/2010 (NVRQS)	VIT10-AE	639	598	0	93.58	6.42	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	582	0	91.08	8.92	SEA	Mya-98
2	O/TAI/189/87* (TRRL)	TAI87-AC	639	559	0	87.48	12.52	SEA	unnamed
3	O/CAM/3/98 (AJ294910)	CAM98-03	639	537	0	84.04	15.96	SEA	Cam-94
4	O/PAK/16/2010	PAK10-16	639	531	0	83.10	16.90	ME-SA	PanAsia-2 ^{PUN-10}
5	O/TUR/257/2008* (FMDI)	TUR08-AD	639	530	0	82.94	17.06	ME-SA	PanAsia-2 ^{TER-08}
6	O/NEP/1/2015	NEP15-01	638	528	1	82.76	17.24	ME-SA	PanAsia-2 ^{KAT-15}
7	O/UKG/35/2001 (AJ539141)	UKG01-35	639	528	0	82.63	17.37	ME-SA	PanAsia
8	O/IRN/31/2009	IRN09-31	639	527	0	82.47	17.53	ME-SA	PanAsia-2 ^{FAR-09}
9	O/IRN/8/2005	IRN05-08	639	527	0	82.47	17.53	ME-SA	PanAsia-2
10	O/BHU/3/2009 (KM921814)	BHU09-03	639	526	0	82.32	17.68	ME-SA	Ind-2001d

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: TAI/14/2016 Batch No: WRLFMD/2016/00013 Sender Ref: 48-6/16R3 Location: Wokeaw, Hangchath, Lumpang, Thailand Date collected: 03/03/2016 Date received by WRLFMD: 21/04/2016 Date received for sequencing: 09/05/2016 Species: Cattle Material used: BTy1 27/04/2016 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 13/05/2016 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: SEA Genotype/strain: Mya-98 Sequence filename: TAI16-14.SEQ Date sequence last updated: 11/05/2016 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 4209 Min. no. of nt for comparison: 600 Total turn-around time: 22 days Sequencing time: 4 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/26/2015	TAI15-26	639	635	0	99.37	0.63	SEA	Mya-98
2	O/TAI/29/2015	TAI15-29	639	634	0	99.22	0.78	SEA	Mya-98
3	O/TAI/27/2015	TAI15-27	639	633	0	99.06	0.94	SEA	Mya-98
4	O/TAI/5/2016	TAI16-05	639	632	0	98.90	1.10	SEA	Mya-98
5	O/MYA/5/2015	MYA15-05	639	629	0	98.44	1.56	SEA	Mya-98
6	O/VIT/NCVD-19/2010 (NVRQS)	VIT10-AE	639	598	0	93.58	6.42	SEA	Mya-98
7	O/VIT/NCVD-20/2010 (NVRQS)	VIT10-AF	639	598	0	93.58	6.42	SEA	Mya-98
8	O/VIT/NCVD-17/2010 (NVRQS)	VIT10-AC	639	597	0	93.43	6.57	SEA	Mya-98
9	O/VIT/NCVD-18/2010 (NVRQS)	VIT10-AD	639	597	0	93.43	6.57	SEA	Mya-98
10	O/TAI/25/2015	TAI15-25	630	588	9	93.33	6.67	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/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	559	0	87.48	12.52	SEA	unnamed
3	O/CAM/3/98 (AJ294910)	CAM98-03	639	539	0	84.35	15.65	SEA	Cam-94
4	O/PAK/16/2010	PAK10-16	639	529	0	82.79	17.21	ME-SA	PanAsia-2 ^{PUN-10}
5	O/NEP/1/2015	NEP15-01	638	528	1	82.76	17.24	ME-SA	PanAsia-2 ^{KAT-15}
6	O/BHU/3/2009 (KM921814)	BHU09-03	639	526	0	82.32	17.68	ME-SA	Ind-2001d
7	O/ETH/1/2007 (FJ798137)	ETH07-01	639	526	0	82.32	17.68	EA-3	unnamed
8	O/ETH/3/2004 (FJ798109)	ETH04-03	639	526	0	82.32	17.68	EA-3	unnamed
9	O/TUR/257/2008* (FMDI)	TUR08-AD	639	526	0	82.32	17.68	ME-SA	PanAsia-2 ^{TER-08}
10	O/IND/53/79 (AF292107)	IND79A53	639	525	0	82.16	17.84	ME-SA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Report on FMDV O in Thailand in 2015-2016

Batch: WRLFMD/2016/00013

◆ indicates viruses in this batch

Software: MEGA 6.06

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

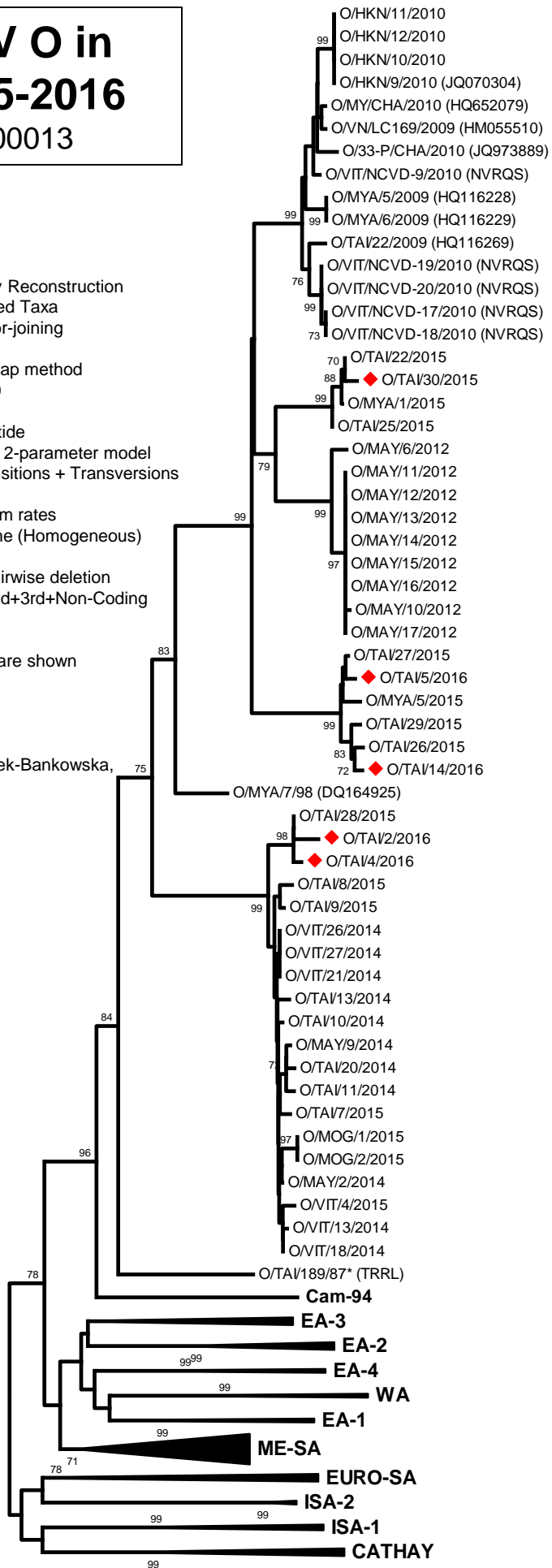
Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

N.J. Knowles, J. Wadsworth & K. Bachanek-Bankowska,
24 May 2016

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Mya-98
SEA

0.02