

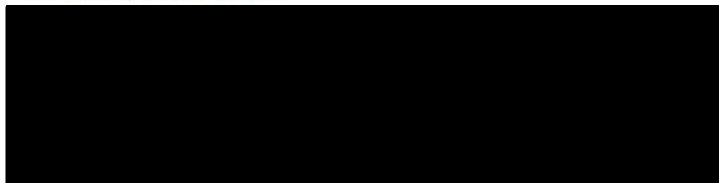


INSTITUTE FOR ANIMAL HEALTH
Director: Professor John Fazakerley BSc, MBA, PhD, FRCPath
PIRBRIGHT LABORATORY
Ash Road,
Pirbright,
Surrey,
GU24 0NF
Intn Tel: 00 44 1483 232441
Tel: 01483 232441 Fax: 01483 232621

FMD Sequencing Report

Lab Reference WRL Batch Number: WRLFMD/2011/00036

Sender Details:



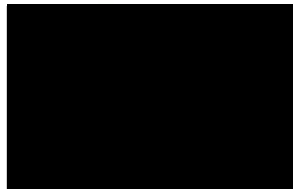
Date Received: 28th July 2011
Country of Origin: Lao, PDR
Date Reported: 30th August 2011

Dear Dr. Linchongsubongkoch,

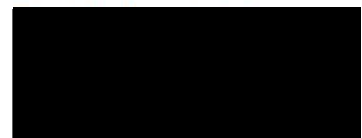
Sequencing work has now been completed in respect of the samples you submitted and the details are as attached. Please note that all of our phylogenetic trees can be accessed via the internet at:

<http://www.wrlfmd.org/>

Results Approved By:



Official Stamp:



Date:

30/8/11.

A UKAS accredited testing laboratory No. 4025.

To help us improve the quality of our service, please send any suggestions or requests to the Reference Laboratory by fax (+44 (0) 1483 232621 or email: elizabeth.wilson@bbsrc.ac.uk). IAH actively seeks and appreciates feedback, if you would like to offer feedback please complete the WRLFMD survey here: <http://www.surveymonkey.com/s/WRLFMD>

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

Genotyping Report

Report Date for this Batch: 25 August 2011

FMDV type O

Country: Lao PDR

Period: 2010-2011

No. of samples: 4

BATCH: WRLFMD/2011/00036



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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: 25/08/2011
WRLFMD Ref No: LAO/1/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00036	Checked by: D.P. King
Sender Ref: LAO 2/10 R2	
Location: Peak, Xienghuang, Laos	Topotype: SEA
Date collected: 20/01/2010	Genotype/strain: Mya-98
Date received by WRLFMD: 28/07/2011	Sequence filename: LAO10-01.SEQ
Date received for sequencing: 05/08/2011	Date sequence last updated: 17/08/2011
Species: Cattle	No. of Nt determined: 639
Material used: LK2 BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3088
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 28 days
	Sequencing time: 20 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/20/2009 (HQ116218)	MAY09-20	639	637	0	99.69	0.31	SEA	Mya-98
2	O/MAY/21/2009 (HQ116219)	MAY09-21	639	637	0	99.69	0.31	SEA	Mya-98
3	O/TAI/13/2009 (HQ116261)	TAI09-13	639	637	0	99.69	0.31	SEA	Mya-98
4	O/TAI/15/2009 (HQ116262)	TAI09-15	639	637	0	99.69	0.31	SEA	Mya-98
5	O/TAI/16/2009 (HQ116263)	TAI09-16	639	637	0	99.69	0.31	SEA	Mya-98
6	O/TAI/17/2009 (HQ116264)	TAI09-17	639	637	0	99.69	0.31	SEA	Mya-98
7	O-GD/MAY/22/2009	MAY09-22	639	637	0	99.69	0.31	SEA	Mya-98
8	O-GD/MAY/29/2009	MAY09-29	639	637	0	99.69	0.31	SEA	Mya-98
9	O/TAI/19/2009 (HQ116266)	TAI09-19	639	636	0	99.53	0.47	SEA	Mya-98
10	O/VIT/2/2010	VIT10-02	639	636	0	99.53	0.47	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/PAK/16/2003 (DQ165068)	PAK03-16	639	548	0	85.76	14.24	ME-SA	Pak-98
5	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	544	0	85.13	14.87	ME-SA	unnamed
6	O/CAM/3/98 (AJ294910)	CAM98-03	639	543	0	84.98	15.02	SEA	Cam-94
7	O/TUR/264/2009* (FMDI)	TUR09-AK	639	541	0	84.66	15.34	ME-SA	PanAsia-2 ^{SAN-09}
8	O/TUR/257/2008* (FMDI)	TUR08-AD	639	540	0	84.51	15.49	ME-SA	PanAsia-2 ^{TER-08}
9	O/IND/53/79 (AF292107)	IND79A53	639	539	0	84.35	15.65	ME-SA	unnamed
10	O/IRN/31/2009	IRN09-31	639	539	0	84.35	15.65	ME-SA	PanAsia-2 ^{FAR-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: 25/08/2011
WRLFMD Ref No: LAO/2/2010	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00036	Checked by: D.P. King
Sender Ref: LAO 10/10 R2	
Location: Mounlapamoke, Champasak, Laos	Topotype: ME-SA
Date collected: 28/12/2010	Genotype/strain: PanAsia
Date received by WRLFMD: 28/07/2011	Sequence filename: LAO10-02.SEQ
Date received for sequencing: 05/08/2011	Date sequence last updated: 17/08/2011
Species: Cattle	No. of Nt determined: 639
Material used: LK2 BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3088
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 28 days
	Sequencing time: 20 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/12/2011	VIT11-12	639	638	0	99.84	0.16	ME-SA	PanAsia
2	O/VIT/4/2011	VIT11-04	639	638	0	99.84	0.16	ME-SA	PanAsia
3	O/VIT/9/2011	VIT11-09	639	638	0	99.84	0.16	ME-SA	PanAsia
4	O/VIT/16/2011	VIT11-16	639	637	0	99.69	0.31	ME-SA	PanAsia
5	O/VIT/5/2011	VIT11-05	639	637	0	99.69	0.31	ME-SA	PanAsia
6	O/VIT/6/2011	VIT11-06	639	637	0	99.69	0.31	ME-SA	PanAsia
7	O/VIT/7/2011	VIT11-07	639	637	0	99.69	0.31	ME-SA	PanAsia
8	O/CHA/7/2011* (JF837375)	CHA11-AA	639	636	0	99.53	0.47	ME-SA	PanAsia
9	O/VIT/2/2011	VIT11-02	639	636	0	99.53	0.47	ME-SA	PanAsia
10	O/VIT/22/2011	VIT11-22	639	636	0	99.53	0.47	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	597	0	93.43	6.57	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/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	582	0	91.08	8.92	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/OMN/7/2001 (DQ164941)	OMN01-07	639	579	0	90.61	9.39	ME-SA	Ind-2001b
7	O/BHU/3/2009	BHU09-03	639	577	0	90.30	9.70	ME-SA	Ind-2001d
8	O/UAE/4/2008	UAE08-04	636	573	0	90.09	9.91	ME-SA	Ind-2001c
9	O/PAK/16/2010	PAK10-16	639	575	0	89.98	10.02	ME-SA	PanAsia-2 ^{PUN-10}
10	O/TUR/257/2008* (FMDI)	TUR08-AD	639	575	0	89.98	10.02	ME-SA	PanAsia-2 ^{TER-08}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O	Report date: 25/08/2011
WRLFMD Ref No: LAO/1/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2011/00036	Checked by: D.P. King
Sender Ref: LAO 7/11 R2	
Location: Xanasomboun, Champasak, Laos	Topotype: ME-SA
Date collected: 14/01/2011	Genotype/strain: PanAsia
Date received by WRLFMD: 28/07/2011	Sequence filename: LAO11-01.SEQ
Date received for sequencing: 05/08/2011	Date sequence last updated: 17/08/2011
Species: Buffalo	No. of Nt determined: 639
Material used: LK2 BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 3088
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 28 days
	Sequencing time: 20 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/LAO/2/2011	LAO11-02	639	639	0	100.00	0.00	ME-SA	PanAsia
2	O/VIT/20/2010	VIT10-20	639	637	0	99.69	0.31	ME-SA	PanAsia
3	O/VIT/21/2010	VIT10-21	639	637	0	99.69	0.31	ME-SA	PanAsia
4	O/VIT/23/2010	VIT10-23	639	637	0	99.69	0.31	ME-SA	PanAsia
5	O/VIT/7/2010	VIT10-07	639	637	0	99.69	0.31	ME-SA	PanAsia
6	O/VIT/8/2010	VIT10-08	639	637	0	99.69	0.31	ME-SA	PanAsia
7	O/CAM/2/2010	CAM10-02	639	636	0	99.53	0.47	ME-SA	PanAsia
8	O/CAM/4/2010	CAM10-04	639	636	0	99.53	0.47	ME-SA	PanAsia
9	O/CAM/5/2010	CAM10-05	639	636	0	99.53	0.47	ME-SA	PanAsia
10	O/CAM/8/2010	CAM10-08	639	636	0	99.53	0.47	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	599	0	93.74	6.26	ME-SA	PanAsia
2	O/IRN/8/2005	IRN05-08	639	586	0	91.71	8.29	ME-SA	PanAsia-2
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	585	0	91.55	8.45	ME-SA	Ind-2001a
4	O/IRN/31/2009	IRN09-31	639	584	0	91.39	8.61	ME-SA	PanAsia-2 ^{FAR-09}
5	O/IRN/18/2010	IRN10-18	639	583	0	91.24	8.76	ME-SA	PanAsia-2 ^{BAL-09}
6	O/OMN/7/2001 (DQ164941)	OMN01-07	639	579	0	90.61	9.39	ME-SA	Ind-2001b
7	O/BHU/3/2009	BHU09-03	639	577	0	90.30	9.70	ME-SA	Ind-2001d
8	O/IRN/88/2009	IRN09-88	639	577	0	90.30	9.70	ME-SA	PanAsia-2 ^{ANT-10}
9	O/PAK/16/2010	PAK10-16	639	577	0	90.30	9.70	ME-SA	PanAsia-2 ^{PUN-10}
10	O/TUR/257/2008* (FMDI)	TUR08-AD	639	577	0	90.30	9.70	ME-SA	PanAsia-2 ^{TER-08}

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: LAO/2/2011 Batch No: WRLFMD/2011/00036 Sender Ref: LAO 8/11 R2 Location: Act, Houaphan, Laos Date collected: 14/01/2011 Date received by WRLFMD: 28/07/2011 Date received for sequencing: 05/08/2011 Species: Buffalo Material used: LK2 BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 25/08/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia Sequence filename: LAO11-02.SEQ Date sequence last updated: 17/08/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3088 Min. no. of nt for comparison: 600 Total turn-around time: 28 days Sequencing time: 20 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/LAO/1/2011	LAO11-01	639	639	0	100.00	0.00	ME-SA	PanAsia
2	O/VIT/20/2010	VIT10-20	639	637	0	99.69	0.31	ME-SA	PanAsia
3	O/VIT/21/2010	VIT10-21	639	637	0	99.69	0.31	ME-SA	PanAsia
4	O/VIT/23/2010	VIT10-23	639	637	0	99.69	0.31	ME-SA	PanAsia
5	O/VIT/7/2010	VIT10-07	639	637	0	99.69	0.31	ME-SA	PanAsia
6	O/VIT/8/2010	VIT10-08	639	637	0	99.69	0.31	ME-SA	PanAsia
7	O/CAM/2/2010	CAM10-02	639	636	0	99.53	0.47	ME-SA	PanAsia
8	O/CAM/4/2010	CAM10-04	639	636	0	99.53	0.47	ME-SA	PanAsia
9	O/CAM/5/2010	CAM10-05	639	636	0	99.53	0.47	ME-SA	PanAsia
10	O/CAM/8/2010	CAM10-08	639	636	0	99.53	0.47	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	599	0	93.74	6.26	ME-SA	PanAsia
2	O/IRN/8/2005	IRN05-08	639	586	0	91.71	8.29	ME-SA	PanAsia-2
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	585	0	91.55	8.45	ME-SA	Ind-2001a
4	O/IRN/31/2009	IRN09-31	639	584	0	91.39	8.61	ME-SA	PanAsia-2 ^{FAR-09}
5	O/IRN/18/2010	IRN10-18	639	583	0	91.24	8.76	ME-SA	PanAsia-2 ^{BAL-09}
6	O/OMN/7/2001 (DQ164941)	OMN01-07	639	579	0	90.61	9.39	ME-SA	Ind-2001b
7	O/BHU/3/2009	BHU09-03	639	577	0	90.30	9.70	ME-SA	Ind-2001d
8	O/IRN/88/2009	IRN09-88	639	577	0	90.30	9.70	ME-SA	PanAsia-2 ^{ANT-10}
9	O/PAK/16/2010	PAK10-16	639	577	0	90.30	9.70	ME-SA	PanAsia-2 ^{PUN-10}
10	O/TUR/257/2008* (FMDI)	TUR08-AD	639	577	0	90.30	9.70	ME-SA	PanAsia-2 ^{TER-08}

nt, nucleotides

* , not a WRLFMD reference number

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Report on FMDV O in Laos in 2010-2011

Batch: WRLFMD/2011/00036

◆ indicates viruses in this batch

Software: MEGA 5.0

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

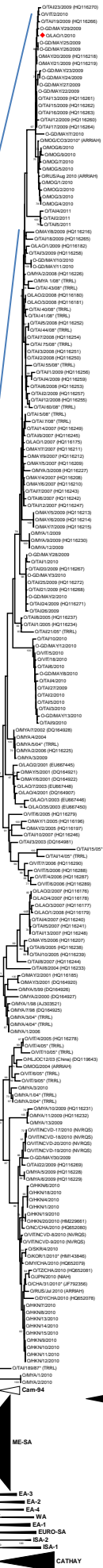
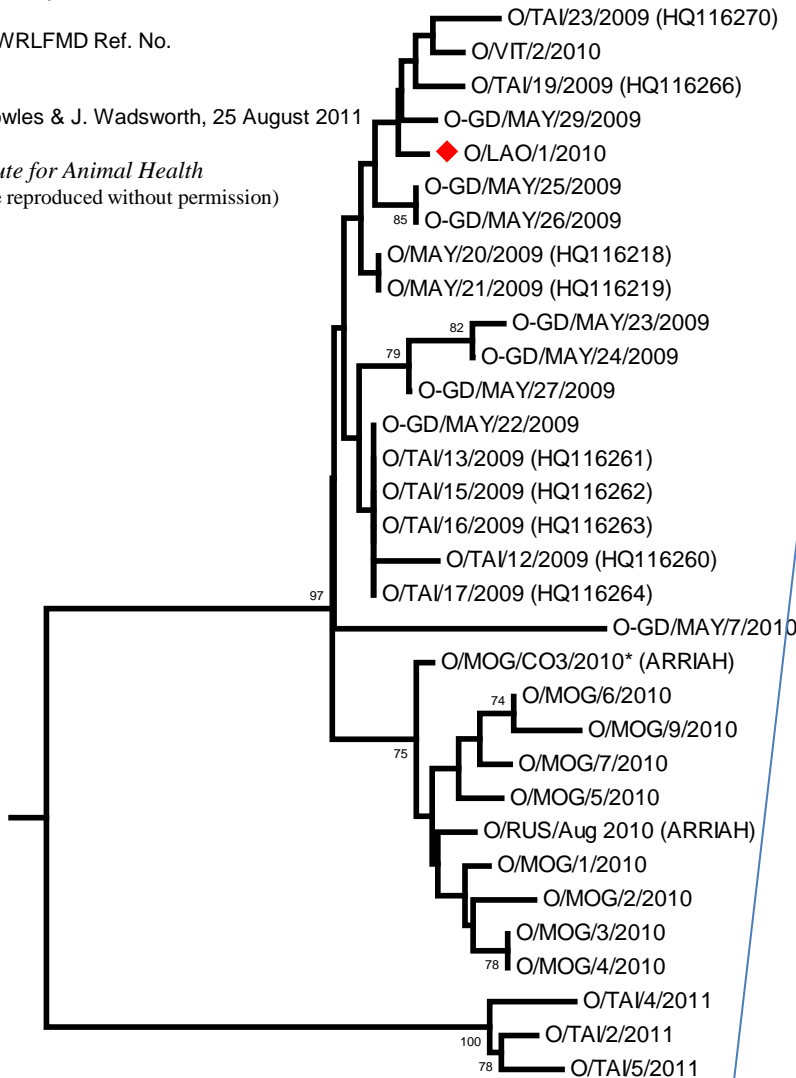
Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

N.J. Knowles & J. Wadsworth, 25 August 2011

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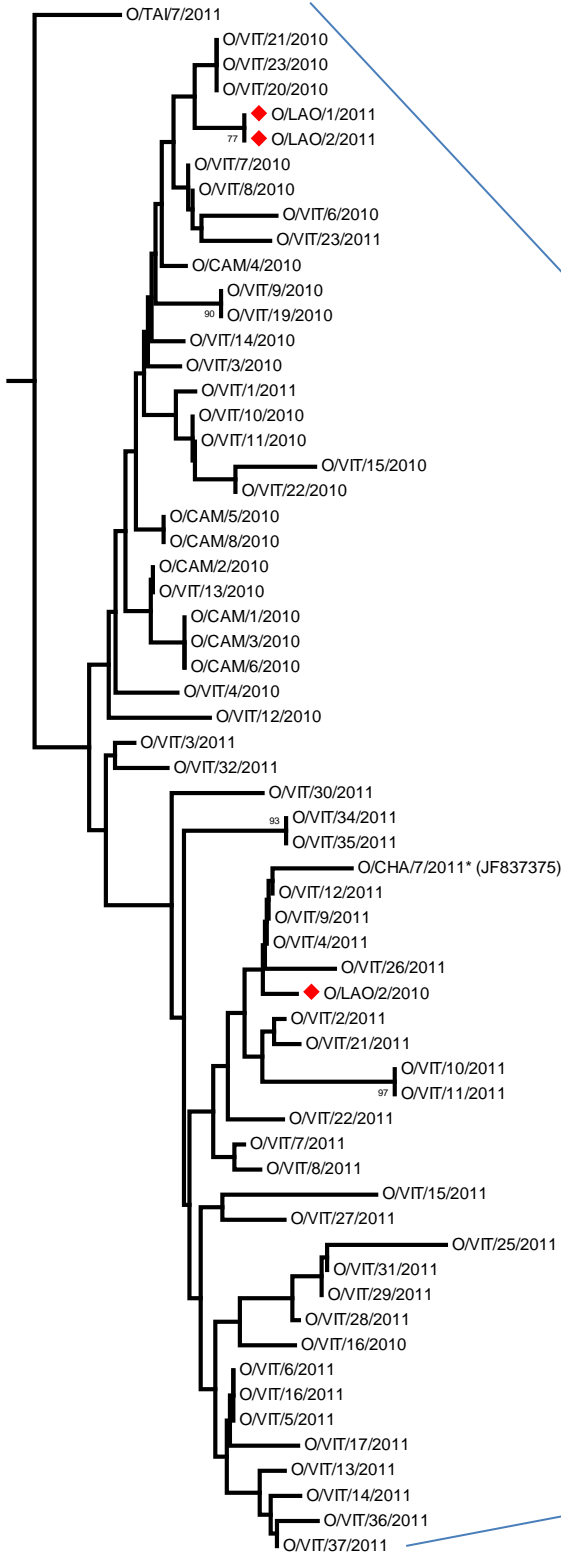
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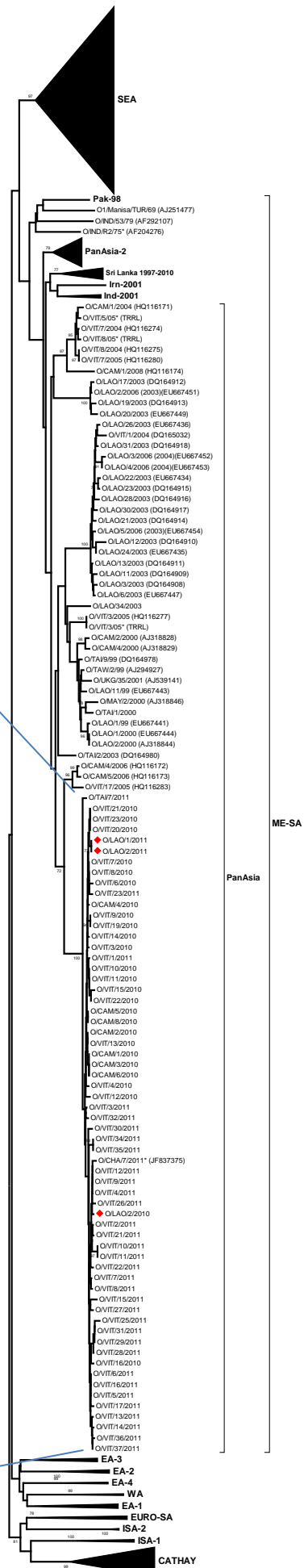
Report on FMDV O in Laos in 2010-2011

Batch: WRLFMD/2011/00036

◆ indicates viruses in this batch



0.001



0.001