

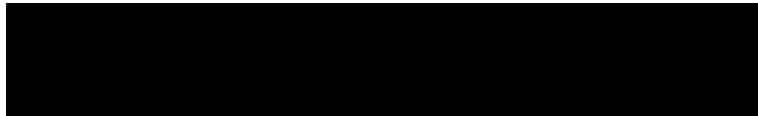


INSTITUTE FOR ANIMAL HEALTH
Director: Professor John Fazakerley BSc, MBA, PhD, FRCPath
PIRBRIGHT LABORATORY
Ash Road,
Pirbright,
Surrey,
GU24 0NF
Intn Tel: 00 44 1483 232441
Tel: 01483 232441 Fax: 01483 232621

FMD Genotyping Report

Lab Reference WRL Batch Number: WRLFMD/2011/00041

Sender Details:



Date Received: 29th September 2011

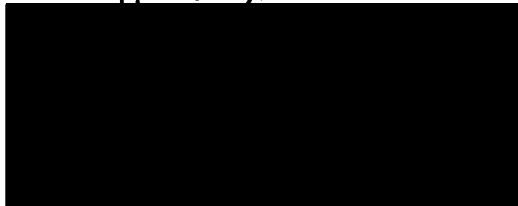
Country of Origin: Turkey

Date Reported: 18th October 2011

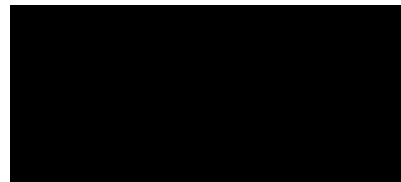
Dear Dr. Alkan,

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: 26 / 10 / 2011

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: 14 October 2011

FMDV type O

Country: Turkey

Period: 2011

No. of samples: 4

BATCH: WRLFMD/2011/00041



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FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: O WRLFMD Ref No: TUR/27/2011 Batch No: WRLFMD/2011/00041 Sender Ref: 244/2011 Location: Kozansiki, Rayak, Samsun, Black Sea, Turkey Date collected: 01/01/2011 Date received by WRLFMD: 29/09/2011 Date received for sequencing: 11/10/2011 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/10/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 ^{ANT-10} Sequence filename: TUR11-27.SEQ Date sequence last updated: 13/10/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3128 Min. no. of nt for comparison: 600 Total turn-around time: 15 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/TUR/1003/2010* (FMDI)	TUR10-BG	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
2	O/TUR/1086/2010* (FMDI)	TUR10-BI	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
3	O/TUR/18/2010	TUR10-18	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
4	O/TUR/8/2011	TUR11-08	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
5	O/TUR/840/2010* (FMDI)	TUR10-AZ	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
6	O/TUR/868/2010* (FMDI)	TUR10-BA	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
7	O/TUR/883/2010* (FMDI)	TUR10-BB	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
8	O/TUR/926/2010* (FMDI)	TUR10-BE	639	636	0	99.53	0.47	ME-SA	PanAsia-2 ^{ANT-10}
9	O/BUL/1/2010	BUL10-01	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
10	O/BUL/2/2010	BUL10-02	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
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/IRN/88/2009	IRN09-88	639	627	0	98.12	1.88	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/8/2005	IRN05-08	639	603	0	94.37	5.63	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	601	0	94.05	5.95	ME-SA	PanAsia-2 ^{FAR-09}
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	599	0	93.74	6.26	ME-SA	PanAsia-2 ^{TER-08}
5	O/IRN/18/2010	IRN10-18	639	596	0	93.27	6.73	ME-SA	PanAsia-2 ^{BAL-09}
6	O/PAK/16/2010	PAK10-16	639	595	0	93.11	6.89	ME-SA	PanAsia-2 ^{PUN-10}
7	O/TUR/264/2009* (FMDI)	TUR09-AK	639	594	0	92.96	7.04	ME-SA	PanAsia-2 ^{SAN-09}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	586	0	91.71	8.29	ME-SA	PanAsia
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	572	0	89.51	10.49	ME-SA	Pak-98
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	568	1	89.03	10.97	ME-SA	Irn-2001

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 WRLFMD Ref No: TUR/28/2011 Batch No: WRLFMD/2011/00041 Sender Ref: 951/2011 Location: Tepecie, Mustafa Kemal Pasa, Bursa, Marmara, Turkey Date collected: 31/05/2011 Date received by WRLFMD: 29/09/2011 Date received for sequencing: 11/10/2011 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/10/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 ^{ANT-10} Sequence filename: TUR11-28.SEQ Date sequence last updated: 13/10/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3128 Min. no. of nt for comparison: 600 Total turn-around time: 15 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/TUR/1/2011	TUR11-01	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
2	O/TUR/32/2010	TUR10-32	639	635	0	99.37	0.63	ME-SA	PanAsia-2 ^{ANT-10}
3	O/TUR/12/2011	TUR11-12	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
4	O/TUR/153/2010* (FMDI)	TUR10-AR	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
5	O/TUR/154/2010* (FMDI)	TUR10-AS	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
6	O/TUR/39/2010	TUR10-39	639	634	0	99.22	0.78	ME-SA	PanAsia-2 ^{ANT-10}
7	O/IRN/66/2010	IRN10-66	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
8	O/IRN/92/2010	IRN10-92	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
9	O/IRN/94/2010	IRN10-94	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
10	O/IRN/95/2010	IRN10-95	639	633	0	99.06	0.94	ME-SA	PanAsia-2 ^{ANT-10}
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/IRN/88/2009	IRN09-88	639	626	0	97.97	2.03	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/31/2009	IRN09-31	639	601	0	94.05	5.95	ME-SA	PanAsia-2 ^{FAR-09}
3	O/IRN/8/2005	IRN05-08	639	599	0	93.74	6.26	ME-SA	PanAsia-2
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	599	0	93.74	6.26	ME-SA	PanAsia-2 ^{TER-08}
5	O/TUR/264/2009* (FMDI)	TUR09-AK	639	594	0	92.96	7.04	ME-SA	PanAsia-2 ^{SAN-09}
6	O/PAK/16/2010	PAK10-16	639	593	0	92.80	7.20	ME-SA	PanAsia-2 ^{PUN-10}
7	O/IRN/18/2010	IRN10-18	639	592	0	92.64	7.36	ME-SA	PanAsia-2 ^{BAL-09}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	582	0	91.08	8.92	ME-SA	PanAsia
9	O/PAK/16/2003 (DQ165068)	PAK03-16	639	570	0	89.20	10.80	ME-SA	Pak-98
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	567	1	88.87	11.13	ME-SA	Irn-2001

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 WRLFMD Ref No: TUR/33/2011 Batch No: WRLFMD/2011/00041 Sender Ref: 1006/2011 Location: Durasilli, Salikli, Manisa, Aegean Anatolia, Turkey Date collected: 15/06/2011 Date received by WRLFMD: 29/09/2011 Date received for sequencing: 11/10/2011 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/10/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 ^{ANT-10} Sequence filename: TUR11-33.SEQ Date sequence last updated: 13/10/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3128 Min. no. of nt for comparison: 600 Total turn-around time: 15 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/TUR/43/2011	TUR11-43	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
2	O/ISR/6/2011	ISR11-06	639	629	0	98.44	1.56	ME-SA	PanAsia-2 ^{ANT-10}
3	O/ISR/11/2011	ISR11-11	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
4	O/ISR/12/2011	ISR11-12	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
5	O/ISR/13/2011	ISR11-13	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
6	O/ISR/17/2011	ISR11-17	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
7	O/ISR/22/2011	ISR11-22	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
8	O/ISR/26/2011	ISR11-26	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
9	O/ISR/5/2011	ISR11-05	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
10	O/ISR/7/2011	ISR11-07	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}

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/IRN/88/2009	IRN09-88	639	621	0	97.18	2.82	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/8/2005	IRN05-08	639	601	0	94.05	5.95	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	599	0	93.74	6.26	ME-SA	PanAsia-2 ^{FAR-09}
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	599	0	93.74	6.26	ME-SA	PanAsia-2 ^{TER-08}
5	O/TUR/264/2009* (FMDI)	TUR09-AK	639	596	0	93.27	6.73	ME-SA	PanAsia-2 ^{SAN-09}
6	O/IRN/18/2010	IRN10-18	639	592	0	92.64	7.36	ME-SA	PanAsia-2 ^{BAL-09}
7	O/PAK/16/2010	PAK10-16	639	591	0	92.49	7.51	ME-SA	PanAsia-2 ^{PUN-10}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	581	0	90.92	9.08	ME-SA	PanAsia
9	O/KUW/3/97 (DQ164904)	KUW97-03	639	566	0	88.58	11.42	ME-SA	Ind-2001a
10	O/OMN/7/2001 (DQ164941)	OMN01-07	639	566	0	88.58	11.42	ME-SA	Ind-2001b

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 WRLFMD Ref No: TUR/43/2011 Batch No: WRLFMD/2011/00041 Sender Ref: 1165/2011 Location: Sariyar, Merkez, Amasya, Black Sea, Turkey Date collected: 11/07/2011 Date received by WRLFMD: 29/09/2011 Date received for sequencing: 11/10/2011 Species: Cattle Material used: 10% epithelium suspension Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 14/10/2011 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 ^{ANT-10} Sequence filename: TUR11-43.SEQ Date sequence last updated: 13/10/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3128 Min. no. of nt for comparison: 600 Total turn-around time: 15 days Sequencing time: 3 days
Comments: This sample typed as FMDV O in the ELISA, but type A was isolated in cell culture. RT-PCR of the 10% epi susp and BTy 1 isolate confirmed this finding.	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/TUR/33/2011	TUR11-33	639	639	0	100.00	0.00	ME-SA	PanAsia-2 ^{ANT-10}
2	O/ISR/6/2011	ISR11-06	639	629	0	98.44	1.56	ME-SA	PanAsia-2 ^{ANT-10}
3	O/ISR/11/2011	ISR11-11	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
4	O/ISR/12/2011	ISR11-12	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
5	O/ISR/13/2011	ISR11-13	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
6	O/ISR/17/2011	ISR11-17	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
7	O/ISR/22/2011	ISR11-22	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
8	O/ISR/26/2011	ISR11-26	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
9	O/ISR/5/2011	ISR11-05	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
10	O/ISR/7/2011	ISR11-07	639	628	0	98.28	1.72	ME-SA	PanAsia-2 ^{ANT-10}
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/IRN/88/2009	IRN09-88	639	621	0	97.18	2.82	ME-SA	PanAsia-2 ^{ANT-10}
2	O/IRN/8/2005	IRN05-08	639	601	0	94.05	5.95	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	599	0	93.74	6.26	ME-SA	PanAsia-2 ^{FAR-09}
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	599	0	93.74	6.26	ME-SA	PanAsia-2 ^{TER-08}
5	O/TUR/264/2009* (FMDI)	TUR09-AK	639	596	0	93.27	6.73	ME-SA	PanAsia-2 ^{SAN-09}
6	O/IRN/18/2010	IRN10-18	639	592	0	92.64	7.36	ME-SA	PanAsia-2 ^{BAL-09}
7	O/PAK/16/2010	PAK10-16	639	591	0	92.49	7.51	ME-SA	PanAsia-2 ^{PUN-10}
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	581	0	90.92	9.08	ME-SA	PanAsia
9	O/KUW/3/97 (DQ164904)	KUW97-03	639	566	0	88.58	11.42	ME-SA	Ind-2001a
10	O/OMN/7/2001 (DQ164941)	OMN01-07	639	566	0	88.58	11.42	ME-SA	Ind-2001b

nt, nucleotides

*, not a WRLFMD reference number

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Report on FMDV O in Turkey in 2011

Batch: WRLFMD/2011/00041

◆ 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

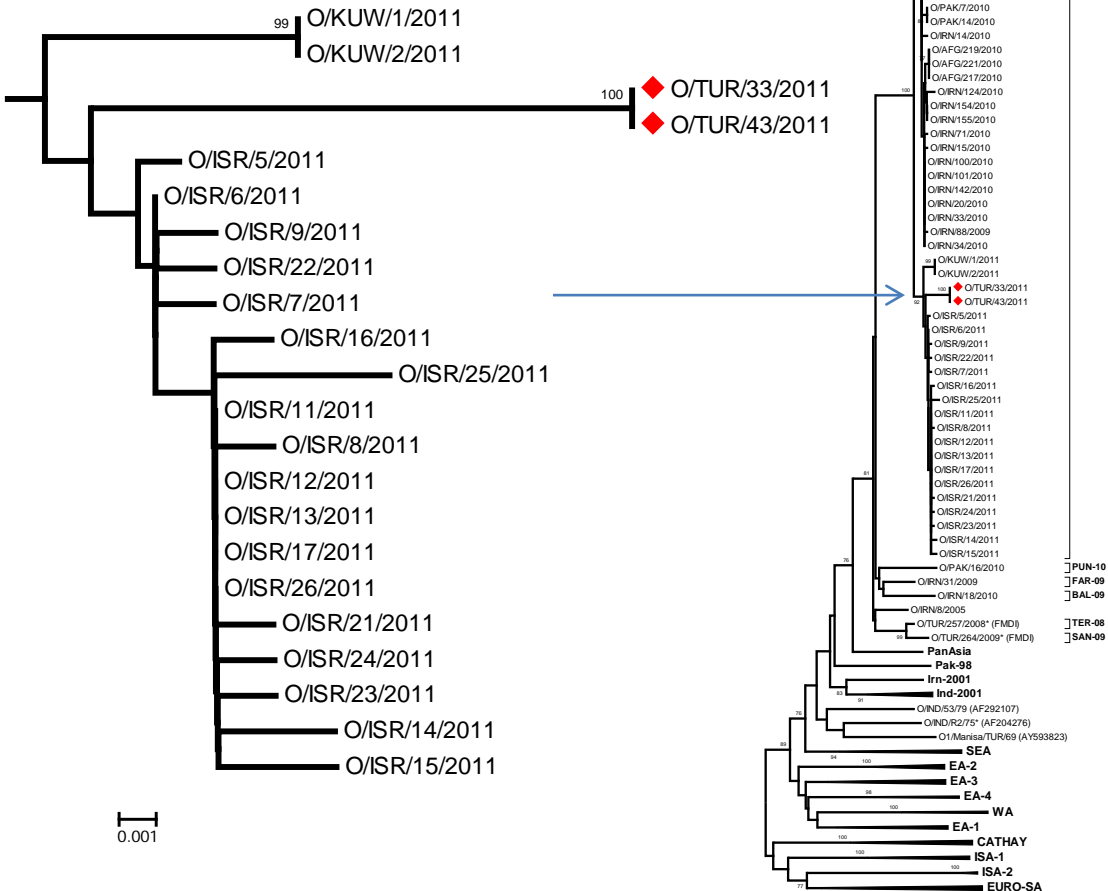
Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

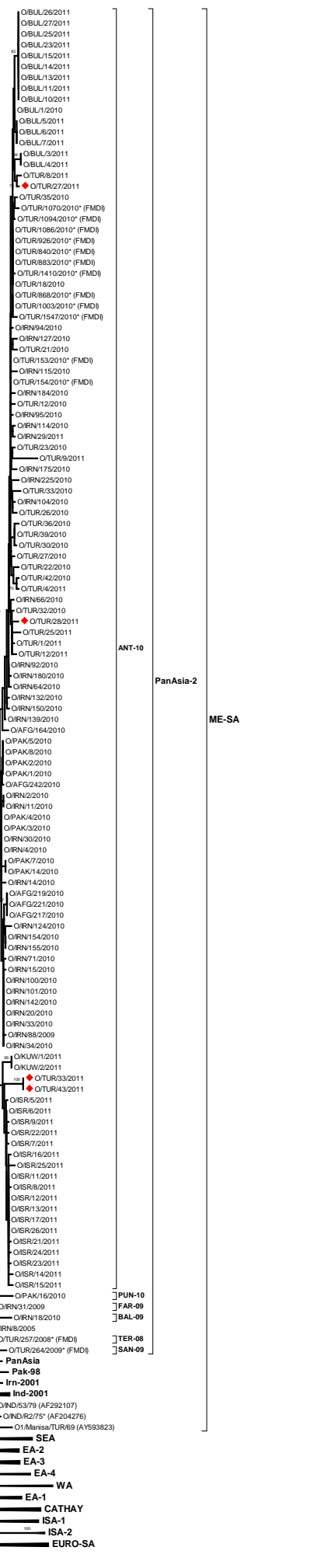
N.J. Knowles & J. Wadsworth, 14 October 2011

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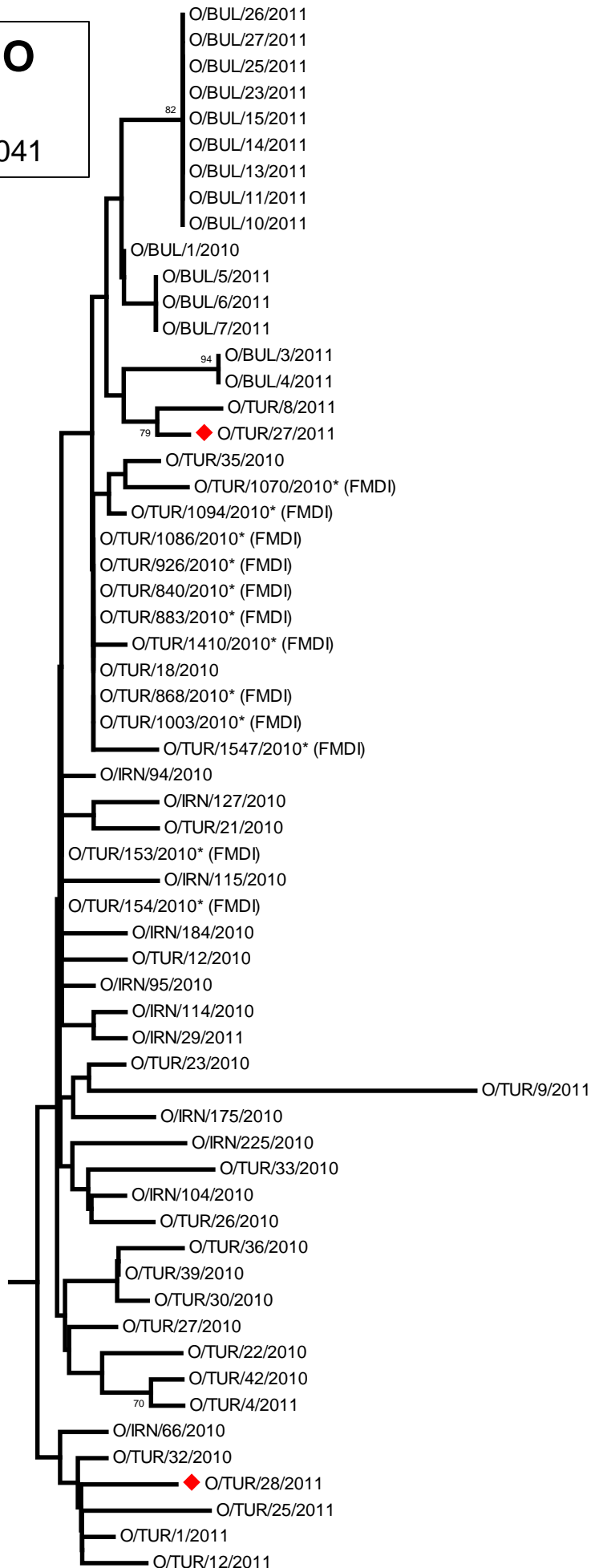
see next page →



Report on FMDV O in Turkey in 2011

Batch: WRLFMD/2011/00041

◆ indicates viruses in this batch



0.001