

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

## Genotyping Report

Report Date for this Batch: 31 July 2013

FMDV type A

Country: Russian Federation

Period: 2013

No. of sequences: 6

Originator: [REDACTED] Federal Centre for Animal  
Health (FGI ARRIAH), Yur'evets, Vladimir, 600900, Russia,  
600900 Yur'evets.



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# FAO World Reference Laboratory for FMD Genotyping Report

IAH-P-EP-MEG-FOR-005-3

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Serotype: A WRLFMD Ref No: KCR/1/RUS/2013* Batch No: WRLMEG/2013/00016 Sender Ref: A/KCR/1/RUS/2013 Location: Garnukha, Urupsky, Karachay-Cherkess Republic, Russia Date collected: 06/06/2013 Date received by WRLFMD: 31/07/2013 Date received for sequencing: n/a Species: Cattle Material used: epithelium Region sequenced: VPI RT-PCR primers: Not known	Report date: 31/07/2013 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Iran-05 <sup>SIS-10</sup> Sequence filename: RUS13-AB.SEQ Date sequence last updated: 31/07/2013 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 1662 Min. no. of nt for comparison: 600 Total turn-around time: 0 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	A/KBR/RUS/2013* (ARRIAH)	RUS13-AF	639	636	0	99.53	0.47	ASIA	Iran-05 <sup>SIS-10</sup>
2	A/Krasnodar/1/RUS/2013* (ARRIAH)	RUS13-AD	639	636	0	99.53	0.47	ASIA	Iran-05 <sup>SIS-10</sup>
3	A/KCR/2/RUS/2013* (ARRIAH)	RUS13-AC	639	634	0	99.22	0.78	ASIA	Iran-05 <sup>SIS-10</sup>
4	A/Krasnodar/2/RUS/2013* (ARRIAH)	RUS13-AE	639	634	0	99.22	0.78	ASIA	Iran-05 <sup>SIS-10</sup>
5	A/TUR/16/2013	TUR13-16	639	634	0	99.22	0.78	ASIA	Iran-05 <sup>SIS-10</sup>
6	A/TUR/18/2013	TUR13-18	639	634	0	99.22	0.78	ASIA	Iran-05 <sup>SIS-10</sup>
7	A/TUR/19/2013	TUR13-19	639	633	0	99.06	0.94	ASIA	Iran-05 <sup>SIS-10</sup>
8	A/TUR/21/2013	TUR13-21	639	633	0	99.06	0.94	ASIA	Iran-05 <sup>SIS-10</sup>
9	A/TUR/22/2013	TUR13-22	639	633	0	99.06	0.94	ASIA	Iran-05 <sup>SIS-10</sup>
10	A/TUR/23/2013	TUR13-23	639	633	0	99.06	0.94	ASIA	Iran-05 <sup>SIS-10</sup>

Most Closely Related Reference Viruses									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	A/IRN/125/2010	IRN10125	639	617	0	96.56	3.44	ASIA	Iran-05 <sup>SIS-10</sup>
2	A/AFG/6/2007	AFG07-06	639	601	0	94.05	5.95	ASIA	Iran-05 <sup>AFG-07</sup>
3	A/IRN/78/2009	IRN09-78	639	595	0	93.11	6.89	ASIA	Iran-05 <sup>FAR-09</sup>
4	A/BAR/6/2008	BAR08-06	639	591	0	92.49	7.51	ASIA	Iran-05 <sup>BAR-08</sup>
5	A/TUR/33/2008	TUR08-33	639	590	0	92.33	7.67	ASIA	Iran-05 <sup>EZM-07</sup>
6	A/IRN/1/2005 (EF208769)	IRN05-01	639	589	0	92.18	7.82	ASIA	Iran-05
7	A/AFG/10/2010	AFG10-10	639	587	0	91.86	8.14	ASIA	Iran-05 <sup>HER-10</sup>
8	A/TUR/1/2008	TUR08-01	639	587	0	91.86	8.14	ASIA	Iran-05 <sup>ARD-07</sup>
9	A/IRN/15/2012	IRN12-15	639	586	0	91.71	8.29	ASIA	Iran-05 <sup>SIS-12</sup>
10	A/IRN/9/2010	IRN10-09	639	580	0	90.77	9.23	ASIA	Iran-05 <sup>ESF-10</sup>

nt, nucleotides

\*, not a WRLFMD reference number

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Serotype: A WRLFMD Ref No: KCR/2/RUS/2013* Batch No: WRLMEG/2013/00016 Sender Ref: A/KCR/2/RUS/2013 Location: Pregradnaya, Urupsky, Karachay-Cherkess Republic, Russia Date collected: 15/06/2013 Date received by WRLFMD: 31/07/2013 Date received for sequencing: n/a Species: Cattle Material used: epithelium Region sequenced: VP1 RT-PCR primers: Not known	Report date: 31/07/2013 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Iran-05 <sup>SIS-10</sup> Sequence filename: RUS13-AC.SEQ Date sequence last updated: 31/07/2013 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 1662 Min. no. of nt for comparison: 600 Total turn-around time: 0 days
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Most Closely Related Viruses									
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2	A/Krasnodar/1/RUS/2013* (ARRIAH)	RUS13-AD	639	635	0	99.37	0.63	ASIA	Iran-05 <sup>SIS-10</sup>
3	A/KCR/1/RUS/2013* (ARRIAH)	RUS13-AB	639	634	0	99.22	0.78	ASIA	Iran-05 <sup>SIS-10</sup>
4	A/TUR/16/2013	TUR13-16	639	633	0	99.06	0.94	ASIA	Iran-05 <sup>SIS-10</sup>
5	A/TUR/18/2013	TUR13-18	639	633	0	99.06	0.94	ASIA	Iran-05 <sup>SIS-10</sup>
6	A/TUR/19/2013	TUR13-19	639	632	0	98.90	1.10	ASIA	Iran-05 <sup>SIS-10</sup>
7	A/TUR/21/2013	TUR13-21	639	632	0	98.90	1.10	ASIA	Iran-05 <sup>SIS-10</sup>
8	A/TUR/22/2013	TUR13-22	639	632	0	98.90	1.10	ASIA	Iran-05 <sup>SIS-10</sup>
9	A/TUR/23/2013	TUR13-23	639	632	0	98.90	1.10	ASIA	Iran-05 <sup>SIS-10</sup>
10	A/KBR/RUS/2013* (ARRIAH)	RUS13-AF	639	631	0	98.75	1.25	ASIA	Iran-05 <sup>SIS-10</sup>
Most Closely Related Reference Viruses									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	A/IRN/125/2010	IRN10125	639	618	0	96.71	3.29	ASIA	Iran-05 <sup>SIS-10</sup>
2	A/AFG/6/2007	AFG07-06	639	598	0	93.58	6.42	ASIA	Iran-05 <sup>AFG-07</sup>
3	A/IRN/78/2009	IRN09-78	639	596	0	93.27	6.73	ASIA	Iran-05 <sup>FAR-09</sup>
4	A/TUR/33/2008	TUR08-33	639	591	0	92.49	7.51	ASIA	Iran-05 <sup>EZM-07</sup>
5	A/BAR/6/2008	BAR08-06	639	590	0	92.33	7.67	ASIA	Iran-05 <sup>BAR-08</sup>
6	A/IRN/1/2005 (EF208769)	IRN05-01	639	590	0	92.33	7.67	ASIA	Iran-05
7	A/IRN/15/2012	IRN12-15	639	589	0	92.18	7.82	ASIA	Iran-05 <sup>SIS-12</sup>
8	A/AFG/10/2010	AFG10-10	639	588	0	92.02	7.98	ASIA	Iran-05 <sup>HER-10</sup>
9	A/TUR/1/2008	TUR08-01	639	588	0	92.02	7.98	ASIA	Iran-05 <sup>ARD-07</sup>
10	A/IRN/9/2010	IRN10-09	639	581	0	90.92	9.08	ASIA	Iran-05 <sup>ESF-10</sup>

nt, nucleotides

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Serotype: A WRLFMD Ref No: Krasnodar/1/RUS/2013* Batch No: WRLMEG/2013/00016 Sender Ref: A/Krasnodar/1/RUS/2013 Location: Solenoye, Mostovsky, Krasnodarsky krai, Russia Date collected: 15/06/2013 Date received by WRLFMD: 31/07/2013 Date received for sequencing: n/a Species: Cattle Material used: epithelium Region sequenced: VP1 RT-PCR primers: Not known	Report date: 31/07/2013 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Iran-05 <sup>SIS-10</sup> Sequence filename: RUS13-AD.SEQ Date sequence last updated: 31/07/2013 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 1662 Min. no. of nt for comparison: 600 Total turn-around time: 0 days
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Most Closely Related Viruses									
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2	A/KCR/2/RUS/2013* (ARRIAH)	RUS13-AC	639	635	0	99.37	0.63	ASIA	Iran-05 <sup>SIS-10</sup>
3	A/Krasnodar/2/RUS/2013* (ARRIAH)	RUS13-AE	639	635	0	99.37	0.63	ASIA	Iran-05 <sup>SIS-10</sup>
4	A/TUR/16/2013	TUR13-16	639	635	0	99.37	0.63	ASIA	Iran-05 <sup>SIS-10</sup>
5	A/TUR/18/2013	TUR13-18	639	635	0	99.37	0.63	ASIA	Iran-05 <sup>SIS-10</sup>
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3	A/IRN/78/2009	IRN09-78	639	596	0	93.27	6.73	ASIA	Iran-05 <sup>FAR-09</sup>
4	A/BAR/6/2008	BAR08-06	639	592	0	92.64	7.36	ASIA	Iran-05 <sup>BAR-08</sup>
5	A/TUR/33/2008	TUR08-33	639	591	0	92.49	7.51	ASIA	Iran-05 <sup>EZM-07</sup>
6	A/IRN/1/2005 (EF208769)	IRN05-01	639	590	0	92.33	7.67	ASIA	Iran-05
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8	A/TUR/1/2008	TUR08-01	639	588	0	92.02	7.98	ASIA	Iran-05 <sup>ARD-07</sup>
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Serotype: A WRLFMD Ref No: Krasnodar/2/RUS/2013* Batch No: WRLMEG/2013/00016 Sender Ref: A/Krasnodar/2/RUS/2013 Location: Andryuki, Mostovsky, Krasnodarsky krai, Russia Date collected: 29/06/2013 Date received by WRLFMD: 31/07/2013 Date received for sequencing: n/a Species: Cattle Material used: epithelium Region sequenced: VPI RT-PCR primers: Not known	Report date: 31/07/2013 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Iran-05 <sup>SIS-10</sup> Sequence filename: RUS13-AE.SEQ Date sequence last updated: 31/07/2013 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 1662 Min. no. of nt for comparison: 600 Total turn-around time: 0 days
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2	A/Krasnodar/1/RUS/2013* (ARRIAH)	RUS13-AD	639	635	0	99.37	0.63	ASIA	Iran-05 <sup>SIS-10</sup>
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5	A/TUR/18/2013	TUR13-18	639	633	0	99.06	0.94	ASIA	Iran-05 <sup>SIS-10</sup>
6	A/TUR/19/2013	TUR13-19	639	632	0	98.90	1.10	ASIA	Iran-05 <sup>SIS-10</sup>
7	A/TUR/21/2013	TUR13-21	639	632	0	98.90	1.10	ASIA	Iran-05 <sup>SIS-10</sup>
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9	A/TUR/23/2013	TUR13-23	639	632	0	98.90	1.10	ASIA	Iran-05 <sup>SIS-10</sup>
10	A/KBR/RUS/2013* (ARRIAH)	RUS13-AF	639	631	0	98.75	1.25	ASIA	Iran-05 <sup>SIS-10</sup>

### Most Closely Related Reference Viruses

(see [http://www.wrlfmd.org/fmd\\_genotyping/prototypes.htm](http://www.wrlfmd.org/fmd_genotyping/prototypes.htm))

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7	A/IRN/15/2012	IRN12-15	639	587	0	91.86	8.14	ASIA	Iran-05 <sup>SIS-12</sup>
8	A/AFG/10/2010	AFG10-10	639	586	0	91.71	8.29	ASIA	Iran-05 <sup>HER-10</sup>
9	A/TUR/1/2008	TUR08-01	639	586	0	91.71	8.29	ASIA	Iran-05 <sup>ARD-07</sup>
10	A/IRN/9/2010	IRN10-09	639	579	0	90.61	9.39	ASIA	Iran-05 <sup>ESF-10</sup>

nt, nucleotides

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Serotype: A WRLFMD Ref No: KBR/RUS/2013* Batch No: WRLMEG/2013/00016 Sender Ref: A/KBR/RUS/2013 Location: Nizhny Kurkuzhin, Baksansky, Kabardino-Balkaria Republic, Russia Date collected: 07/07/2013 Date received by WRLFMD: 31/07/2013 Date received for sequencing: n/a Species: Cattle Material used: epithelium Region sequenced: VP1 RT-PCR primers: Not known	Report date: 31/07/2013 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Iran-05 <sup>SIS-10</sup> Sequence filename: RUS13-AF.SEQ Date sequence last updated: 31/07/2013 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 1662 Min. no. of nt for comparison: 600 Total turn-around time: 0 days
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7	A/TUR/19/2013	TUR13-19	639	630	0	98.59	1.41	ASIA	Iran-05 <sup>SIS-10</sup>
8	A/TUR/21/2013	TUR13-21	639	630	0	98.59	1.41	ASIA	Iran-05 <sup>SIS-10</sup>
9	A/TUR/22/2013	TUR13-22	639	630	0	98.59	1.41	ASIA	Iran-05 <sup>SIS-10</sup>
10	A/TUR/23/2013	TUR13-23	639	630	0	98.59	1.41	ASIA	Iran-05 <sup>SIS-10</sup>
Most Closely Related Reference Viruses									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
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3	A/IRN/78/2009	IRN09-78	639	592	0	92.64	7.36	ASIA	Iran-05 <sup>FAR-09</sup>
4	A/BAR/6/2008	BAR08-06	639	588	0	92.02	7.98	ASIA	Iran-05 <sup>BAR-08</sup>
5	A/TUR/33/2008	TUR08-33	639	587	0	91.86	8.14	ASIA	Iran-05 <sup>EZM-07</sup>
6	A/IRN/1/2005 (EF208769)	IRN05-01	639	586	0	91.71	8.29	ASIA	Iran-05
7	A/AFG/10/2010	AFG10-10	639	584	0	91.39	8.61	ASIA	Iran-05 <sup>HER-10</sup>
8	A/TUR/1/2008	TUR08-01	639	584	0	91.39	8.61	ASIA	Iran-05 <sup>ARD-07</sup>
9	A/IRN/15/2012	IRN12-15	639	583	0	91.24	8.76	ASIA	Iran-05 <sup>SIS-12</sup>
10	A/IRN/9/2010	IRN10-09	639	578	0	90.45	9.55	ASIA	Iran-05 <sup>ESF-10</sup>

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Serotype: A WRLFMD Ref No: Amur/RUS/2013* Batch No: WRLMEG/2013/00016 Sender Ref: A/Amur/RUS/2013 Location: Grodekovo, Blagoveshensk, Amurskaya oblast, Russia Date collected: 26/06/2013 Date received by WRLFMD: 31/07/2013 Date received for sequencing: n/a Species: Cattle Material used: epithelium Region sequenced: VPI RT-PCR primers: Not known	Report date: 31/07/2013 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Sea-97 Sequence filename: RUS13-AG.SEQ Date sequence last updated: 31/07/2013 No. of Nt determined: 636 No. of ambiguities: 0 Gene length: 636 Total no. of comparisons: 1659 Min. no. of nt for comparison: 600 Total turn-around time: 0 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	A/GDMM-CHA-2013-S (LVRI)	CHA13-AA	636	632	0	99.37	0.63	ASIA	Sea-97
2	A/Zabaikalsky/RUS/2013 (ARRIAH)	RUS13-AA	636	632	0	99.37	0.63	ASIA	Sea-97
3	A/KAZ/2/2013* (ARRIAH)	KAZ13-AB	636	631	0	99.21	0.79	ASIA	Sea-97
4	A/QHXN-CHA-2013-B (LVRI)	CHA13-AB	633	627	0	99.05	0.95	ASIA	Sea-97
5	A/KAZ/1/2013* (ARRIAH)	KAZ13-AA	636	629	0	98.90	1.10	ASIA	Sea-97
6	A/TAI/15/2012	TAI12-15	636	628	0	98.74	1.26	ASIA	Sea-97
7	A/TAI/1/2011	TAI11-01	636	620	0	97.48	2.52	ASIA	Sea-97
8	A/TAI/3/2011	TAI11-03	636	620	0	97.48	2.52	ASIA	Sea-97
9	A/TAI/8/2010	TAI10-08	636	619	0	97.33	2.67	ASIA	Sea-97
10	A/THA 66-1/10* (TRRL)	TAI10-AA	636	619	0	97.33	2.67	ASIA	Sea-97
Most Closely Related Reference Viruses									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	A/TAI/7/2003 (HQ116312)	TAI03-07	636	596	0	93.71	6.29	ASIA	Sea-97
2	A/TAI/2/97 (EF208778)	TAI97-02	636	574	0	90.25	9.75	ASIA	Sea-97
3	A/TAI/118/87* (EF208777)	TAI87-AD	636	557	0	87.58	12.42	ASIA	Thai-87
4	A22/IRQ/64 (AY593763)	IRQ64--A	636	525	0	82.55	17.45	ASIA	A22
5	A/IRN/2/87 (EF208770)	IRN87-02	633	519	0	81.99	18.01	ASIA	Iran-87
6	A15/Bangkok/TAI/60 (AY593755)	TAI60--D	636	517	0	81.29	18.71	ASIA	A15
7	A/GHA/16/73	GHA73-16	633	513	0	81.04	18.96	AFRICA	G-VI
8	A/IRN/78/2009	IRN09-78	636	515	0	80.97	19.03	ASIA	Iran-05 <sup>FAR-09</sup>
9	A/TUR/1/2008	TUR08-01	636	514	0	80.82	19.18	ASIA	Iran-05 <sup>ARD-07</sup>
10	A/BAR/6/2008	BAR08-06	636	513	0	80.66	19.34	ASIA	Iran-05 <sup>BAR-08</sup>

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

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# Report on FMDV A in the Russian Federation in 2013

Batch: WRLMEG/2013/00016

◆ 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 : 639

No Of Bootstrap Reps = 1000

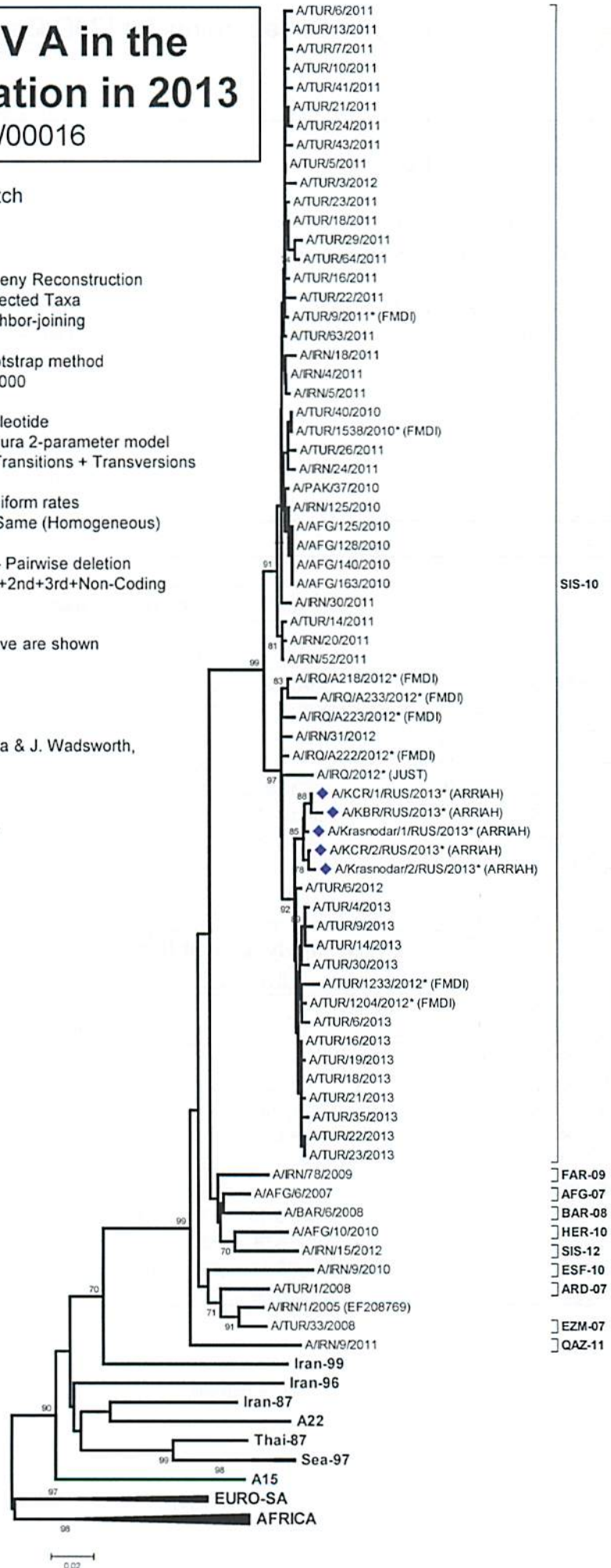
Only bootstrap values of 70% and above are shown

\*, not a WRLFMD Ref. No.

N.J. Knowles, K. Bachanek-Bankowska & J. Wadsworth,  
31 July 2013

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# Report on FMDV A in the Russian Federation in 2013

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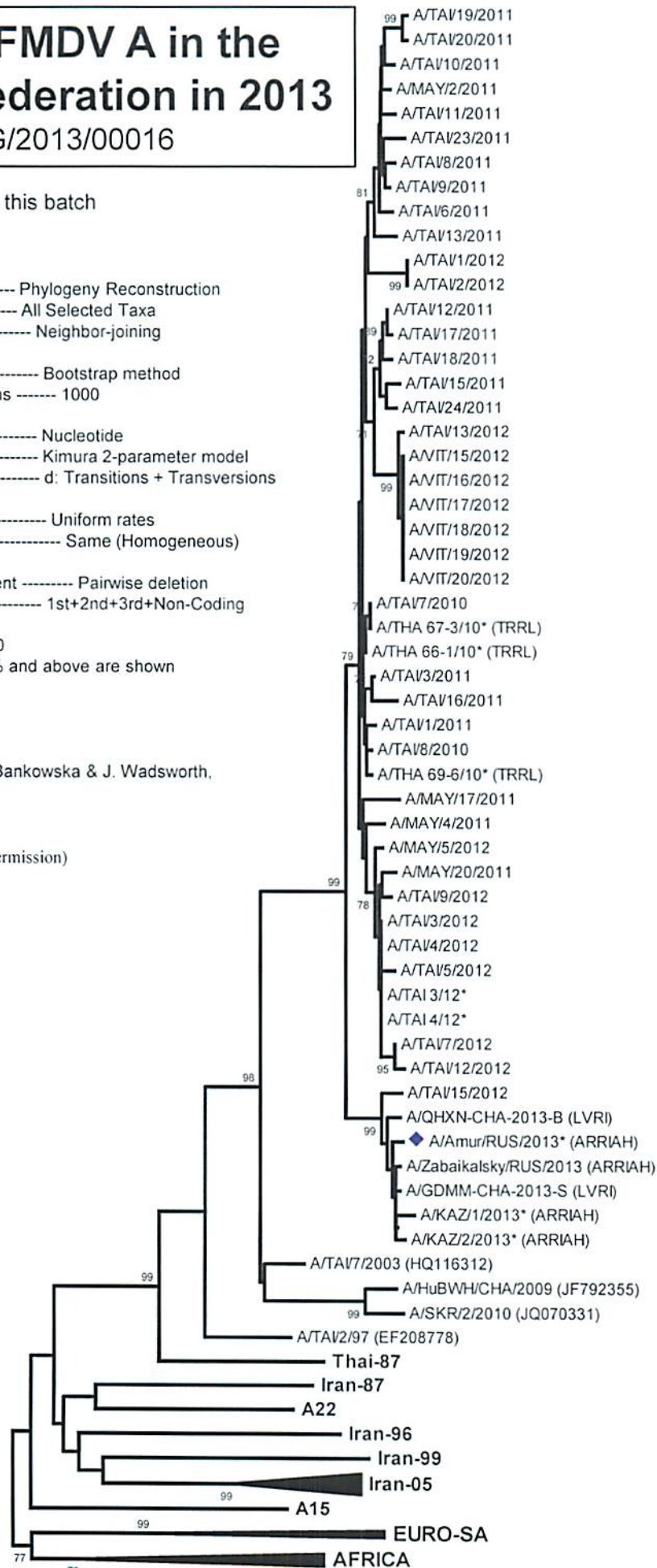
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31 July 2013

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Sea-97

ASIA

0.02