

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

Genotyping Report

Report Date for this Batch: 3 July 2013

FMDV type Asia 1

Country: Turkey

Period: 2013

No. of samples: 5

BATCH: WRLFMD/2013/00006



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FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: ASIA1 WRLFMD Ref No: TUR/2/2013 Batch No: WRLFMD/2013/00006 Sender Ref: 2013-12 Location: Toprakocak, Yenisehir, Bursa, West Anatolia, Turkey Date collected: 02/01/2013 Date received by WRLFMD: 12/04/2013 Date received for sequencing: 03/06/2013 Species: Cattle Material used: BTy1 17/05/2013 Region sequenced: VP1 RT-PCR primers: As1-1C530F/EUR-2B52R As1-1C613F/EUR-2B52R	Report date: 03/07/2013 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Sindh-08 Sequence filename: TUR13-02.SEQ Date sequence last updated: 03/07/2013 No. of Nt determined: 633 No. of ambiguities: 0 Gene length: 633 Total no. of comparisons: 479 Min. no. of nt for comparison: 600 Total turn-around time: 82 days Sequencing time: 30 days
Comments:	

Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/TUR/1/2012	TUR12-01	633	619	0	97.79	2.21	ASIA	Sindh-08
2	Asia1/IRN/58/2011	IRN11-58	633	618	0	97.63	2.37	ASIA	Sindh-08
3	Asia1/IRN/60/2011	IRN11-60	633	618	0	97.63	2.37	ASIA	Sindh-08
4	Asia1/IRN 1/2012*	IRN12-AE	633	618	0	97.63	2.37	ASIA	Sindh-08
5	Asia1/TUR/76/2011	TUR11-76	633	618	0	97.63	2.37	ASIA	Sindh-08
6	Asia1/IRN 5428/2012*	IRN12-AH	630	615	0	97.62	2.38	ASIA	Sindh-08
7	Asia1/IRN/1/2012	IRN12-01	633	617	0	97.47	2.53	ASIA	Sindh-08
8	Asia1/IRN/59/2011	IRN11-59	633	617	0	97.47	2.53	ASIA	Sindh-08
9	Asia1/IRN/67/2011	IRN11-67	633	617	0	97.47	2.53	ASIA	Sindh-08
10	Asia1/IRN/75/2011	IRN11-75	633	617	0	97.47	2.53	ASIA	Sindh-08

Most Closely Related Reference Viruses

(see http://www.wrlfmd.org/find_genotyping/prototypes.htm)

Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/PAK/8/2008	PAK08-08	633	601	0	94.94	5.06	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	572	0	90.36	9.64	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	543	0	85.78	14.22	ASIA	Group III
4	Asia1/IND/18/80 (DQ121116)	IND80-18	633	535	0	84.52	15.48	ASIA	Group V
5	Asia1/Shamir/ISR/89	ISR89--A	633	534	0	84.36	15.64	ASIA	Unnamed
6	Asia1/IND/14/95* (AF390678)	IND95-AA	633	532	0	84.04	15.96	ASIA	Unnamed
7	Asia1/HKN/19/74	HKN74-19	633	531	0	83.89	16.11	ASIA	Unnamed
8	Asia1/IND/63/72* (AY304994)	IND72C63	630	528	0	83.81	16.19	ASIA	Unnamed
9	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	528	0	83.41	16.59	ASIA	Unnamed
10	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	525	0	82.94	17.06	ASIA	Group VIb

nt, nucleotides

*, not a WRLFMD reference number

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FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: ASIA1	Report date: 03/07/2013
WRLFMD Ref No: TUR/13/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2013/00006	Checked by: D.P. King
Sender Ref: 2013-65	
Location: Gundogan, Oguzeli, Gaziantep, South East Anatolia, Turkey	Topotype: ASIA
Date collected: 09/02/2013	Genotype/strain: Sindh-08
Date received by WRLFMD: 12/04/2013	Sequence filename: TUR13-13.SEQ
Date received for sequencing: 03/06/2013	Date sequence last updated: 03/07/2013
Species: Cattle	No. of Nt determined: 633
Material used: BTy1 21/05/2013	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 479
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 82 days
	Sequencing time: 30 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/IRN 1/2012*	IRN12-AE	633	621	0	98.10	1.90	ASIA	Sindh-08
2	Asia1/TUR/1/2012	TUR12-01	633	621	0	98.10	1.90	ASIA	Sindh-08
3	Asia1/IRN/58/2011	IRN11-58	633	620	0	97.95	2.05	ASIA	Sindh-08
4	Asia1/IRN/60/2011	IRN11-60	633	620	0	97.95	2.05	ASIA	Sindh-08
5	Asia1/TUR/72/2011	TUR11-72	633	620	0	97.95	2.05	ASIA	Sindh-08
6	Asia1/TUR/76/2011	TUR11-76	633	620	0	97.95	2.05	ASIA	Sindh-08
7	Asia1/IRN/1/2012	IRN12-01	633	619	0	97.79	2.21	ASIA	Sindh-08
8	Asia1/IRN/59/2011	IRN11-59	633	619	0	97.79	2.21	ASIA	Sindh-08
9	Asia1/IRN/67/2011	IRN11-67	633	619	0	97.79	2.21	ASIA	Sindh-08
10	Asia1/IRN/75/2011	IRN11-75	633	619	0	97.79	2.21	ASIA	Sindh-08
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	Asia1/PAK/8/2008	PAK08-08	633	600	0	94.79	5.21	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	569	0	89.89	10.11	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	540	0	85.31	14.69	ASIA	Group III
4	Asia1/IND/18/80 (DQ121116)	IND80-18	633	536	0	84.68	15.32	ASIA	Group V
5	Asia1/IND/63/72* (AY304994)	IND72C63	630	531	0	84.29	15.71	ASIA	Unnamed
6	Asia1/Shamir/ISR/89	ISR89--A	633	532	0	84.04	15.96	ASIA	Unnamed
7	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	531	0	83.89	16.11	ASIA	Unnamed
8	Asia1/IND/14/95* (AF390678)	IND95-AA	633	529	0	83.57	16.43	ASIA	Unnamed
9	Asia1/HKN/19/74	HKN74-19	633	524	0	82.78	17.22	ASIA	Unnamed
10	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	524	0	82.78	17.22	ASIA	Group VIb

nt, nucleotides

*, not a WRLFMD reference number

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FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: ASIA1 WRLFMD Ref No: TUR/17/2013 Batch No: WRLFMD/2013/00006 Sender Ref: 2013-87 Location: Tekeli, Menderes, Izmir, West Anatolia, Turkey Date collected: 23/02/2013 Date received by WRLFMD: 12/04/2013 Date received for sequencing: 14/06/2013 Species: Cattle Material used: BTy1 31/05/2013 Region sequenced: VPI RT-PCR primers: As1-1C530F/EUR-2B52R As1-1C613F/EUR-2B52R	Report date: 03/07/2013 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Sindh-08 Sequence filename: TUR13-17.SEQ Date sequence last updated: 03/07/2013 No. of Nt determined: 633 No. of ambiguities: 0 Gene length: 633 Total no. of comparisons: 479 Min. no. of nt for comparison: 600 Total turn-around time: 82 days Sequencing time: 19 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/IRN 1/2012*	IRN12-AE	633	620	0	97.95	2.05	ASIA	Sindh-08
2	Asia1/TUR/1/2012	TUR12-01	633	620	0	97.95	2.05	ASIA	Sindh-08
3	Asia1/TUR/69/2011	TUR11-69	633	620	0	97.95	2.05	ASIA	Sindh-08
4	Asia1/IRN/58/2011	IRN11-58	633	619	0	97.79	2.21	ASIA	Sindh-08
5	Asia1/IRN/60/2011	IRN11-60	633	619	0	97.79	2.21	ASIA	Sindh-08
6	Asia1/IRN/74/2011	IRN11-74	633	619	0	97.79	2.21	ASIA	Sindh-08
7	Asia1/TUR/76/2011	TUR11-76	633	619	0	97.79	2.21	ASIA	Sindh-08
8	Asia1/IRN/1/2012	IRN12-01	633	618	0	97.63	2.37	ASIA	Sindh-08
9	Asia1/IRN/23/2012	IRN12-23	633	618	0	97.63	2.37	ASIA	Sindh-08
10	Asia1/IRN/59/2011	IRN11-59	633	618	0	97.63	2.37	ASIA	Sindh-08
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	Asia1/PAK/8/2008	PAK08-08	633	600	0	94.79	5.21	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	573	0	90.52	9.48	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	540	0	85.31	14.69	ASIA	Group III
4	Asia1/IND/63/72* (AY304994)	IND72C63	630	534	0	84.76	15.24	ASIA	Unnamed
5	Asia1/IND/18/80 (DQ121116)	IND80-18	633	536	0	84.68	15.32	ASIA	Group V
6	Asia1/Shamir/ISR/89	ISR89--A	633	532	0	84.04	15.96	ASIA	Unnamed
7	Asia1/IND/14/95* (AF390678)	IND95-AA	633	531	0	83.89	16.11	ASIA	Unnamed
8	Asia1/HKN/19/74	HKN74-19	633	530	0	83.73	16.27	ASIA	Unnamed
9	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	530	0	83.73	16.27	ASIA	Unnamed
10	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	524	0	82.78	17.22	ASIA	Group VIb

nt, nucleotides

*. not a WRLFMD reference number

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FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: ASIA1 WRLFMD Ref No: TUR/28/2013 Batch No: WRLFMD/2013/00006 Sender Ref: 2013-186 Location: Korucu, Merkez, Elazig, East Anatolia, Turkey Date collected: 09/03/2013 Date received by WRLFMD: 12/04/2013 Date received for sequencing: 21/06/2013 Species: Cattle Material used: BTy2 18/06/2013 Region sequenced: VP1 RT-PCR primers: As1-1C530F/EUR-2B52R As1-1C613F/EUR-2B52R	Report date: 03/07/2013 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Sindh-08 Sequence filename: TUR13-28.SEQ Date sequence last updated: 03/07/2013 No. of Nt determined: 633 No. of ambiguities: 0 Gene length: 633 Total no. of comparisons: 479 Min. no. of nt for comparison: 600 Total turn-around time: 82 days Sequencing time: 12 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/TUR/49/2011	TUR11-49	633	613	0	96.84	3.16	ASIA	Sindh-08
2	Asia1/TUR/68/2011	TUR11-68	633	613	0	96.84	3.16	ASIA	Sindh-08
3	Asia1/IRN/58/2011	IRN11-58	633	612	0	96.68	3.32	ASIA	Sindh-08
4	Asia1/IRN/60/2011	IRN11-60	633	612	0	96.68	3.32	ASIA	Sindh-08
5	Asia1/TUR/70/2011	TUR11-70	633	612	0	96.68	3.32	ASIA	Sindh-08
6	Asia1/AFG/48/2011	AFG11-48	633	611	0	96.52	3.48	ASIA	Sindh-08
7	Asia1/AFG/51/2011	AFG11-51	633	611	0	96.52	3.48	ASIA	Sindh-08
8	Asia1/AFG/55/2011	AFG11-55	633	611	0	96.52	3.48	ASIA	Sindh-08
9	Asia1/AFG/66/2011	AFG11-66	633	611	0	96.52	3.48	ASIA	Sindh-08
10	Asia1/AFG/68/2011	AFG11-68	633	611	0	96.52	3.48	ASIA	Sindh-08
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	Asia1/PAK/8/2008	PAK08-08	633	594	0	93.84	6.16	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	562	0	88.78	11.22	ASIA	Group I
3	Asia1/IND/63/72* (AY304994)	IND72C63	630	531	0	84.29	15.71	ASIA	Unnamed
4	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	532	0	84.04	15.96	ASIA	Group III
5	Asia1/IND/18/80 (DQ121116)	IND80-18	633	531	0	83.89	16.11	ASIA	Group V
6	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	527	0	83.25	16.75	ASIA	Unnamed
7	Asia1/Shamir/ISR/89	ISR89--A	633	524	0	82.78	17.22	ASIA	Unnamed
8	Asia1/IND/14/95* (AF390678)	IND95-AA	633	518	0	81.83	18.17	ASIA	Unnamed
9	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	516	0	81.52	18.48	ASIA	Group VIb
10	Asia1/HKN/19/74	HKN74-19	633	515	0	81.36	18.64	ASIA	Unnamed

nt, nucleotides

*, not a WRLFMD reference number

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FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: ASIA1 WRLFMD Ref No: TUR/32/2013 Batch No: WRLFMD/2013/00006 Sender Ref: 2013-174 Location: Elmacik, Merkez, Kutahya, West Anatolia, Turkey Date collected: 12/03/2013 Date received by WRLFMD: 12/04/2013 Date received for sequencing: 21/06/2013 Species: Cattle Material used: BTyI 12/06/2013 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 03/07/2013 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Sindh-08 Sequence filename: TUR13-32.SEQ Date sequence last updated: 03/07/2013 No. of Nt determined: 633 No. of ambiguities: 0 Gene length: 633 Total no. of comparisons: 479 Min. no. of nt for comparison: 600 Total turn-around time: 82 days Sequencing time: 12 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/IRN/1/2012*	IRN12-AE	633	623	0	98.42	1.58	ASIA	Sindh-08
2	Asia1/TUR/1/2012	TUR12-01	633	623	0	98.42	1.58	ASIA	Sindh-08
3	Asia1/IRN/58/2011	IRN11-58	633	622	0	98.26	1.74	ASIA	Sindh-08
4	Asia1/IRN/59/2011	IRN11-59	633	622	0	98.26	1.74	ASIA	Sindh-08
5	Asia1/IRN/60/2011	IRN11-60	633	622	0	98.26	1.74	ASIA	Sindh-08
6	Asia1/TUR/65/2011	TUR11-65	633	622	0	98.26	1.74	ASIA	Sindh-08
7	Asia1/TUR/76/2011	TUR11-76	633	622	0	98.26	1.74	ASIA	Sindh-08
8	Asia1/IRN/1/2012	IRN12-01	633	621	0	98.10	1.90	ASIA	Sindh-08
9	Asia1/IRN/67/2011	IRN11-67	633	621	0	98.10	1.90	ASIA	Sindh-08
10	Asia1/IRN/75/2011	IRN11-75	633	621	0	98.10	1.90	ASIA	Sindh-08
Most Closely Related Reference Viruses									
(see http://www.wrlfmd.org/find_genotyping/prototypes.htm)									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/PAK/8/2008	PAK08-08	633	599	0	94.63	5.37	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	571	0	90.21	9.79	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	539	0	85.15	14.85	ASIA	Group III
4	Asia1/IND/18/80 (DQ121116)	IND80-18	633	535	0	84.52	15.48	ASIA	Group V
5	Asia1/IND/63/72* (AY304994)	IND72C63	630	532	0	84.44	15.56	ASIA	Unnamed
6	Asia1/Shamir/ISR/89	ISR89--A	633	531	0	83.89	16.11	ASIA	Unnamed
7	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	531	0	83.89	16.11	ASIA	Unnamed
8	Asia1/HKN/19/74	HKN74-19	633	530	0	83.73	16.27	ASIA	Unnamed
9	Asia1/IND/14/95* (AF390678)	IND95-AA	633	528	0	83.41	16.59	ASIA	Unnamed
10	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	521	0	82.31	17.69	ASIA	Group VIb

nt, nucleotides

*, not a WRLFMD reference number

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Report on FMDV Asia 1 in Turkey in 2013

Batch: WRLFMD/2013/00006

◆ 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 : 633

No Of Bootstrap Reps = 1000

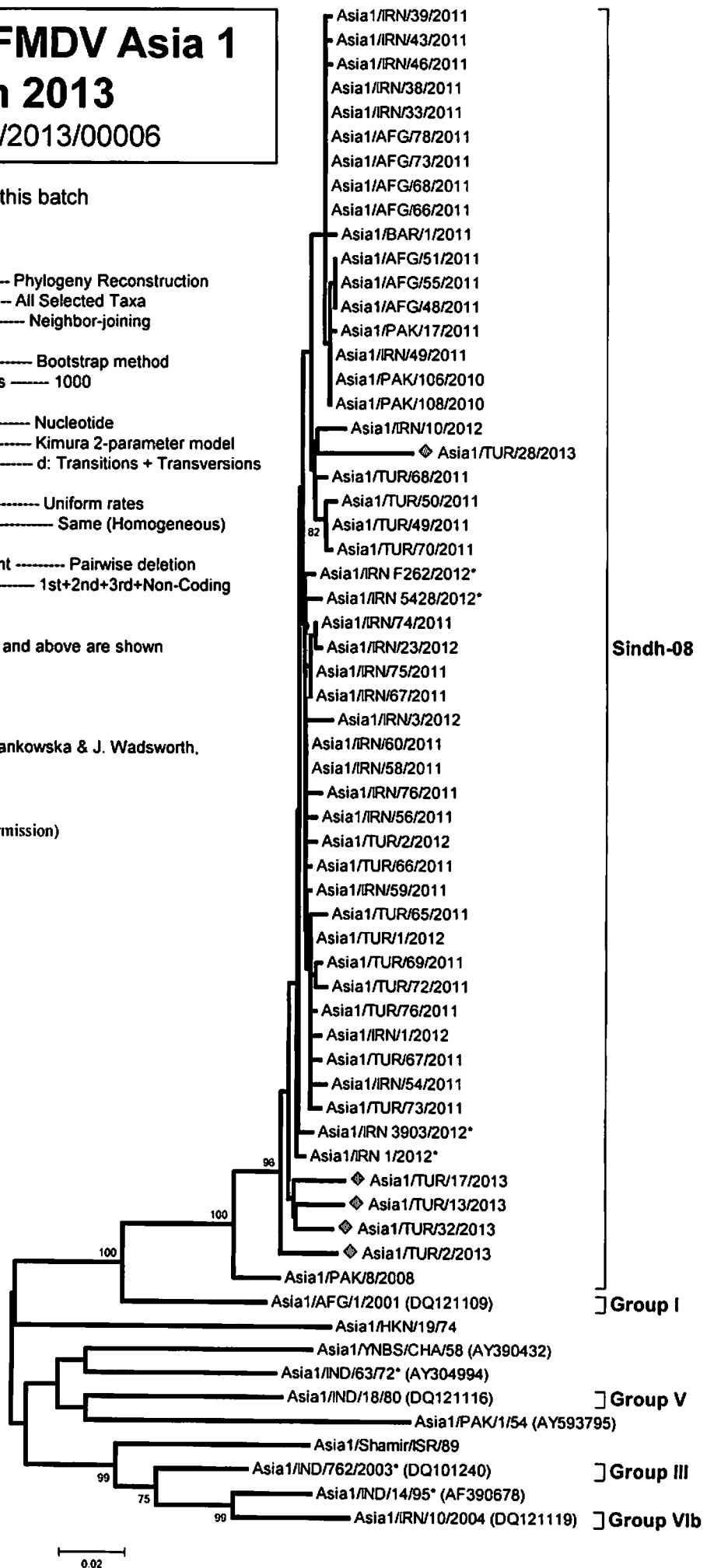
Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

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

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