

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

## Genotyping Report v2

Report Date for this Batch: 28 July 2015

FMDV type Asia 1  
Country: Afghanistan  
Period: 2013-2014  
No. of samples: 4

BATCH: WRLFMD/2015/00003

Now including the sequence of AFG/24/2013 which was originally reported as FMDV-GD.



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# FAO World Reference Laboratory for FMD Genotyping Report

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

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Serotype: ASIA1 WRLFMD Ref No: AFG/23/2013 Batch No: WRLFMD/2015/00003 Sender Ref: 6159 Location: Ghoren, Herat, Afghanistan Date collected: 18/12/2013 Date received by WRLFMD: 31/03/2015 Date received for sequencing: 30/04/2015 Species: Cattle Material used: BTy1 08/04/2015 & BTy2 18/04/2015 Region sequenced: VP1 RT-PCR primers: As1-1C530F/EUR-2B52R As1-1C613F/EUR-2B52R	Report date: 14/07/2015 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska  Topotype: ASIA Genotype/strain: Sindh-08 Sequence filename: AFG13-23.SEQ Date sequence last updated: 07/05/2015 No. of Nt determined: 633 No. of ambiguities: 0 Gene length: 633 Total no. of comparisons: 570 Min. no. of nt for comparison: 600 Total turn-around time: 105 days Sequencing time: 75 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/AFG/24/2013	AFG13-24	633	631	0	99.68	0.32	ASIA	Sindh-08
2	Asia1/AFG/27/2013	AFG13-27	633	630	0	99.53	0.47	ASIA	Sindh-08
3	Asia1/AFG/4/2014	AFG14-04	633	630	0	99.53	0.47	ASIA	Sindh-08
4	Asia1/AFG/66/2011	AFG11-66	633	614	0	97.00	3.00	ASIA	Sindh-08
5	Asia1/AFG/68/2011	AFG11-68	633	614	0	97.00	3.00	ASIA	Sindh-08
6	Asia1/AFG/73/2011	AFG11-73	633	614	0	97.00	3.00	ASIA	Sindh-08
7	Asia1/AFG/78/2011	AFG11-78	633	614	0	97.00	3.00	ASIA	Sindh-08
8	Asia1/IRN/33/2011	IRN11-33	633	614	0	97.00	3.00	ASIA	Sindh-08
9	Asia1/IRN/38/2011	IRN11-38	633	614	0	97.00	3.00	ASIA	Sindh-08
10	Asia1/IRN/39/2011	IRN11-39	633	613	0	96.84	3.16	ASIA	Sindh-08
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	Asia1/PAK/8/2008	PAK08-08	633	597	0	94.31	5.69	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	566	0	89.42	10.58	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	537	0	84.83	15.17	ASIA	Group III
4	Asia1/IND/18/80 (DQ121116)	IND80-18	633	533	0	84.20	15.80	ASIA	Group V
5	Asia1/IND/63/72* (AY304994)	IND72C63	630	530	0	84.13	15.87	ASIA	Unnamed
6	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	530	0	83.73	16.27	ASIA	Unnamed
7	Asia1/Shamir/ISR/89	ISR89--A	633	529	0	83.57	16.43	ASIA	Unnamed
8	Asia1/IND/14/95* (AF390678)	IND95-AA	633	525	0	82.94	17.06	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

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Serotype: ASIA1	Report date: 14/07/2015
WRLFMD Ref No: AFG/24/2013	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00003	Checked by: K. Bachanek-Bankowska
Sender Ref: 6157	
Location: Zande Jan, Herat, Afghanistan	Topotype: ASIA
Date collected: 23/12/2013	Genotype/strain: Sindh-08
Date received by WRLFMD: 31/03/2015	Sequence filename: AFG13-24.SEQ
Date received for sequencing: 29/06/2015	Date sequence last updated: 06/07/2015
Species: Cattle	No. of Nt determined: 633
Material used: RNA	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 570
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 105 days
	Sequencing time: 15 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/AFG/27/2013	AFG13-27	633	632	0	99.84	0.16	ASIA	Sindh-08
2	Asia1/AFG/4/2014	AFG14-04	633	632	0	99.84	0.16	ASIA	Sindh-08
3	Asia1/AFG/23/2013	AFG13-23	633	631	0	99.68	0.32	ASIA	Sindh-08
4	Asia1/AFG/66/2011	AFG11-66	633	616	0	97.31	2.69	ASIA	Sindh-08
5	Asia1/AFG/68/2011	AFG11-68	633	616	0	97.31	2.69	ASIA	Sindh-08
6	Asia1/AFG/73/2011	AFG11-73	633	616	0	97.31	2.69	ASIA	Sindh-08
7	Asia1/AFG/78/2011	AFG11-78	633	616	0	97.31	2.69	ASIA	Sindh-08
8	Asia1/IRN/33/2011	IRN11-33	633	616	0	97.31	2.69	ASIA	Sindh-08
9	Asia1/IRN/38/2011	IRN11-38	633	616	0	97.31	2.69	ASIA	Sindh-08
10	Asia1/IRN/39/2011	IRN11-39	633	615	0	97.16	2.84	ASIA	Sindh-08
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	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	568	0	89.73	10.27	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	538	0	84.99	15.01	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/YNBS/CHA/58 (AY390432)	CHA58-AA	633	531	0	83.89	16.11	ASIA	Unnamed
7	Asia1/Shamir/ISR/89	ISR89--A	633	530	0	83.73	16.27	ASIA	Unnamed
8	Asia1/HKN/19/74	HKN74-19	633	526	0	83.10	16.90	ASIA	Unnamed
9	Asia1/IND/14/95* (AF390678)	IND95-AA	633	526	0	83.10	16.90	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

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Serotype: ASIA1 WRLFMD Ref No: AFG/27/2013 Batch No: WRLFMD/2015/00003 Sender Ref: 6158 Location: Zande Jan, Herat, Afghanistan Date collected: 28/12/2013 Date received by WRLFMD: 31/03/2015 Date received for sequencing: 30/04/2015 Species: Cattle Material used: BTy1 09/04/2015 & BTy2 18/04/2015 Region sequenced: VP1 RT-PCR primers: As1-1C530F/EUR-2B52R As1-1C613F/EUR-2B52R	Report date: 14/07/2015 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska  Topotype: ASIA Genotype/strain: Sindh-08 Sequence filename: AFG13-27.SEQ Date sequence last updated: 07/05/2015 No. of Nt determined: 633 No. of ambiguities: 0 Gene length: 633 Total no. of comparisons: 570 Min. no. of nt for comparison: 600 Total turn-around time: 105 days Sequencing time: 75 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/AFG/4/2014	AFG14-04	633	633	0	100.00	0.00	ASIA	Sindh-08
2	Asia1/AFG/24/2013	AFG13-24	633	632	0	99.84	0.16	ASIA	Sindh-08
3	Asia1/AFG/23/2013	AFG13-23	633	630	0	99.53	0.47	ASIA	Sindh-08
4	Asia1/AFG/66/2011	AFG11-66	633	616	0	97.31	2.69	ASIA	Sindh-08
5	Asia1/AFG/68/2011	AFG11-68	633	616	0	97.31	2.69	ASIA	Sindh-08
6	Asia1/AFG/73/2011	AFG11-73	633	616	0	97.31	2.69	ASIA	Sindh-08
7	Asia1/AFG/78/2011	AFG11-78	633	616	0	97.31	2.69	ASIA	Sindh-08
8	Asia1/IRN/33/2011	IRN11-33	633	616	0	97.31	2.69	ASIA	Sindh-08
9	Asia1/IRN/38/2011	IRN11-38	633	616	0	97.31	2.69	ASIA	Sindh-08
10	Asia1/IRN/39/2011	IRN11-39	633	615	0	97.16	2.84	ASIA	Sindh-08
<b>Most Closely Related Reference Viruses</b>									
(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	Asia1/PAK/8/2008	PAK08-08	633	598	0	94.47	5.53	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	567	0	89.57	10.43	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	537	0	84.83	15.17	ASIA	Group III
4	Asia1/IND/18/80 (DQ121116)	IND80-18	633	534	0	84.36	15.64	ASIA	Group V
5	Asia1/IND/63/72* (AY304994)	IND72C63	630	531	0	84.29	15.71	ASIA	Unnamed
6	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	530	0	83.73	16.27	ASIA	Unnamed
7	Asia1/Shamir/ISR/89	ISR89--A	633	529	0	83.57	16.43	ASIA	Unnamed
8	Asia1/HKN/19/74	HKN74-19	633	525	0	82.94	17.06	ASIA	Unnamed
9	Asia1/IND/14/95* (AF390678)	IND95-AA	633	525	0	82.94	17.06	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

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Serotype: ASIA1	Report date: 14/07/2015
WRLFMD Ref No: AFG/4/2014	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00003	Checked by: K. Bachanek-Bankowska
Sender Ref: 6676	
Location: Mohammad agha, Logar, Afghanistan	Topotype: ASIA
Date collected: 19/04/2014	Genotype/strain: Sindh-08
Date received by WRLFMD: 31/03/2015	Sequence filename: AFG14-04.SEQ
Date received for sequencing: 30/04/2015	Date sequence last updated: 07/05/2015
Species: Cattle	No. of Nt determined: 633
Material used: BTy1 15/04/2015	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 570
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 105 days
	Sequencing time: 75 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/AFG/27/2013	AFG13-27	633	633	0	100.00	0.00	ASIA	Sindh-08
2	Asia1/AFG/24/2013	AFG13-24	633	632	0	99.84	0.16	ASIA	Sindh-08
3	Asia1/AFG/23/2013	AFG13-23	633	630	0	99.53	0.47	ASIA	Sindh-08
4	Asia1/AFG/66/2011	AFG11-66	633	616	0	97.31	2.69	ASIA	Sindh-08
5	Asia1/AFG/68/2011	AFG11-68	633	616	0	97.31	2.69	ASIA	Sindh-08
6	Asia1/AFG/73/2011	AFG11-73	633	616	0	97.31	2.69	ASIA	Sindh-08
7	Asia1/AFG/78/2011	AFG11-78	633	616	0	97.31	2.69	ASIA	Sindh-08
8	Asia1/IRN/33/2011	IRN11-33	633	616	0	97.31	2.69	ASIA	Sindh-08
9	Asia1/IRN/38/2011	IRN11-38	633	616	0	97.31	2.69	ASIA	Sindh-08
10	Asia1/IRN/39/2011	IRN11-39	633	615	0	97.16	2.84	ASIA	Sindh-08
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	Asia1/PAK/8/2008	PAK08-08	633	598	0	94.47	5.53	ASIA	Sindh-08
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3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	537	0	84.83	15.17	ASIA	Group III
4	Asia1/IND/18/80 (DQ121116)	IND80-18	633	534	0	84.36	15.64	ASIA	Group V
5	Asia1/IND/63/72* (AY304994)	IND72C63	630	531	0	84.29	15.71	ASIA	Unnamed
6	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	530	0	83.73	16.27	ASIA	Unnamed
7	Asia1/Shamir/ISR/89	ISR89--A	633	529	0	83.57	16.43	ASIA	Unnamed
8	Asia1/HKN/19/74	HKN74-19	633	525	0	82.94	17.06	ASIA	Unnamed
9	Asia1/IND/14/95* (AF390678)	IND95-AA	633	525	0	82.94	17.06	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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# Report on FMDV Asia 1 in Afghanistan in 2013-2014

Batch: WRLFMD/2015/00003

◆ 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 : 633

No Of Bootstrap Reps = 1000

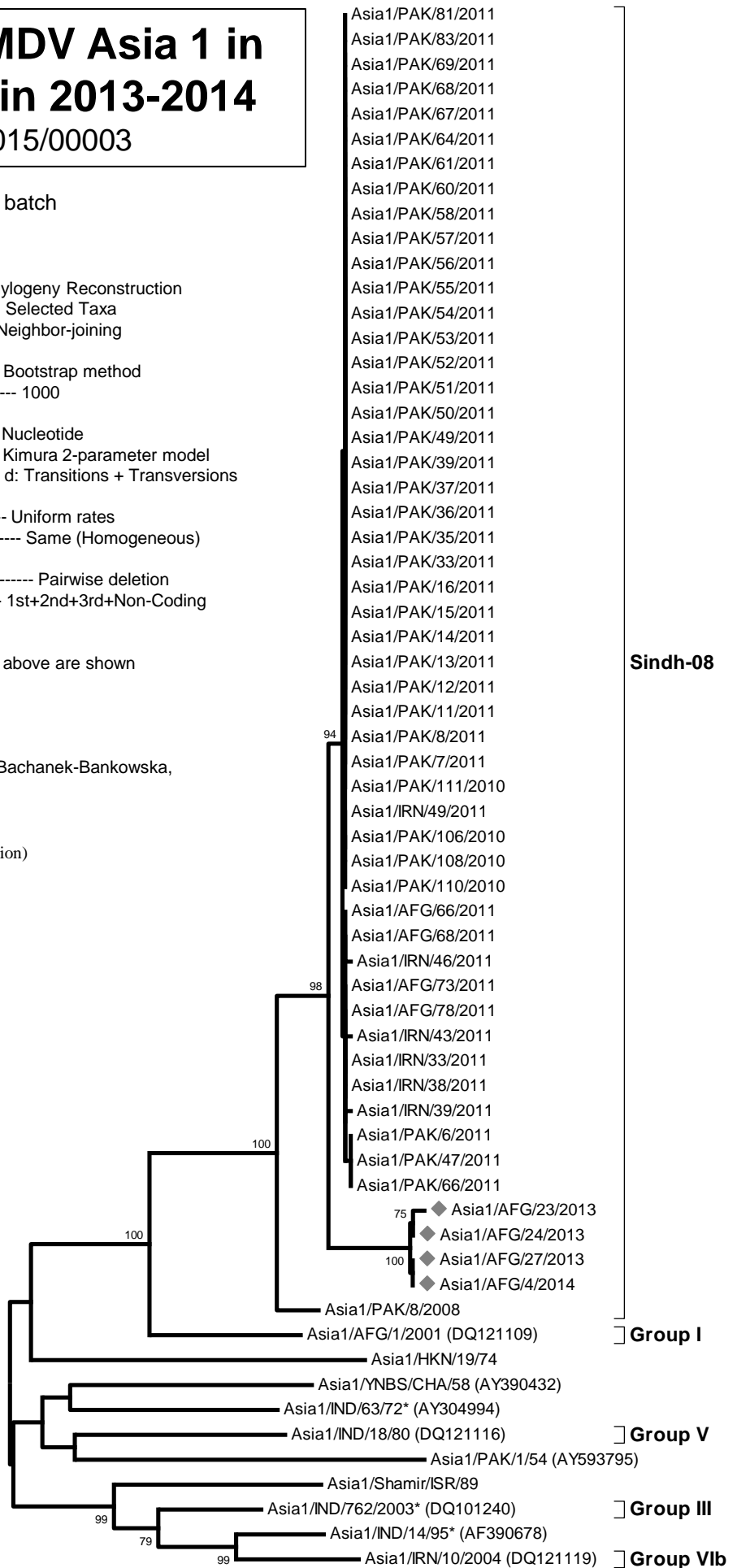
Only bootstrap values of 70% and above are shown

\*, not a WRLFMD Ref. No.

N.J. Knowles, J. Wadsworth & K. Bachanek-Bankowska,  
14 July 2015

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Sindh-08

Group I

Group V

Group III

Group VIb

0.02