

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

Genotyping Report

Report Date for this Batch: 13 March 2016

FMDV type Asia 1
Country: Pakistan
Period: 2015
No. of samples: 9

BATCH: WRLFMD/2015/00037



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FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: ASIA1	Report date: 13/03/2016
WRLFMD Ref No: PAK/27/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00037	Checked by: K. Bachanek-Bankowska
Sender Ref: PK30/12/15	
Location: Lahore, Lahore, Pakistan	Topotype: ASIA
Date collected: 15/07/2015	Genotype/strain: Sindh-08
Date received by WRLFMD: 17/12/2015	Sequence filename: PAK15-27.SEQ
Date received for sequencing: 08/03/2016	Date sequence last updated: 11/03/2016
Species: Water Buffalo	No. of Nt determined: 633
Material used: BTY1 17/02/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 587
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 87 days
	Sequencing time: 5 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/37/2014	TUR14-37	633	632	0	99.84	0.16	ASIA	Sindh-08
2	Asia1/TUR/39/2014	TUR14-39	633	627	0	99.05	0.95	ASIA	Sindh-08
3	Asia1/TUR/2/2013	TUR13-02	633	613	0	96.84	3.16	ASIA	Sindh-08
4	Asia1/TUR/23/2014	TUR14-23	633	606	0	95.73	4.27	ASIA	Sindh-08
5	Asia1/IRN 1/2012*	IRN12-AE	633	602	0	95.10	4.90	ASIA	Sindh-08
6	Asia1/IRN/67/2011	IRN11-67	633	601	0	94.94	5.06	ASIA	Sindh-08
7	Asia1/IRN/75/2011	IRN11-75	633	601	0	94.94	5.06	ASIA	Sindh-08
8	Asia1/TUR/1/2012	TUR12-01	633	601	0	94.94	5.06	ASIA	Sindh-08
9	Asia1/IRN 3903/2012*	IRN12-AG	630	598	0	94.92	5.08	ASIA	Sindh-08
10	Asia1/AFG/48/2011	AFG11-48	633	600	0	94.79	5.21	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	591	0	93.36	6.64	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	570	0	90.05	9.95	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	542	0	85.62	14.38	ASIA	Group III
4	Asia1/Shamir/ISR/89	ISR89--A	633	540	0	85.31	14.69	ASIA	unnamed
5	Asia1/IND/18/80 (DQ121116)	IND80-18	633	538	0	84.99	15.01	ASIA	Group V
6	Asia1/IND/14/95* (AF390678)	IND95-AA	633	533	0	84.20	15.80	ASIA	unnamed
7	Asia1/HKN/19/74 (FJ785230)	HKN74-19	633	530	0	83.73	16.27	ASIA	unnamed
8	Asia1/IND/63/72* (AY304994)	IND72C63	630	527	0	83.65	16.35	ASIA	unnamed
9	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	529	0	83.57	16.43	ASIA	unnamed
10	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	526	0	83.10	16.90	ASIA	Group VIb

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: ASIA1	Report date: 13/03/2016
WRLFMD Ref No: PAK/28/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00037	Checked by: K. Bachanek-Bankowska
Sender Ref: PK31/12/15	
Location: Lahore, Lahore, Pakistan	Topotype: ASIA
Date collected: 01/08/2015	Genotype/strain: Sindh-08
Date received by WRLFMD: 17/12/2015	Sequence filename: PAK15-28.SEQ
Date received for sequencing: 08/03/2016	Date sequence last updated: 11/03/2016
Species: Cattle	No. of Nt determined: 633
Material used: BTY1 18/02/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 587
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 87 days
	Sequencing time: 5 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/40/2011	AFG11-40	633	625	0	98.74	1.26	ASIA	Sindh-08
2	Asia1/IRN/49/2011	IRN11-49	633	625	0	98.74	1.26	ASIA	Sindh-08
3	Asia1/PAK/106/2010	PAK10106	633	625	0	98.74	1.26	ASIA	Sindh-08
4	Asia1/PAK/108/2010	PAK10108	633	625	0	98.74	1.26	ASIA	Sindh-08
5	Asia1/PAK/11/2011	PAK11-11	633	625	0	98.74	1.26	ASIA	Sindh-08
6	Asia1/PAK/110/2010	PAK10110	633	625	0	98.74	1.26	ASIA	Sindh-08
7	Asia1/PAK/111/2010	PAK10111	633	625	0	98.74	1.26	ASIA	Sindh-08
8	Asia1/PAK/12/2011	PAK11-12	633	625	0	98.74	1.26	ASIA	Sindh-08
9	Asia1/PAK/13/2011	PAK11-13	633	625	0	98.74	1.26	ASIA	Sindh-08
10	Asia1/PAK/14/2011	PAK11-14	633	625	0	98.74	1.26	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	606	0	95.73	4.27	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	539	0	85.15	14.85	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	533	0	84.60	15.40	ASIA	unnamed
6	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	535	0	84.52	15.48	ASIA	unnamed
7	Asia1/IND/14/95* (AF390678)	IND95-AA	633	530	0	83.73	16.27	ASIA	unnamed
8	Asia1/Shamir/ISR/89	ISR89--A	633	530	0	83.73	16.27	ASIA	unnamed
9	Asia1/HKN/19/74 (FJ785230)	HKN74-19	633	529	0	83.57	16.43	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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Serotype: ASIA1	Report date: 13/03/2016
WRLFMD Ref No: PAK/29/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00037	Checked by: K. Bachanek-Bankowska
Sender Ref: PK33/12/15	
Location: Kasur, Lahore, Pakistan	Topotype: ASIA
Date collected: 27/08/2015	Genotype/strain: Sindh-08
Date received by WRLFMD: 17/12/2015	Sequence filename: PAK15-29.SEQ
Date received for sequencing: 08/03/2016	Date sequence last updated: 11/03/2016
Species: Water Buffalo	No. of Nt determined: 633
Material used: BTY1 18/02/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 587
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 87 days
	Sequencing time: 5 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/PAK/33/2015	PAK15-33	633	629	0	99.37	0.63	ASIA	Sindh-08
2	Asia1/PAK/37/2015	PAK15-37	633	628	0	99.21	0.79	ASIA	Sindh-08
3	Asia1/PAK/38/2015	PAK15-38	633	628	0	99.21	0.79	ASIA	Sindh-08
4	Asia1/PAK/35/2014	PAK14-35	633	626	0	98.89	1.11	ASIA	Sindh-08
5	Asia1/PAK/26/2014	PAK14-26	633	625	0	98.74	1.26	ASIA	Sindh-08
6	Asia1/PAK/37/2014	PAK14-37	633	625	0	98.74	1.26	ASIA	Sindh-08
7	Asia1/PAK/39/2014	PAK14-39	633	625	0	98.74	1.26	ASIA	Sindh-08
8	Asia1/PAK/46/2014	PAK14-46	633	623	0	98.42	1.58	ASIA	Sindh-08
9	Asia1/PAK/54/2015	PAK15-54	633	621	0	98.10	1.90	ASIA	Sindh-08
10	Asia1/PAK/48/2015	PAK15-48	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	603	0	95.26	4.74	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	576	0	91.00	9.00	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	542	0	85.62	14.38	ASIA	Group III
4	Asia1/IND/63/72* (AY304994)	IND72C63	630	535	0	84.92	15.08	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	536	0	84.68	15.32	ASIA	unnamed
7	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	536	0	84.68	15.32	ASIA	unnamed
8	Asia1/IND/14/95* (AF390678)	IND95-AA	633	533	0	84.20	15.80	ASIA	unnamed
9	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	530	0	83.73	16.27	ASIA	Group VIb
10	Asia1/HKN/19/74 (FJ785230)	HKN74-19	633	528	0	83.41	16.59	ASIA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: ASIA1	Report date: 13/03/2016
WRLFMD Ref No: PAK/33/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00037	Checked by: K. Bachanek-Bankowska
Sender Ref: PK25/12/15	
Location: Karachi, Sindh, Pakistan	Topotype: ASIA
Date collected: 05/09/2015	Genotype/strain: Sindh-08
Date received by WRLFMD: 17/12/2015	Sequence filename: PAK15-33.SEQ
Date received for sequencing: 08/03/2016	Date sequence last updated: 11/03/2016
Species: Water Buffalo	No. of Nt determined: 633
Material used: BTY1 18/02/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 587
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 87 days
	Sequencing time: 5 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/PAK/37/2015	PAK15-37	633	632	0	99.84	0.16	ASIA	Sindh-08
2	Asia1/PAK/38/2015	PAK15-38	633	632	0	99.84	0.16	ASIA	Sindh-08
3	Asia1/PAK/29/2015	PAK15-29	633	629	0	99.37	0.63	ASIA	Sindh-08
4	Asia1/PAK/35/2014	PAK14-35	633	626	0	98.89	1.11	ASIA	Sindh-08
5	Asia1/PAK/26/2014	PAK14-26	633	625	0	98.74	1.26	ASIA	Sindh-08
6	Asia1/PAK/37/2014	PAK14-37	633	625	0	98.74	1.26	ASIA	Sindh-08
7	Asia1/PAK/39/2014	PAK14-39	633	625	0	98.74	1.26	ASIA	Sindh-08
8	Asia1/PAK/46/2014	PAK14-46	633	623	0	98.42	1.58	ASIA	Sindh-08
9	Asia1/PAK/54/2015	PAK15-54	633	621	0	98.10	1.90	ASIA	Sindh-08
10	Asia1/PAK/48/2015	PAK15-48	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	605	0	95.58	4.42	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	578	0	91.31	8.69	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	544	0	85.94	14.06	ASIA	Group III
4	Asia1/IND/18/80 (DQ121116)	IND80-18	633	538	0	84.99	15.01	ASIA	Group V
5	Asia1/Shamir/ISR/89	ISR89--A	633	538	0	84.99	15.01	ASIA	unnamed
6	Asia1/IND/63/72* (AY304994)	IND72C63	630	535	0	84.92	15.08	ASIA	unnamed
7	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	536	0	84.68	15.32	ASIA	unnamed
8	Asia1/IND/14/95* (AF390678)	IND95-AA	633	535	0	84.52	15.48	ASIA	unnamed
9	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	532	0	84.04	15.96	ASIA	Group VIb
10	Asia1/HKN/19/74 (FJ785230)	HKN74-19	633	530	0	83.73	16.27	ASIA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: ASIA1	Report date: 13/03/2016
WRLFMD Ref No: PAK/37/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00037	Checked by: K. Bachanek-Bankowska
Sender Ref: PK17/12/15	
Location: Karachi, Sindh, Pakistan	Topotype: ASIA
Date collected: 22/09/2015	Genotype/strain: Sindh-08
Date received by WRLFMD: 17/12/2015	Sequence filename: PAK15-37.SEQ
Date received for sequencing: 08/03/2016	Date sequence last updated: 11/03/2016
Species: Cattle	No. of Nt determined: 633
Material used: BTY1 23/02/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 587
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 87 days
	Sequencing time: 5 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/PAK/38/2015	PAK15-38	633	633	0	100.00	0.00	ASIA	Sindh-08
2	Asia1/PAK/33/2015	PAK15-33	633	632	0	99.84	0.16	ASIA	Sindh-08
3	Asia1/PAK/29/2015	PAK15-29	633	628	0	99.21	0.79	ASIA	Sindh-08
4	Asia1/PAK/35/2014	PAK14-35	633	625	0	98.74	1.26	ASIA	Sindh-08
5	Asia1/PAK/26/2014	PAK14-26	633	624	0	98.58	1.42	ASIA	Sindh-08
6	Asia1/PAK/37/2014	PAK14-37	633	624	0	98.58	1.42	ASIA	Sindh-08
7	Asia1/PAK/39/2014	PAK14-39	633	624	0	98.58	1.42	ASIA	Sindh-08
8	Asia1/PAK/46/2014	PAK14-46	633	622	0	98.26	1.74	ASIA	Sindh-08
9	Asia1/PAK/54/2015	PAK15-54	633	620	0	97.95	2.05	ASIA	Sindh-08
10	Asia1/PAK/48/2015	PAK15-48	633	617	0	97.47	2.53	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	604	0	95.42	4.58	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	577	0	91.15	8.85	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	543	0	85.78	14.22	ASIA	Group III
4	Asia1/Shamir/ISR/89	ISR89--A	633	539	0	85.15	14.85	ASIA	unnamed
5	Asia1/IND/63/72* (AY304994)	IND72C63	630	536	0	85.08	14.92	ASIA	unnamed
6	Asia1/IND/18/80 (DQ121116)	IND80-18	633	537	0	84.83	15.17	ASIA	Group V
7	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	535	0	84.52	15.48	ASIA	unnamed
8	Asia1/IND/14/95* (AF390678)	IND95-AA	633	534	0	84.36	15.64	ASIA	unnamed
9	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	531	0	83.89	16.11	ASIA	Group VIb
10	Asia1/HKN/19/74 (FJ785230)	HKN74-19	633	529	0	83.57	16.43	ASIA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: ASIA1	Report date: 13/03/2016
WRLFMD Ref No: PAK/38/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00037	Checked by: K. Bachanek-Bankowska
Sender Ref: PK18/12/15	
Location: Karachi, Sindh, Pakistan	Topotype: ASIA
Date collected: 23/09/2015	Genotype/strain: Sindh-08
Date received by WRLFMD: 17/12/2015	Sequence filename: PAK15-38.SEQ
Date received for sequencing: 08/03/2016	Date sequence last updated: 11/03/2016
Species: Cattle	No. of Nt determined: 633
Material used: BTY1 23/02/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 587
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 87 days
	Sequencing time: 5 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/PAK/37/2015	PAK15-37	633	633	0	100.00	0.00	ASIA	Sindh-08
2	Asia1/PAK/33/2015	PAK15-33	633	632	0	99.84	0.16	ASIA	Sindh-08
3	Asia1/PAK/29/2015	PAK15-29	633	628	0	99.21	0.79	ASIA	Sindh-08
4	Asia1/PAK/35/2014	PAK14-35	633	625	0	98.74	1.26	ASIA	Sindh-08
5	Asia1/PAK/26/2014	PAK14-26	633	624	0	98.58	1.42	ASIA	Sindh-08
6	Asia1/PAK/37/2014	PAK14-37	633	624	0	98.58	1.42	ASIA	Sindh-08
7	Asia1/PAK/39/2014	PAK14-39	633	624	0	98.58	1.42	ASIA	Sindh-08
8	Asia1/PAK/46/2014	PAK14-46	633	622	0	98.26	1.74	ASIA	Sindh-08
9	Asia1/PAK/54/2015	PAK15-54	633	620	0	97.95	2.05	ASIA	Sindh-08
10	Asia1/PAK/48/2015	PAK15-48	633	617	0	97.47	2.53	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	604	0	95.42	4.58	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	577	0	91.15	8.85	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	543	0	85.78	14.22	ASIA	Group III
4	Asia1/Shamir/ISR/89	ISR89--A	633	539	0	85.15	14.85	ASIA	unnamed
5	Asia1/IND/63/72* (AY304994)	IND72C63	630	536	0	85.08	14.92	ASIA	unnamed
6	Asia1/IND/18/80 (DQ121116)	IND80-18	633	537	0	84.83	15.17	ASIA	Group V
7	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	535	0	84.52	15.48	ASIA	unnamed
8	Asia1/IND/14/95* (AF390678)	IND95-AA	633	534	0	84.36	15.64	ASIA	unnamed
9	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	531	0	83.89	16.11	ASIA	Group VIb
10	Asia1/HKN/19/74 (FJ785230)	HKN74-19	633	529	0	83.57	16.43	ASIA	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: ASIA1 WRLFMD Ref No: PAK/43/2015 Batch No: WRLFMD/2015/00037 Sender Ref: PK11/12/15 Location: Islamabad, Islamabad, Pakistan Date collected: 08/08/2015 Date received by WRLFMD: 17/12/2015 Date received for sequencing: 08/03/2016 Species: Cattle Material used: BTY1 24/02/2016 & BTY2 27/02/2016 Region sequenced: VP1 RT-PCR primers: As1-1C530F/EUR-2B52R As1-1C613F/EUR-2B52R	Report date: 13/03/2016 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: ASIA Genotype/strain: Sindh-08 Sequence filename: PAK15-43.SEQ Date sequence last updated: 11/03/2016 No. of Nt determined: 633 No. of ambiguities: 0 Gene length: 633 Total no. of comparisons: 587 Min. no. of nt for comparison: 600 Total turn-around time: 87 days Sequencing time: 5 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/PAK/1/2015	PAK15-01	633	632	0	99.84	0.16	ASIA	Sindh-08
2	Asia1/TUR/12/2015	TUR15-12	633	628	0	99.21	0.79	ASIA	Sindh-08
3	Asia1/TUR/2/2015	TUR15-02	633	628	0	99.21	0.79	ASIA	Sindh-08
4	Asia1/TUR/7/2015	TUR15-07	633	628	0	99.21	0.79	ASIA	Sindh-08
5	Asia1/TUR/9/2015	TUR15-09	633	627	0	99.05	0.95	ASIA	Sindh-08
6	Asia1/IRN/1/2015	IRN15-01	631	624	2	98.89	1.11	ASIA	Sindh-08
7	Asia1/TUR/18/2015	TUR15-18	633	625	0	98.74	1.26	ASIA	Sindh-08
8	Asia1/IRN/2/2015	IRN15-02	633	624	0	98.58	1.42	ASIA	Sindh-08
9	Asia1/IRN/20/2015	IRN15-20	633	623	0	98.42	1.58	ASIA	Sindh-08
10	Asia1/PAK/19/2014	PAK14-19	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	590	0	93.21	6.79	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	536	0	84.68	15.32	ASIA	Group III
4	Asia1/IND/63/72* (AY304994)	IND72C63	630	528	0	83.81	16.19	ASIA	unnamed
5	Asia1/IND/18/80 (DQ121116)	IND80-18	633	527	0	83.25	16.75	ASIA	Group V
6	Asia1/IND/14/95* (AF390678)	IND95-AA	633	526	0	83.10	16.90	ASIA	unnamed
7	Asia1/Shamir/ISR/89	ISR89--A	633	524	0	82.78	17.22	ASIA	unnamed
8	Asia1/HKN/19/74 (FJ785230)	HKN74-19	633	523	0	82.62	17.38	ASIA	unnamed
9	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	522	0	82.46	17.54	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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Serotype: ASIA1	Report date: 13/03/2016
WRLFMD Ref No: PAK/48/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00037	Checked by: K. Bachanek-Bankowska
Sender Ref: PK1/12/15	
Location: Rehim Yar Khan, Punjab, Pakistan	Topotype: ASIA
Date collected: 19/10/2015	Genotype/strain: Sindh-08
Date received by WRLFMD: 17/12/2015	Sequence filename: PAK15-48.SEQ
Date received for sequencing: 08/03/2016	Date sequence last updated: 11/03/2016
Species: Cattle	No. of Nt determined: 633
Material used: BTY1 24/02/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 587
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 87 days
	Sequencing time: 5 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/PAK/35/2014	PAK14-35	633	624	0	98.58	1.42	ASIA	Sindh-08
2	Asia1/PAK/37/2014	PAK14-37	633	623	0	98.42	1.58	ASIA	Sindh-08
3	Asia1/PAK/46/2014	PAK14-46	633	621	0	98.10	1.90	ASIA	Sindh-08
4	Asia1/PAK/26/2014	PAK14-26	633	620	0	97.95	2.05	ASIA	Sindh-08
5	Asia1/PAK/39/2014	PAK14-39	633	620	0	97.95	2.05	ASIA	Sindh-08
6	Asia1/PAK/22/2012	PAK12-22	633	618	0	97.63	2.37	ASIA	Sindh-08
7	Asia1/PAK/27/2012	PAK12-27	633	618	0	97.63	2.37	ASIA	Sindh-08
8	Asia1/PAK/29/2015	PAK15-29	633	618	0	97.63	2.37	ASIA	Sindh-08
9	Asia1/PAK/33/2015	PAK15-33	633	618	0	97.63	2.37	ASIA	Sindh-08
10	Asia1/PAK/57/2012	PAK12-57	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	601	0	94.94	5.06	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	576	0	91.00	9.00	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	537	0	84.83	15.17	ASIA	Group V
5	Asia1/IND/63/72* (AY304994)	IND72C63	630	534	0	84.76	15.24	ASIA	unnamed
6	Asia1/Shamir/ISR/89	ISR89--A	633	536	0	84.68	15.32	ASIA	unnamed
7	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	536	0	84.68	15.32	ASIA	unnamed
8	Asia1/IND/14/95* (AF390678)	IND95-AA	633	535	0	84.52	15.48	ASIA	unnamed
9	Asia1/HKN/19/74 (FJ785230)	HKN74-19	633	531	0	83.89	16.11	ASIA	unnamed
10	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	530	0	83.73	16.27	ASIA	Group VIb

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: ASIA1	Report date: 13/03/2016
WRLFMD Ref No: PAK/54/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00037	Checked by: K. Bachanek-Bankowska
Sender Ref: PK5/12/15	
Location: Toba Tek Singh, Punjab, Pakistan	Topotype: ASIA
Date collected: 06/11/2015	Genotype/strain: Sindh-08
Date received by WRLFMD: 17/12/2015	Sequence filename: PAK15-54.SEQ
Date received for sequencing: 08/03/2016	Date sequence last updated: 11/03/2016
Species: Water Buffalo	No. of Nt determined: 633
Material used: BTY1 25/02/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 587
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 87 days
	Sequencing time: 5 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/PAK/35/2014	PAK14-35	633	622	0	98.26	1.74	ASIA	Sindh-08
2	Asia1/PAK/26/2014	PAK14-26	633	621	0	98.10	1.90	ASIA	Sindh-08
3	Asia1/PAK/29/2015	PAK15-29	633	621	0	98.10	1.90	ASIA	Sindh-08
4	Asia1/PAK/33/2015	PAK15-33	633	621	0	98.10	1.90	ASIA	Sindh-08
5	Asia1/PAK/37/2014	PAK14-37	633	621	0	98.10	1.90	ASIA	Sindh-08
6	Asia1/PAK/39/2014	PAK14-39	633	621	0	98.10	1.90	ASIA	Sindh-08
7	Asia1/PAK/37/2015	PAK15-37	633	620	0	97.95	2.05	ASIA	Sindh-08
8	Asia1/PAK/38/2015	PAK15-38	633	620	0	97.95	2.05	ASIA	Sindh-08
9	Asia1/PAK/46/2014	PAK14-46	633	619	0	97.79	2.21	ASIA	Sindh-08
10	Asia1/PAK/22/2012	PAK12-22	633	615	0	97.16	2.84	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	605	0	95.58	4.42	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	576	0	91.00	9.00	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	542	0	85.62	14.38	ASIA	Group III
4	Asia1/IND/14/95* (AF390678)	IND95-AA	633	540	0	85.31	14.69	ASIA	unnamed
5	Asia1/IND/18/80 (DQ121116)	IND80-18	633	539	0	85.15	14.85	ASIA	Group V
6	Asia1/IND/63/72* (AY304994)	IND72C63	630	536	0	85.08	14.92	ASIA	unnamed
7	Asia1/Shamir/ISR/89	ISR89--A	633	538	0	84.99	15.01	ASIA	unnamed
8	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	537	0	84.83	15.17	ASIA	unnamed
9	Asia1/HKN/19/74 (FJ785230)	HKN74-19	633	533	0	84.20	15.80	ASIA	unnamed
10	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	533	0	84.20	15.80	ASIA	Group VIb

nt, nucleotides

*, not a WRLFMD reference number

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Report on FMDV Asia 1 in Pakistan in 2015

Batch: WRLFMD/2015/00037

◆ indicates viruses in this batch

Software: MEGA 6.06

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

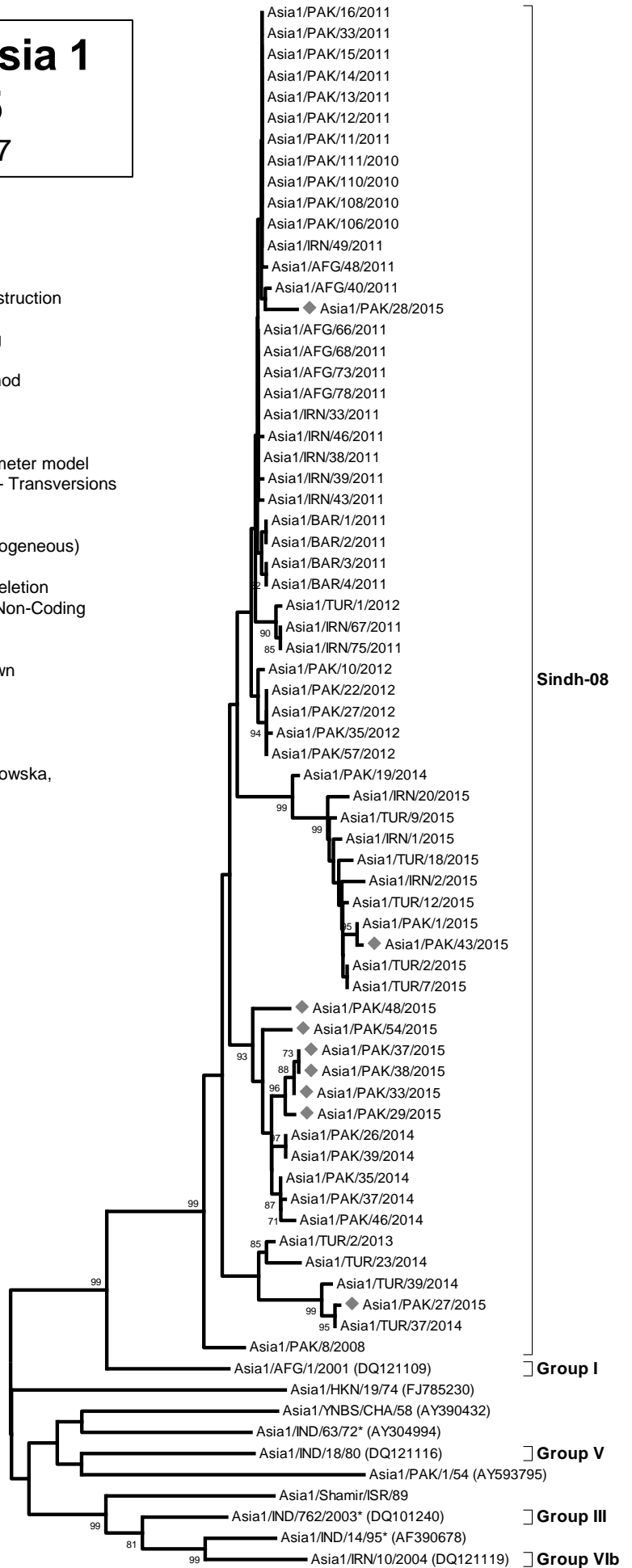
Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

N.J. Knowles, J. Wadsworth & K. Bachanek-Bankowska,
13 March 2016

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