

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

## Genotyping Report

Report Date for this Batch: 18 April 2016

FMDV type O

Country: Saudi Arabia

Period: 2015-2016

No. of samples: 9

BATCH: WRLFMD/2016/00011



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# FAO World Reference Laboratory for FMD Genotyping Report

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

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Serotype: O	Report date: 18/04/2016
WRLFMD Ref No: SAU/18/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2016/00011	Checked by: K. Bachanek-Bankowska
Sender Ref: 8	
Location: not known, Saudi Arabia	Topotype: ME-SA
Date collected: 22/12/2015	Genotype/strain: Ind-2001d
Date received by WRLFMD: 29/03/2016	Sequence filename: SAU15-18.SEQ
Date received for sequencing: 14/04/2016	Date sequence last updated: 18/04/2016
Species: Bovine	No. of Nt determined: 639
Material used: BTy1 06/04/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 4293
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 20 days
	Sequencing time: 4 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/SAU/19/2015	SAU15-19	639	639	0	100.00	0.00	ME-SA	Ind-2001d
2	O/SAU/20/2015	SAU15-20	639	639	0	100.00	0.00	ME-SA	Ind-2001d
3	O/SAU/22/2015	SAU15-22	639	639	0	100.00	0.00	ME-SA	Ind-2001d
4	O/SAU/10/2016	SAU16-10	639	636	0	99.53	0.47	ME-SA	Ind-2001d
5	O/UAE/1/2015	UAE15-01	639	636	0	99.53	0.47	ME-SA	Ind-2001d
6	O/SAU/1/2016	SAU16-01	639	635	0	99.37	0.63	ME-SA	Ind-2001d
7	O/NEP/17/2015	NEP15-17	639	632	0	98.90	1.10	ME-SA	Ind-2001d
8	O/NEP/19/2015	NEP15-19	639	632	0	98.90	1.10	ME-SA	Ind-2001d
9	O/NEP/10/2015	NEP15-10	639	628	0	98.28	1.72	ME-SA	Ind-2001d
10	O/NEP/11/2015	NEP15-11	639	628	0	98.28	1.72	ME-SA	Ind-2001d
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	O/BHU/3/2009 (KM921814)	BHU09-03	639	602	0	94.21	5.79	ME-SA	Ind-2001d
2	O/OMN/7/2001 (DQ164941)	OMN01-07	639	591	0	92.49	7.51	ME-SA	Ind-2001b
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	585	0	91.55	8.45	ME-SA	Ind-2001a
4	O/UAE/4/2008 (KM921876)	UAE08-04	636	575	0	90.41	9.59	ME-SA	Ind-2001c
5	O/IRN/31/2009	IRN09-31	639	568	0	88.89	11.11	ME-SA	PanAsia-2 <sup>FAR-09</sup>
6	O/UKG/35/2001 (AJ539141)	UKG01-35	639	568	0	88.89	11.11	ME-SA	PanAsia
7	O/PAK/16/2010	PAK10-16	639	565	0	88.42	11.58	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	563	0	88.11	11.89	ME-SA	unnamed
9	O/IRN/88/2009	IRN09-88	639	561	0	87.79	12.21	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/8/2005	IRN05-08	639	560	0	87.64	12.36	ME-SA	PanAsia-2

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	Report date: 18/04/2016
WRLFMD Ref No: SAU/19/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2016/00011	Checked by: K. Bachanek-Bankowska
Sender Ref: 10	
Location: not known, Saudi Arabia	Topotype: ME-SA
Date collected: 22/12/2015	Genotype/strain: Ind-2001d
Date received by WRLFMD: 29/03/2016	Sequence filename: SAU15-19.SEQ
Date received for sequencing: 14/04/2016	Date sequence last updated: 18/04/2016
Species: Bovine	No. of Nt determined: 639
Material used: BTy1 08/04/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 4293
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 20 days
	Sequencing time: 4 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/SAU/18/2015	SAU15-18	639	639	0	100.00	0.00	ME-SA	Ind-2001d
2	O/SAU/20/2015	SAU15-20	639	639	0	100.00	0.00	ME-SA	Ind-2001d
3	O/SAU/22/2015	SAU15-22	639	639	0	100.00	0.00	ME-SA	Ind-2001d
4	O/SAU/10/2016	SAU16-10	639	636	0	99.53	0.47	ME-SA	Ind-2001d
5	O/UAE/1/2015	UAE15-01	639	636	0	99.53	0.47	ME-SA	Ind-2001d
6	O/SAU/1/2016	SAU16-01	639	635	0	99.37	0.63	ME-SA	Ind-2001d
7	O/NEP/17/2015	NEP15-17	639	632	0	98.90	1.10	ME-SA	Ind-2001d
8	O/NEP/19/2015	NEP15-19	639	632	0	98.90	1.10	ME-SA	Ind-2001d
9	O/NEP/10/2015	NEP15-10	639	628	0	98.28	1.72	ME-SA	Ind-2001d
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2	O/OMN/7/2001 (DQ164941)	OMN01-07	639	591	0	92.49	7.51	ME-SA	Ind-2001b
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	585	0	91.55	8.45	ME-SA	Ind-2001a
4	O/UAE/4/2008 (KM921876)	UAE08-04	636	575	0	90.41	9.59	ME-SA	Ind-2001c
5	O/IRN/31/2009	IRN09-31	639	568	0	88.89	11.11	ME-SA	PanAsia-2 <sup>FAR-09</sup>
6	O/UKG/35/2001 (AJ539141)	UKG01-35	639	568	0	88.89	11.11	ME-SA	PanAsia
7	O/PAK/16/2010	PAK10-16	639	565	0	88.42	11.58	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	563	0	88.11	11.89	ME-SA	unnamed
9	O/IRN/88/2009	IRN09-88	639	561	0	87.79	12.21	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/8/2005	IRN05-08	639	560	0	87.64	12.36	ME-SA	PanAsia-2

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Serotype: O	Report date: 18/04/2016
WRLFMD Ref No: SAU/20/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2016/00011	Checked by: K. Bachanek-Bankowska
Sender Ref: 11	
Location: not known, Saudi Arabia	Topotype: ME-SA
Date collected: 22/12/2015	Genotype/strain: Ind-2001d
Date received by WRLFMD: 29/03/2016	Sequence filename: SAU15-20.SEQ
Date received for sequencing: 14/04/2016	Date sequence last updated: 18/04/2016
Species: Bovine	No. of Nt determined: 639
Material used: BTy1 07/04/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 4293
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
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1	O/SAU/18/2015	SAU15-18	639	639	0	100.00	0.00	ME-SA	Ind-2001d
2	O/SAU/19/2015	SAU15-19	639	639	0	100.00	0.00	ME-SA	Ind-2001d
3	O/SAU/22/2015	SAU15-22	639	639	0	100.00	0.00	ME-SA	Ind-2001d
4	O/SAU/10/2016	SAU16-10	639	636	0	99.53	0.47	ME-SA	Ind-2001d
5	O/UAE/1/2015	UAE15-01	639	636	0	99.53	0.47	ME-SA	Ind-2001d
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8	O/NEP/19/2015	NEP15-19	639	632	0	98.90	1.10	ME-SA	Ind-2001d
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3	O/KUW/3/97 (DQ164904)	KUW97-03	639	585	0	91.55	8.45	ME-SA	Ind-2001a
4	O/UAE/4/2008 (KM921876)	UAE08-04	636	575	0	90.41	9.59	ME-SA	Ind-2001c
5	O/IRN/31/2009	IRN09-31	639	568	0	88.89	11.11	ME-SA	PanAsia-2 <sup>FAR-09</sup>
6	O/UKG/35/2001 (AJ539141)	UKG01-35	639	568	0	88.89	11.11	ME-SA	PanAsia
7	O/PAK/16/2010	PAK10-16	639	565	0	88.42	11.58	ME-SA	PanAsia-2 <sup>PUN-10</sup>
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9	O/IRN/88/2009	IRN09-88	639	561	0	87.79	12.21	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/8/2005	IRN05-08	639	560	0	87.64	12.36	ME-SA	PanAsia-2

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Serotype: O	Report date: 18/04/2016
WRLFMD Ref No: SAU/22/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2016/00011	Checked by: K. Bachanek-Bankowska
Sender Ref: 13	
Location: not known, Saudi Arabia	Topotype: ME-SA
Date collected: 22/12/2015	Genotype/strain: Ind-2001d
Date received by WRLFMD: 29/03/2016	Sequence filename: SAU15-22.SEQ
Date received for sequencing: 14/04/2016	Date sequence last updated: 18/04/2016
Species: Bovine	No. of Nt determined: 639
Material used: BTy1 08/04/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 4293
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1	O/SAU/18/2015	SAU15-18	639	639	0	100.00	0.00	ME-SA	Ind-2001d
2	O/SAU/19/2015	SAU15-19	639	639	0	100.00	0.00	ME-SA	Ind-2001d
3	O/SAU/20/2015	SAU15-20	639	639	0	100.00	0.00	ME-SA	Ind-2001d
4	O/SAU/10/2016	SAU16-10	639	636	0	99.53	0.47	ME-SA	Ind-2001d
5	O/UAE/1/2015	UAE15-01	639	636	0	99.53	0.47	ME-SA	Ind-2001d
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7	O/NEP/17/2015	NEP15-17	639	632	0	98.90	1.10	ME-SA	Ind-2001d
8	O/NEP/19/2015	NEP15-19	639	632	0	98.90	1.10	ME-SA	Ind-2001d
9	O/NEP/10/2015	NEP15-10	639	628	0	98.28	1.72	ME-SA	Ind-2001d
10	O/NEP/11/2015	NEP15-11	639	628	0	98.28	1.72	ME-SA	Ind-2001d
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3	O/KUW/3/97 (DQ164904)	KUW97-03	639	585	0	91.55	8.45	ME-SA	Ind-2001a
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6	O/UKG/35/2001 (AJ539141)	UKG01-35	639	568	0	88.89	11.11	ME-SA	PanAsia
7	O/PAK/16/2010	PAK10-16	639	565	0	88.42	11.58	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	563	0	88.11	11.89	ME-SA	unnamed
9	O/IRN/88/2009	IRN09-88	639	561	0	87.79	12.21	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/8/2005	IRN05-08	639	560	0	87.64	12.36	ME-SA	PanAsia-2

nt, nucleotides

\*, not a WRLFMD reference number

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Serotype: O WRLFMD Ref No: SAU/1/2016 Batch No: WRLFMD/2016/00011 Sender Ref: 1911 Location: Almarai Company, Durma, Durma, Riyadh, Central region, Saudi Arabia Date collected: 15/02/2016 Date received by WRLFMD: 29/03/2016 Date received for sequencing: 14/04/2016 Species: Cattle Material used: BTy1 07/04/2016 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 18/04/2016 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: ME-SA Genotype/strain: Ind-2001d Sequence filename: SAU16-01.SEQ Date sequence last updated: 18/04/2016 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 4293 Min. no. of nt for comparison: 600 Total turn-around time: 20 days Sequencing time: 4 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
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2	O/UAE/1/2015	UAE15-01	639	636	0	99.53	0.47	ME-SA	Ind-2001d
3	O/SAU/18/2015	SAU15-18	639	635	0	99.37	0.63	ME-SA	Ind-2001d
4	O/SAU/19/2015	SAU15-19	639	635	0	99.37	0.63	ME-SA	Ind-2001d
5	O/SAU/20/2015	SAU15-20	639	635	0	99.37	0.63	ME-SA	Ind-2001d
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9	O/NEP/10/2015	NEP15-10	639	628	0	98.28	1.72	ME-SA	Ind-2001d
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Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	O/BHU/3/2009 (KM921814)	BHU09-03	639	600	0	93.90	6.10	ME-SA	Ind-2001d
2	O/OMN/7/2001 (DQ164941)	OMN01-07	639	591	0	92.49	7.51	ME-SA	Ind-2001b
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	583	0	91.24	8.76	ME-SA	Ind-2001a
4	O/UAE/4/2008 (KM921876)	UAE08-04	636	573	0	90.09	9.91	ME-SA	Ind-2001c
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7	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	563	0	88.11	11.89	ME-SA	unnamed
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9	O/IRN/88/2009	IRN09-88	639	559	0	87.48	12.52	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/8/2005	IRN05-08	639	558	0	87.32	12.68	ME-SA	PanAsia-2

nt, nucleotides

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WRLFMD Ref No: SAU/2/2016	Reported by: N.J. Knowles
Batch No: WRLFMD/2016/00011	Checked by: K. Bachanek-Bankowska
Sender Ref: 14	
Location: not known, Saudi Arabia	Topotype: ME-SA
Date collected: 19/02/2016	Genotype/strain: Ind-2001d
Date received by WRLFMD: 29/03/2016	Sequence filename: SAU16-02.SEQ
Date received for sequencing: 14/04/2016	Date sequence last updated: 18/04/2016
Species: Bovine	No. of Nt determined: 639
Material used: BTy2 06/04/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 4293
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5	O/NEP/10/2015	NEP15-10	639	630	0	98.59	1.41	ME-SA	Ind-2001d
6	O/NEP/11/2015	NEP15-11	639	630	0	98.59	1.41	ME-SA	Ind-2001d
7	O/NEP/9/2015	NEP15-09	638	629	1	98.59	1.41	ME-SA	Ind-2001d
8	O/NEP/12/2015	NEP15-12	639	629	0	98.44	1.56	ME-SA	Ind-2001d
9	O/NEP/14/2015	NEP15-14	639	629	0	98.44	1.56	ME-SA	Ind-2001d
10	O/NEP/15/2015	NEP15-15	639	629	0	98.44	1.56	ME-SA	Ind-2001d
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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1	O/BHU/3/2009 (KM921814)	BHU09-03	639	602	0	94.21	5.79	ME-SA	Ind-2001d
2	O/OMN/7/2001 (DQ164941)	OMN01-07	639	592	0	92.64	7.36	ME-SA	Ind-2001b
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	586	0	91.71	8.29	ME-SA	Ind-2001a
4	O/UAE/4/2008 (KM921876)	UAE08-04	636	576	0	90.57	9.43	ME-SA	Ind-2001c
5	O/UKG/35/2001 (AJ539141)	UKG01-35	639	570	0	89.20	10.80	ME-SA	PanAsia
6	O/IRN/31/2009	IRN09-31	639	568	0	88.89	11.11	ME-SA	PanAsia-2 <sup>FAR-09</sup>
7	O/IRN/8/2005	IRN05-08	639	564	0	88.26	11.74	ME-SA	PanAsia-2
8	O/IRN/18/2010	IRN10-18	639	563	0	88.11	11.89	ME-SA	PanAsia-2 <sup>BAL-09</sup>
9	O/PAK/16/2010	PAK10-16	639	563	0	88.11	11.89	ME-SA	PanAsia-2 <sup>PUN-10</sup>
10	O/TUR/257/2008* (FMDI)	TUR08-AD	639	563	0	88.11	11.89	ME-SA	PanAsia-2 <sup>TER-08</sup>

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	Report date: 18/04/2016
WRLFMD Ref No: SAU/3/2016	Reported by: N.J. Knowles
Batch No: WRLFMD/2016/00011	Checked by: K. Bachanek-Bankowska
Sender Ref: 15	
Location: not known, Saudi Arabia	Topotype: ME-SA
Date collected: 19/02/2016	Genotype/strain: Ind-2001d
Date received by WRLFMD: 29/03/2016	Sequence filename: SAU16-03.SEQ
Date received for sequencing: 14/04/2016	Date sequence last updated: 18/04/2016
Species: Bovine	No. of Nt determined: 639
Material used: BTy1 01/04/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 4293
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 20 days
	Sequencing time: 4 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/SAU/2/2016	SAU16-02	639	639	0	100.00	0.00	ME-SA	Ind-2001d
2	O/SAU/7/2016	SAU16-07	639	636	0	99.53	0.47	ME-SA	Ind-2001d
3	O/NEP/17/2015	NEP15-17	639	632	0	98.90	1.10	ME-SA	Ind-2001d
4	O/NEP/19/2015	NEP15-19	639	632	0	98.90	1.10	ME-SA	Ind-2001d
5	O/NEP/10/2015	NEP15-10	639	630	0	98.59	1.41	ME-SA	Ind-2001d
6	O/NEP/11/2015	NEP15-11	639	630	0	98.59	1.41	ME-SA	Ind-2001d
7	O/NEP/9/2015	NEP15-09	638	629	1	98.59	1.41	ME-SA	Ind-2001d
8	O/NEP/12/2015	NEP15-12	639	629	0	98.44	1.56	ME-SA	Ind-2001d
9	O/NEP/14/2015	NEP15-14	639	629	0	98.44	1.56	ME-SA	Ind-2001d
10	O/NEP/15/2015	NEP15-15	639	629	0	98.44	1.56	ME-SA	Ind-2001d
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	O/BHU/3/2009 (KM921814)	BHU09-03	639	602	0	94.21	5.79	ME-SA	Ind-2001d
2	O/OMN/7/2001 (DQ164941)	OMN01-07	639	592	0	92.64	7.36	ME-SA	Ind-2001b
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	586	0	91.71	8.29	ME-SA	Ind-2001a
4	O/UAE/4/2008 (KM921876)	UAE08-04	636	576	0	90.57	9.43	ME-SA	Ind-2001c
5	O/UKG/35/2001 (AJ539141)	UKG01-35	639	570	0	89.20	10.80	ME-SA	PanAsia
6	O/IRN/31/2009	IRN09-31	639	568	0	88.89	11.11	ME-SA	PanAsia-2 <sup>FAR-09</sup>
7	O/IRN/8/2005	IRN05-08	639	564	0	88.26	11.74	ME-SA	PanAsia-2
8	O/IRN/18/2010	IRN10-18	639	563	0	88.11	11.89	ME-SA	PanAsia-2 <sup>BAL-09</sup>
9	O/PAK/16/2010	PAK10-16	639	563	0	88.11	11.89	ME-SA	PanAsia-2 <sup>PUN-10</sup>
10	O/TUR/257/2008* (FMDI)	TUR08-AD	639	563	0	88.11	11.89	ME-SA	PanAsia-2 <sup>TER-08</sup>

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: SAU/7/2016 Batch No: WRLFMD/2016/00011 Sender Ref: 19 Location: not known, Saudi Arabia Date collected: 19/02/2016 Date received by WRLFMD: 29/03/2016 Date received for sequencing: 14/04/2016 Species: Bovine Material used: BTy1/OF 01/04/2016 & BTy1/OS 02/03/2016 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 18/04/2016 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska  Topotype: ME-SA Genotype/strain: Ind-2001d Sequence filename: SAU16-07.SEQ Date sequence last updated: 18/04/2016 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 4293 Min. no. of nt for comparison: 600 Total turn-around time: 20 days Sequencing time: 4 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/SAU/2/2016	SAU16-02	639	636	0	99.53	0.47	ME-SA	Ind-2001d
2	O/SAU/3/2016	SAU16-03	639	636	0	99.53	0.47	ME-SA	Ind-2001d
3	O/NEP/17/2015	NEP15-17	639	633	0	99.06	0.94	ME-SA	Ind-2001d
4	O/NEP/19/2015	NEP15-19	639	633	0	99.06	0.94	ME-SA	Ind-2001d
5	O/NEP/10/2015	NEP15-10	639	631	0	98.75	1.25	ME-SA	Ind-2001d
6	O/NEP/11/2015	NEP15-11	639	631	0	98.75	1.25	ME-SA	Ind-2001d
7	O/NEP/9/2015	NEP15-09	638	630	1	98.75	1.25	ME-SA	Ind-2001d
8	O/NEP/12/2015	NEP15-12	639	630	0	98.59	1.41	ME-SA	Ind-2001d
9	O/NEP/14/2015	NEP15-14	639	630	0	98.59	1.41	ME-SA	Ind-2001d
10	O/NEP/15/2015	NEP15-15	639	630	0	98.59	1.41	ME-SA	Ind-2001d
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	O/BHU/3/2009 (KM921814)	BHU09-03	639	604	0	94.52	5.48	ME-SA	Ind-2001d
2	O/OMN/7/2001 (DQ164941)	OMN01-07	639	592	0	92.64	7.36	ME-SA	Ind-2001b
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	586	0	91.71	8.29	ME-SA	Ind-2001a
4	O/UAE/4/2008 (KM921876)	UAE08-04	636	577	0	90.72	9.28	ME-SA	Ind-2001c
5	O/UKG/35/2001 (AJ539141)	UKG01-35	639	570	0	89.20	10.80	ME-SA	PanAsia
6	O/IRN/31/2009	IRN09-31	639	568	0	88.89	11.11	ME-SA	PanAsia-2 <sup>FAR-09</sup>
7	O/IRN/18/2010	IRN10-18	639	564	0	88.26	11.74	ME-SA	PanAsia-2 <sup>BAL-09</sup>
8	O/IRN/8/2005	IRN05-08	639	564	0	88.26	11.74	ME-SA	PanAsia-2
9	O/PAK/16/2010	PAK10-16	639	563	0	88.11	11.89	ME-SA	PanAsia-2 <sup>PUN-10</sup>
10	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	562	0	87.95	12.05	ME-SA	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

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Serotype: O	Report date: 18/04/2016
WRLFMD Ref No: SAU/10/2016	Reported by: N.J. Knowles
Batch No: WRLFMD/2016/00011	Checked by: K. Bachanek-Bankowska
Sender Ref: 22	
Location: not known, Saudi Arabia	Topotype: ME-SA
Date collected: 19/02/2016	Genotype/strain: Ind-2001d
Date received by WRLFMD: 29/03/2016	Sequence filename: SAU16-10.SEQ
Date received for sequencing: 14/04/2016	Date sequence last updated: 18/04/2016
Species: Bovine	No. of Nt determined: 639
Material used: BTy1 01/04/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 639
RT-PCR primers: O-1C244F/EUR-2B52R	Total no. of comparisons: 4293
O-1C272F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 20 days
	Sequencing time: 4 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/UAE/1/2015	UAE15-01	639	637	0	99.69	0.31	ME-SA	Ind-2001d
2	O/SAU/1/2016	SAU16-01	639	636	0	99.53	0.47	ME-SA	Ind-2001d
3	O/SAU/18/2015	SAU15-18	639	636	0	99.53	0.47	ME-SA	Ind-2001d
4	O/SAU/19/2015	SAU15-19	639	636	0	99.53	0.47	ME-SA	Ind-2001d
5	O/SAU/20/2015	SAU15-20	639	636	0	99.53	0.47	ME-SA	Ind-2001d
6	O/SAU/22/2015	SAU15-22	639	636	0	99.53	0.47	ME-SA	Ind-2001d
7	O/NEP/17/2015	NEP15-17	639	633	0	99.06	0.94	ME-SA	Ind-2001d
8	O/NEP/19/2015	NEP15-19	639	633	0	99.06	0.94	ME-SA	Ind-2001d
9	O/NEP/10/2015	NEP15-10	639	629	0	98.44	1.56	ME-SA	Ind-2001d
10	O/NEP/11/2015	NEP15-11	639	629	0	98.44	1.56	ME-SA	Ind-2001d
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	O/BHU/3/2009 (KM921814)	BHU09-03	639	601	0	94.05	5.95	ME-SA	Ind-2001d
2	O/OMN/7/2001 (DQ164941)	OMN01-07	639	590	0	92.33	7.67	ME-SA	Ind-2001b
3	O/KUW/3/97 (DQ164904)	KUW97-03	639	584	0	91.39	8.61	ME-SA	Ind-2001a
4	O/UAE/4/2008 (KM921876)	UAE08-04	636	574	0	90.25	9.75	ME-SA	Ind-2001c
5	O/IRN/31/2009	IRN09-31	639	567	0	88.73	11.27	ME-SA	PanAsia-2 <sup>FAR-09</sup>
6	O/UKG/35/2001 (AJ539141)	UKG01-35	639	567	0	88.73	11.27	ME-SA	PanAsia
7	O/PAK/16/2010	PAK10-16	639	562	0	87.95	12.05	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O1/Manisa/TUR/69 (AY593823)	TUR69--G	639	562	0	87.95	12.05	ME-SA	unnamed
9	O/IRN/88/2009	IRN09-88	639	560	0	87.64	12.36	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/IRN/8/2005	IRN05-08	639	559	0	87.48	12.52	ME-SA	PanAsia-2

nt, nucleotides

\*, not a WRLFMD reference number

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# Report on FMDV O in Saudi Arabia in 2015-2016

Batch: WRLFMD/2016/00011

◆ 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 : 642

No Of Bootstrap Reps = 1000

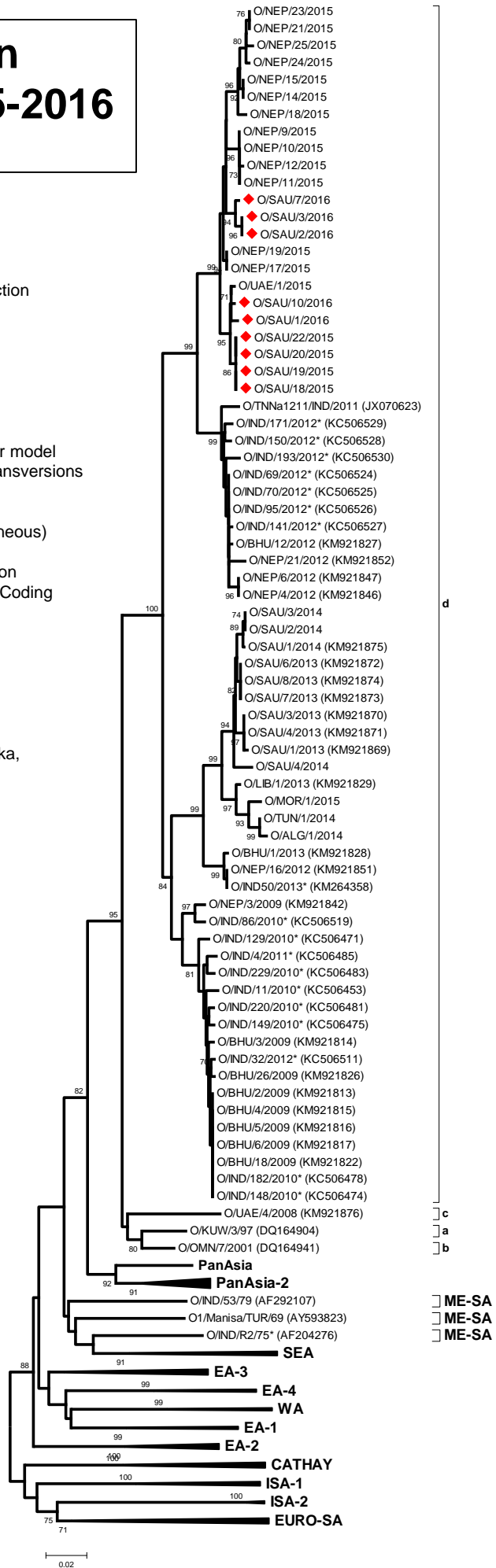
Only bootstrap values of 70% and above are shown

\*, not a WRLFMD Ref. No.

N.J. Knowles, J. Wadsworth & K. Bachanek-Bankowska,  
18 April 2016

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d  
c  
a  
b  
ME-SA  
ME-SA  
ME-SA