

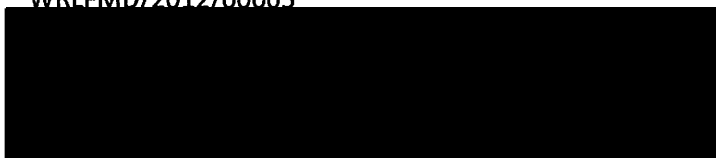


INSTITUTE FOR ANIMAL HEALTH  
Director: Professor John Fazakerley BSc, MBA, PhD, FRCPath  
PIRBRIGHT LABORATORY  
Ash Road,  
Pirbright,  
Surrey,  
GU24 0NF  
Intn Tel: 00 44 1483 232441  
Tel: 01483 232441 Fax: 01483 232621

## FMD Genotyping Report

Lab Reference WRL Batch Number: WRLFMD/2012/00005

Sender Details:



Date Received: 31<sup>st</sup> January 2012

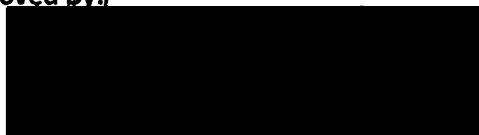
Country of Origin: Libya

Date Reported: 20<sup>th</sup> February 2012

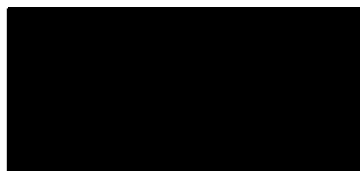
Dear Dr Milad E Farhat

Sequencing work has now been completed in respect of the samples you submitted and the details are as attached. Please note that all of our phylogenetic trees can be accessed via the internet at: <http://www.wrlfmd.org/>

Results Approved By:

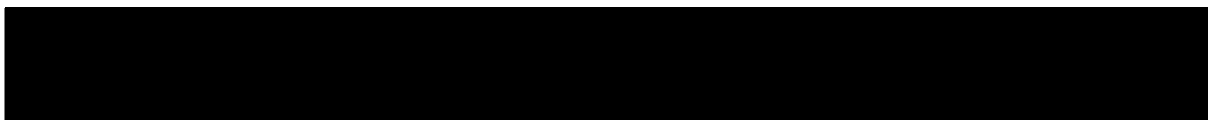


Official Stamp:



Date:

20/2/12



A UKAS accredited testing laboratory No. 4025.

To help us improve the quality of our service, please send any suggestions or requests to the Reference Laboratory by fax (+44 (0) 1483 232621 or email: [gareth.shimmon@iah.ac.uk](mailto:gareth.shimmon@iah.ac.uk). IAH actively seeks and appreciates feedback, if you would like to offer feedback please complete the WRLFMD survey here: <http://www.surveymonkey.com/s/WRLFMD>

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

## Genotyping Report

Report Date for this Batch: 20 February 2012

FMDV type O

Country: Libya

Period: 2011-2012

No. of samples: 10

BATCH: WRLFMD/2012/00005



The contents of this report are copyright and should not be reproduced without permission

© Institute for Animal Health

# FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: O WRLFMD Ref No: LIB/25/2011 Batch No: WRLFMD/2012/00005 Sender Ref: C1 Location: Bir Muammar, Zawiyah, West Province, Libya Date collected: 21/12/2011 Date received by WRLFMD: 31/01/2012 Date received for sequencing: 13/02/2012 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 20/02/2012 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: LIB11-25.SEQ Date sequence last updated: 17/02/2012 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3216 Min. no. of nt for comparison: 600 Total turn-around time: 20 days Sequencing time: 7 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/LIB/26/2011	LIB11-26	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/LIB/33/2011	LIB11-33	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/LIB/31/2011	LIB11-31	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/LIB/5/2012	LIB12-05	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/LIB/7/2012	LIB12-07	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/LIB/29/2011	LIB11-29	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/LIB/3/2012	LIB12-03	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/LIB/1/2012	LIB12-01	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/LIB/2/2012	LIB12-02	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/LIB/4/2010	LIB10-04	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>

## Most Closely Related Reference Viruses

(see [http://www.wrlfmd.org/fmd\\_genotyping/prototypes.htm](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	O/IRN/88/2009	IRN09-88	639	624	0	97.65	2.35	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	595	0	93.11	6.89	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	591	0	92.49	7.51	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	587	0	91.86	8.14	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	586	0	91.71	8.29	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	581	0	90.92	9.08	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	568	0	88.89	11.11	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	567	1	88.87	11.13	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

© Institute for Animal Health (not to be reproduced without permission)

# FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: O WRLFMD Ref No: LIB/26/2011 Batch No: WRLFMD/2012/00005 Sender Ref: C2 Location: Bir Muammar, Zawiyah, West Province, Libya Date collected: 21/12/2011 Date received by WRLFMD: 31/01/2012 Date received for sequencing: 13/02/2012 Species: Cattle Material used: BTy2 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 20/02/2012 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: LIB11-26.SEQ Date sequence last updated: 14/02/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3216 Min. no. of nt for comparison: 600 Total turn-around time: 20 days Sequencing time: 7 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/LIB/25/2011	LIB11-25	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/LIB/33/2011	LIB11-33	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/LIB/31/2011	LIB11-31	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/LIB/5/2012	LIB12-05	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/LIB/7/2012	LIB12-07	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/LIB/29/2011	LIB11-29	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/LIB/3/2012	LIB12-03	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/LIB/1/2012	LIB12-01	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/LIB/2/2012	LIB12-02	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/LIB/4/2010	LIB10-04	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>

## Most Closely Related Reference Viruses

(see [http://www.wrlfmd.org/fmd\\_genotyping/prototypes.htm](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	O/IRN/88/2009	IRN09-88	639	624	0	97.65	2.35	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	595	0	93.11	6.89	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	591	0	92.49	7.51	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	587	0	91.86	8.14	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	586	0	91.71	8.29	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	581	0	90.92	9.08	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	568	0	88.89	11.11	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	567	1	88.87	11.13	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

© Institute for Animal Health (not to be reproduced without permission)

# FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: O WRLFMD Ref No: LIB/29/2011 Batch No: WRLFMD/2012/00005 Sender Ref: D3 Location: Abuesa, Zawiyah, West Province, Libya Date collected: 24/12/2011 Date received by WRLFMD: 31/01/2012 Date received for sequencing: 13/02/2012 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 20/02/2012 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: LIB11-29.SEQ Date sequence last updated: 14/02/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3216 Min. no. of nt for comparison: 600 Total turn-around time: 20 days Sequencing time: 7 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/LIB/25/2011	LIB11-25	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/LIB/26/2011	LIB11-26	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/LIB/33/2011	LIB11-33	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/LIB/31/2011	LIB11-31	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/LIB/5/2012	LIB12-05	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/LIB/7/2012	LIB12-07	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/LIB/3/2012	LIB12-03	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/LIB/1/2012	LIB12-01	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/LIB/2/2012	LIB12-02	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/LIB/4/2010	LIB10-04	639	631	0	98.75	1.25	ME-SA	PanAsia-2 <sup>ANT-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	O/IRN/88/2009	IRN09-88	639	622	0	97.34	2.66	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/31/2009	IRN09-31	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>FAR-09</sup>
3	O/IRN/8/2005	IRN05-08	639	593	0	92.80	7.20	ME-SA	PanAsia-2
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	589	0	92.18	7.82	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	585	0	91.55	8.45	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	584	0	91.39	8.61	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	581	0	90.92	9.08	ME-SA	PanAsia
9	O/IRN/61/2001 (DQ164896)	IRN01-61	638	567	1	88.87	11.13	ME-SA	Irn-2001
10	O/OMN/7/2001 (DQ164941)	OMN01-07	639	567	0	88.73	11.27	ME-SA	Ind-2001b

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

© Institute for Animal Health (not to be reproduced without permission)

# FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: O WRLFMD Ref No: LIB/31/2011 Batch No: WRLFMD/2012/00005 Sender Ref: E3 Location: Sudaim, Zawiyah, West Province, Libya Date collected: 25/12/2011 Date received by WRLFMD: 31/01/2012 Date received for sequencing: 13/02/2012 Species: Cattle Material used: RS1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 20/02/2012 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: LIB11-31.SEQ Date sequence last updated: 14/02/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3216 Min. no. of nt for comparison: 600 Total turn-around time: 20 days Sequencing time: 7 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/LIB/25/2011	LIB11-25	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/LIB/26/2011	LIB11-26	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/LIB/33/2011	LIB11-33	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/LIB/5/2012	LIB12-05	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/LIB/7/2012	LIB12-07	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/LIB/29/2011	LIB11-29	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/LIB/3/2012	LIB12-03	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/LIB/1/2012	LIB12-01	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/LIB/2/2012	LIB12-02	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/LIB/4/2010	LIB10-04	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-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	O/IRN/88/2009	IRN09-88	639	623	0	97.50	2.50	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	595	0	93.11	6.89	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	593	0	92.80	7.20	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	591	0	92.49	7.51	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	587	0	91.86	8.14	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	587	0	91.86	8.14	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	585	0	91.55	8.45	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	581	0	90.92	9.08	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	568	0	88.89	11.11	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	567	1	88.87	11.13	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

© Institute for Animal Health (not to be reproduced without permission)

# FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: O WRLFMD Ref No: LIB/33/2011 Batch No: WRLFMD/2012/00005 Sender Ref: F3 Location: Sudaim, Zawiyah, West Province, Libya Date collected: 25/12/2011 Date received by WRLFMD: 31/01/2012 Date received for sequencing: 13/02/2012 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 20/02/2012 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: LIB11-33.SEQ Date sequence last updated: 14/02/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3216 Min. no. of nt for comparison: 600 Total turn-around time: 20 days Sequencing time: 7 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/LIB/25/2011	LIB11-25	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/LIB/26/2011	LIB11-26	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/LIB/31/2011	LIB11-31	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/LIB/5/2012	LIB12-05	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/LIB/7/2012	LIB12-07	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/LIB/29/2011	LIB11-29	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/LIB/3/2012	LIB12-03	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/LIB/1/2012	LIB12-01	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/LIB/2/2012	LIB12-02	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/LIB/4/2010	LIB10-04	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-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	O/IRN/88/2009	IRN09-88	639	624	0	97.65	2.35	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	595	0	93.11	6.89	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	591	0	92.49	7.51	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	587	0	91.86	8.14	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	586	0	91.71	8.29	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	581	0	90.92	9.08	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	568	0	88.89	11.11	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	567	1	88.87	11.13	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

© Institute for Animal Health (not to be reproduced without permission)

# FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: O WRLFMD Ref No: LIB/1/2012 Batch No: WRLFMD/2012/00005 Sender Ref: Unknown Location: Kerzaz, Mesrata, West Province, Libya Date collected: 01/01/2012 Date received by WRLFMD: 31/01/2012 Date received for sequencing: 13/02/2012 Species: Not Known Material used: OS Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 20/02/2012 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: LIB12-01.SEQ Date sequence last updated: 17/02/2012 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3216 Min. no. of nt for comparison: 600 Total turn-around time: 20 days Sequencing time: 7 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/LIB/2/2012	LIB12-02	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/LIB/3/2012	LIB12-03	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/LIB/5/2012	LIB12-05	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/LIB/25/2011	LIB11-25	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/LIB/26/2011	LIB11-26	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/LIB/33/2011	LIB11-33	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/LIB/31/2011	LIB11-31	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/LIB/7/2012	LIB12-07	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/LIB/29/2011	LIB11-29	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/LIB/4/2010	LIB10-04	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-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	O/IRN/88/2009	IRN09-88	639	624	0	97.65	2.35	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/31/2009	IRN09-31	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>FAR-09</sup>
3	O/IRN/8/2005	IRN05-08	639	593	0	92.80	7.20	ME-SA	PanAsia-2
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	591	0	92.49	7.51	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	586	0	91.71	8.29	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	579	0	90.61	9.39	ME-SA	PanAsia
9	O/IRN/61/2001 (DQ164896)	IRN01-61	638	567	1	88.87	11.13	ME-SA	Irn-2001
10	O/OMN/7/2001 (DQ164941)	OMN01-07	639	566	0	88.58	11.42	ME-SA	Ind-2001b

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

© Institute for Animal Health (not to be reproduced without permission)



# FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: O WRLFMD Ref No: LIB/2/2012 Batch No: WRLFMD/2012/00005 Sender Ref: Unknown Location: Kerzaz, Mesrata, West Province, Libya Date collected: 01/01/2012 Date received by WRLFMD: 31/01/2012 Date received for sequencing: 13/02/2012 Species: Not Known Material used: RS2 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 20/02/2012 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: LIB12-02.SEQ Date sequence last updated: 14/02/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3216 Min. no. of nt for comparison: 600 Total turn-around time: 20 days Sequencing time: 7 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	O/LIB/1/2012	LIB12-01	639	639	0	100.00	0.00	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/LIB/3/2012	LIB12-03	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/LIB/5/2012	LIB12-05	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/LIB/25/2011	LIB11-25	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/LIB/26/2011	LIB11-26	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/LIB/33/2011	LIB11-33	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/LIB/31/2011	LIB11-31	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/LIB/7/2012	LIB12-07	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/LIB/29/2011	LIB11-29	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/LIB/4/2010	LIB10-04	639	633	0	99.06	0.94	ME-SA	PanAsia-2 <sup>ANT-10</sup>
<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	O/IRN/88/2009	IRN09-88	639	624	0	97.65	2.35	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/31/2009	IRN09-31	639	594	0	92.96	7.04	ME-SA	PanAsia-2 <sup>FAR-09</sup>
3	O/IRN/8/2005	IRN05-08	639	593	0	92.80	7.20	ME-SA	PanAsia-2
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	591	0	92.49	7.51	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	586	0	91.71	8.29	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	579	0	90.61	9.39	ME-SA	PanAsia
9	O/IRN/61/2001 (DQ164896)	IRN01-61	638	567	1	88.87	11.13	ME-SA	Irn-2001
10	O/OMN/7/2001 (DQ164941)	OMN01-07	639	566	0	88.58	11.42	ME-SA	Ind-2001b

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

© Institute for Animal Health (not to be reproduced without permission)

# FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: O WRLFMD Ref No: LIB/3/2012 Batch No: WRLFMD/2012/00005 Sender Ref: Unknown Location: Kerzaz, Mesrata, West Province, Libya Date collected: 01/01/2012 Date received by WRLFMD: 31/01/2012 Date received for sequencing: 13/02/2012 Species: Not Known Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 20/02/2012 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: LIB12-03.SEQ Date sequence last updated: 14/02/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3216 Min. no. of nt for comparison: 600 Total turn-around time: 20 days Sequencing time: 7 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/LIB/5/2012	LIB12-05	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/LIB/1/2012	LIB12-01	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/LIB/2/2012	LIB12-02	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/LIB/25/2011	LIB11-25	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/LIB/26/2011	LIB11-26	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/LIB/33/2011	LIB11-33	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/LIB/31/2011	LIB11-31	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/LIB/7/2012	LIB12-07	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/LIB/29/2011	LIB11-29	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/LIB/4/2010	LIB10-04	639	635	0	99.37	0.63	ME-SA	PanAsia-2 <sup>ANT-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	O/IRN/88/2009	IRN09-88	639	626	0	97.97	2.03	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/31/2009	IRN09-31	639	596	0	93.27	6.73	ME-SA	PanAsia-2 <sup>FAR-09</sup>
3	O/IRN/8/2005	IRN05-08	639	595	0	93.11	6.89	ME-SA	PanAsia-2
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	593	0	92.80	7.20	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	590	0	92.33	7.67	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	589	0	92.18	7.82	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	581	0	90.92	9.08	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	568	0	88.89	11.11	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	567	1	88.87	11.13	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

© Institute for Animal Health (not to be reproduced without permission)

# FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: O WRLFMD Ref No: LIB/5/2012 Batch No: WRLFMD/2012/00005 Sender Ref: I3 Location: Al Ataya, Garaboulli, West Province, Libya Date collected: 12/01/2012 Date received by WRLFMD: 31/01/2012 Date received for sequencing: 13/02/2012 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 20/02/2012 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: LIB12-05.SEQ Date sequence last updated: 14/02/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3216 Min. no. of nt for comparison: 600 Total turn-around time: 20 days Sequencing time: 7 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/LIB/25/2011	LIB11-25	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/LIB/26/2011	LIB11-26	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/LIB/3/2012	LIB12-03	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/LIB/33/2011	LIB11-33	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/LIB/31/2011	LIB11-31	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/LIB/7/2012	LIB12-07	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/LIB/1/2012	LIB12-01	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/LIB/2/2012	LIB12-02	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/LIB/29/2011	LIB11-29	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/LIB/4/2010	LIB10-04	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-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	O/IRN/88/2009	IRN09-88	639	625	0	97.81	2.19	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	596	0	93.27	6.73	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	595	0	93.11	6.89	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	592	0	92.64	7.36	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	589	0	92.18	7.82	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	588	0	92.02	7.98	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	587	0	91.86	8.14	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	582	0	91.08	8.92	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	569	0	89.05	10.95	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	568	1	89.03	10.97	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

© Institute for Animal Health (not to be reproduced without permission)

# FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: O WRLFMD Ref No: LIB/7/2012 Batch No: WRLFMD/2012/00005 Sender Ref: V1 Location: Sug Altholatha, Zliten, West Province, Libya Date collected: 17/01/2012 Date received by WRLFMD: 31/01/2012 Date received for sequencing: 13/02/2012 Species: Sheep Material used: BTy2 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R O-1C272F/EUR-2B52R	Report date: 20/02/2012 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 <sup>ANT-10</sup> Sequence filename: LIB12-07.SEQ Date sequence last updated: 14/02/2011 No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639 Total no. of comparisons: 3216 Min. no. of nt for comparison: 600 Total turn-around time: 20 days Sequencing time: 7 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/LIB/25/2011	LIB11-25	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/LIB/26/2011	LIB11-26	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
3	O/LIB/33/2011	LIB11-33	639	638	0	99.84	0.16	ME-SA	PanAsia-2 <sup>ANT-10</sup>
4	O/LIB/31/2011	LIB11-31	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
5	O/LIB/5/2012	LIB12-05	639	637	0	99.69	0.31	ME-SA	PanAsia-2 <sup>ANT-10</sup>
6	O/LIB/29/2011	LIB11-29	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
7	O/LIB/3/2012	LIB12-03	639	636	0	99.53	0.47	ME-SA	PanAsia-2 <sup>ANT-10</sup>
8	O/LIB/1/2012	LIB12-01	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
9	O/LIB/2/2012	LIB12-02	639	634	0	99.22	0.78	ME-SA	PanAsia-2 <sup>ANT-10</sup>
10	O/LIB/4/2010	LIB10-04	639	632	0	98.90	1.10	ME-SA	PanAsia-2 <sup>ANT-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	O/IRN/88/2009	IRN09-88	639	623	0	97.50	2.50	ME-SA	PanAsia-2 <sup>ANT-10</sup>
2	O/IRN/8/2005	IRN05-08	639	594	0	92.96	7.04	ME-SA	PanAsia-2
3	O/IRN/31/2009	IRN09-31	639	593	0	92.80	7.20	ME-SA	PanAsia-2 <sup>FAR-09</sup>
4	O/TUR/257/2008* (FMDI)	TUR08-AD	639	590	0	92.33	7.67	ME-SA	PanAsia-2 <sup>TER-08</sup>
5	O/IRN/18/2010	IRN10-18	639	587	0	91.86	8.14	ME-SA	PanAsia-2 <sup>BAL-09</sup>
6	O/TUR/264/2009* (FMDI)	TUR09-AK	639	586	0	91.71	8.29	ME-SA	PanAsia-2 <sup>SAN-09</sup>
7	O/PAK/16/2010	PAK10-16	639	585	0	91.55	8.45	ME-SA	PanAsia-2 <sup>PUN-10</sup>
8	O/UKG/35/2001 (AJ539141)	UKG01-35	639	580	0	90.77	9.23	ME-SA	PanAsia
9	O/OMN/7/2001 (DQ164941)	OMN01-07	639	567	0	88.73	11.27	ME-SA	Ind-2001b
10	O/IRN/61/2001 (DQ164896)	IRN01-61	638	566	1	88.71	11.29	ME-SA	Irn-2001

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

© Institute for Animal Health (not to be reproduced without permission)

# Report on FMDV O in Libya in 2011-2012

Batch: WRLFMD/2012/00005

◆ indicates viruses in this batch

Software: MEGA 5.0

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 : 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, 20 February 2012

© Institute for Animal Health

(not to be reproduced without permission)

