

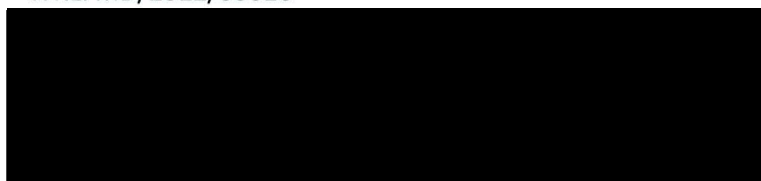


INSTITUTE FOR ANIMAL HEALTH
Director: Professor John Fazakerley BSc, MBA, PhD, FRCPath
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Ash Road,
Pirbright,
Surrey,
GU24 0NF
Intn Tel: 00 44 1483 232441
Tel: 01483 232441, Fax: 01483 232621

FMD Genotyping Report

Lab Reference WRL Batch Number: WRLFMD/2012/00016

Sender Details:

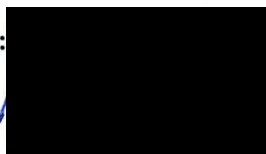


Date Received: 30th March 2012
Country of Origin: BAHRAIN
Date Reported: 8th May 2012

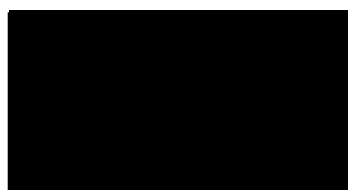
Dear Dr Fajer A Salloom,

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:

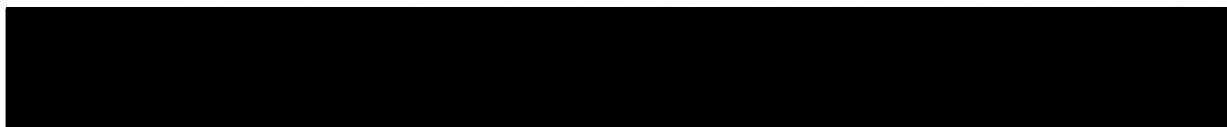


Official Stamp:



Date:

8/5/12



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. 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: 2 May 2012

FMDV type SAT 2

Country: Bahrain

Period: 2012

No. of samples: 4

BATCH: WRLFMD/2012/00016



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FAO World Reference Laboratory for FMD Genotyping Report

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

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Serotype: SAT2	Report date: 02/05/2012
WRLFMD Ref No: BAR/10/2012	Reported by: N.J. Knowles
Batch No: WRLFMD/2012/00016	Checked by: D.P. King
Sender Ref: 0553	
Location: Farm 4 Vet Quarantine, Bahrain	Topotype: IV
Date collected: 06/03/2012	Genotype/strain: unnamed
Date received by WRLFMD: 30/03/2012	Sequence filename: BAR12-10.SEQ
Date received for sequencing: 18/04/2012	Date sequence last updated: 02/05/2012
Species: Cattle	No. of Nt determined: 648
Material used: RS2	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 648
RT-PCR primers: SAT2-1C445F/SAT-2B208R	Total no. of comparisons: 520
SAT2-P1-1223F/SAT-2B208R	Min. no. of nt for comparison: 600
	Total turn-around time: 33 days
	Sequencing time: 14 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/BAR/12/2012	BAR12-12	648	647	0	99.85	0.15	IV	unnamed
2	SAT2/BAR/13/2012	BAR12-13	648	647	0	99.85	0.15	IV	unnamed
3	SAT2/BAR/16/2012	BAR12-16	648	647	0	99.85	0.15	IV	unnamed
4	SAT2/KEN/11/2009	KEN09-11	648	629	0	97.07	2.93	IV	unnamed
5	SAT2/KEN/122/2009	KEN09122	648	625	0	96.45	3.55	IV	Unnamed
6	SAT2/KEN/13/2009	KEN09-13	648	625	0	96.45	3.55	IV	unnamed
7	SAT2/ETH/2/90 (1989)(AY343936)	ETH90-AB	647	574	1	88.72	11.28	IV	unnamed
8	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	571	0	88.12	11.88	IV	unnamed
9	SAT2/NYE/29/90	NYE90-29	648	570	0	87.96	12.04	IV	unnamed
10	SAT2/MAL/3/75 (AF367099)	MAL75-03	648	568	0	87.65	12.35	IV	unnamed
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	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	571	0	88.12	11.88	IV	unnamed
2	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	562	0	86.73	13.27	IV	unnamed
3	SAT2/RHO/1/48 (AY593847)	ZAM48B01	648	520	0	80.25	19.75	III	unnamed
4	SAT2/BOT/P3/98 (buffalo 29) (AF367124)	BOT98-AC	647	515	1	79.60	20.40	III	unnamed
5	SAT2/MAL/1/2003	MAL03-01	648	515	0	79.48	20.52	I	unnamed
6	SAT2/ZIM/14/2002	ZIM02-14	648	509	0	78.55	21.45	I	unnamed
7	SAT2/SA/106/59 (AY593848)	RSA59--A	648	507	0	78.24	21.76	I	unnamed
8	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	500	0	77.16	22.84	II	unnamed
9	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	484	0	74.69	25.31	II	unnamed
10	SAT2/GHA/2/90 (AF479415)	GHA90A02	648	482	0	74.38	25.62	V	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: SAT2	Report date: 02/05/2012
WRLFMD Ref No: BAR/12/2012	Reported by: N.J. Knowles
Batch No: WRLFMD/2012/00016	Checked by: D.P. King
Sender Ref: 0558	
Location: Farm 5 Vet Quarantine, Bahrain	Topotype: IV
Date collected: 20/03/2012	Genotype/strain: unnamed
Date received by WRLFMD: 30/03/2012	Sequence filename: BAR12-12.SEQ
Date received for sequencing: 18/04/2012	Date sequence last updated: 20/04/2012
Species: Cattle	No. of Nt determined: 648
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 648
RT-PCR primers: SAT2-1C445F/SAT-2B208R	Total no. of comparisons: 520
SAT2-P1-1223F/SAT-2B208R	Min. no. of nt for comparison: 600
	Total turn-around time: 33 days
	Sequencing time: 14 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/BAR/16/2012	BAR12-16	648	648	0	100.00	0.00	IV	unnamed
2	SAT2/BAR/10/2012	BAR12-10	648	647	0	99.85	0.15	IV	unnamed
3	SAT2/BAR/13/2012	BAR12-13	648	646	0	99.69	0.31	IV	unnamed
4	SAT2/KEN/11/2009	KEN09-11	648	630	0	97.22	2.78	IV	unnamed
5	SAT2/KEN/122/2009	KEN09122	648	626	0	96.60	3.40	IV	Unnamed
6	SAT2/KEN/13/2009	KEN09-13	648	626	0	96.60	3.40	IV	unnamed
7	SAT2/ETH/2/90 (1989)(AY343936)	ETH90-AB	647	573	1	88.56	11.44	IV	unnamed
8	SAT2/NYE/29/90	NYE90-29	648	571	0	88.12	11.88	IV	unnamed
9	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	570	0	87.96	12.04	IV	unnamed
10	SAT2/K151/83 (HM623683)	KEN83-AB	648	567	0	87.50	12.50	IV	unnamed
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	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	570	0	87.96	12.04	IV	unnamed
2	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	563	0	86.88	13.12	IV	unnamed
3	SAT2/RHO/1/48 (AY593847)	ZAM48B01	648	521	0	80.40	19.60	III	unnamed
4	SAT2/BOT/P3/98 (buffalo 29) (AF367124)	BOT98-AC	647	516	1	79.75	20.25	III	unnamed
5	SAT2/MAL/1/2003	MAL03-01	648	514	0	79.32	20.68	I	unnamed
6	SAT2/ZIM/14/2002	ZIM02-14	648	510	0	78.70	21.30	I	unnamed
7	SAT2/SA/106/59 (AY593848)	RSA59--A	648	508	0	78.40	21.60	I	unnamed
8	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	500	0	77.16	22.84	II	unnamed
9	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	484	0	74.69	25.31	II	unnamed
10	SAT2/GHA/2/90 (AF479415)	GHA90A02	648	482	0	74.38	25.62	V	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: SAT2	Report date: 02/05/2012
WRLFMD Ref No: BAR/13/2012	Reported by: N.J. Knowles
Batch No: WRLFMD/2012/00016	Checked by: D.P. King
Sender Ref: 0566	
Location: Farm 5 Vet Quarantine, Bahrain	Topotype: IV
Date collected: 21/03/2012	Genotype/strain: unnamed
Date received by WRLFMD: 30/03/2012	Sequence filename: BAR12-13.SEQ
Date received for sequencing: 23/04/2012	Date sequence last updated: 02/05/2012
Species: Cattle	No. of Nt determined: 648
Material used: RS2	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 648
RT-PCR primers: SAT2-1C445F/SAT-2B208R	Total no. of comparisons: 520
SAT2-P1-1223F/SAT-2B208R	Min. no. of nt for comparison: 600
	Total turn-around time: 33 days
	Sequencing time: 9 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/BAR/10/2012	BAR12-10	648	647	0	99.85	0.15	IV	unnamed
2	SAT2/BAR/12/2012	BAR12-12	648	646	0	99.69	0.31	IV	unnamed
3	SAT2/BAR/16/2012	BAR12-16	648	646	0	99.69	0.31	IV	unnamed
4	SAT2/KEN/11/2009	KEN09-11	648	628	0	96.91	3.09	IV	unnamed
5	SAT2/KEN/122/2009	KEN09122	648	624	0	96.30	3.70	IV	Unnamed
6	SAT2/KEN/13/2009	KEN09-13	648	624	0	96.30	3.70	IV	unnamed
7	SAT2/ETH/2/90 (1989)(AY343936)	ETH90-AB	647	573	1	88.56	11.44	IV	unnamed
8	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	570	0	87.96	12.04	IV	unnamed
9	SAT2/NYE/29/90	NYE90-29	648	569	0	87.81	12.19	IV	unnamed
10	SAT2/MAL/3/75 (AF367099)	MAL75-03	648	567	0	87.50	12.50	IV	unnamed
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	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	570	0	87.96	12.04	IV	unnamed
2	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	561	0	86.57	13.43	IV	unnamed
3	SAT2/RHO/1/48 (AY593847)	ZAM48B01	648	520	0	80.25	19.75	III	unnamed
4	SAT2/MAL/1/2003	MAL03-01	648	516	0	79.63	20.37	I	unnamed
5	SAT2/BOT/P3/98 (buffalo 29) (AF367124)	BOT98-AC	647	514	1	79.44	20.56	III	unnamed
6	SAT2/ZIM/14/2002	ZIM02-14	648	510	0	78.70	21.30	I	unnamed
7	SAT2/SA/106/59 (AY593848)	RSA59--A	648	508	0	78.40	21.60	I	unnamed
8	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	499	0	77.01	22.99	II	unnamed
9	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	483	0	74.54	25.46	II	unnamed
10	SAT2/GHA/2/90 (AF479415)	GHA90A02	648	481	0	74.23	25.77	V	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: SAT2 WRLFMD Ref No: BAR/16/2012 Batch No: WRLFMD/2012/00016 Sender Ref: 0555 Location: Farm 6 Vet Quarantine, Bahrain Date collected: 26/03/2012 Date received by WRLFMD: 30/03/2012 Date received for sequencing: 18/04/2012 Species: Cattle Material used: OS Region sequenced: VP1 RT-PCR primers: SAT2-1C445F/SAT-2B208R SAT2-P1-1223F/SAT-2B208R	Report date: 02/05/2012 Reported by: N.J. Knowles Checked by: D.P. King Topotype: IV Genotype/strain: unnamed Sequence filename: BAR12-16.SEQ Date sequence last updated: 20/04/2012 No. of Nt determined: 648 No. of ambiguities: 0 Gene length: 648 Total no. of comparisons: 520 Min. no. of nt for comparison: 600 Total turn-around time: 33 days Sequencing time: 14 days
Comments:	

Most Closely Related Viruses									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/BAR/12/2012	BAR12-12	648	648	0	100.00	0.00	IV	unnamed
2	SAT2/BAR/10/2012	BAR12-10	648	647	0	99.85	0.15	IV	unnamed
3	SAT2/BAR/13/2012	BAR12-13	648	646	0	99.69	0.31	IV	unnamed
4	SAT2/KEN/11/2009	KEN09-11	648	630	0	97.22	2.78	IV	unnamed
5	SAT2/KEN/122/2009	KEN09122	648	626	0	96.60	3.40	IV	Unnamed
6	SAT2/KEN/13/2009	KEN09-13	648	626	0	96.60	3.40	IV	unnamed
7	SAT2/ETH/2/90 (1989)(AY343936)	ETH90-AB	647	573	1	88.56	11.44	IV	unnamed
8	SAT2/NYE/29/90	NYE90-29	648	571	0	88.12	11.88	IV	unnamed
9	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	570	0	87.96	12.04	IV	unnamed
10	SAT2/K151/83 (HM623683)	KEN83-AB	648	567	0	87.50	12.50	IV	unnamed
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	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	570	0	87.96	12.04	IV	unnamed
2	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	563	0	86.88	13.12	IV	unnamed
3	SAT2/RHO/1/48 (AY593847)	ZAM48B01	648	521	0	80.40	19.60	III	unnamed
4	SAT2/BOT/P3/98 (buffalo 29) (AF367124)	BOT98-AC	647	516	1	79.75	20.25	III	unnamed
5	SAT2/MAL/1/2003	MAL03-01	648	514	0	79.32	20.68	I	unnamed
6	SAT2/ZIM/14/2002	ZIM02-14	648	510	0	78.70	21.30	I	unnamed
7	SAT2/SA/106/59 (AY593848)	RSA59--A	648	508	0	78.40	21.60	I	unnamed
8	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	500	0	77.16	22.84	II	unnamed
9	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	484	0	74.69	25.31	II	unnamed
10	SAT2/GHA/2/90 (AF479415)	GHA90A02	648	482	0	74.38	25.62	V	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Report on FMDV SAT 2 in Bahrain in 2012

Batch: WRLFMD/2012/00016

◆ indicates viruses in this batch

Software: MEGA 5.0

Analysis

----- Phylogeny Reconstruction

Scope ----- All Selected Taxa

Statistical Method ----- Neighbor-joining

Phylogeny Test

----- 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 : 651

No Of Bootstrap Reps = 1000

Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

N.J. Knowles, B. Valdazo-González & J. Wadsworth, 02 May 2012

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