

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

Genotyping Report

Report Date for this Batch: 18 April 2016

FMDV type SAT 2

Country: Sudan

Period: 2013-2014

No. of samples: 6

BATCH: WRLFMD/2015/00038



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

© The Pirbright Institute

FAO World Reference Laboratory for FMD Genotyping Report

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

Page 1 of 1

Serotype: SAT2 WRLFMD Ref No: SUD/5/2013 Batch No: WRLFMD/2015/00038 Sender Ref: Kh 10 Location: not known, Sudan Date collected: 31/12/2013 Date received by WRLFMD: 03/12/2015 Date received for sequencing: 24/03/2016 Species: Cattle Material used: BTy2 15/03/2016 Region sequenced: VP1 RT-PCR primers: SAT2-1C445F/SAT-2B208R SAT2-P1-1223F/SAT-2B208R	Report date: 07/04/2016 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: VII Genotype/strain: Alx-12 Sequence filename: SUD13-05.SEQ Date sequence last updated: 06/04/2016 No. of Nt determined: 648 No. of ambiguities: 0 Gene length: 648 Total no. of comparisons: 735 Min. no. of nt for comparison: 600 Total turn-around time: 126 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/SUD/7/2014	SUD14-07	648	648	0	100.00	0.00	VII	Alx-12
2	SAT2/EGY/20/2014	EGY14-20	648	645	0	99.54	0.46	VII	Alx-12
3	SAT2/EGY/22/2014	EGY14-22	648	645	0	99.54	0.46	VII	Alx-12
4	SAT2/EGY/24/2014	EGY14-24	648	645	0	99.54	0.46	VII	Alx-12
5	SAT2/SUD/9/2013	SUD13-09	648	645	0	99.54	0.46	VII	Alx-12
6	SAT2/EGY/11/2014	EGY14-11	648	643	0	99.23	0.77	VII	Alx-12
7	SAT2/SUD/11/2014	SUD14-11	648	642	0	99.07	0.93	VII	Alx-12
8	SAT2/SUD/4/2014	SUD14-04	648	639	0	98.61	1.39	VII	Alx-12
9	SAT2/SUD/3/2013	SUD13-03	648	638	0	98.46	1.54	VII	Alx-12
10	SAT2/ETH/15/2015	ETH15-15	648	624	0	96.30	3.70	VII	Alx-12
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/SAU/6/2000 (AF367135)	SAU00A06	647	595	1	91.96	8.04	VII	unnamed
2	SAT2/CAR/8/2005 (JX570616)	CAR05-08	648	570	0	87.96	12.04	VII	unnamed
3	SAT2/KEN/3/57 (AJ251473)	KEN57G03	648	491	0	75.77	24.23	IX	unnamed
4	SAT2/ZAI/1/74 (DQ009737)	ZAI74-AA	642	478	0	74.45	25.55	VIII	unnamed
5	SAT2/KEN/2/84 (AY343941)	KEN84-AC	648	482	0	74.38	25.62	IX	unnamed
6	SAT2/ZAI/1/82 (AF367100)	ZAI82-01	647	479	1	74.03	25.97	X	unnamed
7	SAT2/UGA/19/98 (AY343969)	UGA98-AA	648	477	0	73.61	26.39	X	unnamed
8	SAT2/ETH/2/91 (AY343938)	ETH91-AB	648	475	0	73.30	26.70	XIV	unnamed
9	SAT2/UGA/51/75 (AY343963)	UGA75-AA	648	474	0	73.15	26.85	XII	unnamed
10	SAT2/RWA/1/2000* (AF367134)	RWA00-01	648	471	0	72.69	27.31	VIII	unnamed

nt, nucleotides

*, not a WRLFMD reference number

Assembled with Report Generator v4.4

© The Pirbright Institute (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: SAT2	Report date: 07/04/2016
WRLFMD Ref No: SUD/4/2014	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00038	Checked by: K. Bachanek-Bankowska
Sender Ref: Ged 17	
Location: not known, Sudan	Topotype: VII
Date collected: 01/01/2014	Genotype/strain: Alx-12
Date received by WRLFMD: 03/12/2015	Sequence filename: SUD14-04.SEQ
Date received for sequencing: 18/03/2016	Date sequence last updated: 06/04/2016
Species: Cattle	No. of Nt determined: 648
Material used: BTy1 13/03/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 648
RT-PCR primers: SAT2-1C445F/SAT-2B208R	Total no. of comparisons: 735
SAT2-P1-1223F/SAT-2B208R	Min. no. of nt for comparison: 600
	Total turn-around time: 126 days
	Sequencing time: 20 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/SUD/3/2013	SUD13-03	648	643	0	99.23	0.77	VII	Alx-12
2	SAT2/SUD/5/2013	SUD13-05	648	639	0	98.61	1.39	VII	Alx-12
3	SAT2/SUD/7/2014	SUD14-07	648	639	0	98.61	1.39	VII	Alx-12
4	SAT2/EGY/20/2014	EGY14-20	648	638	0	98.46	1.54	VII	Alx-12
5	SAT2/EGY/22/2014	EGY14-22	648	638	0	98.46	1.54	VII	Alx-12
6	SAT2/EGY/24/2014	EGY14-24	648	638	0	98.46	1.54	VII	Alx-12
7	SAT2/SUD/9/2013	SUD13-09	648	638	0	98.46	1.54	VII	Alx-12
8	SAT2/SUD/11/2014	SUD14-11	648	637	0	98.30	1.70	VII	Alx-12
9	SAT2/EGY/11/2014	EGY14-11	648	636	0	98.15	1.85	VII	Alx-12
10	SAT2/ETH/15/2015	ETH15-15	648	627	0	96.76	3.24	VII	Alx-12
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/SAU/6/2000 (AF367135)	SAU00A06	647	596	1	92.12	7.88	VII	unnamed
2	SAT2/CAR/8/2005 (JX570616)	CAR05-08	648	571	0	88.12	11.88	VII	unnamed
3	SAT2/KEN/3/57 (AJ251473)	KEN57G03	648	486	0	75.00	25.00	IX	unnamed
4	SAT2/KEN/2/84 (AY343941)	KEN84-AC	648	481	0	74.23	25.77	IX	unnamed
5	SAT2/ZAI/1/74 (DQ009737)	ZAI74-AA	642	476	0	74.14	25.86	VIII	unnamed
6	SAT2/ZAI/1/82 (AF367100)	ZAI82-01	647	479	1	74.03	25.97	X	unnamed
7	SAT2/ETH/2/91 (AY343938)	ETH91-AB	648	477	0	73.61	26.39	XIV	unnamed
8	SAT2/UGA/19/98 (AY343969)	UGA98-AA	648	475	0	73.30	26.70	X	unnamed
9	SAT2/RWA/1/2000* (AF367134)	RWA00-01	648	472	0	72.84	27.16	VIII	unnamed
10	SAT2/SUD/6/77 (AY343939)	SUD77-AA	648	472	0	72.84	27.16	XIII	unnamed

nt, nucleotides

*, not a WRLFMD reference number

Assembled with Report Generator v4.4

© The Pirbright Institute (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: SAT2	Report date: 07/04/2016
WRLFMD Ref No: SUD/11/2014	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00038	Checked by: K. Bachanek-Bankowska
Sender Ref: Gez 15	
Location: not known, Sudan	Topotype: VII
Date collected: 01/01/2014	Genotype/strain: Alx-12
Date received by WRLFMD: 03/12/2015	Sequence filename: SUD14-11.SEQ
Date received for sequencing: 24/03/2016	Date sequence last updated: 06/04/2016
Species: Cattle	No. of Nt determined: 648
Material used: BTy1 16/03/2016	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 648
RT-PCR primers: SAT2-1C445F/SAT-2B208R	Total no. of comparisons: 735
SAT2-P1-1223F/SAT-2B208R	Min. no. of nt for comparison: 600
	Total turn-around time: 126 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/SUD/5/2013	SUD13-05	648	642	0	99.07	0.93	VII	Alx-12
2	SAT2/SUD/7/2014	SUD14-07	648	642	0	99.07	0.93	VII	Alx-12
3	SAT2/EGY/20/2014	EGY14-20	648	641	0	98.92	1.08	VII	Alx-12
4	SAT2/EGY/22/2014	EGY14-22	648	641	0	98.92	1.08	VII	Alx-12
5	SAT2/EGY/24/2014	EGY14-24	648	641	0	98.92	1.08	VII	Alx-12
6	SAT2/SUD/9/2013	SUD13-09	648	641	0	98.92	1.08	VII	Alx-12
7	SAT2/EGY/11/2014	EGY14-11	648	639	0	98.61	1.39	VII	Alx-12
8	SAT2/SUD/4/2014	SUD14-04	648	637	0	98.30	1.70	VII	Alx-12
9	SAT2/SUD/3/2013	SUD13-03	648	636	0	98.15	1.85	VII	Alx-12
10	SAT2/ETH/15/2015	ETH15-15	648	624	0	96.30	3.70	VII	Alx-12
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/SAU/6/2000 (AF367135)	SAU00A06	647	595	1	91.96	8.04	VII	unnamed
2	SAT2/CAR/8/2005 (JX570616)	CAR05-08	648	571	0	88.12	11.88	VII	unnamed
3	SAT2/KEN/3/57 (AJ251473)	KEN57G03	648	486	0	75.00	25.00	IX	unnamed
4	SAT2/KEN/2/84 (AY343941)	KEN84-AC	648	484	0	74.69	25.31	IX	unnamed
5	SAT2/ZAI/1/74 (DQ009737)	ZAI74-AA	642	477	0	74.30	25.70	VIII	unnamed
6	SAT2/UGA/19/98 (AY343969)	UGA98-AA	648	476	0	73.46	26.54	X	unnamed
7	SAT2/ZAI/1/82 (AF367100)	ZAI82-01	647	475	1	73.42	26.58	X	unnamed
8	SAT2/UGA/51/75 (AY343963)	UGA75-AA	648	475	0	73.30	26.70	XII	unnamed
9	SAT2/ETH/2/91 (AY343938)	ETH91-AB	648	474	0	73.15	26.85	XIV	unnamed
10	SAT2/SUD/6/77 (AY343939)	SUD77-AA	648	471	0	72.69	27.31	XIII	unnamed

nt, nucleotides

*, not a WRLFMD reference number

Assembled with Report Generator v4.4

© The Pirbright Institute (not to be reproduced without permission)

Report on FMDV SAT 2 in Sudan in 2013-2014

Batch: WRLFMD/2016/00038

◆ indicates viruses in this batch

Software: MEGA 6.06

Analysis

Analysis ----- Phylogeny Reconstruction

Scope ----- All Selected Taxa

Statistical Method ----- Neighbor-joining

Phylogeny Test

Test of Phylogeny ----- Bootstrap method

No. of Bootstrap Replications ----- 1000

Substitution Model

Substitutions Type ----- Nucleotide

Model/Method ----- Kimura 2-parameter model

Substitutions to Include ----- d: Transitions + Transversions

Rates and Patterns

Rates among Sites ----- Uniform rates

Pattern among Lineages ----- Same (Homogeneous)

Data Subset to Use

Gaps/Missing Data Treatment ----- Pairwise deletion

Codons Included ----- 1st+2nd+3rd+Non-Coding

No. of Sites : 651

No Of Bootstrap Reps = 1000

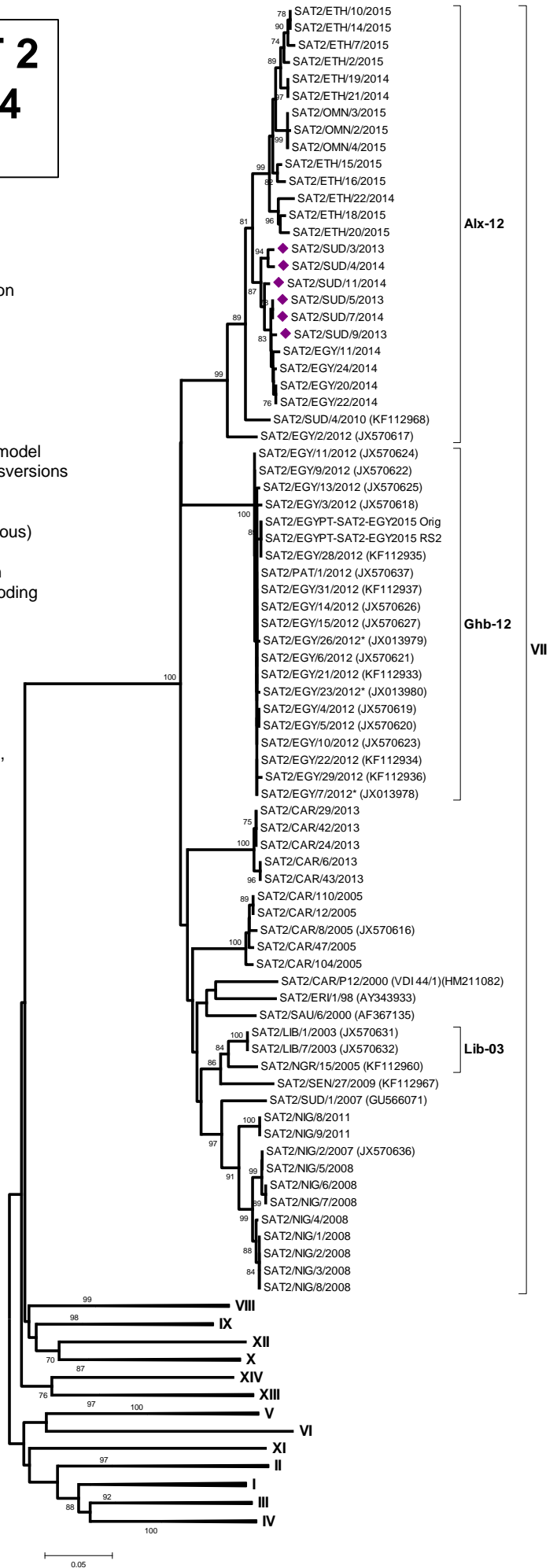
Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

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

© The Pirbright Institute

(not to be reproduced without permission)



Alx-12

Ghb-12

VII

Lib-03

0.05