

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

Genotyping Report

Report Date for this Batch: 8 June 2015

FMDV type SAT 2

Country: Ethiopia

Period: 2015-2015

No. of samples: 4

BATCH: WRLFMD/2015/00009



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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 WRLFMD Ref No: ETH/19/2014 Batch No: WRLFMD/2015/00009 Sender Ref: ET-24041 Location: Akaki Kality, Akaki Kality Sub City, Addis Ababa, Ethiopia Date collected: 27/11/2014 Date received by WRLFMD: 07/05/2015 Date received for sequencing: 28/05/2015 Species: Bovine (holstein-friesian Breed) Material used: BTY1 09/05/2015 Region sequenced: VP1 RT-PCR primers: SAT2-1C445F/SAT-2B208R SAT2-P1-1223F/SAT-2B208R	Report date: 04/06/2015 Reported by: N.J. Knowles Checked by: K. Bachanek-Bankowska Topotype: VII Genotype/strain: Alx-12 Sequence filename: ETH14-19.SEQ Date sequence last updated: 04/06/2015 No. of Nt determined: 648 No. of ambiguities: 0 Gene length: 648 Total no. of comparisons: 694 Min. no. of nt for comparison: 600 Total turn-around time: 28 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	SAT2/ETH/21/2014	ETH14-21	648	648	0	100.00	0.00	VII	Alx-12
2	SAT2/ETH/2/2015	ETH15-02	648	640	0	98.77	1.23	VII	Alx-12
3	SAT2/OMN/3/2015	OMN15-03	648	637	0	98.30	1.70	VII	Alx-12
4	SAT2/OMN/4/2015	OMN15-04	648	637	0	98.30	1.70	VII	Alx-12
5	SAT2/OMN/2/2015	OMN15-02	648	636	0	98.15	1.85	VII	Alx-12
6	SAT2/ETH/22/2014	ETH14-22	648	632	0	97.53	2.47	VII	Alx-12
7	SAT2/EGY/20/2014	EGY14-20	648	620	0	95.68	4.32	VII	Alx-12
8	SAT2/EGY/22/2014	EGY14-22	648	620	0	95.68	4.32	VII	Alx-12
9	SAT2/EGY/24/2014	EGY14-24	648	620	0	95.68	4.32	VII	Alx-12
10	SAT2/EGY/11/2014	EGY14-11	648	618	0	95.37	4.63	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	588	1	90.88	9.12	VII	unnamed
2	SAT2/CAR/8/2005 (JX570616)	CAR05-08	648	568	0	87.65	12.35	VII	unnamed
3	SAT2/KEN/3/57 (AJ251473)	KEN57G03	648	483	0	74.54	25.46	IX	unnamed
4	SAT2/KEN/2/84 (AY343941)	KEN84-AC	648	478	0	73.77	26.23	IX	unnamed
5	SAT2/ZAI/1/74 (DQ009737)	ZAI74-AA	642	472	0	73.52	26.48	VIII	unnamed
6	SAT2/ZAI/1/82 (AF367100)	ZAI82-01	647	474	1	73.26	26.74	X	unnamed
7	SAT2/ETH/2/91 (AY343938)	ETH91-AB	648	471	0	72.69	27.31	XIV	unnamed
8	SAT2/UGA/19/98 (AY343969)	UGA98-AA	648	471	0	72.69	27.31	X	unnamed
9	SAT2/SUD/6/77 (AY343939)	SUD77-AA	648	470	0	72.53	27.47	XIII	unnamed
10	SAT2/UGA/51/75 (AY343963)	UGA75-AA	648	467	0	72.07	27.93	XII	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: SAT2	Report date: 04/06/2015
WRLFMD Ref No: ETH/21/2014	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00009	Checked by: K. Bachanek-Bankowska
Sender Ref: ET-27782	
Location: Goro, East Wellega, Oromia, Ethiopia	Topotype: VII
Date collected: 31/12/2014	Genotype/strain: Alx-12
Date received by WRLFMD: 07/05/2015	Sequence filename: ETH14-21.SEQ
Date received for sequencing: 28/05/2015	Date sequence last updated: 04/06/2015
Species: Bovine (local Breed)	No. of Nt determined: 648
Material used: BTY1 10/05/2015	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 648
RT-PCR primers: SAT2-1C445F/SAT-2B208R	Total no. of comparisons: 694
SAT2-P1-1223F/SAT-2B208R	Min. no. of nt for comparison: 600
	Total turn-around time: 28 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	SAT2/ETH/19/2014	ETH14-19	648	648	0	100.00	0.00	VII	Alx-12
2	SAT2/ETH/2/2015	ETH15-02	648	640	0	98.77	1.23	VII	Alx-12
3	SAT2/OMN/3/2015	OMN15-03	648	637	0	98.30	1.70	VII	Alx-12
4	SAT2/OMN/4/2015	OMN15-04	648	637	0	98.30	1.70	VII	Alx-12
5	SAT2/OMN/2/2015	OMN15-02	648	636	0	98.15	1.85	VII	Alx-12
6	SAT2/ETH/22/2014	ETH14-22	648	632	0	97.53	2.47	VII	Alx-12
7	SAT2/EGY/20/2014	EGY14-20	648	620	0	95.68	4.32	VII	Alx-12
8	SAT2/EGY/22/2014	EGY14-22	648	620	0	95.68	4.32	VII	Alx-12
9	SAT2/EGY/24/2014	EGY14-24	648	620	0	95.68	4.32	VII	Alx-12
10	SAT2/EGY/11/2014	EGY14-11	648	618	0	95.37	4.63	VII	Alx-12
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(see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm)									
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1	SAT2/SAU/6/2000 (AF367135)	SAU00A06	647	588	1	90.88	9.12	VII	unnamed
2	SAT2/CAR/8/2005 (JX570616)	CAR05-08	648	568	0	87.65	12.35	VII	unnamed
3	SAT2/KEN/3/57 (AJ251473)	KEN57G03	648	483	0	74.54	25.46	IX	unnamed
4	SAT2/KEN/2/84 (AY343941)	KEN84-AC	648	478	0	73.77	26.23	IX	unnamed
5	SAT2/ZAI/1/74 (DQ009737)	ZAI74-AA	642	472	0	73.52	26.48	VIII	unnamed
6	SAT2/ZAI/1/82 (AF367100)	ZAI82-01	647	474	1	73.26	26.74	X	unnamed
7	SAT2/ETH/2/91 (AY343938)	ETH91-AB	648	471	0	72.69	27.31	XIV	unnamed
8	SAT2/UGA/19/98 (AY343969)	UGA98-AA	648	471	0	72.69	27.31	X	unnamed
9	SAT2/SUD/6/77 (AY343939)	SUD77-AA	648	470	0	72.53	27.47	XIII	unnamed
10	SAT2/UGA/51/75 (AY343963)	UGA75-AA	648	467	0	72.07	27.93	XII	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: SAT2	Report date: 04/06/2015
WRLFMD Ref No: ETH/22/2014	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00009	Checked by: K. Bachanek-Bankowska
Sender Ref: ET-27782-2	
Location: Goro, East Wellega, Oromia, Ethiopia	Topotype: VII
Date collected: 31/12/2014	Genotype/strain: Alx-12
Date received by WRLFMD: 07/05/2015	Sequence filename: ETH14-22.SEQ
Date received for sequencing: 28/05/2015	Date sequence last updated: 04/06/2015
Species: Bovine (local Breed)	No. of Nt determined: 648
Material used: BTY1 09/05/2015	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 648
RT-PCR primers: SAT2-1C445F/SAT-2B208R	Total no. of comparisons: 694
SAT2-P1-1223F/SAT-2B208R	Min. no. of nt for comparison: 600
	Total turn-around time: 28 days
	Sequencing time: 7 days
Comments:	

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Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/ETH/19/2014	ETH14-19	648	632	0	97.53	2.47	VII	Alx-12
2	SAT2/ETH/21/2014	ETH14-21	648	632	0	97.53	2.47	VII	Alx-12
3	SAT2/ETH/2/2015	ETH15-02	648	630	0	97.22	2.78	VII	Alx-12
4	SAT2/OMN/3/2015	OMN15-03	648	629	0	97.07	2.93	VII	Alx-12
5	SAT2/OMN/4/2015	OMN15-04	648	629	0	97.07	2.93	VII	Alx-12
6	SAT2/OMN/2/2015	OMN15-02	648	628	0	96.91	3.09	VII	Alx-12
7	SAT2/EGY/20/2014	EGY14-20	648	618	0	95.37	4.63	VII	Alx-12
8	SAT2/EGY/22/2014	EGY14-22	648	618	0	95.37	4.63	VII	Alx-12
9	SAT2/EGY/24/2014	EGY14-24	648	618	0	95.37	4.63	VII	Alx-12
10	SAT2/EGY/11/2014	EGY14-11	648	616	0	95.06	4.94	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	586	1	90.57	9.43	VII	unnamed
2	SAT2/CAR/8/2005 (JX570616)	CAR05-08	648	563	0	86.88	13.12	VII	unnamed
3	SAT2/KEN/3/57 (AJ251473)	KEN57G03	648	482	0	74.38	25.62	IX	unnamed
4	SAT2/ZAI/1/82 (AF367100)	ZAI82-01	647	477	1	73.72	26.28	X	unnamed
5	SAT2/KEN/2/84 (AY343941)	KEN84-AC	648	476	0	73.46	26.54	IX	unnamed
6	SAT2/ZAI/1/74 (DQ009737)	ZAI74-AA	642	471	0	73.36	26.64	VIII	unnamed
7	SAT2/ETH/2/91 (AY343938)	ETH91-AB	648	473	0	72.99	27.01	XIV	unnamed
8	SAT2/UGA/19/98 (AY343969)	UGA98-AA	648	471	0	72.69	27.31	X	unnamed
9	SAT2/SUD/6/77 (AY343939)	SUD77-AA	648	469	0	72.38	27.62	XIII	unnamed
10	SAT2/UGA/51/75 (AY343963)	UGA75-AA	648	468	0	72.22	27.78	XII	unnamed

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Serotype: SAT2	Report date: 04/06/2015
WRLFMD Ref No: ETH/2/2015	Reported by: N.J. Knowles
Batch No: WRLFMD/2015/00009	Checked by: K. Bachanek-Bankowska
Sender Ref: ET-6879	
Location: Lume, East Shawa, Oromia, Ethiopia	Topotype: VII
Date collected: 11/03/2015	Genotype/strain: Alx-12
Date received by WRLFMD: 07/05/2015	Sequence filename: ETH15-02.SEQ
Date received for sequencing: 28/05/2015	Date sequence last updated: 04/06/2015
Species: Cattle (local Zebu)	No. of Nt determined: 648
Material used: BTY1 13/05/2015	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 648
RT-PCR primers: SAT2-1C445F/SAT-2B208R	Total no. of comparisons: 694
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2	SAT2/ETH/21/2014	ETH14-21	648	640	0	98.77	1.23	VII	Alx-12
3	SAT2/OMN/3/2015	OMN15-03	648	635	0	97.99	2.01	VII	Alx-12
4	SAT2/OMN/4/2015	OMN15-04	648	635	0	97.99	2.01	VII	Alx-12
5	SAT2/OMN/2/2015	OMN15-02	648	634	0	97.84	2.16	VII	Alx-12
6	SAT2/ETH/22/2014	ETH14-22	648	630	0	97.22	2.78	VII	Alx-12
7	SAT2/EGY/20/2014	EGY14-20	648	620	0	95.68	4.32	VII	Alx-12
8	SAT2/EGY/22/2014	EGY14-22	648	620	0	95.68	4.32	VII	Alx-12
9	SAT2/EGY/24/2014	EGY14-24	648	620	0	95.68	4.32	VII	Alx-12
10	SAT2/EGY/11/2014	EGY14-11	648	618	0	95.37	4.63	VII	Alx-12
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2	SAT2/CAR/8/2005 (JX570616)	CAR05-08	648	566	0	87.35	12.65	VII	unnamed
3	SAT2/KEN/3/57 (AJ251473)	KEN57G03	648	482	0	74.38	25.62	IX	unnamed
4	SAT2/KEN/2/84 (AY343941)	KEN84-AC	648	477	0	73.61	26.39	IX	unnamed
5	SAT2/ZAI/1/74 (DQ009737)	ZAI74-AA	642	471	0	73.36	26.64	VIII	unnamed
6	SAT2/ZAI/1/82 (AF367100)	ZAI82-01	647	474	1	73.26	26.74	X	unnamed
7	SAT2/UGA/51/75 (AY343963)	UGA75-AA	648	471	0	72.69	27.31	XII	unnamed
8	SAT2/UGA/19/98 (AY343969)	UGA98-AA	648	470	0	72.53	27.47	X	unnamed
9	SAT2/ETH/2/91 (AY343938)	ETH91-AB	648	469	0	72.38	27.62	XIV	unnamed
10	SAT2/SUD/6/77 (AY343939)	SUD77-AA	648	469	0	72.38	27.62	XIII	unnamed

nt, nucleotides

*, not a WRLFMD reference number

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Report on FMDV SAT 2 in Ethiopia in 2014-2015

Batch: WRLFMD/2015/00009

◆ 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,
04 June 2015

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