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

Genotyping Report

Report Date for this Batch: 29 October 2014

FMDV type SAT 2
Country: Mozambique
Period: 2014
No. of samples: 4

BATCH: WRLFMD/2014/00032

FAO World Reference Laboratory for FMD Genotyping Report

Serotype: SAT2
WRLFMD Ref No: MOZ/1/2014
Batch No: WRLFMD/2014/00032
Sender Ref: MOZ03/14
Location: Maputo, Mozambique
Date collected: 24/07/2014
Date received by WRLFMD: 13/10/2014
Date received for sequencing: 27/10/2014
Species: Bovine
Material used: BTy1 17/10/2014
Region sequenced: VP1
RT-PCR primers: SAT2-1C445F/SAT-2B208R
SAT2-P1-1223F/SAT-2B208R

Report date: 29/10/2014
Reported by: N.J. Knowles
Checked by: K. Bachanek-Bankowska

Topotype: I
Genotype/strain: unnamed
Sequence filename: MOZ14-01.SEQ
Date sequence last updated: 28/10/2014
No. of Nt determined: 648
No. of ambiguities: 0
Gene length: 648
Total no. of comparisons: 677
Min. no. of nt for comparison: 600
Total turn-around time: 16 days
Sequencing time: 2 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/MOZ/2/2014	MOZ14-02	648	645	0	99.54	0.46	I	unnamed
2	SAT2/MOZ/4/2014* (BVI)	MOZ14-AB	637	634	2	99.53	0.47	I	unnamed
3	SAT2/MOZ/5/2014* (BVI)	MOZ14-AC	620	617	1	99.52	0.48	I	unnamed
4	SAT2/MOZ/3/2014	MOZ14-03	648	644	0	99.38	0.62	I	unnamed
5	SAT2/MOZ/4/2014	MOZ14-04	648	644	0	99.38	0.62	I	unnamed
6	SAT2/KNP/31/95* (AF367119)(buffalo)	KNP95-AB	646	579	2	89.63	10.37	I	unnamed
7	SAT2/KNP/18/95* (AF367118)(buffalo)	KNP95-AA	647	577	1	89.18	10.82	I	unnamed
8	SAT2/KNP/16/88* (AF367104)(impala)	KNP88-AB	648	577	0	89.04	10.96	I	unnamed
9	SAT2/KNP/19/88* (AF367106)(impala)	KNP88-AE	648	577	0	89.04	10.96	I	unnamed
10	SAT2/KNP/20/88* (AF367107)(impala)	KNP88-AF	648	577	0	89.04	10.96	I	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/SA/106/59 (AY593848)	RSA59--A	648	536	0	82.72	17.28	I	unnamed
2	SAT2/ZIM/14/2002 (KF219689)	ZIM02-14	648	530	0	81.79	18.21	I	unnamed
3	SAT2/MAL/1/2003	MAL03-01	648	524	0	80.86	19.14	I	unnamed
4	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	511	0	78.86	21.14	IV	unnamed
5	SAT2/RHO/1/48 (AY593847)	ZAM48B01	648	511	0	78.86	21.14	III	unnamed
6	SAT2/BOT/P3/98 (buffalo 29) (AF367124)	BOT98-AC	647	510	1	78.83	21.17	III	unnamed
7	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	506	0	78.09	21.91	IV	unnamed
8	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	490	0	75.62	24.38	II	unnamed
9	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	483	0	74.54	25.46	II	unnamed
10	SAT2/NIG/2/75 (AF367139)	NIG75-02	648	476	0	73.46	26.54	V	unnamed

nt, nucleotides
*, not a WRLFMD reference number

Assembled with Report Generator v4.3

FAO World Reference Laboratory for FMD Genotyping Report

Serotype: SAT2
WRLFMD Ref No: MOZ/2/2014
Batch No: WRLFMD/2014/00032
Sender Ref: MOZ04/14
Location: Maputo, Mozambique
Date collected: 24/07/2014
Date received by WRLFMD: 13/10/2014
Date received for sequencing: 27/10/2014
Species: Bovine
Material used: BTy1 17/10/2014
Region sequenced: VP1
RT-PCR primers: SAT2-1C445F/SAT-2B208R
SAT2-P1-1223F/SAT-2B208R

Report date: 29/10/2014
Reported by: N.J. Knowles
Checked by: K. Bachanek-Bankowska

Topotype: I
Genotype/strain: unnamed
Sequence filename: MOZ14-02.SEQ
Date sequence last updated: 28/10/2014
No. of Nt determined: 648
No. of ambiguities: 0
Gene length: 648
Total no. of comparisons: 677
Min. no. of nt for comparison: 600
Total turn-around time: 16 days
Sequencing time: 2 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/MOZ/4/2014* (BVI)	MOZ14-AB	637	637	2	100.00	0.00	I	unnamed
2	SAT2/MOZ/5/2014* (BVI)	MOZ14-AC	620	620	1	100.00	0.00	I	unnamed
3	SAT2/MOZ/1/2014	MOZ14-01	648	645	0	99.54	0.46	I	unnamed
4	SAT2/MOZ/3/2014	MOZ14-03	648	645	0	99.54	0.46	I	unnamed
5	SAT2/MOZ/4/2014	MOZ14-04	648	645	0	99.54	0.46	I	unnamed
6	SAT2/KNP/31/95* (AF367119)(buffalo)	KNP95-AB	646	580	2	89.78	10.22	I	unnamed
7	SAT2/KNP/18/95* (AF367118)(buffalo)	KNP95-AA	647	578	1	89.34	10.66	I	unnamed
8	SAT2/KNP/16/88* (AF367104)(impala)	KNP88-AB	648	576	0	88.89	11.11	I	unnamed
9	SAT2/KNP/19/88* (AF367106)(impala)	KNP88-AE	648	576	0	88.89	11.11	I	unnamed
10	SAT2/KNP/20/88* (AF367107)(impala)	KNP88-AF	648	576	0	88.89	11.11	I	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/SA/106/59 (AY593848)	RSA59--A	648	539	0	83.18	16.82	I	unnamed
2	SAT2/ZIM/14/2002 (KF219689)	ZIM02-14	648	529	0	81.64	18.36	I	unnamed
3	SAT2/MAL/1/2003	MAL03-01	648	525	0	81.02	18.98	I	unnamed
4	SAT2/RHO/1/48 (AY593847)	ZAM48B01	648	514	0	79.32	20.68	III	unnamed
5	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	513	0	79.17	20.83	IV	unnamed
6	SAT2/BOT/P3/98 (buffalo 29) (AF367124)	BOT98-AC	647	510	1	78.83	21.17	III	unnamed
7	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	507	0	78.24	21.76	IV	unnamed
8	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	491	0	75.77	24.23	II	unnamed
9	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	485	0	74.85	25.15	II	unnamed
10	SAT2/NIG/2/75 (AF367139)	NIG75-02	648	478	0	73.77	26.23	V	unnamed

nt, nucleotides
*, not a WRLFMD reference number

Assembled with Report Generator v4.3

FAO World Reference Laboratory for FMD Genotyping Report

Serotype: SAT2
WRLFMD Ref No: MOZ/3/2014
Batch No: WRLFMD/2014/00032
Sender Ref: MOZ05/14
Location: Maputo, Mozambique
Date collected: 24/07/2014
Date received by WRLFMD: 13/10/2014
Date received for sequencing: 27/10/2014
Species: Bovine
Material used: BTy1 17/10/2014
Region sequenced: VP1
RT-PCR primers: SAT2-1C445F/SAT-2B208R
SAT2-P1-1223F/SAT-2B208R

Report date: 29/10/2014
Reported by: N.J. Knowles
Checked by: K. Bachanek-Bankowska

Topotype: I
Genotype/strain: unnamed
Sequence filename: MOZ14-03.SEQ
Date sequence last updated: 28/10/2014
No. of Nt determined: 648
No. of ambiguities: 0
Gene length: 648
Total no. of comparisons: 677
Min. no. of nt for comparison: 600
Total turn-around time: 16 days
Sequencing time: 2 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/MOZ/4/2014	MOZ14-04	648	646	0	99.69	0.31	I	unnamed
2	SAT2/MOZ/2/2014	MOZ14-02	648	645	0	99.54	0.46	I	unnamed
3	SAT2/MOZ/4/2014* (BVI)	MOZ14-AB	637	634	2	99.53	0.47	I	unnamed
4	SAT2/MOZ/5/2014* (BVI)	MOZ14-AC	620	617	1	99.52	0.48	I	unnamed
5	SAT2/MOZ/1/2014	MOZ14-01	648	644	0	99.38	0.62	I	unnamed
6	SAT2/KNP/31/95* (AF367119)(buffalo)	KNP95-AB	646	580	2	89.78	10.22	I	unnamed
7	SAT2/KNP/18/95* (AF367118)(buffalo)	KNP95-AA	647	578	1	89.34	10.66	I	unnamed
8	SAT2/KNP/16/88* (AF367104)(impala)	KNP88-AB	648	576	0	88.89	11.11	I	unnamed
9	SAT2/KNP/19/88* (AF367106)(impala)	KNP88-AE	648	576	0	88.89	11.11	I	unnamed
10	SAT2/KNP/20/88* (AF367107)(impala)	KNP88-AF	648	576	0	88.89	11.11	I	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/SA/106/59 (AY593848)	RSA59--A	648	536	0	82.72	17.28	I	unnamed
2	SAT2/ZIM/14/2002 (KF219689)	ZIM02-14	648	528	0	81.48	18.52	I	unnamed
3	SAT2/MAL/1/2003	MAL03-01	648	525	0	81.02	18.98	I	unnamed
4	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	513	0	79.17	20.83	IV	unnamed
5	SAT2/RHO/1/48 (AY593847)	ZAM48B01	648	513	0	79.17	20.83	III	unnamed
6	SAT2/BOT/P3/98 (buffalo 29) (AF367124)	BOT98-AC	647	511	1	78.98	21.02	III	unnamed
7	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	508	0	78.40	21.60	IV	unnamed
8	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	492	0	75.93	24.07	II	unnamed
9	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	484	0	74.69	25.31	II	unnamed
10	SAT2/NIG/2/75 (AF367139)	NIG75-02	648	477	0	73.61	26.39	V	unnamed

nt, nucleotides
*, not a WRLFMD reference number

Assembled with Report Generator v4.3

FAO World Reference Laboratory for FMD Genotyping Report

Serotype: SAT2	Report date: 29/10/2014
WRLFMD Ref No: MOZ/4/2014	Reported by: N.J. Knowles
Batch No: WRLFMD/2014/00032	Checked by: K. Bachanek-Bankowska
Sender Ref: MOZ06/14	
Location: Maputo, Mozambique	Topotype: I
Date collected: 24/07/2014	Genotype/strain: unamed
Date received by WRLFMD: 13/10/2014	Sequence filename: MOZ14-04.SEQ
Date received for sequencing: 27/10/2014	Date sequence last updated: 28/10/2014
Species: Bovine	No. of Nt determined: 648
Material used: BTy1 17/10/2014	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 648
RT-PCR primers: SAT2-1C445F/SAT-2B208R	Total no. of comparisons: 677
SAT2-P1-1223F/SAT-2B208R	Min. no. of nt for comparison: 600
	Total turn-around time: 16 days
	Sequencing time: 2 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/MOZ/3/2014	MOZ14-03	648	646	0	99.69	0.31	I	unnamed
2	SAT2/MOZ/2/2014	MOZ14-02	648	645	0	99.54	0.46	I	unnamed
3	SAT2/MOZ/4/2014* (BVI)	MOZ14-AB	637	634	2	99.53	0.47	I	unnamed
4	SAT2/MOZ/5/2014* (BVI)	MOZ14-AC	620	617	1	99.52	0.48	I	unnamed
5	SAT2/MOZ/1/2014	MOZ14-01	648	644	0	99.38	0.62	I	unnamed
6	SAT2/KNP/31/95* (AF367119)(buffalo)	KNP95-AB	646	579	2	89.63	10.37	I	unnamed
7	SAT2/KNP/18/95* (AF367118)(buffalo)	KNP95-AA	647	577	1	89.18	10.82	I	unnamed
8	SAT2/KNP/16/88* (AF367104)(impala)	KNP88-AB	648	575	0	88.73	11.27	I	unnamed
9	SAT2/KNP/19/88* (AF367106)(impala)	KNP88-AE	648	575	0	88.73	11.27	I	unnamed
10	SAT2/KNP/20/88* (AF367107)(impala)	KNP88-AF	648	575	0	88.73	11.27	I	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/SA/106/59 (AY593848)	RSA59--A	648	536	0	82.72	17.28	I	unnamed
2	SAT2/ZIM/14/2002 (KF219689)	ZIM02-14	648	528	0	81.48	18.52	I	unnamed
3	SAT2/MAL/1/2003	MAL03-01	648	524	0	80.86	19.14	I	unnamed
4	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	511	0	78.86	21.14	IV	unnamed
5	SAT2/RHO/1/48 (AY593847)	ZAM48B01	648	511	0	78.86	21.14	III	unnamed
6	SAT2/BOT/P3/98 (buffalo 29) (AF367124)	BOT98-AC	647	509	1	78.67	21.33	III	unnamed
7	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	506	0	78.09	21.91	IV	unnamed
8	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	490	0	75.62	24.38	II	unnamed
9	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	483	0	74.54	25.46	II	unnamed
10	SAT2/NIG/2/75 (AF367139)	NIG75-02	648	476	0	73.46	26.54	V	unnamed

nt, nucleotides
*, not a WRLFMD reference number

Assembled with Report Generator v4.3

Report on FMDV SAT 2 in Mozambique in 2014

Batch: WRLFMD/2014/00032

◆ 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,
29 October 2014