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FMD Sequencing Report

Lab Reference WRL Batch Number: WRLFMD/2009/00051
Sender Details: [redacted]

Date Received: 6th November 2009
Country of Origin: Kenya
Date Reported: 27th November 2009

Dear Dr. J M Mosabi,

Re.: SAT 1 Results

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: [redacted]

Official Stamp: [redacted]

Date: [redacted]

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: elizabeth.byrom@bbsrc.ac.uk)

Molecular Epidemiology Report Form

Serotype: SAT1
WRL Ref No: KEN/55/2009
Sender Ref: K70/09
Date collected: 21/05/2009
Date received by WRLFMD: 06/11/2009
Date received for sequencing: 18/11/2009
Species: Cattle
Material used: BTy2
Region sequenced: VP1
RT-PCR primers: SAT1-1C559F/SAT-2B208R; SAT1U-OS/SAT-2B208R
No. of Nt determined: 663
No. of ambiguities: 0
Gene length: 663

Report date: 26/11/2009
Reported by: N.J. Knowles
Checked by: D.P. King

Topotype: I (NWZ)
Genotype/strain: none designated
Sequence filename: KEN09-55.SEQ
Date sequence last updated: 26/11/2009
Total no. of comparisons: 343
Min. no. of nt for comparison: 300
Total turn-around time: 20 days
Sequencing time: 8 days

Comments:

Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	SAT1/KEN/117/2009	KEN09117	663	655	0	98.79	1.21
2	SAT1/KEN/14/2009	KEN09-14	663	654	0	98.64	1.36
3	SAT1/KEN/9/2009	KEN09-09	663	654	0	98.64	1.36
4	SAT1/KEN/15/2009	KEN09-15	663	653	0	98.49	1.51
5	SAT1/KEN/119/2009	KEN09119	663	650	0	98.04	1.96
6	SAT1/KEN/109/2009	KEN09109	663	648	0	97.74	2.26
7	SAT1/TAN/51/99 (AY442004)	TAN99S51	663	617	0	93.06	6.94
8	SAT1/TAN/19/96 (AY442013)	TAN96S19	663	615	0	92.76	7.24
9	SAT1/KEN/35/2008	KEN08-35	663	608	0	91.7	8.3
10	SAT1/KEN/25/2008	KEN08-25	663	607	0	91.55	8.45

Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	SAT1/T155/71	TAN71155	663	591	0	89.14	10.86
2	SAT1/SAR/9/81	SAR81-09	629	498	11	79.17	20.83
3	SAT1/RV/11/37 (AY593839)	RHO37-11	663	523	0	78.88	21.12
4	SAT1/RHO/5/66 (AY593846)	RHO66-05	663	515	0	77.68	22.32
5	SAT1/SA/13/61 (AY593842)	SAR61-13	663	502	0	75.72	24.28
6	SAT1/SWA/40/61	SWA61-40	663	499	0	75.26	24.74
7	SAT1/SR/2/58	ZIM58-02	663	498	0	75.11	24.89
8	SAT1/BOT/1/68 (Z98203)	BOT68-B1	663	495	0	74.66	25.34
9	SAT1/BEC/1/48 (AY593838)	BEC48-01	663	488	0	73.6	26.4
10	SAT1/ISR/4/62 (AY593844)	ISR62-04	663	459	0	69.23	30.77

nt, nucleotides
*, not a WRLFMD reference number

Molecular Epidemiology Report Form

Serotype: SAT1
WRL Ref No: KEN/104/2009
Sender Ref: K85/09
Date collected: 10/07/2009
Date received by WRLFMD: 06/11/2009
Date received for sequencing: 18/11/2009
Species: Cattle
Material used: BTy1
Region sequenced: VP1
RT-PCR primers: SAT1-1C559F/SAT-2B208R; SAT1U-OS/SAT-2B208R
No. of Nt determined: 663
No. of ambiguities: 0
Gene length: 663

Report date: 26/11/2009
Reported by: N.J. Knowles
Checked by: D.P. King

Topotype: I (NWZ)
Genotype/strain: none designated
Sequence filename: KEN09104.SEQ
Date sequence last updated: 26/11/2009
Total no. of comparisons: 343
Min. no. of nt for comparison: 300
Total turn-around time: 20 days
Sequencing time: 8 days

Comments:

Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	SAT1/T155/71	TAN71155	663	596	0	89.89	10.11
2	SAT1/KEN/21/2004	KEN04-21	663	595	0	89.74	10.26
3	SAT1/TAN/5/96 (AY442007)	TAN96S05	663	595	0	89.74	10.26
4	SAT1/KEN/35/2008	KEN08-35	663	590	0	88.99	11.01
5	SAT1/KEN/16/2009	KEN09-16	663	589	0	88.84	11.16
6	SAT1/KEN/25/2008	KEN08-25	663	589	0	88.84	11.16
7	SAT1/KEN/22/2008	KEN08-22	663	588	0	88.69	11.31
8	SAT1/KEN/23/2008	KEN08-23	663	588	0	88.69	11.31
9	SAT1/KEN/26/2008	KEN08-26	663	588	0	88.69	11.31
10	SAT1/KEN/32/2008	KEN08-32	663	588	0	88.69	11.31

Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	SAT1/T155/71	TAN71155	663	596	0	89.89	10.11
2	SAT1/RV/11/37 (AY593839)	RHO37-11	663	518	0	78.13	21.87
3	SAT1/SAR/9/81	SAR81-09	629	489	11	77.74	22.26
4	SAT1/RHO/5/66 (AY593846)	RHO66-05	663	505	0	76.17	23.83
5	SAT1/SWA/40/61	SWA61-40	663	491	0	74.06	25.94
6	SAT1/SR/2/58	ZIM58-02	663	490	0	73.91	26.09
7	SAT1/SA/13/61 (AY593842)	SAR61-13	663	486	0	73.3	26.7
8	SAT1/BEC/1/48 (AY593838)	BEC48-01	663	485	0	73.15	26.85
9	SAT1/BOT/1/68 (Z98203)	BOT68-B1	663	485	0	73.15	26.85
10	SAT1/ISR/4/62 (AY593844)	ISR62-04	663	466	0	70.29	29.71

nt, nucleotides
*, not a WRLFMD reference number

Molecular Epidemiology Report Form

Serotype: SAT1	Report date: 26/11/2009
WRL Ref No: KEN/109/2009	Reported by: N.J. Knowles
Sender Ref: K109/09	Checked by: D.P. King
Date collected: 03/09/2009	
Date received by WRLFMD: 06/11/2009	Topotype: I (NWZ)
Date received for sequencing: 18/11/2009	Genotype/strain: none designated
Species: Cattle	Sequence filename: KEN09109.SEQ
Material used: BTy2	Date sequence last updated: 26/11/2009
Region sequenced: VP1	Total no. of comparisons: 343
RT-PCR primers: SAT1-1C559F/SAT-2B208R; SAT1U-OS/SAT-2B208R	Min. no. of nt for comparison: 300
	Total turn-around time: 20 days
No. of Nt determined: 663	Sequencing time: 8 days
No. of ambiguities: 0	
Gene length: 663	

Comments:

Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	SAT1/KEN/119/2009	KEN09119	663	657	0	99.1	0.9
2	SAT1/KEN/14/2009	KEN09-14	663	657	0	99.1	0.9
3	SAT1/KEN/9/2009	KEN09-09	663	657	0	99.1	0.9
4	SAT1/KEN/117/2009	KEN09117	663	656	0	98.94	1.06
5	SAT1/KEN/15/2009	KEN09-15	663	656	0	98.94	1.06
6	SAT1/KEN/55/2009	KEN09-55	663	648	0	97.74	2.26
7	SAT1/TAN/51/99 (AY442004)	TAN99S51	663	616	0	92.91	7.09
8	SAT1/TAN/19/96 (AY442013)	TAN96S19	663	614	0	92.61	7.39
9	SAT1/KEN/35/2008	KEN08-35	663	607	0	91.55	8.45
10	SAT1/KEN/25/2008	KEN08-25	663	606	0	91.4	8.6

Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	SAT1/T155/71	TAN71155	663	589	0	88.84	11.16
2	SAT1/RV/11/37 (AY593839)	RHO37-11	663	519	0	78.28	21.72
3	SAT1/SAR/9/81	SAR81-09	629	491	11	78.06	21.94
4	SAT1/RHO/5/66 (AY593846)	RHO66-05	663	509	0	76.77	23.23
5	SAT1/SA/13/61 (AY593842)	SAR61-13	663	496	0	74.81	25.19
6	SAT1/SR/2/58	ZIM58-02	663	493	0	74.36	25.64
7	SAT1/SWA/40/61	SWA61-40	663	491	0	74.06	25.94
8	SAT1/BOT/1/68 (Z98203)	BOT68-B1	663	487	0	73.45	26.55
9	SAT1/BEC/1/48 (AY593838)	BEC48-01	663	482	0	72.7	27.3
10	SAT1/ISR/4/62 (AY593844)	ISR62-04	663	459	0	69.23	30.77

nt, nucleotides
*, not a WRLFMD reference number

Molecular Epidemiology Report Form

Serotype: SAT1	Report date: 26/11/2009
WRL Ref No: KEN/117/2009	Reported by: N.J. Knowles
Sender Ref: K115/09	Checked by: D.P. King
Date collected: 17/09/2009	
Date received by WRLFMD: 06/11/2009	Topotype: I (NWZ)
Date received for sequencing: 18/11/2009	Genotype/strain: none designated
Species: Cattle	Sequence filename: KEN09117.SEQ
Material used: BTy1	Date sequence last updated: 26/11/2009
Region sequenced: VP1	Total no. of comparisons: 343
RT-PCR primers: SAT1-1C559F/SAT-2B208R; SAT1U-OS/SAT-2B208R	Min. no. of nt for comparison: 300
	Total turn-around time: 20 days
No. of Nt determined: 663	Sequencing time: 8 days
No. of ambiguities: 0	
Gene length: 663	

Comments:

Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	SAT1/KEN/14/2009	KEN09-14	663	662	0	99.85	0.15
2	SAT1/KEN/9/2009	KEN09-09	663	662	0	99.85	0.15
3	SAT1/KEN/15/2009	KEN09-15	663	661	0	99.7	0.3
4	SAT1/KEN/119/2009	KEN09119	663	658	0	99.25	0.75
5	SAT1/KEN/109/2009	KEN09109	663	656	0	98.94	1.06
6	SAT1/KEN/55/2009	KEN09-55	663	655	0	98.79	1.21
7	SAT1/TAN/51/99 (AY442004)	TAN99S51	663	621	0	93.67	6.33
8	SAT1/TAN/19/96 (AY442013)	TAN96S19	663	619	0	93.36	6.64
9	SAT1/KEN/35/2008	KEN08-35	663	612	0	92.31	7.69
10	SAT1/KEN/25/2008	KEN08-25	663	611	0	92.16	7.84

Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	SAT1/T155/71	TAN71155	663	593	0	89.44	10.56
2	SAT1/SAR/9/81	SAR81-09	629	495	11	78.7	21.3
3	SAT1/RV/11/37 (AY593839)	RHO37-11	663	519	0	78.28	21.72
4	SAT1/RHO/5/66 (AY593846)	RHO66-05	663	512	0	77.22	22.78
5	SAT1/SA/13/61 (AY593842)	SAR61-13	663	497	0	74.96	25.04
6	SAT1/SWA/40/61	SWA61-40	663	494	0	74.51	25.49
7	SAT1/SR/2/58	ZIM58-02	663	492	0	74.21	25.79
8	SAT1/BOT/1/68 (Z98203)	BOT68-B1	663	490	0	73.91	26.09
9	SAT1/BEC/1/48 (AY593838)	BEC48-01	663	486	0	73.3	26.7
10	SAT1/ISR/4/62 (AY593844)	ISR62-04	663	462	0	69.68	30.32

nt, nucleotides
*, not a WRLFMD reference number

Molecular Epidemiology Report Form

Serotype: SAT1	Report date: 26/11/2009
WRL Ref No: KEN/119/2009	Reported by: N.J. Knowles
Sender Ref: K117/09	Checked by: D.P. King
Date collected: 08/10/2009	
Date received by WRLFMD: 06/11/2009	Topotype: I (NWZ)
Date received for sequencing: 18/11/2009	Genotype/strain: none designated
Species: Cattle	Sequence filename: KEN09119.SEQ
Material used: BTy1	Date sequence last updated: 26/11/2009
Region sequenced: VP1	Total no. of comparisons: 343
RT-PCR primers: SAT1-1C559F/SAT-2B208R; SAT1U-OS/SAT-2B208R	Min. no. of nt for comparison: 300
	Total turn-around time: 20 days
No. of Nt determined: 663	Sequencing time: 8 days
No. of ambiguities: 0	
Gene length: 663	

Comments:

Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	SAT1/KEN/14/2009	KEN09-14	663	659	0	99.4	0.6
2	SAT1/KEN/9/2009	KEN09-09	663	659	0	99.4	0.6
3	SAT1/KEN/117/2009	KEN09117	663	658	0	99.25	0.75
4	SAT1/KEN/15/2009	KEN09-15	663	658	0	99.25	0.75
5	SAT1/KEN/109/2009	KEN09109	663	657	0	99.1	0.9
6	SAT1/KEN/55/2009	KEN09-55	663	650	0	98.04	1.96
7	SAT1/TAN/51/99 (AY442004)	TAN99S51	663	618	0	93.21	6.79
8	SAT1/TAN/19/96 (AY442013)	TAN96S19	663	616	0	92.91	7.09
9	SAT1/KEN/35/2008	KEN08-35	663	609	0	91.86	8.14
10	SAT1/KEN/25/2008	KEN08-25	663	608	0	91.7	8.3

Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	SAT1/T155/71	TAN71155	663	590	0	88.99	11.01
2	SAT1/RV/11/37 (AY593839)	RHO37-11	663	519	0	78.28	21.72
3	SAT1/SAR/9/81	SAR81-09	629	491	11	78.06	21.94
4	SAT1/RHO/5/66 (AY593846)	RHO66-05	663	510	0	76.92	23.08
5	SAT1/SA/13/61 (AY593842)	SAR61-13	663	494	0	74.51	25.49
6	SAT1/SWA/40/61	SWA61-40	663	493	0	74.36	25.64
7	SAT1/SR/2/58	ZIM58-02	663	491	0	74.06	25.94
8	SAT1/BOT/1/68 (Z98203)	BOT68-B1	663	489	0	73.76	26.24
9	SAT1/BEC/1/48 (AY593838)	BEC48-01	663	484	0	73	27
10	SAT1/ISR/4/62 (AY593844)	ISR62-04	663	460	0	69.38	30.62

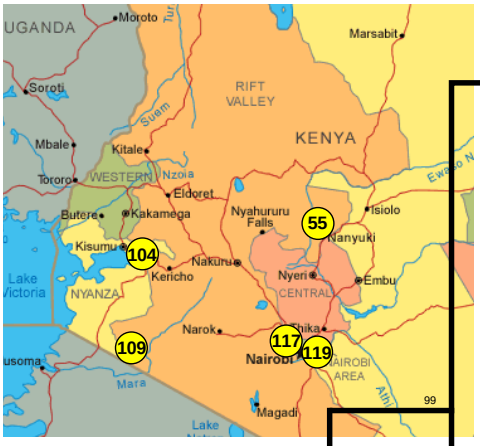
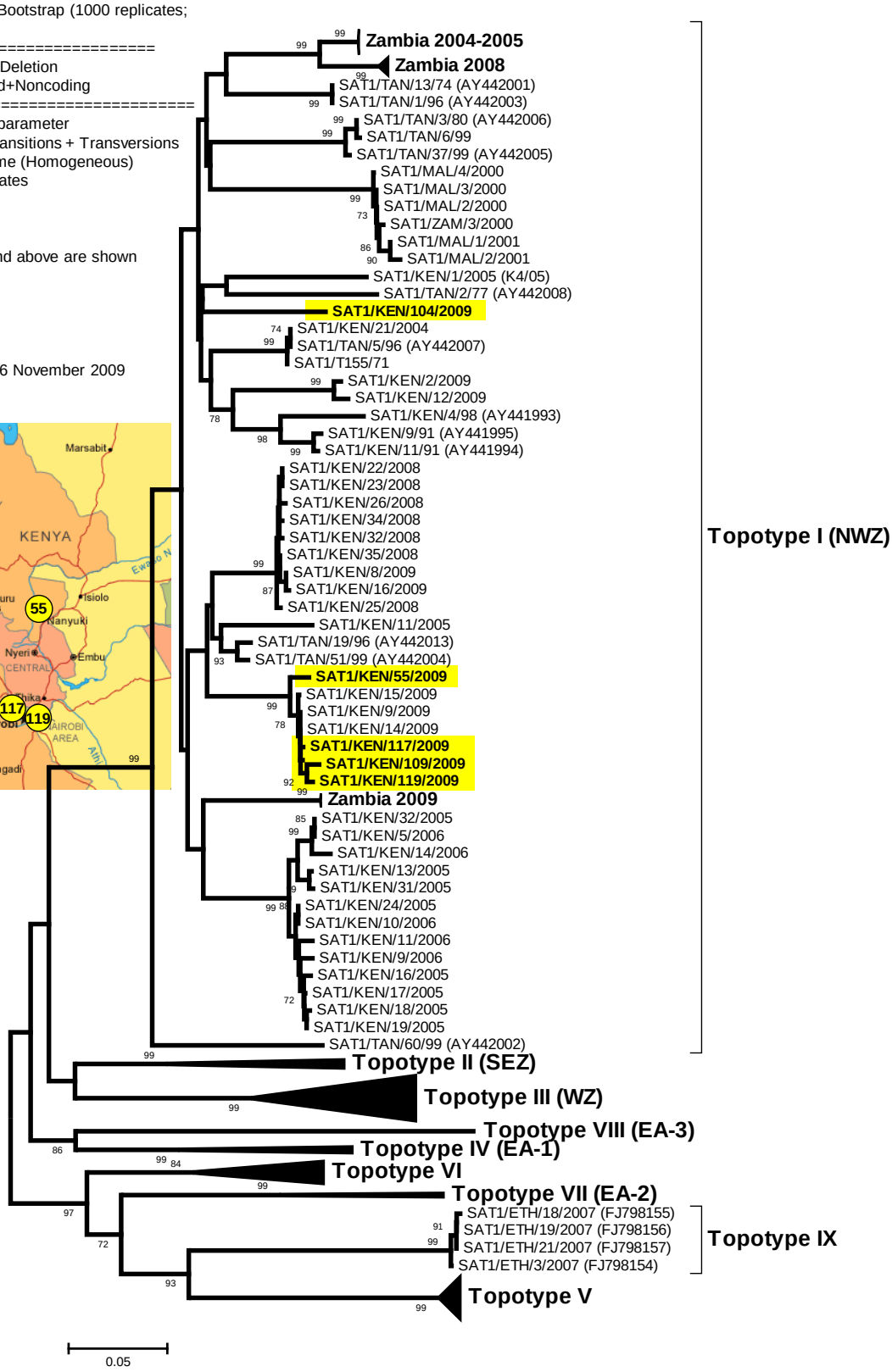
nt, nucleotides
*, not a WRLFMD reference number

Report on FMDV SAT1 in Kenya in 2009

Batch: WRLFMD/2009/00051

Software: MEGA 4.0
No. of Taxa : 143
Data File : n:\evd\meg\db\fmdv\sat1\KEN2009b.meg
Data Title : SAT1 Kenya 2009
Data Type : Nucleotide (Coding)
Analysis : Phylogeny reconstruction
Tree Inference : ==========
->Method : Neighbor-Joining
->Phylogeny Test and options : Bootstrap (1000 replicates; seed=64238)
Include Sites : ==========
->Gaps/Missing Data : Pairwise Deletion
->Codon Positions : 1st+2nd+3rd+Noncoding
Substitution Model : ==========
->Model : Nucleotide: Kimura 2-parameter
->Substitutions to Include : d: Transitions + Transversions
->Pattern among Lineages : Same (Homogeneous)
->Rates among sites : Uniform rates
No. of Sites : 663
No Of Bootstrap Reps = 1000

Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

N.J. Knowles & J. Wadsworth, 26 November 2009