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## **FMD Genotyping Report**

**Lab Reference WRL Batch Number:** WRLFMD/2012/00002  
**Sender Details:** 

**Date Received:** 13th January 2012  
**Country of Origin:** Tanzania  
**Date Reported:** 31st January 2012

**Samples were collected under zoosanitary permit number VIC/AR/ZIS/8338 issued on 2<sup>nd</sup> December 2011.**

Dear Dr S.M Das

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:** 1/2/12

  
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](mailto: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: 31 January 2012

FMDV type SAT 2  
Country: Tanzania  
Period: 2011  
No. of samples: 5

BATCH: WRLFMD/2012/00002



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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: TAN/3/2011 Batch No: WRLFMD/2012/00002 Sender Ref: Oriendeke 5 Location: Oriendeke, Longido, Tanzania Date collected: 21/07/2011 Date received by WRLFMD: 13/01/2012 Date received for sequencing: 26/01/2012 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: SAT2-1C445F/SAT-2B208R SAT2-P1-1223F/SAT-2B208R	Report date: 31/01/2012 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: IV Genotype/strain: unnamed Sequence filename: TAN11-03.SEQ Date sequence last updated: 31/01/2012 No. of Nt determined: 648 No. of ambiguities: 0 Gene length: 648 Total no. of comparisons: 500 Min. no. of nt for comparison: 600 Total turn-around time: 18 days Sequencing time: 5 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/TAN/4/2011	TAN11-04	648	648	0	100.00	0.00	IV	unnamed
2	SAT2/TAN/6/2011	TAN11-06	648	646	0	99.69	0.31	IV	unnamed
3	SAT2/TAN/7/2011	TAN11-07	648	645	0	99.54	0.46	IV	unnamed
4	SAT2/TAN/8/2011	TAN11-08	648	645	0	99.54	0.46	IV	unnamed
5	SAT2/TAN/43/2009	TAN09-43	648	626	0	96.60	3.40	IV	Unnamed
6	SAT2/KEN/18/2008	KEN08-18	648	578	0	89.20	10.80	IV	unnamed
7	SAT2/KEN/21/2008	KEN08-21	648	578	0	89.20	10.80	IV	unnamed
8	SAT2/KEN/6/2004	KEN04-06	648	578	0	89.20	10.80	IV	unnamed
9	SAT2/KEN/8/2005	KEN05-08	648	578	0	89.20	10.80	IV	unnamed
10	SAT2/KEN/14/2007	KEN07-14	648	577	0	89.04	10.96	IV	unnamed
<b>Most Closely Related Reference Viruses</b>									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	563	0	86.88	13.12	IV	unnamed
2	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	552	0	85.19	14.81	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	514	1	79.44	20.56	III	unnamed
5	SAT2/MAL/1/2003	MAL03-01	648	514	0	79.32	20.68	I	unnamed
6	SAT2/SA/106/59 (AY593848)	RSA59--A	648	507	0	78.24	21.76	I	unnamed
7	SAT2/ZIM/14/2002	ZIM02-14	648	507	0	78.24	21.76	I	unnamed
8	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	486	0	75.00	25.00	II	unnamed
9	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	485	0	74.85	25.15	II	unnamed
10	SAT2/RWA/1/2000* (AF367134)	RWA00-01	648	479	0	73.92	26.08	VIII	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: TAN/4/2011 Batch No: WRLFMD/2012/00002 Sender Ref: Oriendeke 6 Location: Oriendeke, Longido, Tanzania Date collected: 21/07/2011 Date received by WRLFMD: 13/01/2012 Date received for sequencing: 26/01/2012 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: SAT2-1C445F/SAT-2B208R SAT2-P1-1223F/SAT-2B208R	Report date: 31/01/2012 Reported by: N.J. Knowles Checked by: D.P. King Topotype: IV Genotype/strain: unnamed Sequence filename: TAN11-04.SEQ Date sequence last updated: 31/01/2012 No. of Nt determined: 648 No. of ambiguities: 0 Gene length: 648 Total no. of comparisons: 500 Min. no. of nt for comparison: 600 Total turn-around time: 18 days Sequencing time: 5 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/TAN/3/2011	TAN11-03	648	648	0	100.00	0.00	IV	unnamed
2	SAT2/TAN/6/2011	TAN11-06	648	646	0	99.69	0.31	IV	unnamed
3	SAT2/TAN/7/2011	TAN11-07	648	645	0	99.54	0.46	IV	unnamed
4	SAT2/TAN/8/2011	TAN11-08	648	645	0	99.54	0.46	IV	unnamed
5	SAT2/TAN/43/2009	TAN09-43	648	626	0	96.60	3.40	IV	Unnamed
6	SAT2/KEN/18/2008	KEN08-18	648	578	0	89.20	10.80	IV	unnamed
7	SAT2/KEN/21/2008	KEN08-21	648	578	0	89.20	10.80	IV	unnamed
8	SAT2/KEN/6/2004	KEN04-06	648	578	0	89.20	10.80	IV	unnamed
9	SAT2/KEN/8/2005	KEN05-08	648	578	0	89.20	10.80	IV	unnamed
10	SAT2/KEN/14/2007	KEN07-14	648	577	0	89.04	10.96	IV	unnamed
<b>Most Closely Related Reference Viruses</b>									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	563	0	86.88	13.12	IV	unnamed
2	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	552	0	85.19	14.81	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	514	1	79.44	20.56	III	unnamed
5	SAT2/MAL/1/2003	MAL03-01	648	514	0	79.32	20.68	I	unnamed
6	SAT2/SA/106/59 (AY593848)	RSA59--A	648	507	0	78.24	21.76	I	unnamed
7	SAT2/ZIM/14/2002	ZIM02-14	648	507	0	78.24	21.76	I	unnamed
8	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	486	0	75.00	25.00	II	unnamed
9	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	485	0	74.85	25.15	II	unnamed
10	SAT2/RWA/1/2000* (AF367134)	RWA00-01	648	479	0	73.92	26.08	VIII	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: 31/01/2012
WRLFMD Ref No: TAN/6/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2012/00002	Checked by: D.P. King
Sender Ref: 6807	
Location: Loliondo, Tanzania	Topotype: IV
Date collected: 29/07/2011	Genotype/strain: unnamed
Date received by WRLFMD: 13/01/2012	Sequence filename: TAN11-06.SEQ
Date received for sequencing: 26/01/2012	Date sequence last updated: 31/01/2012
Species: Cattle	No. of Nt determined: 648
Material used: BTy2	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 648
RT-PCR primers: SAT2-1C445F/SAT-2B208R	Total no. of comparisons: 500
SAT2-P1-1223F/SAT-2B208R	Min. no. of nt for comparison: 600
	Total turn-around time: 18 days
	Sequencing time: 5 days
<b>Comments:</b>	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/TAN/3/2011	TAN11-03	648	646	0	99.69	0.31	IV	unnamed
2	SAT2/TAN/4/2011	TAN11-04	648	646	0	99.69	0.31	IV	unnamed
3	SAT2/TAN/7/2011	TAN11-07	648	645	0	99.54	0.46	IV	unnamed
4	SAT2/TAN/8/2011	TAN11-08	648	645	0	99.54	0.46	IV	unnamed
5	SAT2/TAN/43/2009	TAN09-43	648	626	0	96.60	3.40	IV	Unnamed
6	SAT2/KEN/18/2008	KEN08-18	648	577	0	89.04	10.96	IV	unnamed
7	SAT2/KEN/21/2008	KEN08-21	648	577	0	89.04	10.96	IV	unnamed
8	SAT2/KEN/14/2007	KEN07-14	648	576	0	88.89	11.11	IV	unnamed
9	SAT2/KEN/6/2004	KEN04-06	648	576	0	88.89	11.11	IV	unnamed
10	SAT2/KEN/8/2005	KEN05-08	648	576	0	88.89	11.11	IV	unnamed
<b>Most Closely Related Reference Viruses</b>									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	564	0	87.04	12.96	IV	unnamed
2	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	550	0	84.88	15.12	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	513	0	79.17	20.83	I	unnamed
6	SAT2/SA/106/59 (AY593848)	RSA59--A	648	507	0	78.24	21.76	I	unnamed
7	SAT2/ZIM/14/2002	ZIM02-14	648	507	0	78.24	21.76	I	unnamed
8	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	485	0	74.85	25.15	II	unnamed
9	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	484	0	74.69	25.31	II	unnamed
10	SAT2/RWA/1/2000* (AF367134)	RWA00-01	648	480	0	74.07	25.93	VIII	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: 31/01/2012
WRLFMD Ref No: TAN/7/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2012/00002	Checked by: D.P. King
Sender Ref: 823	
Location: Emboreet, Simanjiru, Manyara, Tanzania	Topotype: IV
Date collected: 20/08/2011	Genotype/strain: unnamed
Date received by WRLFMD: 13/01/2012	Sequence filename: TAN11-07.SEQ
Date received for sequencing: 26/01/2012	Date sequence last updated: 31/01/2012
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: 500
SAT2-P1-1223F/SAT-2B208R	Min. no. of nt for comparison: 600
	Total turn-around time: 18 days
	Sequencing time: 5 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/TAN/8/2011	TAN11-08	648	648	0	100.00	0.00	IV	unnamed
2	SAT2/TAN/3/2011	TAN11-03	648	645	0	99.54	0.46	IV	unnamed
3	SAT2/TAN/4/2011	TAN11-04	648	645	0	99.54	0.46	IV	unnamed
4	SAT2/TAN/6/2011	TAN11-06	648	645	0	99.54	0.46	IV	unnamed
5	SAT2/TAN/43/2009	TAN09-43	648	625	0	96.45	3.55	IV	Unnamed
6	SAT2/KEN/18/2008	KEN08-18	648	575	0	88.73	11.27	IV	unnamed
7	SAT2/KEN/21/2008	KEN08-21	648	575	0	88.73	11.27	IV	unnamed
8	SAT2/KEN/6/2004	KEN04-06	648	575	0	88.73	11.27	IV	unnamed
9	SAT2/KEN/8/2005	KEN05-08	648	575	0	88.73	11.27	IV	unnamed
10	SAT2/KEN/14/2007	KEN07-14	648	574	0	88.58	11.42	IV	unnamed
<b>Most Closely Related Reference Viruses</b>									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	562	0	86.73	13.27	IV	unnamed
2	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	549	0	84.72	15.28	IV	unnamed
3	SAT2/RHO/1/48 (AY593847)	ZAM48B01	648	519	0	80.09	19.91	III	unnamed
4	SAT2/BOT/P3/98 (buffalo 29) (AF367124)	BOT98-AC	647	513	1	79.29	20.71	III	unnamed
5	SAT2/MAL/1/2003	MAL03-01	648	511	0	78.86	21.14	I	unnamed
6	SAT2/SA/106/59 (AY593848)	RSA59--A	648	506	0	78.09	21.91	I	unnamed
7	SAT2/ZIM/14/2002	ZIM02-14	648	506	0	78.09	21.91	I	unnamed
8	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	484	0	74.69	25.31	II	unnamed
9	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	483	0	74.54	25.46	II	unnamed
10	SAT2/RWA/1/2000* (AF367134)	RWA00-01	648	478	0	73.77	26.23	VIII	unnamed

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

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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: 31/01/2012
WRLFMD Ref No: TAN/8/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2012/00002	Checked by: D.P. King
Sender Ref: 834	
Location: Emboreet, Simanjiru, Manyara, Tanzania	Topotype: IV
Date collected: 20/08/2011	Genotype/strain: unnamed
Date received by WRLFMD: 13/01/2012	Sequence filename: TAN11-08.SEQ
Date received for sequencing: 26/01/2012	Date sequence last updated: 31/01/2012
Species: Cattle	No. of Nt determined: 648
Material used: BTy2	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 648
RT-PCR primers: SAT2-1C445F/SAT-2B208R	Total no. of comparisons: 500
SAT2-P1-1223F/SAT-2B208R	Min. no. of nt for comparison: 600
	Total turn-around time: 18 days
	Sequencing time: 5 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/TAN/7/2011	TAN11-07	648	648	0	100.00	0.00	IV	unnamed
2	SAT2/TAN/3/2011	TAN11-03	648	645	0	99.54	0.46	IV	unnamed
3	SAT2/TAN/4/2011	TAN11-04	648	645	0	99.54	0.46	IV	unnamed
4	SAT2/TAN/6/2011	TAN11-06	648	645	0	99.54	0.46	IV	unnamed
5	SAT2/TAN/43/2009	TAN09-43	648	625	0	96.45	3.55	IV	Unnamed
6	SAT2/KEN/18/2008	KEN08-18	648	575	0	88.73	11.27	IV	unnamed
7	SAT2/KEN/21/2008	KEN08-21	648	575	0	88.73	11.27	IV	unnamed
8	SAT2/KEN/6/2004	KEN04-06	648	575	0	88.73	11.27	IV	unnamed
9	SAT2/KEN/8/2005	KEN05-08	648	575	0	88.73	11.27	IV	unnamed
10	SAT2/KEN/14/2007	KEN07-14	648	574	0	88.58	11.42	IV	unnamed
<b>Most Closely Related Reference Viruses</b>									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	SAT2/KEN/1/84 (K7/84) (AY344505)	KEN84-AB	648	562	0	86.73	13.27	IV	unnamed
2	SAT2/ETH/1/90 (1989)(AY343935)	ETH90-AA	648	549	0	84.72	15.28	IV	unnamed
3	SAT2/RHO/1/48 (AY593847)	ZAM48B01	648	519	0	80.09	19.91	III	unnamed
4	SAT2/BOT/P3/98 (buffalo 29) (AF367124)	BOT98-AC	647	513	1	79.29	20.71	III	unnamed
5	SAT2/MAL/1/2003	MAL03-01	648	511	0	78.86	21.14	I	unnamed
6	SAT2/SA/106/59 (AY593848)	RSA59--A	648	506	0	78.09	21.91	I	unnamed
7	SAT2/ZIM/14/2002	ZIM02-14	648	506	0	78.09	21.91	I	unnamed
8	SAT2/ZIM/5/81 (EF134951)	ZIM81-AA	648	484	0	74.69	25.31	II	unnamed
9	SAT2/ZIM/7/83 (AF136607)	ZIM83A07	648	483	0	74.54	25.46	II	unnamed
10	SAT2/RWA/1/2000* (AF367134)	RWA00-01	648	478	0	73.77	26.23	VIII	unnamed

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

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# Report on FMDV SAT 2 in Tanzania in 2011

Batch: WRLFMD/2012/00002

◆ 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

----- Nucleotide

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

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

Rates and Patterns

----- Uniform rates

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

Data Subset to Use

----- Pairwise deletion

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

No. of Sites : 651

No Of Bootstrap Reps = 1000

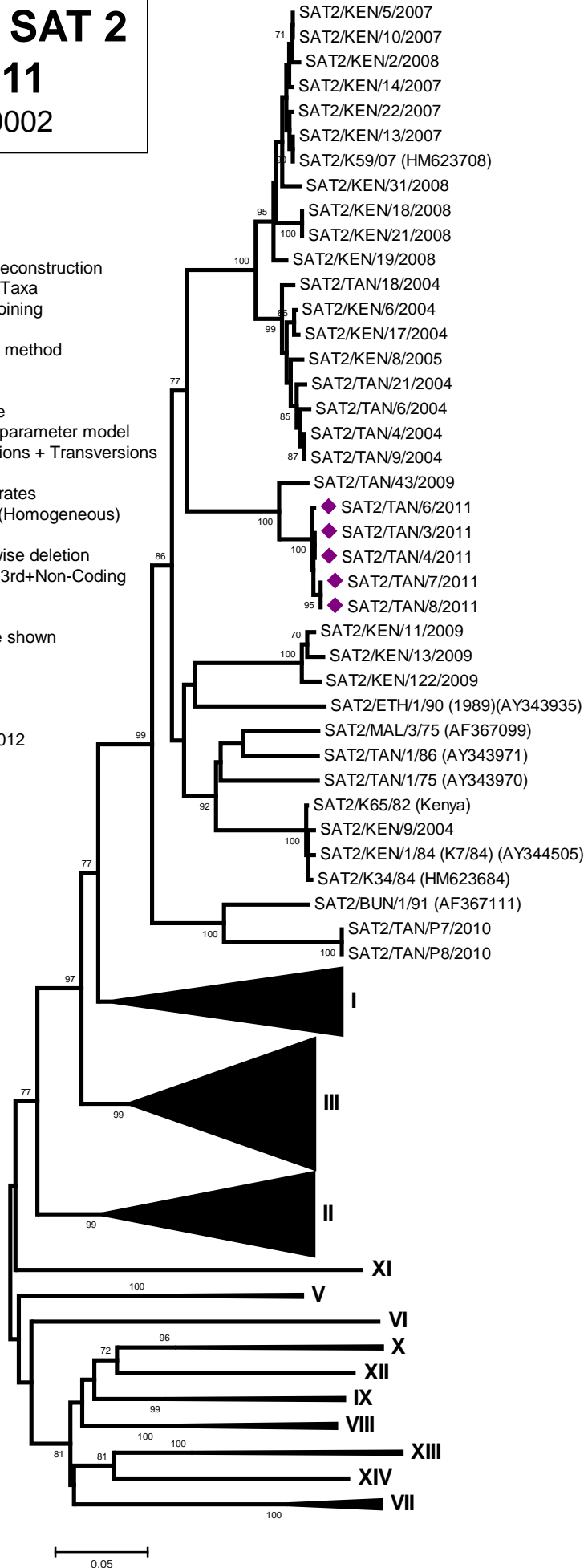
Only bootstrap values of 70% and above are shown

\*, not a WRLFMD Ref. No.

N.J. Knowles & J. Wadsworth, 31 January 2012

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