

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

Genotyping Report

FMDV serotype: SAT2
Country: Zambia
Year: 2015
Batch: WRLFMD/2016/00022
No. of sequences: 1
Report date: 12th July 2016
Report generated by: Nick Knowles
Report checked by: Kasia Bankowska

Analysis Parameters

VP1 subsequence extractor: vp1_SAT2
Query sequence set: WRLFMD/2016/00022-Zambia-SAT2 (1 sequences)
Sequence database set: allseqs_SAT2 (726 sequences)
Prototype sequence set: prototypes_SAT2 (25 sequences)
Number of related sequences reported: 10
Minimal VP1 subsequence match length: 600
VIBASys version: reflabs-1.0.2



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www: <http://www.wrlfmd.org/>

email: reporting@pirbright.ac.uk

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Virus sample name:	ZAM/2/2015
Sender reference:	ZAM 03/15
Location of origin:	Chimula and Kowa village, Northern province
Country of origin:	Zambia
Date of collection:	28/02/2015
Host species:	bovine
Serotype:	SAT2
Topotype:	IV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	BTy2
Harvest date of material:	25/06/2016
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R
Received for sequencing:	07/07/2016
Created:	11/07/2016
Last updated:	11/07/2016

VIBASys IDs: sample 27748, genome 27749, sequence viba_27750, sequencing info 27751

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_3526	BUN/1/91		88.8	0	SAT2	IV		
viba_16768	TAN/P8/2010	cattle	86.3	0	SAT2	IV		
viba_16764	TAN/P7/2010	cattle	86.3	0	SAT2	IV		
viba_2026	U267/83		86.0	0	SAT2	IV		
viba_11235	KEN/19/2008	cattle	86.0	0	SAT2	IV		
viba_248	KEN/1/84	bovine	85.9	0	SAT2	IV		
viba_20649	TAN/7/2012	cattle	85.8	0	SAT2	IV		
viba_8093	K70/05		85.7	0	SAT2	IV		
viba_6499	KEN/11/2004	cattle	85.7	0	SAT2	IV		
viba_20653	TAN/9/2012	cattle	85.6	0	SAT2	IV		

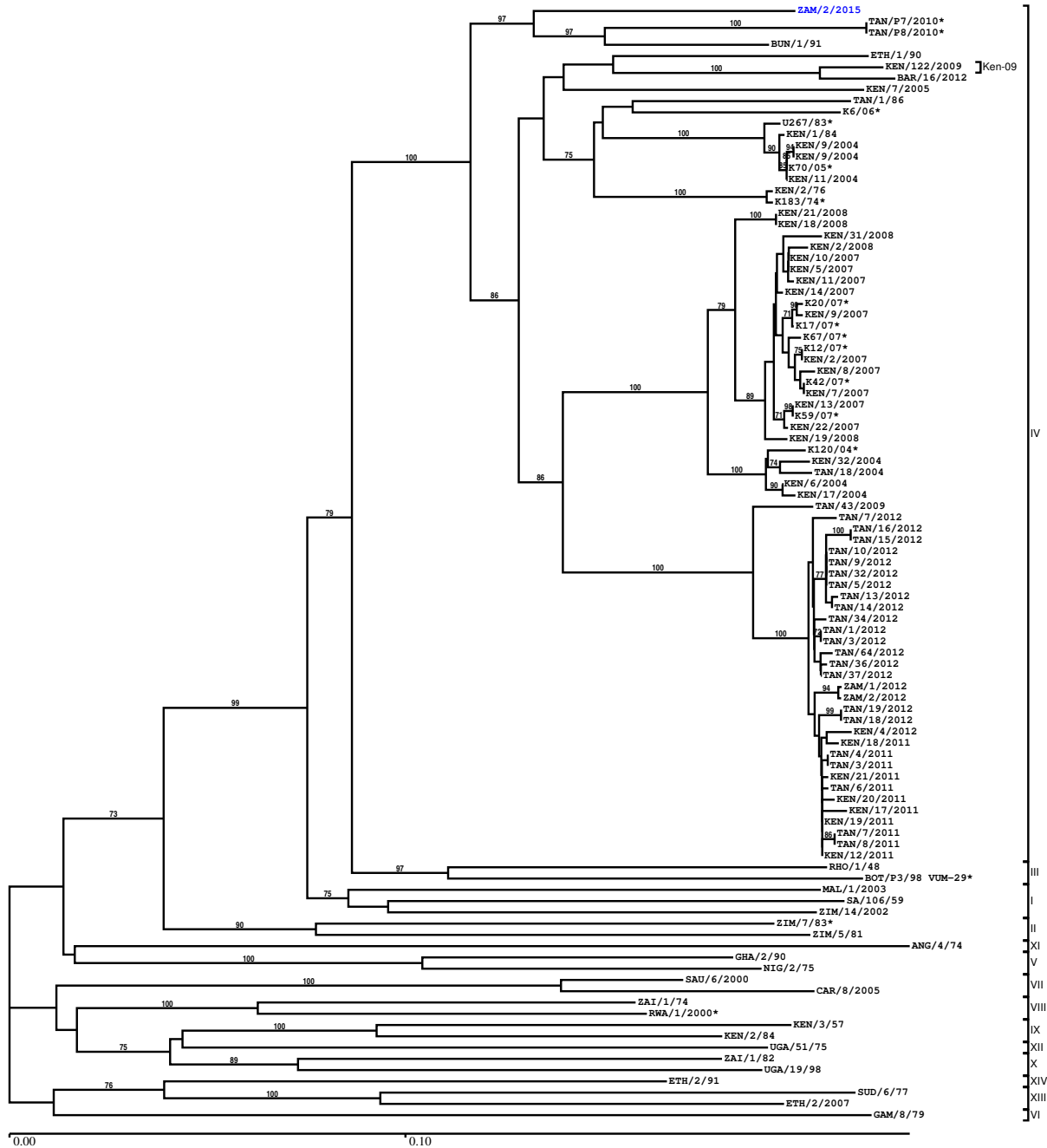
Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_248	KEN/1/84	bovine	85.9	0	SAT2	IV		
viba_273	ETH/1/90	bovine	83.5	0	SAT2	IV		
viba_451	BOT/P3/98 VUM-29	african buffalo	82.1	1	SAT2	III		
viba_752	SA/106/59		81.0	0	SAT2	I		
viba_380	RHO/1/48		80.7	0	SAT2	III		
viba_111	MAL/1/2003	bovine	79.3	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	79.2	0	SAT2	I		
viba_567	ZIM/7/83	bovine	75.9	0	SAT2	II		
viba_546	ZIM/5/81	bovine	74.8	0	SAT2	II		
viba_424	SAU/6/2000	bovine	73.5	1	SAT2	VII		

Report on FMDV SAT2 in Zambia in 2015

Batch: WRLFMD/2016/00022



Sequence alignment method: muscle (default parameters)
 Phylogeny reconstruction method: fdnadist, fneighbor
 Number of bootstrap samples: 1000
 Displaying bootstrap values above: 70.0%
 Number of sequences in tree capped at: 100
 *, not a WRLFMD Reference Number

Sequences in the Phylogenetic Tree

All sequences in the tree are in taxonomic group FMDV/SAT2

label	accession	host(s)	lab	country	taxonomic information
ZAM/2/2015	n/a	bovine	WRLFMD	Zambia	IV
TAN/P7/2010*	n/a	cattle	WRLFMD	Tanzania	IV
TAN/P8/2010*	n/a	cattle	WRLFMD	Tanzania	IV
BUN/1/91	AF367111	n/a	OVI	Burundi	IV
ETH/1/90	AY343935	bovine	OVI	Ethiopia	IV
KEN/122/2009	JX570630	cattle	WRLFMD	Kenya	IV/Ken-09
BAR/16/2012	JX570613	cattle	WRLFMD	Bahrain	IV
KEN/7/2005	n/a	cattle	WRLFMD	Kenya	IV
TAN/1/86	AY343971	n/a	OVI	Tanzania	IV
K6/06*	HM623702	n/a	n/a	Kenya	IV
U267/83*	HM623682	n/a	Makerere Uni- versity, Uganda	Uganda	IV
KEN/1/84	AY344505	bovine	OVI	Kenya	IV
KEN/9/2004	n/a	cattle	WRLFMD	Kenya	IV
KEN/9/2004	n/a	cattle	WRLFMD	Kenya	IV
K70/05*	HM623701	n/a	n/a	Kenya	IV
KEN/11/2004	n/a	cattle	WRLFMD	Kenya	IV
KEN/2/76	AY343940	cattle	OVI	Kenya	IV
K183/74*	n/a	cattle	WRLFMD	Kenya	IV
KEN/21/2008	n/a	cattle	WRLFMD	Kenya	IV
KEN/18/2008	n/a	cattle	WRLFMD	Kenya	IV
KEN/31/2008	n/a	cattle	WRLFMD	Kenya	IV
KEN/2/2008	n/a	cattle	WRLFMD	Kenya	IV
KEN/10/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/5/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/11/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/14/2007	n/a	cattle	WRLFMD	Kenya	IV
K20/07*	HM623706	n/a	n/a	Kenya	IV
KEN/9/2007	n/a	cattle	WRLFMD	Kenya	IV
K17/07*	HM623705	n/a	n/a	Kenya	IV
K67/07*	HM623709	n/a	n/a	Kenya	IV
K12/07*	HM623703	n/a	n/a	Kenya	IV
KEN/2/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/8/2007	n/a	cattle	WRLFMD	Kenya	IV
K42/07*	HM623707	n/a	n/a	Kenya	IV
KEN/7/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/13/2007	n/a	cattle	WRLFMD	Kenya	IV
K59/07*	HM623708	n/a	n/a	Kenya	IV
KEN/22/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/19/2008	n/a	cattle	WRLFMD	Kenya	IV
K120/04*	HM623700	n/a	n/a	Kenya	IV
KEN/32/2004	n/a	cattle	WRLFMD	Kenya	IV
TAN/18/2004	KF561725	cattle	WRLFMD	Tanzania	IV
KEN/6/2004	n/a	cattle	WRLFMD	Kenya	IV
KEN/17/2004	n/a	cattle	WRLFMD	Kenya	IV
TAN/43/2009	KF561727	cattle	WRLFMD	Tanzania	IV
TAN/7/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/16/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/15/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/10/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/9/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/32/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/5/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/13/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/14/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/34/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/1/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/3/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/64/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/36/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/37/2012	n/a	cattle	WRLFMD	Tanzania	IV

continued on next page

label	accession	host(s)	lab	country	taxonomic information
ZAM/1/2012	n/a	bovine	WRLFMD	Zambia	IV
ZAM/2/2012	n/a	bovine	WRLFMD	Zambia	IV
TAN/19/2012	n/a	cattle	WRLFMD	Tanzania	IV
TAN/18/2012	n/a	cattle	WRLFMD	Tanzania	IV
KEN/4/2012	n/a	bovine	WRLFMD	Kenya	IV
KEN/18/2011	n/a	cattle	WRLFMD	Kenya	IV
TAN/4/2011	n/a	cattle	WRLFMD	Tanzania	IV
TAN/3/2011	n/a	cattle	WRLFMD	Tanzania	IV
KEN/21/2011	n/a	cattle	WRLFMD	Kenya	IV
TAN/6/2011	n/a	cattle	WRLFMD	Tanzania	IV
KEN/20/2011	n/a	cattle	WRLFMD	Kenya	IV
KEN/17/2011	n/a	cattle	WRLFMD	Kenya	IV
KEN/19/2011	n/a	cattle	WRLFMD	Kenya	IV
TAN/7/2011	n/a	cattle	WRLFMD	Tanzania	IV
TAN/8/2011	n/a	cattle	WRLFMD	Tanzania	IV
KEN/12/2011	n/a	cattle	WRLFMD	Kenya	IV
RHO/1/48	AY593847	n/a	PIADC	Rhodesia	III
BOT/P3/98 VUM-29*	AF367124	african buffalo	OVI	Botswana	III
MAL/1/2003	n/a	bovine	WRLFMD	Malawi	I
SA/106/59	AY593848	n/a	PIADC	South Africa	I
ZIM/14/2002	KF219689	bovine	WRLFMD	Zimbabwe	I
ZIM/7/83*	AF136607	bovine	OVI	Zimbabwe	II
ZIM/5/81	EF134951	bovine	WRLFMD	Zimbabwe	II
ANG/4/74	AF479417	n/a	OVI	Angola	XI
GHA/2/90	AF479415	bovine	OVI	Ghana	V
NIG/2/75	AF367139	bovine	OVI	Nigeria	V
SAU/6/2000	AF367135	bovine	OVI	Saudi Arabia	VII
CAR/8/2005	JX570616	cattle	WRLFMD	Cameroon	VII
ZAI/1/74	DQ009737	n/a	OVI	Zaire	VIII
RWA/1/2000*	AF367134	n/a	OVI	Rwanda	VIII
KEN/3/57	AJ251473	n/a	WRLFMD	Kenya	IX
KEN/2/84	AY343941	bovine	OVI	Kenya	IX
UGA/51/75	AY343963	bovine	OVI	Uganda	XII
ZAI/1/82	AF367100	bovine	OVI	Zaire	X
UGA/19/98	AY343969	n/a	OVI	Uganda	X
ETH/2/91	AY343938	bovine	OVI	Ethiopia	XIV
SUD/6/77	AY343939	n/a	OVI	Sudan	XIII
ETH/2/2007	FJ798161	cattle	WRLFMD	Ethiopia	XIII
GAM/8/79	AF479410	bovine	OVI	Gambia	VI

*, not a WRLFMD Reference Number

n/a, not available