

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

Genotyping Report

FMDV serotype: SAT1
Country: Nigeria
Year: 2015
Batch: WRLFMD/2016/00034
No. of sequences: 3
Report date: 21st December 2016
Report generated by: Kasia Bankowska
Report checked by: Nick Knowles



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

email: reporting@pirbright.ac.uk

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Virus sample name:	NIG/1/2015
Sender reference:	PL/JS/15/13/796
Location of origin:	n/a
Country of origin:	Nigeria
Date of collection:	02/12/2015
Host species:	cattle
Serotype:	SAT1
Topotype:	X
Lineage:	
Sublineage:	
Sequence length:	654
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	26/10/2016
Primers:	SAT1-1C559F/SAT-2B208R; SAT1U-OS/SAT-2B208R
Received for sequencing:	28/11/2016
Created:	29/11/2016
Last updated:	29/11/2016
VIBASys IDs: sample 30937, genome 30938, sequence viba_30939, sequencing info 30940	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30943	NIG/2/2015	cattle	100.0	0	SAT1	X		
viba_30947	NIG/3/2015	cattle	99.8	0	SAT1	X		
viba_30788	SUD/4/76		73.8	0	SAT1	VI		
viba_1569	SUD/4/76		73.6	0	SAT1	VI		
viba_1557	SUD/8/74		73.6	0	SAT1	VI		
viba_1561	SUD/9/74		73.6	0	SAT1	VI		
viba_1469	NIG/2/79		73.2	0	SAT1	VI		
viba_440	SUD/3/76		73.2	0	SAT1	VI		
viba_1423	NIG/24/75		73.1	0	SAT1	V		
viba_1462	NIG/14/76		73.1	0	SAT1	V		

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_440	SUD/3/76		73.2	0	SAT1	VI		
viba_258	UGA/13/74	bovine	73.0	0	SAT1	VII		
viba_446	NIG/11/75	bovine	72.6	0	SAT1	V		
viba_514	UGA-BUFF/21/70	african buffalo	71.7	0	SAT1	IV		
viba_732	ISR/4/62		71.3	0	SAT1	VI		
viba_509	BOT/1/77	bovine	70.4	0	SAT1	III		
viba_232	ETH/3/2007	cattle	70.1	0	SAT1	IX		
viba_91	UGA/1/97	african buffalo	69.5	0	SAT1	VIII		
viba_243	ZIM/23/2003		69.5	0	SAT1	I		
viba_495	BOT/1/68	bovine	69.0	0	SAT1	III		

Virus sample name:	NIG/2/2015
Sender reference:	PL/JS/15/14/517
Location of origin:	n/a
Country of origin:	Nigeria
Date of collection:	02/12/2015
Host species:	cattle
Serotype:	SAT1
Topotype:	X
Lineage:	
Sublineage:	
Sequence length:	654
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	26/10/2016
Primers:	SAT1-1C559F/SAT-2B208R; SAT1U-OS/SAT-2B208R
Received for sequencing:	28/11/2016
Created:	29/11/2016
Last updated:	29/11/2016
VIBASys IDs: sample 30941, genome 30942, sequence viba_30943, sequencing info 30944	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30939	NIG/1/2015	cattle	100.0	0	SAT1	X		
viba_30947	NIG/3/2015	cattle	99.8	0	SAT1	X		
viba_30788	SUD/4/76		73.8	0	SAT1	VI		
viba_1569	SUD/4/76		73.6	0	SAT1	VI		
viba_1557	SUD/8/74		73.6	0	SAT1	VI		
viba_1561	SUD/9/74		73.6	0	SAT1	VI		
viba_1469	NIG/2/79		73.2	0	SAT1	VI		
viba_440	SUD/3/76		73.2	0	SAT1	VI		
viba_1423	NIG/24/75		73.1	0	SAT1	V		
viba_1462	NIG/14/76		73.1	0	SAT1	V		

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_440	SUD/3/76		73.2	0	SAT1	VI		
viba_258	UGA/13/74	bovine	73.0	0	SAT1	VII		
viba_446	NIG/11/75	bovine	72.6	0	SAT1	V		
viba_514	UGA-BUFF/21/70	african buffalo	71.7	0	SAT1	IV		
viba_732	ISR/4/62		71.3	0	SAT1	VI		
viba_509	BOT/1/77	bovine	70.4	0	SAT1	III		
viba_232	ETH/3/2007	cattle	70.1	0	SAT1	IX		
viba_91	UGA/1/97	african buffalo	69.5	0	SAT1	VIII		
viba_243	ZIM/23/2003		69.5	0	SAT1	I		
viba_495	BOT/1/68	bovine	69.0	0	SAT1	III		

Virus sample name:	NIG/3/2015
Sender reference:	PL/JS/15/18/408
Location of origin:	n/a
Country of origin:	Nigeria
Date of collection:	02/12/2015
Host species:	cattle
Serotype:	SAT1
Topotype:	X
Lineage:	
Sublineage:	
Sequence length:	654
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	26/10/2016
Primers:	SAT1-1C559F/SAT-2B208R; SAT1U-OS/SAT-2B208R
Received for sequencing:	28/11/2016
Created:	02/12/2012
Last updated:	02/12/2012
VIBASys IDs: sample 30945, genome 30946, sequence viba_30947, sequencing info 30948	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30939	NIG/1/2015	cattle	99.8	0	SAT1	X		
viba_30943	NIG/2/2015	cattle	99.8	0	SAT1	X		
viba_30788	SUD/4/76		73.7	0	SAT1	VI		
viba_1569	SUD/4/76		73.6	0	SAT1	VI		
viba_1557	SUD/8/74		73.6	0	SAT1	VI		
viba_1561	SUD/9/74		73.6	0	SAT1	VI		
viba_1469	NIG/2/79		73.2	0	SAT1	VI		
viba_1423	NIG/24/75		73.1	0	SAT1	V		
viba_258	UGA/13/74	bovine	73.1	0	SAT1	VII		
viba_440	SUD/3/76		73.1	0	SAT1	VI		

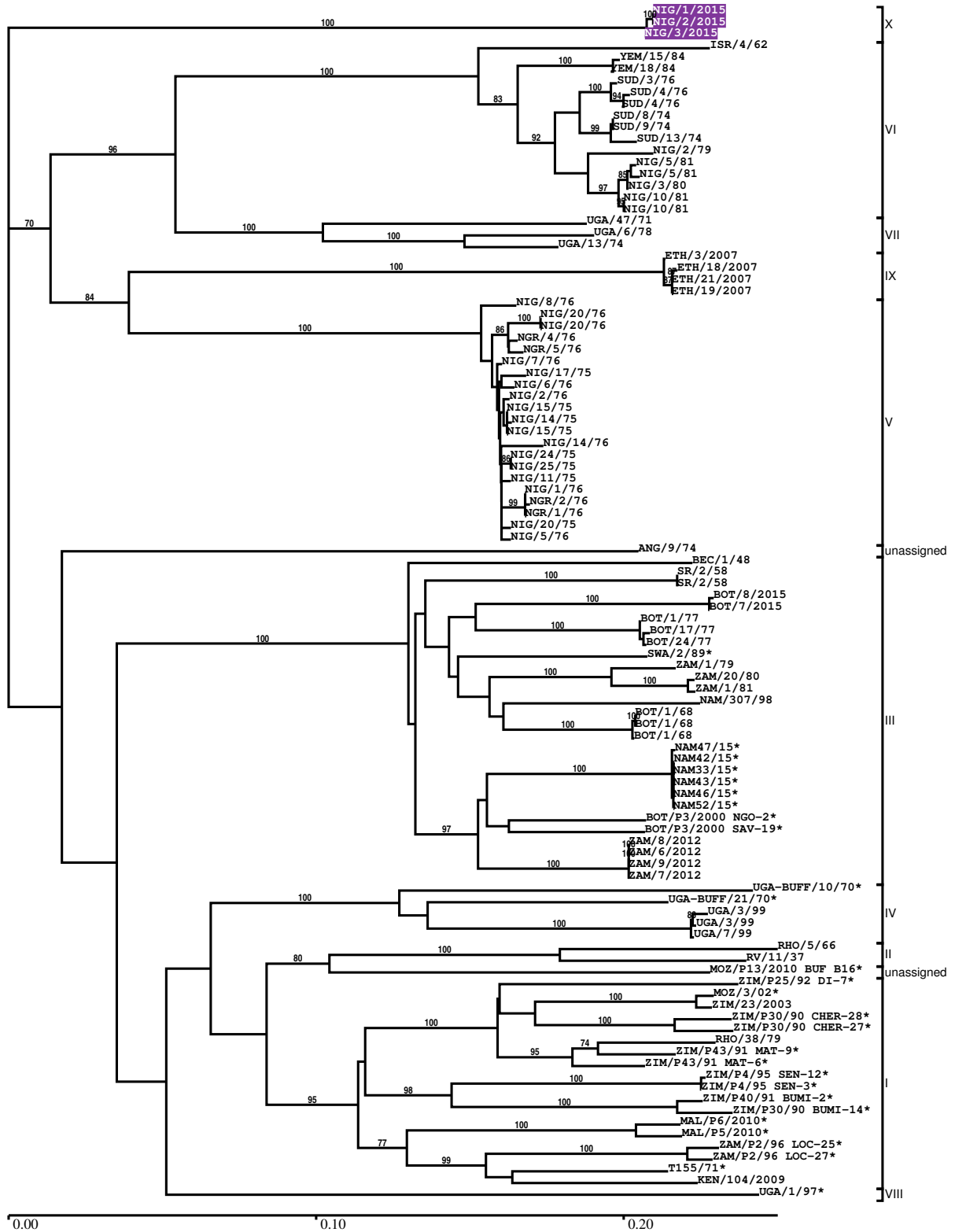
Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_440	SUD/3/76		73.1	0	SAT1	VI		
viba_258	UGA/13/74	bovine	73.1	0	SAT1	VII		
viba_446	NIG/11/75	bovine	72.6	0	SAT1	V		
viba_514	UGA-BUFF/21/70	african buffalo	71.7	0	SAT1	IV		
viba_732	ISR/4/62		71.2	0	SAT1	VI		
viba_509	BOT/1/77	bovine	70.4	0	SAT1	III		
viba_232	ETH/3/2007	cattle	70.0	0	SAT1	IX		
viba_91	UGA/1/97	african buffalo	69.6	0	SAT1	VIII		
viba_243	ZIM/23/2003		69.5	0	SAT1	I		
viba_495	BOT/1/68	bovine	69.0	0	SAT1	III		

Report on FMDV SAT1 in Nigeria in 2015

Batch: WRLFMD/2016/00034



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_SAT1
Query sequence set:	WRLFMD/2016/00034-Nigeria-SAT1 (3 sequences)
Sequence database set:	allseqs_SAT1 (609 sequences)
Prototype sequence set:	!prototypes_SAT1 (14 sequences)
Number of related sequences reported:	10
Minimal VP1 subsequence match length	600
Sequence alignment method:	muscle (default parameters)
Sequence alignment length:	657
Phylogeny reconstruction method:	fdnadist, fneighbor
Number of bootstrap samples:	1000
Random seed for bootstrapping:	1
Displaying bootstrap values above:	70.0%
Number of sequences in tree capped at:	100
Number of prototype sequences in tree:	10
VIBASys version:	master-1.1.0-17-gf69a4d1

Sequences in the Phylogenetic Tree

All sequences in the tree are in taxonomic group FMDV/SAT1

label	accession	host(s)	lab	country	taxonomic information
NIG/1/2015	n/a	cattle	WRLFMD	Nigeria	X
NIG/2/2015	n/a	cattle	WRLFMD	Nigeria	X
NIG/3/2015	n/a	cattle	WRLFMD	Nigeria	X
ISR/4/62	AY593844	n/a	PIADC	Israel	VI
YEM/15/84	n/a	cattle	WRLFMD	Yemen	VI
YEM/18/84	n/a	n/a	WRLFMD	Yemen	VI
SUD/3/76	DQ009725	n/a	OVI	Sudan	VI
SUD/4/76	AY441997	n/a	OVI	Sudan	VI
SUD/4/76	n/a	n/a	WRLFMD	Sudan	VI
SUD/8/74	AY441998	n/a	OVI	Sudan	VI
SUD/9/74	AY441999	n/a	OVI	Sudan	VI
SUD/13/74	AY442000	n/a	OVI	Sudan	VI
NIG/2/79	AF431728	n/a	OVI	Nigeria	VI
NIG/5/81	AF431730	n/a	OVI	Nigeria	VI
NIG/5/81	DQ009723	n/a	OVI	Nigeria	VI
NIG/3/80	AF431729	n/a	OVI	Nigeria	VI
NIG/10/81	AF431731	n/a	OVI	Nigeria	VI
NIG/10/81	n/a	n/a	WRLFMD	Nigeria	VI
UGA/47/71	n/a	bovine	WRLFMD	Uganda	VII
UGA/6/78	n/a	n/a	WRLFMD	Uganda	VII
UGA/13/74	AY442010	bovine	OVI	Uganda	VII
ETH/3/2007	FJ798154	cattle	WRLFMD	Ethiopia	IX
ETH/18/2007	FJ798155	goats	WRLFMD	Ethiopia	IX
ETH/21/2007	FJ798157	cattle	WRLFMD	Ethiopia	IX
ETH/19/2007	FJ798156	sheep	WRLFMD	Ethiopia	IX
NIG/8/76	AF431724	n/a	OVI	Nigeria	V
NIG/20/76	AF431727	cattle	OVI	Nigeria	V
NIG/20/76	n/a	cattle	WRLFMD	Nigeria	V
NGR/4/76	AF431719	n/a	OVI	Niger	V
NGR/5/76	AF431720	n/a	OVI	Niger	V
NIG/7/76	AF431726	n/a	OVI	Nigeria	V
NIG/17/75	AF431712	n/a	OVI	Nigeria	V
NIG/6/76	AF431716	n/a	OVI	Nigeria	V
NIG/2/76	AF431722	n/a	OVI	Nigeria	V
NIG/15/75	DQ009724	n/a	OVI	Nigeria	V
NIG/14/75	AF431709	n/a	OVI	Nigeria	V

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label	accession	host(s)	lab	country	taxonomic information
NIG/15/75	AF431710	n/a	OVI	Nigeria	V
NIG/14/76	AF431725	n/a	OVI	Nigeria	V
NIG/24/75	AF431714	n/a	OVI	Nigeria	V
NIG/25/75	AF431715	n/a	OVI	Nigeria	V
NIG/11/75	AF431711	bovine	OVI	Nigeria	V
NIG/1/76	AF431721	n/a	OVI	Nigeria	V
NGR/2/76	AF431718	n/a	OVI	Niger	V
NGR/1/76	AF431717	n/a	OVI	Niger	V
NIG/20/75	AF431713	n/a	OVI	Nigeria	V
NIG/5/76	AF431723	n/a	OVI	Nigeria	V
ANG/9/74	n/a	n/a	WRLFMD	Angola	unassigned
BEC/1/48	AY593838	n/a	PIADC	Bechuanaland	III
SR/2/58	n/a	n/a	WRLFMD	Rhodesia (SR)	III
SR/2/58	AY593841	n/a	PIADC	Rhodesia (SR)	III
BOT/8/2015	n/a	bovine	WRLFMD	Botswana	III
BOT/7/2015	n/a	bovine	WRLFMD	Botswana	III
BOT/1/77	KF219686	bovine	WRLFMD	Botswana	III
BOT/17/77	KF219687	greater kudu	WRLFMD	Botswana	III
BOT/24/77	KF219688	n/a	WRLFMD	Botswana	III
SWA/2/89*	n/a	african buffalo	WRLFMD	South West Africa	III
ZAM/1/79	n/a	n/a	WRLFMD	Zambia	III
ZAM/20/80	n/a	cattle	WRLFMD	Zambia	III
ZAM/1/81	n/a	cattle	WRLFMD	Zambia	III
NAM/307/98	DQ009717	african buffalo	OVI	Namibia (NAM)	III
BOT/1/68	EF134950	bovine	IZSLE	Botswana	III
BOT/1/68	AY593845	bovine	PIADC	Botswana	III
BOT/1/68	n/a	bovine	WRLFMD	Botswana	III
NAM47/15*	n/a	cattle	BVI	Namibia (NAM)	III
NAM42/15*	n/a	cattle	BVI	Namibia (NAM)	III
NAM33/15*	n/a	cattle	BVI	Namibia (NAM)	III
NAM43/15*	n/a	cattle	BVI	Namibia (NAM)	III
NAM46/15*	n/a	cattle	BVI	Namibia (NAM)	III
NAM52/15*	n/a	cattle	BVI	Namibia (NAM)	III
BOT/P3/2000 NGO-2*	n/a	african buffalo	WRLFMD	Botswana	III
BOT/P3/2000 SAV-19*	n/a	african buffalo	WRLFMD	Botswana	III
ZAM/8/2012	n/a	bovine	WRLFMD	Zambia	III
ZAM/6/2012	n/a	bovine	WRLFMD	Zambia	III
ZAM/9/2012	n/a	bovine	WRLFMD	Zambia	III
ZAM/7/2012	n/a	bovine	WRLFMD	Zambia	III
UGA-BUFF/10/70*	KF219681	african buffalo	WRLFMD	Uganda	IV
UGA-BUFF/21/70*	KF219682	african buffalo	WRLFMD	Uganda	IV
UGA/3/99	DQ009722	n/a	OVI	Uganda	IV
UGA/3/99	AY442009	n/a	OVI	Uganda	IV
UGA/7/99	AY442011	n/a	OVI	Uganda	IV
RHO/5/66	AY593846	bovine	PIADC	Rhodesia	II
RV/11/37	AY593839	greater kudu	PIADC	Rhodesia (RV)	II
MOZ/P13/2010 BUF B16*	KF219691	african buffalo	WRLFMD	Mozambique	unassigned
ZIM/P25/92 DI-7*	n/a	african buffalo	WRLFMD	Zimbabwe	I
MOZ/3/02*	DQ009720	n/a	OVI	Mozambique	I
ZIM/23/2003	KF219690	n/a	WRLFMD	Zimbabwe	I
ZIM/P30/90 CHER-28*	n/a	african buffalo	WRLFMD	Zimbabwe	I
ZIM/P30/90 CHER-27*	n/a	african buffalo	WRLFMD	Zimbabwe	I
RHO/38/79	n/a	cattle	WRLFMD	Rhodesia	I
ZIM/P43/91 MAT-9*	n/a	african buffalo	WRLFMD	Zimbabwe	I
ZIM/P43/91 MAT-6*	n/a	african buffalo	WRLFMD	Zimbabwe	I
ZIM/P4/95 SEN-12*	n/a	african buffalo	WRLFMD	Zimbabwe	I
ZIM/P4/95 SEN-3*	n/a	african buffalo	WRLFMD	Zimbabwe	I
ZIM/P40/91 BUMI-2*	n/a	african buffalo	WRLFMD	Zimbabwe	I
ZIM/P30/90 BUMI-14*	n/a	african buffalo	WRLFMD	Zimbabwe	I

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label	accession	host(s)	lab	country	taxonomic information
MAL/P6/2010*	n/a	african buffalo	WRLFMD	Malawi	I
MAL/P5/2010*	n/a	african buffalo	WRLFMD	Malawi	I
ZAM/P2/96 LOC-25*	n/a	african buffalo	WRLFMD	Zambia	I
ZAM/P2/96 LOC-27*	n/a	african buffalo	WRLFMD	Zambia	I
T155/71*	KF561706	cattle	WRLFMD	Tanzania	I
KEN/104/2009	n/a	cattle	WRLFMD	Kenya	I
UGA/1/97*	AY442012	african buffalo	OVI	Uganda	VIII

*, not a WRLFMD Reference Number

n/a, not available