

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

## Genotyping Report

FMDV serotype: SAT2  
Country: Nigeria  
Year: 2020, 2021  
Batch: WRLFMD/2021/00016  
No. of sequences: 14  
Report date: 20th December 2021  
Report generated by: Nick Knowles  
Report checked by: Jemma Wadsworth



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

email: [reporting@pirbright.ac.uk](mailto:reporting@pirbright.ac.uk)

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Virus sample name:	NIG/14/2020
Sender reference:	PL/BLD/2/2020
Location of origin:	Barkin-Ladi, Plateau State
Country of origin:	Nigeria
Date of collection:	30/09/2020
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	27/10/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	22/11/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49345, genome 49346, sequence viba_49347, sequencing info 49348	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49367	NIG/60/2020	cattle	99.7	0	SAT2	VII		
viba_49371	NIG/91/2020	cattle	99.7	0	SAT2	VII		
viba_49351	NIG/51/2020	cattle	99.7	0	SAT2	VII		
viba_49375	NIG/92/2020	cattle	99.7	0	SAT2	VII		
viba_49363	NIG/59/2020	cattle	99.5	0	SAT2	VII		
viba_49355	NIG/56/2020	cattle	99.4	0	SAT2	VII		
viba_49359	NIG/57/2020	cattle	99.4	0	SAT2	VII		
viba_18991	NIG/17/2011	bovine	99.1	0	SAT2	VII		
viba_18987	NIG/16/2011	bovine	99.1	0	SAT2	VII		
viba_34310	Nig/5/13	bovine	98.3	0	SAT2	VII		

#### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_742	CAR/8/2005	cattle	89.7	0	SAT2	VII		
viba_424	SAU/6/2000	bovine	88.9	1	SAT2	VII		
viba_756	UGA/19/98		75.2	0	SAT2	X		
viba_380	RHO/1/48		74.6	0	SAT2	III		
viba_456	ZAI/1/82	bovine	73.9	1	SAT2	X		
viba_470	KEN/2/84	bovine	73.6	0	SAT2	IX		
viba_752	SA/106/59		73.5	0	SAT2	I		
viba_248	KEN/1/84	bovine	73.5	0	SAT2	IV		
viba_189	RWA/1/2000		73.2	0	SAT2	VIII		
viba_374	ZAI/1/74		73.1	0	SAT2	VIII		

Virus sample name:	NIG/51/2020
Sender reference:	PL/BK/6/2020
Location of origin:	Bokkos, Plateau State
Country of origin:	Nigeria
Date of collection:	08/10/2020
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	05/11/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	22/11/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49349, genome 49350, sequence viba_49351, sequencing info 49352	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49367	NIG/60/2020	cattle	100.0	0	SAT2	VII		
viba_49371	NIG/91/2020	cattle	100.0	0	SAT2	VII		
viba_49375	NIG/92/2020	cattle	100.0	0	SAT2	VII		
viba_49363	NIG/59/2020	cattle	99.8	0	SAT2	VII		
viba_49355	NIG/56/2020	cattle	99.7	0	SAT2	VII		
viba_49347	NIG/14/2020	cattle	99.7	0	SAT2	VII		
viba_49359	NIG/57/2020	cattle	99.7	0	SAT2	VII		
viba_18991	NIG/17/2011	bovine	99.4	0	SAT2	VII		
viba_18987	NIG/16/2011	bovine	99.4	0	SAT2	VII		
viba_34310	Nig/5/13	bovine	98.6	0	SAT2	VII		

#### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_742	CAR/8/2005	cattle	90.0	0	SAT2	VII		
viba_424	SAU/6/2000	bovine	88.9	1	SAT2	VII		
viba_380	RHO/1/48		74.6	0	SAT2	III		
viba_756	UGA/19/98		74.2	0	SAT2	X		
viba_456	ZAI/1/82	bovine	74.1	1	SAT2	X		
viba_752	SA/106/59		73.9	0	SAT2	I		
viba_470	KEN/2/84	bovine	73.9	0	SAT2	IX		
viba_189	RWA/1/2000		73.4	0	SAT2	VIII		
viba_248	KEN/1/84	bovine	73.4	0	SAT2	IV		
viba_111	MAL/1/2003	bovine	73.2	0	SAT2	I		

Virus sample name:	NIG/56/2020
Sender reference:	PL/BK/11/2020
Location of origin:	Bokkos, Plateau State
Country of origin:	Nigeria
Date of collection:	08/10/2020
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	09/11/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	22/11/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49353, genome 49354, sequence viba_49355, sequencing info 49356	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49359	NIG/57/2020	cattle	100.0	0	SAT2	VII		
viba_49367	NIG/60/2020	cattle	99.7	0	SAT2	VII		
viba_49371	NIG/91/2020	cattle	99.7	0	SAT2	VII		
viba_49351	NIG/51/2020	cattle	99.7	0	SAT2	VII		
viba_49375	NIG/92/2020	cattle	99.7	0	SAT2	VII		
viba_49363	NIG/59/2020	cattle	99.5	0	SAT2	VII		
viba_49347	NIG/14/2020	cattle	99.4	0	SAT2	VII		
viba_18991	NIG/17/2011	bovine	99.1	0	SAT2	VII		
viba_18987	NIG/16/2011	bovine	99.1	0	SAT2	VII		
viba_34310	Nig/5/13	bovine	98.3	0	SAT2	VII		

#### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_742	CAR/8/2005	cattle	90.0	0	SAT2	VII		
viba_424	SAU/6/2000	bovine	88.9	1	SAT2	VII		
viba_380	RHO/1/48		74.5	0	SAT2	III		
viba_456	ZAI/1/82	bovine	74.1	1	SAT2	X		
viba_756	UGA/19/98		73.9	0	SAT2	X		
viba_752	SA/106/59		73.7	0	SAT2	I		
viba_470	KEN/2/84	bovine	73.6	0	SAT2	IX		
viba_189	RWA/1/2000		73.4	0	SAT2	VIII		
viba_248	KEN/1/84	bovine	73.2	0	SAT2	IV		
viba_374	ZAI/1/74		73.1	0	SAT2	VIII		

Virus sample name:	NIG/57/2020
Sender reference:	PL/BK/12/2020
Location of origin:	Bokkos, Plateau State
Country of origin:	Nigeria
Date of collection:	08/10/2020
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	10/11/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	22/11/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49357, genome 49358, sequence viba_49359, sequencing info 49360	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49355	NIG/56/2020	cattle	100.0	0	SAT2	VII		
viba_49367	NIG/60/2020	cattle	99.7	0	SAT2	VII		
viba_49371	NIG/91/2020	cattle	99.7	0	SAT2	VII		
viba_49351	NIG/51/2020	cattle	99.7	0	SAT2	VII		
viba_49375	NIG/92/2020	cattle	99.7	0	SAT2	VII		
viba_49363	NIG/59/2020	cattle	99.5	0	SAT2	VII		
viba_49347	NIG/14/2020	cattle	99.4	0	SAT2	VII		
viba_18991	NIG/17/2011	bovine	99.1	0	SAT2	VII		
viba_18987	NIG/16/2011	bovine	99.1	0	SAT2	VII		
viba_34310	Nig/5/13	bovine	98.3	0	SAT2	VII		

#### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_742	CAR/8/2005	cattle	90.0	0	SAT2	VII		
viba_424	SAU/6/2000	bovine	88.9	1	SAT2	VII		
viba_380	RHO/1/48		74.5	0	SAT2	III		
viba_456	ZAI/1/82	bovine	74.1	1	SAT2	X		
viba_756	UGA/19/98		73.9	0	SAT2	X		
viba_752	SA/106/59		73.7	0	SAT2	I		
viba_470	KEN/2/84	bovine	73.6	0	SAT2	IX		
viba_189	RWA/1/2000		73.4	0	SAT2	VIII		
viba_248	KEN/1/84	bovine	73.2	0	SAT2	IV		
viba_374	ZAI/1/74		73.1	0	SAT2	VIII		

Virus sample name:	NIG/59/2020
Sender reference:	PL/BK/14/2020
Location of origin:	Bokkos, Plateau State
Country of origin:	Nigeria
Date of collection:	08/10/2020
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	10/11/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	22/11/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49361, genome 49362, sequence viba_49363, sequencing info 49364	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49367	NIG/60/2020	cattle	99.8	0	SAT2	VII		
viba_49371	NIG/91/2020	cattle	99.8	0	SAT2	VII		
viba_49351	NIG/51/2020	cattle	99.8	0	SAT2	VII		
viba_49375	NIG/92/2020	cattle	99.8	0	SAT2	VII		
viba_49355	NIG/56/2020	cattle	99.5	0	SAT2	VII		
viba_49347	NIG/14/2020	cattle	99.5	0	SAT2	VII		
viba_49359	NIG/57/2020	cattle	99.5	0	SAT2	VII		
viba_18991	NIG/17/2011	bovine	99.2	0	SAT2	VII		
viba_18987	NIG/16/2011	bovine	99.2	0	SAT2	VII		
viba_34310	Nig/5/13	bovine	98.4	0	SAT2	VII		

#### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_742	CAR/8/2005	cattle	89.9	0	SAT2	VII		
viba_424	SAU/6/2000	bovine	88.8	1	SAT2	VII		
viba_380	RHO/1/48		74.5	0	SAT2	III		
viba_756	UGA/19/98		74.1	0	SAT2	X		
viba_456	ZAI/1/82	bovine	74.0	1	SAT2	X		
viba_752	SA/106/59		73.7	0	SAT2	I		
viba_470	KEN/2/84	bovine	73.7	0	SAT2	IX		
viba_189	RWA/1/2000		73.2	0	SAT2	VIII		
viba_248	KEN/1/84	bovine	73.2	0	SAT2	IV		
viba_374	ZAI/1/74		73.0	0	SAT2	VIII		

Virus sample name:	NIG/60/2020
Sender reference:	PL/BK/15/2020
Location of origin:	Bokkos, Plateau State
Country of origin:	Nigeria
Date of collection:	08/10/2020
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	09/11/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	22/11/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49365, genome 49366, sequence viba_49367, sequencing info 49368	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49371	NIG/91/2020	cattle	100.0	0	SAT2	VII		
viba_49351	NIG/51/2020	cattle	100.0	0	SAT2	VII		
viba_49375	NIG/92/2020	cattle	100.0	0	SAT2	VII		
viba_49363	NIG/59/2020	cattle	99.8	0	SAT2	VII		
viba_49355	NIG/56/2020	cattle	99.7	0	SAT2	VII		
viba_49347	NIG/14/2020	cattle	99.7	0	SAT2	VII		
viba_49359	NIG/57/2020	cattle	99.7	0	SAT2	VII		
viba_18991	NIG/17/2011	bovine	99.4	0	SAT2	VII		
viba_18987	NIG/16/2011	bovine	99.4	0	SAT2	VII		
viba_34310	Nig/5/13	bovine	98.6	0	SAT2	VII		

#### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_742	CAR/8/2005	cattle	90.0	0	SAT2	VII		
viba_424	SAU/6/2000	bovine	88.9	1	SAT2	VII		
viba_380	RHO/1/48		74.6	0	SAT2	III		
viba_756	UGA/19/98		74.2	0	SAT2	X		
viba_456	ZAI/1/82	bovine	74.1	1	SAT2	X		
viba_752	SA/106/59		73.9	0	SAT2	I		
viba_470	KEN/2/84	bovine	73.9	0	SAT2	IX		
viba_189	RWA/1/2000		73.4	0	SAT2	VIII		
viba_248	KEN/1/84	bovine	73.4	0	SAT2	IV		
viba_111	MAL/1/2003	bovine	73.2	0	SAT2	I		

Virus sample name:	NIG/91/2020
Sender reference:	PL/BLD/3/2020
Location of origin:	Barkin-Ladi, Plateau State
Country of origin:	Nigeria
Date of collection:	03/11/2020
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	26/11/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	08/12/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49369, genome 49370, sequence viba_49371, sequencing info 49372	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49367	NIG/60/2020	cattle	100.0	0	SAT2	VII		
viba_49351	NIG/51/2020	cattle	100.0	0	SAT2	VII		
viba_49375	NIG/92/2020	cattle	100.0	0	SAT2	VII		
viba_49363	NIG/59/2020	cattle	99.8	0	SAT2	VII		
viba_49355	NIG/56/2020	cattle	99.7	0	SAT2	VII		
viba_49347	NIG/14/2020	cattle	99.7	0	SAT2	VII		
viba_49359	NIG/57/2020	cattle	99.7	0	SAT2	VII		
viba_18991	NIG/17/2011	bovine	99.4	0	SAT2	VII		
viba_18987	NIG/16/2011	bovine	99.4	0	SAT2	VII		
viba_34310	Nig/5/13	bovine	98.6	0	SAT2	VII		

#### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_742	CAR/8/2005	cattle	90.0	0	SAT2	VII		
viba_424	SAU/6/2000	bovine	88.9	1	SAT2	VII		
viba_380	RHO/1/48		74.6	0	SAT2	III		
viba_756	UGA/19/98		74.2	0	SAT2	X		
viba_456	ZAI/1/82	bovine	74.1	1	SAT2	X		
viba_752	SA/106/59		73.9	0	SAT2	I		
viba_470	KEN/2/84	bovine	73.9	0	SAT2	IX		
viba_189	RWA/1/2000		73.4	0	SAT2	VIII		
viba_248	KEN/1/84	bovine	73.4	0	SAT2	IV		
viba_111	MAL/1/2003	bovine	73.2	0	SAT2	I		



Virus sample name:	NIG/92/2020
Sender reference:	PL/BLD/4/2020
Location of origin:	Barkin-Ladi, Plateau State
Country of origin:	Nigeria
Date of collection:	03/11/2020
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK2
Harvest date of material:	30/11/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	08/12/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49373, genome 49374, sequence viba_49375, sequencing info 49376	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49367	NIG/60/2020	cattle	100.0	0	SAT2	VII		
viba_49371	NIG/91/2020	cattle	100.0	0	SAT2	VII		
viba_49351	NIG/51/2020	cattle	100.0	0	SAT2	VII		
viba_49363	NIG/59/2020	cattle	99.8	0	SAT2	VII		
viba_49355	NIG/56/2020	cattle	99.7	0	SAT2	VII		
viba_49347	NIG/14/2020	cattle	99.7	0	SAT2	VII		
viba_49359	NIG/57/2020	cattle	99.7	0	SAT2	VII		
viba_18991	NIG/17/2011	bovine	99.4	0	SAT2	VII		
viba_18987	NIG/16/2011	bovine	99.4	0	SAT2	VII		
viba_34310	Nig/5/13	bovine	98.6	0	SAT2	VII		

#### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_742	CAR/8/2005	cattle	90.0	0	SAT2	VII		
viba_424	SAU/6/2000	bovine	88.9	1	SAT2	VII		
viba_380	RHO/1/48		74.6	0	SAT2	III		
viba_756	UGA/19/98		74.2	0	SAT2	X		
viba_456	ZAI/1/82	bovine	74.1	1	SAT2	X		
viba_752	SA/106/59		73.9	0	SAT2	I		
viba_470	KEN/2/84	bovine	73.9	0	SAT2	IX		
viba_189	RWA/1/2000		73.4	0	SAT2	VIII		
viba_248	KEN/1/84	bovine	73.4	0	SAT2	IV		
viba_111	MAL/1/2003	bovine	73.2	0	SAT2	I		

Virus sample name:	NIG/1/2021
Sender reference:	PL/WS/1/21
Location of origin:	Bayan Dutse, Wase, Plateau State
Country of origin:	Nigeria
Date of collection:	08/09/2021
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	Lib-12
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	01/12/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	08/12/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49377, genome 49378, sequence viba_49379, sequencing info 49380	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49391	NIG/4/2021	cattle	99.2	0	SAT2	VII	Lib-12	
viba_49387	NIG/3/2021	cattle	99.2	0	SAT2	VII	Lib-12	
viba_49399	NIG/6/2021	cattle	99.1	0	SAT2	VII	Lib-12	
viba_49395	NIG/5/2021	cattle	99.1	0	SAT2	VII	Lib-12	
viba_49383	NIG/2/2021	cattle	99.1	0	SAT2	VII	Lib-12	
viba_42964	BAU/TR/1/NIG/2018	bovine	97.0	0	SAT2	VII	Lib-12	
viba_41084	NIG/1/14b	cattle	96.4	0	SAT2	VII	Lib-12	
viba_41092	NIG/3/14b	cattle	96.4	0	SAT2	VII	Lib-12	
viba_41088	NIG/2/14b	cattle	96.4	0	SAT2	VII	Lib-12	
viba_36870	CAR/G5819/2015	cattle	96.1	0	SAT2	VII	Lib-12	

#### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_424	SAU/6/2000	bovine	89.6	1	SAT2	VII		
viba_742	CAR/8/2005	cattle	88.8	0	SAT2	VII		
viba_127	KEN/3/57		75.0	0	SAT2	IX		
viba_470	KEN/2/84	bovine	74.9	0	SAT2	IX		
viba_369	UGA/51/75	bovine	74.4	0	SAT2	XII		
viba_189	RWA/1/2000		73.9	0	SAT2	VIII		
viba_183	ZIM/14/2002	bovine	73.9	0	SAT2	I		
viba_380	RHO/1/48		73.9	0	SAT2	III		
viba_500	NIG/2/75	bovine	73.7	0	SAT2	V		
viba_642	ANG/4/74		73.7	0	SAT2	XI		

Virus sample name:	NIG/2/2021
Sender reference:	PL/WS/2/21
Location of origin:	Bayan Dutse, Wase, Plateau State
Country of origin:	Nigeria
Date of collection:	08/09/2021
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	Lib-12
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	01/12/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	08/12/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49381, genome 49382, sequence viba_49383, sequencing info 49384	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49399	NIG/6/2021	cattle	100.0	0	SAT2	VII	Lib-12	
viba_49395	NIG/5/2021	cattle	100.0	0	SAT2	VII	Lib-12	
viba_49391	NIG/4/2021	cattle	99.8	0	SAT2	VII	Lib-12	
viba_49387	NIG/3/2021	cattle	99.8	0	SAT2	VII	Lib-12	
viba_49379	NIG/1/2021	cattle	99.1	0	SAT2	VII	Lib-12	
viba_42964	BAU/TR/1/NIG/2018	bovine	96.7	0	SAT2	VII	Lib-12	
viba_41084	NIG/1/14b	cattle	96.4	0	SAT2	VII	Lib-12	
viba_41092	NIG/3/14b	cattle	96.4	0	SAT2	VII	Lib-12	
viba_41088	NIG/2/14b	cattle	96.4	0	SAT2	VII	Lib-12	
viba_36870	CAR/G5819/2015	cattle	96.1	0	SAT2	VII	Lib-12	

### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_424	SAU/6/2000	bovine	89.6	1	SAT2	VII		
viba_742	CAR/8/2005	cattle	88.8	0	SAT2	VII		
viba_127	KEN/3/57		75.3	0	SAT2	IX		
viba_470	KEN/2/84	bovine	75.0	0	SAT2	IX		
viba_369	UGA/51/75	bovine	74.7	0	SAT2	XII		
viba_183	ZIM/14/2002	bovine	74.0	0	SAT2	I		
viba_380	RHO/1/48		74.0	0	SAT2	III		
viba_500	NIG/2/75	bovine	73.8	0	SAT2	V		
viba_756	UGA/19/98		73.6	0	SAT2	X		
viba_189	RWA/1/2000		73.4	0	SAT2	VIII		

Virus sample name:	NIG/3/2021
Sender reference:	PL/WS/3/21
Location of origin:	Bayan Dutse, Wase, Plateau State
Country of origin:	Nigeria
Date of collection:	08/09/2021
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	Lib-12
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	01/12/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	08/12/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49385, genome 49386, sequence viba_49387, sequencing info 49388	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49391	NIG/4/2021	cattle	100.0	0	SAT2	VII	Lib-12	
viba_49399	NIG/6/2021	cattle	99.8	0	SAT2	VII	Lib-12	
viba_49395	NIG/5/2021	cattle	99.8	0	SAT2	VII	Lib-12	
viba_49383	NIG/2/2021	cattle	99.8	0	SAT2	VII	Lib-12	
viba_49379	NIG/1/2021	cattle	99.2	0	SAT2	VII	Lib-12	
viba_42964	BAU/TR/1/NIG/2018	bovine	96.9	0	SAT2	VII	Lib-12	
viba_41084	NIG/1/14b	cattle	96.6	0	SAT2	VII	Lib-12	
viba_41092	NIG/3/14b	cattle	96.6	0	SAT2	VII	Lib-12	
viba_41088	NIG/2/14b	cattle	96.6	0	SAT2	VII	Lib-12	
viba_36870	CAR/G5819/2015	cattle	96.3	0	SAT2	VII	Lib-12	

#### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_424	SAU/6/2000	bovine	89.4	1	SAT2	VII		
viba_742	CAR/8/2005	cattle	88.9	0	SAT2	VII		
viba_127	KEN/3/57		75.2	0	SAT2	IX		
viba_470	KEN/2/84	bovine	74.9	0	SAT2	IX		
viba_369	UGA/51/75	bovine	74.6	0	SAT2	XII		
viba_380	RHO/1/48		74.0	0	SAT2	III		
viba_183	ZIM/14/2002	bovine	73.9	0	SAT2	I		
viba_500	NIG/2/75	bovine	73.8	0	SAT2	V		
viba_189	RWA/1/2000		73.6	0	SAT2	VIII		
viba_756	UGA/19/98		73.5	0	SAT2	X		

Virus sample name:	NIG/4/2021
Sender reference:	PL/WS/4/21
Location of origin:	Bayan Dutse, Wase, Plateau State
Country of origin:	Nigeria
Date of collection:	08/09/2021
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	Lib-12
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	01/12/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	08/12/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49389, genome 49390, sequence viba_49391, sequencing info 49392	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49387	NIG/3/2021	cattle	100.0	0	SAT2	VII	Lib-12	
viba_49399	NIG/6/2021	cattle	99.8	0	SAT2	VII	Lib-12	
viba_49395	NIG/5/2021	cattle	99.8	0	SAT2	VII	Lib-12	
viba_49383	NIG/2/2021	cattle	99.8	0	SAT2	VII	Lib-12	
viba_49379	NIG/1/2021	cattle	99.2	0	SAT2	VII	Lib-12	
viba_42964	BAU/TR/1/NIG/2018	bovine	96.9	0	SAT2	VII	Lib-12	
viba_41084	NIG/1/14b	cattle	96.6	0	SAT2	VII	Lib-12	
viba_41092	NIG/3/14b	cattle	96.6	0	SAT2	VII	Lib-12	
viba_41088	NIG/2/14b	cattle	96.6	0	SAT2	VII	Lib-12	
viba_36870	CAR/G5819/2015	cattle	96.3	0	SAT2	VII	Lib-12	

### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_424	SAU/6/2000	bovine	89.4	1	SAT2	VII		
viba_742	CAR/8/2005	cattle	88.9	0	SAT2	VII		
viba_127	KEN/3/57		75.2	0	SAT2	IX		
viba_470	KEN/2/84	bovine	74.9	0	SAT2	IX		
viba_369	UGA/51/75	bovine	74.6	0	SAT2	XII		
viba_380	RHO/1/48		74.0	0	SAT2	III		
viba_183	ZIM/14/2002	bovine	73.9	0	SAT2	I		
viba_500	NIG/2/75	bovine	73.8	0	SAT2	V		
viba_189	RWA/1/2000		73.6	0	SAT2	VIII		
viba_756	UGA/19/98		73.5	0	SAT2	X		

Virus sample name:	NIG/5/2021
Sender reference:	PL/WS/5/21
Location of origin:	Bayan Dutse, Wase, Plateau State
Country of origin:	Nigeria
Date of collection:	08/09/2021
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	Lib-12
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	02/12/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	08/12/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49393, genome 49394, sequence viba_49395, sequencing info 49396	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49399	NIG/6/2021	cattle	100.0	0	SAT2	VII	Lib-12	
viba_49383	NIG/2/2021	cattle	100.0	0	SAT2	VII	Lib-12	
viba_49391	NIG/4/2021	cattle	99.8	0	SAT2	VII	Lib-12	
viba_49387	NIG/3/2021	cattle	99.8	0	SAT2	VII	Lib-12	
viba_49379	NIG/1/2021	cattle	99.1	0	SAT2	VII	Lib-12	
viba_42964	BAU/TR/1/NIG/2018	bovine	96.7	0	SAT2	VII	Lib-12	
viba_41084	NIG/1/14b	cattle	96.4	0	SAT2	VII	Lib-12	
viba_41092	NIG/3/14b	cattle	96.4	0	SAT2	VII	Lib-12	
viba_41088	NIG/2/14b	cattle	96.4	0	SAT2	VII	Lib-12	
viba_36870	CAR/G5819/2015	cattle	96.1	0	SAT2	VII	Lib-12	

#### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_424	SAU/6/2000	bovine	89.6	1	SAT2	VII		
viba_742	CAR/8/2005	cattle	88.8	0	SAT2	VII		
viba_127	KEN/3/57		75.3	0	SAT2	IX		
viba_470	KEN/2/84	bovine	75.0	0	SAT2	IX		
viba_369	UGA/51/75	bovine	74.7	0	SAT2	XII		
viba_183	ZIM/14/2002	bovine	74.0	0	SAT2	I		
viba_380	RHO/1/48		74.0	0	SAT2	III		
viba_500	NIG/2/75	bovine	73.8	0	SAT2	V		
viba_756	UGA/19/98		73.6	0	SAT2	X		
viba_189	RWA/1/2000		73.4	0	SAT2	VIII		

Virus sample name:	NIG/6/2021
Sender reference:	PL/WS/6/21
Location of origin:	Bayan Dutse, Wase, Plateau State
Country of origin:	Nigeria
Date of collection:	08/09/2021
Host species:	cattle
Serotype:	SAT2
Topotype:	VII
Lineage:	Lib-12
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	01/12/2021
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	08/12/2021
Created:	20/12/2021
Last updated:	20/12/2021
VIBASys IDs: sample 49397, genome 49398, sequence viba_49399, sequencing info 49400	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49395	NIG/5/2021	cattle	100.0	0	SAT2	VII	Lib-12	
viba_49383	NIG/2/2021	cattle	100.0	0	SAT2	VII	Lib-12	
viba_49391	NIG/4/2021	cattle	99.8	0	SAT2	VII	Lib-12	
viba_49387	NIG/3/2021	cattle	99.8	0	SAT2	VII	Lib-12	
viba_49379	NIG/1/2021	cattle	99.1	0	SAT2	VII	Lib-12	
viba_42964	BAU/TR/1/NIG/2018	bovine	96.7	0	SAT2	VII	Lib-12	
viba_41084	NIG/1/14b	cattle	96.4	0	SAT2	VII	Lib-12	
viba_41092	NIG/3/14b	cattle	96.4	0	SAT2	VII	Lib-12	
viba_41088	NIG/2/14b	cattle	96.4	0	SAT2	VII	Lib-12	
viba_36870	CAR/G5819/2015	cattle	96.1	0	SAT2	VII	Lib-12	

### Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_424	SAU/6/2000	bovine	89.6	1	SAT2	VII		
viba_742	CAR/8/2005	cattle	88.8	0	SAT2	VII		
viba_127	KEN/3/57		75.3	0	SAT2	IX		
viba_470	KEN/2/84	bovine	75.0	0	SAT2	IX		
viba_369	UGA/51/75	bovine	74.7	0	SAT2	XII		
viba_183	ZIM/14/2002	bovine	74.0	0	SAT2	I		
viba_380	RHO/1/48		74.0	0	SAT2	III		
viba_500	NIG/2/75	bovine	73.8	0	SAT2	V		
viba_756	UGA/19/98		73.6	0	SAT2	X		
viba_189	RWA/1/2000		73.4	0	SAT2	VIII		

Report on FMDV SAT2 in Nigeria in 2020, 2021

Batch: WRLFMD/2021/00016



\*, not a WRLFMD Reference Number



## Analysis Parameters

VP1 subsequence extractor:	vp1_SAT2
Query sequence set:	WRLFMD/2021/00016-Nigeria-SAT2 (14 sequences)
Sequence database set:	allseqs_SAT2 (1083 sequences)
Prototype sequence set:	!prototypes_SAT2 (25 sequences)
Number of related sequences reported:	10
Minimal VP1 subsequence match length	600
Sequence alignment method:	muscle (default parameters)
Sequence alignment length:	642
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:	16
VIBASys version:	reflabs-1.1.2

## Sequences in the Phylogenetic Tree

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

label	accession	host(s)	lab	country	taxonomic information
NIG/56/2020	n/a	cattle	WRLFMD	Nigeria	VII
NIG/57/2020	n/a	cattle	WRLFMD	Nigeria	VII
NIG/14/2020	n/a	cattle	WRLFMD	Nigeria	VII
NIG/59/2020	n/a	cattle	WRLFMD	Nigeria	VII
NIG/91/2020	n/a	cattle	WRLFMD	Nigeria	VII
NIG/60/2020	n/a	cattle	WRLFMD	Nigeria	VII
NIG/92/2020	n/a	cattle	WRLFMD	Nigeria	VII
NIG/51/2020	n/a	cattle	WRLFMD	Nigeria	VII
NIG/17/2011	KX258093	bovine	WRLFMD	Nigeria	VII
NIG/16/2011	KX258092	bovine	WRLFMD	Nigeria	VII
Nig/6/13*	MF683468	bovine	CODA-CERVA	Nigeria	VII
Nig/5/13*	MF624360	bovine	CODA-CERVA	Nigeria	VII
NIG/6/2011	KX258085	bovine	WRLFMD	Nigeria	VII
NIG/5/2011	KX258084	bovine	WRLFMD	Nigeria	VII
Nig/3/13*	MF624358	bovine	CODA-CERVA	Nigeria	VII
SEN/27/2009	KF112967	cattle	WRLFMD	Senegal	VII
NGR/15/2005	KF112960	cattle	WRLFMD	Niger	VII/Lib-03
LIB/7/2003	JX570632	n/a	WRLFMD	Libya	VII/Lib-03
LIB/1/2003	JX570631	n/a	WRLFMD	Libya	VII/Lib-03
SAU/6/2000	AF367135	bovine	OVI	Saudi Arabia	VII
CAR/8/2005	JX570616	cattle	WRLFMD	Cameroon	VII
CAR/25/2005	KX258143	cattle	WRLFMD	Cameroon	VII
CAR/30/2005	KX258144	cattle	WRLFMD	Cameroon	VII
CAR/24/2005	KX258142	cattle	WRLFMD	Cameroon	VII
CAR/89/2005	KX258170	cattle	WRLFMD	Cameroon	VII
CAR/92/2005	KX258171	cattle	WRLFMD	Cameroon	VII
CAR/85/2005	KX258169	cattle	WRLFMD	Cameroon	VII
CAR/75/2005	KX258165	cattle	WRLFMD	Cameroon	VII
CAR/105/2005	KX258177	cattle	WRLFMD	Cameroon	VII
CAR/48/2005	KX258152	cattle	WRLFMD	Cameroon	VII
CAR/4/2005	KX258136	cattle	WRLFMD	Cameroon	VII
CAR/81/2005	KX258168	cattle	WRLFMD	Cameroon	VII
CAR/118/2005	KX258183	cattle	WRLFMD	Cameroon	VII
CAR/909/2012*	KU720582	cattle	PIADC	Cameroon	VII
CAR/910/2012*	KU720583	cattle	PIADC	Cameroon	VII
CAR/911/2012*	KU720584	cattle	PIADC	Cameroon	VII

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
SUD/1/2007	GU566071	cattle	WRLFMD	Sudan	VII
NIG/1/2021	n/a	cattle	WRLFMD	Nigeria	VII/Lib-12
NIG/2/2021	n/a	cattle	WRLFMD	Nigeria	VII/Lib-12
NIG/6/2021	n/a	cattle	WRLFMD	Nigeria	VII/Lib-12
NIG/5/2021	n/a	cattle	WRLFMD	Nigeria	VII/Lib-12
NIG/3/2021	n/a	cattle	WRLFMD	Nigeria	VII/Lib-12
NIG/4/2021	n/a	cattle	WRLFMD	Nigeria	VII/Lib-12
BAU/TR/1/NIG/2018*	n/a	bovine	CFIA/NVRI	Nigeria	VII/Lib-12
CHD/7/2016*	MH748579	cattle	ANSES	Chad	VII/Lib-12
PL/JS/KA/1/17/NIG/2017*	n/a	bovine	CFIA/NVRI	Nigeria	VII/Lib-12
PL/WAS/01/NIG/2017*	n/a	bovine	CFIA/NVRI	Nigeria	VII/Lib-12
PL/WAS/03/NIG/2017*	n/a	bovine	CFIA/NVRI	Nigeria	VII/Lib-12
NIG/2/14b*	MH894445	cattle	PIADC	Nigeria	VII/Lib-12
NIG/1/14b*	MH894444	cattle	PIADC	Nigeria	VII/Lib-12
NIG/3/14b*	MH894446	cattle	PIADC	Nigeria	VII/Lib-12
CAR/G5819/2015*	MG873224	cattle	PIADC	Cameroon	VII/Lib-12
CAR/2/2012	KX266284	n/a	WRLFMD	Cameroon	VII/Lib-12
CAR/3/2012	KX266285	n/a	WRLFMD	Cameroon	VII/Lib-12
CAR/4/2012	KX266286	n/a	WRLFMD	Cameroon	VII/Lib-12
CAR/1/2012	KX266283	n/a	WRLFMD	Cameroon	VII/Lib-12
CAR/24/2012	KX266290	bovine	WRLFMD	Cameroon	VII/Lib-12
CAR/9/2012	KX266288	n/a	WRLFMD	Cameroon	VII/Lib-12
CAR/10/2012	KX266289	n/a	WRLFMD	Cameroon	VII/Lib-12
CAR/G3852/2012*	KY581672	cattle	PIADC	Cameroon	VII/Lib-12
CAR/G3853/2012*	KY581671	cattle	PIADC	Cameroon	VII/Lib-12
CAR/G3796/2012*	KY581674	cattle	PIADC	Cameroon	VII/Lib-12
CAR/78/2012	KX266291	bovine	WRLFMD	Cameroon	VII/Lib-12
CAR/37/2013	n/a	cattle	WRLFMD	Cameroon	VII/Lib-12
CAR/34/2013	n/a	cattle	WRLFMD	Cameroon	VII/Lib-12
CAR/12/2013	n/a	cattle	WRLFMD	Cameroon	VII/Lib-12
CAR/16/2013	n/a	cattle	WRLFMD	Cameroon	VII/Lib-12
LIB/40/2012	JX570634	cattle	WRLFMD	Libya	VII/Lib-12
LIB/41/2012	JX570635	cattle	WRLFMD	Libya	VII/Lib-12
LIB/39/2012	JX570633	cattle	WRLFMD	Libya	VII/Lib-12
CAR/G3808/2012*	KY581673	cattle	PIADC	Cameroon	VII/Lib-12
CAR/8/2012	KX266287	n/a	WRLFMD	Cameroon	VII/Lib-12
RWA/1/2000*	AF367134	n/a	OVI	Rwanda	VIII
ZAI/1/74	DQ009737	n/a	OVI	Zaire	VIII
KEN/2/84	AY343941	bovine	OVI	Kenya	IX
KEN/3/57	AJ251473	n/a	WRLFMD	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
ANG/4/74	AF479417	n/a	OVI	Angola	XI
NIG/2/75	AF367139	bovine	OVI	Nigeria	V
MAL/1/2003	n/a	bovine	WRLFMD	Malawi	I
SA/106/59	AY593848	n/a	PIADC	South Africa (SA)	I
ZIM/14/2002	KF219689	bovine	WRLFMD	Zimbabwe	I
RHO/1/48	AY593847	n/a	PIADC	Rhodesia	III
KEN/1/84	AY344505	bovine	OVI	Kenya	IV

\*, not a WRLFMD Reference Number

n/a, not available