

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

## Genotyping Report

FMDV serotype: SAT2  
Country: Burkina Faso  
Year: 2020  
Batch: WRLMEG/2021/00006  
No. of sequences: 4  
Report date: 30th March 2021  
Report generated by: Nick Knowles  
Report checked by: Jemma Wadsworth

This report has been prepared on behalf of the European Union Reference Laboratory (EURL), FAO Reference Centre & OIE Reference Laboratory for Foot-and-Mouth Disease chez Agence nationale de sécurité sanitaire – ANSES, Maisons-Alfort, Île-de-France, France and covers VP1 sequences submitted to the WRLFMD on 30/03/2021.



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Virus sample name:	BKF/20Z006759/20
Sender reference:	20Z006759
Location of origin:	Tanpelga
Country of origin:	Burkina Faso
Date of collection:	12/02/2020
Host species:	bovine
Serotype:	SAT2
Topotype:	VII
Lineage:	Lib-12
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	31/03/2021
Last updated:	31/03/2021
VIBASys IDs: sample 47782, genome 47783, sequence viba_47784, sequencing info 47785	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_47792	BKF/20Z006761/20	bovine	100.0	0	SAT2	VII	Lib-12	
viba_47796	BKF/20Z006764/20	bovine	100.0	0	SAT2	VII	Lib-12	
viba_47788	BKF/20Z006760/20	bovine	99.8	0	SAT2	VII	Lib-12	
viba_47649	NIG/3/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47641	NIG/1/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47645	NIG/2/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47661	NIG/8/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47653	NIG/4/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47657	NIG/6/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_45704	LAG/IBJ/01/NIG/2019	bovine	98.9	3	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_742	CAR/8/2005	cattle	87.7	0	SAT2	VII		
viba_424	SAU/6/2000	bovine	86.9	1	SAT2	VII		
viba_127	KEN/3/57		75.5	0	SAT2	IX		
viba_369	UGA/51/75	bovine	74.5	0	SAT2	XII		
viba_374	ZAI/1/74		74.5	0	SAT2	VIII		
viba_756	UGA/19/98		74.4	0	SAT2	X		
viba_470	KEN/2/84	bovine	74.2	0	SAT2	IX		
viba_380	RHO/1/48		74.1	0	SAT2	III		
viba_189	RWA/1/2000		73.6	0	SAT2	VIII		
viba_724	ETH/2/91	bovine	73.5	0	SAT2	XIV		

Virus sample name:	BKF/20Z006760/20
Sender reference:	20Z006760
Location of origin:	Tanpelga
Country of origin:	Burkina Faso
Date of collection:	12/02/2020
Host species:	bovine
Serotype:	SAT2
Topotype:	VII
Lineage:	Lib-12
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	31/03/2021
Last updated:	31/03/2021
VIBASys IDs: sample 47786, genome 47787, sequence viba_47788, sequencing info 47789	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_47784	BKF/20Z006759/20	bovine	99.8	0	SAT2	VII	Lib-12	
viba_47792	BKF/20Z006761/20	bovine	99.8	0	SAT2	VII	Lib-12	
viba_47796	BKF/20Z006764/20	bovine	99.8	0	SAT2	VII	Lib-12	
viba_47649	NIG/3/2020	cattle	99.5	0	SAT2	VII	Lib-12	
viba_47641	NIG/1/2020	cattle	99.5	0	SAT2	VII	Lib-12	
viba_47645	NIG/2/2020	cattle	99.5	0	SAT2	VII	Lib-12	
viba_47661	NIG/8/2020	cattle	99.5	0	SAT2	VII	Lib-12	
viba_47653	NIG/4/2020	cattle	99.5	0	SAT2	VII	Lib-12	
viba_47657	NIG/6/2020	cattle	99.5	0	SAT2	VII	Lib-12	
viba_45704	LAG/IBJ/01/NIG/2019	bovine	98.8	3	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_742	CAR/8/2005	cattle	87.9	0	SAT2	VII		
viba_424	SAU/6/2000	bovine	87.1	1	SAT2	VII		
viba_127	KEN/3/57		75.6	0	SAT2	IX		
viba_374	ZAI/1/74		74.7	0	SAT2	VIII		
viba_369	UGA/51/75	bovine	74.4	0	SAT2	XII		
viba_756	UGA/19/98		74.3	0	SAT2	X		
viba_470	KEN/2/84	bovine	74.2	0	SAT2	IX		
viba_380	RHO/1/48		74.2	0	SAT2	III		
viba_189	RWA/1/2000		73.7	0	SAT2	VIII		
viba_724	ETH/2/91	bovine	73.5	0	SAT2	XIV		

Virus sample name:	BKF/20Z006761/20
Sender reference:	20Z006761
Location of origin:	Tanpelga
Country of origin:	Burkina Faso
Date of collection:	12/02/2020
Host species:	bovine
Serotype:	SAT2
Topotype:	VII
Lineage:	Lib-12
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	31/03/2021
Last updated:	31/03/2021
VIBASys IDs: sample 47790, genome 47791, sequence viba_47792, sequencing info 47793	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_47784	BKF/20Z006759/20	bovine	100.0	0	SAT2	VII	Lib-12	
viba_47796	BKF/20Z006764/20	bovine	100.0	0	SAT2	VII	Lib-12	
viba_47788	BKF/20Z006760/20	bovine	99.8	0	SAT2	VII	Lib-12	
viba_47649	NIG/3/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47641	NIG/1/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47645	NIG/2/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47661	NIG/8/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47653	NIG/4/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47657	NIG/6/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_45704	LAG/IBJ/01/NIG/2019	bovine	98.9	3	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_742	CAR/8/2005	cattle	87.7	0	SAT2	VII		
viba_424	SAU/6/2000	bovine	86.9	1	SAT2	VII		
viba_127	KEN/3/57		75.5	0	SAT2	IX		
viba_369	UGA/51/75	bovine	74.5	0	SAT2	XII		
viba_374	ZAI/1/74		74.5	0	SAT2	VIII		
viba_756	UGA/19/98		74.4	0	SAT2	X		
viba_470	KEN/2/84	bovine	74.2	0	SAT2	IX		
viba_380	RHO/1/48		74.1	0	SAT2	III		
viba_189	RWA/1/2000		73.6	0	SAT2	VIII		
viba_724	ETH/2/91	bovine	73.5	0	SAT2	XIV		

Virus sample name:	BKF/20Z006764/20
Sender reference:	20Z006764
Location of origin:	Tanpelga
Country of origin:	Burkina Faso
Date of collection:	12/02/2020
Host species:	bovine
Serotype:	SAT2
Topotype:	VII
Lineage:	Lib-12
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	31/03/2021
Last updated:	31/03/2021
VIBASys IDs: sample 47794, genome 47795, sequence viba_47796, sequencing info 47797	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_47784	BKF/20Z006759/20	bovine	100.0	0	SAT2	VII	Lib-12	
viba_47792	BKF/20Z006761/20	bovine	100.0	0	SAT2	VII	Lib-12	
viba_47788	BKF/20Z006760/20	bovine	99.8	0	SAT2	VII	Lib-12	
viba_47649	NIG/3/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47641	NIG/1/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47645	NIG/2/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47661	NIG/8/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47653	NIG/4/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_47657	NIG/6/2020	cattle	99.7	0	SAT2	VII	Lib-12	
viba_45704	LAG/IBJ/01/NIG/2019	bovine	98.9	3	SAT2	VII	Lib-12	

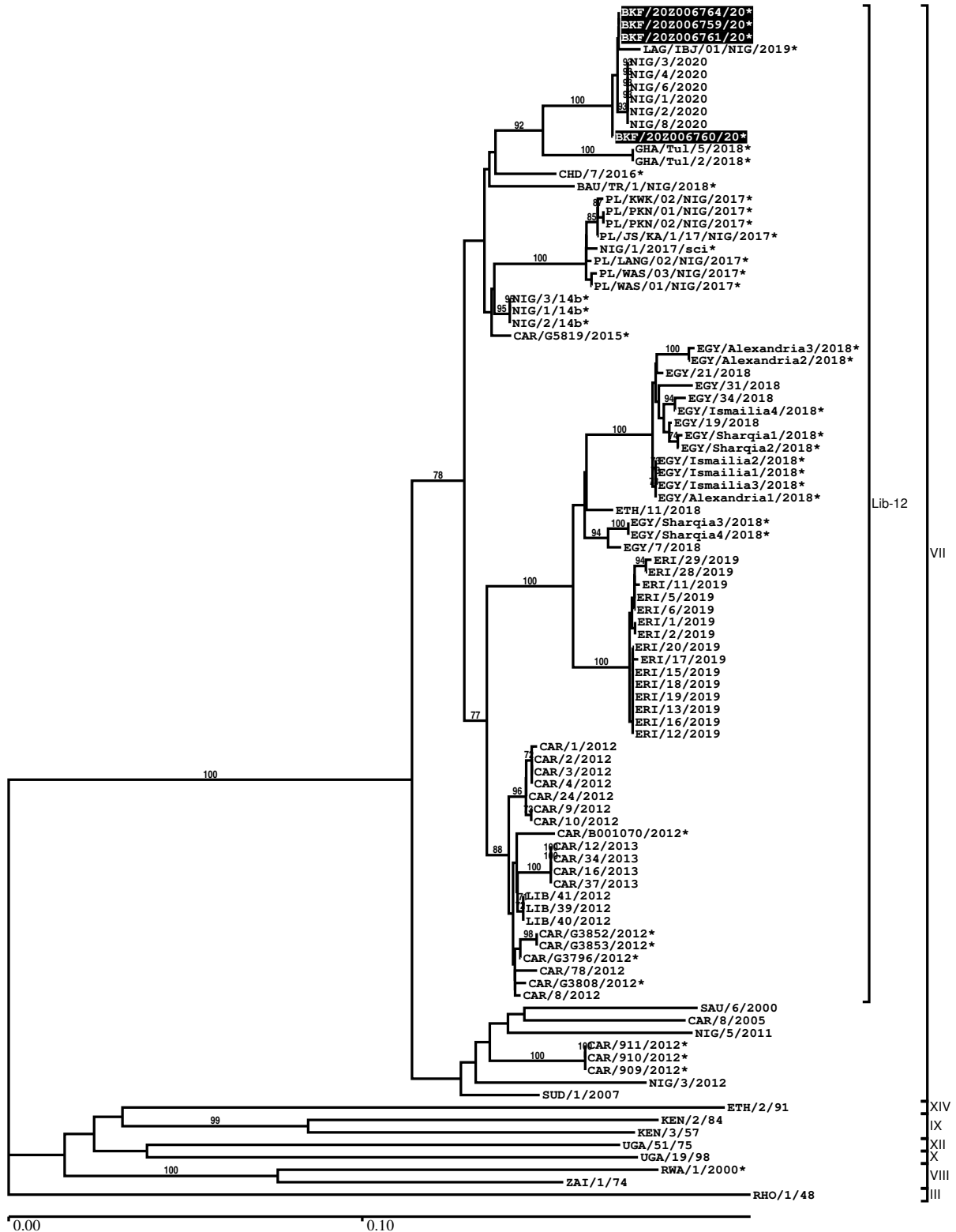
#### Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_742	CAR/8/2005	cattle	87.7	0	SAT2	VII		
viba_424	SAU/6/2000	bovine	86.9	1	SAT2	VII		
viba_127	KEN/3/57		75.5	0	SAT2	IX		
viba_369	UGA/51/75	bovine	74.5	0	SAT2	XII		
viba_374	ZAI/1/74		74.5	0	SAT2	VIII		
viba_756	UGA/19/98		74.4	0	SAT2	X		
viba_470	KEN/2/84	bovine	74.2	0	SAT2	IX		
viba_380	RHO/1/48		74.1	0	SAT2	III		
viba_189	RWA/1/2000		73.6	0	SAT2	VIII		
viba_724	ETH/2/91	bovine	73.5	0	SAT2	XIV		

Report on FMDV SAT2 in Burkina Faso in 2020

Batch: WRLMEG/2021/00006



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor:	vp1_SAT2
Query sequence set:	WRLMEG/2021/00006-Burkina Faso-SAT2 (4 sequences)
Sequence database set:	allseqs_SAT2 (1046 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:	10
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
BKF/20Z006764/20*	n/a	bovine	ANSES	Burkina Faso	VII/Lib-12
BKF/20Z006759/20*	n/a	bovine	ANSES	Burkina Faso	VII/Lib-12
BKF/20Z006761/20*	n/a	bovine	ANSES	Burkina Faso	VII/Lib-12
LAG/IBJ/01/NIG/2019*	n/a	bovine	NCFAD/NVRI	Nigeria	VII/Lib-12
NIG/3/2020	n/a	cattle	WRLFMD	Nigeria	VII/Lib-12
NIG/4/2020	n/a	cattle	WRLFMD	Nigeria	VII/Lib-12
NIG/6/2020	n/a	cattle	WRLFMD	Nigeria	VII/Lib-12
NIG/1/2020	n/a	cattle	WRLFMD	Nigeria	VII/Lib-12
NIG/2/2020	n/a	cattle	WRLFMD	Nigeria	VII/Lib-12
NIG/8/2020	n/a	cattle	WRLFMD	Nigeria	VII/Lib-12
BKF/20Z006760/20*	n/a	bovine	ANSES	Burkina Faso	VII/Lib-12
GHA/Tul/5/2018*	LC456875	cattle	NIAH-JAPAN	Ghana	VII/Lib-12
GHA/Tul/2/2018*	LC456874	cattle	NIAH-JAPAN	Ghana	VII/Lib-12
CHD/7/2016*	MH748579	cattle	ANSES	Chad	VII/Lib-12
BAU/TR/1/NIG/2018*	n/a	bovine	CFIA/NVRI	Nigeria	VII/Lib-12
PL/KWK/02/NIG/2017*	n/a	bovine	CFIA/NVRI	Nigeria	VII/Lib-12
PL/PKN/01/NIG/2017*	n/a	bovine	CFIA/NVRI	Nigeria	VII/Lib-12
PL/PKN/02/NIG/2017*	n/a	bovine	CFIA/NVRI	Nigeria	VII/Lib-12
PL/JS/KA/1/17/NIG/2017*	n/a	bovine	CFIA/NVRI	Nigeria	VII/Lib-12
NIG/1/2017/sci*	MT239383	cattle	Sciensano	Nigeria	VII/Lib-12
PL/LANG/02/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
PL/WAS/01/NIG/2017*	n/a	bovine	CFIA/NVRI	Nigeria	VII/Lib-12
NIG/3/14b*	MH894446	cattle	PIADC	Nigeria	VII/Lib-12
NIG/1/14b*	MH894444	cattle	PIADC	Nigeria	VII/Lib-12
NIG/2/14b*	MH894445	cattle	PIADC	Nigeria	VII/Lib-12
CAR/G5819/2015*	MG873224	cattle	PIADC	Cameroon	VII/Lib-12
EGY/Alexandria3/2018*	MK493347	n/a	MEVAC	Egypt	VII/Lib-12
EGY/Alexandria2/2018*	MK493346	n/a	MEVAC	Egypt	VII/Lib-12
EGY/21/2018	n/a	cattle	WRLFMD	Egypt	VII/Lib-12
EGY/31/2018	n/a	cattle	WRLFMD	Egypt	VII/Lib-12
EGY/34/2018	n/a	cattle	WRLFMD	Egypt	VII/Lib-12
EGY/Ismailia4/2018*	MK493344	n/a	MEVAC	Egypt	VII/Lib-12
EGY/19/2018	n/a	cattle	WRLFMD	Egypt	VII/Lib-12
EGY/Sharqia1/2018*	MK493337	n/a	MEVAC	Egypt	VII/Lib-12
EGY/Sharqia2/2018*	MK493338	n/a	MEVAC	Egypt	VII/Lib-12

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
EGY/Ismailia2/2018*	MK493342	n/a	MEVAC	Egypt	VII/Lib-12
EGY/Ismailia1/2018*	MK493341	n/a	MEVAC	Egypt	VII/Lib-12
EGY/Ismailia3/2018*	MK493343	n/a	MEVAC	Egypt	VII/Lib-12
EGY/Alexandria1/2018*	MK493345	n/a	MEVAC	Egypt	VII/Lib-12
ETH/11/2018	MN987552	cattle	WRLFMD	Ethiopia	VII/Lib-12
EGY/Sharqia3/2018*	MK493339	n/a	MEVAC	Egypt	VII/Lib-12
EGY/Sharqia4/2018*	MK493340	n/a	MEVAC	Egypt	VII/Lib-12
EGY/7/2018	n/a	cattle	WRLFMD	Egypt	VII/Lib-12
ERI/29/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/28/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/11/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/5/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/6/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/1/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/2/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/20/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/17/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/15/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/18/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/19/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/13/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/16/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
ERI/12/2019	n/a	bovine	WRLFMD	Eritrea	VII/Lib-12
CAR/1/2012	KX266283	n/a	WRLFMD	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/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/B001070/2012*	KY581675	cattle	PIADC	Cameroon	VII/Lib-12
CAR/12/2013	n/a	cattle	WRLFMD	Cameroon	VII/Lib-12
CAR/34/2013	n/a	cattle	WRLFMD	Cameroon	VII/Lib-12
CAR/16/2013	n/a	cattle	WRLFMD	Cameroon	VII/Lib-12
CAR/37/2013	n/a	cattle	WRLFMD	Cameroon	VII/Lib-12
LIB/41/2012	JX570635	cattle	WRLFMD	Libya	VII/Lib-12
LIB/39/2012	JX570633	cattle	WRLFMD	Libya	VII/Lib-12
LIB/40/2012	JX570634	cattle	WRLFMD	Libya	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/G3808/2012*	KY581673	cattle	PIADC	Cameroon	VII/Lib-12
CAR/8/2012	KX266287	n/a	WRLFMD	Cameroon	VII/Lib-12
SAU/6/2000	AF367135	bovine	OVI	Saudi Arabia	VII
CAR/8/2005	JX570616	cattle	WRLFMD	Cameroon	VII
NIG/5/2011	KX258084	bovine	WRLFMD	Nigeria	VII
CAR/911/2012*	KU720584	cattle	PIADC	Cameroon	VII
CAR/910/2012*	KU720583	cattle	PIADC	Cameroon	VII
CAR/909/2012*	KU720582	cattle	PIADC	Cameroon	VII
NIG/3/2012	KX258096	bovine	WRLFMD	Nigeria	VII
SUD/1/2007	GU566071	cattle	WRLFMD	Sudan	VII
ETH/2/91	AY343938	bovine	OVI	Ethiopia	XIV
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
UGA/19/98	AY343969	n/a	OVI	Uganda	X
RWA/1/2000*	AF367134	n/a	OVI	Rwanda	VIII
ZAI/1/74	DQ009737	n/a	OVI	Zaire	VIII
RHO/1/48	AY593847	n/a	PIADC	Rhodesia	III

\*, not a WRLFMD Reference Number

n/a, not available