

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

Genotyping Report

FMDV serotype: A
Country: Ethiopia
Year: 2018, 2019
Batch: WRLFMD/2019/00020
No. of sequences: 12
Report date: 9th May 2019
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth



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

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Virus sample name:	ETH/85/2018
Sender reference:	ET-28147
Location of origin:	Kuyu, Kuyu, North Shoa, Oromia
Country of origin:	Ethiopia
Date of collection:	02/12/2018
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/04/2019
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/05/2019
Created:	09/05/2019
Last updated:	09/05/2019
VIBASys IDs: sample 41447, genome 41448, sequence viba_41449, sequencing info 41450	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41453	ETH/86/2018	cattle	99.4	0	A	AFRICA	G-IV	
viba_41473	ETH/11/2019	cattle	99.2	0	A	AFRICA	G-IV	
viba_41481	ETH/13/2019	cattle	99.2	0	A	AFRICA	G-IV	
viba_40375	ETH/46/2018	cattle	99.2	0	A	AFRICA	G-IV	
viba_41477	ETH/12/2019	cattle	99.2	0	A	AFRICA	G-IV	
viba_40395	ETH/51/2018	cattle	99.2	0	A	AFRICA	G-IV	
viba_40431	ETH/69/2018	cattle	99.2	0	A	AFRICA	G-IV	
viba_40359	ETH/42/2018	cattle	99.2	0	A	AFRICA	G-IV	
viba_40419	ETH/61/2018	cattle	99.2	0	A	AFRICA	G-IV	
viba_40435	ETH/70/2018	cattle	99.2	0	A	AFRICA	G-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_178	SUD/3/77		84.0	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		83.8	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	83.4	0	A	AFRICA	G-V	
viba_785	KEN/3/64		82.9	0	A	AFRICA	G-III	
viba_609	GHA/16/73	bovine	82.5	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		82.4	0	A	EURO-SA	A12	
viba_173	UGA/13/66	bovine	81.3	0	A	AFRICA	G-VII	
viba_688	EGY/1/72	bovine	81.3	0	A	AFRICA	G-II	
viba_435	Allier/FRA/60		81.0	0	A	EURO-SA	A5	
viba_98	Alem/ARG/81		80.6	0	A	EURO-SA	A81	

Virus sample name:	ETH/86/2018
Sender reference:	ET-28149
Location of origin:	O4 Kebele, Fiche, North Shoa, Oromia
Country of origin:	Ethiopia
Date of collection:	03/12/2018
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/04/2019
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/05/2019
Created:	09/05/2019
Last updated:	09/05/2019

VIBASys IDs: sample 41451, genome 41452, sequence viba_41453, sequencing info 41454

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41473	ETH/11/2019	cattle	99.8	0	A	AFRICA	G-IV	
viba_41481	ETH/13/2019	cattle	99.8	0	A	AFRICA	G-IV	
viba_40375	ETH/46/2018	cattle	99.8	0	A	AFRICA	G-IV	
viba_41477	ETH/12/2019	cattle	99.8	0	A	AFRICA	G-IV	
viba_40395	ETH/51/2018	cattle	99.8	0	A	AFRICA	G-IV	
viba_40431	ETH/69/2018	cattle	99.8	0	A	AFRICA	G-IV	
viba_40359	ETH/42/2018	cattle	99.8	0	A	AFRICA	G-IV	
viba_40419	ETH/61/2018	cattle	99.8	0	A	AFRICA	G-IV	
viba_40435	ETH/70/2018	cattle	99.8	0	A	AFRICA	G-IV	
viba_40379	ETH/47/2018	cattle	99.8	0	A	AFRICA	G-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_178	SUD/3/77		84.7	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.1	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	84.0	0	A	AFRICA	G-V	
viba_785	KEN/3/64		83.6	0	A	AFRICA	G-III	
viba_609	GHA/16/73	bovine	83.1	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		82.4	0	A	EURO-SA	A12	
viba_688	EGY/1/72	bovine	81.7	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	81.3	0	A	AFRICA	G-VII	
viba_435	Allier/FRA/60		81.0	0	A	EURO-SA	A5	
viba_98	Alem/ARG/81		80.9	0	A	EURO-SA	A81	

Virus sample name:	ETH/87/2018
Sender reference:	ET-28148
Location of origin:	Mukaturi, North Shoa, Oromia
Country of origin:	Ethiopia
Date of collection:	03/12/2018
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	24/04/2019
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/05/2019
Created:	09/05/2019
Last updated:	09/05/2019
VIBASys IDs: sample 41455, genome 41456, sequence viba_41457, sequencing info 41458	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41453	ETH/86/2018	cattle	99.5	0	A	AFRICA	G-IV	
viba_41473	ETH/11/2019	cattle	99.4	0	A	AFRICA	G-IV	
viba_41481	ETH/13/2019	cattle	99.4	0	A	AFRICA	G-IV	
viba_40375	ETH/46/2018	cattle	99.4	0	A	AFRICA	G-IV	
viba_41477	ETH/12/2019	cattle	99.4	0	A	AFRICA	G-IV	
viba_40395	ETH/51/2018	cattle	99.4	0	A	AFRICA	G-IV	
viba_40431	ETH/69/2018	cattle	99.4	0	A	AFRICA	G-IV	
viba_40359	ETH/42/2018	cattle	99.4	0	A	AFRICA	G-IV	
viba_40419	ETH/61/2018	cattle	99.4	0	A	AFRICA	G-IV	
viba_40435	ETH/70/2018	cattle	99.4	0	A	AFRICA	G-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_178	SUD/3/77		84.4	0	A	AFRICA	G-IV	
viba_535	NGR/2/73	bovine	84.0	0	A	AFRICA	G-V	
viba_347	KEN/42/66		83.8	0	A	AFRICA	G-I	
viba_785	KEN/3/64		83.3	0	A	AFRICA	G-III	
viba_609	GHA/16/73	bovine	83.1	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		82.1	0	A	EURO-SA	A12	
viba_688	EGY/1/72	bovine	81.3	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	81.0	0	A	AFRICA	G-VII	
viba_435	Allier/FRA/60		80.7	0	A	EURO-SA	A5	
viba_98	Alem/ARG/81		80.6	0	A	EURO-SA	A81	

Virus sample name:	ETH/1/2019
Sender reference:	4575
Location of origin:	Adea Berga farm, Adeaberga, West Shewa zone, Oromia
Country of origin:	Ethiopia
Date of collection:	06/02/2019
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/04/2019
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/05/2019
Created:	09/05/2019
Last updated:	09/05/2019
VIBASys IDs: sample 41459, genome 41460, sequence viba_41461, sequencing info 41462	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41473	ETH/11/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41481	ETH/13/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41477	ETH/12/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41465	ETH/2/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41469	ETH/3/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41453	ETH/86/2018	cattle	99.8	0	A	AFRICA	G-IV	
viba_40375	ETH/46/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40395	ETH/51/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40431	ETH/69/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40359	ETH/42/2018	cattle	99.7	0	A	AFRICA	G-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_178	SUD/3/77		84.5	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.3	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	84.2	0	A	AFRICA	G-V	
viba_785	KEN/3/64		83.7	0	A	AFRICA	G-III	
viba_609	GHA/16/73	bovine	83.3	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		82.6	0	A	EURO-SA	A12	
viba_688	EGY/1/72	bovine	81.8	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	81.5	0	A	AFRICA	G-VII	
viba_435	Allier/FRA/60		81.2	0	A	EURO-SA	A5	
viba_98	Alem/ARG/81		81.1	0	A	EURO-SA	A81	

Virus sample name:	ETH/2/2019
Sender reference:	4583
Location of origin:	Adea Berga farm, Adeaberga, West Shewa zone, Oromia
Country of origin:	Ethiopia
Date of collection:	06/02/2019
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/04/2019
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/05/2019
Created:	09/05/2019
Last updated:	09/05/2019

VIBASys IDs: sample 41463, genome 41464, sequence viba_41465, sequencing info 41466

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41473	ETH/11/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41481	ETH/13/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41477	ETH/12/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41461	ETH/1/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41469	ETH/3/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41453	ETH/86/2018	cattle	99.8	0	A	AFRICA	G-IV	
viba_40375	ETH/46/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40395	ETH/51/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40431	ETH/69/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40359	ETH/42/2018	cattle	99.7	0	A	AFRICA	G-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_178	SUD/3/77		84.5	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.3	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	84.2	0	A	AFRICA	G-V	
viba_785	KEN/3/64		83.7	0	A	AFRICA	G-III	
viba_609	GHA/16/73	bovine	83.3	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		82.6	0	A	EURO-SA	A12	
viba_688	EGY/1/72	bovine	81.8	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	81.5	0	A	AFRICA	G-VII	
viba_435	Allier/FRA/60		81.2	0	A	EURO-SA	A5	
viba_98	Alem/ARG/81		81.1	0	A	EURO-SA	A81	

Virus sample name:	ETH/3/2019
Sender reference:	4580
Location of origin:	Adea Berga farm, Adeaberga, West Shewa zone, Oromia
Country of origin:	Ethiopia
Date of collection:	06/02/2019
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/04/2019
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/05/2019
Created:	09/05/2019
Last updated:	09/05/2019
VIBASys IDs: sample 41467, genome 41468, sequence viba_41469, sequencing info 41470	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41473	ETH/11/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41481	ETH/13/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41477	ETH/12/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41465	ETH/2/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41461	ETH/1/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41453	ETH/86/2018	cattle	99.8	0	A	AFRICA	G-IV	
viba_40375	ETH/46/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40395	ETH/51/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40431	ETH/69/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40359	ETH/42/2018	cattle	99.7	0	A	AFRICA	G-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_178	SUD/3/77		84.5	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.3	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	84.2	0	A	AFRICA	G-V	
viba_785	KEN/3/64		83.7	0	A	AFRICA	G-III	
viba_609	GHA/16/73	bovine	83.3	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		82.6	0	A	EURO-SA	A12	
viba_688	EGY/1/72	bovine	81.8	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	81.5	0	A	AFRICA	G-VII	
viba_435	Allier/FRA/60		81.2	0	A	EURO-SA	A5	
viba_98	Alem/ARG/81		81.1	0	A	EURO-SA	A81	

Virus sample name:	ETH/11/2019
Sender reference:	2736
Location of origin:	HARC farm, Wolmera, West Shoa zone, Oromia
Country of origin:	Ethiopia
Date of collection:	28/02/2019
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	24/04/2019
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/05/2019
Created:	09/05/2019
Last updated:	09/05/2019

VIBASys IDs: sample 41471, genome 41472, sequence viba_41473, sequencing info 41474

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41481	ETH/13/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41477	ETH/12/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41465	ETH/2/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41461	ETH/1/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41469	ETH/3/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41453	ETH/86/2018	cattle	99.8	0	A	AFRICA	G-IV	
viba_40375	ETH/46/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40395	ETH/51/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40431	ETH/69/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40359	ETH/42/2018	cattle	99.7	0	A	AFRICA	G-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_178	SUD/3/77		84.5	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.3	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	84.2	0	A	AFRICA	G-V	
viba_785	KEN/3/64		83.7	0	A	AFRICA	G-III	
viba_609	GHA/16/73	bovine	83.3	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		82.6	0	A	EURO-SA	A12	
viba_688	EGY/1/72	bovine	81.8	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	81.5	0	A	AFRICA	G-VII	
viba_435	Allier/FRA/60		81.2	0	A	EURO-SA	A5	
viba_98	Alem/ARG/81		81.1	0	A	EURO-SA	A81	

Virus sample name:	ETH/12/2019
Sender reference:	2737
Location of origin:	HARC farm, Wolmera, West Shoa zone, Oromia
Country of origin:	Ethiopia
Date of collection:	28/02/2019
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	24/04/2019
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/05/2019
Created:	09/05/2019
Last updated:	09/05/2019

VIBASys IDs: sample 41475, genome 41476, sequence viba_41477, sequencing info 41478

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41473	ETH/11/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41481	ETH/13/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41465	ETH/2/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41461	ETH/1/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41469	ETH/3/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41453	ETH/86/2018	cattle	99.8	0	A	AFRICA	G-IV	
viba_40375	ETH/46/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40395	ETH/51/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40431	ETH/69/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40359	ETH/42/2018	cattle	99.7	0	A	AFRICA	G-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_178	SUD/3/77		84.5	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.3	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	84.2	0	A	AFRICA	G-V	
viba_785	KEN/3/64		83.7	0	A	AFRICA	G-III	
viba_609	GHA/16/73	bovine	83.3	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		82.6	0	A	EURO-SA	A12	
viba_688	EGY/1/72	bovine	81.8	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	81.5	0	A	AFRICA	G-VII	
viba_435	Allier/FRA/60		81.2	0	A	EURO-SA	A5	
viba_98	Alem/ARG/81		81.1	0	A	EURO-SA	A81	

Virus sample name:	ETH/13/2019
Sender reference:	2745
Location of origin:	HARC farm, Wolmera, West Shoa zone, Oromia
Country of origin:	Ethiopia
Date of collection:	28/02/2019
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	24/04/2019
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/05/2019
Created:	09/05/2019
Last updated:	09/05/2019

VIBASys IDs: sample 41479, genome 41480, sequence viba_41481, sequencing info 41482

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41473	ETH/11/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41477	ETH/12/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41465	ETH/2/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41461	ETH/1/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41469	ETH/3/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_41453	ETH/86/2018	cattle	99.8	0	A	AFRICA	G-IV	
viba_40375	ETH/46/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40395	ETH/51/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40431	ETH/69/2018	cattle	99.7	0	A	AFRICA	G-IV	
viba_40359	ETH/42/2018	cattle	99.7	0	A	AFRICA	G-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_178	SUD/3/77		84.5	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.3	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	84.2	0	A	AFRICA	G-V	
viba_785	KEN/3/64		83.7	0	A	AFRICA	G-III	
viba_609	GHA/16/73	bovine	83.3	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		82.6	0	A	EURO-SA	A12	
viba_688	EGY/1/72	bovine	81.8	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	81.5	0	A	AFRICA	G-VII	
viba_435	Allier/FRA/60		81.2	0	A	EURO-SA	A5	
viba_98	Alem/ARG/81		81.1	0	A	EURO-SA	A81	

Virus sample name:	ETH/16/2019
Sender reference:	ET- 8451
Location of origin:	Kombolcha, Guduru, Horuguduru, Oromia
Country of origin:	Ethiopia
Date of collection:	09/03/2019
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	24/04/2019
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/05/2019
Created:	09/05/2019
Last updated:	09/05/2019

VIBASys IDs: sample 41483, genome 41484, sequence viba_41485, sequencing info 41486

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41493	ETH/19/2019	cattle	99.8	0	A	AFRICA	G-IV	
viba_41489	ETH/18/2019	cattle	99.5	0	A	AFRICA	G-IV	
viba_41473	ETH/11/2019	cattle	99.1	0	A	AFRICA	G-IV	
viba_41481	ETH/13/2019	cattle	99.1	0	A	AFRICA	G-IV	
viba_41477	ETH/12/2019	cattle	99.1	0	A	AFRICA	G-IV	
viba_41465	ETH/2/2019	cattle	99.1	0	A	AFRICA	G-IV	
viba_41461	ETH/1/2019	cattle	99.1	0	A	AFRICA	G-IV	
viba_41469	ETH/3/2019	cattle	99.1	0	A	AFRICA	G-IV	
viba_41453	ETH/86/2018	cattle	98.9	0	A	AFRICA	G-IV	
viba_40375	ETH/46/2018	cattle	98.7	0	A	AFRICA	G-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_178	SUD/3/77		84.7	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.3	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	84.3	0	A	AFRICA	G-V	
viba_785	KEN/3/64		83.7	0	A	AFRICA	G-III	
viba_609	GHA/16/73	bovine	83.0	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		82.3	0	A	EURO-SA	A12	
viba_688	EGY/1/72	bovine	82.2	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	81.8	0	A	AFRICA	G-VII	
viba_435	Allier/FRA/60		81.2	0	A	EURO-SA	A5	
viba_589	Bangkok/TAI/60		81.0	0	A	ASIA	A15	

Virus sample name:	ETH/18/2019
Sender reference:	ET-8450
Location of origin:	Keneni, Guduru, Horuguduru, Oromia
Country of origin:	Ethiopia
Date of collection:	09/03/2019
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	24/04/2019
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/05/2019
Created:	09/05/2019
Last updated:	09/05/2019
VIBASys IDs: sample 41487, genome 41488, sequence viba_41489, sequencing info 41490	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41493	ETH/19/2019	cattle	99.7	0	A	AFRICA	G-IV	
viba_41485	ETH/16/2019	cattle	99.5	0	A	AFRICA	G-IV	
viba_41473	ETH/11/2019	cattle	98.9	0	A	AFRICA	G-IV	
viba_41481	ETH/13/2019	cattle	98.9	0	A	AFRICA	G-IV	
viba_41477	ETH/12/2019	cattle	98.9	0	A	AFRICA	G-IV	
viba_41465	ETH/2/2019	cattle	98.9	0	A	AFRICA	G-IV	
viba_41461	ETH/1/2019	cattle	98.9	0	A	AFRICA	G-IV	
viba_41469	ETH/3/2019	cattle	98.9	0	A	AFRICA	G-IV	
viba_41453	ETH/86/2018	cattle	98.7	0	A	AFRICA	G-IV	
viba_40375	ETH/46/2018	cattle	98.6	0	A	AFRICA	G-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_535	NGR/2/73	bovine	84.8	0	A	AFRICA	G-V	
viba_178	SUD/3/77		84.5	0	A	AFRICA	G-IV	
viba_785	KEN/3/64		84.2	0	A	AFRICA	G-III	
viba_347	KEN/42/66		84.1	0	A	AFRICA	G-I	
viba_609	GHA/16/73	bovine	82.8	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		82.1	0	A	EURO-SA	A12	
viba_688	EGY/1/72	bovine	82.1	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	81.6	0	A	AFRICA	G-VII	
viba_589	Bangkok/TAI/60		81.0	0	A	ASIA	A15	
viba_435	Allier/FRA/60		81.0	0	A	EURO-SA	A5	

Virus sample name:	ETH/19/2019
Sender reference:	ET- 8447
Location of origin:	Kombolcha, Guduru, Horuguduru, Oromia
Country of origin:	Ethiopia
Date of collection:	09/03/2019
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	24/04/2019
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/05/2019
Created:	09/05/2019
Last updated:	09/05/2019
VIBASys IDs: sample 41491, genome 41492, sequence viba_41493, sequencing info 41494	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41485	ETH/16/2019	cattle	99.8	0	A	AFRICA	G-IV	
viba_41489	ETH/18/2019	cattle	99.7	0	A	AFRICA	G-IV	
viba_41473	ETH/11/2019	cattle	99.2	0	A	AFRICA	G-IV	
viba_41481	ETH/13/2019	cattle	99.2	0	A	AFRICA	G-IV	
viba_41477	ETH/12/2019	cattle	99.2	0	A	AFRICA	G-IV	
viba_41465	ETH/2/2019	cattle	99.2	0	A	AFRICA	G-IV	
viba_41461	ETH/1/2019	cattle	99.2	0	A	AFRICA	G-IV	
viba_41469	ETH/3/2019	cattle	99.2	0	A	AFRICA	G-IV	
viba_41453	ETH/86/2018	cattle	99.1	0	A	AFRICA	G-IV	
viba_40375	ETH/46/2018	cattle	98.9	0	A	AFRICA	G-IV	

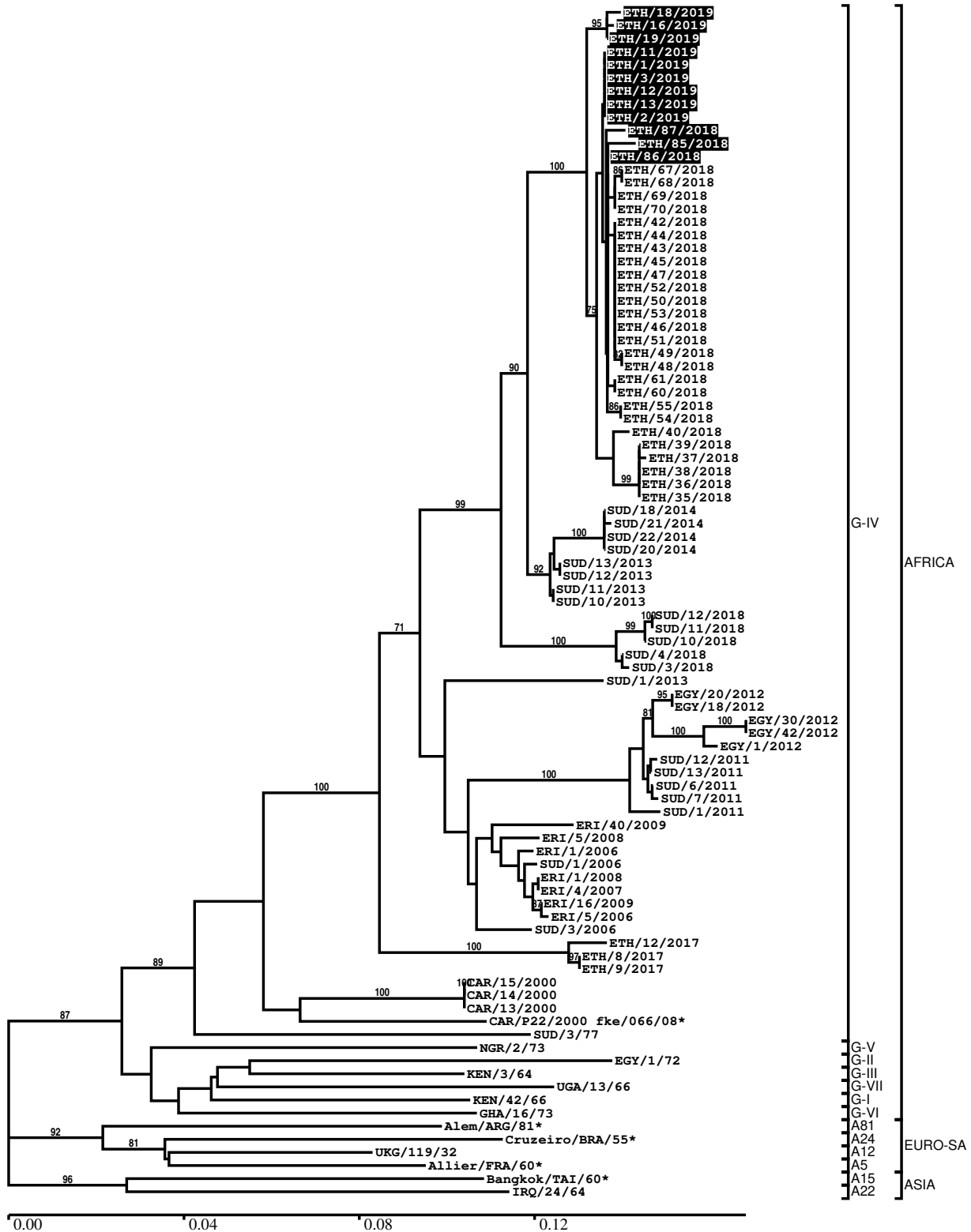
Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_535	NGR/2/73	bovine	84.5	0	A	AFRICA	G-V	
viba_178	SUD/3/77		84.5	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.4	0	A	AFRICA	G-I	
viba_785	KEN/3/64		83.9	0	A	AFRICA	G-III	
viba_609	GHA/16/73	bovine	83.1	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		82.4	0	A	EURO-SA	A12	
viba_688	EGY/1/72	bovine	82.4	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	81.6	0	A	AFRICA	G-VII	
viba_435	Allier/FRA/60		81.4	0	A	EURO-SA	A5	
viba_589	Bangkok/TAI/60		81.0	0	A	ASIA	A15	

Report on FMDV A in Ethiopia in 2018, 2019

Batch: WRLFMD/2019/00020



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_A
Query sequence set:	WRLFMD/2019/00020-Ethiopia-A (12 sequences)
Sequence database set:	allseqs_A (2017 sequences)
Prototype sequence set:	!prototypes_A (40 sequences)
Number of related sequences reported:	10
Minimal VP1 subsequence match length	600
Sequence alignment method:	muscle (default parameters)
Sequence alignment length:	633
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:	11
VIBASys version:	reflabs-1.1.2

Sequences in the Phylogenetic Tree

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

label	accession	host(s)	lab	country	taxonomic information
ETH/18/2019	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/16/2019	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/19/2019	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/11/2019	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/1/2019	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/3/2019	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/12/2019	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/13/2019	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/2/2019	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/87/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/85/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/86/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/67/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/68/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/69/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/70/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/42/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/44/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/43/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/45/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/47/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/52/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/50/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/53/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/46/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/51/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/49/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/48/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/61/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/60/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/55/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/54/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/40/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/39/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/37/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/38/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV

continued on next page

label	accession	host(s)	lab	country	taxonomic information
ETH/36/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/35/2018	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
SUD/18/2014	MK422585	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/21/2014	MK422587	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/22/2014	MK422588	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/20/2014	MK422586	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/13/2013	MK422584	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/12/2013	MK422583	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/11/2013	MK422582	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/10/2013	MK422581	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/12/2018	MK422597	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/11/2018	MK422596	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/10/2018	MK422595	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/4/2018	MK422590	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/3/2018	MK422589	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/1/2013	MK422580	cattle	WRLFMD	Sudan	AFRICA/G-IV
EGY/20/2012	n/a	cattle	WRLFMD	Egypt	AFRICA/G-IV
EGY/18/2012	n/a	cattle	WRLFMD	Egypt	AFRICA/G-IV
EGY/30/2012	n/a	cattle	WRLFMD	Egypt	AFRICA/G-IV
EGY/42/2012	n/a	cattle	WRLFMD	Egypt	AFRICA/G-IV
EGY/1/2012	MK422572	n/a	WRLFMD	Egypt	AFRICA/G-IV
SUD/12/2011	MK422579	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/13/2011	MK422578	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/6/2011	MK422576	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/7/2011	MK422577	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/1/2011	MK422575	cattle	WRLFMD	Sudan	AFRICA/G-IV
ERI/40/2009	n/a	cattle	WRLFMD	Eritrea	AFRICA/G-IV
ERI/5/2008	n/a	cattle	WRLFMD	Eritrea	AFRICA/G-IV
ERI/1/2006	KX258046	cattle	WRLFMD	Eritrea	AFRICA/G-IV
SUD/1/2006	GU566069	cattle	WRLFMD	Sudan	AFRICA/G-IV
ERI/1/2008	n/a	cattle	WRLFMD	Eritrea	AFRICA/G-IV
ERI/4/2007	n/a	cattle	WRLFMD	Eritrea	AFRICA/G-IV
ERI/16/2009	n/a	cattle	WRLFMD	Eritrea	AFRICA/G-IV
ERI/5/2006	n/a	cattle	WRLFMD	Eritrea	AFRICA/G-IV
SUD/3/2006	GU566070	cattle	WRLFMD	Sudan	AFRICA/G-IV
ETH/12/2017	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/8/2017	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/9/2017	n/a	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
CAR/15/2000	EF208755	n/a	WRLFMD	Cameroon	AFRICA/G-IV
CAR/14/2000	KX258132	n/a	WRLFMD	Cameroon	AFRICA/G-IV
CAR/13/2000	KX258131	n/a	WRLFMD	Cameroon	AFRICA/G-IV
CAR/P22/2000 fke/066/08*	n/a	n/a	WRLFMD	Cameroon	AFRICA/G-IV
SUD/3/77	GU566064	n/a	WRLFMD	Sudan	AFRICA/G-IV
NGR/2/73	KF561704	bovine	WRLFMD	Niger	AFRICA/G-V
EGY/1/72	EF208756	bovine	WRLFMD	Egypt	AFRICA/G-II
KEN/3/64	AY593761	n/a	PIADC	Kenya	AFRICA/G-III
UGA/13/66	KF561705	bovine	WRLFMD	Uganda	AFRICA/G-VII
KEN/42/66	KF561699	n/a	WRLFMD	Kenya	AFRICA/G-I
GHA/16/73	KF561698	bovine	WRLFMD	Ghana	AFRICA/G-VI
Alem/ARG/81*	AJ306219	n/a	INTA-Argentina	Argentina	EURO-SA/A81
Cruzeiro/BRA/55*	AY593768	bovine	PIADC	Brazil	EURO-SA/A24
UKG/119/32	M10975	n/a	PIADC	United Kingdom	EURO-SA/A12
Allier/FRA/60*	AY593780	n/a	PIADC	France	EURO-SA/A5
Bangkok/TAI/60*	AY593755	n/a	PIADC	Thailand	ASIA/A15
IRQ/24/64	AY593763	bovine	PIADC	Iraq	ASIA/A22

*, not a WRLFMD Reference Number

n/a, not available