

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

## Genotyping Report

FMDV serotype: O  
Country: Kenya  
Year: 2020, 2021  
Batch: WRLFMD/2021/00010  
No. of sequences: 13  
Report date: 24th August 2021  
Report generated by: Nick Knowles  
Report checked by: Hayley Hicks



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

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Virus sample name:	KEN/2/2020
Sender reference:	K31/20
Location of origin:	Thavu, Kathiani, Kathiani, Kathonzweni, Makueni
Country of origin:	Kenya
Date of collection:	20/01/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	27/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021
VIBASys IDs: sample 48578, genome 48579, sequence viba_48580, sequencing info 48581	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48596	KEN/8/2020	cattle	99.1	0	O	EA-2		
viba_48588	KEN/6/2020	cattle	97.9	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	95.9	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	95.6	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	95.6	0	O	EA-2		
viba_41346	TAN-SUA-2017-0625	cattle	95.4	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	95.4	0	O	EA-2		
viba_41330	COM/19Z005555/19	cattle	95.3	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	95.3	0	O	EA-2		
viba_48612	KEN/3/2021	cattle	95.3	0	O	EA-2		

### 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_263	TAN/2/2004	bovine	93.2	0	O	EA-2		
viba_85	UGA/3/2002		88.8	0	O	EA-2		
viba_74	KEN/5/2002	bovine	88.6	0	O	EA-2		
viba_221	MAL/1/98		88.2	0	O	EA-2		
viba_523	K83/79		84.7	0	O	EA-1		
viba_705	KUW/3/97	bovine	84.1	0	O	ME-SA	Ind-2001	a
viba_116	SUD/2/86	bovine	84.1	0	O	EA-3		
viba_541	OMN/7/2001	bovine	83.9	0	O	ME-SA	Ind-2001	b
viba_854	ETH/1/2007	cattle	83.9	0	O	EA-3		
viba_397	UAE/4/2008	gazelle	83.9	0	O	ME-SA	Ind-2001	c

Virus sample name:	KEN/5/2020
Sender reference:	K83/20
Location of origin:	Mogoiywet, Mananet, Rongera, Sotik, Bomet
Country of origin:	Kenya
Date of collection:	22/05/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	27/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021
VIBASys IDs: sample 48582, genome 48583, sequence viba_48584, sequencing info 48585	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48592	KEN/7/2020	cattle	99.8	0	O	EA-2		
viba_48616	KEN/4/2021	cattle	98.7	0	O	EA-2		
viba_48604	KEN/1/2021	cattle	98.4	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	97.5	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	97.2	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	96.8	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	96.7	0	O	EA-2		
viba_41330	COM/19Z005555/19	cattle	96.5	0	O	EA-2		
viba_48612	KEN/3/2021	cattle	96.5	0	O	EA-2		
viba_41326	COM/19Z005554/19	cattle	96.4	0	O	EA-2		

### 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_263	TAN/2/2004	bovine	92.6	0	O	EA-2		
viba_85	UGA/3/2002		88.8	0	O	EA-2		
viba_74	KEN/5/2002	bovine	88.0	0	O	EA-2		
viba_221	MAL/1/98		87.0	0	O	EA-2		
viba_523	K83/79		83.8	0	O	EA-1		
viba_397	UAE/4/2008	gazelle	83.7	0	O	ME-SA	Ind-2001	c
viba_116	SUD/2/86	bovine	83.1	0	O	EA-3		
viba_408	ETH/3/2004	cattle	83.0	0	O	EA-3		
viba_854	ETH/1/2007	cattle	83.0	0	O	EA-3		
viba_293	BHU/3/2009	cattle	83.0	0	O	ME-SA	Ind-2001	d

Virus sample name:	KEN/6/2020
Sender reference:	K86/20
Location of origin:	Lower Kabete, Westlands, Kitusuru, Westlands, Nairobi
Country of origin:	Kenya
Date of collection:	29/05/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	27/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021
VIBASys IDs: sample 48586, genome 48587, sequence viba_48588, sequencing info 48589	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48580	KEN/2/2020	cattle	97.9	0	O	EA-2		
viba_48596	KEN/8/2020	cattle	97.9	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	94.8	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	94.5	0	O	EA-2		
viba_41346	TAN-SUA-2017-0625	cattle	94.3	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	94.2	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	94.2	0	O	EA-2		
viba_48628	KEN/8/2021	cattle	94.2	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	94.0	0	O	EA-2		
viba_15538	KEN/150/2010	cattle	94.0	0	O	EA-2		

### 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_263	TAN/2/2004	bovine	92.4	0	O	EA-2		
viba_85	UGA/3/2002		87.5	0	O	EA-2		
viba_74	KEN/5/2002	bovine	87.4	0	O	EA-2		
viba_221	MAL/1/98		86.9	0	O	EA-2		
viba_523	K83/79		83.6	0	O	EA-1		
viba_116	SUD/2/86	bovine	83.5	0	O	EA-3		
viba_397	UAE/4/2008	gazelle	83.1	0	O	ME-SA	Ind-2001	c
viba_617	IND/53/79	bovine	83.1	0	O	ME-SA		
viba_541	OMN/7/2001	bovine	82.8	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	82.7	0	O	ME-SA	Ind-2001	a

Virus sample name:	KEN/7/2020
Sender reference:	K103/20
Location of origin:	Nyasiongo, Nyasiongo, Borabu, Nyasiongo, Nyamira
Country of origin:	Kenya
Date of collection:	13/08/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	28/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021
VIBASys IDs: sample 48590, genome 48591, sequence viba_48592, sequencing info 48593	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48584	KEN/5/2020	cattle	99.8	0	O	EA-2		
viba_48616	KEN/4/2021	cattle	98.6	0	O	EA-2		
viba_48604	KEN/1/2021	cattle	98.3	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	97.3	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	97.0	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	96.7	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	96.5	0	O	EA-2		
viba_41330	COM/19Z005555/19	cattle	96.4	0	O	EA-2		
viba_48612	KEN/3/2021	cattle	96.4	0	O	EA-2		
viba_41326	COM/19Z005554/19	cattle	96.2	0	O	EA-2		

### 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_263	TAN/2/2004	bovine	92.4	0	O	EA-2		
viba_85	UGA/3/2002		88.6	0	O	EA-2		
viba_74	KEN/5/2002	bovine	87.8	0	O	EA-2		
viba_221	MAL/1/98		86.9	0	O	EA-2		
viba_523	K83/79		83.6	0	O	EA-1		
viba_397	UAE/4/2008	gazelle	83.6	0	O	ME-SA	Ind-2001	c
viba_116	SUD/2/86	bovine	83.0	0	O	EA-3		
viba_408	ETH/3/2004	cattle	82.9	0	O	EA-3		
viba_293	BHU/3/2009	cattle	82.9	0	O	ME-SA	Ind-2001	d
viba_854	ETH/1/2007	cattle	82.8	0	O	EA-3		

Virus sample name:	KEN/8/2020
Sender reference:	K13/20
Location of origin:	Sukari Ranch, Sukari Ranch, Githurai, Ruiru, Kiambu
Country of origin:	Kenya
Date of collection:	01/09/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	24/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021
VIBASys IDs: sample 48594, genome 48595, sequence viba_48596, sequencing info 48597	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48580	KEN/2/2020	cattle	99.1	0	O	EA-2		
viba_48588	KEN/6/2020	cattle	97.9	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	95.9	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	95.9	0	O	EA-2		
viba_48628	KEN/8/2021	cattle	95.9	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	95.6	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	95.3	0	O	EA-2		
viba_41346	TAN-SUA-2017-0625	cattle	95.1	0	O	EA-2		
viba_48584	KEN/5/2020	cattle	95.1	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	95.1	0	O	EA-2		

### 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_263	TAN/2/2004	bovine	93.5	0	O	EA-2		
viba_85	UGA/3/2002		88.8	0	O	EA-2		
viba_74	KEN/5/2002	bovine	88.6	0	O	EA-2		
viba_221	MAL/1/98		87.8	0	O	EA-2		
viba_523	K83/79		84.4	0	O	EA-1		
viba_116	SUD/2/86	bovine	84.4	0	O	EA-3		
viba_854	ETH/1/2007	cattle	83.9	0	O	EA-3		
viba_397	UAE/4/2008	gazelle	83.9	0	O	ME-SA	Ind-2001	c
viba_617	IND/53/79	bovine	83.9	0	O	ME-SA		
viba_541	OMN/7/2001	bovine	83.6	0	O	ME-SA	Ind-2001	b

Virus sample name:	KEN/10/2020
Sender reference:	K116/20
Location of origin:	Gede, Msabaha, Msabaha, Malindi, Kilifi
Country of origin:	Kenya
Date of collection:	29/10/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	25/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021
VIBASys IDs: sample 48598, genome 48599, sequence viba_48600, sequencing info 48601	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41350	TAN-SUA-2017-0735	cattle	96.4	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	96.1	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	95.7	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	95.6	0	O	EA-2		
viba_41330	COM/19Z005555/19	cattle	95.4	0	O	EA-2		
viba_48584	KEN/5/2020	cattle	95.4	0	O	EA-2		
viba_48592	KEN/7/2020	cattle	95.3	0	O	EA-2		
viba_41326	COM/19Z005554/19	cattle	95.3	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	95.1	0	O	EA-2		
viba_48612	KEN/3/2021	cattle	95.1	0	O	EA-2		

### 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_263	TAN/2/2004	bovine	91.8	0	O	EA-2		
viba_74	KEN/5/2002	bovine	87.7	0	O	EA-2		
viba_85	UGA/3/2002		87.5	0	O	EA-2		
viba_221	MAL/1/98		86.6	0	O	EA-2		
viba_397	UAE/4/2008	gazelle	83.4	0	O	ME-SA	Ind-2001	c
viba_523	K83/79		83.3	0	O	EA-1		
viba_359	Manisa/TUR/69		83.1	0	O	ME-SA		
viba_541	OMN/7/2001	bovine	82.8	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	82.8	0	O	ME-SA	Ind-2001	a
viba_854	ETH/1/2007	cattle	82.5	0	O	EA-3		

Virus sample name:	KEN/1/2021
Sender reference:	K1/21
Location of origin:	Bomet
Country of origin:	Kenya
Date of collection:	08/01/2021
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	27/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021
VIBASys IDs: sample 48602, genome 48603, sequence viba_48604, sequencing info 48605	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48584	KEN/5/2020	cattle	98.4	0	O	EA-2		
viba_48592	KEN/7/2020	cattle	98.3	0	O	EA-2		
viba_48616	KEN/4/2021	cattle	97.8	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	96.5	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	96.2	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	95.9	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	95.7	0	O	EA-2		
viba_41330	COM/19Z005555/19	cattle	95.6	0	O	EA-2		
viba_48612	KEN/3/2021	cattle	95.6	0	O	EA-2		
viba_48608	KEN/2/2021	cattle	95.6	0	O	EA-2		

### 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_263	TAN/2/2004	bovine	91.9	0	O	EA-2		
viba_74	KEN/5/2002	bovine	88.3	0	O	EA-2		
viba_85	UGA/3/2002		88.2	0	O	EA-2		
viba_221	MAL/1/98		86.7	0	O	EA-2		
viba_397	UAE/4/2008	gazelle	84.4	0	O	ME-SA	Ind-2001	c
viba_293	BHU/3/2009	cattle	83.5	0	O	ME-SA	Ind-2001	d
viba_705	KUW/3/97	bovine	83.3	0	O	ME-SA	Ind-2001	a
viba_523	K83/79		83.3	0	O	EA-1		
viba_116	SUD/2/86	bovine	83.0	0	O	EA-3		
viba_541	OMN/7/2001	bovine	82.8	0	O	ME-SA	Ind-2001	b



Virus sample name:	KEN/2/2021
Sender reference:	K3/21
Location of origin:	Kiambu
Country of origin:	Kenya
Date of collection:	18/01/2021
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	27/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021
VIBASys IDs: sample 48606, genome 48607, sequence viba_48608, sequencing info 48609	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48612	KEN/3/2021	cattle	98.4	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	98.4	0	O	EA-2		
viba_48620	KEN/5/2021	cattle	98.4	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	98.3	0	O	EA-2		
viba_41330	COM/19Z005555/19	cattle	98.1	0	O	EA-2		
viba_41326	COM/19Z005554/19	cattle	97.9	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	97.8	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	97.8	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	96.5	0	O	EA-2		
viba_48628	KEN/8/2021	cattle	96.5	0	O	EA-2		

### 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_263	TAN/2/2004	bovine	93.5	0	O	EA-2		
viba_85	UGA/3/2002		89.1	0	O	EA-2		
viba_74	KEN/5/2002	bovine	88.8	0	O	EA-2		
viba_221	MAL/1/98		87.8	0	O	EA-2		
viba_705	KUW/3/97	bovine	83.8	0	O	ME-SA	Ind-2001	a
viba_523	K83/79		83.8	0	O	EA-1		
viba_116	SUD/2/86	bovine	83.6	0	O	EA-3		
viba_359	Manisa/TUR/69		83.5	0	O	ME-SA		
viba_397	UAE/4/2008	gazelle	83.4	0	O	ME-SA	Ind-2001	c
viba_541	OMN/7/2001	bovine	83.3	0	O	ME-SA	Ind-2001	b

Virus sample name:	KEN/3/2021
Sender reference:	K6/21
Location of origin:	Samburu
Country of origin:	Kenya
Date of collection:	18/01/2021
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK2
Harvest date of material:	30/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021
VIBASys IDs: sample 48610, genome 48611, sequence viba_48612, sequencing info 48613	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41338	COM/19Z005557/19	cattle	98.7	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	98.6	0	O	EA-2		
viba_41330	COM/19Z005555/19	cattle	98.4	0	O	EA-2		
viba_48608	KEN/2/2021	cattle	98.4	0	O	EA-2		
viba_41326	COM/19Z005554/19	cattle	98.3	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	98.1	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	98.1	0	O	EA-2		
viba_48620	KEN/5/2021	cattle	97.8	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	96.5	0	O	EA-2		
viba_48584	KEN/5/2020	cattle	96.5	0	O	EA-2		

### 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_263	TAN/2/2004	bovine	92.9	0	O	EA-2		
viba_74	KEN/5/2002	bovine	88.8	0	O	EA-2		
viba_85	UGA/3/2002		88.8	0	O	EA-2		
viba_221	MAL/1/98		87.8	0	O	EA-2		
viba_523	K83/79		83.6	0	O	EA-1		
viba_705	KUW/3/97	bovine	83.3	0	O	ME-SA	Ind-2001	a
viba_359	Manisa/TUR/69		83.0	0	O	ME-SA		
viba_397	UAE/4/2008	gazelle	82.9	0	O	ME-SA	Ind-2001	c
viba_116	SUD/2/86	bovine	82.9	0	O	EA-3		
viba_541	OMN/7/2001	bovine	82.8	0	O	ME-SA	Ind-2001	b

Virus sample name:	KEN/4/2021
Sender reference:	K10/21
Location of origin:	Nakuru
Country of origin:	Kenya
Date of collection:	21/01/2021
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	27/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021

VIBASys IDs: sample 48614, genome 48615, sequence viba\_48616, sequencing info 48617

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48584	KEN/5/2020	cattle	98.7	0	O	EA-2		
viba_48592	KEN/7/2020	cattle	98.6	0	O	EA-2		
viba_48604	KEN/1/2021	cattle	97.8	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	96.5	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	96.2	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	95.9	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	95.7	0	O	EA-2		
viba_41330	COM/19Z005555/19	cattle	95.6	0	O	EA-2		
viba_48612	KEN/3/2021	cattle	95.6	0	O	EA-2		
viba_48608	KEN/2/2021	cattle	95.6	0	O	EA-2		

### 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_263	TAN/2/2004	bovine	91.9	0	O	EA-2		
viba_85	UGA/3/2002		88.5	0	O	EA-2		
viba_74	KEN/5/2002	bovine	87.7	0	O	EA-2		
viba_221	MAL/1/98		86.4	0	O	EA-2		
viba_523	K83/79		83.9	0	O	EA-1		
viba_397	UAE/4/2008	gazelle	83.7	0	O	ME-SA	Ind-2001	c
viba_116	SUD/2/86	bovine	83.4	0	O	EA-3		
viba_293	BHU/3/2009	cattle	83.0	0	O	ME-SA	Ind-2001	d
viba_705	KUW/3/97	bovine	82.9	0	O	ME-SA	Ind-2001	a
viba_359	Manisa/TUR/69		82.7	0	O	ME-SA		

Virus sample name:	KEN/5/2021
Sender reference:	K13/21
Location of origin:	Laikipia
Country of origin:	Kenya
Date of collection:	26/01/2021
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	28/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021
VIBASys IDs: sample 48618, genome 48619, sequence viba_48620, sequencing info 48621	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48608	KEN/2/2021	cattle	98.4	0	O	EA-2		
viba_48612	KEN/3/2021	cattle	97.8	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	97.8	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	97.6	0	O	EA-2		
viba_41330	COM/19Z005555/19	cattle	97.5	0	O	EA-2		
viba_41326	COM/19Z005554/19	cattle	97.3	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	97.2	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	97.2	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	95.9	0	O	EA-2		
viba_48628	KEN/8/2021	cattle	95.9	0	O	EA-2		

### 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_263	TAN/2/2004	bovine	92.3	0	O	EA-2		
viba_74	KEN/5/2002	bovine	88.2	0	O	EA-2		
viba_85	UGA/3/2002		88.2	0	O	EA-2		
viba_221	MAL/1/98		86.9	0	O	EA-2		
viba_705	KUW/3/97	bovine	83.6	0	O	ME-SA	Ind-2001	a
viba_523	K83/79		83.3	0	O	EA-1		
viba_62	ETH/2/2006	bovine	83.1	0	O	EA-3		
viba_359	Manisa/TUR/69		82.9	0	O	ME-SA		
viba_116	SUD/2/86	bovine	82.9	0	O	EA-3		
viba_541	OMN/7/2001	bovine	82.8	0	O	ME-SA	Ind-2001	b

Virus sample name:	KEN/6/2021
Sender reference:	K19/21
Location of origin:	Taita-Taveta
Country of origin:	Kenya
Date of collection:	05/02/2021
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	29/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021

VIBASys IDs: sample 48622, genome 48623, sequence viba\_48624, sequencing info 48625

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48628	KEN/8/2021	cattle	100.0	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	97.5	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	97.2	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	96.8	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	96.7	0	O	EA-2		
viba_41330	COM/19Z005555/19	cattle	96.5	0	O	EA-2		
viba_48612	KEN/3/2021	cattle	96.5	0	O	EA-2		
viba_48608	KEN/2/2021	cattle	96.5	0	O	EA-2		
viba_41326	COM/19Z005554/19	cattle	96.4	0	O	EA-2		
viba_15538	KEN/150/2010	cattle	96.1	0	O	EA-2		

### 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_263	TAN/2/2004	bovine	94.5	0	O	EA-2		
viba_74	KEN/5/2002	bovine	89.9	0	O	EA-2		
viba_85	UGA/3/2002		88.8	0	O	EA-2		
viba_221	MAL/1/98		88.3	0	O	EA-2		
viba_523	K83/79		84.4	0	O	EA-1		
viba_116	SUD/2/86	bovine	84.2	0	O	EA-3		
viba_397	UAE/4/2008	gazelle	83.7	0	O	ME-SA	Ind-2001	c
viba_541	OMN/7/2001	bovine	83.6	0	O	ME-SA	Ind-2001	b
viba_854	ETH/1/2007	cattle	83.6	0	O	EA-3		
viba_705	KUW/3/97	bovine	83.5	0	O	ME-SA	Ind-2001	a

Virus sample name:	KEN/8/2021
Sender reference:	K28/21
Location of origin:	Nairobi
Country of origin:	Kenya
Date of collection:	18/02/2021
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	28/07/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	12/08/2021
Created:	24/08/2021
Last updated:	24/08/2021
VIBASys IDs: sample 48626, genome 48627, sequence viba_48628, sequencing info 48629	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48624	KEN/6/2021	cattle	100.0	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	97.5	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	97.2	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	96.8	0	O	EA-2		
viba_41334	COM/19Z005556/19	cattle	96.7	0	O	EA-2		
viba_41330	COM/19Z005555/19	cattle	96.5	0	O	EA-2		
viba_48612	KEN/3/2021	cattle	96.5	0	O	EA-2		
viba_48608	KEN/2/2021	cattle	96.5	0	O	EA-2		
viba_41326	COM/19Z005554/19	cattle	96.4	0	O	EA-2		
viba_15538	KEN/150/2010	cattle	96.1	0	O	EA-2		

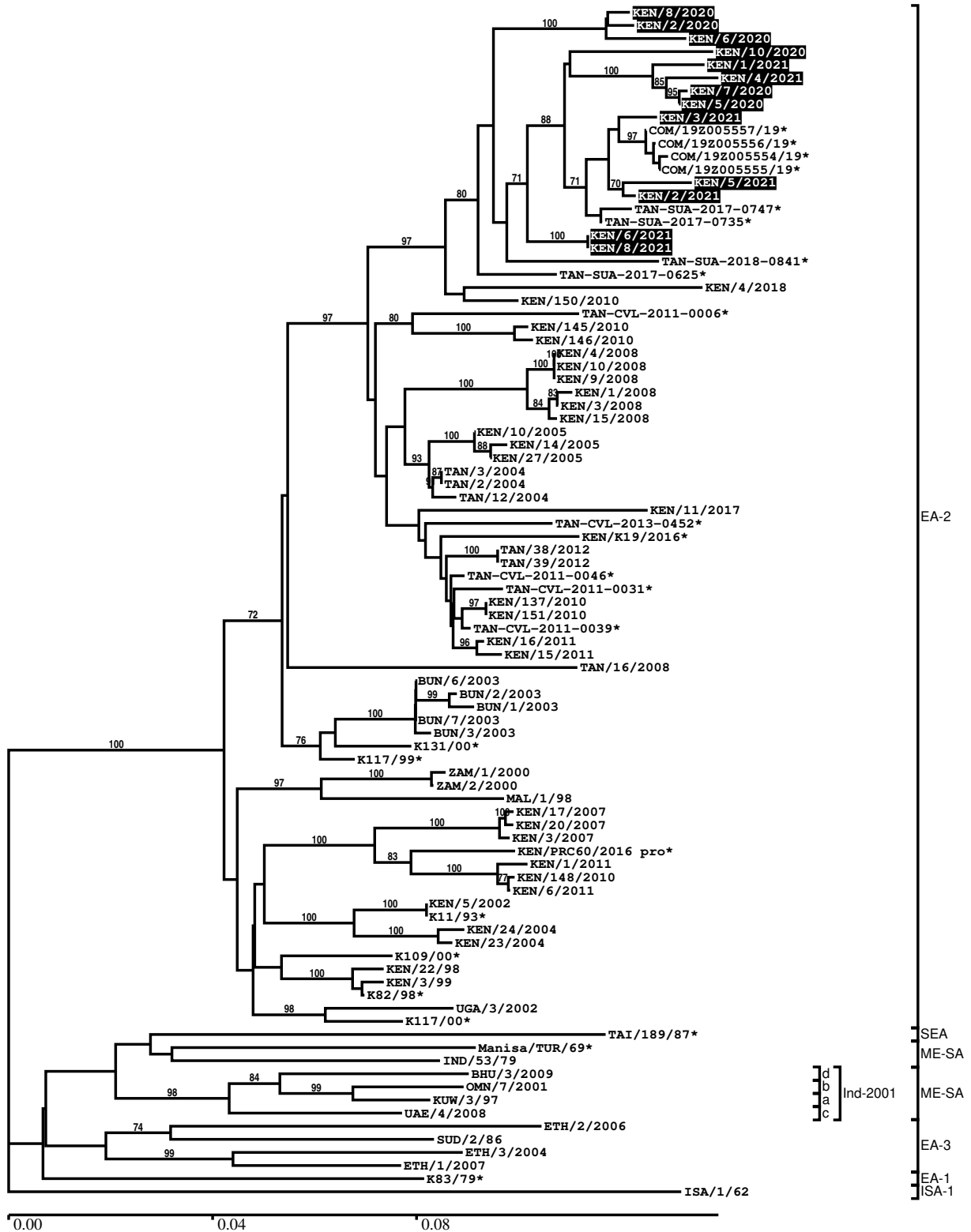
### Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_263	TAN/2/2004	bovine	94.5	0	O	EA-2		
viba_74	KEN/5/2002	bovine	89.9	0	O	EA-2		
viba_85	UGA/3/2002		88.8	0	O	EA-2		
viba_221	MAL/1/98		88.3	0	O	EA-2		
viba_523	K83/79		84.4	0	O	EA-1		
viba_116	SUD/2/86	bovine	84.2	0	O	EA-3		
viba_397	UAE/4/2008	gazelle	83.7	0	O	ME-SA	Ind-2001	c
viba_541	OMN/7/2001	bovine	83.6	0	O	ME-SA	Ind-2001	b
viba_854	ETH/1/2007	cattle	83.6	0	O	EA-3		
viba_705	KUW/3/97	bovine	83.5	0	O	ME-SA	Ind-2001	a

Report on FMDV O in Kenya in 2020, 2021

Batch: WRLFMD/2021/00010



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor: vp1\_O  
 Query sequence set: WRLFMD/2021/00010-Kenya-O (13 sequences)  
 Sequence database set: allseqs\_O (5300 sequences)  
 Prototype sequence set: !prototypes\_O (49 sequences)  
 Number of related sequences reported: 10  
 Minimal VP1 subsequence match length: 600  
 Sequence alignment method: muscle (default parameters)  
 Sequence alignment length: 636  
 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: 15  
 VIBASys version: reflabs-1.1.2

## Sequences in the Phylogenetic Tree

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

label	accession	host(s)	lab	country	taxonomic information
KEN/8/2020	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/2/2020	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/6/2020	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/10/2020	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/1/2021	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/4/2021	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/7/2020	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/5/2020	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/3/2021	n/a	cattle	WRLFMD	Kenya	EA-2
COM/19Z005557/19*	n/a	cattle	ANSES	Comoros	EA-2
COM/19Z005556/19*	n/a	cattle	ANSES	Comoros	EA-2
COM/19Z005554/19*	n/a	cattle	ANSES	Comoros	EA-2
COM/19Z005555/19*	n/a	cattle	ANSES	Comoros	EA-2
KEN/5/2021	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/2/2021	n/a	cattle	WRLFMD	Kenya	EA-2
TAN-SUA-2017-0747*	n/a	cattle	SUA	Tanzania	EA-2
TAN-SUA-2017-0735*	n/a	cattle	SUA	Tanzania	EA-2
KEN/6/2021	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/8/2021	n/a	cattle	WRLFMD	Kenya	EA-2
TAN-SUA-2018-0841*	n/a	porcine	SUA	Tanzania	EA-2
TAN-SUA-2017-0625*	n/a	cattle	SUA	Tanzania	EA-2
KEN/4/2018	n/a	bovine	WRLFMD	Kenya	EA-2
KEN/150/2010	KF135286	cattle	WRLFMD	Kenya	EA-2
TAN-CVL-2011-0006*	n/a	bovine	CVL	Tanzania	EA-2
KEN/145/2010	KF135283	cattle	WRLFMD	Kenya	EA-2
KEN/146/2010	KF135284	cattle	WRLFMD	Kenya	EA-2
KEN/4/2008	KF135277	cattle	WRLFMD	Kenya	EA-2
KEN/10/2008	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/9/2008	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/1/2008	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/3/2008	KF135276	cattle	WRLFMD	Kenya	EA-2
KEN/15/2008	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/10/2005	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/14/2005	KF135273	cattle	WRLFMD	Kenya	EA-2
KEN/27/2005	KF135274	cattle	WRLFMD	Kenya	EA-2
TAN/3/2004	KF561680	bovine	WRLFMD	Tanzania	EA-2

*continued on next page*



label	accession	host(s)	lab	country	taxonomic information
TAN/2/2004	KF561679	bovine	WRLFMD	Tanzania	EA-2
TAN/12/2004	KF561681	bovine	WRLFMD	Tanzania	EA-2
KEN/11/2017	n/a	bovine	WRLFMD	Kenya	EA-2
TAN-CVL-2013-0452*	n/a	cattle	CVL, Tanzania	Tanzania	EA-2
KEN/K19/2016*	MH882573	cattle	PIADC	Kenya	EA-2
TAN/38/2012	MF592623	cattle	WRLFMD	Tanzania	EA-2
TAN/39/2012	MF592624	cattle	WRLFMD	Tanzania	EA-2
TAN-CVL-2011-0046*	n/a	bovine	CVL	Tanzania	EA-2
TAN-CVL-2011-0031*	n/a	cattle	CVL, Tanzania	Tanzania	EA-2
KEN/137/2010	KF135282	cattle	WRLFMD	Kenya	EA-2
KEN/151/2010	KF135287	cattle	WRLFMD	Kenya	EA-2
TAN-CVL-2011-0039*	n/a	bovine	CVL	Tanzania	EA-2
KEN/16/2011	KF135293	cattle	WRLFMD	Kenya	EA-2
KEN/15/2011	KF135292	cattle	WRLFMD	Kenya	EA-2
TAN/16/2008	KF561684	cattle	WRLFMD	Tanzania	EA-2
BUN/6/2003	n/a	n/a	WRLFMD	Burundi	EA-2
BUN/2/2003	n/a	n/a	WRLFMD	Burundi	EA-2
BUN/1/2003	n/a	n/a	WRLFMD	Burundi	EA-2
BUN/7/2003	n/a	n/a	WRLFMD	Burundi	EA-2
BUN/3/2003	n/a	n/a	WRLFMD	Burundi	EA-2
K131/00*	HM756609	bovine	Makerere University	Kenya	EA-2
K117/99*	HM625676	bovine	Makerere University	Kenya	EA-2
	HM756603		University		
ZAM/1/2000	n/a	bovine	WRLFMD	Zambia	EA-2
ZAM/2/2000	n/a	bovine	WRLFMD	Zambia	EA-2
MAL/1/98	DQ165074	n/a	WRLFMD	Malawi	EA-2
KEN/17/2007	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/20/2007	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/3/2007	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/PRC60/2016 pro*	MH882577	cattle	PIADC	Kenya	EA-2
KEN/1/2011	KF135289	cattle	WRLFMD	Kenya	EA-2
KEN/148/2010	KF135285	cattle	WRLFMD	Kenya	EA-2
KEN/6/2011	KF135291	cattle	WRLFMD	Kenya	EA-2
KEN/5/2002	DQ165073	bovine	WRLFMD	Kenya	EA-2
K11/93*	HM756598	bovine	Makerere University	Kenya	EA-2
KEN/24/2004	KF135269	cattle	WRLFMD	Kenya	EA-2
KEN/23/2004	n/a	cattle	WRLFMD	Kenya	EA-2
K109/00*	HM756606	bovine	Makerere University	Kenya	EA-2
	HM625675		University		
KEN/22/98	n/a	bovine	WRLFMD	Kenya	EA-2
KEN/3/99	n/a	bovine	WRLFMD	Kenya	EA-2
K82/98*	HM756602	bovine	Makerere University	Kenya	EA-2
			University		
UGA/3/2002	DQ165077	n/a	WRLFMD	Uganda	EA-2
K117/00*	HM756607	bovine	Makerere University	Kenya	EA-2
			University		
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA
Manisa/TUR/69*	AY593823	n/a	PIADC	Turkey	ME-SA
IND/53/79	AF292107	bovine	PD-FMD	India	ME-SA
BHU/3/2009	KM921814	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
OMN/7/2001	DQ164941	bovine	WRLFMD	Oman	ME-SA/Ind-2001/b
KUW/3/97	DQ164904	bovine	WRLFMD	Kuwait	ME-SA/Ind-2001/a
UAE/4/2008	KM921876	gazelle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/c
ETH/2/2006	FJ798127	bovine	WRLFMD	Ethiopia	EA-3
SUD/2/86	DQ165075	bovine	WRLFMD	Sudan	EA-3
ETH/3/2004	FJ798109	cattle	WRLFMD	Ethiopia	EA-3
ETH/1/2007	FJ798137	cattle	WRLFMD	Ethiopia	EA-3
K83/79*	AJ303511	n/a	WRLFMD	Kenya	EA-1
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

\*, not a WRLFMD Reference Number

n/a, not available