

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

Genotyping Report

FMDV serotype: O
Country: Kenya
Year: 2017
Batch: WRLFMD/2017/00031
No. of sequences: 3
Report date: 26th January 2018
Report generated by: Nick Knowles
Report checked by: Kasia Bankowska



Copyright © 2018 The Pirbright Institute, Ash Road, Pirbright, Woking GU24 0NF, United Kingdom.

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

email: reporting@pirbright.ac.uk

The contents of this report should not be reproduced without permission.

Virus sample name:	KEN/4/2017
Sender reference:	K37/17
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	23/08/2017
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/01/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/01/2018
Created:	25/01/2018
Last updated:	25/01/2018
VIBASys IDs: sample 35567, genome 35568, sequence viba_35569, sequencing info 35570	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_35573	KEN/5/2017	cattle	99.8	0	O	EA-2		
viba_35577	KEN/6/2017	cattle	99.1	0	O	EA-2		
viba_6719	UGA/3/2004	bovine	91.5	0	O	EA-2		
viba_85	UGA/3/2002		91.5	0	O	EA-2		
viba_6715	UGA/1/2004	bovine	91.5	0	O	EA-2		
viba_6731	UGA/6/2004	bovine	91.3	0	O	EA-2		
viba_6727	UGA/5/2004	bovine	91.2	0	O	EA-2		
viba_6735	UGA/7/2004	bovine	91.2	0	O	EA-2		
viba_13052	TAN/5/2009	cattle	91.2	0	O	EA-2		
viba_6723	UGA/4/2004	bovine	91.2	0	O	EA-2		

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_85	UGA/3/2002		91.5	0	O	EA-2		
viba_74	KEN/5/2002	bovine	89.9	0	O	EA-2		
viba_221	MAL/1/98		88.0	0	O	EA-2		
viba_263	TAN/2/2004	bovine	87.7	0	O	EA-2		
viba_116	SUD/2/86	bovine	84.7	0	O	EA-3		
viba_354	PAK/16/2010	cattle	84.2	0	O	ME-SA	PanAsia-2	PUN-10
viba_617	IND/53/79	bovine	84.2	0	O	ME-SA		
viba_285	UKG/35/2001	porcine	84.2	0	O	ME-SA	PanAsia	
viba_576	IND/R2/75		84.1	0	O	ME-SA		
viba_541	OMN/7/2001	bovine	84.0	0	O	ME-SA	Ind-2001	b

Virus sample name:	KEN/5/2017
Sender reference:	K40/17
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	04/09/2017
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/01/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/01/2018
Created:	25/01/2018
Last updated:	25/01/2018
VIBASys IDs: sample 35571, genome 35572, sequence viba_35573, sequencing info 35574	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_35569	KEN/4/2017	cattle	99.8	0	O	EA-2		
viba_35577	KEN/6/2017	cattle	98.9	0	O	EA-2		
viba_6719	UGA/3/2004	bovine	91.5	0	O	EA-2		
viba_6715	UGA/1/2004	bovine	91.5	0	O	EA-2		
viba_85	UGA/3/2002		91.3	0	O	EA-2		
viba_6731	UGA/6/2004	bovine	91.3	0	O	EA-2		
viba_6727	UGA/5/2004	bovine	91.2	0	O	EA-2		
viba_6735	UGA/7/2004	bovine	91.2	0	O	EA-2		
viba_13052	TAN/5/2009	cattle	91.2	0	O	EA-2		
viba_6723	UGA/4/2004	bovine	91.2	0	O	EA-2		

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_85	UGA/3/2002		91.3	0	O	EA-2		
viba_74	KEN/5/2002	bovine	89.9	0	O	EA-2		
viba_221	MAL/1/98		88.0	0	O	EA-2		
viba_263	TAN/2/2004	bovine	87.7	0	O	EA-2		
viba_116	SUD/2/86	bovine	84.5	0	O	EA-3		
viba_354	PAK/16/2010	cattle	84.2	0	O	ME-SA	PanAsia-2	PUN-10
viba_576	IND/R2/75		84.1	0	O	ME-SA		
viba_285	UKG/35/2001	porcine	84.1	0	O	ME-SA	PanAsia	
viba_617	IND/53/79	bovine	84.0	0	O	ME-SA		
viba_541	OMN/7/2001	bovine	84.0	0	O	ME-SA	Ind-2001	b

Virus sample name:	KEN/6/2017
Sender reference:	K63/17
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	10/11/2017
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/01/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/01/2018
Created:	25/01/2018
Last updated:	25/01/2018
VIBASys IDs: sample 35575, genome 35576, sequence viba_35577, sequencing info 35578	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_35569	KEN/4/2017	cattle	99.1	0	O	EA-2		
viba_35573	KEN/5/2017	cattle	98.9	0	O	EA-2		
viba_6719	UGA/3/2004	bovine	91.8	0	O	EA-2		
viba_6715	UGA/1/2004	bovine	91.8	0	O	EA-2		
viba_6731	UGA/6/2004	bovine	91.6	0	O	EA-2		
viba_85	UGA/3/2002		91.5	0	O	EA-2		
viba_6727	UGA/5/2004	bovine	91.5	0	O	EA-2		
viba_6735	UGA/7/2004	bovine	91.5	0	O	EA-2		
viba_13052	TAN/5/2009	cattle	91.5	0	O	EA-2		
viba_4897	K117/00	bovine	91.5	0	O	EA-2		

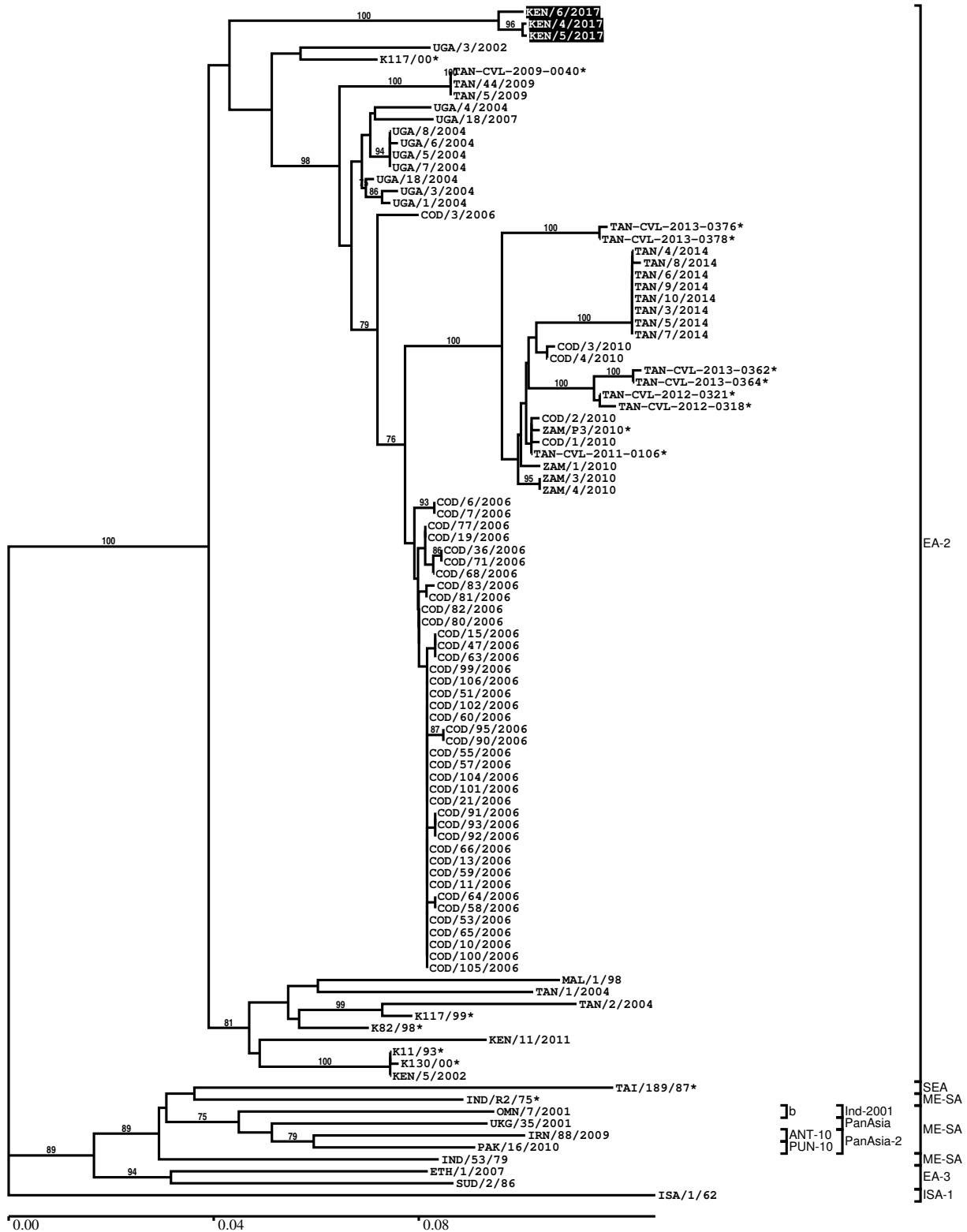
Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_85	UGA/3/2002		91.5	0	O	EA-2		
viba_74	KEN/5/2002	bovine	89.9	0	O	EA-2		
viba_221	MAL/1/98		88.3	0	O	EA-2		
viba_263	TAN/2/2004	bovine	88.0	0	O	EA-2		
viba_576	IND/R2/75		84.7	0	O	ME-SA		
viba_116	SUD/2/86	bovine	84.5	0	O	EA-3		
viba_617	IND/53/79	bovine	84.2	0	O	ME-SA		
viba_354	PAK/16/2010	cattle	83.9	0	O	ME-SA	PanAsia-2	PUN-10
viba_854	ETH/1/2007	cattle	83.8	0	O	EA-3		
viba_719	IRN/88/2009		83.8	0	O	ME-SA	PanAsia-2	ANT-10

Report on FMDV O in Kenya in 2017

Batch: WRLFMD/2017/00031



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor: vp1_O
 Query sequence set: WRLFMD/2017/00031-Kenya-O (3 sequences)
 Sequence database set: allseqs_O (3696 sequences)
 Prototype sequence set: !prototypes_O (48 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: 12
 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/6/2017	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/4/2017	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/5/2017	n/a	cattle	WRLFMD	Kenya	EA-2
UGA/3/2002	DQ165077	n/a	WRLFMD	Uganda	EA-2
K117/00*	HM756607	bovine	Makerere University	Kenya	EA-2
TAN-CVL-2009-0040*	n/a	bovine	CVL	Tanzania	EA-2
TAN/4/2009	KF561686	cattle	WRLFMD	Tanzania	EA-2
TAN/5/2009	KF561685	cattle	WRLFMD	Tanzania	EA-2
UGA/4/2004	n/a	bovine	WRLFMD	Uganda	EA-2
UGA/18/2007	n/a	cattle	WRLFMD	Uganda	EA-2
UGA/8/2004	n/a	bovine	WRLFMD	Uganda	EA-2
UGA/6/2004	n/a	bovine	WRLFMD	Uganda	EA-2
UGA/5/2004	n/a	bovine	WRLFMD	Uganda	EA-2
UGA/7/2004	n/a	bovine	WRLFMD	Uganda	EA-2
UGA/18/2004	n/a	bovine	WRLFMD	Uganda	EA-2
UGA/3/2004	n/a	bovine	WRLFMD	Uganda	EA-2
UGA/1/2004	n/a	bovine	WRLFMD	Uganda	EA-2
COD/3/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
TAN-CVL-2013-0376*	n/a	cattle	CVL, Tanzania	Tanzania	EA-2
TAN-CVL-2013-0378*	n/a	cattle	CVL, Tanzania	Tanzania	EA-2
TAN/4/2014	MF592666	bovine	WRLFMD	Tanzania	EA-2
TAN/8/2014	MF592669	bovine	WRLFMD	Tanzania	EA-2
TAN/6/2014	MF592667	bovine	WRLFMD	Tanzania	EA-2
TAN/9/2014	MF592670	bovine	WRLFMD	Tanzania	EA-2
TAN/10/2014	MF592671	bovine	WRLFMD	Tanzania	EA-2
TAN/3/2014	MF592665	bovine	WRLFMD	Tanzania	EA-2
TAN/5/2014	n/a	bovine	WRLFMD	Tanzania	EA-2
TAN/7/2014	MF592668	bovine	WRLFMD	Tanzania	EA-2
COD/3/2010	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/4/2010	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2

continued on next page

label	accession	host(s)	lab	country	taxonomic information
TAN-CVL-2013-0362*	n/a	cattle	CVL, Tanzania	Tanzania	EA-2
TAN-CVL-2013-0364*	n/a	cattle	CVL, Tanzania	Tanzania	EA-2
TAN-CVL-2012-0321*	n/a	bovine	CVL	Tanzania	EA-2
TAN-CVL-2012-0318*	n/a	bovine	CVL	Tanzania	EA-2
COD/2/2010	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
ZAM/P3/2010*	n/a	african buffalo	WRLFMD	Zambia	EA-2
COD/1/2010	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
TAN-CVL-2011-0106*	n/a	cattle	CVL, Tanzania	Tanzania	EA-2
ZAM/1/2010	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/3/2010	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/4/2010	n/a	cattle	WRLFMD	Zambia	EA-2
COD/6/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/7/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/77/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/19/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/36/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/71/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/68/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/83/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/81/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/82/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/80/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/15/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/47/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/63/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/99/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/106/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/51/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2

continued on next page

label	accession	host(s)	lab	country	taxonomic information
COD/102/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/60/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/95/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/90/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/55/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/57/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/104/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/101/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/21/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/91/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/93/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/92/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/66/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/13/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/59/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/11/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/64/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/58/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/53/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/65/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/10/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/100/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/105/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2

continued on next page

label	accession	host(s)	lab	country	taxonomic information
MAL/1/98	DQ165074	n/a	WRLFMD	Malawi	EA-2
TAN/1/2004	KF561678	bovine	WRLFMD	Tanzania	EA-2
TAN/2/2004	KF561679	bovine	WRLFMD	Tanzania	EA-2
K117/99*	HM625676	bovine	Makerere University	Kenya	EA-2
K82/98*	HM756603	bovine	Makerere University	Kenya	EA-2
KEN/11/2011	n/a	cattle	WRLFMD	Kenya	EA-2
K11/93*	HM756598	bovine	Makerere University	Kenya	EA-2
K130/00*	HM756608	bovine	Makerere University	Kenya	EA-2
KEN/5/2002	DQ165073	bovine	WRLFMD	Kenya	EA-2
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA
IND/R2/75*	AF204276	n/a	PD-FMD	India	ME-SA
OMN/7/2001	DQ164941	bovine	WRLFMD	Oman	ME-SA/Ind-2001/b
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
IRN/88/2009	KY091282	n/a	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
PAK/16/2010	KY091285	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/PUN-10
IND/53/79	AF292107	bovine	PD-FMD	India	ME-SA
ETH/1/2007	FJ798137	cattle	WRLFMD	Ethiopia	EA-3
SUD/2/86	DQ165075	bovine	WRLFMD	Sudan	EA-3
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

*, not a WRLFMD Reference Number

n/a, not available