

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

Genotyping Report

FMDV serotype: SAT2
Country: Uganda
Year: 2016
Batch: WRLMEG/2020/00003B
No. of sequences: 2
Report date: 19th January 2020
Report generated by: Nick Knowles
Report checked by: Antonello Di Nardo



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

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Virus sample name:	NAK-026-P/UGA/2016
Sender reference:	SAT2/NAK-026-P
Location of origin:	Nakapiripirit, Northern Region
Country of origin:	Uganda
Date of collection:	2016
Host species:	cattle
Serotype:	SAT2
Topotype:	IV
Lineage:	
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:	18/01/2020
Last updated:	18/01/2020
VIBASys IDs: sample 43055, genome 43056, sequence viba_43057, sequencing info 43058	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_43061	NAK-037-P/UGA/2016	cattle	97.8	0	SAT2	IV		
viba_11239	KEN/21/2008	cattle	90.8	0	SAT2	IV		
viba_11231	KEN/18/2008	cattle	90.8	0	SAT2	IV		
viba_6515	KEN/32/2004	cattle	90.7	0	SAT2	IV		
viba_28871	K37/86		90.7	0	SAT2	IV		
viba_6547	TAN/21/2004	cattle	90.7	0	SAT2	IV		
viba_28883	K13/87		90.7	0	SAT2	IV		
viba_6503	KEN/13/2004	cattle	90.7	0	SAT2	IV		
viba_10364	KEN/22/2007	cattle	90.5	0	SAT2	IV		
viba_10348	KEN/13/2007	cattle	90.5	0	SAT2	IV		

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_248	KEN/1/84	bovine	86.1	0	SAT2	IV		
viba_273	ETH/1/90	bovine	84.6	0	SAT2	IV		
viba_111	MAL/1/2003	bovine	79.2	0	SAT2	I		
viba_752	SA/106/59		78.6	0	SAT2	I		
viba_451	BOT/P3/98 VUM-29	African buffalo	78.1	1	SAT2	III		
viba_183	ZIM/14/2002	bovine	77.9	0	SAT2	I		
viba_380	RHO/1/48		77.1	0	SAT2	III		
viba_546	ZIM/5/81	bovine	74.3	0	SAT2	II		
viba_567	ZIM/7/83	bovine	74.1	0	SAT2	II		
viba_456	ZAI/1/82	bovine	72.6	1	SAT2	X		

Virus sample name:	NAK-037-P/UGA/2016
Sender reference:	SAT2/NAK-037-P
Location of origin:	Nakapiripirit, Northern Region
Country of origin:	Uganda
Date of collection:	2016
Host species:	cattle
Serotype:	SAT2
Topotype:	IV
Lineage:	
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:	18/01/2020
Last updated:	18/01/2020
VIBASys IDs: sample 43059, genome 43060, sequence viba_43061, sequencing info 43062	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_43057	NAK-026-P/UGA/2016	cattle	97.8	0	SAT2	IV		
viba_6515	KEN/32/2004	cattle	91.3	0	SAT2	IV		
viba_11239	KEN/21/2008	cattle	91.3	0	SAT2	IV		
viba_28871	K37/86		91.3	0	SAT2	IV		
viba_11231	KEN/18/2008	cattle	91.3	0	SAT2	IV		
viba_6547	TAN/21/2004	cattle	91.3	0	SAT2	IV		
viba_28883	K13/87		91.3	0	SAT2	IV		
viba_6503	KEN/13/2004	cattle	91.3	0	SAT2	IV		
viba_11235	KEN/19/2008	cattle	91.1	0	SAT2	IV		
viba_6511	KEN/22/2004	cattle	91.1	0	SAT2	IV		

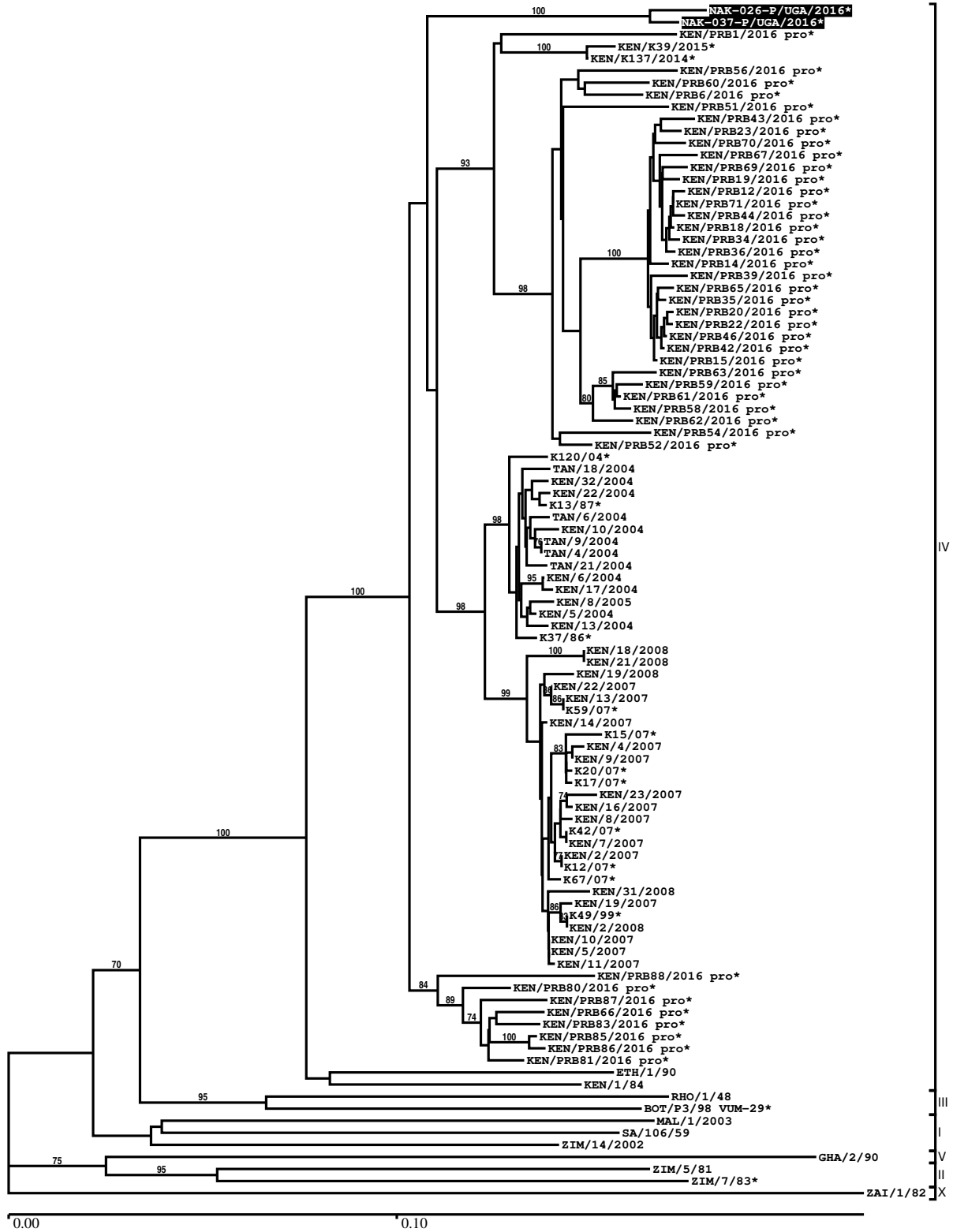
Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_248	KEN/1/84	bovine	86.8	0	SAT2	IV		
viba_273	ETH/1/90	bovine	85.0	0	SAT2	IV		
viba_111	MAL/1/2003	bovine	79.5	0	SAT2	I		
viba_451	BOT/P3/98 VUM-29	African buffalo	78.7	1	SAT2	III		
viba_183	ZIM/14/2002	bovine	78.6	0	SAT2	I		
viba_752	SA/106/59		78.4	0	SAT2	I		
viba_380	RHO/1/48		77.0	0	SAT2	III		
viba_567	ZIM/7/83	bovine	74.1	0	SAT2	II		
viba_546	ZIM/5/81	bovine	73.9	0	SAT2	II		
viba_728	GHA/2/90	bovine	73.0	0	SAT2	V		

Report on FMDV SAT2 in Uganda in 2016

Batch: WRLMEG/2020/00003B



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_SAT2
Query sequence set:	WRLMEG/2020/00003B-Uganda-SAT2 (2 sequences)
Sequence database set:	allseqs_SAT2 (1000 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:	11
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
NAK-026-P/UGA/2016*	MH367435	cattle	PIADC	Uganda	IV
NAK-037-P/UGA/2016*	MH367436	cattle	PIADC	Uganda	IV
KEN/PRB1/2016 pro*	MH882614	African buffalo	PIADC	Kenya	IV
KEN/K39/2015*	MH882613	cattle	PIADC	Kenya	IV
KEN/K137/2014*	MH882612	cattle	PIADC	Kenya	IV
KEN/PRB56/2016 pro*	MH882640	African buffalo	PIADC	Kenya	IV
KEN/PRB60/2016 pro*	MH882643	African buffalo	PIADC	Kenya	IV
KEN/PRB6/2016 pro*	MH882615	African buffalo	PIADC	Kenya	IV
KEN/PRB51/2016 pro*	MH882637	African buffalo	PIADC	Kenya	IV
KEN/PRB43/2016 pro*	MH882632	African buffalo	PIADC	Kenya	IV
KEN/PRB23/2016 pro*	MH882624	African buffalo	PIADC	Kenya	IV
KEN/PRB70/2016 pro*	MH882652	African buffalo	PIADC	Kenya	IV
KEN/PRB67/2016 pro*	MH882649	African buffalo	PIADC	Kenya	IV
KEN/PRB69/2016 pro*	MH882651	African buffalo	PIADC	Kenya	IV
KEN/PRB19/2016 pro*	MH882621	African buffalo	PIADC	Kenya	IV
KEN/PRB12/2016 pro*	MH882616	African buffalo	PIADC	Kenya	IV
KEN/PRB71/2016 pro*	MH882653	African buffalo	PIADC	Kenya	IV
KEN/PRB44/2016 pro*	MH882633	African buffalo	PIADC	Kenya	IV
KEN/PRB18/2016 pro*	MH882620	African buffalo	PIADC	Kenya	IV
KEN/PRB34/2016 pro*	MH882625	African buffalo	PIADC	Kenya	IV
KEN/PRB36/2016 pro*	MH882627	African buffalo	PIADC	Kenya	IV
KEN/PRB14/2016 pro*	MH882618	African buffalo	PIADC	Kenya	IV
KEN/PRB39/2016 pro*	MH882628	African buffalo	PIADC	Kenya	IV
KEN/PRB65/2016 pro*	MH882647	African buffalo	PIADC	Kenya	IV
KEN/PRB35/2016 pro*	MH882626	African buffalo	PIADC	Kenya	IV
KEN/PRB20/2016 pro*	MH882622	African buffalo	PIADC	Kenya	IV
KEN/PRB22/2016 pro*	MH882623	African buffalo	PIADC	Kenya	IV
KEN/PRB46/2016 pro*	MH882634	African buffalo	PIADC	Kenya	IV
KEN/PRB42/2016 pro*	MH882631	African buffalo	PIADC	Kenya	IV
KEN/PRB15/2016 pro*	MH882619	African buffalo	PIADC	Kenya	IV
KEN/PRB63/2016 pro*	MH882646	African buffalo	PIADC	Kenya	IV
KEN/PRB59/2016 pro*	MH882642	African buffalo	PIADC	Kenya	IV
KEN/PRB61/2016 pro*	MH882644	African buffalo	PIADC	Kenya	IV
KEN/PRB58/2016 pro*	MH882641	African buffalo	PIADC	Kenya	IV
KEN/PRB62/2016 pro*	MH882645	African buffalo	PIADC	Kenya	IV
KEN/PRB54/2016 pro*	MH882639	African buffalo	PIADC	Kenya	IV

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label	accession	host(s)	lab	country	taxonomic information
KEN/PRB52/2016 pro*	MH882638	African buffalo	PIADC	Kenya	IV
K120/04*	HM623700	n/a	n/a	Kenya	IV
TAN/18/2004	KF561725	cattle	WRLFMD	Tanzania	IV
KEN/32/2004	n/a	cattle	WRLFMD	Kenya	IV
KEN/22/2004	n/a	cattle	WRLFMD	Kenya	IV
K13/87*	HM623687	n/a	Makerere University	Kenya	IV
TAN/6/2004	KF561723	cattle	WRLFMD	Tanzania	IV
KEN/10/2004	n/a	cattle	WRLFMD	Kenya	IV
TAN/9/2004	KF561724	cattle	WRLFMD	Tanzania	IV
TAN/4/2004	KF561722	cattle	WRLFMD	Tanzania	IV
TAN/21/2004	KF561726	cattle	WRLFMD	Tanzania	IV
KEN/6/2004	n/a	cattle	WRLFMD	Kenya	IV
KEN/17/2004	n/a	cattle	WRLFMD	Kenya	IV
KEN/8/2005	n/a	cattle	WRLFMD	Kenya	IV
KEN/5/2004	n/a	cattle	WRLFMD	Kenya	IV
KEN/13/2004	n/a	cattle	WRLFMD	Kenya	IV
K37/86*	HM623686	n/a	Makerere University	Kenya	IV
KEN/18/2008	n/a	cattle	WRLFMD	Kenya	IV
KEN/21/2008	n/a	cattle	WRLFMD	Kenya	IV
KEN/19/2008	n/a	cattle	WRLFMD	Kenya	IV
KEN/22/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/13/2007	n/a	cattle	WRLFMD	Kenya	IV
K59/07*	HM623708	n/a	n/a	Kenya	IV
KEN/14/2007	n/a	cattle	WRLFMD	Kenya	IV
K15/07*	HM623704	n/a	n/a	Kenya	IV
KEN/4/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/9/2007	n/a	cattle	WRLFMD	Kenya	IV
K20/07*	HM623706	n/a	n/a	Kenya	IV
K17/07*	HM623705	n/a	n/a	Kenya	IV
KEN/23/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/16/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/8/2007	n/a	cattle	WRLFMD	Kenya	IV
K42/07*	HM623707	n/a	n/a	Kenya	IV
KEN/7/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/2/2007	n/a	cattle	WRLFMD	Kenya	IV
K12/07*	HM623703	n/a	n/a	Kenya	IV
K67/07*	HM623709	n/a	n/a	Kenya	IV
KEN/31/2008	n/a	cattle	WRLFMD	Kenya	IV
KEN/19/2007	n/a	cattle	WRLFMD	Kenya	IV
K49/99*	HM623698	n/a	Makerere University	Kenya	IV
KEN/2/2008	n/a	cattle	WRLFMD	Kenya	IV
KEN/10/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/5/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/11/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/PRB88/2016 pro*	MH882663	African buffalo	PIADC	Kenya	IV
KEN/PRB80/2016 pro*	MH882657	African buffalo	PIADC	Kenya	IV
KEN/PRB87/2016 pro*	MH882662	African buffalo	PIADC	Kenya	IV
KEN/PRB66/2016 pro*	MH882648	African buffalo	PIADC	Kenya	IV
KEN/PRB83/2016 pro*	MH882659	African buffalo	PIADC	Kenya	IV
KEN/PRB85/2016 pro*	MH882660	African buffalo	PIADC	Kenya	IV
KEN/PRB86/2016 pro*	MH882661	African buffalo	PIADC	Kenya	IV
KEN/PRB81/2016 pro*	MH882658	African buffalo	PIADC	Kenya	IV
ETH/1/90	AY343935	bovine	OVI	Ethiopia	IV
KEN/1/84	AY344505	bovine	OVI	Kenya	IV
RHO/1/48	AY593847	n/a	PIADC	Rhodesia	III
BOT/P3/98 VUM-29*	AF367124	African buffalo	OVI	Botswana	III
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
GHA/2/90	AF479415	bovine	OVI	Ghana	V
ZIM/5/81	EF134951	bovine	WRLFMD	Zimbabwe	II
ZIM/7/83*	AF136607	bovine	OVI	Zimbabwe	II
ZAI/1/82	AF367100	bovine	OVI	Zaire	X

*, not a WRLFMD Reference Number
n/a, not available