

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

Genotyping Report

FMDV serotype: O
Country: Ghana
Year: 2016
Batch: WRLFMD/2017/00024
No. of sequences: 1
Report date: 9th November 2017
Report generated by: Kasia Bankowska
Report checked by: Nick Knowles



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

email: reporting@pirbright.ac.uk

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Virus sample name:	GHA/1/2016
Sender reference:	GHA7/16
Location of origin:	n/a
Country of origin:	Ghana
Date of collection:	2016
Host species:	cattle
Serotype:	O
Topotype:	WA
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	24/10/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	30/10/2017
Created:	01/11/2017
Last updated:	01/11/2017
VIBASys IDs: sample 35193, genome 35194, sequence viba_35195, sequencing info 35196	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_26163	NGR/16/15	cattle	96.5	0	O	WA		
viba_26159	NGR/15/15	cattle	96.5	0	O	WA		
viba_26167	NGR/21/15	cattle	96.4	0	O	WA		
viba_26171	NGR/24/15	cattle	96.4	0	O	WA		
viba_26146	NGR/4/2015	bovine	96.4	0	O	WA		
viba_26155	NGR/11/15	cattle	95.9	0	O	WA		
viba_32813	BEN/40/2010	cattle	93.2	0	O	WA		
viba_32793	BEN/26/2010	cattle	92.9	0	O	WA		
viba_7726	TOG/4/2005	cattle	89.9	0	O	WA		
viba_7722	TOG/3/2005	cattle	89.9	0	O	WA		

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_302	CIV/8/99	bovine	88.3	0	O	WA		
viba_104	GHA/5/93	bovine	84.9	0	O	WA		
viba_523	K83/79		84.0	0	O	EA-1		
viba_116	SUD/2/86	bovine	83.0	0	O	EA-3		
viba_580	UGA/5/96	bovine	82.9	0	O	EA-1		
viba_576	IND/R2/75		82.6	0	O	ME-SA		
viba_397	UAE/4/2008	gazelle	82.4	0	O	ME-SA	Ind-2001	c
viba_617	IND/53/79	bovine	82.3	0	O	ME-SA		
viba_50	UGA/17/98		82.1	0	O	EA-4		
viba_705	KUW/3/97	bovine	82.1	0	O	ME-SA	Ind-2001	a

Report on FMDV O in Ghana in 2016

Batch: WRLFMD/2017/00024



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor: vp1_O
 Query sequence set: WRLFMD/2017/00024-Ghana-O (1 sequences)
 Sequence database set: allseqs_O (3638 sequences)
 Prototype sequence set: !prototypes_O (47 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: 10
 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
GHA/1/2016	n/a	cattle	WRLFMD	Ghana	WA
NGR/11/15*	KX424677	cattle	BVI	Niger	WA
NGR/24/15*	KX424682	cattle	BVI	Niger	WA
NGR/4/2015	KX424680	bovine	WRLFMD	Niger	WA
NGR/21/15*	KX424681	cattle	BVI	Niger	WA
NGR/15/15*	KX424678	cattle	BVI	Niger	WA
NGR/16/15*	KX424679	cattle	BVI	Niger	WA
BEN/26/2010*	KC832981	cattle	ANSES	Benin	WA
BEN/40/2010*	KC832986	cattle	ANSES	Benin	WA
Lam/GHA/2012*	KF305227	cattle	ANSES	Ghana	WA
BEN/42/2010*	KC832987	cattle	ANSES	Benin	WA
BEN/9/2010*	KC832975	cattle	ANSES	Benin	WA
BEN/30/2010*	KC832983	cattle	ANSES	Benin	WA
BEN/20/2010*	KC832977	cattle	ANSES	Benin	WA
BEN/1/2010*	KC832973	cattle	ANSES	Benin	WA
BEN/25/2010*	KC832980	cattle	ANSES	Benin	WA
BEN/33/2010*	KC832985	cattle	ANSES	Benin	WA
BEN/2/2010*	KC832974	cattle	ANSES	Benin	WA
BEN/21/2010*	KC832978	cattle	ANSES	Benin	WA
BEN/22/2010*	KC832979	cattle	ANSES	Benin	WA
BEN/14/2010*	KC832976	cattle	ANSES	Benin	WA
BEN/32/2010*	KC832984	cattle	ANSES	Benin	WA
BEN/28/2010*	KC832982	cattle	ANSES	Benin	WA
NIG/1/2016	n/a	cattle	WRLFMD	Nigeria	WA
NIG/3/2011	KX258023	bovine	WRLFMD	Nigeria	WA
TOG/3/2005	KX258040	cattle	WRLFMD	Togo	WA
TOG/4/2005	KX258041	cattle	WRLFMD	Togo	WA
TOG/1/2005	KX258039	cattle	WRLFMD	Togo	WA
TOG/1/2004	KX258038	cattle	WRLFMD	Togo	WA
NGR/14/2005	KX258019	cattle	WRLFMD	Niger	WA
NGR/10/2005	KX258018	cattle	WRLFMD	Niger	WA
NGR/3/2005	KX258017	cattle	WRLFMD	Niger	WA
MAI/2/2005	KX258008	cattle	n/a	Mali	WA
MAI/3/2005	KX258009	cattle	n/a	Mali	WA
MAI/1/2005	KX258007	cattle	n/a	Mali	WA
BKF/1/2002	KX258000	n/a	WRLFMD	Burkina Faso	WA

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label	accession	host(s)	lab	country	taxonomic information
TUN/1/99	KX258042	n/a	WRLFMD	Tunisia	WA
GNA/6/99	KX258005	bovine	WRLFMD	Guinea	WA
CIV/8/99	AJ303485	bovine	WRLFMD	Cote d'Ivoire	WA
GNA/4/99	DQ165071	n/a	WRLFMD	Guinea	WA
GNA/10/99	KX258006	bovine	n/a	Guinea	WA
MOR/2/99	KX258015	n/a	WRLFMD	Morocco	WA
NGR/11/2001	KX258016	n/a	WRLFMD	Niger	WA
MAI/17/2006	KX258012	n/a	WRLFMD	Mali	WA
SEN/8/2006	KX258032	cattle	WRLFMD	Senegal	WA
MAI/15/2006	KX258011	n/a	WRLFMD	Mali	WA
MAI/11/2006	KX258010	n/a	WRLFMD	Mali	WA
MAU/33/2001	KX258014	n/a	WRLFMD	Mauritania	WA
SEN/2/2001	KX424684	cattle	WRLFMD	Senegal	WA
MAU/19/2000	KX258013	n/a	WRLFMD	Mauritania	WA
GHA/5/93	AJ303488	bovine	WRLFMD	Ghana	WA
CAR/6/89	KX258099	n/a	WRLFMD	Cameroon	WA
CAR/76/2005	KX258114	cattle	WRLFMD	Cameroon	WA
CAR/77/2005	KX258115	cattle	WRLFMD	Cameroon	WA
CAR/27/2005	KX258108	cattle	WRLFMD	Cameroon	WA
CAR/28/2005	KX258109	cattle	WRLFMD	Cameroon	WA
CAR/103/2005	KX258124	cattle	WRLFMD	Cameroon	WA
CAR/91/2005	KX258121	cattle	WRLFMD	Cameroon	WA
CAR/84/2005	KX258117	cattle	WRLFMD	Cameroon	WA
CAR/82/2005	KX258116	cattle	WRLFMD	Cameroon	WA
CAR/93/2005	KX258122	cattle	WRLFMD	Cameroon	WA
CAR/54/2005	KX258111	cattle	WRLFMD	Cameroon	WA
CAR/71/2005	KX258113	cattle	WRLFMD	Cameroon	WA
CAR/97/2005	KX258123	cattle	WRLFMD	Cameroon	WA
CAR/11/2005	KX258103	cattle	WRLFMD	Cameroon	WA
CAR/10/2005	KX258102	cattle	WRLFMD	Cameroon	WA
CAR/65/2005	KX258112	cattle	WRLFMD	Cameroon	WA
CAR/52/2005	KX258110	cattle	WRLFMD	Cameroon	WA
CAR/88/2005	KX258120	cattle	WRLFMD	Cameroon	WA
CAR/86/2005	KX258118	cattle	WRLFMD	Cameroon	WA
CAR/87/2005	KX258119	cattle	WRLFMD	Cameroon	WA
CAR/3/2005	KX258101	cattle	WRLFMD	Cameroon	WA
CAR/2/2005	KX258100	cattle	WRLFMD	Cameroon	WA
CAR/820/2012*	KU720581	cattle	PIADC	Cameroon	WA
CAR/791/2012*	KU720580	cattle	PIADC	Cameroon	WA
CAR/777/2012*	KU720578	cattle	PIADC	Cameroon	WA
CAR/766/2012*	KU720574	cattle	PIADC	Cameroon	WA
CAR/786/2012*	KU720579	cattle	PIADC	Cameroon	WA
CAR/773/2012*	KU720576	cattle	PIADC	Cameroon	WA
CAR/776/2012*	KU720577	cattle	PIADC	Cameroon	WA
CAR/769/2012*	KU720575	cattle	PIADC	Cameroon	WA
NIG/4/2012	KX258026	bovine	WRLFMD	Nigeria	WA
NIG/5/2012	KX258027	bovine	WRLFMD	Nigeria	WA
CAR/17/2000	HM211081	n/a	WRLFMD	Cameroon	WA
CAR/16/2000	HM211080	n/a	WRLFMD	Cameroon	WA
SUD/1/76	KX258037	n/a	WRLFMD	Sudan	WA
SUD/1/76	n/a	n/a	WRLFMD	Sudan	WA
SUD/3/83	GU566036	n/a	WRLFMD	Sudan	WA
NGR/1/88	KX424683	n/a	WRLFMD	Niger	WA
CAR/12/88	KX258098	n/a	WRLFMD	Cameroon	WA
CAR/1/88	KX258097	n/a	WRLFMD	Cameroon	WA
UGA/5/96	AJ296327	bovine	WRLFMD	Uganda	EA-1
K83/79*	AJ303511	n/a	WRLFMD	Kenya	EA-1
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA
IND/R2/75*	AF204276	n/a	PD-FMD	India	ME-SA
IND/53/79	AF292107	bovine	PD-FMD	India	ME-SA
UAE/4/2008	KM921876	gazelle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/c
KUW/3/97	DQ164904	bovine	WRLFMD	Kuwait	ME-SA/Ind-2001/a
SUD/2/86	DQ165075	bovine	WRLFMD	Sudan	EA-3
UGA/17/98	HM211075	n/a	WRLFMD	Uganda	EA-4
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

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