

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

Genotyping Report

FMDV serotype: O
Country: Bahrain
Year: 2021
Batch: WRLFMD/2021/00005
No. of sequences: 3
Report date: 29th March 2021
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth



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

email: reporting@pirbright.ac.uk

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Virus sample name:	BAR/17/2021
Sender reference:	46-1220
Location of origin:	Ref .V.Q .57129, Buri, Alshamalia
Country of origin:	Bahrain
Date of collection:	02/02/2021
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	13/03/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	24/03/2021
Created:	29/03/2021
Last updated:	29/03/2021
VIBASys IDs: sample 47684, genome 47685, sequence viba_47686, sequencing info 47687	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_47690	BAR/18/2021	cattle	100.0	0	O	EA-3		
viba_47694	BAR/20/2021	cattle	99.8	0	O	EA-3		
viba_25427	ETH/6/2015	cattle	95.3	0	O	EA-3		
viba_9193	YEM/3/2006	cattle	93.7	0	O	EA-3		
viba_11094	YEM/5/2008	cattle	93.4	0	O	EA-3		
viba_11098	YEM/6/2008	cattle	93.4	0	O	EA-3		
viba_11106	YEM/8/2008	cattle	93.4	0	O	EA-3		
viba_9197	YEM/4/2006	cattle	93.2	0	O	EA-3		
viba_11102	YEM/7/2008	cattle	93.2	0	O	EA-3		
viba_11090	YEM/4/2008	cattle	93.2	0	O	EA-3		

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_854	ETH/1/2007	cattle	91.3	0	O	EA-3		
viba_116	SUD/2/86	bovine	89.9	0	O	EA-3		
viba_408	ETH/3/2004	cattle	88.9	0	O	EA-3		
viba_30238	MUR/19/2016	cattle	86.5	0	O	ME-SA	Ind-2001	e
viba_285	UKG/35/2001	porcine	86.3	0	O	ME-SA	PanAsia	
viba_617	IND/53/79	bovine	86.3	0	O	ME-SA		
viba_705	KUW/3/97	bovine	86.3	0	O	ME-SA	Ind-2001	a
viba_850	NEP/1/2015	cattle	86.0	1	O	ME-SA	PanAsia-2	KAT-15
viba_74	KEN/5/2002	bovine	85.9	0	O	EA-2		
viba_523	K83/79		85.8	0	O	EA-1		

Virus sample name:	BAR/18/2021
Sender reference:	47-1187
Location of origin:	Ref .V.Q .57129, Buri, Alshamalia
Country of origin:	Bahrain
Date of collection:	02/02/2021
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	13/03/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	24/03/2021
Created:	29/03/2021
Last updated:	29/03/2021
VIBASys IDs: sample 47688, genome 47689, sequence viba_47690, sequencing info 47691	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_47686	BAR/17/2021	cattle	100.0	0	O	EA-3		
viba_47694	BAR/20/2021	cattle	99.8	0	O	EA-3		
viba_25427	ETH/6/2015	cattle	95.3	0	O	EA-3		
viba_9193	YEM/3/2006	cattle	93.7	0	O	EA-3		
viba_11094	YEM/5/2008	cattle	93.4	0	O	EA-3		
viba_11098	YEM/6/2008	cattle	93.4	0	O	EA-3		
viba_11106	YEM/8/2008	cattle	93.4	0	O	EA-3		
viba_9197	YEM/4/2006	cattle	93.2	0	O	EA-3		
viba_11102	YEM/7/2008	cattle	93.2	0	O	EA-3		
viba_11090	YEM/4/2008	cattle	93.2	0	O	EA-3		

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_854	ETH/1/2007	cattle	91.3	0	O	EA-3		
viba_116	SUD/2/86	bovine	89.9	0	O	EA-3		
viba_408	ETH/3/2004	cattle	88.9	0	O	EA-3		
viba_30238	MUR/19/2016	cattle	86.5	0	O	ME-SA	Ind-2001	e
viba_285	UKG/35/2001	porcine	86.3	0	O	ME-SA	PanAsia	
viba_617	IND/53/79	bovine	86.3	0	O	ME-SA		
viba_705	KUW/3/97	bovine	86.3	0	O	ME-SA	Ind-2001	a
viba_850	NEP/1/2015	cattle	86.0	1	O	ME-SA	PanAsia-2	KAT-15
viba_74	KEN/5/2002	bovine	85.9	0	O	EA-2		
viba_523	K83/79		85.8	0	O	EA-1		

Virus sample name:	BAR/20/2021
Sender reference:	45-22
Location of origin:	Ref .V.Q .57129, Buri, Alshamalia
Country of origin:	Bahrain
Date of collection:	02/02/2021
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	13/03/2021
Primers:	O-1C244F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	24/03/2021
Created:	29/03/2021
Last updated:	29/03/2021

VIBASys IDs: sample 47692, genome 47693, sequence viba_47694, sequencing info 47695

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_47690	BAR/18/2021	cattle	99.8	0	O	EA-3		
viba_47686	BAR/17/2021	cattle	99.8	0	O	EA-3		
viba_25427	ETH/6/2015	cattle	95.1	0	O	EA-3		
viba_9193	YEM/3/2006	cattle	93.5	0	O	EA-3		
viba_11094	YEM/5/2008	cattle	93.2	0	O	EA-3		
viba_11098	YEM/6/2008	cattle	93.2	0	O	EA-3		
viba_11106	YEM/8/2008	cattle	93.2	0	O	EA-3		
viba_9197	YEM/4/2006	cattle	93.0	0	O	EA-3		
viba_11102	YEM/7/2008	cattle	93.0	0	O	EA-3		
viba_11090	YEM/4/2008	cattle	93.0	0	O	EA-3		

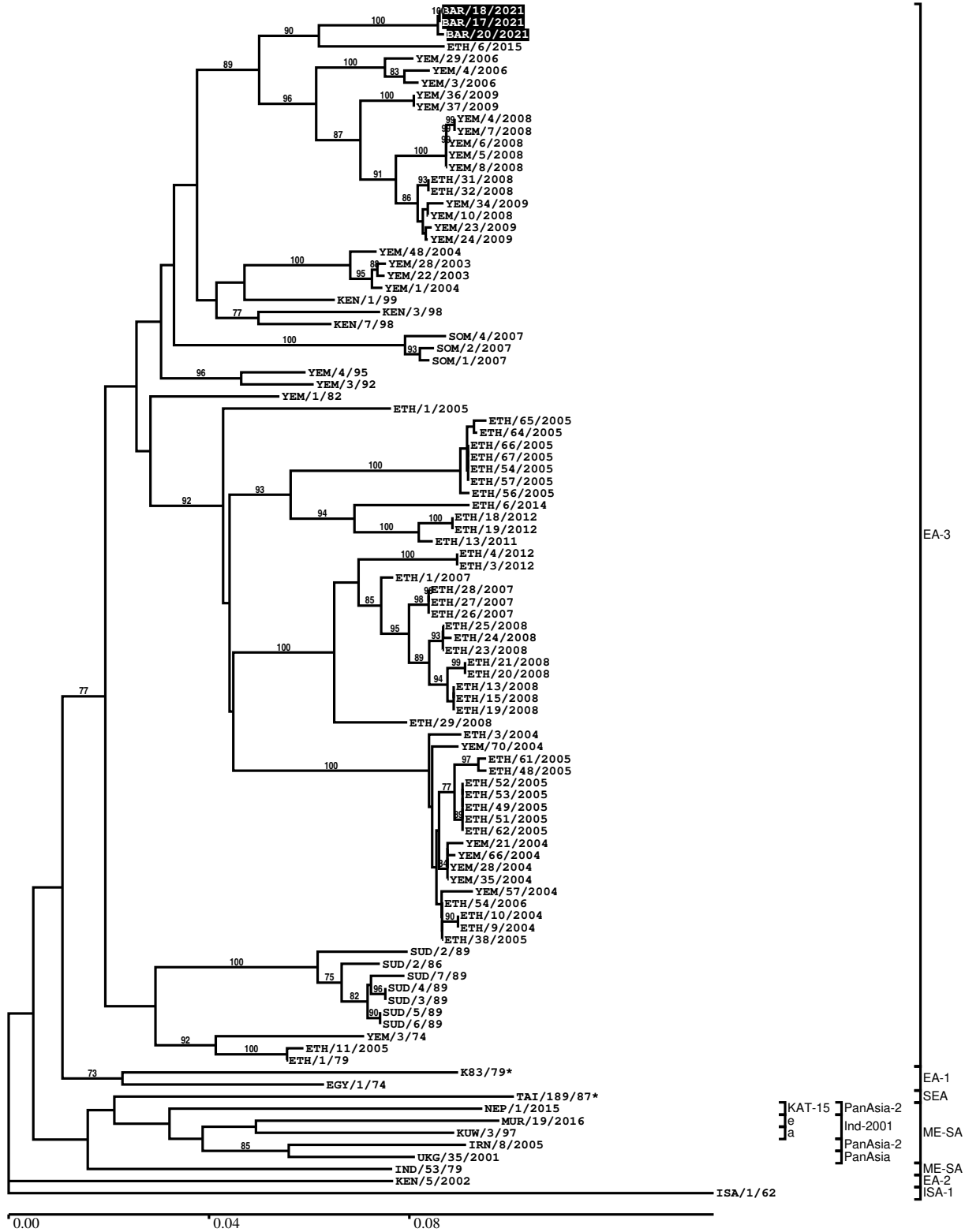
Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_854	ETH/1/2007	cattle	91.2	0	O	EA-3		
viba_116	SUD/2/86	bovine	89.7	0	O	EA-3		
viba_408	ETH/3/2004	cattle	89.1	0	O	EA-3		
viba_30238	MUR/19/2016	cattle	86.6	0	O	ME-SA	Ind-2001	e
viba_285	UKG/35/2001	porcine	86.4	0	O	ME-SA	PanAsia	
viba_705	KUW/3/97	bovine	86.4	0	O	ME-SA	Ind-2001	a
viba_74	KEN/5/2002	bovine	86.1	0	O	EA-2		
viba_617	IND/53/79	bovine	86.1	0	O	ME-SA		
viba_850	NEP/1/2015	cattle	85.9	1	O	ME-SA	PanAsia-2	KAT-15
viba_650	IRN/8/2005	ovine	85.8	0	O	ME-SA	PanAsia-2	

Report on FMDV O in Bahrain in 2021

Batch: WRLFMD/2021/00005



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLFMD/2021/00005-Bahrain-O (3 sequences)
Sequence database set:	allseqs_O (5160 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:	11
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
BAR/18/2021	n/a	cattle	WRLFMD	Bahrain	EA-3
BAR/17/2021	n/a	cattle	WRLFMD	Bahrain	EA-3
BAR/20/2021	n/a	cattle	WRLFMD	Bahrain	EA-3
ETH/6/2015	MN987423	cattle	WRLFMD	Ethiopia	EA-3
YEM/29/2006	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/4/2006	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/3/2006	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/36/2009	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/37/2009	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/4/2008	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/7/2008	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/6/2008	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/5/2008	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/8/2008	n/a	cattle	WRLFMD	Yemen	EA-3
ETH/31/2008	MN987362	cattle	WRLFMD	Ethiopia	EA-3
ETH/32/2008	MN987363	cattle	WRLFMD	Ethiopia	EA-3
YEM/34/2009	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/10/2008	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/23/2009	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/24/2009	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/48/2004	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/28/2003	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/22/2003	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/1/2004	n/a	cattle	WRLFMD	Yemen	EA-3
KEN/1/99	KF135267	bovine	WRLFMD	Kenya	EA-3
KEN/3/98	n/a	bovine	WRLFMD	Kenya	EA-3
KEN/7/98	KF135266	bovine	WRLFMD	Kenya	EA-3
SOM/4/2007	n/a	cattle	WRLFMD	Somalia	EA-3
SOM/2/2007	n/a	cattle	WRLFMD	Somalia	EA-3
SOM/1/2007	n/a	cattle	WRLFMD	Somalia	EA-3
YEM/4/95	n/a	n/a	WRLFMD	Yemen	EA-3
YEM/3/92	n/a	n/a	WRLFMD	Yemen	EA-3
YEM/1/82	n/a	caprine	WRLFMD	Yemen	EA-3
ETH/1/2005	FJ798106	bovine	WRLFMD	Ethiopia	EA-3
ETH/65/2005	FJ798124	bovine	WRLFMD	Ethiopia	EA-3
ETH/64/2005	FJ798123	bovine	WRLFMD	Ethiopia	EA-3

continued on next page

label	accession	host(s)	lab	country	taxonomic information
ETH/66/2005	FJ798125	bovine	WRLFMD	Ethiopia	EA-3
ETH/67/2005	FJ798126	bovine	WRLFMD	Ethiopia	EA-3
ETH/54/2005	FJ798118	bovine	WRLFMD	Ethiopia	EA-3
ETH/57/2005	FJ798121	bovine	WRLFMD	Ethiopia	EA-3
ETH/56/2005	FJ798120	bovine	WRLFMD	Ethiopia	EA-3
ETH/6/2014	MN987420	bovine	WRLFMD	Ethiopia	EA-3
ETH/18/2012	MN987417	bovine	WRLFMD	Ethiopia	EA-3
ETH/19/2012	MN987418	bovine	WRLFMD	Ethiopia	EA-3
ETH/13/2011	MN987400	cattle	WRLFMD	Ethiopia	EA-3
ETH/4/2012	MN987410	cattle	WRLFMD	Ethiopia	EA-3
ETH/3/2012	MN987409	cattle	WRLFMD	Ethiopia	EA-3
ETH/1/2007	FJ798137	cattle	WRLFMD	Ethiopia	EA-3
ETH/28/2007	FJ798140	cattle	WRLFMD	Ethiopia	EA-3
ETH/27/2007	FJ798139	cattle	WRLFMD	Ethiopia	EA-3
ETH/26/2007	FJ798138	n/a	WRLFMD	Ethiopia	EA-3
ETH/25/2008	MN987360	cattle	WRLFMD	Ethiopia	EA-3
ETH/24/2008	MN987359	cattle	WRLFMD	Ethiopia	EA-3
ETH/23/2008	MN987358	cattle	WRLFMD	Ethiopia	EA-3
ETH/21/2008	MN987357	cattle	WRLFMD	Ethiopia	EA-3
ETH/20/2008	MN987356	cattle	WRLFMD	Ethiopia	EA-3
ETH/13/2008	MN987353	cattle	WRLFMD	Ethiopia	EA-3
ETH/15/2008	MN987354	cattle	WRLFMD	Ethiopia	EA-3
ETH/19/2008	MN987355	cattle	WRLFMD	Ethiopia	EA-3
ETH/29/2008	MN987361	cattle	WRLFMD	Ethiopia	EA-3
ETH/3/2004	FJ798109	cattle	WRLFMD	Ethiopia	EA-3
YEM/70/2004	n/a	cattle	WRLFMD	Yemen	EA-3
ETH/61/2005	FJ798115	bovine	WRLFMD	Ethiopia	EA-3
ETH/48/2005	FJ798110	bovine	WRLFMD	Ethiopia	EA-3
ETH/52/2005	FJ798113	bovine	WRLFMD	Ethiopia	EA-3
ETH/53/2005	FJ798114	bovine	WRLFMD	Ethiopia	EA-3
ETH/49/2005	FJ798111	bovine	WRLFMD	Ethiopia	EA-3
ETH/51/2005	FJ798112	bovine	WRLFMD	Ethiopia	EA-3
ETH/62/2005	FJ798116	bovine	WRLFMD	Ethiopia	EA-3
YEM/21/2004	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/66/2004	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/28/2004	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/35/2004	n/a	cattle	WRLFMD	Yemen	EA-3
YEM/57/2004	n/a	cattle	WRLFMD	Yemen	EA-3
ETH/54/2006	FJ798117	cattle	WRLFMD	Ethiopia	EA-3
ETH/10/2004	MN518141	bovine	WRLFMD	Ethiopia	EA-3
ETH/9/2004	MN529583	bovine	WRLFMD	Ethiopia	EA-3
ETH/38/2005	FJ798108	bovine	WRLFMD	Ethiopia	EA-3
SUD/2/89	GU566037	n/a	WRLFMD	Sudan	EA-3
SUD/2/86	DQ165075	bovine	WRLFMD	Sudan	EA-3
SUD/7/89	GU566042	n/a	WRLFMD	Sudan	EA-3
SUD/4/89	GU566039	n/a	WRLFMD	Sudan	EA-3
SUD/3/89	GU566038	n/a	WRLFMD	Sudan	EA-3
SUD/5/89	GU566040	n/a	WRLFMD	Sudan	EA-3
SUD/6/89	GU566041	n/a	WRLFMD	Sudan	EA-3
YEM/3/74	n/a	cattle	WRLFMD	Yemen	EA-3
ETH/11/2005	FJ798107	bovine	WRLFMD	Ethiopia	EA-3
ETH/1/79	HM211077	cattle	WRLFMD	Ethiopia	EA-3
K83/79*	AJ303511	n/a	WRLFMD	Kenya	EA-1
EGY/1/74	n/a	n/a	WRLFMD	Egypt	EA-1
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA
NEP/1/2015	MN276045	cattle	WRLFMD	Nepal	ME-SA/PanAsia-2/KAT-15
MUR/19/2016	MG972510	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
KUW/3/97	DQ164904	bovine	WRLFMD	Kuwait	ME-SA/Ind-2001/a
IRN/8/2005	KY091281	ovine	WRLFMD	Iran	ME-SA/PanAsia-2
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
IND/53/79	AF292107	bovine	PD-FMD	India	ME-SA
KEN/5/2002	DQ165073	bovine	WRLFMD	Kenya	EA-2
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

*, not a WRLFMD Reference Number

n/a, not available