



FMD Genotyping Report

Lab Reference WRL batch Number: WRLMEG/2023/00018

Sender Details:

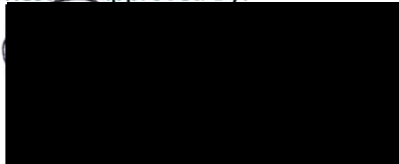


Date Received: 28/04/2023

Country of Origin*: OMAN

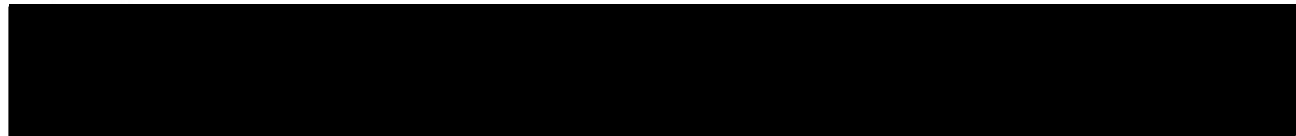
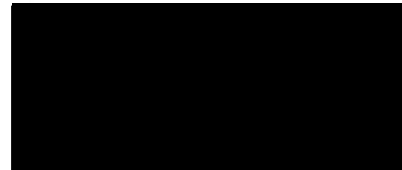
Work has now been completed in respect of the sequences recently submitted and the details are as attached. Please note that all of our phylogenetic trees can be accessed via the internet at: <http://www.wrlfmd.org/>

Results Approved By:



Date: 28/4/2023

Official Stamp:



To help us improve the quality of our service, please send any suggestions or requests to the Reference Laboratory by email (reflabsfeedback@pirbright.ac.uk).

* Data supplied by the customer

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

Genotyping Report

FMDV serotype:	SAT2
Country:	Oman
Year:	2023
Batch:	WRLMEG/2023/00018
No. of sequences:	2
Report date:	28th April 2023
Report generated by:	Nick Knowles
Report checked by:	Don King

This report has been prepared on behalf of the Central Laboratory of Animal Health (Oman), the Sultan Qaboos University (Oman) and the European Union Reference Laboratory (EURL), FAO Reference Centre & OIE Reference Laboratory for Foot-and-Mouth Disease chez Agence nationale de sécurité sanitaire –ANSES, Maisons-Alfort, Île-de-France, France and covers VP1 sequences submitted to the WRLFMD on 28/04/2023.



Copyright © 2023 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:	OMN/1434/2023
Sender reference:	OMN/1434/2023
Location of origin:	n/a
Country of origin:	Oman
Date of collection:	2023
Host species:	
Serotype:	SAT2
Topotype:	XIV
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:	28/03/2023
Last updated:	28/03/2023
VIBASys IDs: sample 52879, genome 52880, sequence viba_52881, sequencing info 52882	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51516	ETH/2/2022	bovine	99.2	0	SAT2	XIV		
viba_51520	ETH/3/2022	bovine	99.1	0	SAT2	XIV		
viba_52569	IRQ/2/2022	water buffalo	98.4	0	SAT2	XIV		
viba_52565	IRQ/1/2022	water buffalo	98.4	0	SAT2	XIV		
viba_52467	S19/Baghdad/IRQ/2022	water buffalo	98.4	0	SAT2	XIV		
viba_52573	IRQ/3/2022	water buffalo	98.4	0	SAT2	XIV		
viba_52577	IRQ/3/2023	cattle	98.4	0	SAT2	XIV		
viba_52593	IRQ/7/2023	cattle	98.4	0	SAT2	XIV		
viba_52471	S41/Nineveh/IRQ/2023	cattle	98.4	0	SAT2	XIV		
viba_52597	IRQ/8/2023	cattle	98.4	0	SAT2	XIV		

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_724	ETH/2/91	cattle	84.5	0	SAT2	XIV		
viba_139	ETH/2/2007	cattle	75.5	0	SAT2	XIII		
viba_752	SA/106/59		75.4	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	75.0	0	SAT2	I		
viba_728	GHA/2/90	bovine	75.0	0	SAT2	V		
viba_111	MAL/1/2003	bovine	74.9	0	SAT2	I		
viba_470	KEN/2/84	bovine	74.6	0	SAT2	IX		
viba_193	SUD/6/77		74.5	0	SAT2	XIII		
viba_500	NIG/2/75	bovine	74.4	0	SAT2	V		
viba_380	RHO/1/48		73.9	0	SAT2	III		

Virus sample name:	OMN/1436/2023
Sender reference:	OMN/1436/2023
Location of origin:	n/a
Country of origin:	Oman
Date of collection:	2023
Host species:	
Serotype:	SAT2
Topotype:	XIV
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:	28/03/2023
Last updated:	28/03/2023
VIBASys IDs: sample 52883, genome 52884, sequence viba_52885, sequencing info 52886	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51516	ETH/2/2022	bovine	98.1	0	SAT2	XIV		
viba_52881	OMN/1434/2023		98.1	0	SAT2	XIV		
viba_51520	ETH/3/2022	bovine	98.0	0	SAT2	XIV		
viba_52657	TUR/79/2023	cattle	97.5	0	SAT2	XIV		
viba_52569	IRQ/2/2022	water buffalo	97.5	0	SAT2	XIV		
viba_52565	IRQ/1/2022	water buffalo	97.5	0	SAT2	XIV		
viba_52467	S19/Baghdad/IRQ/2022	water buffalo	97.5	0	SAT2	XIV		
viba_52573	IRQ/3/2022	water buffalo	97.5	0	SAT2	XIV		
viba_52459	S26/Baghdad/IRQ/2022	water buffalo	97.5	0	SAT2	XIV		
viba_52471	S41/Nineveh/IRQ/2023	cattle	97.5	0	SAT2	XIV		

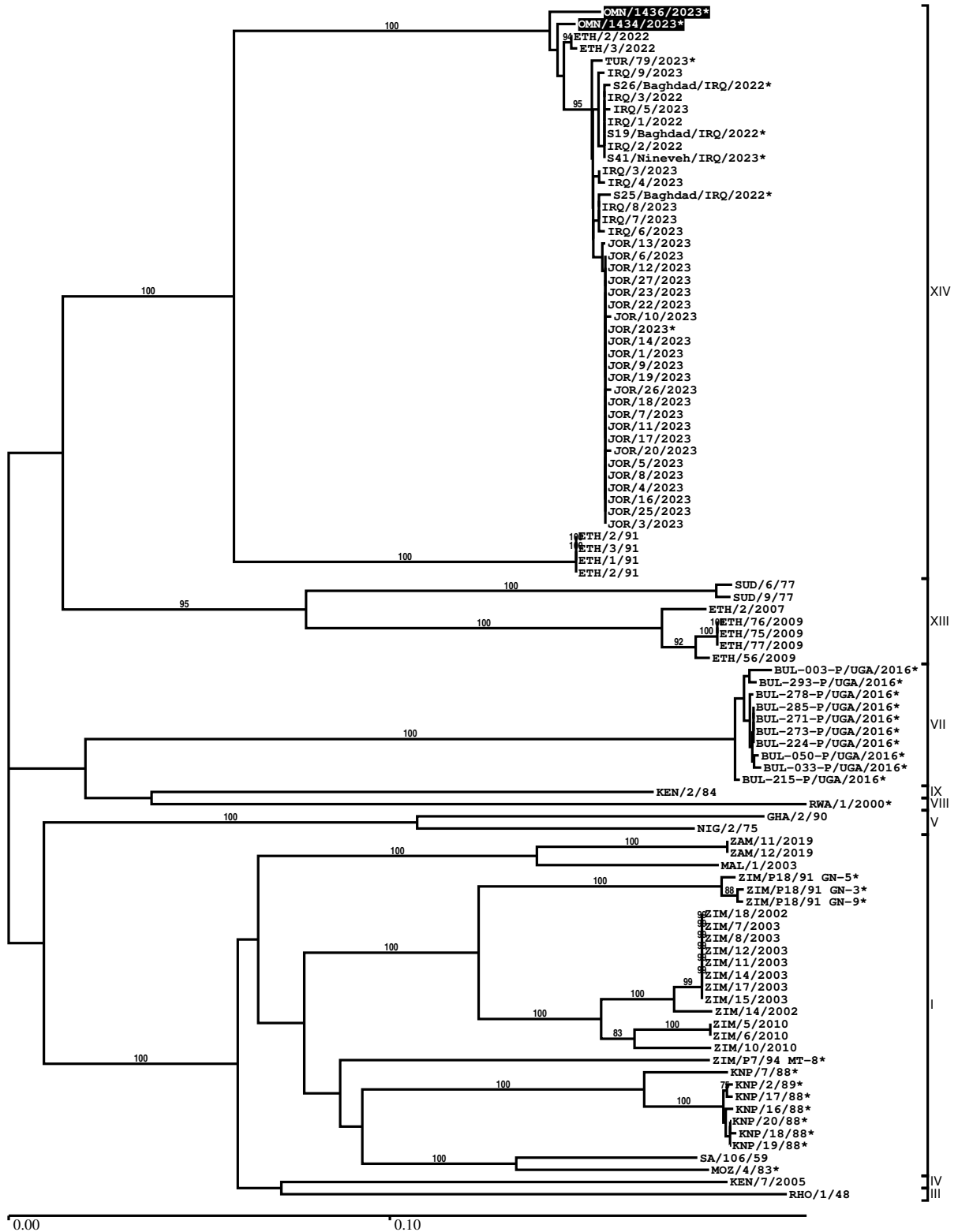
Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_724	ETH/2/91	cattle	84.2	0	SAT2	XIV		
viba_193	SUD/6/77		75.0	0	SAT2	XIII		
viba_470	KEN/2/84	bovine	74.7	0	SAT2	IX		
viba_139	ETH/2/2007	cattle	74.7	0	SAT2	XIII		
viba_111	MAL/1/2003	bovine	74.4	0	SAT2	I		
viba_752	SA/106/59		74.2	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	74.1	0	SAT2	I		
viba_500	NIG/2/75	bovine	74.1	0	SAT2	V		
viba_728	GHA/2/90	bovine	73.5	0	SAT2	V		
viba_189	RWA/1/2000		73.0	0	SAT2	VIII		

Report on FMDV SAT2 in Oman in 2023

Batch: WRLMEG/2023/00018



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_SAT2
Query sequence set:	WRLMEG/2023/00018-Oman-SAT2 (2 sequences)
Sequence database set:	allseqs_SAT2 (1159 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
OMN/1436/2023*	n/a	n/a	ANSES	Oman	XIV
OMN/1434/2023*	n/a	n/a	ANSES	Oman	XIV
ETH/2/2022	n/a	bovine	WRLFMD	Ethiopia	XIV
ETH/3/2022	n/a	bovine	WRLFMD	Ethiopia	XIV
TUR/79/2023*	n/a	cattle	FMDI	Turkey	XIV
IRQ/9/2023	n/a	water buffalo	WRLFMD	Iraq	XIV
S26/Baghdad/IRQ/2022*	n/a	water buffalo	FMDI	Iraq	XIV
IRQ/3/2022	n/a	water buffalo	WRLFMD	Iraq	XIV
IRQ/5/2023	n/a	cattle	WRLFMD	Iraq	XIV
IRQ/1/2022	n/a	water buffalo	WRLFMD	Iraq	XIV
S19/Baghdad/IRQ/2022*	n/a	water buffalo	FMDI	Iraq	XIV
IRQ/2/2022	n/a	water buffalo	WRLFMD	Iraq	XIV
S41/Nineveh/IRQ/2023*	n/a	cattle	FMDI	Iraq	XIV
IRQ/3/2023	n/a	cattle	WRLFMD	Iraq	XIV
IRQ/4/2023	n/a	cattle	WRLFMD	Iraq	XIV
S25/Baghdad/IRQ/2022*	n/a	water buffalo	FMDI	Iraq	XIV
IRQ/8/2023	n/a	cattle	WRLFMD	Iraq	XIV
IRQ/7/2023	n/a	cattle	WRLFMD	Iraq	XIV
IRQ/6/2023	n/a	cattle	WRLFMD	Iraq	XIV
JOR/13/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/6/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/12/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/27/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/23/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/22/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/10/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/2023*	n/a	cattle	JUST	Jordan	XIV
JOR/14/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/1/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/9/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/19/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/26/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/18/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/7/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/11/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/17/2023	n/a	cattle	WRLFMD	Jordan	XIV

continued on next page

label	accession	host(s)	lab	country	taxonomic information
JOR/20/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/5/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/8/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/4/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/16/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/25/2023	n/a	cattle	WRLFMD	Jordan	XIV
JOR/3/2023	n/a	cattle	WRLFMD	Jordan	XIV
ETH/2/91	AY343938	cattle	OVI	Ethiopia	XIV
ETH/3/91	FJ798160	cattle	WRLFMD	Ethiopia	XIV
ETH/1/91	FJ798158	cattle	WRLFMD	Ethiopia	XIV
ETH/2/91	FJ798159	cattle	WRLFMD	Ethiopia	XIV
SUD/6/77	AY343939	n/a	OVI	Sudan	XIII
SUD/9/77	AY442014	n/a	OVI	Sudan	XIII
ETH/2/2007	FJ798161	cattle	WRLFMD	Ethiopia	XIII
ETH/76/2009	KF112954	cattle	WRLFMD	Ethiopia	XIII
ETH/75/2009	KF112953	cattle	WRLFMD	Ethiopia	XIII
ETH/77/2009	KF112955	cattle	WRLFMD	Ethiopia	XIII
ETH/56/2009	KF112943	cattle	WRLFMD	Ethiopia	XIII
BUL-003-P/UGA/2016*	MH367445	cattle	PIADC	Uganda	VII
BUL-293-P/UGA/2016*	MH367454	cattle	PIADC	Uganda	VII
BUL-278-P/UGA/2016*	MH367464	cattle	PIADC	Uganda	VII
BUL-285-P/UGA/2016*	MH367460	cattle	PIADC	Uganda	VII
BUL-271-P/UGA/2016*	MH367466	cattle	PIADC	Uganda	VII
BUL-273-P/UGA/2016*	MH367463	cattle	PIADC	Uganda	VII
BUL-224-P/UGA/2016*	MH367447	cattle	PIADC	Uganda	VII
BUL-050-P/UGA/2016*	MH367446	cattle	PIADC	Uganda	VII
BUL-033-P/UGA/2016*	MH367450	cattle	PIADC	Uganda	VII
BUL-215-P/UGA/2016*	MH367452	cattle	PIADC	Uganda	VII
KEN/2/84	AY343941	bovine	OVI	Kenya	IX
RWA/1/2000*	AF367134	n/a	OVI	Rwanda	VIII
GHA/2/90	AF479415	bovine	OVI	Ghana	V
NIG/2/75	AF367139	bovine	OVI	Nigeria	V
ZAM/11/2019	n/a	bovine	WRLFMD	Zambia	I
ZAM/12/2019	n/a	bovine	WRLFMD	Zambia	I
MAL/1/2003	n/a	bovine	WRLFMD	Malawi	I
ZIM/P18/91 GN-5*	n/a	African buffalo	WRLFMD	Zimbabwe	I
ZIM/P18/91 GN-3*	n/a	African buffalo	WRLFMD	Zimbabwe	I
ZIM/P18/91 GN-9*	n/a	African buffalo	WRLFMD	Zimbabwe	I
ZIM/18/2002	n/a	bovine	WRLFMD	Zimbabwe	I
ZIM/7/2003	n/a	n/a	WRLFMD	Zimbabwe	I
ZIM/8/2003	n/a	n/a	WRLFMD	Zimbabwe	I
ZIM/12/2003	n/a	n/a	WRLFMD	Zimbabwe	I
ZIM/11/2003	n/a	n/a	WRLFMD	Zimbabwe	I
ZIM/14/2003	n/a	n/a	WRLFMD	Zimbabwe	I
ZIM/17/2003	n/a	n/a	WRLFMD	Zimbabwe	I
ZIM/15/2003	n/a	n/a	WRLFMD	Zimbabwe	I
ZIM/14/2002	KF219689	bovine	WRLFMD	Zimbabwe	I
ZIM/5/2010	n/a	cattle	WRLFMD	Zimbabwe	I
ZIM/6/2010	n/a	cattle	WRLFMD	Zimbabwe	I
ZIM/10/2010	n/a	bovine	WRLFMD	Zimbabwe	I
ZIM/P7/94 MT-8*	n/a	n/a	WRLFMD	Zimbabwe	I
KNP/7/88*	AF367103	African buffalo	OVI	South Africa (KNP)	I
KNP/2/89*	AF367109	impala	OVI	South Africa (KNP)	I
KNP/17/88*	AF367105	impala	OVI	South Africa (KNP)	I
KNP/16/88*	AF367104	impala	OVI	South Africa (KNP)	I
KNP/20/88*	AF367107	impala	OVI	South Africa (KNP)	I
KNP/18/88*	AF367138	impala	OVI	South Africa (KNP)	I
KNP/19/88*	AF367106	impala	OVI	South Africa (KNP)	I
SA/106/59	AY593848	n/a	PIADC	South Africa (SA)	I

continued on next page

label	accession	host(s)	lab	country	taxonomic information
MOZ/4/83*	AF367101	n/a	OVI	Mozambique	I
KEN/7/2005	n/a	cattle	WRLFMD	Kenya	IV
RHO/1/48	AY593847	n/a	PIADC	Rhodesia	III

*, not a WRLFMD Reference Number

n/a, not available