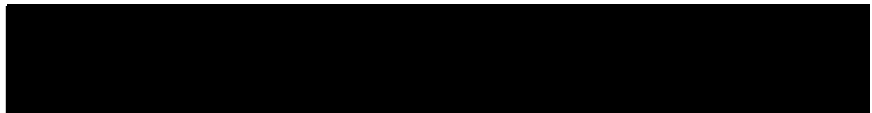




## FMD Genotyping Report

Lab Reference WRL batch Number: WRLFMD/2023/000008

Sender Details:

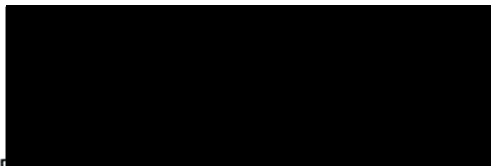


Date Received: 27/02/2023

Country of Origin\*: IRAQ

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/>

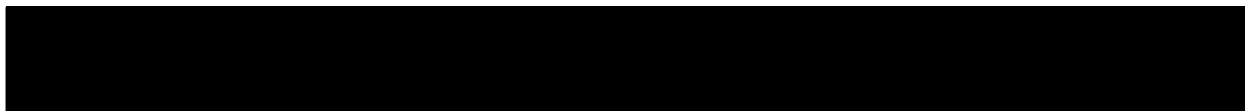
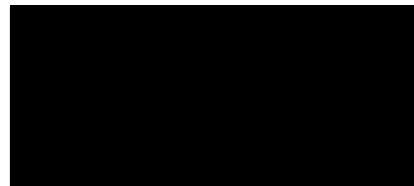
Results Approved By:



Date:

1/3/23

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](mailto: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: Iraq  
Year: 2022, 2023  
Batch: WRLFMD/2023/000008  
No. of sequences: 10  
Report date: 28th February 2023  
Report generated by: Nick Knowles  
Report checked by: Jemma Wadsworth



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

email: [reporting@pirbright.ac.uk](mailto:reporting@pirbright.ac.uk)

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Virus sample name:	IRQ/1/2022
Sender reference:	S32
Location of origin:	Al-Fudhailia, Baghdad Governorate
Country of origin:	Iraq
Date of collection:	06/12/2022
Host species:	water buffalo
Serotype:	SAT2
Topotype:	XIV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	21/02/2023
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	27/02/2023
Created:	28/02/2023
Last updated:	28/02/2023
VIBASys IDs: sample 52563, genome 52564, sequence viba_52565, sequencing info 52566	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52569	IRQ/2/2022	water buffalo	100.0	0	SAT2	XIV		
viba_52471	S41/Nineveh/IRQ/2023	cattle	100.0	0	SAT2	XIV		
viba_52573	IRQ/3/2022	water buffalo	100.0	0	SAT2	XIV		
viba_52467	S19/Baghdad/IRQ/2022	water buffalo	100.0	0	SAT2	XIV		
viba_52585	IRQ/5/2023	cattle	99.8	0	SAT2	XIV		
viba_52459	S26/Baghdad/IRQ/2022	water buffalo	99.8	0	SAT2	XIV		
viba_52601	IRQ/9/2023	water buffalo	99.7	0	SAT2	XIV		
viba_52597	IRQ/8/2023	cattle	99.5	0	SAT2	XIV		
viba_52577	IRQ/3/2023	cattle	99.5	0	SAT2	XIV		
viba_52593	IRQ/7/2023	cattle	99.5	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	83.9	0	SAT2	XIV		
viba_139	ETH/2/2007	cattle	75.5	0	SAT2	XIII		
viba_752	SA/106/59		75.0	0	SAT2	I		
viba_470	KEN/2/84	bovine	74.6	0	SAT2	IX		
viba_500	NIG/2/75	bovine	74.5	0	SAT2	V		
viba_111	MAL/1/2003	bovine	74.4	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	74.2	0	SAT2	I		
viba_451	BOT/P3/98 VUM-29	African buffalo	74.0	1	SAT2	III		
viba_193	SUD/6/77		73.9	0	SAT2	XIII		
viba_728	GHA/2/90	bovine	73.2	0	SAT2	V		

Virus sample name:	IRQ/2/2022
Sender reference:	S20
Location of origin:	Al-Fudhailia, Baghdad Governorate
Country of origin:	Iraq
Date of collection:	18/12/2022
Host species:	water buffalo
Serotype:	SAT2
Topotype:	XIV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	21/02/2023
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	27/02/2023
Created:	28/02/2023
Last updated:	28/02/2023
VIBASys IDs: sample 52567, genome 52568, sequence viba_52569, sequencing info 52570	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52471	S41/Nineveh/IRQ/2023	cattle	100.0	0	SAT2	XIV		
viba_52573	IRQ/3/2022	water buffalo	100.0	0	SAT2	XIV		
viba_52467	S19/Baghdad/IRQ/2022	water buffalo	100.0	0	SAT2	XIV		
viba_52565	IRQ/1/2022	water buffalo	100.0	0	SAT2	XIV		
viba_52585	IRQ/5/2023	cattle	99.8	0	SAT2	XIV		
viba_52459	S26/Baghdad/IRQ/2022	water buffalo	99.8	0	SAT2	XIV		
viba_52601	IRQ/9/2023	water buffalo	99.7	0	SAT2	XIV		
viba_52597	IRQ/8/2023	cattle	99.5	0	SAT2	XIV		
viba_52577	IRQ/3/2023	cattle	99.5	0	SAT2	XIV		
viba_52593	IRQ/7/2023	cattle	99.5	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	83.9	0	SAT2	XIV		
viba_139	ETH/2/2007	cattle	75.5	0	SAT2	XIII		
viba_752	SA/106/59		75.0	0	SAT2	I		
viba_470	KEN/2/84	bovine	74.6	0	SAT2	IX		
viba_500	NIG/2/75	bovine	74.5	0	SAT2	V		
viba_111	MAL/1/2003	bovine	74.4	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	74.2	0	SAT2	I		
viba_451	BOT/P3/98 VUM-29	African buffalo	74.0	1	SAT2	III		
viba_193	SUD/6/77		73.9	0	SAT2	XIII		
viba_728	GHA/2/90	bovine	73.2	0	SAT2	V		

Virus sample name:	IRQ/3/2022
Sender reference:	S60
Location of origin:	Al-Fudhailia, Baghdad Governorate
Country of origin:	Iraq
Date of collection:	28/12/2022
Host species:	water buffalo
Serotype:	SAT2
Topotype:	XIV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	21/02/2023
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	27/02/2023
Created:	28/02/2023
Last updated:	28/02/2023
VIBASys IDs: sample 52571, genome 52572, sequence viba_52573, sequencing info 52574	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52569	IRQ/2/2022	water buffalo	100.0	0	SAT2	XIV		
viba_52471	S41/Nineveh/IRQ/2023	cattle	100.0	0	SAT2	XIV		
viba_52467	S19/Baghdad/IRQ/2022	water buffalo	100.0	0	SAT2	XIV		
viba_52565	IRQ/1/2022	water buffalo	100.0	0	SAT2	XIV		
viba_52585	IRQ/5/2023	cattle	99.8	0	SAT2	XIV		
viba_52459	S26/Baghdad/IRQ/2022	water buffalo	99.8	0	SAT2	XIV		
viba_52601	IRQ/9/2023	water buffalo	99.7	0	SAT2	XIV		
viba_52597	IRQ/8/2023	cattle	99.5	0	SAT2	XIV		
viba_52577	IRQ/3/2023	cattle	99.5	0	SAT2	XIV		
viba_52593	IRQ/7/2023	cattle	99.5	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	83.9	0	SAT2	XIV		
viba_139	ETH/2/2007	cattle	75.5	0	SAT2	XIII		
viba_752	SA/106/59		75.0	0	SAT2	I		
viba_470	KEN/2/84	bovine	74.6	0	SAT2	IX		
viba_500	NIG/2/75	bovine	74.5	0	SAT2	V		
viba_111	MAL/1/2003	bovine	74.4	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	74.2	0	SAT2	I		
viba_451	BOT/P3/98 VUM-29	African buffalo	74.0	1	SAT2	III		
viba_193	SUD/6/77		73.9	0	SAT2	XIII		
viba_728	GHA/2/90	bovine	73.2	0	SAT2	V		

Virus sample name:	IRQ/3/2023
Sender reference:	S49
Location of origin:	Humidat, Ninevah Governorate
Country of origin:	Iraq
Date of collection:	18/01/2023
Host species:	cattle
Serotype:	SAT2
Topotype:	XIV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	21/02/2023
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	27/02/2023
Created:	28/02/2023
Last updated:	28/02/2023
VIBASys IDs: sample 52575, genome 52576, sequence viba_52577, sequencing info 52578	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52581	IRQ/4/2023	cattle	99.8	0	SAT2	XIV		
viba_52597	IRQ/8/2023	cattle	99.7	0	SAT2	XIV		
viba_52593	IRQ/7/2023	cattle	99.7	0	SAT2	XIV		
viba_52589	IRQ/6/2023	cattle	99.5	0	SAT2	XIV		
viba_52569	IRQ/2/2022	water buffalo	99.5	0	SAT2	XIV		
viba_52471	S41/Nineveh/IRQ/2023	cattle	99.5	0	SAT2	XIV		
viba_52405	JOR/2023	cattle	99.5	0	SAT2	XIV		
viba_52601	IRQ/9/2023	water buffalo	99.5	0	SAT2	XIV		
viba_52573	IRQ/3/2022	water buffalo	99.5	0	SAT2	XIV		
viba_52467	S19/Baghdad/IRQ/2022	water buffalo	99.5	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	84.1	0	SAT2	XIV		
viba_139	ETH/2/2007	cattle	75.3	0	SAT2	XIII		
viba_470	KEN/2/84	bovine	74.8	0	SAT2	IX		
viba_500	NIG/2/75	bovine	74.7	0	SAT2	V		
viba_111	MAL/1/2003	bovine	74.2	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	73.9	0	SAT2	I		
viba_451	BOT/P3/98 VUM-29	African buffalo	73.7	1	SAT2	III		
viba_752	SA/106/59		73.7	0	SAT2	I		
viba_193	SUD/6/77		73.4	0	SAT2	XIII		
viba_728	GHA/2/90	bovine	73.4	0	SAT2	V		

Virus sample name:	IRQ/4/2023
Sender reference:	S41
Location of origin:	Damargi, Ninevah Governorate
Country of origin:	Iraq
Date of collection:	18/01/2023
Host species:	cattle
Serotype:	SAT2
Topotype:	XIV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	21/02/2023
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	27/02/2023
Created:	28/02/2023
Last updated:	28/02/2023
VIBASys IDs: sample 52579, genome 52580, sequence viba_52581, sequencing info 52582	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52577	IRQ/3/2023	cattle	99.8	0	SAT2	XIV		
viba_52597	IRQ/8/2023	cattle	99.5	0	SAT2	XIV		
viba_52593	IRQ/7/2023	cattle	99.5	0	SAT2	XIV		
viba_52589	IRQ/6/2023	cattle	99.4	0	SAT2	XIV		
viba_52569	IRQ/2/2022	water buffalo	99.4	0	SAT2	XIV		
viba_52471	S41/Nineveh/IRQ/2023	cattle	99.4	0	SAT2	XIV		
viba_52405	JOR/2023	cattle	99.4	0	SAT2	XIV		
viba_52601	IRQ/9/2023	water buffalo	99.4	0	SAT2	XIV		
viba_52573	IRQ/3/2022	water buffalo	99.4	0	SAT2	XIV		
viba_52467	S19/Baghdad/IRQ/2022	water buffalo	99.4	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	84.2	0	SAT2	XIV		
viba_139	ETH/2/2007	cattle	75.5	0	SAT2	XIII		
viba_470	KEN/2/84	bovine	74.8	0	SAT2	IX		
viba_500	NIG/2/75	bovine	74.8	0	SAT2	V		
viba_111	MAL/1/2003	bovine	74.2	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	73.9	0	SAT2	I		
viba_451	BOT/P3/98 VUM-29	African buffalo	73.7	1	SAT2	III		
viba_752	SA/106/59		73.7	0	SAT2	I		
viba_728	GHA/2/90	bovine	73.6	0	SAT2	V		
viba_193	SUD/6/77		73.5	0	SAT2	XIII		

Virus sample name:	IRQ/5/2023
Sender reference:	S58
Location of origin:	Daqooq, Kirkuk Governorate
Country of origin:	Iraq
Date of collection:	26/01/2023
Host species:	cattle
Serotype:	SAT2
Topotype:	XIV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	21/02/2023
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	27/02/2023
Created:	28/02/2023
Last updated:	28/02/2023
VIBASys IDs: sample 52583, genome 52584, sequence viba_52585, sequencing info 52586	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52569	IRQ/2/2022	water buffalo	99.8	0	SAT2	XIV		
viba_52471	S41/Nineveh/IRQ/2023	cattle	99.8	0	SAT2	XIV		
viba_52573	IRQ/3/2022	water buffalo	99.8	0	SAT2	XIV		
viba_52467	S19/Baghdad/IRQ/2022	water buffalo	99.8	0	SAT2	XIV		
viba_52565	IRQ/1/2022	water buffalo	99.8	0	SAT2	XIV		
viba_52459	S26/Baghdad/IRQ/2022	water buffalo	99.7	0	SAT2	XIV		
viba_52601	IRQ/9/2023	water buffalo	99.5	0	SAT2	XIV		
viba_52597	IRQ/8/2023	cattle	99.4	0	SAT2	XIV		
viba_52577	IRQ/3/2023	cattle	99.4	0	SAT2	XIV		
viba_52593	IRQ/7/2023	cattle	99.4	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	84.1	0	SAT2	XIV		
viba_139	ETH/2/2007	cattle	75.3	0	SAT2	XIII		
viba_752	SA/106/59		74.8	0	SAT2	I		
viba_470	KEN/2/84	bovine	74.5	0	SAT2	IX		
viba_500	NIG/2/75	bovine	74.4	0	SAT2	V		
viba_111	MAL/1/2003	bovine	74.2	0	SAT2	I		
viba_451	BOT/P3/98 VUM-29	African buffalo	74.2	1	SAT2	III		
viba_183	ZIM/14/2002	bovine	74.1	0	SAT2	I		
viba_193	SUD/6/77		73.7	0	SAT2	XIII		
viba_380	RHO/1/48		73.3	0	SAT2	III		



Virus sample name:	IRQ/6/2023
Sender reference:	S59
Location of origin:	Al-Mahawil, Babil Governorate
Country of origin:	Iraq
Date of collection:	29/01/2023
Host species:	cattle
Serotype:	SAT2
Topotype:	XIV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	21/02/2023
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	27/02/2023
Created:	28/02/2023
Last updated:	28/02/2023
VIBASys IDs: sample 52587, genome 52588, sequence viba_52589, sequencing info 52590	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52597	IRQ/8/2023	cattle	99.8	0	SAT2	XIV		
viba_52593	IRQ/7/2023	cattle	99.8	0	SAT2	XIV		
viba_52463	S25/Baghdad/IRQ/2022	water buffalo	99.5	0	SAT2	XIV		
viba_52577	IRQ/3/2023	cattle	99.5	0	SAT2	XIV		
viba_52569	IRQ/2/2022	water buffalo	99.4	0	SAT2	XIV		
viba_52471	S41/Nineveh/IRQ/2023	cattle	99.4	0	SAT2	XIV		
viba_52581	IRQ/4/2023	cattle	99.4	0	SAT2	XIV		
viba_52405	JOR/2023	cattle	99.4	0	SAT2	XIV		
viba_52601	IRQ/9/2023	water buffalo	99.4	0	SAT2	XIV		
viba_52573	IRQ/3/2022	water buffalo	99.4	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_470	KEN/2/84	bovine	74.9	0	SAT2	IX		
viba_500	NIG/2/75	bovine	74.8	0	SAT2	V		
viba_111	MAL/1/2003	bovine	74.6	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	74.4	0	SAT2	I		
viba_752	SA/106/59		74.2	0	SAT2	I		
viba_451	BOT/P3/98 VUM-29	African buffalo	73.9	1	SAT2	III		
viba_193	SUD/6/77		73.8	0	SAT2	XIII		
viba_567	ZIM/7/83	bovine	73.6	0	SAT2	II		

Virus sample name:	IRQ/7/2023
Sender reference:	S53
Location of origin:	Kokjli, Ninevah Governorate
Country of origin:	Iraq
Date of collection:	30/01/2023
Host species:	cattle
Serotype:	SAT2
Topotype:	XIV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	21/02/2023
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	27/02/2023
Created:	28/02/2023
Last updated:	28/02/2023
VIBASys IDs: sample 52591, genome 52592, sequence viba_52593, sequencing info 52594	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52597	IRQ/8/2023	cattle	100.0	0	SAT2	XIV		
viba_52589	IRQ/6/2023	cattle	99.8	0	SAT2	XIV		
viba_52463	S25/Baghdad/IRQ/2022	water buffalo	99.7	0	SAT2	XIV		
viba_52577	IRQ/3/2023	cattle	99.7	0	SAT2	XIV		
viba_52569	IRQ/2/2022	water buffalo	99.5	0	SAT2	XIV		
viba_52471	S41/Nineveh/IRQ/2023	cattle	99.5	0	SAT2	XIV		
viba_52581	IRQ/4/2023	cattle	99.5	0	SAT2	XIV		
viba_52405	JOR/2023	cattle	99.5	0	SAT2	XIV		
viba_52601	IRQ/9/2023	water buffalo	99.5	0	SAT2	XIV		
viba_52573	IRQ/3/2022	water buffalo	99.5	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	84.4	0	SAT2	XIV		
viba_139	ETH/2/2007	cattle	75.3	0	SAT2	XIII		
viba_470	KEN/2/84	bovine	75.1	0	SAT2	IX		
viba_500	NIG/2/75	bovine	75.0	0	SAT2	V		
viba_111	MAL/1/2003	bovine	74.5	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	74.2	0	SAT2	I		
viba_752	SA/106/59		74.1	0	SAT2	I		
viba_193	SUD/6/77		73.7	0	SAT2	XIII		
viba_728	GHA/2/90	bovine	73.7	0	SAT2	V		
viba_451	BOT/P3/98 VUM-29	African buffalo	73.7	1	SAT2	III		

Virus sample name:	IRQ/8/2023
Sender reference:	S54
Location of origin:	Kokjli, Ninevah Governorate
Country of origin:	Iraq
Date of collection:	30/01/2023
Host species:	cattle
Serotype:	SAT2
Topotype:	XIV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	21/02/2023
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	27/02/2023
Created:	28/02/2023
Last updated:	28/02/2023
VIBASys IDs: sample 52595, genome 52596, sequence viba_52597, sequencing info 52598	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52593	IRQ/7/2023	cattle	100.0	0	SAT2	XIV		
viba_52589	IRQ/6/2023	cattle	99.8	0	SAT2	XIV		
viba_52463	S25/Baghdad/IRQ/2022	water buffalo	99.7	0	SAT2	XIV		
viba_52577	IRQ/3/2023	cattle	99.7	0	SAT2	XIV		
viba_52569	IRQ/2/2022	water buffalo	99.5	0	SAT2	XIV		
viba_52471	S41/Nineveh/IRQ/2023	cattle	99.5	0	SAT2	XIV		
viba_52581	IRQ/4/2023	cattle	99.5	0	SAT2	XIV		
viba_52405	JOR/2023	cattle	99.5	0	SAT2	XIV		
viba_52601	IRQ/9/2023	water buffalo	99.5	0	SAT2	XIV		
viba_52573	IRQ/3/2022	water buffalo	99.5	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	84.4	0	SAT2	XIV		
viba_139	ETH/2/2007	cattle	75.3	0	SAT2	XIII		
viba_470	KEN/2/84	bovine	75.1	0	SAT2	IX		
viba_500	NIG/2/75	bovine	75.0	0	SAT2	V		
viba_111	MAL/1/2003	bovine	74.5	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	74.2	0	SAT2	I		
viba_752	SA/106/59		74.1	0	SAT2	I		
viba_193	SUD/6/77		73.7	0	SAT2	XIII		
viba_728	GHA/2/90	bovine	73.7	0	SAT2	V		
viba_451	BOT/P3/98 VUM-29	African buffalo	73.7	1	SAT2	III		

Virus sample name:	IRQ/9/2023
Sender reference:	S57
Location of origin:	Al-Mishkhab, Najaf Governorate
Country of origin:	Iraq
Date of collection:	02/02/2023
Host species:	water buffalo
Serotype:	SAT2
Topotype:	XIV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	22/02/2023
Primers:	SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	27/02/2023
Created:	28/02/2023
Last updated:	28/02/2023
VIBASys IDs: sample 52599, genome 52600, sequence viba_52601, sequencing info 52602	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52569	IRQ/2/2022	water buffalo	99.7	0	SAT2	XIV		
viba_52471	S41/Nineveh/IRQ/2023	cattle	99.7	0	SAT2	XIV		
viba_52573	IRQ/3/2022	water buffalo	99.7	0	SAT2	XIV		
viba_52467	S19/Baghdad/IRQ/2022	water buffalo	99.7	0	SAT2	XIV		
viba_52565	IRQ/1/2022	water buffalo	99.7	0	SAT2	XIV		
viba_52597	IRQ/8/2023	cattle	99.5	0	SAT2	XIV		
viba_52577	IRQ/3/2023	cattle	99.5	0	SAT2	XIV		
viba_52593	IRQ/7/2023	cattle	99.5	0	SAT2	XIV		
viba_52585	IRQ/5/2023	cattle	99.5	0	SAT2	XIV		
viba_52459	S26/Baghdad/IRQ/2022	water buffalo	99.5	0	SAT2	XIV		

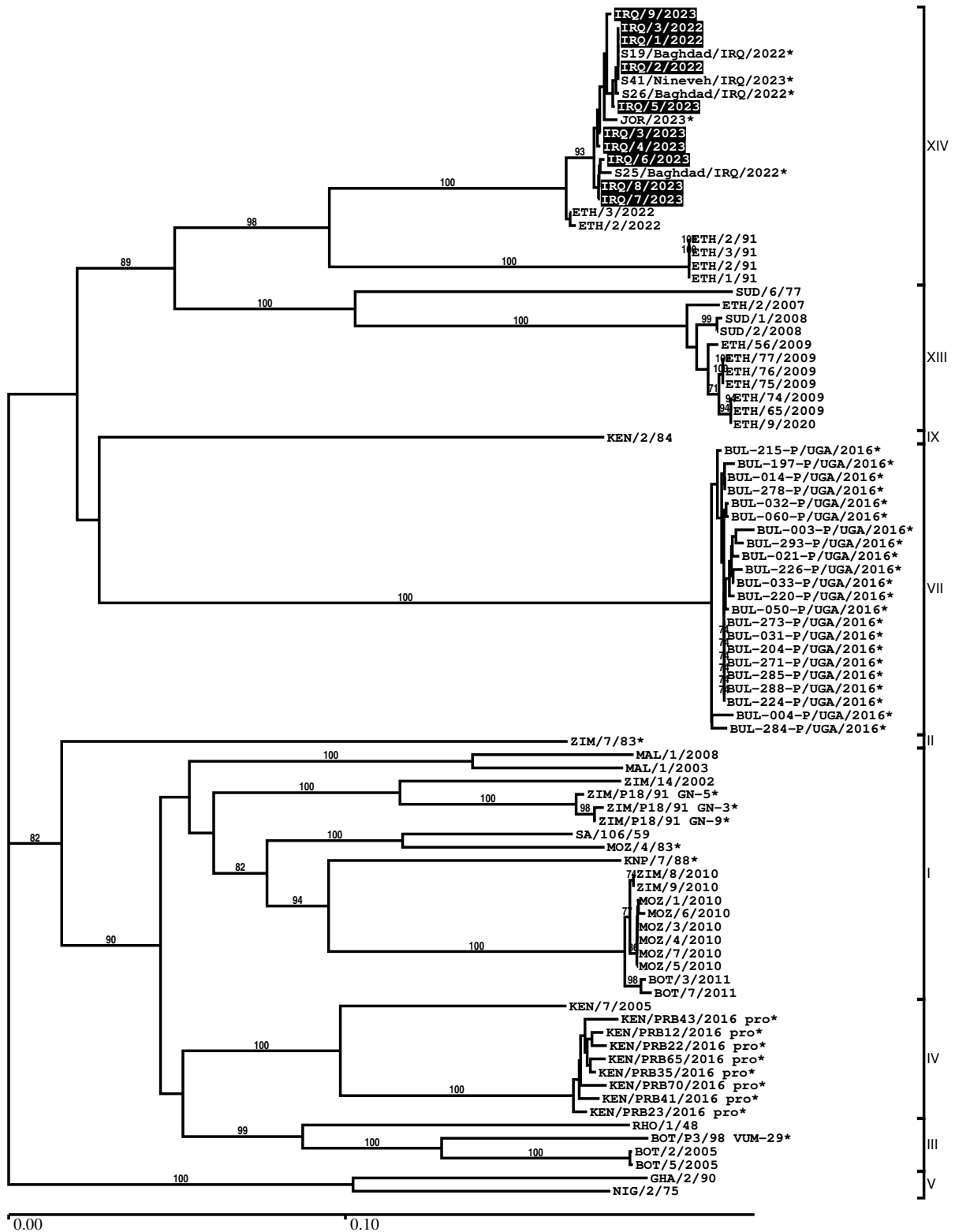
### Most Closely Related Prototype Sequences

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	84.1	0	SAT2	XIV		
viba_139	ETH/2/2007	cattle	75.3	0	SAT2	XIII		
viba_500	NIG/2/75	bovine	74.7	0	SAT2	V		
viba_470	KEN/2/84	bovine	74.6	0	SAT2	IX		
viba_183	ZIM/14/2002	bovine	74.2	0	SAT2	I		
viba_111	MAL/1/2003	bovine	74.2	0	SAT2	I		
viba_752	SA/106/59		74.1	0	SAT2	I		
viba_451	BOT/P3/98 VUM-29	African buffalo	73.7	1	SAT2	III		
viba_380	RHO/1/48		73.6	0	SAT2	III		
viba_728	GHA/2/90	bovine	73.6	0	SAT2	V		

Report on FMDV SAT2 in Iraq in 2022, 2023

Batch: WRLFMD/2023/000008



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor:	vp1_SAT2
Query sequence set:	WRLFMD/2023/000008-Iraq-SAT2 (10 sequences)
Sequence database set:	allseqs_SAT2 (1133 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:	12
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
IRQ/9/2023	n/a	water buffalo	WRLFMD	Iraq	XIV
IRQ/3/2022	n/a	water buffalo	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
S26/Baghdad/IRQ/2022*	n/a	water buffalo	FMDI	Iraq	XIV
IRQ/5/2023	n/a	cattle	WRLFMD	Iraq	XIV
JOR/2023*	n/a	cattle	JUST	Jordan	XIV
IRQ/3/2023	n/a	cattle	WRLFMD	Iraq	XIV
IRQ/4/2023	n/a	cattle	WRLFMD	Iraq	XIV
IRQ/6/2023	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
ETH/3/2022	n/a	bovine	WRLFMD	Ethiopia	XIV
ETH/2/2022	n/a	bovine	WRLFMD	Ethiopia	XIV
ETH/2/91	FJ798159	cattle	WRLFMD	Ethiopia	XIV
ETH/3/91	FJ798160	cattle	WRLFMD	Ethiopia	XIV
ETH/2/91	AY343938	cattle	OVI	Ethiopia	XIV
ETH/1/91	FJ798158	cattle	WRLFMD	Ethiopia	XIV
SUD/6/77	AY343939	n/a	OVI	Sudan	XIII
ETH/2/2007	FJ798161	cattle	WRLFMD	Ethiopia	XIII
SUD/1/2008	GU566072	cattle	WRLFMD	Sudan	XIII
SUD/2/2008	GU566073	cattle	WRLFMD	Sudan	XIII
ETH/5/2009	KF112943	cattle	WRLFMD	Ethiopia	XIII
ETH/77/2009	KF112955	cattle	WRLFMD	Ethiopia	XIII
ETH/76/2009	KF112954	cattle	WRLFMD	Ethiopia	XIII
ETH/75/2009	KF112953	cattle	WRLFMD	Ethiopia	XIII
ETH/74/2009	KF112952	cattle	WRLFMD	Ethiopia	XIII
ETH/65/2009	KF112945	cattle	WRLFMD	Ethiopia	XIII
ETH/9/2020	n/a	bovine	WRLFMD	Ethiopia	XIII
KEN/2/84	AY343941	bovine	OVI	Kenya	IX
BUL-215-P/UGA/2016*	MH367452	cattle	PIADC	Uganda	VII
BUL-197-P/UGA/2016*	MH367451	cattle	PIADC	Uganda	VII
BUL-014-P/UGA/2016*	MH367448	cattle	PIADC	Uganda	VII

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
BUL-278-P/UGA/2016*	MH367464	cattle	PIADC	Uganda	VII
BUL-032-P/UGA/2016*	MH367465	cattle	PIADC	Uganda	VII
BUL-060-P/UGA/2016*	MH367458	cattle	PIADC	Uganda	VII
BUL-003-P/UGA/2016*	MH367445	cattle	PIADC	Uganda	VII
BUL-293-P/UGA/2016*	MH367454	cattle	PIADC	Uganda	VII
BUL-021-P/UGA/2016*	MH367442	cattle	PIADC	Uganda	VII
BUL-226-P/UGA/2016*	MH367456	cattle	PIADC	Uganda	VII
BUL-033-P/UGA/2016*	MH367450	cattle	PIADC	Uganda	VII
BUL-220-P/UGA/2016*	MH367449	cattle	PIADC	Uganda	VII
BUL-050-P/UGA/2016*	MH367446	cattle	PIADC	Uganda	VII
BUL-273-P/UGA/2016*	MH367463	cattle	PIADC	Uganda	VII
BUL-031-P/UGA/2016*	MH367444	cattle	PIADC	Uganda	VII
BUL-204-P/UGA/2016*	MH367453	cattle	PIADC	Uganda	VII
BUL-271-P/UGA/2016*	MH367466	cattle	PIADC	Uganda	VII
BUL-285-P/UGA/2016*	MH367460	cattle	PIADC	Uganda	VII
BUL-288-P/UGA/2016*	MH367461	cattle	PIADC	Uganda	VII
BUL-224-P/UGA/2016*	MH367447	cattle	PIADC	Uganda	VII
BUL-004-P/UGA/2016*	MH367457	cattle	PIADC	Uganda	VII
BUL-284-P/UGA/2016*	MH367462	cattle	PIADC	Uganda	VII
ZIM/7/83*	AF136607	bovine	OVI	Zimbabwe	II
MAL/1/2008	n/a	cattle	WRLFMD	Malawi	I
MAL/1/2003	n/a	bovine	WRLFMD	Malawi	I
ZIM/14/2002	KF219689	bovine	WRLFMD	Zimbabwe	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
SA/106/59	AY593848	n/a	PIADC	South Africa	I
MOZ/4/83*	AF367101	n/a	OVI	Mozambique	I
KNP/7/88*	AF367103	African buffalo	OVI	South Africa (KNP)	I
ZIM/8/2010	n/a	bovine	WRLFMD	Zimbabwe	I
ZIM/9/2010	n/a	bovine	WRLFMD	Zimbabwe	I
MOZ/1/2010	n/a	cattle	WRLFMD	Mozambique	I
MOZ/6/2010	n/a	cattle	WRLFMD	Mozambique	I
MOZ/3/2010	n/a	cattle	WRLFMD	Mozambique	I
MOZ/4/2010	n/a	cattle	WRLFMD	Mozambique	I
MOZ/7/2010	n/a	n/a	WRLFMD	Mozambique	I
MOZ/5/2010	n/a	cattle	WRLFMD	Mozambique	I
BOT/3/2011	n/a	cattle	WRLFMD	Botswana	I
BOT/7/2011	n/a	cattle	WRLFMD	Botswana	I
KEN/7/2005	n/a	cattle	WRLFMD	Kenya	IV
KEN/PRB43/2016 pro*	MH882632	African buffalo	PIADC	Kenya	IV
KEN/PRB12/2016 pro*	MH882616	African buffalo	PIADC	Kenya	IV
KEN/PRB22/2016 pro*	MH882623	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/PRB70/2016 pro*	MH882652	African buffalo	PIADC	Kenya	IV
KEN/PRB41/2016 pro*	MH882630	African buffalo	PIADC	Kenya	IV
KEN/PRB23/2016 pro*	MH882624	African buffalo	PIADC	Kenya	IV
RHO/1/48	AY593847	n/a	PIADC	Rhodesia	III
BOT/P3/98 VUM-29*	AF367124	African buffalo	OVI	Botswana	III
BOT/2/2005	n/a	cattle	WRLFMD	Botswana	III
BOT/5/2005	n/a	cattle	WRLFMD	Botswana	III
GHA/2/90	AF479415	bovine	OVI	Ghana	V
NIG/2/75	AF367139	bovine	OVI	Nigeria	V

\*, not a WRLFMD Reference Number

n/a, not available