

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

## Genotyping Report

FMDV serotype: O  
Country: Republic of Korea (South Korea)  
Year: 2019  
Batch: WRLMEG/2019/00012  
No. of sequences: 1  
Report date: 30th January 2019  
Report generated by: Nick Knowles  
Report checked by: Antonello Di Nardo

This report is prepared on behalf of the Animal and Plant Quarantine Agency (Ministry of Agriculture, Food and Rural Affairs, Republic of Korea) and covers a VP1 sequence submitted to the WRLFMD on 30/01/2019.



Copyright ©2019 The Pirbright Institute, Ash Road, Pirbright, Woking GU24 0NF, United Kingdom.

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

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

The contents of this report should not be reproduced without permission.

Virus sample name:	AS HHS/SKR/2019
Sender reference:	O/AS_HHS/SKR/2019
Location of origin:	AnSeong-si, Gyeonggi-do
Country of origin:	Republic of Korea (South Korea)
Date of collection:	29/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	30/01/2019
Last updated:	30/01/2019
VIBASys IDs: sample 39425, genome 39426, sequence viba_39427, sequencing info 39428	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_39045	SKR/AS/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_37139	GZZY/CHA/2018-B	cattle	99.4	0	O	ME-SA	Ind-2001	e
viba_37185	MAY/3/2018	cattle	98.6	0	O	ME-SA	Ind-2001	e
viba_37189	MAY/4/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_37181	MAY/2/2018	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_37193	MAY/5/2018	water buffalo	97.8	0	O	ME-SA	Ind-2001	e
viba_33785	MYA/1/2017	cattle	97.0	0	O	ME-SA	Ind-2001	e
viba_32441	MYA/9/2017	cattle	96.8	0	O	ME-SA	Ind-2001	e
viba_31492	VIT/20/2016	cattle	96.8	0	O	ME-SA	Ind-2001	e
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	96.8	0	O	ME-SA	Ind-2001	e

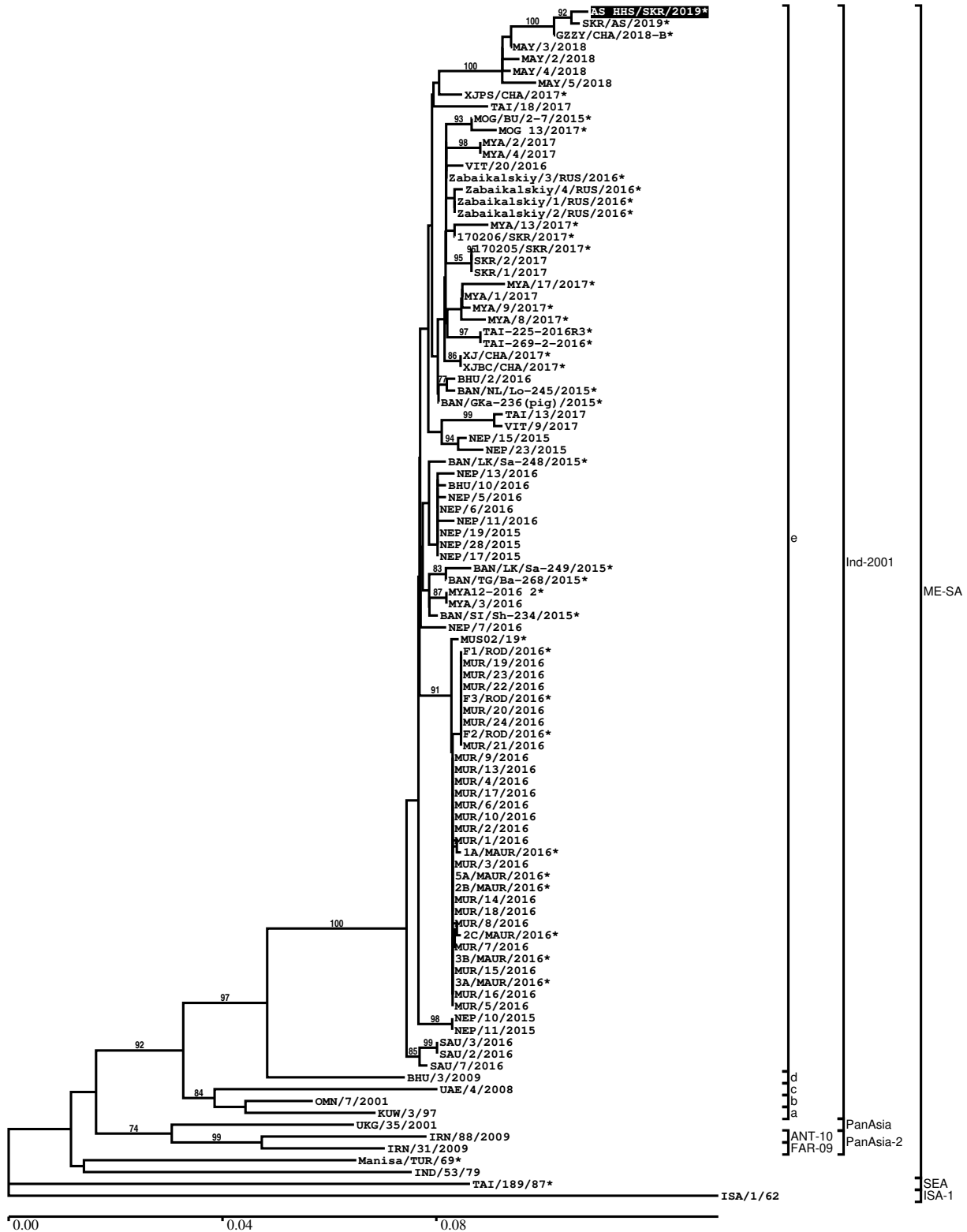
### Most Closely Related Prototype Sequences

see [http://www.wrlfmd.org/fmd\\_genotyping/prototypes.htm](http://www.wrlfmd.org/fmd_genotyping/prototypes.htm)

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30238	MUR/19/2016	cattle	96.2	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	92.1	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.5	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.4	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.1	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.2	0	O	ME-SA	PanAsia	
viba_359	Manisa/TUR/69		87.8	0	O	ME-SA		
viba_766	IRN/31/2009	cattle	86.6	0	O	ME-SA	PanAsia-2	FAR-09
viba_617	IND/53/79	bovine	86.6	0	O	ME-SA		
viba_719	IRN/88/2009		86.5	0	O	ME-SA	PanAsia-2	ANT-10

Report on FMDV O in Republic of Korea (South Korea) in 2019

Batch: WRLMEG/2019/00012



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLMEG/2019/00012-Republic of Korea (South Korea)-O (1 sequences)
Sequence database set:	allseqs_O (4166 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:	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
AS HHS/SKR/2019*	n/a	cattle	APQA	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
SKR/AS/2019*	n/a	cattle	APQA	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
GZZY/CHA/2018-B*	n/a	cattle	LVRI	China	ME-SA/Ind-2001/e
MAY/3/2018	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/2/2018	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/4/2018	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/5/2018	n/a	water buffalo	WRLFMD	Malaysia	ME-SA/Ind-2001/e
XJPS/CHA/2017*	KY696707	n/a	LVRI	China	ME-SA/Ind-2001/e
TAI/18/2017	n/a	cattle	WRLFMD	Thailand	ME-SA/Ind-2001/e
MOG/BU/2-7/2015*	LC320038	cattle	NIAH-Japan	Mongolia	ME-SA/Ind-2001/e
MOG 13/2017*	n/a	cattle	ARRIAH	Mongolia	ME-SA/Ind-2001/e
MYA/2/2017	MG972518	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/e
MYA/4/2017	MG972519	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/e
VIT/20/2016	MG972619	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
Zabaikalskiy/3/RUS/2016*	MG972584	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
Zabaikalskiy/4/RUS/2016*	MG972585	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
Zabaikalskiy/1/RUS/2016*	MG983720	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
Zabaikalskiy/2/RUS/2016*	MG972583	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
MYA/13/2017*	MG972527	cattle	TRRL	Myanmar	ME-SA/Ind-2001/e
170206/SKR/2017*	n/a	cattle	QIA	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
170205/SKR/2017*	n/a	cattle	QIA	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
SKR/2/2017	MG972600	cattle	WRLFMD	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
SKR/1/2017	MG972599	cattle	WRLFMD	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
MYA/17/2017*	MG972528	cattle	TRRL	Myanmar	ME-SA/Ind-2001/e
MYA/1/2017	MG972517	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/e

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
MYA/9/2017*	MG972523	cattle	TRRL	Myanmar	ME-SA/Ind-2001/e
MYA/8/2017*	MG972522	water buffalo	TRRL	Myanmar	ME-SA/Ind-2001/e
TAI-225-2016R3*	MG972601	cattle	TRRL	Thailand	ME-SA/Ind-2001/e
TAI-269-2-2016*	MG972602	cattle	TRRL	Thailand	ME-SA/Ind-2001/e
XJ/CHA/2017*	MF461724	cattle	LVRI	China	ME-SA/Ind-2001/e
XJBC/CHA/2017*	KY696708	n/a	LVRI	China	ME-SA/Ind-2001/e
BHU/2/2016	MG972480	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/e
BAN/NL/Lo-245/2015*	KY077611	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
BAN/GKa-236(pig)/2015*	KX712091	porcine	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
TAI/13/2017	n/a	cattle	WRLFMD	Thailand	ME-SA/Ind-2001/e
VIT/9/2017	n/a	bovine	WRLFMD	Vietnam	ME-SA/Ind-2001/e
NEP/15/2015	MG972547	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/23/2015	MG972550	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
BAN/LK/Sa-248/2015*	KY077612	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
NEP/13/2016	MG972561	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
BHU/10/2016	MG972484	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/e
NEP/5/2016	KY449053	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/6/2016	KY449054	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/11/2016	MG972559	goat	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/19/2015	KY449051	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/28/2015	KY449052	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/17/2015	KY449050	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
BAN/LK/Sa-249/2015*	KY077613	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
BAN/TG/Ba-268/2015*	KY077621	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
MYA12-2016 2*	n/a	n/a	TRRL	Myanmar	ME-SA/Ind-2001/e
MYA/3/2016	MG972516	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/e
BAN/SI/Sh-234/2015*	KY077610	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
NEP/7/2016	KY449055	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
MUS02/19*	n/a	bovine	BVI	Mauritius	ME-SA/Ind-2001/e
F1/ROD/2016*	n/a	bovine	ANSES	Mauritius	ME-SA/Ind-2001/e
MUR/19/2016	MG972510	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/23/2016	MG972514	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/22/2016	MG972513	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
F3/ROD/2016*	n/a	bovine	ANSES	Mauritius	ME-SA/Ind-2001/e
MUR/20/2016	MG972511	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/24/2016	MG972515	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
F2/ROD/2016*	n/a	bovine	ANSES	Mauritius	ME-SA/Ind-2001/e
MUR/21/2016	MG972512	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/9/2016	MG972501	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/13/2016	MG972504	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/4/2016	MG972496	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/17/2016	MG972508	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/6/2016	MG972498	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/10/2016	MG972502	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/2/2016	MG972494	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/1/2016	MG972493	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
1A/MAUR/2016*	n/a	bovine	ANSES	Mauritius	ME-SA/Ind-2001/e
MUR/3/2016	MG972495	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
5A/MAUR/2016*	n/a	bovine	ANSES	Mauritius	ME-SA/Ind-2001/e
2B/MAUR/2016*	n/a	bovine	ANSES	Mauritius	ME-SA/Ind-2001/e
MUR/14/2016	MG972505	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/18/2016	MG972509	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/8/2016	MG972500	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
2C/MAUR/2016*	n/a	bovine	ANSES	Mauritius	ME-SA/Ind-2001/e
MUR/7/2016	MG972499	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
3B/MAUR/2016*	n/a	bovine	ANSES	Mauritius	ME-SA/Ind-2001/e
MUR/15/2016	MG972506	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
3A/MAUR/2016*	n/a	bovine	ANSES	Mauritius	ME-SA/Ind-2001/e
MUR/16/2016	MG972507	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
MUR/5/2016	MG972497	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
NEP/10/2015	MG972543	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/11/2015	MG972544	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
SAU/3/2016	MG972595	bovine	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/e
SAU/2/2016	MG972594	bovine	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/e
SAU/7/2016	MG972596	bovine	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/e
BHU/3/2009	KM921814	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
UAE/4/2008	KM921876	gazelle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/c
OMN/7/2001	DQ164941	bovine	WRLFMD	Oman	ME-SA/Ind-2001/b
KUW/3/97	DQ164904	bovine	WRLFMD	Kuwait	ME-SA/Ind-2001/a
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
IRN/88/2009	KY091282	n/a	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/31/2009	KY091284	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/FAR-09
Manisa/TUR/69*	AY593823	n/a	PIADC	Turkey	ME-SA
IND/53/79	AF292107	bovine	PD-FMD	India	ME-SA
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

\*, not a WRLFMD Reference Number

n/a, not available