

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

## Genotyping Report

FMDV serotype: O  
Country: South Korea, Republic of  
Year: 2017  
Batch: WRLFMD/2017/00001  
No. of sequences: 2  
Report date: 23rd February 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](mailto:reporting@pirbright.ac.uk)

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Virus sample name:	SKR/1/2017
Sender reference:	2017-0001-01 or 02
Location of origin:	Boeun, Chungcheongbuk
Country of origin:	South Korea, Republic of
Date of collection:	05/02/2017
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	d
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	14/02/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	21/02/2017
Created:	23/02/2017
Last updated:	23/02/2017
VIBASys IDs: sample 31945, genome 31946, sequence viba_31947, sequencing info 31948	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_31565	170205/SKR/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_31951	SKR/2/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	99.5	0	O	ME-SA	Ind-2001	d
viba_31573	170206/SKR/2017	cattle	99.4	0	O	ME-SA	Ind-2001	d
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	99.4	0	O	ME-SA	Ind-2001	d
viba_30855	Zabaikalskiy/1/RUS/2016	cattle	99.4	0	O	ME-SA	Ind-2001	d
viba_31082	BAN/GKa-236(pig)/2015	porcine	99.4	0	O	ME-SA	Ind-2001	d
viba_31599	Zabaikalskiy/4/RUS/2016	cattle	99.2	0	O	ME-SA	Ind-2001	d
viba_31492	VIT/20/2016	cattle	99.2	0	O	ME-SA	Ind-2001	d
viba_31541	BHU/2/2016	cattle	99.1	0	O	ME-SA	Ind-2001	d

### 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_293	BHU/3/2009	cattle	93.7	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	92.7	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.8	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.2	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	89.0	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	88.6	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	88.5	0	O	ME-SA	PanAsia-2	
viba_666	IRN/18/2010	cattle	88.2	0	O	ME-SA	PanAsia-2	BAL-09
viba_719	IRN/88/2009		88.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_491	TUR/257/2008		88.0	0	O	ME-SA	PanAsia-2	TER-08

Virus sample name:	SKR/2/2017
Sender reference:	2017-0001-01 or 02
Location of origin:	Boeun, Chungcheongbuk
Country of origin:	South Korea, Republic of
Date of collection:	05/02/2017
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	d
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	14/02/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	21/02/2017
Created:	23/02/2017
Last updated:	23/02/2017
VIBASys IDs: sample 31949, genome 31950, sequence viba_31951, sequencing info 31952	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_31565	170205/SKR/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_31947	SKR/1/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	99.5	0	O	ME-SA	Ind-2001	d
viba_31573	170206/SKR/2017	cattle	99.4	0	O	ME-SA	Ind-2001	d
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	99.4	0	O	ME-SA	Ind-2001	d
viba_30855	Zabaikalskiy/1/RUS/2016	cattle	99.4	0	O	ME-SA	Ind-2001	d
viba_31082	BAN/GKa-236(pig)/2015	porcine	99.4	0	O	ME-SA	Ind-2001	d
viba_31599	Zabaikalskiy/4/RUS/2016	cattle	99.2	0	O	ME-SA	Ind-2001	d
viba_31492	VIT/20/2016	cattle	99.2	0	O	ME-SA	Ind-2001	d
viba_31541	BHU/2/2016	cattle	99.1	0	O	ME-SA	Ind-2001	d

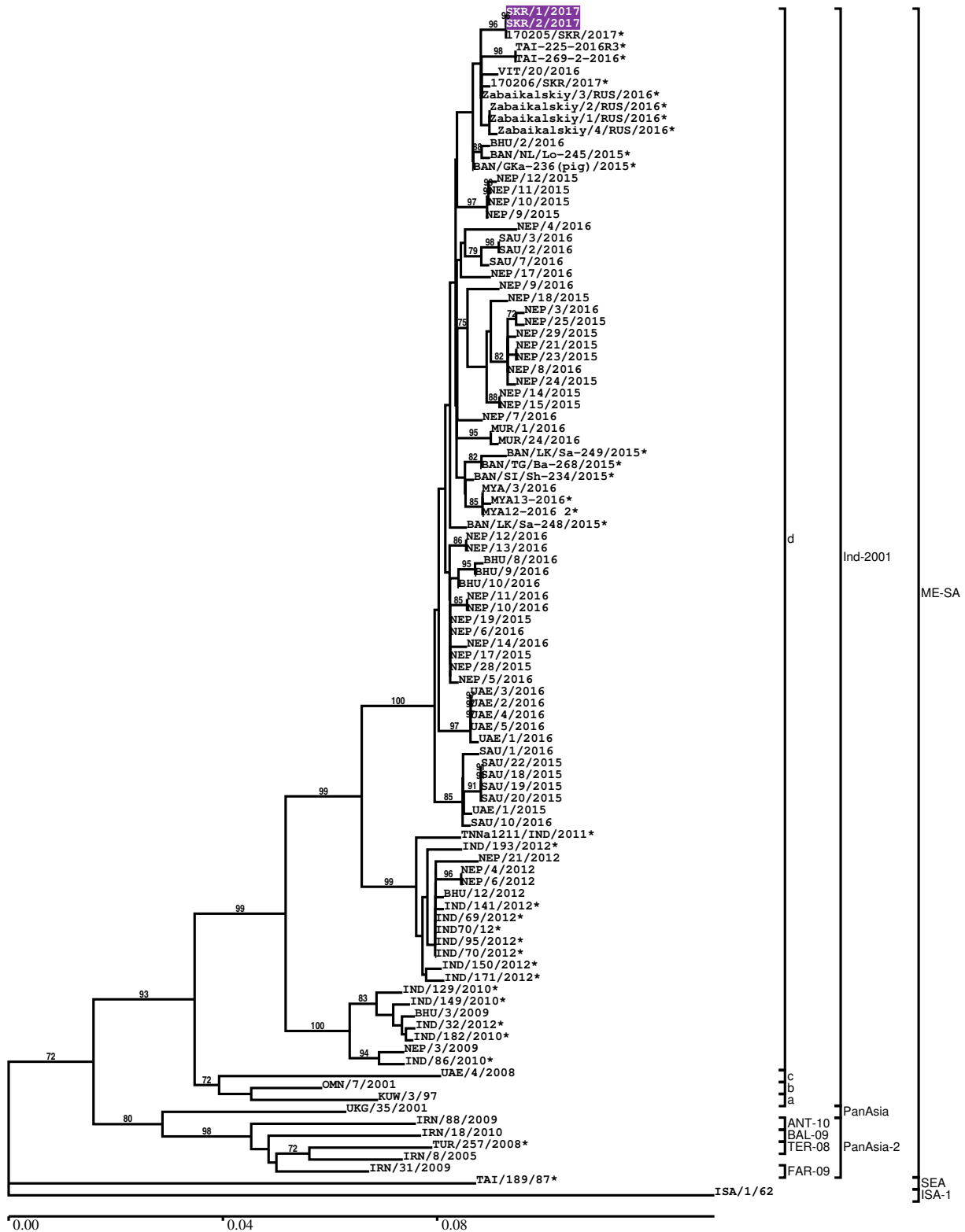
### Most Closely Related Prototype Sequences

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_293	BHU/3/2009	cattle	93.7	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	92.7	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.8	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.2	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	89.0	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	88.6	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	88.5	0	O	ME-SA	PanAsia-2	
viba_666	IRN/18/2010	cattle	88.2	0	O	ME-SA	PanAsia-2	BAL-09
viba_719	IRN/88/2009		88.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_491	TUR/257/2008		88.0	0	O	ME-SA	PanAsia-2	TER-08

Report on FMDV O in South Korea, Republic of in 2017

Batch: WRLFMD/2017/00001



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLFMD/2017/00001-South Korea, Republic of-O (2 sequences)
Sequence database set:	allseqs_O (3304 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:	master-1.1.0-17-gf69a4d1

## Sequences in the Phylogenetic Tree

All sequences in the tree are in taxonomic group FMDV/O

label	accession	host(s)	lab	country	taxonomic information
SKR/1/2017	n/a	cattle	WRLFMD	South Korea, Republic of	ME-SA/Ind-2001/d
SKR/2/2017	n/a	cattle	WRLFMD	South Korea, Republic of	ME-SA/Ind-2001/d
170205/SKR/2017*	n/a	cattle	QIA	South Korea, Republic of	ME-SA/Ind-2001/d
TAI-225-2016R3*	n/a	cattle	TRRL	Thailand	ME-SA/Ind-2001/d
TAI-269-2-2016*	n/a	cattle	TRRL	Thailand	ME-SA/Ind-2001/d
VIT/20/2016	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/d
170206/SKR/2017*	n/a	cattle	QIA	South Korea, Republic of	ME-SA/Ind-2001/d
Zabaikalskiy/3/RUS/2016*	n/a	cattle	ARRIAH	Russia	ME-SA/Ind-2001/d
Zabaikalskiy/2/RUS/2016*	n/a	cattle	ARRIAH	Russia	ME-SA/Ind-2001/d
Zabaikalskiy/1/RUS/2016*	n/a	cattle	ARRIAH	Russia	ME-SA/Ind-2001/d
Zabaikalskiy/4/RUS/2016*	n/a	cattle	ARRIAH	Russia	ME-SA/Ind-2001/d
BHU/2/2016	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BAN/NL/Lo-245/2015*	KY077611	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/d
BAN/GKa-236(pig)/2015*	KX712091	porcine	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/d
NEP/12/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/11/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/10/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/9/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/4/2016	n/a	water buffalo	WRLFMD	Nepal	ME-SA/Ind-2001/d
SAU/3/2016	n/a	bovine	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/d
SAU/2/2016	n/a	bovine	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/d
SAU/7/2016	n/a	bovine	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/d
NEP/17/2016	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/9/2016	n/a	porcine	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/18/2015	n/a	porcine	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/3/2016	n/a	water buffalo	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/25/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/29/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/21/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/23/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/8/2016	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/24/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/14/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d

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label	accession	host(s)	lab	country	taxonomic information
NEP/15/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/7/2016	KY449055	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
MUR/1/2016	n/a	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/d
MUR/24/2016	n/a	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/d
BAN/LK/Sa-249/2015*	KY077613	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/d
BAN/TG/Ba-268/2015*	KY077621	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/d
BAN/SI/Sh-234/2015*	KY077610	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/d
MYA/3/2016	n/a	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/d
MYA13-2016*	n/a	n/a	TRRL	Myanmar	ME-SA/Ind-2001/d
MYA12-2016 2*	n/a	n/a	TRRL	Myanmar	ME-SA/Ind-2001/d
BAN/LK/Sa-248/2015*	KY077612	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/d
NEP/12/2016	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/13/2016	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
BHU/8/2016	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/9/2016	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/10/2016	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
NEP/11/2016	n/a	goats	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/10/2016	n/a	goats	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/19/2015	KY449051	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/6/2016	KY449054	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/14/2016	n/a	water buffalo	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/17/2015	KY449050	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/28/2015	KY449052	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/5/2016	KY449053	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
UAE/3/2016	n/a	cattle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/d
UAE/2/2016	n/a	cattle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/d
UAE/4/2016	n/a	cattle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/d
UAE/5/2016	n/a	cattle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/d
UAE/1/2016	n/a	cattle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/d
SAU/1/2016	n/a	cattle	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/d
SAU/22/2015	n/a	bovine	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/d
SAU/18/2015	n/a	bovine	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/d
SAU/19/2015	n/a	bovine	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/d
SAU/20/2015	n/a	bovine	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/d
UAE/1/2015	n/a	gazelle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/d
SAU/10/2016	n/a	bovine	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/d
TNNa1211/IND/2011*	JX070623	cattle	IND-IMMUN	India	ME-SA/Ind-2001/d
IND/193/2012*	KC506530	cattle	PD-FMD	India	ME-SA/Ind-2001/d
NEP/21/2012	KM921852	water buffalo	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/4/2012	KM921846	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/6/2012	KM921847	water buffalo	WRLFMD	Nepal	ME-SA/Ind-2001/d
BHU/12/2012	KM921827	bovine	WRLFMD	Bhutan	ME-SA/Ind-2001/d
IND/141/2012*	KC506527	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/69/2012*	KC506524	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND70/12*	KP822945	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/95/2012*	KC506526	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/70/2012*	KC506525	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/150/2012*	KC506528	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/171/2012*	KC506529	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/129/2010*	KC506471	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/149/2010*	KC506475	cattle	PD-FMD	India	ME-SA/Ind-2001/d
BHU/3/2009	KM921814	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
IND/32/2012*	KC506511	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/182/2010*	KC506478	cattle	PD-FMD	India	ME-SA/Ind-2001/d
NEP/3/2009	KM921842	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
IND/86/2010*	KC506519	cattle	PD-FMD	India	ME-SA/Ind-2001/d
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

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label	accession	host(s)	lab	country	taxonomic information
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/18/2010	KY091283	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/BAL-09
TUR/257/2008*	n/a	n/a	FMDI-Ankara	Turkey	ME-SA/PanAsia-2/TER-08
IRN/8/2005	KY091281	ovine	WRLFMD	Iran	ME-SA/PanAsia-2
IRN/31/2009	KY091284	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/FAR-09
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