

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

Genotyping Report

VPI sequences provided by Dr. Alexei Scherbakov, FGBI-ARRIAH

FMDV serotype:	O
Country:	Russia
Year:	2016
Batch:	WRLMEG/2017/00013
No. of sequences:	2
Report date:	13th February 2017
Report generated by:	Nick Knowles
Report checked by:	Antonello Di Nardo



Copyright © 2017 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:	Zabaikalskiy/3/RUS/2016
Sender reference:	O/Zabaikalskiy/3/RUS/2016
Location of origin:	Pad' Shirokaya, Priargunskiy raion, Zabaikalskiy kray
Country of origin:	Russia
Date of collection:	28/11/2016
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	d
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:	13/02/2017
Last updated:	13/02/2017

VIBASys IDs: sample 31593, genome 31594, sequence viba_31595, sequencing info 31596

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_30855	Zabaikalskiy/1/RUS/2016	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_31573	170206/SKR/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_31082	BAN/GKa-236(pig)/2015	porcine	99.8	0	O	ME-SA	Ind-2001	d
viba_31599	Zabaikalskiy/4/RUS/2016	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_31492	VIT/20/2016	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_31135	BAN/NL/Lo-245/2015	cattle	99.5	0	O	ME-SA	Ind-2001	d
viba_31565	170205/SKR/2017	cattle	99.5	0	O	ME-SA	Ind-2001	d
viba_31541	BHU/2/2016	cattle	99.5	0	O	ME-SA	Ind-2001	d
viba_30547	TAI-225-2016R3	cattle	99.4	0	O	ME-SA	Ind-2001	d

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	94.2	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	92.9	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	92.0	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.4	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	89.1	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	88.5	0	O	ME-SA	PanAsia-2	FAR-09
viba_359	Manisa/TUR/69		88.3	0	O	ME-SA		
viba_650	IRN/8/2005	ovine	88.3	0	O	ME-SA	PanAsia-2	
viba_666	IRN/18/2010	cattle	88.0	0	O	ME-SA	PanAsia-2	BAL-09
viba_719	IRN/88/2009		88.0	0	O	ME-SA	PanAsia-2	ANT-10

Virus sample name:	Zabaikalskiy/4/RUS/2016
Sender reference:	O/Zabaikalskiy/4/RUS/2016
Location of origin:	Kailastuy, Krasnokamenskiy, Zabajkalskiy kray
Country of origin:	Russia
Date of collection:	14/12/2016
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	d
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:	13/02/2017
Last updated:	13/02/2017
VIBASys IDs: sample 31597, genome 31598, sequence viba_31599, sequencing info 31600	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_30855	Zabaikalskiy/1/RUS/2016	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_31573	170206/SKR/2017	cattle	99.5	0	O	ME-SA	Ind-2001	d
viba_31082	BAN/GKa-236(pig)/2015	porcine	99.5	0	O	ME-SA	Ind-2001	d
viba_31492	VIT/20/2016	cattle	99.4	0	O	ME-SA	Ind-2001	d
viba_31135	BAN/NL/Lo-245/2015	cattle	99.2	0	O	ME-SA	Ind-2001	d
viba_31565	170205/SKR/2017	cattle	99.2	0	O	ME-SA	Ind-2001	d
viba_31541	BHU/2/2016	cattle	99.2	0	O	ME-SA	Ind-2001	d
viba_30547	TAI-225-2016R3	cattle	99.1	0	O	ME-SA	Ind-2001	d

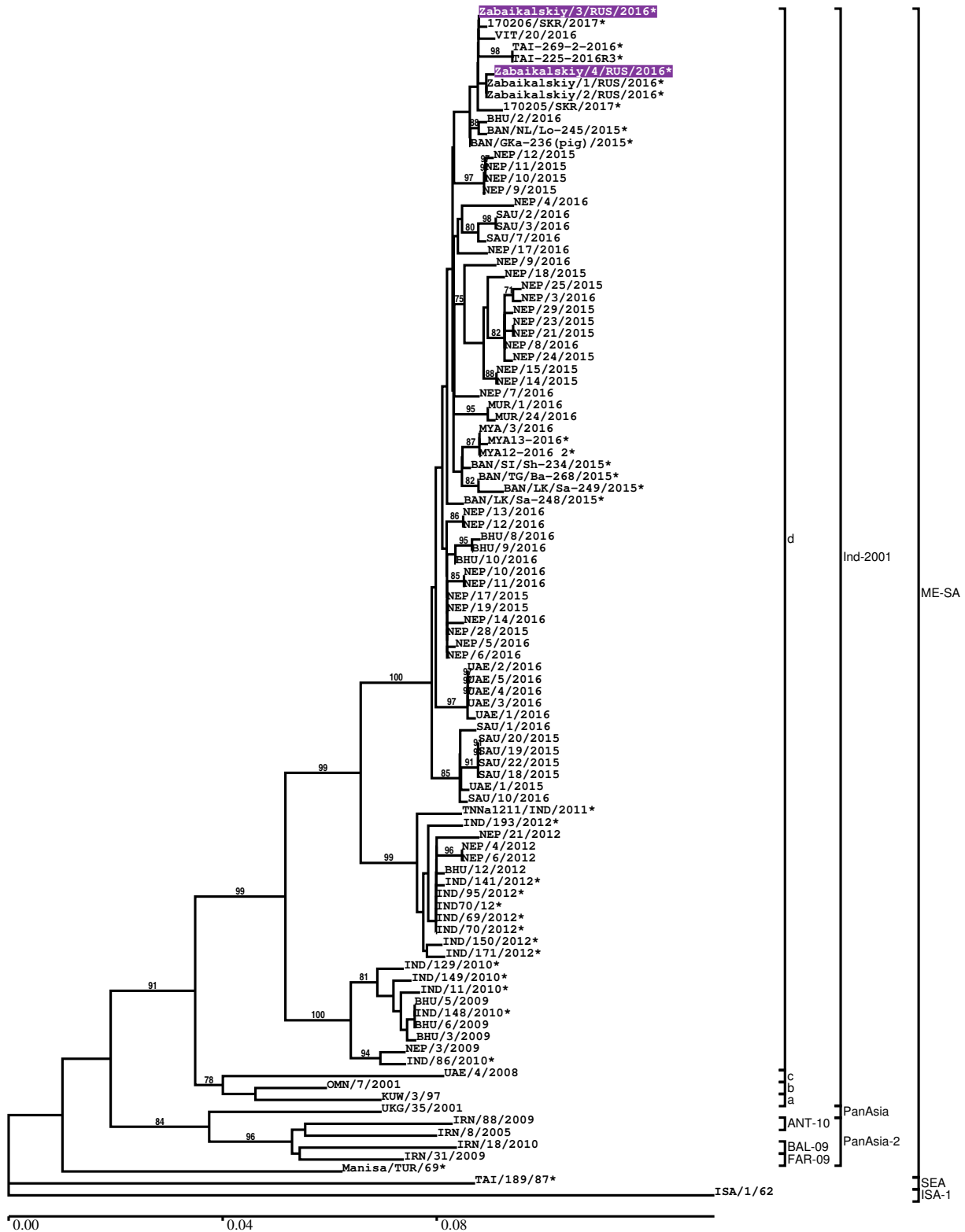
Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	93.8	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	92.6	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.6	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.1	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	89.1	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	88.5	0	O	ME-SA	PanAsia-2	FAR-09
viba_359	Manisa/TUR/69		88.3	0	O	ME-SA		
viba_650	IRN/8/2005	ovine	88.3	0	O	ME-SA	PanAsia-2	
viba_666	IRN/18/2010	cattle	88.0	0	O	ME-SA	PanAsia-2	BAL-09
viba_719	IRN/88/2009		88.0	0	O	ME-SA	PanAsia-2	ANT-10

Report on FMDV O in Russia in 2016

Batch: WRLMEG/2017/00013



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor: vp1_O
 Query sequence set: WRLMEG/2017/00013-Russia-O (2 sequences)
 Sequence database set: allseqs_O (3290 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
Zabaikalskiy/3/RUS/2016*	n/a	cattle	ARRIAH	Russia	ME-SA/Ind-2001/d
170206/SKR/2017*	n/a	cattle	QIA	South Korea, Republic of	ME-SA/Ind-2001/d
VIT/20/2016	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/d
TAI-269-2-2016*	n/a	cattle	TRRL	Thailand	ME-SA/Ind-2001/d
TAI-225-2016R3*	n/a	cattle	TRRL	Thailand	ME-SA/Ind-2001/d
Zabaikalskiy/4/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/2/RUS/2016*	n/a	cattle	ARRIAH	Russia	ME-SA/Ind-2001/d
170205/SKR/2017*	n/a	cattle	QIA	South Korea, Republic of	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/2/2016	n/a	bovine	WRLFMD	Saudi Arabia	ME-SA/Ind-2001/d
SAU/3/2016	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/25/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/3/2016	n/a	water buffalo	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/29/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/23/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/21/2015	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/15/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/14/2015	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

continued on next page

label	accession	host(s)	lab	country	taxonomic information
MUR/24/2016	n/a	cattle	WRLFMD	Mauritius	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/SI/Sh-234/2015*	KY077610	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/LK/Sa-249/2015*	KY077613	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/d
BAN/LK/Sa-248/2015*	KY077612	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/d
NEP/13/2016	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/12/2016	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/10/2016	n/a	goats	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/11/2016	n/a	goats	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/17/2015	KY449050	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/19/2015	KY449051	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/14/2016	n/a	water buffalo	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
NEP/6/2016	KY449054	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
UAE/2/2016	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/4/2016	n/a	cattle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/d
UAE/3/2016	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/20/2015	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/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
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/95/2012*	KC506526	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND70/12*	KP822945	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/69/2012*	KC506524	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
IND/11/2010*	KC506453	cattle	PD-FMD	India	ME-SA/Ind-2001/d
BHU/5/2009	KM921816	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
IND/148/2010*	KC506474	cattle	PD-FMD	India	ME-SA/Ind-2001/d
BHU/6/2009	KM921817	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/3/2009	KM921814	cattle	WRLFMD	Bhutan	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
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia

continued on next page

label	accession	host(s)	lab	country	taxonomic information
IRN/88/2009	KY091282	n/a	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/8/2005	KY091281	ovine	WRLFMD	Iran	ME-SA/PanAsia-2
IRN/18/2010	KY091283	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/BAL-09
IRN/31/2009	KY091284	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/FAR-09
Manisa/TUR/69*	AY593823	n/a	PIADC	Turkey	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