

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

## Genotyping Report

VP1 sequences provided by Dr. Alexei Scherbakov, FGBI-ARRIAH

FMDV serotype:	O
Country:	Russia
Year:	2016
Batch:	WRLMEG/2016/00025
No. of sequences:	2
Report date:	30th November 2016
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:	Zabaikalskiy/1/RUS/2016
Sender reference:	O/Zabaikalskiy/1/RUS/2016
Location of origin:	Sredneargunsk, Krasnokamenskiy raion, Zabaikalskiy kray
Country of origin:	Russia
Date of collection:	23/11/2016
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:	30/11/2016
Last updated:	30/11/2016
VIBASys IDs: sample 30853, genome 30854, sequence viba_30855, sequencing info 30856	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30547	TAI-225-2016R3		99.2	0	O	ME-SA	Ind-2001	d
viba_30551	TAI-269-2-2016		99.2	0	O	ME-SA	Ind-2001	d
viba_26125	NEP/19/2015	cattle	99.1	0	O	ME-SA	Ind-2001	d
viba_29927	NEP/6/2016	cattle	99.1	0	O	ME-SA	Ind-2001	d
viba_29907	NEP/28/2015	cattle	99.1	0	O	ME-SA	Ind-2001	d
viba_29951	NEP/12/2016	cattle	99.1	0	O	ME-SA	Ind-2001	d
viba_26117	NEP/17/2015	cattle	99.1	0	O	ME-SA	Ind-2001	d
viba_29955	NEP/13/2016	cattle	99.1	0	O	ME-SA	Ind-2001	d
viba_29923	NEP/5/2016	cattle	98.9	0	O	ME-SA	Ind-2001	d
viba_30486	MYA/3/2016	cattle	98.9	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	94.0	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	88.3	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	88.2	0	O	ME-SA	PanAsia-2	
viba_359	Manisa/TUR/69		88.2	0	O	ME-SA		
viba_719	IRN/88/2009		87.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_666	IRN/18/2010	cattle	87.8	0	O	ME-SA	PanAsia-2	BAL-09

Virus sample name:	Zabaikalskiy/2/RUS/2016
Sender reference:	O/Zabaikalskiy/2/RUS/2016
Location of origin:	Sredneargunsk, Krasnokamenskiy raion, Zabaikalskiy kray
Country of origin:	Russia
Date of collection:	23/11/2016
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:	30/11/2016
Last updated:	30/11/2016

VIBASys IDs: sample 30857, genome 30858, sequence viba\_30859, sequencing info 30860

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30547	TAI-225-2016R3		99.2	0	O	ME-SA	Ind-2001	d
viba_30551	TAI-269-2-2016		99.2	0	O	ME-SA	Ind-2001	d
viba_26125	NEP/19/2015	cattle	99.1	0	O	ME-SA	Ind-2001	d
viba_29927	NEP/6/2016	cattle	99.1	0	O	ME-SA	Ind-2001	d
viba_29907	NEP/28/2015	cattle	99.1	0	O	ME-SA	Ind-2001	d
viba_29951	NEP/12/2016	cattle	99.1	0	O	ME-SA	Ind-2001	d
viba_26117	NEP/17/2015	cattle	99.1	0	O	ME-SA	Ind-2001	d
viba_29955	NEP/13/2016	cattle	99.1	0	O	ME-SA	Ind-2001	d
viba_29923	NEP/5/2016	cattle	98.9	0	O	ME-SA	Ind-2001	d
viba_30486	MYA/3/2016	cattle	98.9	0	O	ME-SA	Ind-2001	d

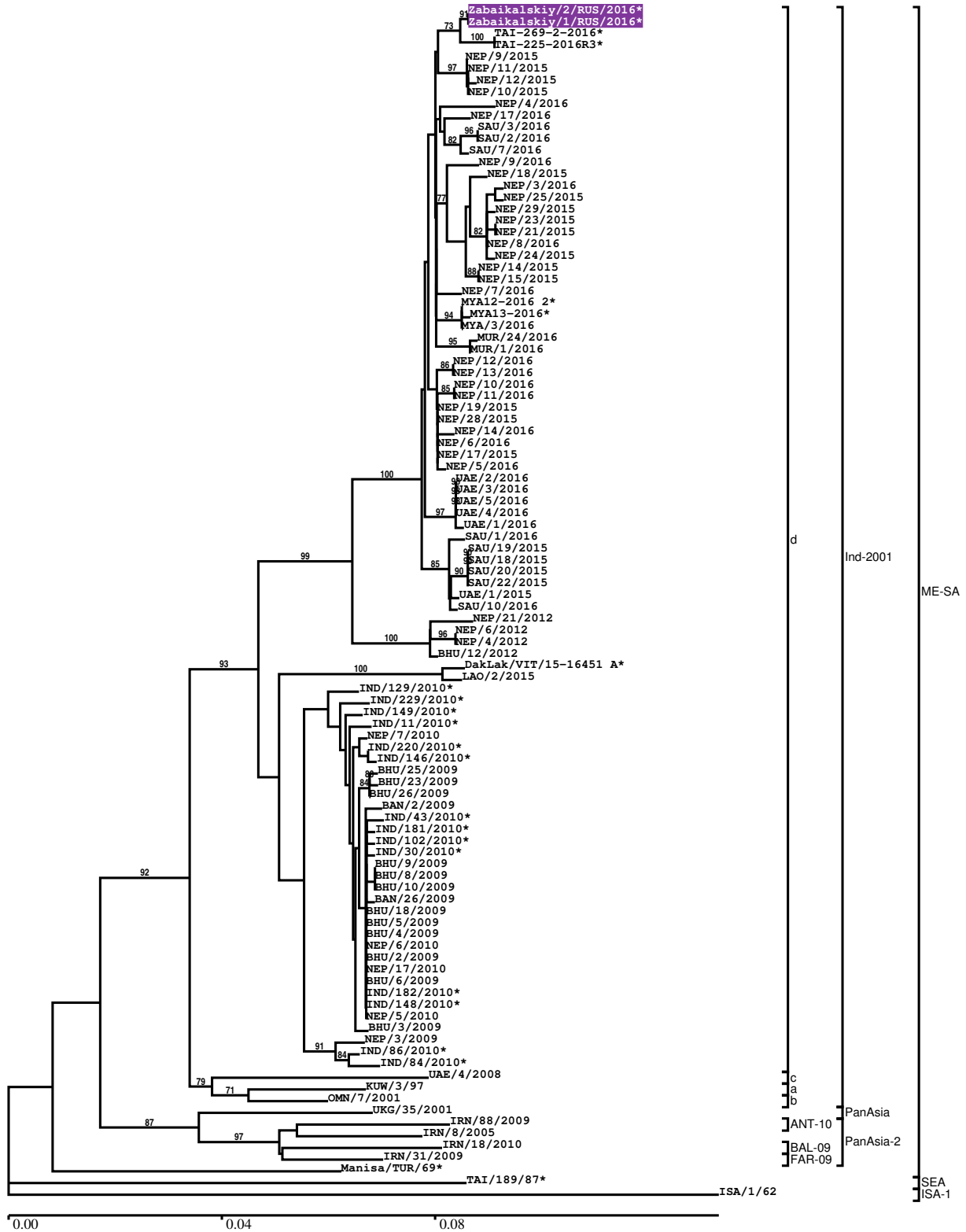
#### Most Closely Related Prototype Sequences

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	94.0	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	88.3	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	88.2	0	O	ME-SA	PanAsia-2	
viba_359	Manisa/TUR/69		88.2	0	O	ME-SA		
viba_719	IRN/88/2009		87.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_666	IRN/18/2010	cattle	87.8	0	O	ME-SA	PanAsia-2	BAL-09

Report on FMDV O in Russia in 2016

Batch: WRLMEG/2016/00025



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLMEG/2016/00025-Russia-O (2 sequences)
Sequence database set:	allseqs_O (3141 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:	reflabs-1.1.0

## 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/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
TAI-269-2-2016*	n/a	n/a	TRRL	Thailand	ME-SA/Ind-2001/d
TAI-225-2016R3*	n/a	n/a	TRRL	Thailand	ME-SA/Ind-2001/d
NEP/9/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/11/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/12/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/10/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/4/2016	n/a	water buffalo	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/17/2016	n/a	cattle	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/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/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/14/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/15/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/7/2016	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
MYA12-2016 2*	n/a	n/a	TRRL	Myanmar	ME-SA/Ind-2001/d
MYA13-2016*	n/a	n/a	TRRL	Myanmar	ME-SA/Ind-2001/d
MYA/3/2016	n/a	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/d
MUR/24/2016	n/a	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/d
MUR/1/2016	n/a	cattle	WRLFMD	Mauritius	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
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/19/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/28/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
NEP/14/2016	n/a	water buffalo	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/6/2016	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/17/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/5/2016	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
UAE/2/2016	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/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/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/19/2015	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/20/2015	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
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
NEP/21/2012	KM921852	water buffalo	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/6/2012	KM921847	water buffalo	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/4/2012	KM921846	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
BHU/12/2012	KM921827	bovine	WRLFMD	Bhutan	ME-SA/Ind-2001/d
DakLak/VIT/15-16451 A*	n/a	porcine	RAHO6	Vietnam	ME-SA/Ind-2001/d
LAO/2/2015	n/a	n/a	WRLFMD	Laos	ME-SA/Ind-2001/d
IND/129/2010*	KC506471	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/229/2010*	KC506483	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
NEP/7/2010	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
IND/220/2010*	KC506481	sheep	PD-FMD	India	ME-SA/Ind-2001/d
IND/146/2010*	KC506473	cattle	PD-FMD	India	ME-SA/Ind-2001/d
BHU/25/2009	KM921825	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/23/2009	KM921824	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/26/2009	KM921826	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BAN/2/2009	HQ630677	cattle	WRLFMD	Bangladesh	ME-SA/Ind-2001/d
IND/43/2010*	KC506459	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/181/2010*	KC506477	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/102/2010*	KC506466	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/30/2010*	KC506456	water buffalo	PD-FMD	India	ME-SA/Ind-2001/d
BHU/9/2009	KM921819	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/8/2009	KM921818	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/10/2009	KM921820	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BAN/26/2009	HQ630687	cattle	WRLFMD	Bangladesh	ME-SA/Ind-2001/d
BHU/18/2009	KM921822	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/5/2009	KM921816	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/4/2009	KM921815	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
NEP/6/2010	KM921844	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
BHU/2/2009	KM921813	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
NEP/17/2010	KM921845	porcine	WRLFMD	Nepal	ME-SA/Ind-2001/d
BHU/6/2009	KM921817	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
IND/182/2010*	KC506478	cattle	PD-FMD	India	ME-SA/Ind-2001/d
IND/148/2010*	KC506474	cattle	PD-FMD	India	ME-SA/Ind-2001/d
NEP/5/2010	KM921843	cattle	WRLFMD	Nepal	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
IND/84/2010*	KC506518	cattle	PD-FMD	India	ME-SA/Ind-2001/d
UAE/4/2008	KM921876	gazelle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/c
KUW/3/97	DQ164904	bovine	WRLFMD	Kuwait	ME-SA/Ind-2001/a
OMN/7/2001	DQ164941	bovine	WRLFMD	Oman	ME-SA/Ind-2001/b
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia

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label	accession	host(s)	lab	country	taxonomic information
IRN/88/2009	n/a	n/a	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/8/2005	n/a	ovine	WRLFMD	Iran	ME-SA/PanAsia-2
IRN/18/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/BAL-09
IRN/31/2009	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/FAR-09
Manisa/TUR/69*	AY593823	n/a	PIADC	Turkey	ME-SA
TAI/189/87*	n/a	bovine	TRRL	Thailand	SEA
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

\*, not a WRLFMD Reference Number

n/a, not available