

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

## Genotyping Report

FMDV serotype: O  
Country: Bhutan  
Year: 2017  
Batch: WRLFMD/2017/00019  
No. of sequences: 15  
Report date: 25th August 2017  
Report generated by: Nick Knowles  
Report checked by: Kasia Bankowska



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Virus sample name:	BHU/4/2017
Sender reference:	206-1
Location of origin:	Dangragoan, Samtse, Tshimasham, South Western
Country of origin:	Bhutan
Date of collection:	08/04/2017
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:	15/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017

VIBASys IDs: sample 34319, genome 34320, sequence viba\_34321, sequencing info 34322

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34325	BHU/5/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34126	NEP/3/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_32295	NEP/2/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_32279	NEP/36/2016	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34138	NEP/10/2017	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_32291	NEP/1/2017	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_32287	NEP/39/2016	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_34134	NEP/8/2017	cattle	99.5	0	O	ME-SA	Ind-2001	d
viba_34130	NEP/4/2017	cattle	99.5	0	O	ME-SA	Ind-2001	d
viba_26125	NEP/19/2015	cattle	97.6	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	93.8	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	92.3	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.0	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.7	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.8	0	O	ME-SA	PanAsia	
viba_617	IND/53/79	bovine	88.5	0	O	ME-SA		
viba_650	IRN/8/2005	ovine	88.2	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	88.2	0	O	ME-SA	PanAsia-2	FAR-09
viba_359	Manisa/TUR/69		88.2	0	O	ME-SA		
viba_719	IRN/88/2009		87.4	0	O	ME-SA	PanAsia-2	ANT-10

Virus sample name:	BHU/5/2017
Sender reference:	206-2
Location of origin:	Dangragoan, Samtse, Tshimasham, South Western
Country of origin:	Bhutan
Date of collection:	08/04/2017
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:	16/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34323, genome 34324, sequence viba_34325, sequencing info 34326	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34321	BHU/4/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34126	NEP/3/2017	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_32295	NEP/2/2017	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_32279	NEP/36/2016	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_34138	NEP/10/2017	cattle	99.5	0	O	ME-SA	Ind-2001	d
viba_32291	NEP/1/2017	cattle	99.5	0	O	ME-SA	Ind-2001	d
viba_32287	NEP/39/2016	cattle	99.5	0	O	ME-SA	Ind-2001	d
viba_34134	NEP/8/2017	cattle	99.4	0	O	ME-SA	Ind-2001	d
viba_34130	NEP/4/2017	cattle	99.4	0	O	ME-SA	Ind-2001	d
viba_26125	NEP/19/2015	cattle	97.5	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	92.1	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.2	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.9	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	89.0	0	O	ME-SA	PanAsia	
viba_617	IND/53/79	bovine	88.6	0	O	ME-SA		
viba_650	IRN/8/2005	ovine	88.3	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	88.3	0	O	ME-SA	PanAsia-2	FAR-09
viba_359	Manisa/TUR/69		88.3	0	O	ME-SA		
viba_719	IRN/88/2009		87.5	0	O	ME-SA	PanAsia-2	ANT-10

Virus sample name:	BHU/8/2017
Sender reference:	315
Location of origin:	Tshendona, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	08/06/2017
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:	15/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34327, genome 34328, sequence viba_34329, sequencing info 34330	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34373	BHU/21/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34357	BHU/17/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34377	BHU/22/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34353	BHU/16/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34349	BHU/15/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34333	BHU/11/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34361	BHU/18/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34365	BHU/19/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34369	BHU/20/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34345	BHU/14/2017	cattle	99.8	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	92.9	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	90.9	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.5	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	87.9	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	87.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		87.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.4	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.2	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		

Virus sample name:	BHU/11/2017
Sender reference:	359
Location of origin:	Bara, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	14/07/2017
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:	17/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34331, genome 34332, sequence viba_34333, sequencing info 34334	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34373	BHU/21/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34357	BHU/17/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34377	BHU/22/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34353	BHU/16/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34349	BHU/15/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34329	BHU/8/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34361	BHU/18/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34365	BHU/19/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34369	BHU/20/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34345	BHU/14/2017	cattle	99.8	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	92.9	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	90.9	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.5	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	87.9	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	87.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		87.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.4	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.2	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		

Virus sample name:	BHU/12/2017
Sender reference:	370-1
Location of origin:	Nyoba, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	19/07/2017
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:	17/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34335, genome 34336, sequence viba_34337, sequencing info 34338	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34345	BHU/14/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34341	BHU/13/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34373	BHU/21/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34357	BHU/17/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34377	BHU/22/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34353	BHU/16/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34349	BHU/15/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34329	BHU/8/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34333	BHU/11/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34361	BHU/18/2017	cattle	99.7	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	92.7	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.6	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.0	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.4	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	87.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	87.7	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.2	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.0	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.0	0	O	ME-SA		

Virus sample name:	BHU/13/2017
Sender reference:	370-2
Location of origin:	Nyoba, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	19/07/2017
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:	17/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34339, genome 34340, sequence viba_34341, sequencing info 34342	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34345	BHU/14/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34337	BHU/12/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34373	BHU/21/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34357	BHU/17/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34377	BHU/22/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34353	BHU/16/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34349	BHU/15/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34329	BHU/8/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34333	BHU/11/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34361	BHU/18/2017	cattle	99.7	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	92.7	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.6	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.0	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.4	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	87.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	87.7	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.2	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.0	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.0	0	O	ME-SA		

Virus sample name:	BHU/14/2017
Sender reference:	370-3
Location of origin:	Nyoba, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	19/07/2017
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:	17/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34343, genome 34344, sequence viba_34345, sequencing info 34346	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34341	BHU/13/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34337	BHU/12/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34373	BHU/21/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34357	BHU/17/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34377	BHU/22/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34353	BHU/16/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34349	BHU/15/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34329	BHU/8/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34333	BHU/11/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34361	BHU/18/2017	cattle	99.7	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	92.7	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.6	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.0	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.4	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	87.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	87.7	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.2	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.0	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.0	0	O	ME-SA		



Virus sample name:	BHU/15/2017
Sender reference:	373-1
Location of origin:	Shari&Luni, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	21/07/2017
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:	18/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34347, genome 34348, sequence viba_34349, sequencing info 34350	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34373	BHU/21/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34357	BHU/17/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34377	BHU/22/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34353	BHU/16/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34329	BHU/8/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34333	BHU/11/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34361	BHU/18/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34365	BHU/19/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34369	BHU/20/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34345	BHU/14/2017	cattle	99.8	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	92.9	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	90.9	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.5	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	87.9	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	87.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		87.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.4	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.2	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		

Virus sample name:	BHU/16/2017
Sender reference:	373-2
Location of origin:	Shari&Luni, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	21/07/2017
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:	17/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34351, genome 34352, sequence viba_34353, sequencing info 34354	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34373	BHU/21/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34357	BHU/17/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34377	BHU/22/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34349	BHU/15/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34329	BHU/8/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34333	BHU/11/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34361	BHU/18/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34365	BHU/19/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34369	BHU/20/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34345	BHU/14/2017	cattle	99.8	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	92.9	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	90.9	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.5	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	87.9	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	87.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		87.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.4	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.2	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		

Virus sample name:	BHU/17/2017
Sender reference:	373-3
Location of origin:	Shari&Luni, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	21/07/2017
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:	18/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34355, genome 34356, sequence viba_34357, sequencing info 34358	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34373	BHU/21/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34377	BHU/22/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34353	BHU/16/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34349	BHU/15/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34329	BHU/8/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34333	BHU/11/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34361	BHU/18/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34365	BHU/19/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34369	BHU/20/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34345	BHU/14/2017	cattle	99.8	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	92.9	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	90.9	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.5	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	87.9	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	87.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		87.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.4	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.2	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		

Virus sample name:	BHU/18/2017
Sender reference:	373-4
Location of origin:	Shari&Luni, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	21/07/2017
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:	18/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34359, genome 34360, sequence viba_34361, sequencing info 34362	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34373	BHU/21/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34357	BHU/17/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34377	BHU/22/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34353	BHU/16/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34349	BHU/15/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34329	BHU/8/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34333	BHU/11/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34365	BHU/19/2017	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_34369	BHU/20/2017	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_34345	BHU/14/2017	cattle	99.7	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	92.7	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.6	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.0	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.4	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	88.0	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	88.0	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.5	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.4	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.4	0	O	ME-SA		

Virus sample name:	BHU/19/2017
Sender reference:	373-5
Location of origin:	Shari&Luni, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	21/07/2017
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:	18/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34363, genome 34364, sequence viba_34365, sequencing info 34366	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34373	BHU/21/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34357	BHU/17/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34377	BHU/22/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34353	BHU/16/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34349	BHU/15/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34329	BHU/8/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34333	BHU/11/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34361	BHU/18/2017	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_34369	BHU/20/2017	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_34345	BHU/14/2017	cattle	99.7	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	92.7	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.3	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.7	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.7	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	87.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	87.7	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.2	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.0	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.0	0	O	ME-SA		

Virus sample name:	BHU/20/2017
Sender reference:	373-6
Location of origin:	Shari&Luni, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	21/07/2017
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:	18/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34367, genome 34368, sequence viba_34369, sequencing info 34370	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34373	BHU/21/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34357	BHU/17/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34377	BHU/22/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34353	BHU/16/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34349	BHU/15/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34329	BHU/8/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34333	BHU/11/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34361	BHU/18/2017	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_34365	BHU/19/2017	cattle	99.7	0	O	ME-SA	Ind-2001	d
viba_34345	BHU/14/2017	cattle	99.7	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	93.0	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.3	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.7	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.4	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	87.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	87.7	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.2	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.0	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.0	0	O	ME-SA		

Virus sample name:	BHU/21/2017
Sender reference:	374-1
Location of origin:	Dotey, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	22/07/2017
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:	18/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34371, genome 34372, sequence viba_34373, sequencing info 34374	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34357	BHU/17/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34377	BHU/22/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34353	BHU/16/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34349	BHU/15/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34329	BHU/8/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34333	BHU/11/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34361	BHU/18/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34365	BHU/19/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34369	BHU/20/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34345	BHU/14/2017	cattle	99.8	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	92.9	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	90.9	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.5	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	87.9	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	87.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		87.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.4	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.2	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		

Virus sample name:	BHU/22/2017
Sender reference:	374-2
Location of origin:	Dotey, Paro, Tshimasham, Western
Country of origin:	Bhutan
Date of collection:	22/07/2017
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:	18/08/2017
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	23/08/2017
Created:	24/08/2017
Last updated:	24/08/2017
VIBASys IDs: sample 34375, genome 34376, sequence viba_34377, sequencing info 34378	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34373	BHU/21/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34357	BHU/17/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34353	BHU/16/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34349	BHU/15/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34329	BHU/8/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34333	BHU/11/2017	cattle	100.0	0	O	ME-SA	Ind-2001	d
viba_34361	BHU/18/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34365	BHU/19/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34369	BHU/20/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d
viba_34345	BHU/14/2017	cattle	99.8	0	O	ME-SA	Ind-2001	d

#### Most Closely Related Prototype Sequences

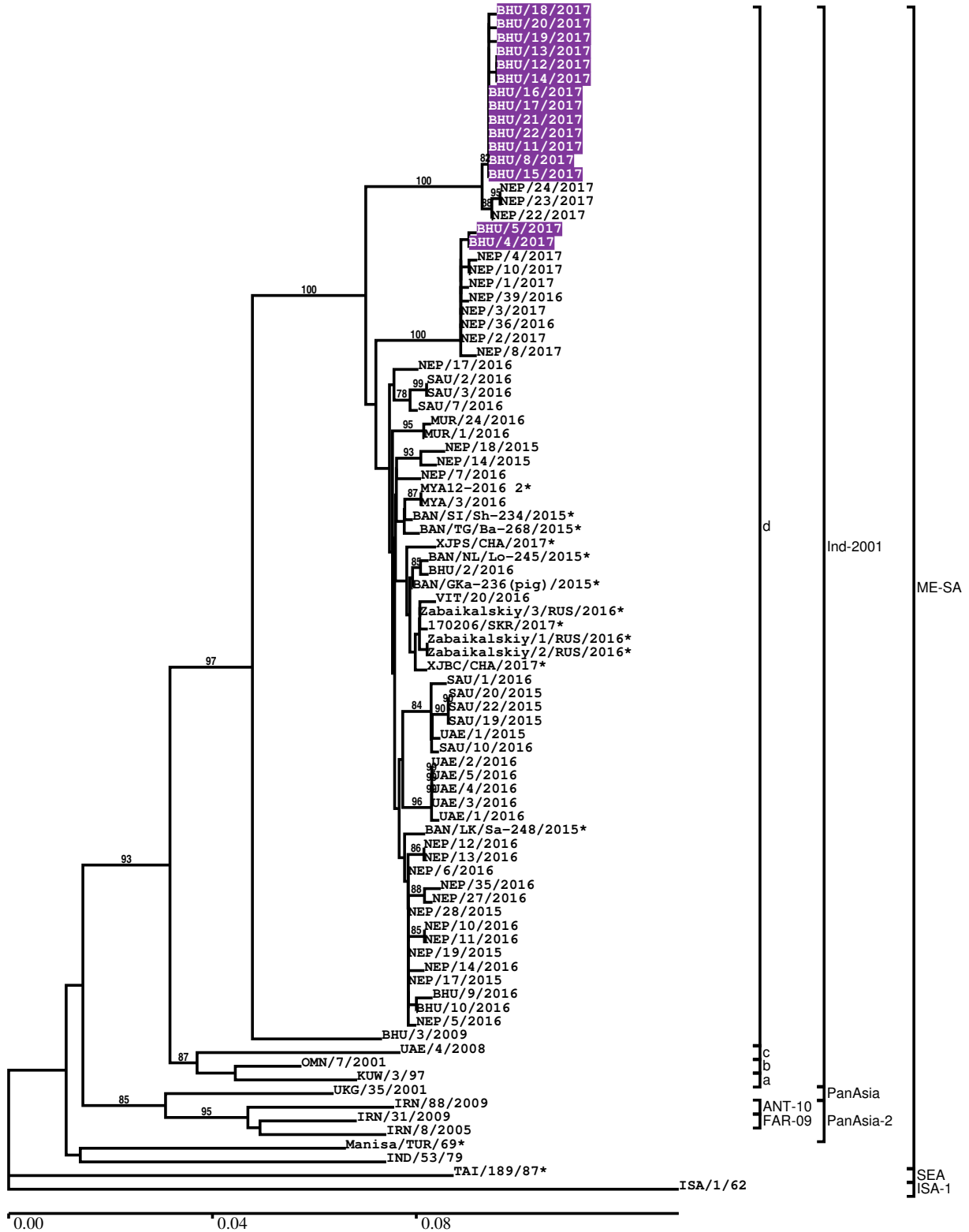
see [http://www.wrlfmd.org/fmd\\_genotyping/prototypes.htm](http://www.wrlfmd.org/fmd_genotyping/prototypes.htm)

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	92.9	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	90.9	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.5	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	87.9	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	87.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		87.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.4	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	87.2	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		



Report on FMDV O in Bhutan in 2017

Batch: WRLFMD/2017/00019



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLFMD/2017/00019-Bhutan-O (15 sequences)
Sequence database set:	allseqs_O (3604 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
BHU/18/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/20/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/19/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/13/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/12/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/14/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/16/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/17/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/21/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/22/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/11/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/8/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/15/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
NEP/24/2017	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/23/2017	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/22/2017	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
BHU/5/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BHU/4/2017	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
NEP/4/2017	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/10/2017	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/1/2017	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/39/2016	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/3/2017	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/36/2016	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/2/2017	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/8/2017	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/17/2016	n/a	cattle	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
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/18/2015	n/a	porcine	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
MYA12-2016 2*	n/a	n/a	TRRL	Myanmar	ME-SA/Ind-2001/d

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
MYA/3/2016	n/a	cattle	WRLFMD	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
XJPS/CHA/2017*	n/a	n/a	LVRI	China	ME-SA/Ind-2001/d
BAN/NL/Lo-245/2015*	KY077611	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/d
BHU/2/2016	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
BAN/GKa-236(pig)/2015*	KX712091	porcine	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/d
VIT/20/2016	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/d
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
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
XJBC/CHA/2017*	n/a	n/a	LVRI	China	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/22/2015	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
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
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
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
NEP/6/2016	KY449054	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/35/2016	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/27/2016	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
NEP/28/2015	KY449052	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	KY449051	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
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/5/2016	KY449053	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/d
BHU/3/2009	KM921814	cattle	WRLFMD	Bhutan	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
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
IRN/8/2005	KY091281	ovine	WRLFMD	Iran	ME-SA/PanAsia-2
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