

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

Genotyping Report

FMDV serotype: O
Country: Ethiopia
Year: 2016, 2017
Batch: WRLFMD/2017/00007
No. of sequences: 17
Report date: 16th May 2017
Report generated by: Nick Knowles
Report checked by: Kasia Bankowska



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

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| | |
|---|---|
| Virus sample name: | ETH/2/2016 |
| Sender reference: | ETH-2592 |
| Location of origin: | Sebeta, Sebeta, Finfinne Special Zone, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 10/02/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 20/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33461, genome 33462, sequence viba_33463, sequencing info 33464 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33475 | ETH/6/2016 | cattle | 99.4 | 0 | O | EA-4 | | |
| viba_33499 | ETH/13/2016 | cattle | 99.2 | 0 | O | EA-4 | | |
| viba_33511 | ETH/22/2016 | cattle | 99.2 | 0 | O | EA-4 | | |
| viba_33487 | ETH/9/2016 | cattle | 99.1 | 0 | O | EA-4 | | |
| viba_33503 | ETH/16/2016 | cattle | 99.1 | 0 | O | EA-4 | | |
| viba_33495 | ETH/12/2016 | cattle | 99.1 | 0 | O | EA-4 | | |
| viba_33467 | ETH/3/2016 | cattle | 98.9 | 0 | O | EA-4 | | |
| viba_33479 | ETH/7/2016 | cattle | 98.9 | 0 | O | EA-4 | | |
| viba_33491 | ETH/11/2016 | cattle | 98.7 | 0 | O | EA-4 | | |
| viba_33483 | ETH/8/2016 | cattle | 98.7 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 88.8 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 87.7 | 0 | O | EA-4 | | |
| viba_116 | SUD/2/86 | bovine | 86.9 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 86.0 | 0 | O | EA-3 | | |
| viba_523 | K83/79 | | 85.8 | 0 | O | EA-1 | | |
| viba_62 | ETH/2/2006 | bovine | 85.7 | 0 | O | EA-3 | | |
| viba_408 | ETH/3/2004 | cattle | 85.7 | 0 | O | EA-3 | | |
| viba_285 | UKG/35/2001 | porcine | 85.5 | 0 | O | ME-SA | PanAsia | |
| viba_705 | KUW/3/97 | bovine | 85.5 | 0 | O | ME-SA | Ind-2001 | a |
| viba_68 | TAI/189/87 | bovine | 85.3 | 0 | O | SEA | | |

| | |
|---|--|
| Virus sample name: | ETH/3/2016 |
| Sender reference: | ETH-4073 |
| Location of origin: | Semero, Sakuro, Jimma, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 23/02/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 20/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33465, genome 33466, sequence viba_33467, sequencing info 33468 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33471 | ETH/4/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33463 | ETH/2/2016 | cattle | 98.9 | 0 | O | EA-4 | | |
| viba_33475 | ETH/6/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33499 | ETH/13/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33479 | ETH/7/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33511 | ETH/22/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33487 | ETH/9/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33503 | ETH/16/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33495 | ETH/12/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33491 | ETH/11/2016 | cattle | 98.0 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 88.3 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 87.6 | 0 | O | EA-4 | | |
| viba_854 | ETH/1/2007 | cattle | 86.5 | 0 | O | EA-3 | | |
| viba_116 | SUD/2/86 | bovine | 86.5 | 0 | O | EA-3 | | |
| viba_523 | K83/79 | | 86.0 | 0 | O | EA-1 | | |
| viba_285 | UKG/35/2001 | porcine | 85.4 | 0 | O | ME-SA | PanAsia | |
| viba_705 | KUW/3/97 | bovine | 85.4 | 0 | O | ME-SA | Ind-2001 | a |
| viba_408 | ETH/3/2004 | cattle | 85.4 | 0 | O | EA-3 | | |
| viba_62 | ETH/2/2006 | bovine | 85.2 | 0 | O | EA-3 | | |
| viba_68 | TAI/189/87 | bovine | 85.0 | 0 | O | SEA | | |

| | |
|---|--|
| Virus sample name: | ETH/4/2016 |
| Sender reference: | ETH-48502 |
| Location of origin: | Dambi Bali, Mako, Illubabor, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 04/08/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 19/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33469, genome 33470, sequence viba_33471, sequencing info 33472 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33467 | ETH/3/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33463 | ETH/2/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33475 | ETH/6/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33499 | ETH/13/2016 | cattle | 98.1 | 0 | O | EA-4 | | |
| viba_33479 | ETH/7/2016 | cattle | 98.1 | 0 | O | EA-4 | | |
| viba_33511 | ETH/22/2016 | cattle | 98.1 | 0 | O | EA-4 | | |
| viba_33487 | ETH/9/2016 | cattle | 98.0 | 0 | O | EA-4 | | |
| viba_33503 | ETH/16/2016 | cattle | 98.0 | 0 | O | EA-4 | | |
| viba_33495 | ETH/12/2016 | cattle | 98.0 | 0 | O | EA-4 | | |
| viba_33491 | ETH/11/2016 | cattle | 97.6 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 88.4 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 87.4 | 0 | O | EA-4 | | |
| viba_116 | SUD/2/86 | bovine | 86.3 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 86.2 | 0 | O | EA-3 | | |
| viba_523 | K83/79 | | 86.0 | 0 | O | EA-1 | | |
| viba_705 | KUW/3/97 | bovine | 85.4 | 0 | O | ME-SA | Ind-2001 | a |
| viba_408 | ETH/3/2004 | cattle | 85.4 | 0 | O | EA-3 | | |
| viba_285 | UKG/35/2001 | porcine | 85.2 | 0 | O | ME-SA | PanAsia | |
| viba_62 | ETH/2/2006 | bovine | 85.1 | 0 | O | EA-3 | | |
| viba_68 | TAI/189/87 | bovine | 84.9 | 0 | O | SEA | | |

| | |
|---|--|
| Virus sample name: | ETH/6/2016 |
| Sender reference: | ETH-54956 |
| Location of origin: | Adama, Adama, East Shoa, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 03/09/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 19/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33473, genome 33474, sequence viba_33475, sequencing info 33476 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33499 | ETH/13/2016 | cattle | 99.5 | 0 | O | EA-4 | | |
| viba_33463 | ETH/2/2016 | cattle | 99.4 | 0 | O | EA-4 | | |
| viba_33511 | ETH/22/2016 | cattle | 99.2 | 0 | O | EA-4 | | |
| viba_33503 | ETH/16/2016 | cattle | 99.1 | 0 | O | EA-4 | | |
| viba_33487 | ETH/9/2016 | cattle | 98.7 | 0 | O | EA-4 | | |
| viba_33495 | ETH/12/2016 | cattle | 98.7 | 0 | O | EA-4 | | |
| viba_33467 | ETH/3/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33479 | ETH/7/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33491 | ETH/11/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33483 | ETH/8/2016 | cattle | 98.4 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 88.9 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 87.7 | 0 | O | EA-4 | | |
| viba_116 | SUD/2/86 | bovine | 86.8 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 86.3 | 0 | O | EA-3 | | |
| viba_62 | ETH/2/2006 | bovine | 86.0 | 0 | O | EA-3 | | |
| viba_523 | K83/79 | | 85.8 | 0 | O | EA-1 | | |
| viba_408 | ETH/3/2004 | cattle | 85.7 | 0 | O | EA-3 | | |
| viba_68 | TAI/189/87 | bovine | 85.6 | 0 | O | SEA | | |
| viba_359 | Manisa/TUR/69 | | 85.4 | 0 | O | ME-SA | | |
| viba_285 | UKG/35/2001 | porcine | 85.2 | 0 | O | ME-SA | PanAsia | |

| | |
|---|--|
| Virus sample name: | ETH/7/2016 |
| Sender reference: | ETH-63818 |
| Location of origin: | Melka sadi, Bokaji, Arsi, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 05/09/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 21/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33477, genome 33478, sequence viba_33479, sequencing info 33480 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33487 | ETH/9/2016 | cattle | 99.2 | 0 | O | EA-4 | | |
| viba_33495 | ETH/12/2016 | cattle | 99.2 | 0 | O | EA-4 | | |
| viba_33491 | ETH/11/2016 | cattle | 98.9 | 0 | O | EA-4 | | |
| viba_33483 | ETH/8/2016 | cattle | 98.9 | 0 | O | EA-4 | | |
| viba_33507 | ETH/18/2016 | cattle | 98.9 | 0 | O | EA-4 | | |
| viba_33463 | ETH/2/2016 | cattle | 98.9 | 0 | O | EA-4 | | |
| viba_33475 | ETH/6/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33499 | ETH/13/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33467 | ETH/3/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33511 | ETH/22/2016 | cattle | 98.4 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 88.6 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 87.6 | 0 | O | EA-4 | | |
| viba_116 | SUD/2/86 | bovine | 87.1 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 86.3 | 0 | O | EA-3 | | |
| viba_285 | UKG/35/2001 | porcine | 85.8 | 0 | O | ME-SA | PanAsia | |
| viba_523 | K83/79 | | 85.7 | 0 | O | EA-1 | | |
| viba_68 | TAI/189/87 | bovine | 85.6 | 0 | O | SEA | | |
| viba_705 | KUW/3/97 | bovine | 85.5 | 0 | O | ME-SA | Ind-2001 | a |
| viba_408 | ETH/3/2004 | cattle | 85.5 | 0 | O | EA-3 | | |
| viba_541 | OMN/7/2001 | bovine | 85.1 | 0 | O | ME-SA | Ind-2001 | b |

| | |
|---|---|
| Virus sample name: | ETH/8/2016 |
| Sender reference: | ETH-59771 |
| Location of origin: | Maru cobot, Adea Berga, West Shoa, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 31/10/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 20/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33481, genome 33482, sequence viba_33483, sequencing info 33484 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33487 | ETH/9/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33495 | ETH/12/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33491 | ETH/11/2016 | cattle | 99.4 | 0 | O | EA-4 | | |
| viba_33507 | ETH/18/2016 | cattle | 99.4 | 0 | O | EA-4 | | |
| viba_33479 | ETH/7/2016 | cattle | 98.9 | 0 | O | EA-4 | | |
| viba_33463 | ETH/2/2016 | cattle | 98.7 | 0 | O | EA-4 | | |
| viba_33475 | ETH/6/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33499 | ETH/13/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33511 | ETH/22/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33503 | ETH/16/2016 | cattle | 98.1 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 87.8 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 86.8 | 0 | O | EA-4 | | |
| viba_116 | SUD/2/86 | bovine | 86.3 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 85.8 | 0 | O | EA-3 | | |
| viba_523 | K83/79 | | 85.2 | 0 | O | EA-1 | | |
| viba_285 | UKG/35/2001 | porcine | 85.1 | 0 | O | ME-SA | PanAsia | |
| viba_68 | TAI/189/87 | bovine | 85.1 | 0 | O | SEA | | |
| viba_705 | KUW/3/97 | bovine | 85.1 | 0 | O | ME-SA | Ind-2001 | a |
| viba_408 | ETH/3/2004 | cattle | 85.1 | 0 | O | EA-3 | | |
| viba_541 | OMN/7/2001 | bovine | 84.9 | 0 | O | ME-SA | Ind-2001 | b |

| | |
|---|--|
| Virus sample name: | ETH/9/2016 |
| Sender reference: | ETH-60058 |
| Location of origin: | Bishan dimo, Adea Berga, West Shoa, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 31/10/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 20/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33485, genome 33486, sequence viba_33487, sequencing info 33488 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33495 | ETH/12/2016 | cattle | 100.0 | 0 | O | EA-4 | | |
| viba_33491 | ETH/11/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33483 | ETH/8/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33507 | ETH/18/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33479 | ETH/7/2016 | cattle | 99.2 | 0 | O | EA-4 | | |
| viba_33463 | ETH/2/2016 | cattle | 99.1 | 0 | O | EA-4 | | |
| viba_33475 | ETH/6/2016 | cattle | 98.7 | 0 | O | EA-4 | | |
| viba_33499 | ETH/13/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33511 | ETH/22/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33503 | ETH/16/2016 | cattle | 98.4 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 88.1 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 87.1 | 0 | O | EA-4 | | |
| viba_116 | SUD/2/86 | bovine | 86.6 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 85.8 | 0 | O | EA-3 | | |
| viba_285 | UKG/35/2001 | porcine | 85.4 | 0 | O | ME-SA | PanAsia | |
| viba_705 | KUW/3/97 | bovine | 85.4 | 0 | O | ME-SA | Ind-2001 | a |
| viba_541 | OMN/7/2001 | bovine | 85.2 | 0 | O | ME-SA | Ind-2001 | b |
| viba_62 | ETH/2/2006 | bovine | 85.2 | 0 | O | EA-3 | | |
| viba_523 | K83/79 | | 85.2 | 0 | O | EA-1 | | |
| viba_68 | TAI/189/87 | bovine | 85.1 | 0 | O | SEA | | |

| | |
|---|--|
| Virus sample name: | ETH/11/2016 |
| Sender reference: | ETH-60108 |
| Location of origin: | Menagesha kolobo, Welmera, Finfinne Special Zone, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 11/11/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 20/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33489, genome 33490, sequence viba_33491, sequencing info 33492 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33507 | ETH/18/2016 | cattle | 99.8 | 0 | O | EA-4 | | |
| viba_33487 | ETH/9/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33495 | ETH/12/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33483 | ETH/8/2016 | cattle | 99.4 | 0 | O | EA-4 | | |
| viba_33479 | ETH/7/2016 | cattle | 98.9 | 0 | O | EA-4 | | |
| viba_33463 | ETH/2/2016 | cattle | 98.7 | 0 | O | EA-4 | | |
| viba_33475 | ETH/6/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33499 | ETH/13/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33511 | ETH/22/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33503 | ETH/16/2016 | cattle | 98.1 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 87.8 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 86.8 | 0 | O | EA-4 | | |
| viba_116 | SUD/2/86 | bovine | 86.3 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 85.5 | 0 | O | EA-3 | | |
| viba_285 | UKG/35/2001 | porcine | 85.1 | 0 | O | ME-SA | PanAsia | |
| viba_68 | TAI/189/87 | bovine | 85.1 | 0 | O | SEA | | |
| viba_705 | KUW/3/97 | bovine | 85.1 | 0 | O | ME-SA | Ind-2001 | a |
| viba_541 | OMN/7/2001 | bovine | 84.9 | 0 | O | ME-SA | Ind-2001 | b |
| viba_62 | ETH/2/2006 | bovine | 84.9 | 0 | O | EA-3 | | |
| viba_523 | K83/79 | | 84.9 | 0 | O | EA-1 | | |

| | |
|---|---|
| Virus sample name: | ETH/12/2016 |
| Sender reference: | ETH-60085 |
| Location of origin: | Sire Berga, Adea Berga, West Shoa, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 11/11/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 20/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33493, genome 33494, sequence viba_33495, sequencing info 33496 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33487 | ETH/9/2016 | cattle | 100.0 | 0 | O | EA-4 | | |
| viba_33491 | ETH/11/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33483 | ETH/8/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33507 | ETH/18/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33479 | ETH/7/2016 | cattle | 99.2 | 0 | O | EA-4 | | |
| viba_33463 | ETH/2/2016 | cattle | 99.1 | 0 | O | EA-4 | | |
| viba_33475 | ETH/6/2016 | cattle | 98.7 | 0 | O | EA-4 | | |
| viba_33499 | ETH/13/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33511 | ETH/22/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33503 | ETH/16/2016 | cattle | 98.4 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 88.1 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 87.1 | 0 | O | EA-4 | | |
| viba_116 | SUD/2/86 | bovine | 86.6 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 85.8 | 0 | O | EA-3 | | |
| viba_285 | UKG/35/2001 | porcine | 85.4 | 0 | O | ME-SA | PanAsia | |
| viba_705 | KUW/3/97 | bovine | 85.4 | 0 | O | ME-SA | Ind-2001 | a |
| viba_541 | OMN/7/2001 | bovine | 85.2 | 0 | O | ME-SA | Ind-2001 | b |
| viba_62 | ETH/2/2006 | bovine | 85.2 | 0 | O | EA-3 | | |
| viba_523 | K83/79 | | 85.2 | 0 | O | EA-1 | | |
| viba_68 | TAI/189/87 | bovine | 85.1 | 0 | O | SEA | | |

| | |
|------------------------------------|---|
| Virus sample name: | ETH/13/2016 |
| Sender reference: | ETH-60132 |
| Location of origin: | Kolfe 01, Kolfe Keranyo, Kolfe Keranyo subcity, Addis Ababa |
| Country of origin: | Ethiopia |
| Date of collection: | 18/11/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 20/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |

VIBASys IDs: sample 33497, genome 33498, sequence viba_33499, sequencing info 33500

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33475 | ETH/6/2016 | cattle | 99.5 | 0 | O | EA-4 | | |
| viba_33511 | ETH/22/2016 | cattle | 99.4 | 0 | O | EA-4 | | |
| viba_33503 | ETH/16/2016 | cattle | 99.2 | 0 | O | EA-4 | | |
| viba_33463 | ETH/2/2016 | cattle | 99.2 | 0 | O | EA-4 | | |
| viba_33487 | ETH/9/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33495 | ETH/12/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33467 | ETH/3/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33479 | ETH/7/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33491 | ETH/11/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33483 | ETH/8/2016 | cattle | 98.3 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 88.6 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 87.3 | 0 | O | EA-4 | | |
| viba_116 | SUD/2/86 | bovine | 86.6 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 86.0 | 0 | O | EA-3 | | |
| viba_62 | ETH/2/2006 | bovine | 85.7 | 0 | O | EA-3 | | |
| viba_408 | ETH/3/2004 | cattle | 85.7 | 0 | O | EA-3 | | |
| viba_68 | TAI/189/87 | bovine | 85.4 | 0 | O | SEA | | |
| viba_523 | K83/79 | | 85.4 | 0 | O | EA-1 | | |
| viba_285 | UKG/35/2001 | porcine | 85.1 | 0 | O | ME-SA | PanAsia | |
| viba_705 | KUW/3/97 | bovine | 85.1 | 0 | O | ME-SA | Ind-2001 | a |

| | |
|---|--|
| Virus sample name: | ETH/16/2016 |
| Sender reference: | ETH-231 |
| Location of origin: | Kimbibit, Kimbibit, North Shoa, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 27/11/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 20/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33501, genome 33502, sequence viba_33503, sequencing info 33504 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33511 | ETH/22/2016 | cattle | 99.8 | 0 | O | EA-4 | | |
| viba_33499 | ETH/13/2016 | cattle | 99.2 | 0 | O | EA-4 | | |
| viba_33475 | ETH/6/2016 | cattle | 99.1 | 0 | O | EA-4 | | |
| viba_33463 | ETH/2/2016 | cattle | 99.1 | 0 | O | EA-4 | | |
| viba_33487 | ETH/9/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33495 | ETH/12/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33467 | ETH/3/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33479 | ETH/7/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33491 | ETH/11/2016 | cattle | 98.1 | 0 | O | EA-4 | | |
| viba_33483 | ETH/8/2016 | cattle | 98.1 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 88.5 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 87.1 | 0 | O | EA-4 | | |
| viba_116 | SUD/2/86 | bovine | 86.3 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 85.7 | 0 | O | EA-3 | | |
| viba_62 | ETH/2/2006 | bovine | 85.4 | 0 | O | EA-3 | | |
| viba_408 | ETH/3/2004 | cattle | 85.4 | 0 | O | EA-3 | | |
| viba_285 | UKG/35/2001 | porcine | 85.2 | 0 | O | ME-SA | PanAsia | |
| viba_523 | K83/79 | | 85.2 | 0 | O | EA-1 | | |
| viba_705 | KUW/3/97 | bovine | 85.2 | 0 | O | ME-SA | Ind-2001 | a |
| viba_68 | TAI/189/87 | bovine | 85.0 | 0 | O | SEA | | |

| | |
|---|---|
| Virus sample name: | ETH/18/2016 |
| Sender reference: | ETH-10111 |
| Location of origin: | Maru cobot, Adea berga, West Shoa, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 30/11/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 21/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33505, genome 33506, sequence viba_33507, sequencing info 33508 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33491 | ETH/11/2016 | cattle | 99.8 | 0 | O | EA-4 | | |
| viba_33487 | ETH/9/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33495 | ETH/12/2016 | cattle | 99.7 | 0 | O | EA-4 | | |
| viba_33483 | ETH/8/2016 | cattle | 99.4 | 0 | O | EA-4 | | |
| viba_33479 | ETH/7/2016 | cattle | 98.9 | 0 | O | EA-4 | | |
| viba_33463 | ETH/2/2016 | cattle | 98.7 | 0 | O | EA-4 | | |
| viba_33475 | ETH/6/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33499 | ETH/13/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33511 | ETH/22/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33503 | ETH/16/2016 | cattle | 98.1 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 87.8 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 86.8 | 0 | O | EA-4 | | |
| viba_116 | SUD/2/86 | bovine | 86.3 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 85.5 | 0 | O | EA-3 | | |
| viba_285 | UKG/35/2001 | porcine | 85.1 | 0 | O | ME-SA | PanAsia | |
| viba_68 | TAI/189/87 | bovine | 85.1 | 0 | O | SEA | | |
| viba_705 | KUW/3/97 | bovine | 85.1 | 0 | O | ME-SA | Ind-2001 | a |
| viba_541 | OMN/7/2001 | bovine | 84.9 | 0 | O | ME-SA | Ind-2001 | b |
| viba_62 | ETH/2/2006 | bovine | 84.9 | 0 | O | EA-3 | | |
| viba_523 | K83/79 | | 84.9 | 0 | O | EA-1 | | |

| | |
|---|--|
| Virus sample name: | ETH/22/2016 |
| Sender reference: | ETH-182 |
| Location of origin: | Mogoro, Kimbubit, North Shoa, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 27/12/2016 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-4 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 636 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 21/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33509, genome 33510, sequence viba_33511, sequencing info 33512 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33503 | ETH/16/2016 | cattle | 99.8 | 0 | O | EA-4 | | |
| viba_33499 | ETH/13/2016 | cattle | 99.4 | 0 | O | EA-4 | | |
| viba_33475 | ETH/6/2016 | cattle | 99.2 | 0 | O | EA-4 | | |
| viba_33463 | ETH/2/2016 | cattle | 99.2 | 0 | O | EA-4 | | |
| viba_33487 | ETH/9/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33495 | ETH/12/2016 | cattle | 98.6 | 0 | O | EA-4 | | |
| viba_33467 | ETH/3/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33479 | ETH/7/2016 | cattle | 98.4 | 0 | O | EA-4 | | |
| viba_33491 | ETH/11/2016 | cattle | 98.3 | 0 | O | EA-4 | | |
| viba_33483 | ETH/8/2016 | cattle | 98.3 | 0 | O | EA-4 | | |

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_50 | UGA/17/98 | | 88.6 | 0 | O | EA-4 | | |
| viba_621 | ETH/58/2005 | bovine | 87.3 | 0 | O | EA-4 | | |
| viba_116 | SUD/2/86 | bovine | 86.5 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 85.8 | 0 | O | EA-3 | | |
| viba_62 | ETH/2/2006 | bovine | 85.6 | 0 | O | EA-3 | | |
| viba_408 | ETH/3/2004 | cattle | 85.5 | 0 | O | EA-3 | | |
| viba_523 | K83/79 | | 85.4 | 0 | O | EA-1 | | |
| viba_285 | UKG/35/2001 | porcine | 85.1 | 0 | O | ME-SA | PanAsia | |
| viba_68 | TAI/189/87 | bovine | 85.1 | 0 | O | SEA | | |
| viba_705 | KUW/3/97 | bovine | 85.1 | 0 | O | ME-SA | Ind-2001 | a |

| | |
|---|--|
| Virus sample name: | ETH/2/2017 |
| Sender reference: | ETH-7906 |
| Location of origin: | Kidame Gebeya, Hawa Gellan, Kelem Welega, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 18/03/2017 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-3 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 633 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 25/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33513, genome 33514, sequence viba_33515, sequencing info 33516 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33519 | ETH/3/2017 | cattle | 99.7 | 0 | O | EA-3 | | |
| viba_33527 | ETH/5/2017 | cattle | 99.7 | 0 | O | EA-3 | | |
| viba_33523 | ETH/4/2017 | cattle | 99.7 | 0 | O | EA-3 | | |
| viba_32340 | PAT/2/2017 | cattle | 98.7 | 0 | O | EA-3 | | |
| viba_32315 | ISR/4/2017 | cattle | 98.7 | 0 | O | EA-3 | | |
| viba_32331 | ISR/8/2017 | cattle | 98.7 | 0 | O | EA-3 | | |
| viba_32323 | ISR/6/2017 | cattle | 98.7 | 0 | O | EA-3 | | |
| viba_32364 | PAT/10/2017 | cattle | 98.7 | 0 | O | EA-3 | | |
| viba_32327 | ISR/7/2017 | cattle | 98.7 | 0 | O | EA-3 | | |
| viba_32348 | PAT/5/2017 | cattle | 98.7 | 0 | O | EA-3 | | |

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_116 | SUD/2/86 | bovine | 87.8 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 85.0 | 0 | O | EA-3 | | |
| viba_408 | ETH/3/2004 | cattle | 84.6 | 0 | O | EA-3 | | |
| viba_617 | IND/53/79 | bovine | 84.1 | 0 | O | ME-SA | | |
| viba_285 | UKG/35/2001 | porcine | 83.9 | 0 | O | ME-SA | PanAsia | |
| viba_221 | MAL/1/98 | | 83.9 | 0 | O | EA-2 | | |
| viba_263 | TAN/2/2004 | bovine | 83.6 | 0 | O | EA-2 | | |
| viba_85 | UGA/3/2002 | | 83.6 | 0 | O | EA-2 | | |
| viba_302 | CIV/8/99 | bovine | 83.5 | 0 | O | WA | | |
| viba_359 | Manisa/TUR/69 | | 83.5 | 0 | O | ME-SA | | |

| | |
|---|---|
| Virus sample name: | ETH/3/2017 |
| Sender reference: | ETH-79081 |
| Location of origin: | Godina lencha, Yemalogi, Kelem Welega, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 18/03/2017 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-3 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 633 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 25/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33517, genome 33518, sequence viba_33519, sequencing info 33520 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33527 | ETH/5/2017 | cattle | 100.0 | 0 | O | EA-3 | | |
| viba_33523 | ETH/4/2017 | cattle | 100.0 | 0 | O | EA-3 | | |
| viba_33515 | ETH/2/2017 | cattle | 99.7 | 0 | O | EA-3 | | |
| viba_32340 | PAT/2/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32315 | ISR/4/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32331 | ISR/8/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32323 | ISR/6/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32364 | PAT/10/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32327 | ISR/7/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32348 | PAT/5/2017 | cattle | 99.1 | 0 | O | EA-3 | | |

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_116 | SUD/2/86 | bovine | 88.2 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 85.0 | 0 | O | EA-3 | | |
| viba_408 | ETH/3/2004 | cattle | 84.6 | 0 | O | EA-3 | | |
| viba_617 | IND/53/79 | bovine | 84.4 | 0 | O | ME-SA | | |
| viba_285 | UKG/35/2001 | porcine | 84.3 | 0 | O | ME-SA | PanAsia | |
| viba_221 | MAL/1/98 | | 83.9 | 0 | O | EA-2 | | |
| viba_263 | TAN/2/2004 | bovine | 83.9 | 0 | O | EA-2 | | |
| viba_85 | UGA/3/2002 | | 83.9 | 0 | O | EA-2 | | |
| viba_359 | Manisa/TUR/69 | | 83.8 | 0 | O | ME-SA | | |
| viba_523 | K83/79 | | 83.6 | 0 | O | EA-1 | | |

| | |
|---|--|
| Virus sample name: | ETH/4/2017 |
| Sender reference: | ETH-79091 |
| Location of origin: | Meko lencha, Sayoo, Kelem Welega, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 18/03/2017 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-3 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 633 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 25/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33521, genome 33522, sequence viba_33523, sequencing info 33524 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33519 | ETH/3/2017 | cattle | 100.0 | 0 | O | EA-3 | | |
| viba_33527 | ETH/5/2017 | cattle | 100.0 | 0 | O | EA-3 | | |
| viba_33515 | ETH/2/2017 | cattle | 99.7 | 0 | O | EA-3 | | |
| viba_32340 | PAT/2/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32315 | ISR/4/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32331 | ISR/8/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32323 | ISR/6/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32364 | PAT/10/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32327 | ISR/7/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32348 | PAT/5/2017 | cattle | 99.1 | 0 | O | EA-3 | | |

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_116 | SUD/2/86 | bovine | 88.2 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 85.0 | 0 | O | EA-3 | | |
| viba_408 | ETH/3/2004 | cattle | 84.6 | 0 | O | EA-3 | | |
| viba_617 | IND/53/79 | bovine | 84.4 | 0 | O | ME-SA | | |
| viba_285 | UKG/35/2001 | porcine | 84.3 | 0 | O | ME-SA | PanAsia | |
| viba_221 | MAL/1/98 | | 83.9 | 0 | O | EA-2 | | |
| viba_263 | TAN/2/2004 | bovine | 83.9 | 0 | O | EA-2 | | |
| viba_85 | UGA/3/2002 | | 83.9 | 0 | O | EA-2 | | |
| viba_359 | Manisa/TUR/69 | | 83.8 | 0 | O | ME-SA | | |
| viba_523 | K83/79 | | 83.6 | 0 | O | EA-1 | | |

| | |
|---|--|
| Virus sample name: | ETH/5/2017 |
| Sender reference: | ETH-79092 |
| Location of origin: | Meko lencha, Sayoo, Kelem Welega, Oromia |
| Country of origin: | Ethiopia |
| Date of collection: | 18/03/2017 |
| Host species: | cattle |
| Serotype: | O |
| Topotype: | EA-3 |
| Lineage: | |
| Sublineage: | |
| Sequence length: | 633 |
| Ambiguities: | 0 |
| Material submitted for sequencing: | BTy1 |
| Harvest date of material: | 25/04/2017 |
| Primers: | O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R |
| Received for sequencing: | 08/05/2017 |
| Created: | 13/05/2017 |
| Last updated: | 13/05/2017 |
| VIBASys IDs: sample 33525, genome 33526, sequence viba_33527, sequencing info 33528 | |

Most Closely Related Sequences

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_33519 | ETH/3/2017 | cattle | 100.0 | 0 | O | EA-3 | | |
| viba_33523 | ETH/4/2017 | cattle | 100.0 | 0 | O | EA-3 | | |
| viba_33515 | ETH/2/2017 | cattle | 99.7 | 0 | O | EA-3 | | |
| viba_32340 | PAT/2/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32315 | ISR/4/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32331 | ISR/8/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32323 | ISR/6/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32364 | PAT/10/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32327 | ISR/7/2017 | cattle | 99.1 | 0 | O | EA-3 | | |
| viba_32348 | PAT/5/2017 | cattle | 99.1 | 0 | O | EA-3 | | |

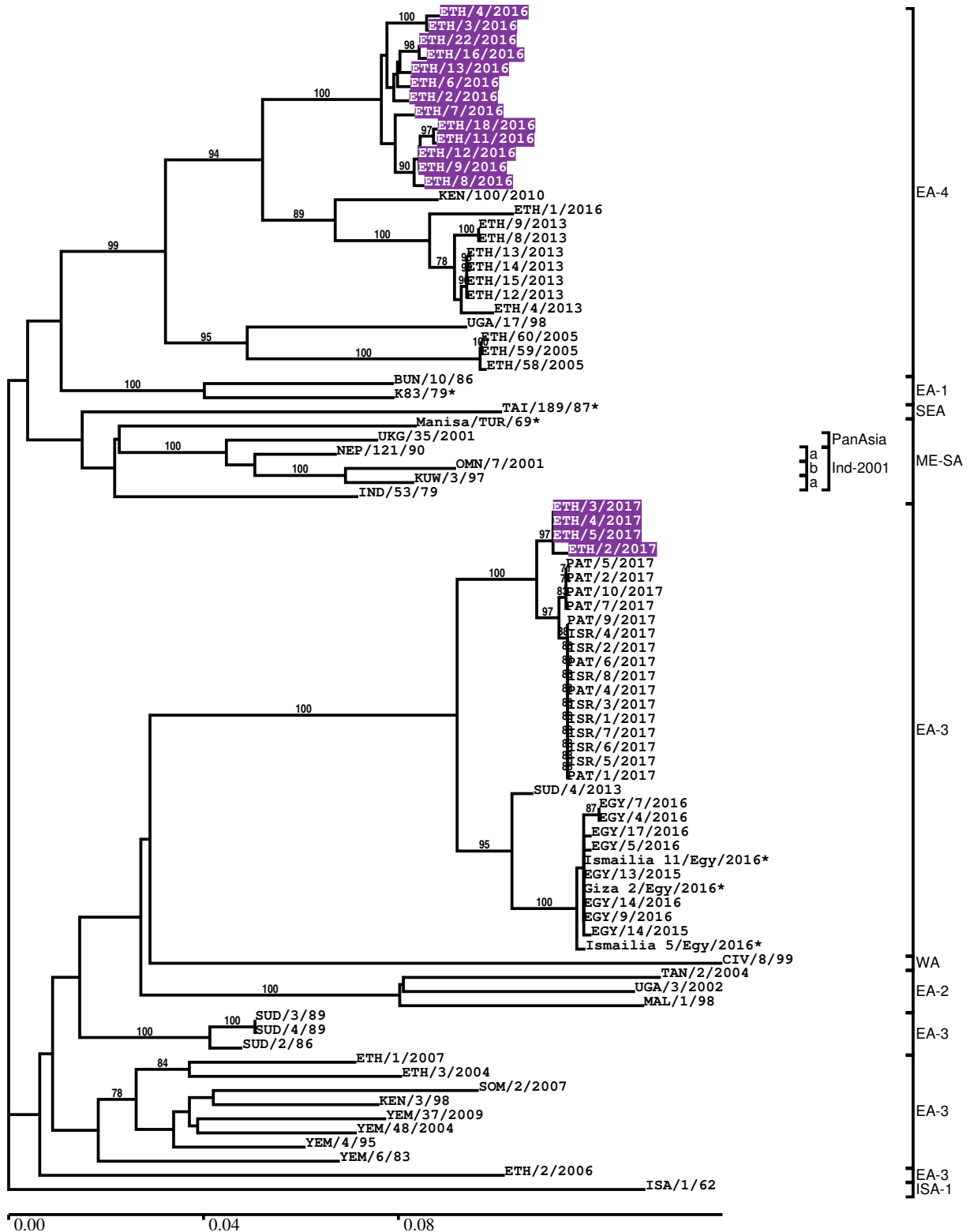
Most Closely Related Prototype Sequences

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

| sequence | virus name | Host | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|----------|---------------|---------|-------|----------|----------|----------|---------|------------|
| viba_116 | SUD/2/86 | bovine | 88.2 | 0 | O | EA-3 | | |
| viba_854 | ETH/1/2007 | cattle | 85.0 | 0 | O | EA-3 | | |
| viba_408 | ETH/3/2004 | cattle | 84.6 | 0 | O | EA-3 | | |
| viba_617 | IND/53/79 | bovine | 84.4 | 0 | O | ME-SA | | |
| viba_285 | UKG/35/2001 | porcine | 84.3 | 0 | O | ME-SA | PanAsia | |
| viba_221 | MAL/1/98 | | 83.9 | 0 | O | EA-2 | | |
| viba_263 | TAN/2/2004 | bovine | 83.9 | 0 | O | EA-2 | | |
| viba_85 | UGA/3/2002 | | 83.9 | 0 | O | EA-2 | | |
| viba_359 | Manisa/TUR/69 | | 83.8 | 0 | O | ME-SA | | |
| viba_523 | K83/79 | | 83.6 | 0 | O | EA-1 | | |

Report on FMDV O in Ethiopia in 2016, 2017

Batch: WRLFMD/2017/00007



*, not a WRLFMD Reference Number

Analysis Parameters

| | |
|--|---|
| VP1 subsequence extractor: | vp1_O |
| Query sequence set: | WRLFMD/2017/00007-Ethiopia-O (17 sequences) |
| Sequence database set: | allseqs_O (3476 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: | 17 |
| 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 |
|----------------|-----------|---------|--------|----------------|-----------------------|
| ETH/4/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| ETH/3/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| ETH/22/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| ETH/16/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| ETH/13/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| ETH/6/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| ETH/2/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| ETH/7/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| ETH/18/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| ETH/11/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| ETH/12/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| ETH/9/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| ETH/8/2016 | n/a | cattle | WRLFMD | Ethiopia | EA-4 |
| KEN/100/2010 | KF135281 | cattle | WRLFMD | Kenya | EA-4 |
| ETH/1/2016 | n/a | bovine | WRLFMD | Ethiopia | EA-4 |
| ETH/9/2013 | n/a | bovine | WRLFMD | Ethiopia | EA-4 |
| ETH/8/2013 | n/a | bovine | WRLFMD | Ethiopia | EA-4 |
| ETH/13/2013 | n/a | bovine | WRLFMD | Ethiopia | EA-4 |
| ETH/14/2013 | n/a | bovine | WRLFMD | Ethiopia | EA-4 |
| ETH/15/2013 | n/a | bovine | WRLFMD | Ethiopia | EA-4 |
| ETH/12/2013 | n/a | bovine | WRLFMD | Ethiopia | EA-4 |
| ETH/4/2013 | n/a | bovine | WRLFMD | Ethiopia | EA-4 |
| UGA/17/98 | HM211075 | n/a | WRLFMD | Uganda | EA-4 |
| ETH/60/2005 | FJ798143 | bovine | WRLFMD | Ethiopia | EA-4 |
| ETH/59/2005 | FJ798142 | bovine | WRLFMD | Ethiopia | EA-4 |
| ETH/58/2005 | FJ798141 | bovine | WRLFMD | Ethiopia | EA-4 |
| BUN/10/86 | n/a | n/a | WRLFMD | Burundi | EA-1 |
| K83/79* | AJ303511 | n/a | WRLFMD | Kenya | EA-1 |
| TAI/189/87* | KY091288 | bovine | TRRL | Thailand | SEA |
| Manisa/TUR/69* | AY593823 | n/a | PIADC | Turkey | ME-SA |
| UKG/35/2001 | AJ539141 | porcine | PIADC | United Kingdom | ME-SA/PanAsia |
| NEP/121/90 | DQ164930 | n/a | WRLFMD | Nepal | ME-SA/Ind-2001/a |
| OMN/7/2001 | DQ164941 | bovine | WRLFMD | Oman | ME-SA/Ind-2001/b |
| KUW/3/97 | DQ164904 | bovine | WRLFMD | Kuwait | ME-SA/Ind-2001/a |
| IND/53/79 | AF292107 | bovine | PD-FMD | India | ME-SA |

continued on next page

| label | accession | host(s) | lab | country | taxonomic information |
|-----------------------|-----------|---------------|-----------------|----------------|-----------------------|
| ETH/3/2017 | n/a | cattle | WRLFMD | Ethiopia | EA-3 |
| ETH/4/2017 | n/a | cattle | WRLFMD | Ethiopia | EA-3 |
| ETH/5/2017 | n/a | cattle | WRLFMD | Ethiopia | EA-3 |
| ETH/2/2017 | n/a | cattle | WRLFMD | Ethiopia | EA-3 |
| PAT/5/2017 | n/a | cattle | WRLFMD | Palestinian AT | EA-3 |
| PAT/2/2017 | n/a | cattle | WRLFMD | Palestinian AT | EA-3 |
| PAT/10/2017 | n/a | cattle | WRLFMD | Palestinian AT | EA-3 |
| PAT/7/2017 | n/a | cattle | WRLFMD | Palestinian AT | EA-3 |
| PAT/9/2017 | n/a | cattle | WRLFMD | Palestinian AT | EA-3 |
| ISR/4/2017 | n/a | cattle | WRLFMD | Israel | EA-3 |
| ISR/2/2017 | n/a | cattle | WRLFMD | Israel | EA-3 |
| PAT/6/2017 | n/a | cattle | WRLFMD | Palestinian AT | EA-3 |
| ISR/8/2017 | n/a | cattle | WRLFMD | Israel | EA-3 |
| PAT/4/2017 | n/a | cattle | WRLFMD | Palestinian AT | EA-3 |
| ISR/3/2017 | n/a | cattle | WRLFMD | Israel | EA-3 |
| ISR/1/2017 | n/a | cattle | WRLFMD | Israel | EA-3 |
| ISR/7/2017 | n/a | cattle | WRLFMD | Israel | EA-3 |
| ISR/6/2017 | n/a | cattle | WRLFMD | Israel | EA-3 |
| ISR/5/2017 | n/a | cattle | WRLFMD | Israel | EA-3 |
| PAT/1/2017 | n/a | cattle | WRLFMD | Palestinian AT | EA-3 |
| SUD/4/2013 | n/a | cattle | WRLFMD | Sudan | EA-3 |
| EGY/7/2016 | n/a | water buffalo | WRLFMD | Egypt | EA-3 |
| EGY/4/2016 | n/a | cattle | WRLFMD | Egypt | EA-3 |
| EGY/17/2016 | n/a | cattle | WRLFMD | Egypt | EA-3 |
| EGY/5/2016 | n/a | cattle | WRLFMD | Egypt | EA-3 |
| Ismailia 11/Egy/2016* | KX447138 | cattle | Suez Canal Univ | Egypt | EA-3 |
| EGY/13/2015 | n/a | cattle | WRLFMD | Egypt | EA-3 |
| Giza 2/Egy/2016* | KX447132 | cattle | Suez Canal Univ | Egypt | EA-3 |
| EGY/14/2016 | n/a | cattle | WRLFMD | Egypt | EA-3 |
| EGY/9/2016 | n/a | cattle | WRLFMD | Egypt | EA-3 |
| EGY/14/2015 | n/a | cattle | WRLFMD | Egypt | EA-3 |
| Ismailia 5/Egy/2016* | KX447128 | cattle | Suez Canal Univ | Egypt | EA-3 |
| CIV/8/99 | AJ303485 | bovine | WRLFMD | Cote d'Ivoire | WA |
| TAN/2/2004 | KF561679 | bovine | WRLFMD | Tanzania | EA-2 |
| UGA/3/2002 | DQ165077 | n/a | WRLFMD | Uganda | EA-2 |
| MAL/1/98 | DQ165074 | n/a | WRLFMD | Malawi | EA-2 |
| SUD/3/89 | GU566038 | n/a | WRLFMD | Sudan | EA-3 |
| SUD/4/89 | GU566039 | n/a | WRLFMD | Sudan | EA-3 |
| SUD/2/86 | DQ165075 | bovine | WRLFMD | Sudan | EA-3 |
| ETH/1/2007 | FJ798137 | cattle | WRLFMD | Ethiopia | EA-3 |
| ETH/3/2004 | FJ798109 | cattle | WRLFMD | Ethiopia | EA-3 |
| SOM/2/2007 | n/a | cattle | WRLFMD | Somalia | EA-3 |
| KEN/3/98 | n/a | bovine | WRLFMD | Kenya | EA-3 |
| YEM/37/2009 | n/a | cattle | WRLFMD | Yemen | EA-3 |
| YEM/48/2004 | n/a | cattle | WRLFMD | Yemen | EA-3 |
| YEM/4/95 | n/a | n/a | WRLFMD | Yemen | EA-3 |
| YEM/6/83 | n/a | ovine | WRLFMD | Yemen | EA-3 |
| ETH/2/2006 | FJ798127 | bovine | WRLFMD | Ethiopia | EA-3 |
| ISA/1/62 | AJ303500 | n/a | WRLFMD | Indonesia | ISA-1 |

*, not a WRLFMD Reference Number

n/a, not available