

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

## Genotyping Report

FMDV serotype: SAT2  
Country: Egypt  
Year: 2015  
Batch: WRLFMD/2016/00024  
No. of sequences: 1  
Report date: 3rd August 2016  
Report generated by: Nick Knowles  
Report checked by: Kasia Bankowska

### Analysis Parameters

VP1 subsequence extractor: vp1\_SAT2  
Query sequence set: WRLFMD/2016/00024-Egypt-SAT2 (1 sequences)  
Sequence database set: !allseqs\_SAT2 (822 sequences)  
Prototype sequence set: !prototypes\_SAT2 (25 sequences)  
Number of related sequences reported: 10  
Minimal VP1 subsequence match length: 600  
VIBASys version: reflabs-1.0.3



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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:  | EGY/5/2015                                       |
| Sender reference:   | 1. RL /41  |
| Location of origin:   | Elmahmodia, Somesta, Beni Suef                   |
| Country of origin:  | Egypt  |
| Date of collection:   | 26/07/2015                                       |
| Host species:   | cattle   |
| Serotype:   | SAT2   |
| Topotype:   | VII  |
| Lineage:  | Alx-12   |
| Sublineage:   |  |
| Sequence length:  | 642  |
| Ambiguities:  | 0  |
| Material submitted for sequencing:  | BTy1   |
| Harvest date of material:   | 13/07/2016                                       |
| Primers:  | SAT2-1C445F/SAT-2B208R; SAT2-P1-1223F/SAT-2B208R |
| Received for sequencing:  | 28/07/2016                                       |
| Created:  | 01/08/2016                                       |
| Last updated:   | 01/08/2016                                       |
| VIBASys IDs: sample 29657, genome 29658, sequence viba_29659, sequencing info 29660 |  |

#### Most Closely Related Sequences

| sequence   | virus name  | Host   | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|-------------|--------|-------|----------|----------|----------|---------|------------|
| viba_29811 | SUD/3/2013  | cattle | 95.8  | 0        | SAT2     | VII      | Alx-12  |            |
| viba_23610 | EGY/24/2014 | cattle | 95.6  | 0        | SAT2     | VII      | Alx-12  |            |
| viba_29823 | SUD/4/2014  | cattle | 95.6  | 0        | SAT2     | VII      | Alx-12  |            |
| viba_29815 | SUD/5/2013  | cattle | 95.5  | 0        | SAT2     | VII      | Alx-12  |            |
| viba_29827 | SUD/7/2014  | cattle | 95.5  | 0        | SAT2     | VII      | Alx-12  |            |
| viba_23606 | EGY/22/2014 | cattle | 95.3  | 0        | SAT2     | VII      | Alx-12  |            |
| viba_23602 | EGY/20/2014 | cattle | 95.3  | 0        | SAT2     | VII      | Alx-12  |            |
| viba_29819 | SUD/9/2013  | cattle | 95.3  | 0        | SAT2     | VII      | Alx-12  |            |
| viba_29831 | SUD/11/2014 | cattle | 95.2  | 0        | SAT2     | VII      | Alx-12  |            |
| viba_23598 | EGY/11/2014 | cattle | 95.0  | 0        | SAT2     | VII      | Alx-12  |            |

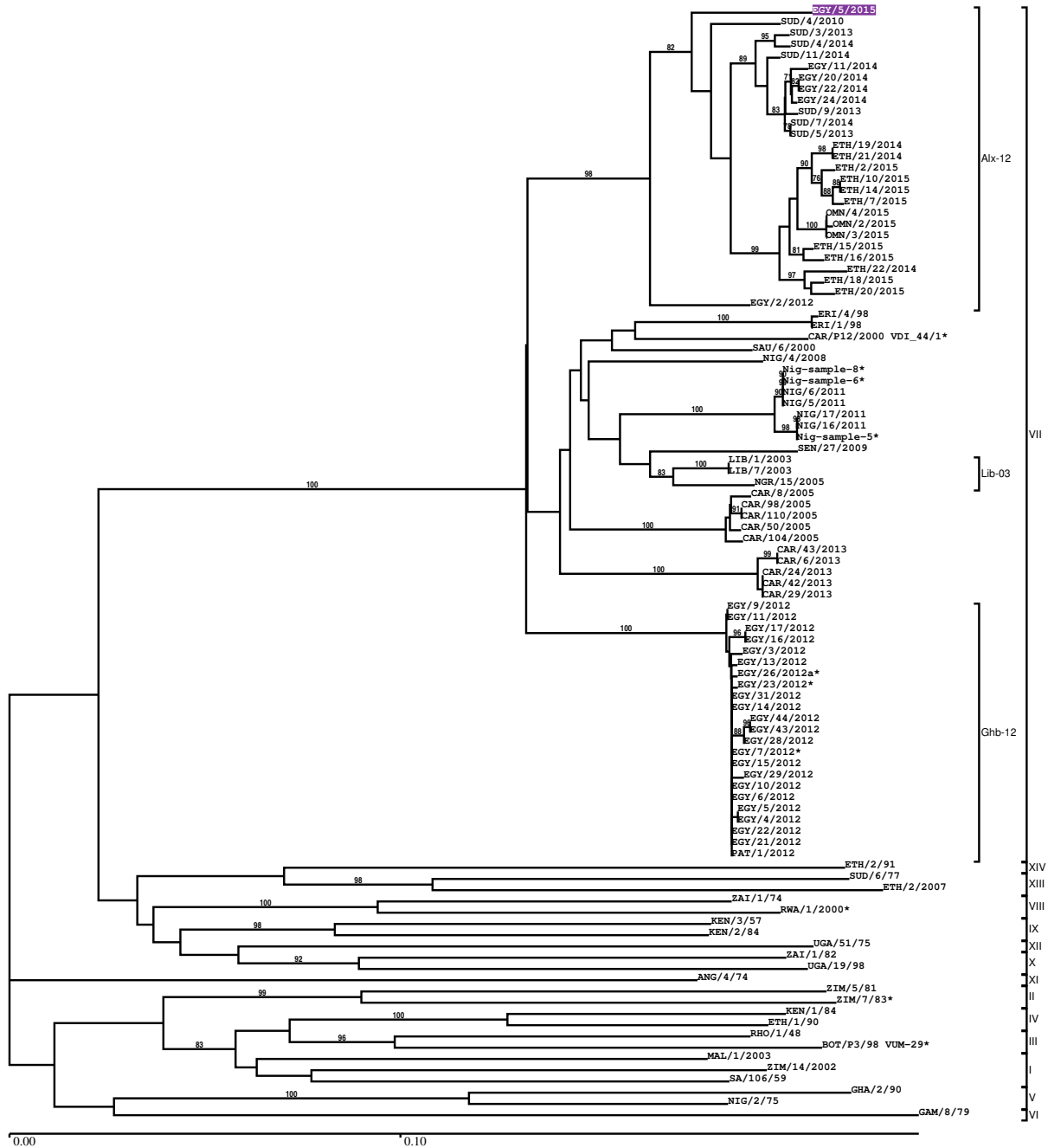
#### Most Closely Related Prototype Sequences

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_424 | SAU/6/2000 | bovine | 91.1  | 1        | SAT2     | VII      |         |            |
| viba_742 | CAR/8/2005 | cattle | 86.6  | 0        | SAT2     | VII      |         |            |
| viba_456 | ZAI/1/82   | bovine | 75.0  | 1        | SAT2     | X        |         |            |
| viba_127 | KEN/3/57   |        | 74.4  | 0        | SAT2     | IX       |         |            |
| viba_470 | KEN/2/84   | bovine | 74.1  | 0        | SAT2     | IX       |         |            |
| viba_756 | UGA/19/98  |        | 73.3  | 0        | SAT2     | X        |         |            |
| viba_369 | UGA/51/75  | bovine | 72.7  | 0        | SAT2     | XII      |         |            |
| viba_273 | ETH/1/90   | bovine | 72.7  | 0        | SAT2     | IV       |         |            |
| viba_374 | ZAI/1/74   |        | 72.4  | 0        | SAT2     | VIII     |         |            |
| viba_189 | RWA/1/2000 |        | 72.3  | 0        | SAT2     | VIII     |         |            |

Report on FMDV SAT2 in Egypt in 2015

Batch: WRLFMD/2016/00024



Sequence alignment method: muscle (default parameters)  
 Phylogeny reconstruction method: fdnadist, fneighbor  
 Number of bootstrap samples: 1000  
 Displaying bootstrap values above: 70.0%  
 Number of sequences in tree capped at: 100  
 \*, not a WRLFMD Reference Number

## Sequences in the Phylogenetic Tree

All sequences in the tree are in taxonomic group FMDV/SAT2

| label                  | accession | host(s)       | lab    | country      | taxonomic information |
|------------------------|-----------|---------------|--------|--------------|-----------------------|
| EGY/5/2015             | n/a       | cattle        | WRLFMD | Egypt        | VII/Alx-12            |
| SUD/4/2010             | KF112968  | cattle        | WRLFMD | Sudan        | VII/Alx-12            |
| SUD/3/2013             | n/a       | cattle        | WRLFMD | Sudan        | VII/Alx-12            |
| SUD/4/2014             | n/a       | cattle        | WRLFMD | Sudan        | VII/Alx-12            |
| SUD/11/2014            | n/a       | cattle        | WRLFMD | Sudan        | VII/Alx-12            |
| EGY/11/2014            | KX258064  | cattle        | WRLFMD | Egypt        | VII/Alx-12            |
| EGY/20/2014            | KX258065  | cattle        | WRLFMD | Egypt        | VII/Alx-12            |
| EGY/22/2014            | KX258066  | cattle        | WRLFMD | Egypt        | VII/Alx-12            |
| EGY/24/2014            | KX258067  | cattle        | WRLFMD | Egypt        | VII/Alx-12            |
| SUD/9/2013             | n/a       | cattle        | WRLFMD | Sudan        | VII/Alx-12            |
| SUD/7/2014             | n/a       | cattle        | WRLFMD | Sudan        | VII/Alx-12            |
| SUD/5/2013             | n/a       | cattle        | WRLFMD | Sudan        | VII/Alx-12            |
| ETH/19/2014            | KX258068  | bovine        | WRLFMD | Ethiopia     | VII/Alx-12            |
| ETH/21/2014            | KX258069  | bovine        | WRLFMD | Ethiopia     | VII/Alx-12            |
| ETH/2/2015             | KX258071  | cattle        | WRLFMD | Ethiopia     | VII/Alx-12            |
| ETH/10/2015            | n/a       | caprine       | WRLFMD | Ethiopia     | VII/Alx-12            |
| ETH/14/2015            | n/a       | bovine        | WRLFMD | Ethiopia     | VII/Alx-12            |
| ETH/7/2015             | n/a       | bovine        | WRLFMD | Ethiopia     | VII/Alx-12            |
| OMN/4/2015             | n/a       | cattle        | WRLFMD | Oman         | VII/Alx-12            |
| OMN/2/2015             | n/a       | cattle        | WRLFMD | Oman         | VII/Alx-12            |
| OMN/3/2015             | n/a       | cattle        | WRLFMD | Oman         | VII/Alx-12            |
| ETH/15/2015            | n/a       | bovine        | WRLFMD | Ethiopia     | VII/Alx-12            |
| ETH/16/2015            | n/a       | bovine        | WRLFMD | Ethiopia     | VII/Alx-12            |
| ETH/22/2014            | KX258070  | bovine        | WRLFMD | Ethiopia     | VII/Alx-12            |
| ETH/18/2015            | n/a       | bovine        | WRLFMD | Ethiopia     | VII/Alx-12            |
| ETH/20/2015            | n/a       | bovine        | WRLFMD | Ethiopia     | VII/Alx-12            |
| EGY/2/2012             | JX570617  | n/a           | WRLFMD | Egypt        | VII/Alx-12            |
| ERI/4/98               | AY343934  | n/a           | OVI    | Eritrea      | VII                   |
| ERI/1/98               | AY343933  | n/a           | OVI    | Eritrea      | VII                   |
| CAR/P12/2000 VDI_44/1* | HM211082  | n/a           | WRLFMD | Cameroon     | VII                   |
| SAU/6/2000             | AF367135  | bovine        | OVI    | Saudi Arabia | VII                   |
| NIG/4/2008             | KX258079  | cattle        | WRLFMD | Nigeria      | VII                   |
| Nig-sample-8*          | n/a       | n/a           | ANSES  | Nigeria      | VII                   |
| Nig-sample-6*          | n/a       | n/a           | ANSES  | Nigeria      | VII                   |
| NIG/6/2011             | KX258085  | bovine        | WRLFMD | Nigeria      | VII                   |
| NIG/5/2011             | KX258084  | bovine        | WRLFMD | Nigeria      | VII                   |
| NIG/17/2011            | KX258093  | bovine        | WRLFMD | Nigeria      | VII                   |
| NIG/16/2011            | KX258092  | bovine        | WRLFMD | Nigeria      | VII                   |
| Nig-sample-5*          | n/a       | n/a           | ANSES  | Nigeria      | VII                   |
| SEN/27/2009            | KF112967  | cattle        | WRLFMD | Senegal      | VII                   |
| LIB/1/2003             | JX570631  | n/a           | WRLFMD | Libya        | VII/Lib-03            |
| LIB/7/2003             | JX570632  | n/a           | WRLFMD | Libya        | VII/Lib-03            |
| NGR/15/2005            | KF112960  | cattle        | WRLFMD | Niger        | VII/Lib-03            |
| CAR/8/2005             | JX570616  | cattle        | WRLFMD | Cameroon     | VII                   |
| CAR/98/2005            | KX258174  | cattle        | WRLFMD | Cameroon     | VII                   |
| CAR/110/2005           | KX258181  | cattle        | WRLFMD | Cameroon     | VII                   |
| CAR/50/2005            | KX258153  | cattle        | WRLFMD | Cameroon     | VII                   |
| CAR/104/2005           | KX258176  | cattle        | WRLFMD | Cameroon     | VII                   |
| CAR/43/2013            | n/a       | cattle        | WRLFMD | Cameroon     | VII                   |
| CAR/6/2013             | n/a       | cattle        | WRLFMD | Cameroon     | VII                   |
| CAR/24/2013            | n/a       | cattle        | WRLFMD | Cameroon     | VII                   |
| CAR/42/2013            | n/a       | cattle        | WRLFMD | Cameroon     | VII                   |
| CAR/29/2013            | n/a       | cattle        | WRLFMD | Cameroon     | VII                   |
| EGY/9/2012             | JX570622  | n/a           | WRLFMD | Egypt        | VII/Ghb-12            |
| EGY/11/2012            | JX570624  | n/a           | WRLFMD | Egypt        | VII/Ghb-12            |
| EGY/17/2012            | KF112932  | water buffalo | WRLFMD | Egypt        | VII/Ghb-12            |
| EGY/16/2012            | KF112931  | water buffalo | WRLFMD | Egypt        | VII/Ghb-12            |
| EGY/3/2012             | JX570618  | n/a           | WRLFMD | Egypt        | VII/Ghb-12            |
| EGY/13/2012            | JX570625  | n/a           | WRLFMD | Egypt        | VII/Ghb-12            |
| EGY/26/2012a*          | JX013979  | water buffalo | n/a    | Egypt        | VII/Ghb-12            |

*continued on next page*

| label             | accession | host(s)         | lab    | country              | taxonomic information |
|-------------------|-----------|-----------------|--------|----------------------|-----------------------|
| EGY/23/2012*      | JX013980  | cattle          | n/a    | Egypt                | VII/Ghb-12            |
| EGY/31/2012       | KF112937  | cattle          | WRLFMD | Egypt                | VII/Ghb-12            |
| EGY/14/2012       | JX570626  | n/a             | WRLFMD | Egypt                | VII/Ghb-12            |
| EGY/44/2012       | n/a       | cattle          | WRLFMD | Egypt                | VII/Ghb-12            |
| EGY/43/2012       | KX258063  | cattle          | WRLFMD | Egypt                | VII/Ghb-12            |
| EGY/28/2012       | KF112935  | cattle          | WRLFMD | Egypt                | VII/Ghb-12            |
| EGY/7/2012*       | JX013978  | water buffalo   | n/a    | Egypt                | VII/Ghb-12            |
| EGY/15/2012       | JX570627  | n/a             | WRLFMD | Egypt                | VII/Ghb-12            |
| EGY/29/2012       | KF112936  | cattle          | WRLFMD | Egypt                | VII/Ghb-12            |
| EGY/10/2012       | JX570623  | n/a             | WRLFMD | Egypt                | VII/Ghb-12            |
| EGY/6/2012        | JX570621  | n/a             | WRLFMD | Egypt                | VII/Ghb-12            |
| EGY/5/2012        | JX570620  | n/a             | WRLFMD | Egypt                | VII/Ghb-12            |
| EGY/4/2012        | JX570619  | n/a             | WRLFMD | Egypt                | VII/Ghb-12            |
| EGY/22/2012       | KF112934  | cattle          | WRLFMD | Egypt                | VII/Ghb-12            |
| EGY/21/2012       | KF112933  | cattle          | WRLFMD | Egypt                | VII/Ghb-12            |
| PAT/1/2012        | JX570637  | cattle          | WRLFMD | Palestinian AT       | VII/Ghb-12            |
| ETH/2/91          | AY343938  | bovine          | OVI    | Ethiopia             | XIV                   |
| SUD/6/77          | AY343939  | n/a             | OVI    | Sudan                | XIII                  |
| ETH/2/2007        | FJ798161  | cattle          | WRLFMD | Ethiopia             | XIII                  |
| ZAI/1/74          | DQ009737  | n/a             | OVI    | Zaire                | VIII                  |
| RWA/1/2000*       | AF367134  | n/a             | OVI    | Rwanda               | VIII                  |
| KEN/3/57          | AJ251473  | n/a             | WRLFMD | Kenya                | IX                    |
| KEN/2/84          | AY343941  | bovine          | OVI    | Kenya                | IX                    |
| UGA/51/75         | AY343963  | bovine          | OVI    | Uganda               | XII                   |
| ZAI/1/82          | AF367100  | bovine          | OVI    | Zaire                | X                     |
| UGA/19/98         | AY343969  | n/a             | OVI    | Uganda               | X                     |
| ANG/4/74          | AF479417  | n/a             | OVI    | Angola               | XI                    |
| ZIM/5/81          | EF134951  | bovine          | WRLFMD | Zimbabwe             | II                    |
| ZIM/7/83*         | AF136607  | bovine          | OVI    | Zimbabwe             | II                    |
| KEN/1/84          | AY344505  | bovine          | OVI    | Kenya                | IV                    |
| ETH/1/90          | AY343935  | bovine          | OVI    | Ethiopia             | IV                    |
| RHO/1/48          | AY593847  | n/a             | PIADC  | Rhodesia             | III                   |
| BOT/P3/98 VUM-29* | AF367124  | african buffalo | OVI    | Botswana             | III                   |
| MAL/1/2003        | n/a       | bovine          | WRLFMD | Malawi               | I                     |
| ZIM/14/2002       | KF219689  | bovine          | WRLFMD | Zimbabwe             | I                     |
| SA/106/59         | AY593848  | n/a             | PIADC  | South Africa<br>(SA) | I                     |
| GHA/2/90          | AF479415  | bovine          | OVI    | Ghana                | V                     |
| NIG/2/75          | AF367139  | bovine          | OVI    | Nigeria              | V                     |
| GAM/8/79          | AF479410  | bovine          | OVI    | Gambia               | VI                    |

\*, not a WRLFMD Reference Number

n/a, not available