

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

## Genotyping Report

FMDV serotype: A  
Country: Republic of Korea (South Korea)  
Year: 2018  
Batch: WRLMEG/2018/00008  
No. of sequences: 1  
Report date: 27th March 2018  
Report generated by: Nick Knowles  
Report checked by: Kasia Bankowska

This report is prepared on behalf of the Animal and Plant Quarantine Agency (Ministry of Agriculture, Food and Rural Affairs, Republic of Korea) and covers a VP1 sequence submitted to the WRLFMD on 27/03/2018.



Copyright ©2018 The Pirbright Institute, Ash Road, Pirbright, Woking GU24 0NF, United Kingdom.

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

email: [reporting@pirbright.ac.uk](mailto:reporting@pirbright.ac.uk)

The contents of this report should not be reproduced without permission.

|   |                                 |
|---|---------------------------------|
| Virus sample name:  | GP/SKR/2018                     |
| Sender reference:   | A/GP/SKR/2018                   |
| Location of origin:   | Gimpo-si, Gyeonggi-do           |
| Country of origin:  | Republic of Korea (South Korea) |
| Date of collection:   | 26/03/2018                      |
| Host species:   | porcine                         |
| Serotype:   | A                               |
| Topotype:   | ASIA                            |
| Lineage:  | Sea-97                          |
| Sublineage:   |                                 |
| Sequence length:  | 630                             |
| Ambiguities:  | 0                               |
| Material submitted for sequencing:  | n/a                             |
| Harvest date of material:   | n/a                             |
| Primers:  | n/a                             |
| Received for sequencing:  | n/a                             |
| Created:  | 27/03/2018                      |
| Last updated:   | 27/03/2018                      |
| VIBASys IDs: sample 35996, genome 35997, sequence viba_35998, sequencing info 35999 |                                 |

### Most Closely Related Sequences

| sequence   | virus name             | Host    | % Id. | # Ambig. | serotype | topotype | lineage | sublineage |
|------------|------------------------|---------|-------|----------|----------|----------|---------|------------|
| viba_20799 | GDMM-CHA-2013-S        | porcine | 95.7  | 0        | A        | ASIA     | Sea-97  |            |
| viba_25171 | MYA/2/2015             | bovine  | 95.6  | 0        | A        | ASIA     | Sea-97  |            |
| viba_25175 | MYA/3/2015             | bovine  | 95.6  | 0        | A        | ASIA     | Sea-97  |            |
| viba_25179 | MYA/4/2015             | bovine  | 95.6  | 0        | A        | ASIA     | Sea-97  |            |
| viba_25988 | TAI/13/2015            | cattle  | 95.6  | 0        | A        | ASIA     | Sea-97  |            |
| viba_25259 | TAI/3/2015             | cattle  | 95.6  | 0        | A        | ASIA     | Sea-97  |            |
| viba_21164 | Zabaikalsky/6/RUS/2013 | cattle  | 95.6  | 0        | A        | ASIA     | Sea-97  |            |
| viba_22520 | TAI/17/2014            | cattle  | 95.4  | 0        | A        | ASIA     | Sea-97  |            |
| viba_26004 | TAI/24/2015            | cattle  | 95.4  | 0        | A        | ASIA     | Sea-97  |            |
| viba_31504 | VIT/12/2015            | cattle  | 95.4  | 0        | A        | ASIA     | Sea-97  |            |

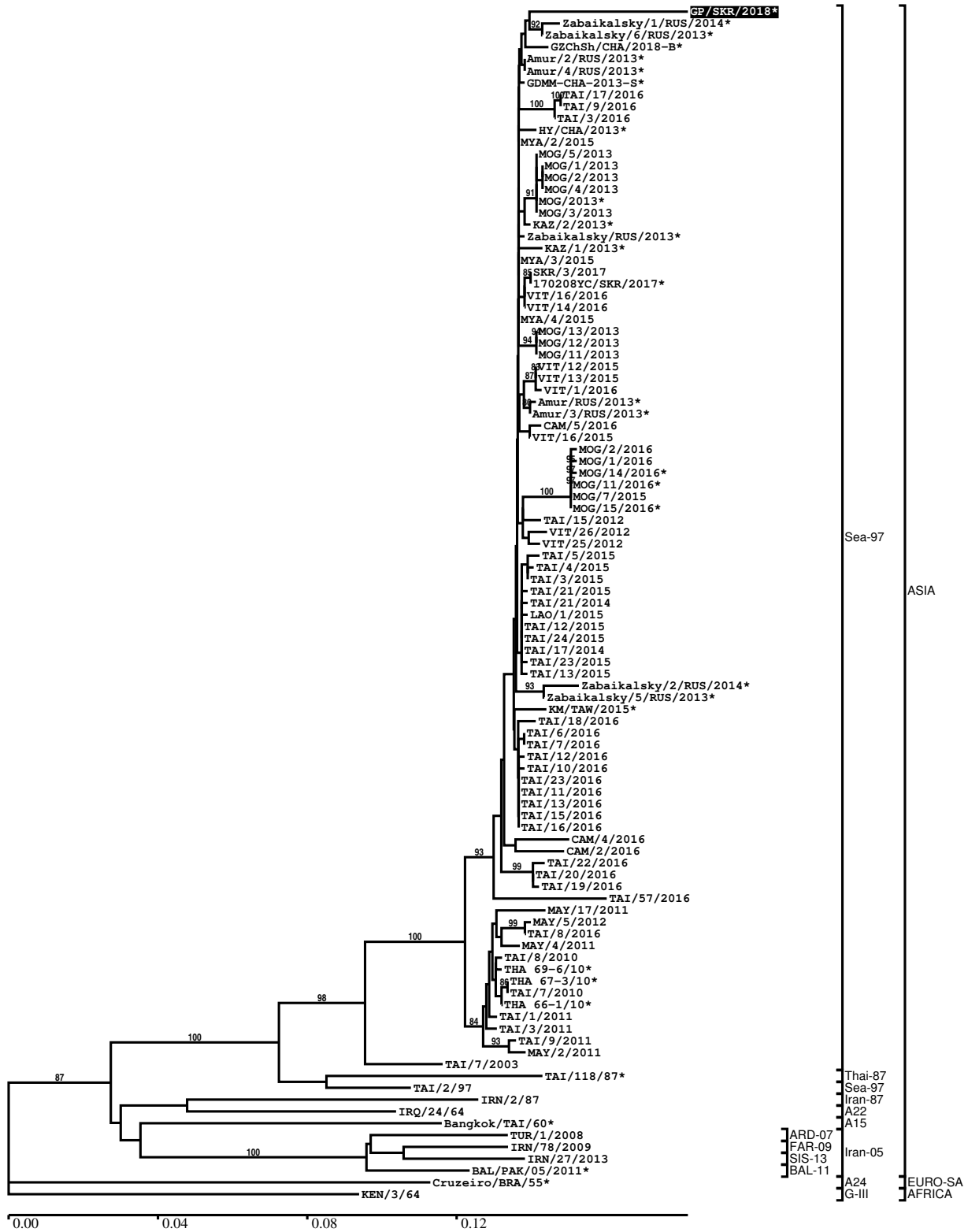
### Most Closely Related Prototype Sequences

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_122   | TAI/7/2003      | bovine | 90.3  | 0        | A        | ASIA     | Sea-97  |            |
| viba_625   | TAI/2/97        |        | 86.9  | 0        | A        | ASIA     | Sea-97  |            |
| viba_630   | TAI/118/87      |        | 84.3  | 0        | A        | ASIA     | Thai-87 |            |
| viba_677   | IRQ/24/64       | bovine | 80.1  | 0        | A        | ASIA     | A22     |            |
| viba_682   | IRN/2/87        | bovine | 79.8  | 0        | A        | ASIA     | Iran-87 |            |
| viba_589   | Bangkok/TAI/60  |        | 79.4  | 0        | A        | ASIA     | A15     |            |
| viba_636   | IRN/78/2009     |        | 79.1  | 0        | A        | ASIA     | Iran-05 | FAR-09     |
| viba_34671 | BAL/PAK/05/2011 | cattle | 79.0  | 0        | A        | ASIA     | Iran-05 | BAL-11     |
| viba_20943 | IRN/27/2013     | cattle | 78.7  | 0        | A        | ASIA     | Iran-05 | SIS-13     |
| viba_403   | TUR/1/2008      | cattle | 78.7  | 0        | A        | ASIA     | Iran-05 | ARD-07     |

Report on FMDV A in Republic of Korea (South Korea) in 2018

Batch: WRLMEG/2018/00008



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor: vp1\_A  
 Query sequence set: WRLMEG/2018/00008-Republic of Korea (South Korea)-A (1 sequences)  
 Sequence database set: allseqs\_A (1791 sequences)  
 Prototype sequence set: !prototypes\_A (40 sequences)  
 Number of related sequences reported: 10  
 Minimal VP1 subsequence match length: 600  
 Sequence alignment method: muscle (default parameters)  
 Sequence alignment length: 633  
 Phylogeny reconstruction method: fdnadist, fneighbor  
 Number of bootstrap samples: 1000  
 Random seed for bootstrapping: 1  
 Displaying bootstrap values above: 70.0%  
 Number of sequences in tree capped at: 100  
 Number of prototype sequences in tree: 10  
 VIBASys version: reflabs-1.1.2

## Sequences in the Phylogenetic Tree

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

| label                   | accession | host(s) | lab          | country                         | taxonomic information |
|-------------------------|-----------|---------|--------------|---------------------------------|-----------------------|
| GP/SKR/2018*            | n/a       | porcine | APQA         | Republic of Korea (South Korea) | ASIA/Sea-97           |
| Zabaikalsky/1/RUS/2014* | n/a       | cattle  | ARRIAH       | Russia                          | ASIA/Sea-97           |
| Zabaikalsky/6/RUS/2013* | n/a       | cattle  | ARRIAH       | Russia                          | ASIA/Sea-97           |
| GZChSh/CHA/2018-B*      | n/a       | n/a     | LVRI         | China                           | ASIA/Sea-97           |
| Amur/2/RUS/2013*        | n/a       | cattle  | ARRIAH       | Russia                          | ASIA/Sea-97           |
| Amur/4/RUS/2013*        | n/a       | cattle  | ARRIAH       | Russia                          | ASIA/Sea-97           |
| GDMM-CHA-2013-S*        | KF450794  | porcine | n/a          | China                           | ASIA/Sea-97           |
| TAI/17/2016             | n/a       | cattle  | WRLFMD       | Thailand                        | ASIA/Sea-97           |
| TAI/9/2016              | n/a       | cattle  | WRLFMD       | Thailand                        | ASIA/Sea-97           |
| TAI/3/2016              | n/a       | cattle  | WRLFMD       | Thailand                        | ASIA/Sea-97           |
| HY/CHA/2013*            | KT968663  | yak     | Sichuan Univ | China                           | ASIA/Sea-97           |
| MYA/2/2015              | n/a       | bovine  | WRLFMD       | Myanmar                         | ASIA/Sea-97           |
| MOG/5/2013              | n/a       | yak     | WRLFMD       | Mongolia                        | ASIA/Sea-97           |
| MOG/1/2013              | n/a       | yak     | WRLFMD       | Mongolia                        | ASIA/Sea-97           |
| MOG/2/2013              | n/a       | yak     | WRLFMD       | Mongolia                        | ASIA/Sea-97           |
| MOG/4/2013              | n/a       | yak     | WRLFMD       | Mongolia                        | ASIA/Sea-97           |
| MOG/2013*               | n/a       | cattle  | ARRIAH       | Mongolia                        | ASIA/Sea-97           |
| MOG/3/2013              | n/a       | yak     | WRLFMD       | Mongolia                        | ASIA/Sea-97           |
| KAZ/2/2013*             | n/a       | cattle  | ARRIAH       | Kazakhstan                      | ASIA/Sea-97           |
| Zabaikalsky/RUS/2013*   | n/a       | cattle  | n/a          | Russia                          | ASIA/Sea-97           |
| KAZ/1/2013*             | n/a       | cattle  | ARRIAH       | Kazakhstan                      | ASIA/Sea-97           |
| MYA/3/2015              | n/a       | bovine  | WRLFMD       | Myanmar                         | ASIA/Sea-97           |
| SKR/3/2017              | n/a       | cattle  | WRLFMD       | Republic of Korea (South Korea) | ASIA/Sea-97           |
| 170208YC/SKR/2017*      | n/a       | cattle  | QIA          | Republic of Korea (South Korea) | ASIA/Sea-97           |
| VIT/16/2016             | n/a       | porcine | WRLFMD       | Vietnam                         | ASIA/Sea-97           |
| VIT/14/2016             | n/a       | cattle  | WRLFMD       | Vietnam                         | ASIA/Sea-97           |
| MYA/4/2015              | n/a       | bovine  | WRLFMD       | Myanmar                         | ASIA/Sea-97           |
| MOG/13/2013             | n/a       | cattle  | WRLFMD       | Mongolia                        | ASIA/Sea-97           |
| MOG/12/2013             | n/a       | cattle  | WRLFMD       | Mongolia                        | ASIA/Sea-97           |
| MOG/11/2013             | n/a       | cattle  | WRLFMD       | Mongolia                        | ASIA/Sea-97           |

*continued on next page*

| label                   | accession | host(s)       | lab    | country  | taxonomic information |
|-------------------------|-----------|---------------|--------|----------|-----------------------|
| VIT/12/2015             | n/a       | cattle        | WRLFMD | Vietnam  | ASIA/Sea-97           |
| VIT/13/2015             | n/a       | cattle        | WRLFMD | Vietnam  | ASIA/Sea-97           |
| VIT/1/2016              | n/a       | water buffalo | WRLFMD | Vietnam  | ASIA/Sea-97           |
| Amur/RUS/2013*          | n/a       | cattle        | ARRIAH | Russia   | ASIA/Sea-97           |
| Amur/3/RUS/2013*        | n/a       | cattle        | ARRIAH | Russia   | ASIA/Sea-97           |
| CAM/5/2016              | n/a       | n/a           | WRLFMD | Cambodia | ASIA/Sea-97           |
| VIT/16/2015             | n/a       | cattle        | WRLFMD | Vietnam  | ASIA/Sea-97           |
| MOG/2/2016              | n/a       | sheep         | WRLFMD | Mongolia | ASIA/Sea-97           |
| MOG/1/2016              | n/a       | cattle        | WRLFMD | Mongolia | ASIA/Sea-97           |
| MOG/14/2016*            | n/a       | cattle        | ARRIAH | Mongolia | ASIA/Sea-97           |
| MOG/11/2016*            | n/a       | cattle        | ARRIAH | Mongolia | ASIA/Sea-97           |
| MOG/7/2015              | n/a       | cattle        | WRLFMD | Mongolia | ASIA/Sea-97           |
| MOG/15/2016*            | n/a       | cattle        | ARRIAH | Mongolia | ASIA/Sea-97           |
| TAI/15/2012             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| VIT/26/2012             | n/a       | cattle        | WRLFMD | Vietnam  | ASIA/Sea-97           |
| VIT/25/2012             | n/a       | cattle        | WRLFMD | Vietnam  | ASIA/Sea-97           |
| TAI/5/2015              | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/4/2015              | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/3/2015              | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/21/2015             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/21/2014             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| LAO/1/2015              | n/a       | cattle        | WRLFMD | Laos     | ASIA/Sea-97           |
| TAI/12/2015             | n/a       | porcine       | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/24/2015             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/17/2014             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/23/2015             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/13/2015             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| Zabaikalsky/2/RUS/2014* | n/a       | cattle        | ARRIAH | Russia   | ASIA/Sea-97           |
| Zabaikalsky/5/RUS/2013* | n/a       | cattle        | ARRIAH | Russia   | ASIA/Sea-97           |
| KM/TAW/2015*            | n/a       | cattle        | NVRI   | Taiwan   | ASIA/Sea-97           |
| TAI/18/2016             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/6/2016              | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/7/2016              | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/12/2016             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/10/2016             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/23/2016             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/11/2016             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/13/2016             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/15/2016             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/16/2016             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| CAM/4/2016              | n/a       | n/a           | WRLFMD | Cambodia | ASIA/Sea-97           |
| CAM/2/2016              | n/a       | n/a           | WRLFMD | Cambodia | ASIA/Sea-97           |
| TAI/22/2016             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/20/2016             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/19/2016             | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/5/2016              | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| MAY/17/2011             | n/a       | cattle        | WRLFMD | Malaysia | ASIA/Sea-97           |
| MAY/5/2012              | n/a       | cattle        | WRLFMD | Malaysia | ASIA/Sea-97           |
| TAI/8/2016              | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| MAY/4/2011              | n/a       | cattle        | WRLFMD | Malaysia | ASIA/Sea-97           |
| TAI/8/2010              | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| THA 69-6/10*            | n/a       | cattle        | TRRL   | Thailand | ASIA/Sea-97           |
| THA 67-3/10*            | n/a       | cattle        | TRRL   | Thailand | ASIA/Sea-97           |
| TAI/7/2010              | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| THA 66-1/10*            | n/a       | cattle        | TRRL   | Thailand | ASIA/Sea-97           |
| TAI/1/2011              | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/3/2011              | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/9/2011              | n/a       | cattle        | WRLFMD | Thailand | ASIA/Sea-97           |
| MAY/2/2011              | n/a       | cattle        | WRLFMD | Malaysia | ASIA/Sea-97           |
| TAI/7/2003              | HQ116312  | bovine        | WRLFMD | Thailand | ASIA/Sea-97           |
| TAI/118/87*             | EF208777  | n/a           | WRLFMD | Thailand | ASIA/Thai-87          |
| TAI/2/97                | EF208778  | n/a           | WRLFMD | Thailand | ASIA/Sea-97           |
| IRN/2/87                | EF208770  | bovine        | WRLFMD | Iran     | ASIA/Iran-87          |
| IRQ/24/64               | AY593763  | bovine        | PIADC  | Iraq     | ASIA/A22              |
| Bangkok/TAI/60*         | AY593755  | n/a           | PIADC  | Thailand | ASIA/A15              |
| TUR/1/2008              | FJ755133  | cattle        | WRLFMD | Turkey   | ASIA/Iran-05/ARD-07   |
| IRN/78/2009             | KY091291  | n/a           | WRLFMD | Iran     | ASIA/Iran-05/FAR-09   |

*continued on next page*

---

| label            | accession | host(s) | lab           | country  | taxonomic information |
|------------------|-----------|---------|---------------|----------|-----------------------|
| IRN/27/2013      | n/a       | cattle  | WRLFMD        | Iran     | ASIA/Iran-05/SIS-13   |
| BAL/PAK/05/2011* | KT832824  | cattle  | Univ Malakand | Pakistan | ASIA/Iran-05/BAL-11   |
| Cruzeiro/BRA/55* | AY593768  | bovine  | PIADC         | Brazil   | EURO-SA/A24           |
| KEN/3/64         | AY593761  | n/a     | PIADC         | Kenya    | AFRICA/G-III          |

\*, not a WRLFMD Reference Number

n/a, not available