



# Institute for Animal Health

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## Email

To:

Email:

To:

Email:

From:

Date: 9<sup>th</sup> June 2009

Subject: Sequencing Report

No. Of Pages: 13

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Thank you.

Dear [REDACTED]

Virus isolates: O HKN/6/2006, O HKN/1/2007, O HKN/2/2007, O HKN/3/2007, O HKN/4/2007, O HKN/1/2008, O HKN/2/2008, O HKN/3/2008, O HKN/4/2008, O HKN/1/2009 and O HKN/2/2009

Sequencing work has now been completed in respect of the above virus isolates received at IAH Pirbright on 23<sup>rd</sup> April 2009 and the details are as attached. Please note all of our phylogenetic trees can be accessed via the internet at:

[http://www.iah.bbsrc.ac.uk/primary\\_index/current\\_research/virus/Picornaviridae/Aphthovirus/index.html](http://www.iah.bbsrc.ac.uk/primary_index/current_research/virus/Picornaviridae/Aphthovirus/index.html)

Yours sincerely [REDACTED]

Head: World Reference Laboratory for FMD

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The Institute is sponsored by the Biotechnology and Biological Sciences Research Council. An Associated Institute of the University of Reading.

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# Molecular Epidemiology Report Form

IAH-P-EP-MEG-FOR-005-1  
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Serotype: O WRL Ref No: HKN/6/2006 Sender Ref: FMD 01/06 D-06-345 Date collected: 26/01/2006 Date received by WRLFMD: 23/04/2009 Date received for sequencing: 30/04/2009 Species: Pig Material used: RS1 Region sequenced: VPI RT-PCR primers: O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 08/06/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: CATHAY Genotype/strain: none designated Sequence filename: HKN06-06.SEQ Date sequence last updated: 08/06/2009 Total no. of comparisons: 1948 Min. no. of nt for comparison: 300 Total turn-around time: 46 days Sequencing time: 39 days
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Comments:

### Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/HKN/5/2006	HKN06-05	639	638	0	99.84	0.16
2	O/HKN/2/2006	HKN06-02	639	637	0	99.69	0.31
3	O/HKN/4/2006	HKN06-04	639	637	0	99.69	0.31
4	O/HKN/1/2006	HKN06-01	639	636	0	99.53	0.47
5	O/HKN/24/2005	HKN05-24	639	634	0	99.22	0.78
6	O/HKN/3/2006	HKN06-03	639	634	0	99.22	0.78
7	O/HKN/22/2005	HKN05-22	639	633	0	99.06	0.94
8	O/HKN/23/2005	HKN05-23	639	633	0	99.06	0.94
9	O/HKN/25/2005	HKN05-25	639	632	0	98.9	1.1
10	O/HKN/18/2005	HKN05-18	639	630	0	98.59	1.41

### Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/PHI/5/95 (DQ164946)	PHI95-05	639	588	0	92.02	7.98
2	O/HKN/6/83 (AJ294919)	HKN83-06	637	557	2	87.44	12.56
3	O/IND/53/79 (AF292107)	IND79A53	639	520	0	81.38	18.62
4	O1/Manisa/TUR/69 (AJ251477)	TUR69-E	639	514	0	80.44	19.56
5	O/TAW/2/99 (AJ294927)	TAW99-02	639	513	0	80.28	19.72
6	O/ISR/2/88 (DQ164899)	ISR88-02	639	512	0	80.13	19.87
7	O/TAI/189/87* [TRRL]	TAI87-AC	639	511	0	79.97	20.03
8	O/MOR/1/91	MOR91-01	639	510	0	79.81	20.19
9	O/IND/R2/75* [AF204276]	IND75-A	639	503	0	78.72	21.28
10	O1/BFS 1860/UK/67 (J02185)	UKG67-A	639	494	0	77.31	22.69

nt, nucleotides

\*, not a WRLFMD reference number

# Molecular Epidemiology Report Form

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Serotype: O WRL Ref No: HKN/1/2007 Sender Ref: FMD 01/07 D-07-325 Date collected: 10/01/2007 Date received by WRLFMD: 23/04/2009 Date received for sequencing: 30/04/2009 Species: Pig Material used: RS1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 08/06/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: CATHAY Genotype/strain: none designated Sequence filename: HKN07-01.SEQ Date sequence last updated: 08/06/2009 Total no. of comparisons: 1948 Min. no. of nt for comparison: 300 Total turn-around time: 46 days Sequencing time: 39 days
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Comments:

### Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/HKN/2/2007	HKN07-02	639	638	0	99.84	0.16
2	O/HKN/13/2004	HKN04-13	639	623	0	97.5	2.5
3	O/HKN/10/2004 (DQ164887)	HKN04-10	639	619	0	96.87	3.13
4	O/HKN/7/2004 (DQ164884)	HKN04-07	639	619	0	96.87	3.13
5	O/HKN/3/2004 (DQ164881)	HKN04-03	639	618	0	96.71	3.29
6	O/HKN/11/2004 (DQ164888)	HKN04-11	639	617	0	96.56	3.44
7	O/HKN/12/2004 (DQ164889)	HKN04-12	639	616	0	96.4	3.6
8	O/HKN/6/2004 (DQ164883)	HKN04-06	639	616	0	96.4	3.6
9	O/HKN/8/2004 (DQ164885)	HKN04-08	639	616	0	96.4	3.6
10	O/HKN/4/2004 (DQ164882)	HKN04-04	639	615	0	96.24	3.76

### Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/PHI/5/95 (DQ164946)	PHI95-05	639	589	0	92.18	7.82
2	O/HKN/6/83 (AJ294919)	HKN83-06	637	551	2	86.5	13.5
3	O/ISR/2/88 (DQ164899)	ISR88-02	639	524	0	82	18
4	O/MOR/1/91	MOR91-01	639	520	0	81.38	18.62
5	O/IND/53/79 [AF292107]	IND79A53	639	518	0	81.06	18.94
6	O/TAW/2/99 (AJ294927)	TAW99-02	639	516	0	80.75	19.25
7	O1/Manisa/TUR/69 (AJ251477)	TUR69-E	639	515	0	80.59	19.41
8	O/TAI/189/87* [TRRL]	TAI87-AC	639	507	0	79.34	20.66
9	O/IND/R2/75* [AF204276]	IND75-A	639	505	0	79.03	20.97
10	O1/BFS 1860/UK/67 (J02185)	UKG67-A	639	487	0	76.21	23.79

nt, nucleotides

\*, not a WRLFMD reference number

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Serotype: O WRL Ref No: HKN/2/2007 Sender Ref: FMD 02/07 D-07-3302 Date collected: 23/03/2007 Date received by WRLFMD: 23/04/2009 Date received for sequencing: 30/04/2009 Species: Pig Material used: RS1 Region sequenced: VPI RT-PCR primers: O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 08/06/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: CATHAY Genotype/strain: none designated Sequence filename: HKN07-02.SEQ Date sequence last updated: 08/06/2009 Total no. of comparisons: 1948 Min. no. of nt for comparison: 300 Total turn-around time: 46 days Sequencing time: 39 days
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Comments:

### Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/HKN/1/2007	HKN07-01	639	638	0	99.84	0.16
2	O/HKN/13/2004	HKN04-13	639	624	0	97.65	2.35
3	O/HKN/10/2004 (DQ164887)	HKN04-10	639	620	0	97.03	2.97
4	O/HKN/7/2004 (DQ164884)	HKN04-07	639	620	0	97.03	2.97
5	O/HKN/3/2004 (DQ164881)	HKN04-03	639	619	0	96.87	3.13
6	O/HKN/11/2004 (DQ164888)	HKN04-11	639	618	0	96.71	3.29
7	O/HKN/12/2004 (DQ164889)	HKN04-12	639	617	0	96.56	3.44
8	O/HKN/6/2004 (DQ164883)	HKN04-06	639	617	0	96.56	3.44
9	O/HKN/8/2004 (DQ164885)	HKN04-08	639	617	0	96.56	3.44
10	O/HKN/4/2004 (DQ164882)	HKN04-04	639	616	0	96.4	3.6

### Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/PHI/5/95 (DQ164946)	PHI95-05	639	590	0	92.33	7.67
2	O/HKN/6/83 (AJ294919)	HKN83-06	637	550	2	86.34	13.66
3	O/ISR/2/88 (DQ164899)	ISR88-02	639	525	0	82.16	17.84
4	O/MOR/1/91	MOR91-01	639	521	0	81.53	18.47
5	O/IND/53/79 [AF292107]	IND79A53	639	519	0	81.22	18.78
6	O/TAW/2/99 (AJ294927)	TAW99-02	639	517	0	80.91	19.09
7	O1/Manisa/TUR/69 (AJ251477)	TUR69-E	639	516	0	80.75	19.25
8	O/TAI/189/87* [TRRL]	TAI87-AC	639	508	0	79.5	20.5
9	O/IND/R2/75* [AF204276]	IND75-A	639	504	0	78.87	21.13
10	O1/BFS 1860/UK/67 (J02185)	UKG67-A	639	488	0	76.37	23.63

nt, nucleotides

\*, not a WRLFMD reference number

# Molecular Epidemiology Report Form

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Serotype: O WRL Ref No: HKN/3/2007 Sender Ref: FMD 03/07 D-07-8097 (1) Date collected: 25/10/2007 Date received by WRLFMD: 23/04/2009 Date received for sequencing: 28/04/2009 Species: Pig Material used: RS1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 08/06/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: CATHAY Genotype/strain: none designated Sequence filename: HKN07-03.SEQ Date sequence last updated: 08/06/2009 Total no. of comparisons: 1948 Min. no. of nt for comparison: 300 Total turn-around time: 46 days Sequencing time: 41 days
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Comments:

### Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/HKN/4/2007	HKN07-04	639	637	0	99.69	0.31
2	O/HKN/3/2008	HKN08-03	639	627	0	98.12	1.88
3	O/HKN/1/2008	HKN08-01	639	626	0	97.97	2.03
4	O/HKN/2/2008	HKN08-02	639	626	0	97.97	2.03
5	O/HKN/2/2006	HKN06-02	639	625	0	97.81	2.19
6	O/HKN/4/2006	HKN06-04	639	625	0	97.81	2.19
7	O/HKN/1/2006	HKN06-01	639	624	0	97.65	2.35
8	O/HKN/24/2005	HKN05-24	639	624	0	97.65	2.35
9	O/HKN/5/2006	HKN06-05	639	624	0	97.65	2.35
10	O/HKN/1/2009	HKN09-01	639	623	0	97.5	2.5

### Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/PHI/5/95 (DQ164946)	PHI95-05	639	581	0	90.92	9.08
2	O/HKN/6/83 (AJ294919)	HKN83-06	637	551	2	86.5	13.5
3	O/IND/53/79 [AF292107]	IND79A53	639	519	0	81.22	18.78
4	O/TAW/2/99 (AJ294927)	TAW99-02	639	513	0	80.28	19.72
5	O/ISR/2/88 (DQ164899)	ISR88-02	639	511	0	79.97	20.03
6	O/MOR/1/91	MOR91-01	639	509	0	79.66	20.34
7	O/TAI/189/87* [TRRL]	TAI87-AC	639	506	0	79.19	20.81
8	O1/Manisa/TUR/69 (AJ251477)	TUR69-E	639	505	0	79.03	20.97
9	O/IND/R2/75* [AF204276]	IND75-A	639	503	0	78.72	21.28
10	O1/BFS 1860/UK/67 (J02185)	UKG67-A	639	490	0	76.68	23.32

nt, nucleotides

\*, not a WRLFMD reference number

# Molecular Epidemiology Report Form

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Serotype: O WRL Ref No: HKN/4/2007 Sender Ref: FMD 03/07 D-07-8097 (2) Date collected: 25/10/2007 Date received by WRLFMD: 23/04/2009 Date received for sequencing: 28/04/2009 Species: Pig Material used: RS1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 08/06/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: CATHAY Genotype/strain: none designated Sequence filename: HKN07-04.SEQ Date sequence last updated: 08/06/2009 Total no. of comparisons: 1948 Min. no. of nt for comparison: 300 Total turn-around time: 46 days Sequencing time: 41 days																																																																																								
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<b>Ten Most Closely Related Viruses</b>																																																																																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Pos.</th> <th>Virus name</th> <th>Filename</th> <th>No. nt compared</th> <th>No. nt matched</th> <th>No. of ambiguities</th> <th>% Identity</th> <th>% Difference</th> </tr> </thead> <tbody> <tr><td>1</td><td>O/HKN/3/2007</td><td>HKN07-03</td><td>639</td><td>637</td><td>0</td><td>99.69</td><td>0.31</td></tr> <tr><td>2</td><td>O/HKN/3/2008</td><td>HKN08-03</td><td>639</td><td>629</td><td>0</td><td>98.44</td><td>1.56</td></tr> <tr><td>3</td><td>O/HKN/1/2008</td><td>HKN08-01</td><td>639</td><td>628</td><td>0</td><td>98.28</td><td>1.72</td></tr> <tr><td>4</td><td>O/HKN/2/2008</td><td>HKN08-02</td><td>639</td><td>628</td><td>0</td><td>98.28</td><td>1.72</td></tr> <tr><td>5</td><td>O/HKN/2/2006</td><td>HKN06-02</td><td>639</td><td>627</td><td>0</td><td>98.12</td><td>1.88</td></tr> <tr><td>6</td><td>O/HKN/4/2006</td><td>HKN06-04</td><td>639</td><td>627</td><td>0</td><td>98.12</td><td>1.88</td></tr> <tr><td>7</td><td>O/HKN/1/2006</td><td>HKN06-01</td><td>639</td><td>626</td><td>0</td><td>97.97</td><td>2.03</td></tr> <tr><td>8</td><td>O/HKN/24/2005</td><td>HKN05-24</td><td>639</td><td>626</td><td>0</td><td>97.97</td><td>2.03</td></tr> <tr><td>9</td><td>O/HKN/5/2006</td><td>HKN06-05</td><td>639</td><td>626</td><td>0</td><td>97.97</td><td>2.03</td></tr> <tr><td>10</td><td>O/HKN/1/2009</td><td>HKN09-01</td><td>639</td><td>625</td><td>0</td><td>97.81</td><td>2.19</td></tr> </tbody> </table>		Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference	1	O/HKN/3/2007	HKN07-03	639	637	0	99.69	0.31	2	O/HKN/3/2008	HKN08-03	639	629	0	98.44	1.56	3	O/HKN/1/2008	HKN08-01	639	628	0	98.28	1.72	4	O/HKN/2/2008	HKN08-02	639	628	0	98.28	1.72	5	O/HKN/2/2006	HKN06-02	639	627	0	98.12	1.88	6	O/HKN/4/2006	HKN06-04	639	627	0	98.12	1.88	7	O/HKN/1/2006	HKN06-01	639	626	0	97.97	2.03	8	O/HKN/24/2005	HKN05-24	639	626	0	97.97	2.03	9	O/HKN/5/2006	HKN06-05	639	626	0	97.97	2.03	10	O/HKN/1/2009	HKN09-01	639	625	0	97.81	2.19
Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference																																																																																		
1	O/HKN/3/2007	HKN07-03	639	637	0	99.69	0.31																																																																																		
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6	O/HKN/4/2006	HKN06-04	639	627	0	98.12	1.88																																																																																		
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8	O/HKN/24/2005	HKN05-24	639	626	0	97.97	2.03																																																																																		
9	O/HKN/5/2006	HKN06-05	639	626	0	97.97	2.03																																																																																		
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nt, nucleotides *, not a WRLFMD reference number																																																																																									

# Molecular Epidemiology Report Form

IAH-P-EP-MEG-FOR-005-1

Page 1 of 1

<p>Serotype: O  WRL Ref No: HKN/1/2008  Sender Ref: FMD 01/08 D-08-8192 (1)  Date collected: 10/11/2008  Date received by WRLFMD: 23/04/2009  Date received for sequencing: 30/04/2009  Species: Pig  Material used: RS1  Region sequenced: VP1  RT-PCR primers: O-1C244F/EUR-2B52R;  O-1C272F/EUR-2B52R  No. of Nt determined: 639  No. of ambiguities: 0  Gene length: 639</p>	<p>Report date: 08/06/2009  Reported by: N.J. Knowles  Checked by: D.P. King    Topotype: CATHAY  Genotype/strain: none designated  Sequence filename: HKN08-01.SEQ  Date sequence last updated: 08/06/2009  Total no. of comparisons: 1948  Min. no. of nt for comparison: 300  Total turn-around time: 46 days  Sequencing time: 39 days</p>																																																																																								
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Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference																																																																																		
1	O/HKN/2/2008	HKN08-02	639	639	0	100	0																																																																																		
2	O/HKN/1/2009	HKN09-01	639	636	0	99.53	0.47																																																																																		
3	O/HKN/2/2009	HKN09-02	639	636	0	99.53	0.47																																																																																		
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Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference																																																																																		
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# Molecular Epidemiology Report Form

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Page 1 of 1

Serotype: O WRL Ref No: HKN/2/2008 Sender Ref: FMD 01/08 D-08-8192 (2) Date collected: 10/11/2008 Date received by WRLFMD: 23/04/2009 Date received for sequencing: 30/04/2009 Species: Pig Material used: RS1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 08/06/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: CATHAY Genotype/strain: none designated Sequence filename: HKN08-02.SEQ Date sequence last updated: 08/06/2009 Total no. of comparisons: 1948 Min. no. of nt for comparison: 300 Total turn-around time: 46 days Sequencing time: 39 days
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Comments:

### Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/HKN/1/2008	HKN08-01	639	639	0	100	0
2	O/HKN/1/2009	HKN09-01	639	636	0	99.53	0.47
3	O/HKN/2/2009	HKN09-02	639	636	0	99.53	0.47
4	O/HKN/3/2008	HKN08-03	639	636	0	99.53	0.47
5	O/HKN/4/2008	HKN08-04	639	636	0	99.53	0.47
6	O/HKN/4/2007	HKN07-04	639	628	0	98.28	1.72
7	O/HKN/3/2007	HKN07-03	639	626	0	97.97	2.03
8	O/HKN/2/2006	HKN06-02	639	620	0	97.03	2.97
9	O/HKN/4/2006	HKN06-04	639	620	0	97.03	2.97
10	O/HKN/1/2006	HKN06-01	639	619	0	96.87	3.13

### Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/PHI/5/95 (DQ164946)	PHI95-05	639	577	0	90.3	9.7
2	O/HKN/6/83 (AJ294919)	HKN83-06	637	549	2	86.19	13.81
3	O/IND/53/79 [AF292107]	IND79A53	639	517	0	80.91	19.09
4	O/ISR/2/88 (DQ164899)	ISR88-02	639	512	0	80.13	19.87
5	O/TAW/2/99 (AJ294927)	TAW99-02	639	509	0	79.66	20.34
6	O/MOR/1/91	MOR91-01	639	508	0	79.5	20.5
7	O/TAI/189/87* [TRRL]	TAI87-AC	639	503	0	78.72	21.28
8	O1/Manisa/TUR/69 (AJ251477)	TUR69-E	639	503	0	78.72	21.28
9	O/IND/R2/75* [AF204276]	IND75-A	639	501	0	78.4	21.6
10	O1/BFS 1860/UK/67 (J02185)	UKG67-A	639	492	0	77	23

nt, nucleotides

\*, not a WRLFMD reference number



# Molecular Epidemiology Report Form

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Serotype: O WRL Ref No: HKN/3/2008 Sender Ref: FMD 01/08 D-08-8192 (3) Date collected: 10/11/2008 Date received by WRLFMD: 23/04/2009 Date received for sequencing: 30/04/2009 Species: Pig Material used: RS1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 08/06/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: CATHAY Genotype/strain: none designated Sequence filename: HKN08-03.SEQ Date sequence last updated: 08/06/2009 Total no. of comparisons: 1948 Min. no. of nt for comparison: 300 Total turn-around time: 46 days Sequencing time: 39 days
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Comments:

### Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/HKN/1/2008	HKN08-01	639	636	0	99.53	0.47
2	O/HKN/2/2008	HKN08-02	639	636	0	99.53	0.47
3	O/HKN/1/2009	HKN09-01	639	633	0	99.06	0.94
4	O/HKN/2/2009	HKN09-02	639	633	0	99.06	0.94
5	O/HKN/4/2008	HKN08-04	639	633	0	99.06	0.94
6	O/HKN/4/2007	HKN07-04	639	629	0	98.44	1.56
7	O/HKN/3/2007	HKN07-03	639	627	0	98.12	1.88
8	O/HKN/2/2006	HKN06-02	639	621	0	97.18	2.82
9	O/HKN/4/2006	HKN06-04	639	621	0	97.18	2.82
10	O/HKN/1/2006	HKN06-01	639	620	0	97.03	2.97

### Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/PHI/5/95 (DQ164946)	PHI95-05	639	577	0	90.3	9.7
2	O/HKN/6/83 (AJ294919)	HKN83-06	637	549	2	86.19	13.81
3	O/IND/53/79 [AF292107]	IND79A53	639	518	0	81.06	18.94
4	O/ISR/2/88 (DQ164899)	ISR88-02	639	513	0	80.28	19.72
5	O/MOR/1/91	MOR91-01	639	509	0	79.66	20.34
6	O/TAW/2/99 (AJ294927)	TAW99-02	639	508	0	79.5	20.5
7	O/TAI/189/87* [TRRL]	TAI87-AC	639	505	0	79.03	20.97
8	O1/Manisa/TUR/69 (AJ251477)	TUR69-E	639	505	0	79.03	20.97
9	O/IND/R2/75* [AF204276]	IND75-A	639	500	0	78.25	21.75
10	O1/BFS 1860/UK/67 (J02185)	UKG67-A	639	492	0	77	23

nt, nucleotides

\*, not a WRLFMD reference number

# Molecular Epidemiology Report Form

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Page 1 of 1

Serotype: O WRL Ref No: HKN/4/2008 Sender Ref: FMD 01/08 D-08-8192 (4) Date collected: 10/11/2008 Date received by WRLFMD: 23/04/2009 Date received for sequencing: 30/04/2009 Species: Pig Material used: RS1 Region sequenced: VPI RT-PCR primers: O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 08/06/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: CATHAY Genotype/strain: none designated Sequence filename: HKN08-04.SEQ Date sequence last updated: 08/06/2009 Total no. of comparisons: 1948 Min. no. of nt for comparison: 300 Total turn-around time: 46 days Sequencing time: 39 days
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Comments:

### Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/HKN/1/2008	HKN08-01	639	636	0	99.53	0.47
2	O/HKN/2/2008	HKN08-02	639	636	0	99.53	0.47
3	O/HKN/1/2009	HKN09-01	639	633	0	99.06	0.94
4	O/HKN/2/2009	HKN09-02	639	633	0	99.06	0.94
5	O/HKN/3/2008	HKN08-03	639	633	0	99.06	0.94
6	O/HKN/4/2007	HKN07-04	639	625	0	97.81	2.19
7	O/HKN/3/2007	HKN07-03	639	623	0	97.5	2.5
8	O/HKN/24/2005	HKN05-24	639	618	0	96.71	3.29
9	O/HKN/2/2006	HKN06-02	639	617	0	96.56	3.44
10	O/HKN/4/2006	HKN06-04	639	617	0	96.56	3.44

### Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/PHI/5/95 (DQ164946)	PHI95-05	639	576	0	90.14	9.86
2	O/HKN/6/83 (AJ294919)	HKN83-06	637	546	2	85.71	14.29
3	O/IND/53/79 [AF292107]	IND79A53	639	516	0	80.75	19.25
4	O/ISR/2/88 (DQ164899)	ISR88-02	639	511	0	79.97	20.03
5	O/TAW/2/99 (AJ294927)	TAW99-02	639	508	0	79.5	20.5
6	O/MOR/1/91	MOR91-01	639	507	0	79.34	20.66
7	O/TAI/189/87* [TRRL]	TAI87-AC	639	502	0	78.56	21.44
8	O1/Manisa/TUR/69 (AJ251477)	TUR69--E	639	502	0	78.56	21.44
9	O/IND/R2/75* [AF204276]	IND75--A	639	500	0	78.25	21.75
10	O1/BFS 1860/UK/67 (J02185)	UKG67--A	639	491	0	76.84	23.16

nt, nucleotides

\*, not a WRLFMD reference number

# Molecular Epidemiology Report Form

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Page 1 of 1

Serotype: O WRL Ref No: HKN/1/2009 Sender Ref: FMD 01/09 D-09-816 (1) Date collected: 04/01/2009 Date received by WRLFMD: 23/04/2009 Date received for sequencing: 28/04/2009 Species: Pig Material used: RS1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 08/06/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: CATHAY Genotype/strain: none designated Sequence filename: HKN09-01.SEQ Date sequence last updated: 08/06/2009 Total no. of comparisons: 1948 Min. no. of nt for comparison: 300 Total turn-around time: 46 days Sequencing time: 41 days
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Comments:

### Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/HKN/2/2009	HKN09-02	639	639	0	100	0
2	O/HKN/1/2008	HKN08-01	639	636	0	99.53	0.47
3	O/HKN/2/2008	HKN08-02	639	636	0	99.53	0.47
4	O/HKN/3/2008	HKN08-03	639	633	0	99.06	0.94
5	O/HKN/4/2008	HKN08-04	639	633	0	99.06	0.94
6	O/HKN/4/2007	HKN07-04	639	625	0	97.81	2.19
7	O/HKN/3/2007	HKN07-03	639	623	0	97.5	2.5
8	O/HKN/2/2006	HKN06-02	639	617	0	96.56	3.44
9	O/HKN/4/2006	HKN06-04	639	617	0	96.56	3.44
10	O/HKN/1/2006	HKN06-01	639	616	0	96.4	3.6

### Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/PHI/5/95 (DQ164946)	PHI95-05	639	574	0	89.83	10.17
2	O/HKN/6/83 (AJ294919)	HKN83-06	637	546	2	85.71	14.29
3	O/IND/53/79 (AF292107)	IND79A53	639	520	0	81.38	18.62
4	O/ISR/2/88 (DQ164899)	ISR88-02	639	513	0	80.28	19.72
5	O/TAW/2/99 (AJ294927)	TAW99-02	639	510	0	79.81	20.19
6	O/MOR/1/91	MOR91-01	639	509	0	79.66	20.34
7	O1/Manisa/TUR/69 (AJ251477)	TUR69-E	639	504	0	78.87	21.13
8	O/IND/R2/75* [AF204276]	IND75-A	639	502	0	78.56	21.44
9	O/TAI/189/87* [TRRL]	TAI87-AC	639	502	0	78.56	21.44
10	O1/BFS 1860/UK/67 (J02185)	UKG67-A	639	492	0	77	23

nt, nucleotides

\*, not a WRLFMD reference number

# Molecular Epidemiology Report Form

IAH-P-EP-MEG-FOR-005-1

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Serotype: O WRL Ref No: HKN/2/2009 Sender Ref: FMD 01/09 D-09-816 (2) Date collected: 04/01/2009 Date received by WRLFMD: 23/04/2009 Date received for sequencing: 28/04/2009 Species: Pig Material used: RS1 Region sequenced: VP1 RT-PCR primers: O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 08/06/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: CATHAY Genotype/strain: none designated Sequence filename: HKN09-02.SEQ Date sequence last updated: 08/06/2009 Total no. of comparisons: 1948 Min. no. of nt for comparison: 300 Total turn-around time: 46 days Sequencing time: 41 days
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Comments:

### Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/HKN/1/2009	HKN09-01	639	639	0	100	0
2	O/HKN/1/2008	HKN08-01	639	636	0	99.53	0.47
3	O/HKN/2/2008	HKN08-02	639	636	0	99.53	0.47
4	O/HKN/3/2008	HKN08-03	639	633	0	99.06	0.94
5	O/HKN/4/2008	HKN08-04	639	633	0	99.06	0.94
6	O/HKN/4/2007	HKN07-04	639	625	0	97.81	2.19
7	O/HKN/3/2007	HKN07-03	639	623	0	97.5	2.5
8	O/HKN/2/2006	HKN06-02	639	617	0	96.56	3.44
9	O/HKN/4/2006	HKN06-04	639	617	0	96.56	3.44
10	O/HKN/1/2006	HKN06-01	639	616	0	96.4	3.6

### Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/PHI/5/95 (DQ164946)	PHI95-05	639	574	0	89.83	10.17
2	O/HKN/6/83 (AJ294919)	HKN83-06	637	546	2	85.71	14.29
3	O/IND/53/79 [AF292107]	IND79A53	639	520	0	81.38	18.62
4	O/ISR/2/88 (DQ164899)	ISR88-02	639	513	0	80.28	19.72
5	O/TAW/2/99 (AJ294927)	TAW99-02	639	510	0	79.81	20.19
6	O/MOR/1/91	MOR91-01	639	509	0	79.66	20.34
7	O1/Manisa/TUR/69 (AJ251477)	TUR69-E	639	504	0	78.87	21.13
8	O/IND/R2/75* [AF204276]	IND75-A	639	502	0	78.56	21.44
9	O/TAI/189/87* [TRRL]	TAI87-AC	639	502	0	78.56	21.44
10	O1/BFS 1860/UK/67 (J02185)	UKG67-A	639	492	0	77	23

nt, nucleotides  
 \*, not a WRLFMD reference number

# Report on FMDV O from Hong Kong in 2006-2009

Batch: WRLFMD/2009/00020

Software: MEGA 4.0

No. of Taxa : 122

Data File : n:\levd\meg\ldb\fmv\o\HKN2009a.meg

Data Title : HKN 2006-2009

Data Type : Nucleotide (Coding)

Analysis : Phylogeny reconstruction

Tree Inference : =====

->Method : Neighbor-Joining

->Phylogeny Test and options : Bootstrap (1000 replicates; seed=24054)

Include Sites : =====

->Gaps/Missing Data : Pairwise Deletion

->Codon Positions : 1st+2nd+3rd+Noncoding

Substitution Model : =====

->Model : Nucleotide: Kimura 2-parameter

->Substitutions to Include : d: Transitions + Transversions

->Pattern among Lineages : Same (Homogeneous)

->Rates among sites : Uniform rates

No. of Sites : 639

No Of Bootstrap Reps = 1000

Only bootstrap values of 70% and above are shown

\*, not a WRLFMD Ref. No.

N.J. Knowles and J. Wadsworth, 8 June 2009

