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To: [REDACTED]

Email Address: [REDACTED]

From: [REDACTED]

Date: 12th December 2008

Subject: Sequencing report

No. Of Pages: 10

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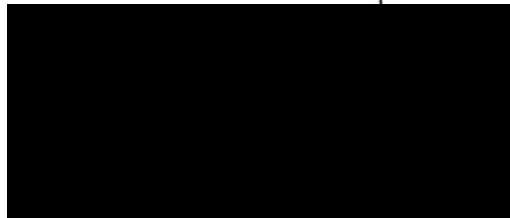
Thank you.

Dear [REDACTED]

Virus Isolates: A/IRQ/9/2009, A/IRQ/10/2009, A/IRQ/11/2009, A/IRQ/12/2009, A/IRQ/15/2009, A/IRQ/17/2009 and A/IRQ/19/2009

Sequencing work has now been completed in respect of the above virus isolates and the details are as attached. Please note that the reports and phylogenetic trees can also be access on the internet at http://www.wrlfmd.org/fmd_genotyping/

Yours sincerely



[REDACTED]
Head: World Reference Laboratory for FMD

C.C. [REDACTED]

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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

Page 1 of 1

Serotype: A WRL Ref No: IRQ/9/2009 Sender Ref: R9 Date collected: 15/01/2009 Date received by WRLFMD: 28/01/2009 Date received for sequencing: 05/02/2009 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: A-1C562F/EUR-2B52R; A-1C612F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 11/02/2009 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Irn-05 Sequence filename: IRQ09-09.SEQ Date sequence last updated: 11/02/2009 Total no. of comparisons: 990 Min. no. of nt for comparison: 300 Total turn-around time: 14 days Sequencing time: 6 days																																																																																								
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Serotype: A WRL Ref No: IRQ/10/2009 Sender Ref: R10 Date collected: 15/01/2009 Date received by WRLFMD: 28/01/2009 Date received for sequencing: 05/02/2009 Species: Cattle Material used: BTy2 Region sequenced: VP1 RT-PCR primers: A-1C562F/EUR-2B52R; A-1C612F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 11/02/2009 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Irn-05 Sequence filename: IRQ09-10.SEQ Date sequence last updated: 11/02/2009 Total no. of comparisons: 990 Min. no. of nt for comparison: 300 Total turn-around time: 14 days Sequencing time: 6 days																																																																																								
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Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	A/IRQ/10/2009	IRQ09-10	639	639	0	100	0
2	A/IRQ/12/2009	IRQ09-12	639	639	0	100	0
3	A/IRQ/15/2009	IRQ09-15	639	639	0	100	0
4	A/IRQ/17/2009	IRQ09-17	639	639	0	100	0
5	A/IRQ/19/2009	IRQ09-19	639	639	0	100	0
6	A/IRQ/9/2009	IRQ09-09	639	639	0	100	0
7	A/BAR/6/2008	BAR08-06	639	634	0	99.22	0.78
8	A/BAR/7/2008	BAR08-07	639	633	0	99.06	0.94
9	A/PAK/5/2006	PAK06-05	639	621	0	97.18	2.82
10	A/AFG/44/2007	AFG07-44	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	A/IRN/1/2005 (EF208769)	IRN05-01	639	612	0	95.77	4.23
2	A/SAU/41/91	SAU91-41	636	541	0	85.06	14.94
3	A/TAI/118/87* (EF208777)	TAI87-AD	636	537	0	84.43	15.57
4	A/IRN/2/87 (EF208770)	IRN87-02	636	535	0	84.12	15.88
5	A/IRN/22/99 (EF208772)	IRN99-22	636	532	0	83.65	16.35
6	A/IRN/1/96 (EF208771)	IRN96-01	638	532	1	83.39	16.61
7	A/SAU/23/86 (EU414536)	SAU86-23	639	531	0	83.1	16.9
8	A/TAI/2/97 (EF208778)	TAI97-02	636	528	0	83.02	16.98
9	A22/IRQ/24/64 (AJ251474)	IRQ64-24	639	525	0	82.16	17.84
10	A24/Cruzeiro/BRA/55 (AJ251476)	BRA55--C	639	514	0	80.44	19.56

nt, nucleotides

*, not a WRLFMD reference number

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Serotype: A WRL Ref No: IRQ/12/2009 Sender Ref: M12 Date collected: 15/01/2009 Date received by WRLFMD: 28/01/2009 Date received for sequencing: 05/02/2009 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: A-1C562F/EUR-2B52R; A-1C612F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 11/02/2009 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Irn-05 Sequence filename: IRQ09-12.SEQ Date sequence last updated: 11/02/2009 Total no. of comparisons: 990 Min. no. of nt for comparison: 300 Total turn-around time: 14 days Sequencing time: 6 days																																																																																								
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Serotype: A WRL Ref No: IRQ/15/2009 Sender Ref: M15 Date collected: 15/01/2009 Date received by WRLFMD: 28/01/2009 Date received for sequencing: 05/02/2009 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: A-1C562F/EUR-2B52R; A-1C612F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 11/02/2009 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Irn-05 Sequence filename: IRQ09-15.SEQ Date sequence last updated: 11/02/2009 Total no. of comparisons: 990 Min. no. of nt for comparison: 300 Total turn-around time: 14 days Sequencing time: 6 days
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Comments:

Ten Most Closely Related Viruses

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3	A/IRQ/12/2009	IRQ09-12	639	639	0	100	0
4	A/IRQ/17/2009	IRQ09-17	639	639	0	100	0
5	A/IRQ/19/2009	IRQ09-19	639	639	0	100	0
6	A/IRQ/9/2009	IRQ09-09	639	639	0	100	0
7	A/BAR/6/2008	BAR08-06	639	634	0	99.22	0.78
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Relationships to Reference Virus Strains

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nt, nucleotides

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Serotype: A WRL Ref No: IRQ/17/2009 Sender Ref: M17 Date collected: 15/01/2009 Date received by WRLFMD: 28/01/2009 Date received for sequencing: 05/02/2009 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: A-1C562F/EUR-2B52R; A-1C612F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 11/02/2009 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Irn-05 Sequence filename: IRQ09-17.SEQ Date sequence last updated: 11/02/2009 Total no. of comparisons: 990 Min. no. of nt for comparison: 300 Total turn-around time: 14 days Sequencing time: 6 days																																																																																								
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4	A/IRQ/15/2009	IRQ09-15	639	639	0	100	0																																																																																		
5	A/IRQ/19/2009	IRQ09-19	639	639	0	100	0																																																																																		
6	A/IRQ/9/2009	IRQ09-09	639	639	0	100	0																																																																																		
7	A/BAR/6/2008	BAR08-06	639	634	0	99.22	0.78																																																																																		
8	A/BAR/7/2008	BAR08-07	639	633	0	99.06	0.94																																																																																		
9	A/PAK/5/2006	PAK06-05	639	621	0	97.18	2.82																																																																																		
10	A/AFG/44/2007	AFG07-44	639	619	0	96.87	3.13																																																																																		
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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Pos.</th> <th style="text-align: left;">Virus name</th> <th style="text-align: left;">Filename</th> <th style="text-align: center;">No. nt compared</th> <th style="text-align: center;">No. nt matched</th> <th style="text-align: center;">No. of ambiguities</th> <th style="text-align: center;">% Identity</th> <th style="text-align: center;">% Difference</th> </tr> </thead> <tbody> <tr><td>1</td><td>A/IRN/1/2005 (EF208769)</td><td>IRN05-01</td><td style="text-align: center;">639</td><td style="text-align: center;">612</td><td style="text-align: center;">0</td><td style="text-align: center;">95.77</td><td style="text-align: center;">4.23</td></tr> <tr><td>2</td><td>A/SAU/41/91</td><td>SAU91-41</td><td style="text-align: center;">636</td><td style="text-align: center;">541</td><td style="text-align: center;">0</td><td style="text-align: center;">85.06</td><td style="text-align: center;">14.94</td></tr> <tr><td>3</td><td>A/TAI/118/87* (EF208777)</td><td>TAI87-AD</td><td style="text-align: center;">636</td><td style="text-align: center;">537</td><td style="text-align: center;">0</td><td style="text-align: center;">84.43</td><td style="text-align: center;">15.57</td></tr> <tr><td>4</td><td>A/IRN/2/87 (EF208770)</td><td>IRN87-02</td><td style="text-align: center;">636</td><td style="text-align: center;">535</td><td style="text-align: center;">0</td><td style="text-align: center;">84.12</td><td style="text-align: center;">15.88</td></tr> <tr><td>5</td><td>A/IRN/22/99 (EF208772)</td><td>IRN99-22</td><td style="text-align: center;">636</td><td style="text-align: center;">532</td><td style="text-align: center;">0</td><td style="text-align: center;">83.65</td><td style="text-align: center;">16.35</td></tr> <tr><td>6</td><td>A/IRN/1/96 (EF208771)</td><td>IRN96-01</td><td style="text-align: center;">638</td><td style="text-align: center;">532</td><td style="text-align: center;">1</td><td style="text-align: center;">83.39</td><td style="text-align: center;">16.61</td></tr> <tr><td>7</td><td>A/SAU/23/86 (EU414536)</td><td>SAU86-23</td><td style="text-align: center;">639</td><td style="text-align: center;">531</td><td style="text-align: center;">0</td><td style="text-align: center;">83.1</td><td style="text-align: center;">16.9</td></tr> <tr><td>8</td><td>A/TAI/2/97 (EF208778)</td><td>TAI97-02</td><td style="text-align: center;">636</td><td style="text-align: center;">528</td><td style="text-align: center;">0</td><td style="text-align: center;">83.02</td><td style="text-align: center;">16.98</td></tr> <tr><td>9</td><td>A22/IRQ/24/64 (AJ251474)</td><td>IRQ64-24</td><td style="text-align: center;">639</td><td style="text-align: center;">525</td><td style="text-align: center;">0</td><td style="text-align: center;">82.16</td><td style="text-align: center;">17.84</td></tr> <tr><td>10</td><td>A24/Cruzeiro/BRA/55 (AJ251476)</td><td>BRA55--C</td><td style="text-align: center;">639</td><td style="text-align: center;">514</td><td style="text-align: center;">0</td><td style="text-align: center;">80.44</td><td style="text-align: center;">19.56</td></tr> </tbody> </table>		Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference	1	A/IRN/1/2005 (EF208769)	IRN05-01	639	612	0	95.77	4.23	2	A/SAU/41/91	SAU91-41	636	541	0	85.06	14.94	3	A/TAI/118/87* (EF208777)	TAI87-AD	636	537	0	84.43	15.57	4	A/IRN/2/87 (EF208770)	IRN87-02	636	535	0	84.12	15.88	5	A/IRN/22/99 (EF208772)	IRN99-22	636	532	0	83.65	16.35	6	A/IRN/1/96 (EF208771)	IRN96-01	638	532	1	83.39	16.61	7	A/SAU/23/86 (EU414536)	SAU86-23	639	531	0	83.1	16.9	8	A/TAI/2/97 (EF208778)	TAI97-02	636	528	0	83.02	16.98	9	A22/IRQ/24/64 (AJ251474)	IRQ64-24	639	525	0	82.16	17.84	10	A24/Cruzeiro/BRA/55 (AJ251476)	BRA55--C	639	514	0	80.44	19.56
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Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL Ref No: IRQ/19/2009 Sender Ref: M19 Date collected: 15/01/2009 Date received by WRLFMD: 28/01/2009 Date received for sequencing: 05/02/2009 Species: Cattle Material used: BTy1 Region sequenced: VP1 RT-PCR primers: A-1C562F/EUR-2B52R; A-1C612F/EUR-2B52R No. of Nt determined: 639 No. of ambiguities: 0 Gene length: 639	Report date: 11/02/2009 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ASIA Genotype/strain: Irn-05 Sequence filename: IRQ09-19.SEQ Date sequence last updated: 11/02/2009 Total no. of comparisons: 990 Min. no. of nt for comparison: 300 Total turn-around time: 14 days Sequencing time: 6 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	A/IRQ/10/2009	IRQ09-10	639	639	0	100	0
2	A/IRQ/11/2009	IRQ09-11	639	639	0	100	0
3	A/IRQ/12/2009	IRQ09-12	639	639	0	100	0
4	A/IRQ/15/2009	IRQ09-15	639	639	0	100	0
5	A/IRQ/17/2009	IRQ09-17	639	639	0	100	0
6	A/IRQ/9/2009	IRQ09-09	639	639	0	100	0
7	A/BAR/6/2008	BAR08-06	639	634	0	99.22	0.78
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Relationships to Reference Virus Strains

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nt, nucleotides

*, not a WRLFMD reference number

Report on FMDV A from Iraq in 2009

(Batch: WRLFMD/2009/00003)

Software: MEGA 4.0

No. of Taxa : 183

Data File : n:\evd\meg\db\fmdv\al\IRQ2009a.meg

Data Title : A Iraq 2009

Data Type : Nucleotide (Coding)

Analysis : Phylogeny reconstruction

Tree Inference : =====

->Method : Neighbor-Joining

->Phylogeny Test and options : Bootstrap (1000 replicates; seed=64238)

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 : 645

No Of Bootstrap Reps = 1000

Only bootstrap values of 70% and above are shown

*, not a WRLFMD Ref. No.

N.J. Knowles & J. Wadsworth, 11 February 2009

