



# Institute for Animal Health

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# FAX

**To:**

**Email:**

**To:**

**Email:**

**C.C.:**

**Fax:**

**From:**

**Date:** 6<sup>th</sup> March 2009

**Subject:** Sequencing Report

**No. Of Pages:** 6

This message is intended for the use of the person named above and may contain confidential information. Any other distribution, copying or disclosure is strictly prohibited. If you have received this telefax in error, please notify us immediately by telephone or E-mail and then return the original transmission to us by mail.

Thank you.

Dear [REDACTED]

**Virus Isolates: A/IRQ/21/2009, A/IRQ/22/2009, A/IRQ/23/2009 AND A/IRQ/24/2009**

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 accessed on 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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# Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL RefNo: IRQ/21/2009 Sender Ref: S-4/5 Date collected: 12/01/2009 Date received by WRLFMD: 15/02/2009 Date received for sequencing: 25/02/2009 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: 05/03/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Irn-05 Sequence filename: IRQ09-21.SEQ Date sequence last updated: 04/03/2009 Total no. of comparisons: 1028 Min. no. of nt for comparison: 300 Total turn-around time: 18 days Sequencing time: 8 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/19/2009	IRQ09-19	639	639	0	100	0
7	A/IRQ/9/2009	IRQ09-09	639	639	0	100	0
8	A/KUW/4/2009	KUW09-04	639	639	0	100	0
9	A/KUW/6/2009	KUW09-06	639	639	0	100	0
10	A/KUW/1/2009	KUW09-01	639	638	0	99.84	0.16

### 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

# Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL Ref No: IRQ/22/2009 Sender Ref: S-1/5 Date collected: 17/01/2009 Date received by WRLFMD: 15/02/2009 Date received for sequencing: 25/02/2009 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: 05/03/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Irn-05 Sequence filename: IRQ09-22.SEQ Date sequence last updated: 04/03/2009 Total no. of comparisons: 1028 Min. no. of nt for comparison: 300 Total turn-around time: 18 days Sequencing time: 8 days
--	---

Comments:

### Ten Most Closely Related Viruses

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	A/IRQ/23/2009	IRQ09-23	639	639	0	100	0
2	A/IRQ/10/2009	IRQ09-10	639	636	0	99.53	0.47
3	A/IRQ/11/2009	IRQ09-11	639	636	0	99.53	0.47
4	A/IRQ/12/2009	IRQ09-12	639	636	0	99.53	0.47
5	A/IRQ/15/2009	IRQ09-15	639	636	0	99.53	0.47
6	A/IRQ/17/2009	IRQ09-17	639	636	0	99.53	0.47
7	A/IRQ/19/2009	IRQ09-19	639	636	0	99.53	0.47
8	A/IRQ/21/2009	IRQ09-21	639	636	0	99.53	0.47
9	A/IRQ/9/2009	IRQ09-09	639	636	0	99.53	0.47
10	A/KUW/4/2009	KUW09-04	639	636	0	99.53	0.47

### 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	609	0	95.31	4.69
2	A/SAU/41/91	SAU91-41	636	540	0	84.91	15.09
3	A/TAI/118/87* (EF208777)	TAI87-AD	636	538	0	84.59	15.41
4	A/IRN/2/87 (EF208770)	IRN87-02	636	534	0	83.96	16.04
5	A/IRN/22/99 (EF208772)	IRN99-22	636	533	0	83.81	16.19
6	A/IRN/1/96 (EF208771)	IRN96-01	638	532	1	83.39	16.61
7	A/SAU/23/86 (EU414536)	SAU86-23	639	532	0	83.26	16.74
8	A/TAI/2/97 (EF208778)	TAI97-02	636	529	0	83.18	16.82
9	A22/IRQ/24/64 (AJ251474)	IRQ64-24	639	526	0	82.32	17.68
10	A24/Cruzeiro/BRA/55 (AJ251476)	BRA55-C	639	511	0	79.97	20.03

nt, nucleotides

\*, not a WRLFMD reference number

# Molecular Epidemiology Report Form

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Page 1 of 1

Serotype: A WRL Ref No: IRQ/23/2009 Sender Ref: S-2/5 Date collected: 24/01/2009 Date received by WRLFMD: 15/02/2009 Date received for sequencing: 25/02/2009 Species: Cattle Material used: BTyI 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: 05/03/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Irr-05 Sequence filename: IRQ09-23.SEQ Date sequence last updated: 04/03/2009 Total no. of comparisons: 1028 Min. no. of nt for comparison: 300 Total turn-around time: 18 days Sequencing time: 8 days																																																																																								
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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

Serotype: A WRL Ref No: IRQ/24/2009 Sender Ref: S-3/5 Date collected: 07/02/2009 Date received by WRLFMD: 15/02/2009 Date received for sequencing: 25/02/2009 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: 05/03/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Irn-05 Sequence filename: IRQ09-24.SEQ Date sequence last updated: 04/03/2009 Total no. of comparisons: 1028 Min. no. of nt for comparison: 300 Total turn-around time: 18 days Sequencing time: 8 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	637	0	99.69	0.31
2	A/IRQ/11/2009	IRQ09-11	639	637	0	99.69	0.31
3	A/IRQ/12/2009	IRQ09-12	639	637	0	99.69	0.31
4	A/IRQ/15/2009	IRQ09-15	639	637	0	99.69	0.31
5	A/IRQ/17/2009	IRQ09-17	639	637	0	99.69	0.31
6	A/IRQ/19/2009	IRQ09-19	639	637	0	99.69	0.31
7	A/IRQ/21/2009	IRQ09-21	639	637	0	99.69	0.31
8	A/IRQ/9/2009	IRQ09-09	639	637	0	99.69	0.31
9	A/KUW/4/2009	KUW09-04	639	637	0	99.69	0.31
10	A/KUW/6/2009	KUW09-06	639	637	0	99.69	0.31

### 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	610	0	95.46	4.54
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4	A/IRN/2/87 (EF208770)	IRN87-02	636	533	0	83.81	16.19
5	A/IRN/22/99 (EF208772)	IRN99-22	636	530	0	83.33	16.67
6	A/IRN/1/96 (EF208771)	IRN96-01	638	530	1	83.07	16.93
7	A/SAU/23/86 (EU414536)	SAU86-23	639	529	0	82.79	17.21
8	A/TAI/2/97 (EF208778)	TAI97-02	636	526	0	82.7	17.3
9	A22/IRQ/24/64 (AJ251474)	IRQ64-24	639	523	0	81.85	18.15
10	A24/Cruzeiro/BRA/55 (AJ251476)	BRA55--C	639	512	0	80.13	19.87

nt, nucleotides

\*, not a WRLFMD reference number

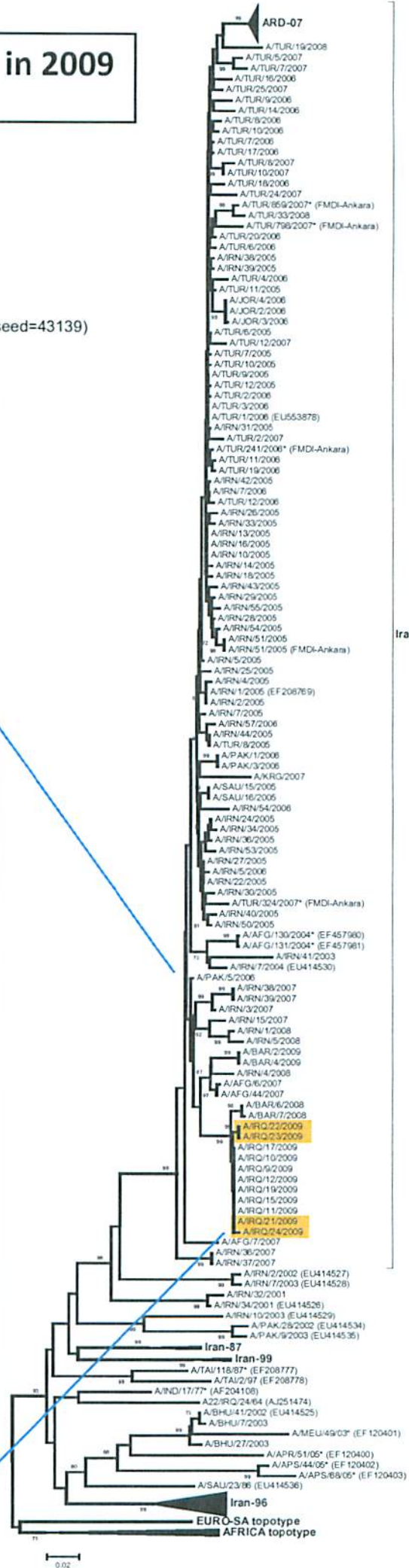
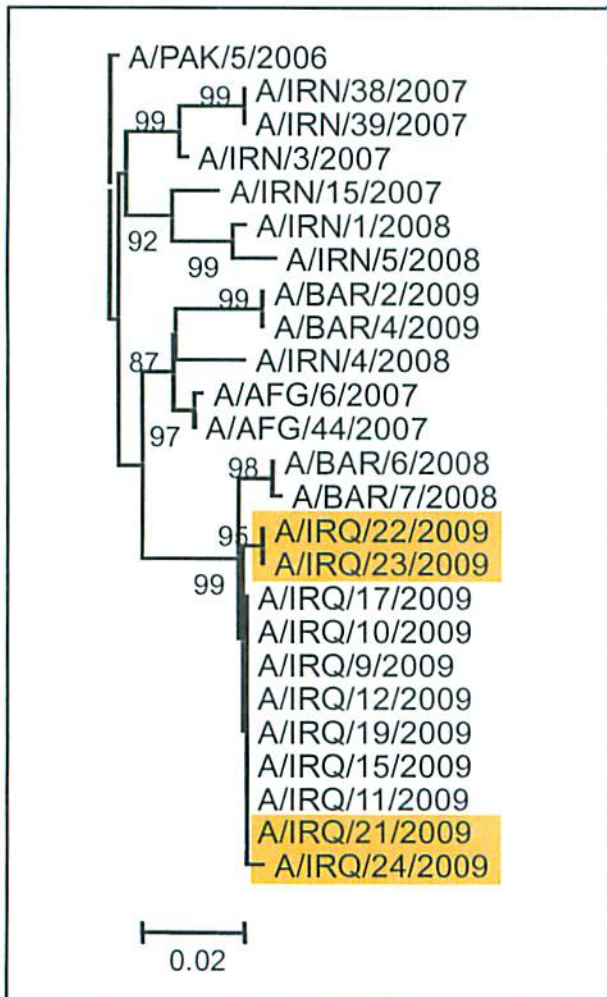
# Report on FMDV A from Iraq in 2009

(Batch: WRLFMD/2009/00006)

Software: MEGA 4.0  
 No. of Taxa : 187  
 Data File : n:\levd\meg\db\fmdv\al\IRQ2009b.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=43139)  
 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, 5 March 2009



Iran-05

ASIA topotype