



**INSTITUTE FOR ANIMAL HEALTH**  
Director: Professor Martin W. Shirley, PhD  
PIRBRIGHT LABORATORY  
Ash Road,  
Pirbright,  
Surrey,  
GU24 0NF  
Intn Tel: 00 44 1483 232441  
Tel: 01483 232441 Fax: 01483 232621

## FMD Sequencing Report

Lab Reference WRL Batch Number: WRLFMD/2009/00029

Sender Details:



Date Received: 2<sup>nd</sup> June 2009

Country of Origin: Israel

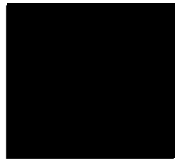
Date Reported: 22<sup>nd</sup> September 2009

Dear 

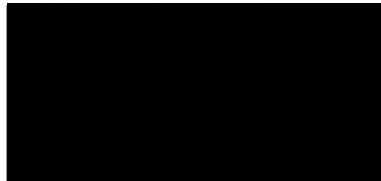
Sequencing work has now been completed in respect of the samples you submitted and the details are as attached. Please note that all of our phylogenetic trees can be accessed via the internet at:

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

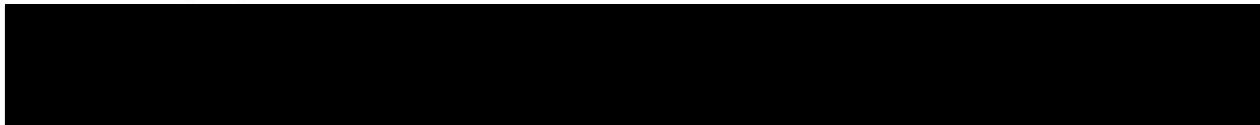
Results Approved By:



Official Stamp:



Date: 22/9/2009



To help us improve the quality of our service, please send any suggestions or requests to the Reference Laboratory by fax (+44 (0) 1483 232621 or email: [elizabeth.byrom@bbsrc.ac.uk](mailto:elizabeth.byrom@bbsrc.ac.uk))

# Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL Ref No: ISR/1/2009 Sender Ref: 28051 Date collected: 02/02/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 08/06/2009 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: 06/07/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-01.SEQ Date sequence last updated: 06/07/2009 Total no. of comparisons: 1131 Min. no. of nt for comparison: 300 Total turn-around time: 34 days Sequencing time: 28 days																																																																																								
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# Molecular Epidemiology Report Form

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

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Serotype: A WRL Ref No: ISR/2/2009 Sender Ref: 29100 Date collected: 12/02/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 08/06/2009 Species: SHEEP 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: 06/07/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-02.SEQ Date sequence last updated: 06/07/2009 Total no. of comparisons: 1131 Min. no. of nt for comparison: 300 Total turn-around time: 34 days Sequencing time: 28 days																																																																																								
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2	A/SAU/41/91	SAU91-41	636	540	0	84.91	15.09																																																																																		
3	A/TAI/118/87* (EF208777)	TAI87-AD	636	536	0	84.28	15.72																																																																																		
4	A/IRN/2/87 (EF208770)	IRN87-02	636	534	0	83.96	16.04																																																																																		
5	A/IRN/22/99 (EF208772)	IRN99-22	636	531	0	83.49	16.51																																																																																		
6	A/SAU/23/86 (EU414536)	SAU86-23	639	533	0	83.41	16.59																																																																																		
7	A/IRN/1/96 (EF208771)	IRN96-01	638	531	1	83.23	16.77																																																																																		
8	A/TAI/2/97 (EF208778)	TAI97-02	636	529	0	83.18	16.82																																																																																		
9	A22/IRQ/24/64 (AJ251474)	IRQ64-24	639	524	0	82	18																																																																																		
10	A24/Cruzeiro/BRA/55 (AJ251476)	BRA55--C	639	515	0	80.59	19.41																																																																																		
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: ISR/3/2009 Sender Ref: 30186 Date collected: 24/02/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 08/06/2009 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: 06/07/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-03.SEQ Date sequence last updated: 06/07/2009 Total no. of comparisons: 1131 Min. no. of nt for comparison: 300 Total turn-around time: 34 days Sequencing time: 28 days																																																																																								
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6	A/IRQ/11/2009	IRQ09-11	639	639	0	100	0																																																																																		
7	A/IRQ/12/2009	IRQ09-12	639	639	0	100	0																																																																																		
8	A/IRQ/15/2009	IRQ09-15	639	639	0	100	0																																																																																		
9	A/IRQ/17/2009	IRQ09-17	639	639	0	100	0																																																																																		
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# Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL Ref No: ISR/4/2009 Sender Ref: 30593 Date collected: 26/02/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 08/06/2009 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: 06/07/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-04.SEQ Date sequence last updated: 06/07/2009 Total no. of comparisons: 1131 Min. no. of nt for comparison: 300 Total turn-around time: 34 days Sequencing time: 28 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: ISR/5/2009 Sender Ref: 30804 Date collected: 28/02/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 08/06/2009 Species: SHEEP 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: 21/09/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-05.SEQ Date sequence last updated: 21/09/2009 Total no. of comparisons: 1187 Min. no. of nt for comparison: 300 Total turn-around time: 111 days Sequencing time: 105 days																																																																																								
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# Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL Ref No: ISR/6/2009 Sender Ref: 31655 Date collected: 08/03/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 08/06/2009 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: 21/09/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-06.SEQ Date sequence last updated: 21/09/2009 Total no. of comparisons: 1187 Min. no. of nt for comparison: 300 Total turn-around time: 111 days Sequencing time: 105 days																																																																																								
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# Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL Ref No: ISR/7/2009 Sender Ref: 31950 Date collected: 09/03/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 08/06/2009 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: 06/07/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-07.SEQ Date sequence last updated: 06/07/2009 Total no. of comparisons: 1131 Min. no. of nt for comparison: 300 Total turn-around time: 34 days Sequencing time: 28 days																																																																																								
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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																																																																																		
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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: ISR/8/2009 Sender Ref: 32449 Date collected: 15/03/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 08/06/2009 Species: GOAT 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: 06/07/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-08.SEQ Date sequence last updated: 06/07/2009 Total no. of comparisons: 1131 Min. no. of nt for comparison: 300 Total turn-around time: 34 days Sequencing time: 28 days																																																																																								
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# Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL Ref No: ISR/9/2009 Sender Ref: 32687 Date collected: 17/03/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 08/06/2009 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: 06/07/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-09.SEQ Date sequence last updated: 06/07/2009 Total no. of comparisons: 1131 Min. no. of nt for comparison: 300 Total turn-around time: 34 days Sequencing time: 28 days																																																																																								
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# Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL Ref No: ISR/10/2009 Sender Ref: 33015 Date collected: 19/03/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 08/06/2009 Species: SHEEP 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: 06/07/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-10.SEQ Date sequence last updated: 06/07/2009 Total no. of comparisons: 1131 Min. no. of nt for comparison: 300 Total turn-around time: 34 days Sequencing time: 28 days																																																																																								
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# Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL Ref No: ISR/11/2009 Sender Ref: 33016 Date collected: 19/03/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 08/06/2009 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: 06/07/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-11.SEQ Date sequence last updated: 06/07/2009 Total no. of comparisons: 1131 Min. no. of nt for comparison: 300 Total turn-around time: 34 days Sequencing time: 28 days																																																																																								
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9	A/IRQ/12/2009	IRQ09-12	639	637	0	99.69	0.31																																																																																		
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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: ISR/12/2009 Sender Ref: 33017 Date collected: 19/03/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 12/06/2009 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: 21/09/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-12.SEQ Date sequence last updated: 21/09/2009 Total no. of comparisons: 1187 Min. no. of nt for comparison: 300 Total turn-around time: 111 days Sequencing time: 101 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: ISR/13/2009 Sender Ref: E00615 Date collected: 26/03/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 12/06/2009 Species: SHEEP 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: 21/09/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-13.SEQ Date sequence last updated: 21/09/2009 Total no. of comparisons: 1187 Min. no. of nt for comparison: 300 Total turn-around time: 111 days Sequencing time: 101 days																																																																																								
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# Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL Ref No: ISR/14/2009 Sender Ref: 33871 Date collected: 28/03/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 12/06/2009 Species: SHEEP 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: 21/09/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-14.SEQ Date sequence last updated: 21/09/2009 Total no. of comparisons: 1187 Min. no. of nt for comparison: 300 Total turn-around time: 111 days Sequencing time: 101 days																																																																																								
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# Molecular Epidemiology Report Form

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

Page 1 of 1

<p>Serotype: A  WRL Ref No: ISR/15/2009  Sender Ref: 33872  Date collected: 28/03/2009  Date received by WRLFMD: 02/06/2009  Date received for sequencing: 12/06/2009  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</p>	<p>Report date: 21/09/2009  Reported by: N.J. Knowles  Checked by: D.P. King    Topotype: ASIA  Genotype/strain: Iran-05<sup>BAR-08</sup>  Sequence filename: ISR09-15.SEQ  Date sequence last updated: 21/09/2009  Total no. of comparisons: 1187  Min. no. of nt for comparison: 300  Total turn-around time: 111 days  Sequencing time: 101 days</p>																																																																																								
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# Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL Ref No: ISR/16/2009 Sender Ref: 35084 Date collected: 11/04/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 12/06/2009 Species: SHEEP 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: 21/09/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-16.SEQ Date sequence last updated: 21/09/2009 Total no. of comparisons: 1187 Min. no. of nt for comparison: 300 Total turn-around time: 111 days Sequencing time: 101 days																																																																																								
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7	A/IRQ/12/2009	IRQ09-12	639	638	0	99.84	0.16																																																																																		
8	A/IRQ/15/2009	IRQ09-15	639	638	0	99.84	0.16																																																																																		
9	A/IRQ/17/2009	IRQ09-17	639	638	0	99.84	0.16																																																																																		
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nt, nucleotides *, not a WRLFMD reference number																																																																																									

# Molecular Epidemiology Report Form

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

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Serotype: A WRL Ref No: ISR/17/2009 Sender Ref: 35155 Date collected: 12/04/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 12/06/2009 Species: GOAT 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: 21/09/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-17.SEQ Date sequence last updated: 21/09/2009 Total no. of comparisons: 1187 Min. no. of nt for comparison: 300 Total turn-around time: 111 days Sequencing time: 101 days																																																																																								
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# Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: A WRL Ref No: ISR/18/2009 Sender Ref: 85333 Date collected: 16/04/2009 Date received by WRLFMD: 02/06/2009 Date received for sequencing: 12/06/2009 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: 21/09/2009 Reported by: N.J. Knowles Checked by: D.P. King  Topotype: ASIA Genotype/strain: Iran-05 <sup>BAR-08</sup> Sequence filename: ISR09-18.SEQ Date sequence last updated: 21/09/2009 Total no. of comparisons: 1187 Min. no. of nt for comparison: 300 Total turn-around time: 111 days Sequencing time: 101 days																																																																																								
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# Report on FMDV A in Israel in 2009

Batch: WRLFMD/2009/00029

Software: MEGA 4.0

No. of Taxa : 274

Data File : n:\evd\meg\db\fmv\la\ISR2009c.meg

Data Title : A Israel 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 : 642

No Of Bootstrap Reps = 1000

Only bootstrap values of 70% and above are shown

\* , not a WRLFMD Ref. No.

N.J. Knowles & J. Wadsworth, 21 September 2009

