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Page 1 of 10

To:

Fax Number:

To:

Fax Number:

From:

Date: 30th March 2009

Subject: Sequencing Report

No. Of Pages: 10

FAX

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Thank you.

Dear [REDACTED]

Virus isolates: O TUR/35/2008, O TUR/36/2008, O TUR/38/2008, O TUR/2/2009, O TUR/3/2009, O TUR/4/2009, O TUR/5/2009, O TUR/6/2009

Sequencing work has now been completed in respect of the above virus isolates received at IAH Pirbright on 9th of March 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/Picomaviridae/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: O WRL Ref No: TUR/35/2008 Sender Ref: 290/2008 Date collected: 01/10/2008 Date received by WRLFMD: 09/03/2009 Date received for sequencing: 19/03/2009 Species: Cattle Material used: BTy1 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: 27/03/2009 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 Sequence filename: TUR08-35.SEQ Date sequence last updated: 27/03/2009 Total no. of comparisons: 1900 Min. no. of nt for comparison: 300 Total turn-around time: 18 days Sequencing time: 8 days																																																																																								
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Molecular Epidemiology Report Form

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

Page 1 of 1

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Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: O WRL Ref No: TUR/38/2008 Sender Ref: 313/2008 Date collected: 01/12/2008 Date received by WRLFMD: 09/03/2009 Date received for sequencing: 19/03/2009 Species: Cattle Material used: BTyl 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: 27/03/2009 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 Sequence filename: TUR08-38.SEQ Date sequence last updated: 27/03/2009 Total no. of comparisons: 1900 Min. no. of nt for comparison: 300 Total turn-around time: 18 days Sequencing time: 8 days																																																																																								
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Molecular Epidemiology Report Form

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

Page 1 of 1

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<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/TAW/2/99 (AJ294927)</td><td>TAW99-02</td><td>639</td><td>593</td><td>0</td><td>92.8</td><td>7.2</td></tr> <tr><td>2</td><td>O/IND/53/79 [AF292107]</td><td>IND79A53</td><td>639</td><td>566</td><td>0</td><td>88.58</td><td>11.42</td></tr> <tr><td>3</td><td>O/IND/R2/75* [AF204276]</td><td>IND75-A</td><td>639</td><td>560</td><td>0</td><td>87.64</td><td>12.36</td></tr> <tr><td>4</td><td>O1/Manisa/TUR/69 (AJ251477)</td><td>TUR69-E</td><td>639</td><td>560</td><td>0</td><td>87.64</td><td>12.36</td></tr> <tr><td>5</td><td>O/TAI/189/87* [TRRL]</td><td>TAI87-AC</td><td>639</td><td>554</td><td>0</td><td>86.7</td><td>13.3</td></tr> <tr><td>6</td><td>O/ISR/2/88 (DQ164899)</td><td>ISR88-02</td><td>639</td><td>550</td><td>0</td><td>86.07</td><td>13.93</td></tr> <tr><td>7</td><td>O/MOR/1/91</td><td>MOR91-01</td><td>639</td><td>544</td><td>0</td><td>85.13</td><td>14.87</td></tr> <tr><td>8</td><td>O/PHI/5/95 (DQ164946)</td><td>PHI95-05</td><td>639</td><td>519</td><td>0</td><td>81.22</td><td>18.78</td></tr> <tr><td>9</td><td>O/HKN/6/83 (AJ294919)</td><td>HKN83-06</td><td>637</td><td>513</td><td>2</td><td>80.53</td><td>19.47</td></tr> <tr><td>10</td><td>O1/BFS 1860/UK/67 (J02185)</td><td>UKG67-A</td><td>639</td><td>513</td><td>0</td><td>80.28</td><td>19.72</td></tr> </tbody> </table>		Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference	1	O/TAW/2/99 (AJ294927)	TAW99-02	639	593	0	92.8	7.2	2	O/IND/53/79 [AF292107]	IND79A53	639	566	0	88.58	11.42	3	O/IND/R2/75* [AF204276]	IND75-A	639	560	0	87.64	12.36	4	O1/Manisa/TUR/69 (AJ251477)	TUR69-E	639	560	0	87.64	12.36	5	O/TAI/189/87* [TRRL]	TAI87-AC	639	554	0	86.7	13.3	6	O/ISR/2/88 (DQ164899)	ISR88-02	639	550	0	86.07	13.93	7	O/MOR/1/91	MOR91-01	639	544	0	85.13	14.87	8	O/PHI/5/95 (DQ164946)	PHI95-05	639	519	0	81.22	18.78	9	O/HKN/6/83 (AJ294919)	HKN83-06	637	513	2	80.53	19.47	10	O1/BFS 1860/UK/67 (J02185)	UKG67-A	639	513	0	80.28	19.72
Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference																																																																																		
1	O/TAW/2/99 (AJ294927)	TAW99-02	639	593	0	92.8	7.2																																																																																		
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5	O/TAI/189/87* [TRRL]	TAI87-AC	639	554	0	86.7	13.3																																																																																		
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7	O/MOR/1/91	MOR91-01	639	544	0	85.13	14.87																																																																																		
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9	O/HKN/6/83 (AJ294919)	HKN83-06	637	513	2	80.53	19.47																																																																																		
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<p>nt, nucleotides *, not a WRLFMD reference number</p>																																																																																									

Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: O WRL RefNo: TUR/3/2009 Sender Ref: 13/2009 Date collected: 01/01/2009 Date received by WRLFMD: 09/03/2009 Date received for sequencing: 19/03/2009 Species: Cattle Material used: BTy1 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: 27/03/2009 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 Sequence filename: TUR09-03.SEQ Date sequence last updated: 27/03/2009 Total no. of comparisons: 1900 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	O/TUR/313/2008* (FMDI)	TUR08-AE	639	637	0	99.69	0.31
2	O/TUR/257/2008* (FMDI)	TUR08-AD	639	634	0	99.22	0.78
3	O/PAK 23.1 8 (EF494490)	PAK06-AI	627	613	0	97.77	2.23
4	O/IRN/7/2007	IRN07-07	639	624	0	97.65	2.35
5	O/PAK 23.2 8 (EF494491)	PAK06-AJ	627	612	0	97.61	2.39
6	O/PAK 23.3 8 (EF494492)	PAK06-AK	605	590	0	97.52	2.48
7	O/IRN/14/2007	IRN07-14	639	623	0	97.5	2.5
8	O/IRN/15/2006	IRN06-15	639	623	0	97.5	2.5
9	O/IRN/33/2006	IRN06-33	639	623	0	97.5	2.5
10	O/IRN/35/2006	IRN06-35	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/TAW/2/99 (AJ294927)	TAW99-02	639	593	0	92.8	7.2
2	O/IND/53/79 [AF292107]	IND79A53	639	566	0	88.58	11.42
3	O/IND/R2/75* [AF204276]	IND75--A	639	560	0	87.64	12.36
4	O1/Manisa/TUR/69 (AJ251477)	TUR69--E	639	560	0	87.64	12.36
5	O/TAI/189/87* [TRRL]	TAI87-AC	639	554	0	86.7	13.3
6	O/ISR/2/88 (DQ164899)	ISR88-02	639	550	0	86.07	13.93
7	O/MOR/1/91	MOR91-01	639	544	0	85.13	14.87
8	O/PHI/5/95 (DQ164946)	PHI95-05	639	519	0	81.22	18.78
9	O/HKN/6/83 (AJ294919)	HKN83-06	637	513	2	80.53	19.47
10	O1/BFS 1860/UK/67 (J02185)	UKG67--A	639	513	0	80.28	19.72

nt, nucleotides

*, not a WRLFMD reference number

Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: O WRL Ref No: TUR/4/2009 Sender Ref: 15/2009 Date collected: 01/01/2009 Date received by WRLFMD: 09/03/2009 Date received for sequencing: 19/03/2009 Species: Cattle Material used: BTy1 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: 27/03/2009 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 Sequence filename: TUR09-04.SEQ Date sequence last updated: 27/03/2009 Total no. of comparisons: 1900 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	O/TUR/313/2008* (FMDI)	TUR08-AE	639	637	0	99.69	0.31
2	O/TUR/257/2008* (FMDI)	TUR08-AD	639	634	0	99.22	0.78
3	O/PAK 23.1 8 (EF494490)	PAK06-AI	627	613	0	97.77	2.23
4	O/IRN/7/2007	IRN07-07	639	624	0	97.65	2.35
5	O/PAK 23.2 8 (EF494491)	PAK06-AJ	627	612	0	97.61	2.39
6	O/PAK 23.3 8 (EF494492)	PAK06-AK	605	590	0	97.52	2.48
7	O/IRN/14/2007	IRN07-14	639	623	0	97.5	2.5
8	O/IRN/15/2006	IRN06-15	639	623	0	97.5	2.5
9	O/IRN/33/2006	IRN06-33	639	623	0	97.5	2.5
10	O/IRN/35/2006	IRN06-35	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/TAW/2/99 (AJ294927)	TAW99-02	639	593	0	92.8	7.2
2	O/IND/53/79 [AF292107]	IND79A53	639	566	0	88.58	11.42
3	O/IND/R2/75* [AF204276]	IND75--A	639	558	0	87.32	12.68
4	O1/Manisa/TUR/69 (AJ251477)	TUR69--E	639	558	0	87.32	12.68
5	O/TAI/189/87* [TRRL]	TAI87-AC	639	552	0	86.38	13.62
6	O/ISR/2/88 (DQ164899)	ISR88-02	639	550	0	86.07	13.93
7	O/MOR/1/91	MOR91-01	639	544	0	85.13	14.87
8	O/PHI/5/95 (DQ164946)	PHI95-05	639	516	0	80.75	19.25
9	O/HKN/6/83 (AJ294919)	HKN83-06	637	510	2	80.06	19.94
10	O1/BFS 1860/UK/67 (J02185)	UKG67--A	639	511	0	79.97	20.03

nt, nucleotides

*, not a WRLFMD reference number

Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: O WRL Ref No: TUR/5/2009 Sender Ref: 16/2009 Date collected: 01/01/2009 Date received by WRLFMD: 09/03/2009 Date received for sequencing: 19/03/2009 Species: Cattle Material used: BTy1 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: 27/03/2009 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 Sequence filename: TUR09-05.SEQ Date sequence last updated: 27/03/2009 Total no. of comparisons: 1900 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	O/TUR/313/2008* (FMDI)	TUR08-AE	639	635	0	99.37	0.63
2	O/TUR/257/2008* (FMDI)	TUR08-AD	639	632	0	98.9	1.1
3	O/PAK 23.1 8 (EF494490)	PAK06-AI	627	611	0	97.45	2.55
4	O/IRN/52/2006	IRN06-52	639	622	0	97.34	2.66
5	O/IRN/7/2007	IRN07-07	639	622	0	97.34	2.66
6	O/PAK 23.2 8 (EF494491)	PAK06-AJ	627	610	0	97.29	2.71
7	O/PAK 23.3 8 (EF494492)	PAK06-AK	605	588	0	97.19	2.81
8	O/IRN/14/2007	IRN07-14	639	621	0	97.18	2.82
9	O/IRN/15/2006	IRN06-15	639	621	0	97.18	2.82
10	O/IRN/29/2006	IRN06-29	639	621	0	97.18	2.82

Relationships to Reference Virus Strains

Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference
1	O/TAW/2/99 (AJ294927)	TAW99-02	639	591	0	92.49	7.51
2	O/IND/53/79 [AF292107]	IND79A53	639	564	0	88.26	11.74
3	O/IND/R2/75* [AF204276]	IND75--A	639	556	0	87.01	12.99
4	O1/Manisa/TUR/69 (AJ251477)	TUR69--E	639	556	0	87.01	12.99
5	O/TAI/189/87* [TRRL]	TAI87-AC	639	552	0	86.38	13.62
6	O/ISR/2/88 (DQ164899)	ISR88-02	639	548	0	85.76	14.24
7	O/MOR/1/91	MOR91-01	639	542	0	84.82	15.18
8	O/PHI/5/95 (DQ164946)	PHI95-05	639	514	0	80.44	19.56
9	O1/BFS 1860/UK/67 (J02185)	UKG67--A	639	513	0	80.28	19.72
10	O/HKN/6/83 (AJ294919)	HKN83-06	637	508	2	79.75	20.25

nt, nucleotides

*, not a WRLFMD reference number

Molecular Epidemiology Report Form

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

Page 1 of 1

Serotype: O WRL RefNo: TUR/6/2009 Sender Ref: 23/2009 Date collected: 01/01/2009 Date received by WRLFMD: 09/03/2009 Date received for sequencing: 19/03/2009 Species: Cattle Material used: BTy1 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: 27/03/2009 Reported by: N.J. Knowles Checked by: D.P. King Topotype: ME-SA Genotype/strain: PanAsia-2 Sequence filename: TUR09-06.SEQ Date sequence last updated: 27/03/2009 Total no. of comparisons: 1900 Min. no. of nt for comparison: 300 Total turn-around time: 18 days Sequencing time: 8 days																																																																																								
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Pos.	Virus name	Filename	No. nt compared	No. nt matched	No. of ambiguities	% Identity	% Difference																																																																																		
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3	O/PAK 23.1 8 (EF494490)	PAK06-AI	627	614	0	97.93	2.07																																																																																		
4	O/IRN/7/2007	IRN07-07	639	625	0	97.81	2.19																																																																																		
5	O/PAK 23.2 8 (EF494491)	PAK06-AJ	627	613	0	97.77	2.23																																																																																		
6	O/PAK 23.3 8 (EF494492)	PAK06-AK	605	591	0	97.69	2.31																																																																																		
7	O/IRN/14/2007	IRN07-14	639	624	0	97.65	2.35																																																																																		
8	O/IRN/15/2006	IRN06-15	639	624	0	97.65	2.35																																																																																		
9	O/IRN/33/2006	IRN06-33	639	624	0	97.65	2.35																																																																																		
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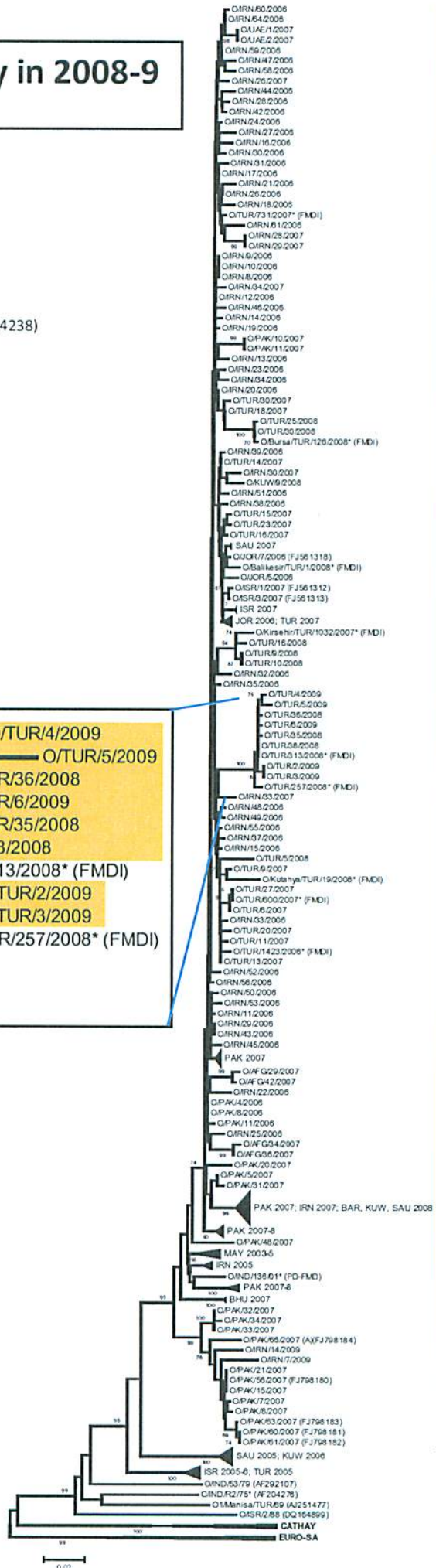
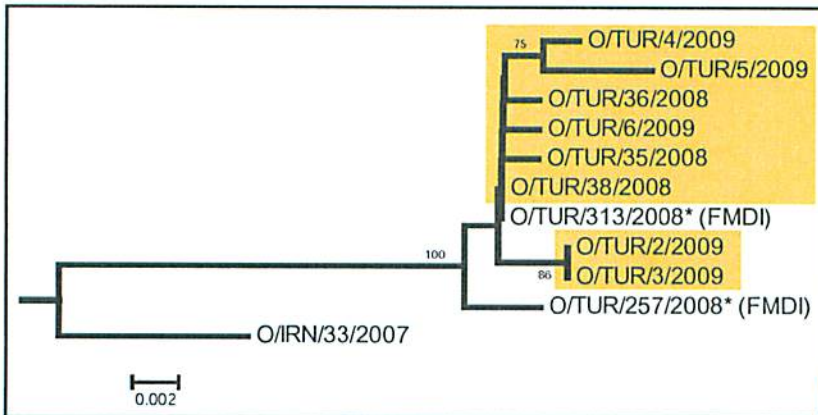
Report on FMDV O from Turkey in 2008-9

Batch: WRLFMD/2009/00009

Software: MEGA 4.0
 No. of Taxa : 235
 Data File : n:\evd\meg\db\fmdv\o\tur2009a.meg
 Data Title : A Turkey & Iran 2008-9
 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 : 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, 29 March 2009



PanAsia-2
 PanAsia
 ME-SA