



**INSTITUTE FOR ANIMAL HEALTH**  
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Tel: 01483 232441 Fax: 01483 232621

## **FMD Genotyping Report**

**Lab Reference WRL Batch Number:** WRLFMD/2012/00009

**Sender Details:**



**Date Received:** 16<sup>th</sup> February 2012

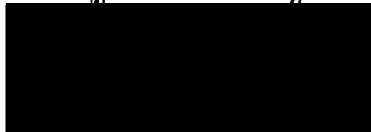
**Country of Origin:** AFGHANISTAN

**Date Reported:** 17<sup>th</sup> April 2012

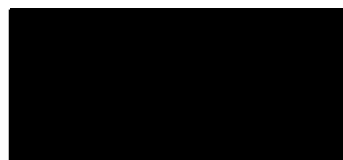
Dear Dr Khan,

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:**

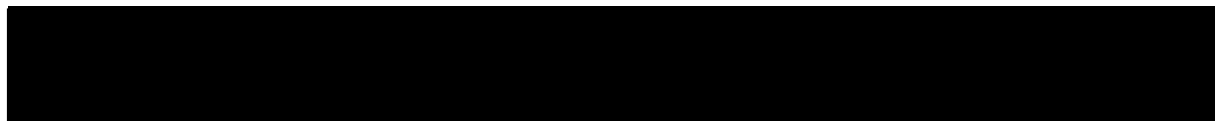


**Official Stamp:**



**Date:**

17/4/12



A UKAS accredited testing laboratory No. 4025.

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: [gareth.shimmon@iah.ac.uk](mailto:gareth.shimmon@iah.ac.uk). IAH actively seeks and appreciates feedback, if you would like to offer feedback please complete the WRLFMD survey here: <http://www.surveymonkey.com/s/WRLFMD>

# FAO World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD)

## Genotyping Report

Report Date for this Batch: 16 April 2012

FMDV type Asia 1

Country: Afghanistan

Period: 2011

No. of samples: 5

BATCH: WRLFMD/2012/00009



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# FAO World Reference Laboratory for FMD Genotyping Report

IAH-P-EP-MEG-FOR-005-3

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Serotype: ASIA1 WRLFMD Ref No: AFG/66/2011 Batch No: WRLFMD/2012/00009 Sender Ref: 771 Location: Wlswali Khoja A, Gzara, Hirat, Afghanistan Date collected: 28/05/2011 Date received by WRLFMD: 16/02/2012 Date received for sequencing: 05/03/2012 Species: Cattle Material used: BTy2 Region sequenced: VP1 RT-PCR primers: As1-1C530F/EUR-2B52R As1-1C613F/EUR-2B52R	Report date: 16/04/2012 Reported by: N.J. Knowles Checked by: V. Mioulet  Topotype: ASIA Genotype/strain: Sindh-08 Sequence filename: AFG11-66.SEQ Date sequence last updated: 08/03/2012 No. of Nt determined: 633 No. of ambiguities: 0 Gene length: 633 Total no. of comparisons: 447 Min. no. of nt for comparison: 600 Total turn-around time: 60 days Sequencing time: 42 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/AFG/68/2011	AFG11-68	633	633	0	100.00	0.00	ASIA	Sindh-08
2	Asia1/AFG/73/2011	AFG11-73	633	633	0	100.00	0.00	ASIA	Sindh-08
3	Asia1/AFG/78/2011	AFG11-78	633	633	0	100.00	0.00	ASIA	Sindh-08
4	Asia1/IRN/33/2011	IRN11-33	633	633	0	100.00	0.00	ASIA	Sindh-08
5	Asia1/IRN/38/2011	IRN11-38	633	633	0	100.00	0.00	ASIA	Sindh-08
6	Asia1/IRN/39/2011	IRN11-39	633	632	0	99.84	0.16	ASIA	Sindh-08
7	Asia1/IRN/43/2011	IRN11-43	633	632	0	99.84	0.16	ASIA	Sindh-08
8	Asia1/IRN/46/2011	IRN11-46	633	632	0	99.84	0.16	ASIA	Sindh-08
9	Asia1/IRN/49/2011	IRN11-49	633	632	0	99.84	0.16	ASIA	Sindh-08
10	Asia1/PAK/106/2010	PAK10106	633	632	0	99.84	0.16	ASIA	Sindh-08
<b>Most Closely Related Reference Viruses</b>									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/PAK/8/2008	PAK08-08	633	613	0	96.84	3.16	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	575	0	90.84	9.16	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	539	0	85.15	14.85	ASIA	Group III
4	Asia1/IND/63/72* (AY304994)	IND72C63	630	534	0	84.76	15.24	ASIA	Unnamed
5	Asia1/IND/18/80 (DQ121116)	IND80-18	633	535	0	84.52	15.48	ASIA	Group V
6	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	532	0	84.04	15.96	ASIA	Unnamed
7	Asia1/Shamir/ISR/89	ISR89--A	633	531	0	83.89	16.11	ASIA	Unnamed
8	Asia1/HKN/19/74	HKN74-19	633	530	0	83.73	16.27	ASIA	Unnamed
9	Asia1/IND/14/95* (AF390678)	IND95-AA	633	530	0	83.73	16.27	ASIA	Unnamed
10	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	525	0	82.94	17.06	ASIA	Group VIb

nt, nucleotides

\*, not a WRLFMD reference number

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# FAO World Reference Laboratory for FMD Genotyping Report

IAH-P-EP-MEG-FOR-005-3

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Serotype: ASIA1 WRLFMD Ref No: AFG/68/2011 Batch No: WRLFMD/2012/00009 Sender Ref: 772 Location: Wlswali Khoja A, Gzara, Hirat, Afghanistan Date collected: 29/05/2011 Date received by WRLFMD: 16/02/2012 Date received for sequencing: 05/03/2012 Species: Cattle Material used: BTy2 Region sequenced: VP1 RT-PCR primers: As1-1C530F/EUR-2B52R As1-1C613F/EUR-2B52R	Report date: 16/04/2012 Reported by: N.J. Knowles Checked by: V. Mioulet  Topotype: ASIA Genotype/strain: Sindh-08 Sequence filename: AFG11-68.SEQ Date sequence last updated: 08/03/2012 No. of Nt determined: 633 No. of ambiguities: 0 Gene length: 633 Total no. of comparisons: 447 Min. no. of nt for comparison: 600 Total turn-around time: 60 days Sequencing time: 42 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/AFG/66/2011	AFG11-66	633	633	0	100.00	0.00	ASIA	Sindh-08
2	Asia1/AFG/73/2011	AFG11-73	633	633	0	100.00	0.00	ASIA	Sindh-08
3	Asia1/AFG/78/2011	AFG11-78	633	633	0	100.00	0.00	ASIA	Sindh-08
4	Asia1/IRN/33/2011	IRN11-33	633	633	0	100.00	0.00	ASIA	Sindh-08
5	Asia1/IRN/38/2011	IRN11-38	633	633	0	100.00	0.00	ASIA	Sindh-08
6	Asia1/IRN/39/2011	IRN11-39	633	632	0	99.84	0.16	ASIA	Sindh-08
7	Asia1/IRN/43/2011	IRN11-43	633	632	0	99.84	0.16	ASIA	Sindh-08
8	Asia1/IRN/46/2011	IRN11-46	633	632	0	99.84	0.16	ASIA	Sindh-08
9	Asia1/IRN/49/2011	IRN11-49	633	632	0	99.84	0.16	ASIA	Sindh-08
10	Asia1/PAK/106/2010	PAK10106	633	632	0	99.84	0.16	ASIA	Sindh-08
<b>Most Closely Related Reference Viruses</b>									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/PAK/8/2008	PAK08-08	633	613	0	96.84	3.16	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	575	0	90.84	9.16	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	539	0	85.15	14.85	ASIA	Group III
4	Asia1/IND/63/72* (AY304994)	IND72C63	630	534	0	84.76	15.24	ASIA	Unnamed
5	Asia1/IND/18/80 (DQ121116)	IND80-18	633	535	0	84.52	15.48	ASIA	Group V
6	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	532	0	84.04	15.96	ASIA	Unnamed
7	Asia1/Shamir/ISR/89	ISR89--A	633	531	0	83.89	16.11	ASIA	Unnamed
8	Asia1/HKN/19/74	HKN74-19	633	530	0	83.73	16.27	ASIA	Unnamed
9	Asia1/IND/14/95* (AF390678)	IND95-AA	633	530	0	83.73	16.27	ASIA	Unnamed
10	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	525	0	82.94	17.06	ASIA	Group VIb

nt, nucleotides

\*, not a WRLFMD reference number

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# FAO World Reference Laboratory for FMD Genotyping Report

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Serotype: ASIA1	Report date: 16/04/2012
WRLFMD Ref No: AFG/72/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2012/00009	Checked by: V. Mioulet
Sender Ref: 745	
Location: Kakor, Paghman, Kabul, Afghanistan	Topotype: ASIA
Date collected: 30/05/2011	Genotype/strain: Sindh-08
Date received by WRLFMD: 16/02/2012	Sequence filename: AFG11-72.SEQ
Date received for sequencing: 05/03/2012	Date sequence last updated: 08/03/2012
Species: Cattle	No. of Nt determined: 633
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 447
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 60 days
	Sequencing time: 42 days
<b>Comments:</b>	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/AFG/40/2011	AFG11-40	633	630	0	99.53	0.47	ASIA	Sindh-08
2	Asia1/IRN/49/2011	IRN11-49	633	630	0	99.53	0.47	ASIA	Sindh-08
3	Asia1/PAK/106/2010	PAK10106	633	630	0	99.53	0.47	ASIA	Sindh-08
4	Asia1/PAK/108/2010	PAK10108	633	630	0	99.53	0.47	ASIA	Sindh-08
5	Asia1/PAK/11/2011	PAK11-11	633	630	0	99.53	0.47	ASIA	Sindh-08
6	Asia1/PAK/110/2010	PAK10110	633	630	0	99.53	0.47	ASIA	Sindh-08
7	Asia1/PAK/111/2010	PAK10111	633	630	0	99.53	0.47	ASIA	Sindh-08
8	Asia1/PAK/12/2011	PAK11-12	633	630	0	99.53	0.47	ASIA	Sindh-08
9	Asia1/PAK/13/2011	PAK11-13	633	630	0	99.53	0.47	ASIA	Sindh-08
10	Asia1/PAK/14/2011	PAK11-14	633	630	0	99.53	0.47	ASIA	Sindh-08
<b>Most Closely Related Reference Viruses</b>									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/PAK/8/2008	PAK08-08	633	611	0	96.52	3.48	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	575	0	90.84	9.16	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	539	0	85.15	14.85	ASIA	Group III
4	Asia1/IND/63/72* (AY304994)	IND72C63	630	534	0	84.76	15.24	ASIA	Unnamed
5	Asia1/IND/18/80 (DQ121116)	IND80-18	633	535	0	84.52	15.48	ASIA	Group V
6	Asia1/Shamir/ISR/89	ISR89--A	633	533	0	84.20	15.80	ASIA	Unnamed
7	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	532	0	84.04	15.96	ASIA	Unnamed
8	Asia1/HKN/19/74	HKN74-19	633	530	0	83.73	16.27	ASIA	Unnamed
9	Asia1/IND/14/95* (AF390678)	IND95-AA	633	530	0	83.73	16.27	ASIA	Unnamed
10	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	525	0	82.94	17.06	ASIA	Group VIb

nt, nucleotides

\*, not a WRLFMD reference number

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# FAO World Reference Laboratory for FMD Genotyping Report

IAH-P-EP-MEG-FOR-005-3

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Serotype: ASIA1	Report date: 16/04/2012
WRLFMD Ref No: AFG/73/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2012/00009	Checked by: V. Mioulet
Sender Ref: 774	
Location: Fafangan, Gzara, Hirat, Afghanistan	Topotype: ASIA
Date collected: 30/05/2011	Genotype/strain: Sindh-08
Date received by WRLFMD: 16/02/2012	Sequence filename: AFG11-73.SEQ
Date received for sequencing: 05/03/2012	Date sequence last updated: 08/03/2012
Species: Cattle	No. of Nt determined: 633
Material used: BTy2	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 447
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 60 days
	Sequencing time: 42 days
<b>Comments:</b>	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/AFG/66/2011	AFG11-66	633	633	0	100.00	0.00	ASIA	Sindh-08
2	Asia1/AFG/68/2011	AFG11-68	633	633	0	100.00	0.00	ASIA	Sindh-08
3	Asia1/AFG/78/2011	AFG11-78	633	633	0	100.00	0.00	ASIA	Sindh-08
4	Asia1/IRN/33/2011	IRN11-33	633	633	0	100.00	0.00	ASIA	Sindh-08
5	Asia1/IRN/38/2011	IRN11-38	633	633	0	100.00	0.00	ASIA	Sindh-08
6	Asia1/IRN/39/2011	IRN11-39	633	632	0	99.84	0.16	ASIA	Sindh-08
7	Asia1/IRN/43/2011	IRN11-43	633	632	0	99.84	0.16	ASIA	Sindh-08
8	Asia1/IRN/46/2011	IRN11-46	633	632	0	99.84	0.16	ASIA	Sindh-08
9	Asia1/IRN/49/2011	IRN11-49	633	632	0	99.84	0.16	ASIA	Sindh-08
10	Asia1/PAK/106/2010	PAK10106	633	632	0	99.84	0.16	ASIA	Sindh-08
<b>Most Closely Related Reference Viruses</b>									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/PAK/8/2008	PAK08-08	633	613	0	96.84	3.16	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	575	0	90.84	9.16	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	539	0	85.15	14.85	ASIA	Group III
4	Asia1/IND/63/72* (AY304994)	IND72C63	630	534	0	84.76	15.24	ASIA	Unnamed
5	Asia1/IND/18/80 (DQ121116)	IND80-18	633	535	0	84.52	15.48	ASIA	Group V
6	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	532	0	84.04	15.96	ASIA	Unnamed
7	Asia1/Shamir/ISR/89	ISR89--A	633	531	0	83.89	16.11	ASIA	Unnamed
8	Asia1/HKN/19/74	HKN74-19	633	530	0	83.73	16.27	ASIA	Unnamed
9	Asia1/IND/14/95* (AF390678)	IND95-AA	633	530	0	83.73	16.27	ASIA	Unnamed
10	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	525	0	82.94	17.06	ASIA	Group VIb

nt, nucleotides

\*, not a WRLFMD reference number

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# FAO World Reference Laboratory for FMD Genotyping Report

IAH-P-EP-MEG-FOR-005-3

Page 1 of 1

Serotype: ASIA1	Report date: 16/04/2012
WRLFMD Ref No: AFG/78/2011	Reported by: N.J. Knowles
Batch No: WRLFMD/2012/00009	Checked by: V. Mioulet
Sender Ref: 775	
Location: Qalbshab, Gzara, Hirat, Afghanistan	Topotype: ASIA
Date collected: 31/05/2011	Genotype/strain: Sindh-08
Date received by WRLFMD: 16/02/2012	Sequence filename: AFG11-78.SEQ
Date received for sequencing: 05/03/2012	Date sequence last updated: 08/03/2012
Species: Cattle	No. of Nt determined: 633
Material used: BTy1	No. of ambiguities: 0
Region sequenced: VP1	Gene length: 633
RT-PCR primers: As1-1C530F/EUR-2B52R	Total no. of comparisons: 447
As1-1C613F/EUR-2B52R	Min. no. of nt for comparison: 600
	Total turn-around time: 60 days
	Sequencing time: 42 days
Comments:	

<b>Most Closely Related Viruses</b>									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/AFG/66/2011	AFG11-66	633	633	0	100.00	0.00	ASIA	Sindh-08
2	Asia1/AFG/68/2011	AFG11-68	633	633	0	100.00	0.00	ASIA	Sindh-08
3	Asia1/AFG/73/2011	AFG11-73	633	633	0	100.00	0.00	ASIA	Sindh-08
4	Asia1/IRN/33/2011	IRN11-33	633	633	0	100.00	0.00	ASIA	Sindh-08
5	Asia1/IRN/38/2011	IRN11-38	633	633	0	100.00	0.00	ASIA	Sindh-08
6	Asia1/IRN/39/2011	IRN11-39	633	632	0	99.84	0.16	ASIA	Sindh-08
7	Asia1/IRN/43/2011	IRN11-43	633	632	0	99.84	0.16	ASIA	Sindh-08
8	Asia1/IRN/46/2011	IRN11-46	633	632	0	99.84	0.16	ASIA	Sindh-08
9	Asia1/IRN/49/2011	IRN11-49	633	632	0	99.84	0.16	ASIA	Sindh-08
10	Asia1/PAK/106/2010	PAK10106	633	632	0	99.84	0.16	ASIA	Sindh-08
<b>Most Closely Related Reference Viruses</b>									
(see <a href="http://www.wrlfmd.org/fmd_genotyping/prototypes.htm">http://www.wrlfmd.org/fmd_genotyping/prototypes.htm</a> )									
Pos.	Virus name	Filename	No. nt comp.	No. nt match.	No. of ambig.	% Id.	% Diff.	Topotype	Strain
1	Asia1/PAK/8/2008	PAK08-08	633	613	0	96.84	3.16	ASIA	Sindh-08
2	Asia1/AFG/1/2001 (DQ121109)	AFG01-01	633	575	0	90.84	9.16	ASIA	Group I
3	Asia1/IND/762/2003* (DQ101240)	IND03-AB	633	539	0	85.15	14.85	ASIA	Group III
4	Asia1/IND/63/72* (AY304994)	IND72C63	630	534	0	84.76	15.24	ASIA	Unnamed
5	Asia1/IND/18/80 (DQ121116)	IND80-18	633	535	0	84.52	15.48	ASIA	Group V
6	Asia1/YNBS/CHA/58 (AY390432)	CHA58-AA	633	532	0	84.04	15.96	ASIA	Unnamed
7	Asia1/Shamir/ISR/89	ISR89--A	633	531	0	83.89	16.11	ASIA	Unnamed
8	Asia1/HKN/19/74	HKN74-19	633	530	0	83.73	16.27	ASIA	Unnamed
9	Asia1/IND/14/95* (AF390678)	IND95-AA	633	530	0	83.73	16.27	ASIA	Unnamed
10	Asia1/IRN/10/2004 (DQ121119)	IRN04-10	633	525	0	82.94	17.06	ASIA	Group VIb

nt, nucleotides

\*, not a WRLFMD reference number

Assembled with Report Generator v4.1

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# Report on FMDV Asia 1 in Afghanistan in 2011

Batch: WRLFMD/2012/00009

◆ indicates viruses in this batch

Software: MEGA 5.0

Analysis

----- Phylogeny Reconstruction

Scope ----- All Selected Taxa

Statistical Method ----- Neighbor-joining

Phylogeny Test

Test of Phylogeny ----- Bootstrap method

No. of Bootstrap Replications ----- 1000

Substitution Model

Substitutions Type ----- Nucleotide

Model/Method ----- Kimura 2-parameter model

Substitutions to Include ----- d: Transitions + Transversions

Rates and Patterns

Rates among Sites ----- Uniform rates

Pattern among Lineages ----- Same (Homogeneous)

Data Subset to Use

Gaps/Missing Data Treatment ----- Pairwise deletion

Codons Included ----- 1st+2nd+3rd+Non-Coding

No. of Sites : 633

No Of Bootstrap Reps = 1000

Only bootstrap values of 70% and above are shown

\*, not a WRLFMD Ref. No.

N.J. Knowles & J. Wadsworth, 16 April 2012

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