BIOMEDICAL MUTATION ANALYSIS

ANALYSIS REPORT

Date of Analysis: 2016-04-11

Gene: NS3 Con-1(1b)

SUMMARY

Evaluated Positions: 16. 36. 39. 41. 43. 54. 55. 79. 80. 87. 105. 109. 117. 122. 123. 138. 155. 156. 158. 163. 168. 170. 173. 174. 175. 176.

Patient File Name	Sequences	Nucleotide Changes	Amino Acid Changes
NS3_1.txt	KC124708	3	0
	EU155254	4	3
	D11168	8	2
	EU307649	5	0
	KC124685	5	0
	KC124563	7	0
	KC124748	3	1
	AF165057	5	2
	KC123855	6	1
	JQ246528	4	0
	KC123701	5	1
	AF207768	6	0
	EU256084	4	0
	JQ246520	8	2
	GU451218	5	2
	KC124434	3	1
	JQ253526	8	3
	KC124098	3	0
	KC123726	4	1
	JQ253519	3	0
	KC123462	4	1
	KC124741	4	0
	KC123881	5	1
	KC123806	6	3
	KC124214	3	1
	JQ246512	4	1
	KC124374	5	0
	JQ253529	5	2
	AB154204	3	0
	EU155381	4	0

Patient File Name	Sequences	Nucleotide Changes	Amino Acid Changes
	KC124076	8	2
	KC124196	5	1
	KC123912	6	0
	KC123908	9	4
	KC124704	6	0
	FJ390398	4	3
	EU155259	8	1
	KC124505	5	1
	KC124680	7	1

DETAILED REPORT
PATIENT: NS3_1.txt

SEQUENCE: KC124708
Nucleotides
GTC => GTT = 1
ACT => ACG = 1
GTT => GTC = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACG (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTA (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: EU155254
Nucleotides
AGC => ACC = 1
CGG => CGA = 1
GTA => ATA = 1
ATG => TTG = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTC (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => ACC (T) **Changed**
123: AGG (R) => AGG (R)

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138: TCT (S) => TCT (S)
155: CGG (R) => CGA (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => TTG (L) **Changed**
176: GAA (E) => GAA (E)
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SEQUENCE: D11168

Nucleotides

```
GTC => GTT = 1
ACT => ACC = 1
CAG => CAA = 1
TAC => TAT = 1
AGG => AGA = 1
AGC => GGT = 1
AGG => CGG = 1
GTA => ATA = 1
```

Amino Acid

```
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACC (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAA (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAT (Y)
109: AGG (R) => AGA (R)
117: CGC (R) => CGC (R)
122: AGC (S) => GGT (G) **Changed**
123: AGG (R) => CGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)
```

SEQUENCE: EU307649

Nucleotides

```
GTC => GTT = 1
AGG => AGA = 2
GTT => GTG = 1
GTA => GTG = 1
```

Amino Acid

```
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
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39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGA (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGA (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTG (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTG (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC124685

Nucleotides

GTC => GTT = 1
AGG => AGA = 1
GTT => GTC = 1
GAC => GAT = 1
GTA => GTG = 1

Amino Acid

16: TGC (C) => TGC (C)
36: GTC (V) => GTC (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTT (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGA (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAT (D)
170: GTA (V) => GTG (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC124563
Nucleotides
GCA => GCG = 1
CAA => CAG = 1
AGG => AGA = 2
TCT => TCC = 1
GCT => GCC = 1
GTA => GTG = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTC (V)
39: GCA (A) => GCG (A)
41: CAA (Q) => CAG (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGA (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGA (R)
138: TCT (S) => TCC (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCC (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTG (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC124748
Nucleotides
GTC => GTT = 1
CAG => CAA = 1
AGC => GGC = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAA (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => GGC (G) **Changed**
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)

155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTA (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: AF165057
Nucleotides
TAC => TAT = 1
AGG => AGA = 1
AGC => ACT = 1
GTT => GTA = 1
GTA => ATA = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTC (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAT (Y)
109: AGG (R) => AGA (R)
117: CGC (R) => CGC (R)
122: AGC (S) => ACT (T) **Changed**
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTA (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC123855
Nucleotides
GTC => GTT = 1
GCA => GCT = 1
CAG => CAA = 1
TAC => TAT = 1
AGC => ACC = 1
GAC => GAT = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCT (A)
41: CAA (Q) => CAA (Q)

43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAA (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAT (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => ACC (T) **Changed**
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAT (D)
170: GTA (V) => GTA (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: JQ246528
Nucleotides
AGG => AGA = 1
AGC => AGT = 1
GTT => GTC = 1
TCT => TCC = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTC (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGA (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGT (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTA (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCC (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC123701
Nucleotides

GTC => GTT = 1
GAC => GAT = 1
AGG => AGA = 1
CGG => CGA = 1
GTA => ATA = 1

Amino Acid

16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAT (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGA (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGA (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: AF207768

Nucleotides

GTC => GTT = 1
GCA => GCG = 1
CAA => CAG = 1
CAG => CAA = 1
AGG => AGA = 1
GCT => GCC = 1

Amino Acid

16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCG (A)
41: CAA (Q) => CAG (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAA (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGA (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)

156: GCT (A) => GCC (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTA (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: EU256084
Nucleotides
GTC => GTT = 1
CAA => CAG = 1
TAC => TAT = 1
TCT => TCC = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAG (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAT (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCC (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTA (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: JQ246520
Nucleotides
TGC => TGT = 1
GTC => GTT = 1
CAA => CAG = 1
ACT => ACC = 1
AGG => AGA = 1
AGC => GGT = 1
GTA => ATA = 1
TCT => TCC = 1
Amino Acid
16: TGC (C) => TGT (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAG (Q)

43: TTC (F) => TTC (F)
54: ACT (T) => ACC (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGA (R)
117: CGC (R) => CGC (R)
122: AGC (S) => GGT (G) **Changed**
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCC (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: GU451218
Nucleotides
GTC => GTT = 1
GAC => AAC = 1
GAC => GAT = 1
GTA => ATA = 1
TCT => TCC = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => AAC (N) **Changed**
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAT (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCC (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC124434

Nucleotides

GTC => GTT = 1
GTT => GTC = 1
GTA => ATA = 1

Amino Acid

16: TGC (C) => TGC (C)
36: GTC (V) => GTC (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTT (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: JQ253526

Nucleotides

TGC => TGT = 1
GTC => GTT = 1
CAA => CAG = 1
CAG => CTA = 1
GCG => GTG = 1
TAC => TAT = 1
GCT => GCC = 1
GTA => ATA = 1

Amino Acid

16: TGC (C) => TGT (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAG (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CTA (L) **Changed**
87: GCG (A) => GTG (V) **Changed**
105: TAC (Y) => TAT (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)

155: CGG (R) => CGG (R)
156: GCT (A) => GCC (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC124098
Nucleotides
TGC => TGT = 1
GTC => GTT = 1
GTT => GTC = 1
Amino Acid
16: TGC (C) => TGT (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTA (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC123726
Nucleotides
GTC => GTT = 1
GTT => GTC = 1
GTA => ATA = 1
TCT => TCC = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)

80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCC (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: JQ253519
Nucleotides
GTC => GTT = 1
CAG => CAA = 1
AGG => AGA = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAA (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGA (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTA (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC123462
Nucleotides
GCA => GCG = 1
GTT => GTC = 1
GTA => GTG = 1
TCT => GCT = 1
Amino Acid

16: TGC (C) => TGC (C)
36: GTC (V) => GTC (V)
39: GCA (A) => GCG (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTG (V)
173: GAG (E) => GAG (E)
174: TCT (S) => GCT (A) **Changed**
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC124741
Nucleotides
GTC => GTG = 1
CAA => CAG = 1
TAC => TAT = 1
AGG => AGA = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTG (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAG (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAT (Y)
109: AGG (R) => AGA (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTA (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)

176: GAA (E) => GAA (E)

SEQUENCE: KC123881
Nucleotides
TGC => TGT = 1
AGC => ACC = 1
GTT => GTC = 1
GTA => GTG = 1
TCT => TCC = 1
Amino Acid
16: TGC (C) => TGT (C)
36: GTC (V) => GTC (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => ACC (T) **Changed**
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTG (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCC (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC123806
Nucleotides
TGC => TGT = 1
GTC => GTT = 1
CAG => AAA = 1
CGC => TGC = 1
GTA => ATA = 1
TCT => TCC = 1
Amino Acid
16: TGC (C) => TGT (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => AAA (K) **Changed**
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => TGC (C) **Changed**

122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCC (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC124214
Nucleotides
TGC => TGT = 1
GCT => GCC = 1
GTA => ATA = 1
Amino Acid
16: TGC (C) => TGT (C)
36: GTC (V) => GTC (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCC (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: JQ246512
Nucleotides
GTC => GTT = 1
CAG => CAA = 1
AGG => AGA = 1
AGC => GGC = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)

54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAA (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGA (R)
117: CGC (R) => CGC (R)
122: AGC (S) => GGC (G) **Changed**
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTA (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC124374
Nucleotides
TGC => TGT = 1
GTC => GTG = 1
GCG => GCA = 1
GCT => GCC = 1
GTA => GTG = 1
Amino Acid
16: TGC (C) => TGT (C)
36: GTC (V) => GTG (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCA (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCC (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTG (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: JQ253529
Nucleotides

GTC => GTT = 1
GAC => AAC = 1
AGG => AGA = 1
GTT => GTG = 1
GTA => ATA = 1

Amino Acid

16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => AAC (N) **Changed**
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGA (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTG (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: AB154204

Nucleotides

GTC => GTT = 1
AGG => AGA = 1
GTA => GTG = 1

Amino Acid

16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGA (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)

168: GAC (D) => GAC (D)
170: GTA (V) => GTG (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: EU155381
Nucleotides
GTC => GTT = 1
TAC => TAT = 1
AGG => AGA = 1
GTT => GTC = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAT (Y)
109: AGG (R) => AGA (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTA (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC124076
Nucleotides
GTC => GTT = 1
GCA => GCG = 1
CAG => CAA = 1
CGC => TGC = 1
AGC => ACC = 1
AGG => AGA = 1
GTA => GTG = 1
GAA => GAG = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCG (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)

79: GAC (D) => GAC (D)
80: CAG (Q) => CAA (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => TGC (C) **Changed**
122: AGC (S) => ACC (T) **Changed**
123: AGG (R) => AGA (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTG (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAG (E)

SEQUENCE: KC124196
Nucleotides
GTG => GTA = 1
GTT => GTC = 1
GAC => GAT = 1
GTA => ATA = 1
TCT => TCC = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTC (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTA (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAT (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCC (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC123912
Nucleotides
TGC => TGT = 1
AGG => AGA = 1

CGG => CGA = 1
GTG => GTA = 1
GTT => GTC = 1
GTA => GTG = 1

Amino Acid

16: TGC (C) => TGT (C)
36: GTC (V) => GTC (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGA (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGA (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTA (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTG (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC123908

Nucleotides

GTC => GTT = 1
CAA => CAG = 1
ACT => TCC = 1
GTC => ATC = 1
CAG => CAA = 1
GTA => ATA = 1
GAG => GAA = 1
TCT => TCC = 1
ATG => CTG = 1

Amino Acid

16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAG (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => TCC (S) **Changed**
55: GTC (V) => ATC (I) **Changed**
79: GAC (D) => GAC (D)
80: CAG (Q) => CAA (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)

138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAA (E)
174: TCT (S) => TCC (S)
175: ATG (M) => CTG (L) **Changed**
176: GAA (E) => GAA (E)

SEQUENCE: KC124704
Nucleotides
TGC => TGT = 1
GTC => GTT = 1
TTC => TTT = 1
GAC => GAT = 1
GTT => GTC = 1
GTA => GTG = 1
Amino Acid
16: TGC (C) => TGT (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTT (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAT (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTG (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: FJ390398
Nucleotides
GTC => GTT = 1
AGC => ACC = 1
GTA => ATA = 1
TCT => GCT = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAA (Q)

43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => ACC (T) **Changed**
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => GCT (A) **Changed**
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: EU155259
Nucleotides
GTC => GTT = 2
GCA => GCG = 1
GCG => TCG = 1
GCT => GCC = 1
GTG => GTA = 1
GTT => GTC = 1
GTA => GTG = 1
Amino Acid
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCG (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTT (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => TCG (S) **Changed**
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGG (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCC (A)
158: GTG (V) => GTA (V)
163: GTT (V) => GTC (V)
168: GAC (D) => GAC (D)
170: GTA (V) => GTG (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)

SEQUENCE: KC124505

Nucleotides

```
GTC => GTT = 1
GCA => GCG = 1
AGG => AGA = 1
GTA => ATA = 1
TCT => TCC = 1
```

Amino Acid

```
16: TGC (C) => TGC (C)
36: GTC (V) => GTT (V)
39: GCA (A) => GCG (A)
41: CAA (Q) => CAA (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACT (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAC (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAC (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
122: AGC (S) => AGC (S)
123: AGG (R) => AGA (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAC (D)
170: GTA (V) => ATA (I) **Changed**
173: GAG (E) => GAG (E)
174: TCT (S) => TCC (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)
```

SEQUENCE: KC124680

Nucleotides

```
CAA => CAG = 1
ACT => ACC = 1
GAC => GAT = 1
TAC => TAT = 1
AGG => AGA = 1
GAC => GAA = 1
GTA => GTG = 1
```

Amino Acid

```
16: TGC (C) => TGC (C)
36: GTC (V) => GTC (V)
39: GCA (A) => GCA (A)
41: CAA (Q) => CAG (Q)
43: TTC (F) => TTC (F)
54: ACT (T) => ACC (T)
55: GTC (V) => GTC (V)
79: GAC (D) => GAT (D)
80: CAG (Q) => CAG (Q)
87: GCG (A) => GCG (A)
105: TAC (Y) => TAT (Y)
109: AGG (R) => AGG (R)
117: CGC (R) => CGC (R)
```

```
122: AGC (S) => AGC (S)
123: AGG (R) => AGA (R)
138: TCT (S) => TCT (S)
155: CGG (R) => CGG (R)
156: GCT (A) => GCT (A)
158: GTG (V) => GTG (V)
163: GTT (V) => GTT (V)
168: GAC (D) => GAA (E) **Changed**
170: GTA (V) => GTG (V)
173: GAG (E) => GAG (E)
174: TCT (S) => TCT (S)
175: ATG (M) => ATG (M)
176: GAA (E) => GAA (E)
```