SEQUENCE SIGNATURE ANALYSIS

ANALYSIS REPORT

Date of Analysis: 2016-09-15

Gene: E1

SUMMARY

Patient File Name	Sequences	Nucleotide Changes	Amino Acid Changes
E1 REF 1.fas	AF369024	162	14
	KT211035	180	15
	KT211049	180	15
	HM045784	168	13
	HM045822	167	12
	256403027	169	13
	GU199352	170	15
	GU301781	169	14
E1 REF 2.fas	FJ445426	168	17
	429324003	170	14
	106880543	169	14
	EF012359	170	14
	106880535	170	13
	KP164568	169	15
	KP164570	170	16
	KP164569	169	15
	HM045813	179	17
	EF027140	180	17
	EF027141	182	18
	HM045790	177	17
	KJ451624	180	15
	KP851709	181	16
	KJ451622	179	15
	KF318729	178	15
	629510202	179	16
	FJ807897	183	18
	429324006	180	16
	428670855	186	16
E1 REF 3.fas	FJ445426	168	17
	429324003	170	14
	106880543	169	14

Patient File Name	Sequences	Nucleotide Changes	Amino Acid Changes
	EF012359	170	14
	106880535	170	13
	KP164568	169	15
	KP164570	170	16
	KP164569	169	15
	HM045813	179	17
	EF027140	180	17
	EF027141	182	18
	HM045790	177	17
	KJ451624	180	15
	KP851709	181	16
	KJ451622	179	15
	KF318729	178	15
	629510202	179	16
	FJ807897	183	18
	429324006	180	16
	428670855	186	16
	HM045800	177	17
	HM045789	177	17
	EF452493	178	16
	L37661	179	16
	HM045810	180	16
	KP164571	179	15
	KP164572	180	15
	KP164567	180	15
	HM045785	8	0
	HM045817	15	2
	HM045815	18	1
	HM045816	8	1
	HM045818	11	1
	HM045820	14	2
	HM045817	15	2
	HM045786	0	0
	AY726732	8	0
	HM045807	0	0
	HM045811	163	13

DETAILED REPORT
PATIENT: E1 REF 1.fas

SEQUENCE: AF369024
Nucleotides

CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 2
GAA => GAG = 3
ACA => ACG = 3
CTG => CTA = 1
TCA => TCG = 2
GAC => GAT = 2
GAG => GAA = 5
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 6
GGA => GGC = 1
GCC => GCT = 4
AAT => AAC = 3
GTA => GTG = 4
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 1
ATT => ATC = 6
GCT => ACT = 1
TAC => TAT = 1
GCT => GCA = 2
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
GGC => GGT = 2
GTC => GTT = 1
CCA => CCG = 4
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
AGT => AGC = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 2

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CTA => CTG = 1
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
CAT => CAC = 1
TTC => TTT = 2
CTG => TTA = 1
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
GCT => GCC = 1
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAC = 2
GTA => TTA = 1
ATC => ATT = 2
ACA => GCA = 1
GCT => GTC = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
50: GAG (E) => GAA (E)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
```

83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
182: GGC (G) => GGT (G)
184: GTC (V) => GTT (V)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => TTA (L)
245: AAG (K) => AAA (K)

248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GTC (V) **Changed**
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
339: ATT (I) => ATC (I)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)

391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: KT211035
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 3
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 5
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 6
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4

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ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
76: TAC (Y) => TAT (Y)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
144: GTA (V) => GTG (V)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)

190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**

307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)

426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: KT211049
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 6
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1

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CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
```

68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
144: GTA (V) => GTG (V)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)

221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)

343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: HM045784
Nucleotides
CTT => CTA = 1
AAC => AAT = 4
GGT => GGC = 4
AGC => AGT = 2
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 2
GAA => GAG = 3
ACA => ACG = 2

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CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 4
AAG => AAA = 4
TGT => TGC = 1
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 4
AAT => AAC = 2
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 2
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GTT => GTC = 4
TAT => TAC = 1
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
TTC => TTT = 2
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAC = 2
GTA => TTA = 1
```

```
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GTA => GCA = 1
GCA => GAG = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCC = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
23: GGT (G) => GGC (G)
25: AGC (S) => AGT (S)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
```

```
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
214: TAT (Y) => TAC (Y)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
```

276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
311: GAC (D) => GAT (D)
312: TTT (F) => TTC (F)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
374: GTA (V) => GCA (A) **Changed**
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
383: CCA (P) => CCG (P)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCC (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)

417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: HM045822
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
GGT => GGC = 4
AGC => AGT = 1
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 2
GAA => GAG = 3
ACA => ACG = 2
CTG => CTA = 1
TCA => TCG = 3
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 8
GGA => GGC = 1
GCC => GCT = 4
AAT => AAC = 3
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
TAC => TAT = 3
ATT => ATC = 5
GCT => ACT = 1
GCT => GCA = 2
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 1

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CGT => CGC = 1
CCG => CCT = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 2
TTG => CTA = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
TTC => TTT = 2
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 1
ACA => ACT = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
23: GGT (G) => GGC (G)
25: AGC (S) => AGT (S)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
```

```
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
137: TAC (Y) => TAT (Y)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
171: ACA (T) => ACG (T)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTA (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
```

226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
312: TTT (F) => TTC (F)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACT (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)

```
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)
```

SEQUENCE: 256403027

Nucleotides

```
CTT => CTA = 1
AAC => AAT = 2
CCG => CCT = 2
GGT => GGC = 4
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 4
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 5
AAT => AAC = 3
CAA => CAG = 1
GTA => GTG = 5
AAA => AAG = 2
```

```
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
GTT => GTC = 3
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
CAT => CAC = 1
TTC => TTT = 2
CGA => CGC = 1
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 3
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)

```
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
250: TCG (S) => TCA (S)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
```

326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
378: GCC (A) => GCT (A)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: GU199352
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
CCG => CCT = 2
GGT => GGC = 4

```
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 4
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 5
CAA => CAG = 1
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCG = 1
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
GTT => GTC = 3
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GTG = 1
CAT => CAC = 1
TTC => TTT = 2
CGA => CGC = 1
GCA => GCG = 5
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
```

```
AAT => AAC = 2
GCT => GCC = 3
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
GCC => GTC = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
GCC => GCA = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
```

```
120: TCG (S) => TCA (S)
121: GCC (A) => GCG (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GTG (V) **Changed**
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
250: TCG (S) => TCA (S)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
```

```
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
316: GCC (A) => GTC (V) **Changed**
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
378: GCC (A) => GCT (A)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
```

391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: GU301781
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
CCG => CCT = 2
GGT => GGC = 4
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 4
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 5
CAA => CAG = 1
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCG = 1
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1

TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
GTT => GTC = 3
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GTG = 1
CAT => CAC = 1
TTC => TTT = 2
CGA => CGC = 1
GCA => GCG = 5
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
AAT => AAC = 2
GCT => GCC = 3
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
GCC => GCA = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**

35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCG (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)

```
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GTG (V) **Changed**
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
250: TCG (S) => TCA (S)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
```

```
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
378: GCC (A) => GCT (A)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)
```

DETAILED REPORT
PATIENT: E1 REF 2.fas

SEQUENCE: FJ445426
Nucleotides

CTT => CTA = 1
AAC => AAT = 3
CCG => CCT = 2
GGT => GGC = 4
GAG => GAA = 5
CAA => CTG = 1
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 6
GGA => GGC = 1
GCC => GCT = 5
AAT => AAC = 3
CAA => CAG = 1
GTA => GTG = 4
AAA => AGG = 1
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 3
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
AAA => AAC = 1
GTT => GTC = 3
ACT => ACA = 1
TTG => CTG = 1
CTA => CTG = 2

```
AGG => AGA = 1
GCA => GCT = 1
GCA => GTG = 1
CAT => CAC = 1
TTC => TTT = 2
CGA => CGC = 1
GCA => GCG = 5
ACG => ACA = 1
CCG => CCA = 1
CAG => CAA = 1
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
GCT => GCC = 3
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
AAA => AAG = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
```

```
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AGG (R) **Changed**
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
211: AAA (K) => AAC (N) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GTG (V) **Changed**
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
```

```
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
250: TCG (S) => TCA (S)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
```

```
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
378: GCC (A) => GCT (A)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
```

SEQUENCE: 429324003

Nucleotides

```
CTT => CTA = 1
AAC => AAT = 3
CCG => CCT = 2
GGT => GGC = 4
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 4
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 5
AAT => AAC = 3
CAA => CAG = 1
GTA => GTG = 5
AAA => AAG = 2
```

```
TCT => TCC = 1
TCT => TCA = 2
GCC => GCG = 1
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
GTT => GTC = 3
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GTG = 1
CAT => CAC = 1
TTC => TTT = 2
CGA => CGC = 1
GCA => GCG = 5
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 3
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
```

GCC => GCA = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCG (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)

```
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GTG (V) **Changed**
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
250: TCG (S) => TCA (S)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
```

318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
378: GCC (A) => GCT (A)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: 106880543
Nucleotides
CTT => CTA = 1

```
AAC => AAT = 3
CCG => CCT = 2
GGT => GGC = 4
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 4
AAT => AAC = 3
CAA => CAG = 1
CAT => CAC = 2
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
GTT => GTC = 3
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GTG = 1
TTC => TTT = 2
CGA => CGC = 1
GCA => GCG = 5
```

```
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 3
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
107: CAT (H) => CAC (H)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
```

```
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GTG (V) **Changed**
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
```

257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)

391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: EF012359
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
CCG => CCT = 2
GGT => GGC = 4
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 4
AAT => AAC = 3
CAA => CAG = 1
CAT => CAC = 2
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1

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ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GTG = 1
TTC => TTT = 2
CGA => CGC = 1
GCA => GCG = 5
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 3
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
```

37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
107: CAT (H) => CAC (H)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)

209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GTG (V) **Changed**
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)

340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: 106880535
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
CCG => CCT = 2
GGT => GGC = 4
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3

```
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 4
AAT => AAC = 3
CAA => CAG = 1
CAT => CAC = 2
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
GTT => GTC = 3
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
TTC => TTT = 2
CGA => CGC = 1
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 3
GTG => GTA = 3
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
```

```
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
107: CAT (H) => CAC (H)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
```

131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**

277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)

417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
434: GTG (V) => GTA (V)
436: TTT (F) => TTC (F)

SEQUENCE: KP164568
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
GGT => GGC = 4
AGC => AGT = 1
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 1
GAA => GAG = 3
ACA => ACG = 2
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
ACT => ACC = 3
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 8
GGA => GGC = 2
GGC => GGA = 1
GCC => GCT = 4
AAT => AAC = 1
CAT => CAC = 1
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3

GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
TTC => TTT = 2
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
ACT => ATT = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
ACC => ACA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GTA = 1
GCA => GAG = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
ATG => CTG = 1
TTA => CTG = 2
ATT => GTT = 1
GCT => GCA = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
23: GGT (G) => GGC (G)
25: AGC (S) => AGT (S)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)

56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
91: GGC (G) => GGA (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
105: GAG (E) => GAA (E)
107: CAT (H) => CAC (H)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)

```
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
287: TTT (F) => TTC (F)
288: ACT (T) => ATT (I) **Changed**
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
311: GAC (D) => GAT (D)
312: TTT (F) => TTC (F)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
337: GTT (V) => GTC (V)
338: ACC (T) => ACA (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
```

355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
377: GCA (A) => GTA (V) **Changed**
379: GCA (A) => GAG (E) **Changed**
383: CCA (P) => CCG (P)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
407: ATG (M) => CTG (L) **Changed**
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGC (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: KP164570
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
GGT => GGC = 4
AGC => AGT = 1
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 1
GAA => GAG = 3
ACA => ACG = 2
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
ACT => ACC = 3
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
AGC => AAC = 1

```
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 8
GGA => GGC = 2
GGC => GGA = 1
GCC => GCT = 4
AAT => AAC = 1
CAT => CAC = 1
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
TTC => TTT = 2
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
ACT => ATT = 1
GTC => NTC = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
ACC => ACA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 1
GCA => GCC = 1
```

```
GTG => GTC = 1
GCA => GTA = 1
GCA => GAG = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
ATG => CTG = 1
TTA => CTG = 2
ATT => GTT = 1
GCT => GCA = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
23: GGT (G) => GGC (G)
25: AGC (S) => AGT (S)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
91: GGC (G) => GGA (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
105: GAG (E) => GAA (E)
107: CAT (H) => CAC (H)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
```

142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
287: TTT (F) => TTC (F)
288: ACT (T) => ATT (I) **Changed**
290: GTT (V) => GTC (V)
291: GTC (V) => NTC (*) **Changed**

292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
311: GAC (D) => GAT (D)
312: TTT (F) => TTC (F)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
337: GTT (V) => GTC (V)
338: ACC (T) => ACA (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
377: GCA (A) => GTA (V) **Changed**
379: GCA (A) => GAG (E) **Changed**
383: CCA (P) => CCG (P)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
407: ATG (M) => CTG (L) **Changed**
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGC (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)

425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: KP164569
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
GGT => GGC = 4
AGC => AGT = 1
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 1
GAA => GAG = 3
ACA => ACG = 2
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
ACT => ACC = 3
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 8
GGA => GGC = 2
GGC => GGA = 1
GCC => GCT = 4
AAT => AAC = 1
CAT => CAC = 1
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1

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GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
TTC => TTT = 2
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
ACT => ATT = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
ACC => ACA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GTA = 1
GCA => GAG = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
ATG => CTG = 1
TTA => CTG = 2
ATT => GTT = 1
GCT => GCA = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
23: GGT (G) => GGC (G)
25: AGC (S) => AGT (S)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
```

72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
91: GGC (G) => GGA (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
105: GAG (E) => GAA (E)
107: CAT (H) => CAC (H)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)

```
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
287: TTT (F) => TTC (F)
288: ACT (T) => ATT (I) **Changed**
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
311: GAC (D) => GAT (D)
312: TTT (F) => TTC (F)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
337: GTT (V) => GTC (V)
338: ACC (T) => ACA (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
```

365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
377: GCA (A) => GTA (V) **Changed**
379: GCA (A) => GAG (E) **Changed**
383: CCA (P) => CCG (P)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
407: ATG (M) => CTG (L) **Changed**
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGC (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: HM045813
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
ACA => ACT = 1
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 3
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
TGC => TGT = 5
TTT => TTC = 8
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5

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AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 4
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 3
ATT => GTT = 2
GCT => TCT = 1
GCT => GCA = 2
GTA => GTT = 1
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
ATT => ATC = 5
CGT => CGC = 1
ACA => ACG = 2
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 6
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
GTC => GCA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
```

GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACT (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
122: TAC (Y) => TAT (Y)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => GTT (V) **Changed**
145: GCT (A) => TCT (S) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)

159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)

292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GCA (A) **Changed**
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)

416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: EF027140
Nucleotides
CTT => CTA = 1
AAC => AAT = 4
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
ACA => ACT = 1
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 3
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
TGC => TGT = 5
TTT => TTC = 8
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 4
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => GTT = 2
GCT => TCT = 1
GCT => GCA = 2
GTA => GTT = 1
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1

```
ATT => ATC = 5
CGT => CGC = 1
ACA => ACG = 2
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 6
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
GTC => GCA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACT (T)
42: CTG (L) => CTA (L)
```

43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
122: TAC (Y) => TAT (Y)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => GTT (V) **Changed**
145: GCT (A) => TCT (S) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)

211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GCA (A) **Changed**
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)

337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: EF027141
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1

```
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
ACA => ACT = 1
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 3
ACT => ACC = 3
ATC => ACC = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
TGC => TGT = 5
TTT => TTC = 8
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 4
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 3
ATT => GTT = 2
GCT => TCT = 1
GCT => GCA = 2
GTA => GTT = 1
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
GGC => GGT = 2
CCA => CCG = 5
CCT => CCC = 1
ATT => ATC = 5
CGT => CGC = 1
ACA => ACG = 2
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 6
CAT => CAC = 1
TAT => TAC = 1
ACG => ACA = 1
CCG => CCA = 1
```

```
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
GTC => GCA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACT (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
55: ATC (I) => ACC (T) **Changed**
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
```

105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
122: TAC (Y) => TAT (Y)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => GTT (V) **Changed**
145: GCT (A) => TCT (S) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
182: GGC (G) => GGT (G)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)

242: TAT (Y) => TAC (Y)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GCA (A) **Changed**
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)

360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: HM045790
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACC => ACT = 3
GAA => GAG = 3
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
TAC => TAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
TGC => TGT = 5

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TTT => TTC = 8
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 3
ATT => GTC = 1
GCT => TCT = 1
GCC => GCT = 4
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
ATT => ATC = 5
CGT => CGC = 1
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 4
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
```

CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CCC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => GTC (V) **Changed**

145: GCT (A) => TCT (S) **Changed**
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
174: GAC (D) => GAT (D)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)

276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CCC (P) **Changed**
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)

404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: KJ451624
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 6
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2

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CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
```

41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
144: GTA (V) => GTG (V)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)

```
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
```

322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: KP851709

Nucleotides

CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 6
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
ACA => ACN = 1
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1

```
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
```

82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
116: ACA (T) => ACN (*) **Changed**
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
144: GTA (V) => GTG (V)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**

226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)

350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: KJ451622
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5

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AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
```

```
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
```

128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)

262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)

383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: KF318729
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1

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GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCG => GCA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
```

TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)

175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)

304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)

425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: 629510202
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 3
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
TTG => CTG = 2
GAG => GAA = 4
GTA => GTG = 4
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1

```
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 2
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
```

63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
103: TTG (L) => CTG (L)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)

219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)

343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => ATG (M) **Changed**
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: FJ807897
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
GTA => GCA = 1
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3

```
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 2
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 7
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AGT = 1
AAC => AAT = 3
ATT => ATC = 6
GTA => GTT = 2
GCT => GCA = 2
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
```

```
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CCC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
28: GTA (V) => GCA (A) **Changed**
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
```

113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AGT (S) **Changed**
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
144: GTA (V) => GTT (V)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)

251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTT (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)

```
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CCC (P) **Changed**
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
```

SEQUENCE: 429324006

Nucleotides

```
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 7
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
```

```
GTA => GTG = 6
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 4
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 1
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
```

TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CCC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
146: GCC (A) => GCT (A)

147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)

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288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTG (V)
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CCC (P) **Changed**
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
```

402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: 428670855
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
CCA => CCG = 6
ACA => ACG = 4
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
TAC => TAT = 3
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 7
GGA => GGC = 1
GCC => ACC = 1
GAA => GAG = 3
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 5
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2

GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CCC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)

34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
40: CCA (P) => CCG (P)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
65: ACA (T) => ACG (T)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
99: GAA (E) => GAG (E)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
122: TAC (Y) => TAT (Y)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)

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191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
253: CAC (H) => CAT (H)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
298: GAC (D) => GAT (D)
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
```

```
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CCC (P) **Changed**
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
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425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

DETAILED REPORT
PATIENT: E1 REF 3.fas

SEQUENCE: FJ445426
Nucleotides

CTT => CTA = 1
AAC => AAT = 3
CCG => CCT = 2
GGT => GGC = 4
GAG => GAA = 5
CAA => CTG = 1
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 6
GGA => GGC = 1
GCC => GCT = 5
AAT => AAC = 3
CAA => CAG = 1
GTA => GTG = 4
AAA => AGG = 1
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 3
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
AAA => AAC = 1
GTT => GTC = 3
ACT => ACA = 1
TTG => CTG = 1
CTA => CTG = 2

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AGG => AGA = 1
GCA => GCT = 1
GCA => GTG = 1
CAT => CAC = 1
TTC => TTT = 2
CGA => CGC = 1
GCA => GCG = 5
ACG => ACA = 1
CCG => CCA = 1
CAG => CAA = 1
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
GCT => GCC = 3
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
AAA => AAG = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
```

```
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AGG (R) **Changed**
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
211: AAA (K) => AAC (N) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GTG (V) **Changed**
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
```

```
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
250: TCG (S) => TCA (S)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
```

367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
378: GCC (A) => GCT (A)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: 429324003
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
CCG => CCT = 2
GGT => GGC = 4
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 4
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 5
AAT => AAC = 3
CAA => CAG = 1
GTA => GTG = 5
AAA => AAG = 2

```
TCT => TCC = 1
TCT => TCA = 2
GCC => GCG = 1
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
GTT => GTC = 3
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GTG = 1
CAT => CAC = 1
TTC => TTT = 2
CGA => CGC = 1
GCA => GCG = 5
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 3
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
```

GCC => GCA = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCG (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)

182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GTG (V) **Changed**
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
250: TCG (S) => TCA (S)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)

318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
378: GCC (A) => GCT (A)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: 106880543
Nucleotides
CTT => CTA = 1

```
AAC => AAT = 3
CCG => CCT = 2
GGT => GGC = 4
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 4
AAT => AAC = 3
CAA => CAG = 1
CAT => CAC = 2
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
GTT => GTC = 3
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GTG = 1
TTC => TTT = 2
CGA => CGC = 1
GCA => GCG = 5
```

```
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 3
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
107: CAT (H) => CAC (H)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
```

```
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GTG (V) **Changed**
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
```

257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)

391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: EF012359
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
CCG => CCT = 2
GGT => GGC = 4
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 4
AAT => AAC = 3
CAA => CAG = 1
CAT => CAC = 2
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1

```
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GTG = 1
TTC => TTT = 2
CGA => CGC = 1
GCA => GCG = 5
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 3
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
```

```
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
107: CAT (H) => CAC (H)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
```

209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GTG (V) **Changed**
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)

340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: 106880535
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
CCG => CCT = 2
GGT => GGC = 4
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
CTG => CTA = 2
TCA => TCG = 3

```
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
TGT => TGC = 1
AAG => AAA = 3
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 4
AAT => AAC = 3
CAA => CAG = 1
CAT => CAC = 2
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCT = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GCT => GCA = 1
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 2
CGT => CGC = 1
GTT => GTC = 3
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
TTC => TTT = 2
CGA => CGC = 1
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 3
GTG => GTA = 3
ATA => ATG = 1
CCA => CCC = 1
GAT => GAA = 1
GAT => GAC = 2
GTA => TTA = 1
```

```
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 2
ACA => ACG = 1
TTG => TTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
22: CCG (P) => CCT (P)
23: GGT (G) => GGC (G)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
102: CAA (Q) => CAG (Q)
105: GAG (E) => GAA (E)
107: CAT (H) => CAC (H)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCT (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
```

131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
247: CGA (R) => CGC (R)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**

277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAA (E) **Changed**
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => TTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
382: CCT (P) => CCC (P)
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATC (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)

417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
424: GCT (A) => GCC (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
434: GTG (V) => GTA (V)
436: TTT (F) => TTC (F)

SEQUENCE: KP164568
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
GGT => GGC = 4
AGC => AGT = 1
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 1
GAA => GAG = 3
ACA => ACG = 2
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
ACT => ACC = 3
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 8
GGA => GGC = 2
GGC => GGA = 1
GCC => GCT = 4
AAT => AAC = 1
CAT => CAC = 1
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3

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GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
TTC => TTT = 2
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
ACT => ATT = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
ACC => ACA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GTA = 1
GCA => GAG = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
ATG => CTG = 1
TTA => CTG = 2
ATT => GTT = 1
GCT => GCA = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
23: GGT (G) => GGC (G)
25: AGC (S) => AGT (S)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
```

```
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
91: GGC (G) => GGA (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
105: GAG (E) => GAA (E)
107: CAT (H) => CAC (H)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
```

219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
287: TTT (F) => TTC (F)
288: ACT (T) => ATT (I) **Changed**
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
311: GAC (D) => GAT (D)
312: TTT (F) => TTC (F)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
337: GTT (V) => GTC (V)
338: ACC (T) => ACA (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)

355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
377: GCA (A) => GTA (V) **Changed**
379: GCA (A) => GAG (E) **Changed**
383: CCA (P) => CCG (P)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
407: ATG (M) => CTG (L) **Changed**
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGC (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: KP164570
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
GGT => GGC = 4
AGC => AGT = 1
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 1
GAA => GAG = 3
ACA => ACG = 2
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
ACT => ACC = 3
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
AGC => AAC = 1

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CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 8
GGA => GGC = 2
GGC => GGA = 1
GCC => GCT = 4
AAT => AAC = 1
CAT => CAC = 1
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
TTC => TTT = 2
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
ACT => ATT = 1
GTC => NTC = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
ACC => ACA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 1
GCA => GCC = 1
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GTG => GTC = 1
GCA => GTA = 1
GCA => GAG = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
ATG => CTG = 1
TTA => CTG = 2
ATT => GTT = 1
GCT => GCA = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
23: GGT (G) => GGC (G)
25: AGC (S) => AGT (S)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
91: GGC (G) => GGA (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
105: GAG (E) => GAA (E)
107: CAT (H) => CAC (H)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)

142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
287: TTT (F) => TTC (F)
288: ACT (T) => ATT (I) **Changed**
290: GTT (V) => GTC (V)
291: GTC (V) => NTC (*) **Changed**

292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
311: GAC (D) => GAT (D)
312: TTT (F) => TTC (F)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
337: GTT (V) => GTC (V)
338: ACC (T) => ACA (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
377: GCA (A) => GTA (V) **Changed**
379: GCA (A) => GAG (E) **Changed**
383: CCA (P) => CCG (P)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
407: ATG (M) => CTG (L) **Changed**
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGC (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)

425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: KP164569
Nucleotides
CTT => CTA = 1
AAC => AAT = 3
GGT => GGC = 4
AGC => AGT = 1
GAG => GAA = 5
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 1
GAA => GAG = 3
ACA => ACG = 2
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
ACT => ACC = 3
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 8
GGA => GGC = 2
GGC => GGA = 1
GCC => GCT = 4
AAT => AAC = 1
CAT => CAC = 1
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => ATC = 5
GCT => ACT = 1
TAC => TAT = 2
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
ATC => ATT = 3
GGC => GGT = 2
CCA => CCG = 4
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1

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GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 2
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
TTC => TTT = 2
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
ACT => ATT = 1
GAT => GAC = 2
GTA => TTA = 1
ACA => GCA = 1
ACC => ACA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GTA = 1
GCA => GAG = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
ATG => CTG = 1
TTA => CTG = 2
ATT => GTT = 1
GCT => GCA = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
23: GGT (G) => GGC (G)
25: AGC (S) => AGT (S)
32: GAG (E) => GAA (E)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
```

72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
91: GGC (G) => GGA (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
105: GAG (E) => GAA (E)
107: CAT (H) => CAC (H)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
177: ATC (I) => ATT (I)
182: GGC (G) => GGT (G)
185: TAC (Y) => TAT (Y)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)

```
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => GTG (V)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
287: TTT (F) => TTC (F)
288: ACT (T) => ATT (I) **Changed**
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
311: GAC (D) => GAT (D)
312: TTT (F) => TTC (F)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
337: GTT (V) => GTC (V)
338: ACC (T) => ACA (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
```

365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
377: GCA (A) => GTA (V) **Changed**
379: GCA (A) => GAG (E) **Changed**
383: CCA (P) => CCG (P)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
407: ATG (M) => CTG (L) **Changed**
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGC (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)

SEQUENCE: HM045813
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
ACA => ACT = 1
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 3
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
TGC => TGT = 5
TTT => TTC = 8
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5

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AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 4
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 3
ATT => GTT = 2
GCT => TCT = 1
GCT => GCA = 2
GTA => GTT = 1
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
ATT => ATC = 5
CGT => CGC = 1
ACA => ACG = 2
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 6
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
GTC => GCA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
```

GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACT (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
122: TAC (Y) => TAT (Y)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => GTT (V) **Changed**
145: GCT (A) => TCT (S) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)

```
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
```

292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GCA (A) **Changed**
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)

416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: EF027140
Nucleotides
CTT => CTA = 1
AAC => AAT = 4
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
ACA => ACT = 1
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 3
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
TGC => TGT = 5
TTT => TTC = 8
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 4
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
ATT => GTT = 2
GCT => TCT = 1
GCT => GCA = 2
GTA => GTT = 1
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1

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ATT => ATC = 5
CGT => CGC = 1
ACA => ACG = 2
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 6
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
GTC => GCA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
20: AAC (N) => AAT (N)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACT (T)
42: CTG (L) => CTA (L)
```

```
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
122: TAC (Y) => TAT (Y)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => GTT (V) **Changed**
145: GCT (A) => TCT (S) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
```

211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GCA (A) **Changed**
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)

337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: EF027141
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1

```
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
ACA => ACT = 1
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 3
ACT => ACC = 3
ATC => ACC = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
TGC => TGT = 5
TTT => TTC = 8
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 4
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 3
ATT => GTT = 2
GCT => TCT = 1
GCT => GCA = 2
GTA => GTT = 1
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
GGC => GGT = 2
CCA => CCG = 5
CCT => CCC = 1
ATT => ATC = 5
CGT => CGC = 1
ACA => ACG = 2
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 6
CAT => CAC = 1
TAT => TAC = 1
ACG => ACA = 1
CCG => CCA = 1
```

```
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
GTC => GCA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACT (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
55: ATC (I) => ACC (T) **Changed**
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
```

105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
122: TAC (Y) => TAT (Y)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => GTT (V) **Changed**
145: GCT (A) => TCT (S) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
182: GGC (G) => GGT (G)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)

```
242: TAT (Y) => TAC (Y)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GCA (A) **Changed**
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
```

```
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
```

SEQUENCE: HM045790

Nucleotides

```
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACC => ACT = 3
GAA => GAG = 3
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
TAC => TAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
TGC => TGT = 5
```

```
TTT => TTC = 8
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 3
ATT => GTC = 1
GCT => TCT = 1
GCC => GCT = 4
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
ATT => ATC = 5
CGT => CGC = 1
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 4
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
```

CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CCC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => GTC (V) **Changed**

145: GCT (A) => TCT (S) **Changed**
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
174: GAC (D) => GAT (D)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)

276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CCC (P) **Changed**
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)

404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: KJ451624
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 6
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2

CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)

41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
144: GTA (V) => GTG (V)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)

```
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
```

322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: KP851709

Nucleotides

CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 6
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
ACA => ACN = 1
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1

```
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
```

82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
116: ACA (T) => ACN (*) **Changed**
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
144: GTA (V) => GTG (V)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**

```
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
```

350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: KJ451622
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5

```
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
```

```
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
```

128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)

262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)

383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: KF318729
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1

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GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCG => GCA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
```

TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)

175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)

```
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
```

425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: 629510202
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 3
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
TTG => CTG = 2
GAG => GAA = 4
GTA => GTG = 4
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1

```
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 2
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
```

63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
103: TTG (L) => CTG (L)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)

219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)

343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => ATG (M) **Changed**
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: FJ807897
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
GTA => GCA = 1
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3

```
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 2
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 7
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AGT = 1
AAC => AAT = 3
ATT => ATC = 6
GTA => GTT = 2
GCT => GCA = 2
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
```

```
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CCC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
28: GTA (V) => GCA (A) **Changed**
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
```

113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AGT (S) **Changed**
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
144: GTA (V) => GTT (V)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)

251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTT (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)

```
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CCC (P) **Changed**
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
```

SEQUENCE: 429324006

Nucleotides

```
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 7
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
```

```
GTA => GTG = 6
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 4
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 1
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
```

TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CCC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
146: GCC (A) => GCT (A)

147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)

288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTG (V)
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CCC (P) **Changed**
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)

402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: 428670855
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
CCA => CCG = 6
ACA => ACG = 4
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
TAC => TAT = 3
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 7
GGA => GGC = 1
GCC => ACC = 1
GAA => GAG = 3
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 5
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2

GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CCC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)

34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
40: CCA (P) => CCG (P)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
65: ACA (T) => ACG (T)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
99: GAA (E) => GAG (E)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
122: TAC (Y) => TAT (Y)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)

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191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
253: CAC (H) => CAT (H)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
298: GAC (D) => GAT (D)
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
```

304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CCC (P) **Changed**
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)

425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: HM045800
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACC => ACT = 3
GAA => GAG = 3
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
TAC => TAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
TGC => TGT = 5
TTT => TTC = 8
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 3
ATT => GTC = 1
GCT => TCT = 1
GCC => GCT = 4
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
ATT => ATC = 5
CGT => CGC = 1
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1

GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 4
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CCC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)

```
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => GTC (V) **Changed**
145: GCT (A) => TCT (S) **Changed**
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
174: GAC (D) => GAT (D)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
```

221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)

350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CCC (P) **Changed**
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: HM045789
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
ACA => ACG = 4
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2

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ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
TGC => TGT = 4
TTT => TTC = 8
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 3
ATT => GTC = 1
GCT => TCT = 1
GCC => GCT = 4
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
ATT => ATC = 5
CGT => CGC = 1
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 6
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 1
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
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```
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
AAT => AGC = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
116: ACA (T) => ACG (T)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
125: CAC (H) => CAT (H)
```

```
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => GTC (V) **Changed**
145: GCT (A) => TCT (S) **Changed**
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
```

262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AGC (S) **Changed**
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)

391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: EF452493
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 3
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
TGC => TGT = 5
TTT => TTC = 7
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 3
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1

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AAC => AAT = 3
ATT => GTT = 2
GCT => TCT = 1
GCT => GCA = 2
GTA => GTT = 1
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
ATT => ATC = 5
CGT => CGC = 1
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 6
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
```

29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
122: TAC (Y) => TAT (Y)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => GTT (V) **Changed**
145: GCT (A) => TCT (S) **Changed**
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)

192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)

321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: L37661
Nucleotides

CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 3
TAC => TAT = 3
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
TGC => TGT = 5
TTT => TTC = 7
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 3
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 3
ATT => GTT = 2
GCT => TCT = 1
GCT => GCA = 2
GTA => GTT = 1
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
ATT => ATC = 5
CGT => CGC = 1
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 6

```
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GTT = 1
GGA => GGT = 1
TTA => CTG = 2
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
```

87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
122: TAC (Y) => TAT (Y)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => GTT (V) **Changed**
145: GCT (A) => TCT (S) **Changed**
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
151: GAC (D) => GAT (D)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)

230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)

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358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GTT (V) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
```

SEQUENCE: HM045810
Nucleotides

```
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CTA => CTT = 1
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 3
GAA => GAG = 3
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 3
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
CCA => CCT = 2
```

```
TGC => TGT = 5
TTT => TTC = 8
GGA => GGC = 1
GCC => ACT = 1
GAG => GAA = 4
GTA => GTG = 5
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 4
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 3
ATT => GTT = 2
GCT => TCT = 1
GCT => GCA = 2
GTA => GTT = 1
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CAA => CAG = 1
ATT => ATC = 5
CGT => CGC = 1
CCG => CCT = 1
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 6
GGC => GGT = 1
CAT => CAC = 1
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
CGA => CGG = 1
GAC => GAA = 1
```

GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
29: TTG (L) => CTG (L)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACT (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
122: TAC (Y) => TAT (Y)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)

```
141: AAC (N) => AAT (N)
142: ATT (I) => GTT (V) **Changed**
145: GCT (A) => TCT (S) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
199: CAA (Q) => CAG (Q)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
```

```
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
```

400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: KP164571
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 5
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 6
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1

GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)

33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
144: GTA (V) => GTG (V)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)

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203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
```

318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: KP164572
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 6
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5

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GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
```

81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
144: GTA (V) => GTG (V)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**

```
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
```

350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)
382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: KP164567
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
CTA => CTT = 1
CAA => CTG = 1
TCG => TCT = 1
ACA => ACG = 3
CTG => CTA = 2
TCA => TCG = 3
GAC => GAT = 2
TAC => TAT = 2
ACT => ACC = 4
GTC => GTT = 1
CCC => CCG = 1
TCC => TCT = 5

```
AAG => AAA = 4
TGT => TGC = 1
TGC => TGT = 6
CCA => CCT = 2
TTT => TTC = 6
GGA => GGC = 1
GCC => ACC = 1
GAG => GAA = 4
GTA => GTG = 6
AAA => AAG = 2
TCT => TCC = 1
TCT => TCA = 2
TCG => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
GCC => GCT = 5
CAC => CAT = 4
TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 4
ATT => ATC = 6
GCT => GCA = 2
GTA => GTT = 1
GTC => ATA = 1
GGA => GGG = 2
TCC => TCA = 2
CCA => CCG = 5
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
GAA => GAG = 2
AGT => AGC = 1
AAA => GAA = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 3
TTG => CTG = 1
CTA => CTG = 2
AGG => AGA = 1
GCA => TCC = 1
GCA => GCG = 5
GGC => GGT = 1
CAT => CAC = 2
ACG => ACA = 1
CCG => CCA = 1
TTC => TTT = 2
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
AAT => AAC = 2
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
GAT => GAC = 3
CCC => CCA = 1
GTA => TTA = 1
CCA => TCA = 1
GTC => GTA = 1
```

```
ATC => ATT = 1
ACA => GCA = 1
AGC => AGT = 1
ACC => ACT = 2
CGA => CGG = 1
GAC => GAA = 1
GTA => ATA = 1
CTG => TTG = 1
ATA => ATC = 1
TTG => CTA = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CCT => CCA = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1
```

Amino Acid

```
18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)
33: CTA (L) => CTT (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCT (S)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
51: TAC (Y) => TAT (Y)
53: ACT (T) => ACC (T)
54: GTC (V) => GTT (V)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
68: TGC (C) => TGT (C)
74: CCA (P) => CCT (P)
75: GAC (D) => GAT (D)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
87: TTT (F) => TTC (F)
95: TTT (F) => TTC (F)
98: GCC (A) => ACC (T) **Changed**
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
```

```
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
141: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
144: GTA (V) => GTG (V)
146: GCC (A) => GCT (A)
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
159: GCC (A) => GCT (A)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATA (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
175: AAC (N) => AAT (N)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
192: TTT (F) => TTC (F)
201: GGT (G) => GGC (G)
203: ATT (I) => ATC (I)
206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
211: AAA (K) => GAA (E) **Changed**
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
216: AAC (N) => AAT (N)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => TCC (S) **Changed**
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
229: GTA (V) => GTG (V)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
232: CCA (P) => CCG (P)
244: CTG (L) => CTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
251: CTA (L) => CTG (L)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
259: TGC (C) => TGT (C)
260: CAG (Q) => CAA (Q)
```

261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCT (P)
278: ATT (I) => ATC (I)
284: GAT (D) => GAC (D)
288: ACT (T) => ACC (T)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
294: CCC (P) => CCA (P)
296: GTA (V) => TTA (L) **Changed**
300: TCA (S) => TCG (S)
301: TGC (C) => TGT (C)
302: GAA (E) => GAG (E)
304: CCA (P) => TCA (S) **Changed**
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
315: GTC (V) => GTA (V)
318: ATC (I) => ATT (I)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
323: AGC (S) => AGT (S)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
330: GTA (V) => GTG (V)
331: CAT (H) => CAC (H)
334: ACC (T) => ACT (T)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAA (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
347: GAG (E) => GAA (E)
349: AAT (N) => AAC (N)
350: TCC (S) => TCT (S)
352: CTG (L) => TTG (L)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
356: TTC (F) => TTT (F)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
360: TTG (L) => CTA (L)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
381: CAC (H) => CAT (H)

382: CCT (P) => CCA (P)
383: CCA (P) => CCG (P)
384: AAG (K) => AAA (K)
386: CAC (H) => CAT (H)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
397: CTT (L) => CTC (L)
400: CAG (Q) => CAA (Q)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
427: ATT (I) => ATC (I)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)

SEQUENCE: HM045785
Nucleotides
TCG => TCA = 1
CTG => CTA = 1
CTA => TTA = 1
TCT => TCC = 1
ACT => ACC = 1
GAC => GAT = 1
GCC => GCT = 1
AAT => AAC = 1
Amino Acid
35: TCG (S) => TCA (S)
42: CTG (L) => CTA (L)
73: CTA (L) => TTA (L)
111: TCT (S) => TCC (S)
143: ACT (T) => ACC (T)
151: GAC (D) => GAT (D)
159: GCC (A) => GCT (A)
349: AAT (N) => AAC (N)

SEQUENCE: HM045817
Nucleotides
TCG => TCA = 1
GTC => GTT = 1
CTG => TTG = 1
AGC => AGT = 1
TAC => TAT = 1
CAT => CAC = 1
ACT => ACC = 1
GGA => GGC = 1
CGA => AGA = 1
GTA => ATA = 1
TAT => TAC = 1

GCC => GTC = 1
AAT => AAC = 1
TTG => CTG = 1
ATT => ATC = 1

Amino Acid

35: TCG (S) => TCA (S)
36: GTC (V) => GTT (V)
42: CTG (L) => TTG (L)
77: AGC (S) => AGT (S)
93: TAC (Y) => TAT (Y)
107: CAT (H) => CAC (H)
143: ACT (T) => ACC (T)
164: GGA (G) => GGC (G)
247: CGA (R) => AGA (R)
269: GTA (V) => ATA (I) **Changed**
320: TAT (Y) => TAC (Y)
342: GCC (A) => GTC (V) **Changed**
349: AAT (N) => AAC (N)
360: TTG (L) => CTG (L)
427: ATT (I) => ATC (I)

SEQUENCE: HM045815

Nucleotides

TCG => TCA = 1
CTG => CTA = 1
TGT => TGC = 1
CTA => TTA = 1
AGC => AGT = 1
TCT => TCC = 1
GCC => GCT = 2
ACT => ACC = 1
GCT => GCC = 1
GAC => GAT = 1
GTA => GTG = 1
AAT => AAC = 2
CGC => CGT = 1
AAG => AGG = 1
GGA => GGG = 1
AGG => AGA = 1

Amino Acid

35: TCG (S) => TCA (S)
42: CTG (L) => CTA (L)
63: TGT (C) => TGC (C)
73: CTA (L) => TTA (L)
77: AGC (S) => AGT (S)
111: TCT (S) => TCC (S)
124: GCC (A) => GCT (A)
143: ACT (T) => ACC (T)
148: GCT (A) => GCC (A)
151: GAC (D) => GAT (D)
159: GCC (A) => GCT (A)
296: GTA (V) => GTG (V)
349: AAT (N) => AAC (N)
366: CGC (R) => CGT (R)
389: AAT (N) => AAC (N)
412: AAG (K) => AGG (R) **Changed**
418: GGA (G) => GGG (G)
438: AGG (R) => AGA (R)

SEQUENCE: HM045816
Nucleotides
TCG => TCA = 1
ACT => ACC = 1
GAC => GAT = 1
GCC => GCT = 1
TAC => TAT = 1
ATG => CTG = 1
AAT => AAC = 1
ATT => ATC = 1
Amino Acid
35: TCG (S) => TCA (S)
143: ACT (T) => ACC (T)
151: GAC (D) => GAT (D)
159: GCC (A) => GCT (A)
180: TAC (Y) => TAT (Y)
333: ATG (M) => CTG (L) **Changed**
349: AAT (N) => AAC (N)
420: ATT (I) => ATC (I)

SEQUENCE: HM045818
Nucleotides
TCG => TCA = 1
CTG => TTG = 1
ACT => ACC = 1
GGA => GGC = 1
GTC => GTT = 1
TAT => TAC = 1
ACA => GCA = 1
AAT => AAC = 1
TTG => CTG = 1
CAC => CAT = 1
ATT => ATC = 1
Amino Acid
35: TCG (S) => TCA (S)
42: CTG (L) => TTG (L)
143: ACT (T) => ACC (T)
164: GGA (G) => GGC (G)
315: GTC (V) => GTT (V)
320: TAT (Y) => TAC (Y)
321: ACA (T) => GCA (A) **Changed**
349: AAT (N) => AAC (N)
360: TTG (L) => CTG (L)
381: CAC (H) => CAT (H)
427: ATT (I) => ATC (I)

SEQUENCE: HM045820
Nucleotides
TCG => TCA = 1
ACC => ACT = 1
CTG => TTG = 1
CCC => CCT = 1
ACT => ACC = 1
GTC => GTT = 1
GGA => GGC = 1
GGC => GAC = 1
TAT => TAC = 1
AAT => AGC = 1
TTG => CTG = 1

CAC => CAT = 1
TTA => CTA = 1
ATT => ATC = 1

Amino Acid

35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
42: CTG (L) => TTG (L)
56: CCC (P) => CCT (P)
143: ACT (T) => ACC (T)
154: GTC (V) => GTT (V)
164: GGA (G) => GGC (G)
182: GGC (G) => GAC (D) **Changed**
320: TAT (Y) => TAC (Y)
349: AAT (N) => AGC (S) **Changed**
360: TTG (L) => CTG (L)
381: CAC (H) => CAT (H)
419: TTA (L) => CTA (L)
427: ATT (I) => ATC (I)

SEQUENCE: HM045817

Nucleotides

TCG => TCA = 1
GTC => GTT = 1
CTG => TTG = 1
AGC => AGT = 1
TAC => TAT = 1
CAT => CAC = 1
ACT => ACC = 1
GGA => GGC = 1
CGA => AGA = 1
GTA => ATA = 1
TAT => TAC = 1
GCC => GTC = 1
AAT => AAC = 1
TTG => CTG = 1
ATT => ATC = 1

Amino Acid

35: TCG (S) => TCA (S)
36: GTC (V) => GTT (V)
42: CTG (L) => TTG (L)
77: AGC (S) => AGT (S)
93: TAC (Y) => TAT (Y)
107: CAT (H) => CAC (H)
143: ACT (T) => ACC (T)
164: GGA (G) => GGC (G)
247: CGA (R) => AGA (R)
269: GTA (V) => ATA (I) **Changed**
320: TAT (Y) => TAC (Y)
342: GCC (A) => GTC (V) **Changed**
349: AAT (N) => AAC (N)
360: TTG (L) => CTG (L)
427: ATT (I) => ATC (I)

SEQUENCE: HM045786

Nucleotides

Amino Acid

SEQUENCE: AY726732
Nucleotides
GTA => GTG = 1
TCG => TCA = 1
ACT => ACC = 1
GGC => GGT = 1
GGA => GGC = 1
TAT => TAC = 1
AAT => AAC = 1
TTG => CTG = 1
Amino Acid
28: GTA (V) => GTG (V)
35: TCG (S) => TCA (S)
143: ACT (T) => ACC (T)
150: GGC (G) => GGT (G)
164: GGA (G) => GGC (G)
320: TAT (Y) => TAC (Y)
349: AAT (N) => AAC (N)
360: TTG (L) => CTG (L)

SEQUENCE: HM045807
Nucleotides

Amino Acid

SEQUENCE: HM045811
Nucleotides
CTT => CTA = 1
GGT => GGC = 4
TTG => CTG = 2
CAA => CTG = 1
TCG => TCA = 3
ACC => ACT = 2
GAA => GAG = 3
ACA => ACG = 3
CTG => CTA = 1
TCA => TCG = 2
GAC => GAT = 2
ACT => ACC = 3
CCC => CCG = 1
TCC => TCT = 5
AAG => AAA = 4
TGT => TGC = 1
AGC => AAC = 1
CCA => CCT = 1
TGC => TGT = 3
TTT => TTC = 7
GGA => GGC = 1
GCC => GCT = 4
AAT => AAC = 3
GAG => GAA = 4
GTA => GTG = 4
AAA => AAG = 3
TCT => TCC = 1
TCT => TCA = 2
GCC => GCA = 2
AGA => AGG = 1
CAC => CAT = 3

TCG => TCC = 1
GCG => GCA = 2
GCG => GCT = 1
AAC => AAT = 1
ATT => ATC = 6
GCT => ACT = 1
TAC => TAT = 1
GCT => GCA = 2
GTA => GTT = 2
GTC => ATT = 1
GGA => GGG = 2
TCC => TCA = 2
GGC => GGT = 2
GTC => GTT = 1
CCA => CCG = 4
CCT => CCC = 1
CGT => CGC = 1
CCG => CCT = 1
AGT => AGC = 1
GTT => GTC = 4
ACT => ACA = 1
CAG => CAA = 2
CTA => CTG = 1
AGG => AGA = 1
GCA => GCT = 1
GCA => GCG = 6
CAT => CAC = 1
TTC => TTT = 2
CTG => TTA = 1
ACG => ACA = 1
CCG => CCA = 1
ATT => ATA = 1
GCT => GCG = 1
GTA => ATG = 1
GCT => GCC = 2
GTG => GTA = 2
ATA => ATG = 1
CCA => CCC = 1
GAT => GAC = 2
GTA => TTA = 1
ATC => ATT = 2
ACA => GCA = 1
CGA => CGG = 1
GAC => GAG = 1
GTA => ATA = 1
ATA => ATC = 1
GCA => GCC = 1
GTG => GTC = 1
GCA => GAG = 1
CTT => CTC = 1
ATA => ATT = 1
ACA => GCT = 1
GGA => GGT = 1
TTA => CTG = 2
ATT => GTT = 1
TTA => CTA = 1

Amino Acid

18: CTT (L) => CTA (L)
23: GGT (G) => GGC (G)

```
29: TTG (L) => CTG (L)
34: CAA (Q) => CTG (L) **Changed**
35: TCG (S) => TCA (S)
37: ACC (T) => ACT (T)
39: GAA (E) => GAG (E)
41: ACA (T) => ACG (T)
42: CTG (L) => CTA (L)
43: TCA (S) => TCG (S)
45: GAC (D) => GAT (D)
53: ACT (T) => ACC (T)
56: CCC (P) => CCG (P)
57: TCC (S) => TCT (S)
61: AAG (K) => AAA (K)
63: TGT (C) => TGC (C)
71: AAG (K) => AAA (K)
72: AGC (S) => AAC (N) **Changed**
74: CCA (P) => CCT (P)
78: TGC (C) => TGT (C)
81: TTT (F) => TTC (F)
82: ACT (T) => ACC (T)
83: GGA (G) => GGC (G)
95: TTT (F) => TTC (F)
98: GCC (A) => GCT (A)
100: AAT (N) => AAC (N)
105: GAG (E) => GAA (E)
108: GTA (V) => GTG (V)
110: AAA (K) => AAG (K)
111: TCT (S) => TCC (S)
113: TCT (S) => TCA (S)
117: GAG (E) => GAA (E)
120: TCG (S) => TCA (S)
121: GCC (A) => GCA (A)
123: AGA (R) => AGG (R)
124: GCC (A) => GCT (A)
125: CAC (H) => CAT (H)
128: TCG (S) => TCC (S)
129: GCG (A) => GCA (A)
130: TCG (S) => TCA (S)
131: GCG (A) => GCT (A)
140: AAC (N) => AAT (N)
142: ATT (I) => ATC (I)
145: GCT (A) => ACT (T) **Changed**
147: TAC (Y) => TAT (Y)
148: GCT (A) => GCA (A)
156: GTA (V) => GTT (V)
160: AAG (K) => AAA (K)
161: TTT (F) => TTC (F)
162: GTC (V) => ATT (I) **Changed**
164: GGA (G) => GGG (G)
167: TCC (S) => TCT (S)
168: TCC (S) => TCA (S)
173: TTT (F) => TTC (F)
182: GGC (G) => GGT (G)
184: GTC (V) => GTT (V)
190: CCA (P) => CCG (P)
191: CCT (P) => CCC (P)
201: GGT (G) => GGC (G)
202: GAC (D) => GAT (D)
203: ATT (I) => ATC (I)
```

206: CGT (R) => CGC (R)
207: ACA (T) => ACG (T)
208: CCG (P) => CCT (P)
209: GAA (E) => GAG (E)
210: AGT (S) => AGC (S)
213: GTT (V) => GTC (V)
215: GCC (A) => GCT (A)
217: ACT (T) => ACA (T)
218: CAG (Q) => CAA (Q)
219: TTG (L) => CTG (L)
221: CTA (L) => CTG (L)
223: AGG (R) => AGA (R)
224: CCA (P) => CCG (P)
225: GCA (A) => GCT (A)
226: GCA (A) => GCG (A)
227: GGC (G) => GGT (G)
230: CAT (H) => CAC (H)
231: GTA (V) => GTG (V)
240: TTC (F) => TTT (F)
244: CTG (L) => TTA (L)
245: AAG (K) => AAA (K)
248: GGA (G) => GGG (G)
249: GCA (A) => GCG (A)
254: ACG (T) => ACA (T)
256: CCG (P) => CCA (P)
257: TTC (F) => TTT (F)
258: GGT (G) => GGC (G)
260: CAG (Q) => CAA (Q)
261: ATT (I) => ATA (I)
262: GCG (A) => GCA (A)
268: GCT (A) => GCG (A)
269: GTA (V) => ATG (M) **Changed**
270: AAT (N) => AAC (N)
272: GCT (A) => GCC (A)
273: GTG (V) => GTA (V)
276: ATA (I) => ATG (M) **Changed**
277: CCA (P) => CCC (P)
278: ATT (I) => ATC (I)
287: TTT (F) => TTC (F)
290: GTT (V) => GTC (V)
292: GAT (D) => GAC (D)
293: GCA (A) => GCG (A)
296: GTA (V) => TTA (L) **Changed**
302: GAA (E) => GAG (E)
307: ACT (T) => ACC (T)
308: CAC (H) => CAT (H)
310: TCC (S) => TCA (S)
317: ATC (I) => ATT (I)
318: ATC (I) => ATT (I)
319: AAA (K) => AAG (K)
321: ACA (T) => GCA (A) **Changed**
322: GCT (A) => GCC (A)
326: GGT (G) => GGC (G)
327: AAA (K) => AAG (K)
329: GCA (A) => GCG (A)
330: GTA (V) => GTG (V)
337: GTT (V) => GTC (V)
338: ACC (T) => ACT (T)
339: ATT (I) => ATC (I)

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340: CGA (R) => CGG (R)
342: GCC (A) => GCT (A)
343: GAC (D) => GAG (E) **Changed**
344: GTA (V) => ATA (I) **Changed**
346: GTA (V) => GTT (V)
347: GAG (E) => GAA (E)
350: TCC (S) => TCT (S)
354: ATA (I) => ATC (I)
355: TCC (S) => TCT (S)
357: TCA (S) => TCG (S)
358: ACA (T) => ACG (T)
361: GCA (A) => GCC (A)
364: GAG (E) => GAA (E)
365: TTT (F) => TTC (F)
367: GTG (V) => GTA (V)
369: GTG (V) => GTC (V)
370: TGC (C) => TGT (C)
371: TCC (S) => TCT (S)
376: TGC (C) => TGT (C)
379: GCA (A) => GAG (E) **Changed**
383: CCA (P) => CCG (P)
389: AAT (N) => AAC (N)
391: CCA (P) => CCG (P)
392: GCA (A) => GCG (A)
394: CAC (H) => CAT (H)
397: CTT (L) => CTC (L)
401: GAT (D) => GAC (D)
402: ATA (I) => ATT (I)
404: ACA (T) => GCT (A) **Changed**
406: GCA (A) => GCG (A)
408: TCT (S) => TCA (S)
413: ATT (I) => ATC (I)
416: GGA (G) => GGT (G)
417: GTA (V) => GTG (V)
419: TTA (L) => CTG (L)
420: ATT (I) => GTT (V) **Changed**
421: GTT (V) => GTC (V)
424: GCT (A) => GCA (A)
425: GCC (A) => GCA (A)
426: TTA (L) => CTG (L)
428: TTA (L) => CTA (L)
429: ATT (I) => ATC (I)
436: TTT (F) => TTC (F)
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