

Table S1. Mutation frequency at each nucleotide in the J_H4 intron from C57BL/6 mice

Position	Nucleotide	# Mut.	Mut. Freq.	Position	Nucleotide	# Mut.	Mut. Freq.	Position	Nucleotide	# Mut.	Mut. Freq.	Position	Nucleotide	# Mut.	Mut. Freq.	Position	Nucleotide	# Mut.	Mut. Freq.
1	G	3	0.00105	101	T	2	0.00070	201	T	1	0.00035	301	A	5	0.00174	401	G	5	0.00174
2	G	0	0.00000	102	G	3	0.00105	202	G	1	0.00035	302	T	3	0.00105	402	G	4	0.00140
3	T	0	0.00000	103	A	4	0.00140	203	G	0	0.00000	303	T	4	0.00140	403	A	2	0.00070
4	A	24	0.00837	104	G	5	0.00174	204	A	5	0.00174	304	T	4	0.00140	404	G	7	0.00244
5	A	3	0.00105	105	A	5	0.00174	205	G	3	0.00105	305	T	7	0.00244	405	T	4	0.00140
6	G	15	0.00523	106	G	5	0.00174	206	T	2	0.00070	306	C	2	0.00070	406	G	1	0.00035
7	A	13	0.00454	107	A	2	0.00070	207	C	1	0.00035	307	A	2	0.00070	407	G	0	0.00000
8	A	34	0.01186	108	A	14	0.00488	208	C	0	0.00000	308	G	3	0.00105	408	G	0	0.00000
9	T	2	0.00070	109	G	18	0.00628	209	C	3	0.00105	309	T	4	0.00140	409	G	18	0.00628
10	G	1	0.00035	110	T	5	0.00174	210	T	1	0.00035	310	T	5	0.00174	410	C	0	0.00000
11	G	3	0.00105	111	T	1	0.00035	211	G	1	0.00035	311	T	5	0.00174	411	A	5	0.00174
12	C	4	0.00140	112	G	1	0.00035	212	G	2	0.00070	312	T	2	0.00070	412	C	5	0.00174
13	C	1	0.00035	113	G	2	0.00070	213	A	4	0.00140	313	T	5	0.00174	413	T	6	0.00209
14	T	1	0.00035	114	G	12	0.00419	214	T	3	0.00105	314	A	10	0.00349	414	T	6	0.00209
15	C	2	0.00070	115	A	6	0.00209	215	G	2	0.00070	315	G	7	0.00244	415	T	1	0.00035
16	T	2	0.00070	116	A	7	0.00244	216	A	2	0.00070	316	A	3	0.00105	416	C	3	0.00105
17	C	6	0.00209	117	A	8	0.00279	217	T	12	0.00419	317	A	15	0.00523	417	T	6	0.00209
18	C	6	0.00209	118	T	11	0.00384	218	G	0	0.00000	318	T	8	0.00279	418	T	2	0.00070
19	A	4	0.00140	119	A	12	0.00419	219	G	3	0.00105	319	A	8	0.00279	419	T	4	0.00140
20	G	10	0.00349	120	A	12	0.00419	220	G	10	0.00349	320	A	5	0.00174	420	A	2	0.00070
21	G	1	0.00035	121	A	13	0.00454	221	A	2	0.00070	321	A	4	0.00140	421	G	6	0.00209
22	T	0	0.00000	122	C	17	0.00593	222	T	5	0.00174	322	A	5	0.00174	422	A	1	0.00035
23	C	3	0.00105	123	T	1	0.00035	223	A	12	0.00419	323	G	12	0.00419	423	T	2	0.00070
24	T	12	0.00419	124	G	2	0.00070	224	G	0	0.00000	324	T	4	0.00140	424	T	3	0.00105
25	T	3	0.00105	125	T	0	0.00000	225	G	0	0.00000	325	A	32	0.01117	425	T	1	0.00035
26	T	11	0.00384	126	C	6	0.00209	226	G	0	0.00000	326	T	8	0.00279	426	G	2	0.00070
27	A	10	0.00349	127	T	5	0.00174	227	A	5	0.00174	327	T	12	0.00419	427	T	1	0.00035
28	T	11	0.00384	128	A	13	0.00454	228	C	0	0.00000	328	A	10	0.00349	428	G	0	0.00000
29	T	4	0.00140	129	G	0	0.00000	229	T	2	0.00070	329	G	4	0.00140	429	A	4	0.00140
30	T	3	0.00105	130	G	0	0.00000	230	T	3	0.00105	330	T	13	0.00454	430	C	1	0.00035
31	T	5	0.00174	131	G	6	0.00209	231	T	4	0.00140	331	T	4	0.00140	431	G	1	0.00035
32	T	2	0.00070	132	A	4	0.00140	232	G	0	0.00000	332	G	2	0.00070	432	A	3	0.00105
33	A	17	0.00593	133	T	3	0.00105	233	G	0	0.00000	333	T	8	0.00279	433	A	6	0.00209
34	A	10	0.00349	134	C	5	0.00174	234	A	4	0.00140	334	G	4	0.00140	434	T	1	0.00035
35	C	19	0.00663	135	T	1	0.00035	235	G	0	0.00000	335	G	4	0.00140	435	G	1	0.00035
36	C	7	0.00244	136	C	2	0.00070	236	G	4	0.00140	336	A	6	0.00209	436	T	6	0.00209
37	T	1	0.00035	137	A	7	0.00244	237	C	2	0.00070	337	A	8	0.00279	437	T	0	0.00000
38	T	7	0.00244	138	G	1	0.00035	238	T	5	0.00174	338	T	21	0.00733	438	C	0	0.00000
39	T	3	0.00105	139	A	4	0.00140	239	C	3	0.00105	339	A	12	0.00419	439	C	1	0.00035
40	G	55	0.01919	140	G	4	0.00140	240	A	3	0.00105	340	T	4	0.00140	440	G	10	0.00349
41	T	4	0.00140	141	C	10	0.00349	241	T	12	0.00419	341	A	17	0.00593	441	C	1	0.00035
42	T	8	0.00279	142	C	2	0.00070	242	T	6	0.00209	342	C	18	0.00628	442	A	2	0.00070
43	A	17	0.00593	143	T	2	0.00070	243	T	0	0.00000	343	T	4	0.00140	443	C	0	0.00000
44	T	5	0.00174	144	T	7	0.00244	244	G	0	0.00000	344	T	1	0.00035	444	T	5	0.00174
45	G	2	0.00070	145	T	6	0.00209	245	A	4	0.00140	345	C	1	0.00035	445	A	13	0.00454
46	G	2	0.00070	146	A	8	0.00279	246	A	15	0.00523	346	A	6	0.00209	446	G	2	0.00070
47	A	12	0.00419	147	G	5	0.00174	247	G	4	0.00140	347	G	0	0.00000	447	A	3	0.00105
48	G	57	0.01989	148	G	0	0.00000	248	A	5	0.00174	348	G	1	0.00035	448	T	6	0.00209
49	T	4	0.00140	149	A	5	0.00174	249	A	5	0.00174	349	A	4	0.00140	449	T	1	0.00035
50	T	6	0.00209	150	C	2	0.00070	250	G	9	0.00314	350	C	1	0.00035	450	G	6	0.00209
51	T	5	0.00174	151	A	2	0.00070	251	A	2	0.00070	351	C	5	0.00174	451	T	0	0.00000
52	T	3	0.00105	152	G	4	0.00140	252	T	5	0.00174	352	A	4	0.00140	452	T	4	0.00140
53	C	9	0.00314	153	A	2	0.00070	253	G	8	0.00279	353	C	3	0.00105	453	T	6	0.00209
54	T	1	0.00035	154	T	9	0.00314	254	C	20	0.00698	354	C	3	0.00105	454	A	5	0.00174
55	G	2	0.00070	155	T	12	0.00419	255	T	10	0.00349	355	T	1	0.00035	455	A	3	0.00105
56	A	6	0.00209	156	A	9	0.00314	256	A	16	0.00558	356	C	2	0.00070	456	A	3	0.00105
57	G	68	0.02373	157	T	1	0.00035	257	A	2	0.00070	357	T	6	0.00209	457	A	6	0.00209
58	C	16	0.00558	158	C	6	0.00209	258	A	7	0.00244	358	G	2	0.00070	458	C	12	0.00419
59	A	10	0.00349	159	T	1	0.00035	259	A	9	0.00314	359	T	2	0.00070	459	T	5	0.00174
60	T	7	0.00244	160	C	8	0.00279	260	C	15	0.00523	360	G	0	0.00000	460	T	0	0.00000
61	T	4	0.00140	161	C	4	0.00140	261	A	4	0.00140	361	A	0	0.00000	461	C	1	0.00035
62	G	26	0.00907	162	A	5	0.00174	262	A	19	0.00663	362	C	4	0.00140	462	A	5	0.00174
63	C	44	0.01535	163	C	1	0.00035	263	A	4	0.00140	363	A	3	0.00105	463	T	2	0.00070
64	A	9	0.00314	164	A	4	0.00140	264	C	2	0.00070	364	G	13	0.00454	464	T	9	0.00314
65	G	6	0.00209	165	T	1	0.00035	265	C	7	0.00244	365	C	9	0.00314	465	T	0	0.00000
66	A	3	0.00105	166	C	12	0.00419	266	T	5	0.00174	366	A	6	0.00209	466	G	2	0.00070
67	C	10	0.00349	167	T	3	0.00105	267	A	27	0.00942	367	T	3	0.00105	467	T	5	0.00174
68	T	8	0.00279	168	T	4	0.00140	268	T	3	0.00105	368	T	7	0.00244	468	T	2	0.00070
69	A	17	0.00593	169	T	2	0.00070	269	G	0	0.00000	369	T	2	0.00070	469	G	0	0.00000
70	A	25	0.00872	170	G	2	0.00070	270	G	13	0.00454	370	A	5	0.00174	470	G	0	0.00000
71	T	4	0.00140	171	A	4	0.00140	271	C	2	0.00070	371	T	14	0.00488	471	A	2	0.00070
72	C	16	0.00558	172	A	11	0.00384	272	T	2	0.00070	372	A	11	0.00384	472	A	3	0.00105
73	T	3	0.00105	173	A	6	0.00209	273	G	0	0.00000	373	C	12	0.00419	473	G	3	0.00105
74	T	2	0.00070	174	A	4	0.00140	274	G	0	0.00000	374	A	1	0.00035	474	G	0	0.00000
75	G	17	0.00593	175	A	12	0.00419	275	A	6	0.00209	375	G	7	0.00244	475	A	2	0.00070
76	G	6	0.00209	176	C	17	0.00593	276	G	0	0.00000	376	T	9					