Supplemental Table S1.

V gene	RSS sequence	RIC score	P/F
7183.1PG.1	cacaatgagcaaaagttactgtgagctcaaactaaaacc	-30.24	PASS
Q52.1PG.2	cacctggggacaagcaacatcaccattagtcacacatc	-71.34	FAIL
7183.2.3	cacaatgagcaaaagttactgtgagctcaaactaaaacc	-30.24	PASS
Q52.2.4	cacagtgagggaagtccattatgaacttgaacaaaaatt	-28.06	PASS
7183.4.6	cacaatgaggaaatgttactgtgagctcaaactaaaacc	-29.54	PASS
Q52.3.8	cacaatgagagaagtccattgtgagcattcacaaatact	-43.94	PASS
7183.6PG.9	cacacacatacacacacacacacacacacacacacac	-69.41	FAIL
7183.7.10	cacaatgaggaaatgttactgtgagctcaaactaaaacc	-29.54	PASS
PG.1.11	cactgggcaccttcatacagagaattctgagtcagaaac	-74.53	FAIL
Q52.4PG.12	cacactaagggaactcccatttgagcataaaaaaaaatt	-44.18	PASS
Q52.5.13	cacagtgagggaagtccattatgaacttgaacaaaaatt	-28.06	PASS
7183.9.15	cacagtgagtgaatgttactgtgagctcaaactaaaacc	-27.03	PASS
Q52.6PG.17	cacactaagggaactcccatttgagcataaaaaaaaaaa	-48.07	PASS
Q52.7.18	cacagtgagggaagtccattatgaacctgaacaaaaatt	-38.86	PASS
7183.12.20	cacaatgaggaaatgttactgtgagctcaaactaaaacc	-29.54	PASS
Q52.8.22	cacagtgtgggaagtccaatgtgagcctgcacaaatact	-26.51	PASS
7183.13PG.24	cacagagaatggatgttggtgtgggctcagaaacaacca	-55.31	PASS
7183.14.25	cacaatgaggaaatgttactgtgagctcaaactaaaacc	-29.54	PASS
7183.16.27	cacagtgagtgaatgttactatgagctttaacacaaacc	-42.57	PASS
Q52.9.29	cacagtgagggaagtccaatgtgagcctgcacaaatact	-25.18	PASS
PG.6.32	cactgggcaccttcaaacagagaattctgagtcagaaat	-74.72	FAIL
Q52.10.33	cacagtgagggaagtccaatgtgagcctgcacaaatact	-25.18	PASS
Q52.11.34	cacagtgaaaaaaagtccagtgtgaacctgaacaaaagc	-57.62	PASS
7183.18.35	cacagtgagtgaatgttactgtgaggacaagcacaaact	-41.24	PASS
7183.19.36	cacagtgagtgaatattactgtgagctaaaacacaaacc	-40.04	PASS
7183.20.37	cacagtgagggactgttactgtgagctcaaacacaaacc	-40.44	PASS
7183.21PG.38	cactgggcacctgcaaacagagaacacttttcagaaaac	-73.24	FAIL
Q52.12PG.39	cactgagaaaacttcagtctgagcctaaacaaacaaata	-73.12	FAIL
Q52.13.40	cacagtgagggaagtccagtgtgaacttgcacaaaaacc	-32.24	PASS
S107.1.42	cacagtgagaggacgtcattgtgagcccagacacaaacc	-24.62	PASS
S107.2PG.43	cacagtgagggtgtgagccttgaaacaaacctcattgca	-39.35	PASS
SM7.1.44	cacagtcttgcaaacacatcctgagagtgtcataaacca	-38.08	PASS
X24.1PG.45	cacagtgaggaaatctcagtttgtacccagacatgaacc	-31.47	PASS
36-60.1.46	cacagtgtggagtcttcactgtgagcccagacaaaaacc	-27.24	PASS
VH11.1.48	cacaatgaatggacttcccggtgaaactagacataaacc	-44.13	PASS
SM7.2.49	cacagtgttgcaaccacatcctgagtgtgtcagaaacca	-17.41	PASS
X24.2.50	cacagtgaggaaatctcagtttttacccagacatgaacc	-33.69	PASS
36-60.2PG.51	cacagtgtggagtcttcactgtgagcccagacaaaaacc	-27.24	PASS
VH11.2.53	cacaatgaatggacttccctgtgaaactagacataaacc	-41.3	PASS
SM7.3.54	cacagtgttgcaaccacatcctgagtgtgtcagaaacca	-17.41	PASS
VH16.1.55	cacagtgtgaaaagtgaattgtgagctcagacaaaaccc	-39.58	PASS
VGAM3.8-1-57	cacagtgtaaaaaccacatcctgagggtgtcagaaacca	-29.5	PASS
PG.11.58	cacagtgagggacctttgtgtgagcccagacataaactt	-50.66	PASS
VGAM3.8-2-59	cacagtgtgaaaaccacatcctgagggtgtcagaaacca	-29.5	PASS
PG.12.60	cacagtgagggacctttgtgtgagcccagacataaactt	-50.66	PASS
VGAM3.8.3.61	cacagtgtgaaaaccacatcctgagggtgtcaaaaacca	-41.21	PASS
S107.3.62	cacagtgagggtacttcagtgtgagcctagacacaaacc	-21.82	PASS
SM7.4.63	cacagtcttgcaaccacatcctgagagtgtcagaaacca	-26.2	PASS
36-60.3.64	cacaatgtggagtcttcagtgtgagcccagacataaacc	-29.3	PASS
S107.4.65	cacagcgagggtacttcagtgtgagcctagaaaaaaacc	-25.26	PASS
36-60.4.66	cacagtattgagtctccagtgtgagcccagacaaaaacc	-29.17	PASS
36-60.5.67	cacagtgtggaatcttcagtgtgagcccagatgtaaacc	-38.03	PASS
3609N.1PG.68	cacagtgagggatagataaactgtgtgaacccaaacaca	-57.51	PASS
36-60.6.70	cacagtgtggagtcttcactgtgagcccagacataaacc	-29.19	PASS
VGAM3.8-4-71	cacagtgtgaaaaccacatcctgagtgtgtcagaaacca	-27.37	PASS
36-60.7PG.72	cacaaggtggtgtcttcagtgtgagcccagaaataaacc	-34.82	PASS

PG.14.73	cacagtgaggaaattaaactgtgagttcagacacaaaac	-42.38	PASS
36-60.8.74	cacagtgtggagtcttcagtgtaggcccagacataaacc	-31.76	PASS
3609N.2.77	cacactgtggggccatcaatgagaacccatacacaaacc	-31.24	PASS
VH12.1.78	cacaatgagaagattccaatgtcaacccacacacaaacc	-29.11	PASS
J606.1.79	cacagtgagaagtcttcattgtgagtctagacacaaact	-30.29	PASS
J606.2.80	cacagtaagaagccttcattgtgaatctatccaccaacc	-50.06	PASS
J606.3.81	cacagtgagaagccttcattgtgaatacatccacaaacc	-40.12	PASS
J606.4.82	cacagtgagaaggctttattatgaacctatccacaaacc	-43.91	PASS
J606.5.83	cacagtgagaagtcttcattgtgatcctagacacaaacc	-34.96	PASS
3609.1.84	cacagtggtgcaaccgtgacccacagctgtgcaatattt	-50.82	PASS
J558.1.85	cacagtgttgtgaccacatcctgagtatgtcagaaaact	-29.9	PASS
VH10.1.86	cacagtgtggaatcttcagtgtgagcctagacacaaacc	-26.54	PASS
PG.17.87	cacatgtagaaagaaaggcagagagggtggcattgtcat	-70.07	FAIL
J558.2.88	cacagtggtgcaaccacatcccgactgtgtcagaaaccc	-21.85	PASS
J558.3.90	cacagtgttgtgaccacatcctgagtgtgtcagaaaact	-19.5	PASS
VH10.3.91	cacagtgtggaatcttcagtgtgagcctagacacaaacc	-26.54	PASS
PG.18.92	cacatgtagaaagaaaggcagagtggatggcattgcca	-72.9	FAIL
J558.4.93	cacagtggtgcaaccacatcccgactgtgtcagaaaccc	-21.85	PASS
J558.5PG.94	cactgtgttacaaccacatactgattgtgtcagaaaccc	-32.63	PASS
VH15.1.95	cacagtgtaacagctcatatctgaagcatgtcaaaaagt	-54.74	PASS
J558.6.96	cacagtgttgtaaccacatcctgagtgtgtcagaaactc	-18.52	PASS
J558.8.98	cacagtgctacaaccacatcctgagtgtgtcagaaacca	-22	PASS
J558.9.99	cacagtgttgtgaccacatcctgagtgtgtcagaaaccc	-16.92	PASS
J558.10PG.100	cacagtgttgaaaccacatcctgagagtgtcagaaaccc	-18.37	PASS
J558.11PG.101	cacagttttgtaaccacatcccgaatgtgtcataaaccc	-37.85	PASS
J558.12.102	cacagtgttgaaaccacatcctgactgtgtcagaaaccc	-19.75	PASS
J558.13.103	cacagtgctgcaaccacctcctgagtgtgtcagaaaccc	-20.96	PASS
J558.15PG.105	cacagtgttgtaaccacagcctgagtgtgtcagaaaact	-18.93	PASS
J558.16.106	cacagtgctacaaacacatcctgagtgtgtcagaaacct	-21.33	PASS
J558.17PG.107	cacagttgttataaccacatcctttgtgtgacagaaacc	-46.6	PASS
J558.18.108	cacagtgctacaaacacatcctgagtgtgtcagaaaact	-22.65	PASS
J558.19.109	cactgtactacaaacacatccttagtgtgtcagaaaact	-33.31	PASS
J558.20PG.110	cacagtgctacaaacacatcctgagtgtgtcagaaacca	-22.16	PASS
J558.21PG.111	cacagtgttgtaaccacagcctgagtatgtcagaaaact	-29.04	PASS
J558.22.112	cacagtgctacaaacacatcctcagtgtgtcagaaatcc	-23.61	PASS
J558.23.113	cacagtgttgaaaccacatcctgactgtgtcagaaaccc	-19.75	PASS
J558.24PG.114	cacctcctgagtgtgtcagaaaccctggaggaagaggag	-75.72	FAIL
J558.25PG.115	cacagtgttgtaaccacatcttgagtgtgtcagaaaacc	-20.18	PASS
J558.26.116	cacagtgctacaaacacatcctgagtgtgtcagaaaccc	-20.08	PASS
J558.27PG.117	caaagtgttataaccacatcctgtgtgtgacagaaaacc	-37.33	PASS
J558.28PG.118	cacggtgttgtaaccacatcctgagtgtgtcagaaaacc	-23.44	PASS
J558.29PG.119	cacatcatgagtatgttagtaatcccggaggagggcaaa	-74.21	FAIL
J558.30PG.120	cacagtgttgtaaccatatcctgagtgtgtcagaaaaca	-21.77	PASS
J558.31.121	cacagtgctacaaacacatcctgagtgtgtcagaaaccc	-20.08	PASS
J558.32PG.122	cacagtgctacaaatacatcctgagagtgtcagaaatcc	-23.2	PASS
J558.33PG.123	cacagtgctacaaacgcgtcctgagtgtgtcagaaaact	-28.36	PASS
J558.34.124	cacagtgctacaaacacatcctgagtgtgtcagaaatcc	-21.18	PASS
J558.35PG.125	cacatcctttgtgtgacagaaaccctggaggtacagaaa	-71.21	FAIL
J558.36.126	cacagtgctacaaacacatcctgagtgtgtcagaaaact	-22.65	PASS
J558.37.127	cactgtactacaaacacatccttagtgtgtcagaaaact	-33.31	PASS
J558.38PG.128	cacagtgttataaccacatcctgtatgatacaaaaactc	-39.13	PASS
J558.39.129	cacagtgttgtaaccacatcctgagtgtgtcagaaaacc	-17.39	PASS
J558.40PG.130	cacagtgctgcaaccacatcctgagtgtgtcagaaaccc	-18.79	PASS
J558.41PG.131	cagtgctgtaaccacatccggagtgtgtcagtaatactg	-74.04	FAIL
J558.42.132	cacagtgttgtaaccacatcctgaatgtgtcagaaacct	-18.59	PASS
J558.43.133	cacggtgctacaaacacaccctgagtgagtcagaaaaca	-42.07	PASS
J558.44PG.134	cacagtttgtaaccacataccgagagtgtcagaaaccct	-61.46	FAIL
J558.45PG.135	cacattctgaatgtgtcagaaatcttggaggagcatgaa	-72.54	FAIL
J558.46PG.136	cacagtgttataagcacatgctctgtgtgtcaaaacccc	-42.05	PASS

J558.47.137	cacagtgttgcaaccacatcctgtgtgtgtcaaaaaacc	-29.81	PASS
3609.3.139	cacattgacacagagtcagtttacagctgtgcaatagtt	-52.42	PASS
J558.48PG.140	cacagtggtaaaatcacatcctgagtgggacagaaactc	-42.28	PASS
J558.49.141	cacagtgttataaccacatcctgagtgtgtcagaaactc	-19.64	PASS
3609.4.142	cacattgtcatagcctcagttatcagctgtatagtaatt	-54.93	PASS
J558.50.143	cacagtgttgcaaccacatcctgagagtgtcagaaaccc	-16.49	PASS
J558.51PG.144	cacagtgtttcaaccataacctgagtgtgccataaactc	-34.1	PASS
J558.52.145	cacagtgttgtaaccacatcctgagagtgtcagaaaccc	-17.23	PASS
J558.53.146	cacagtgttgcaaccacatcctgagagtgtcagaaaccc	-16.49	PASS
J558.54.148	cacagtgttgtaaccacatcctgagtgtgtcagaaaccc	-16.07	PASS
J558.55.149	cacagtgttgcaaccacatcctgagagtgtccaaaaccc	-28.21	PASS
J558.56.150	cacagtgttacaaccatatcctgagtgtgtcagaaacac	-21.6	PASS
3609.6PG.151	cacattgacacagcctcagttttcatctgtacattattt	-51.56	PASS
J558.57PG.152	catagtgtttcaaccacaacctgagtgtaccataaactc	-39.76	PASS
3609.7.153	cacattgtcacagcctcagttataagctgtacagtaatt	-52.69	PASS
J558.58.154	cacagtgttttaaccacatcctgagtgagtcagaaacac	-23.51	PASS
J558.59.155	cacagtgttgcaaccacatcctgagagtgtcagaaaccc	-16.49	PASS
J558.61.157	cacagcgttgtaaccacatcctgagagtgtcagaaaccc	-19.25	PASS
J558.62PG.158	cacagtgttgcaaccacaacctgagagtgtcagaaaccc	-28.21	PASS
J558.63PG.159	cagtgttgtaaccacatcctgagtgtgtcagaaaccctg	-74.37	FAIL
J558.64.162	cacagtgttgtaaccacatcccgagtgtgtcagaaaccc	-18.5	PASS
J558.65.163	cacagtgttgcaaccacatcctgagagtgtcagaaaccc	-16.49	PASS
J558.66.165	cacagtgttgcaaccacatcctgagtgtgtcagaaaccc	-15.33	PASS
J558.67.166	cacagtgttgcaaccacatcctgagagtgtctgaaaacc	-28.21	PASS
3609.10PG.167	cacagccccagttttcagctgtacagtatttcaggctgg	-75.44	FAIL
3609.11.169	cacattgtcacagcctcagttataagctgtacagtaatt	-52.69	PASS
J558.69.170	cacagtgttgtaaccacatcccgagtgtgtcagaaaccc	-18.5	PASS
J558.70PG.171	cacagtgttgtaaccacatcctgagtgtgtcacaaaacc	-27.78	PASS
J558.72.173	cacagtgttgcaaccacatcctgagagtgtcagaaaccc	-16.49	PASS
3609.12.174	cacattgatacagcttaagttttcagctgtacagtattt	-57.25	PASS
J558.73PG.175	cacagtgttgtaaccacatcctgagtgtgtcagaaaccc	-16.07	PASS
J558.74.176	cacagtgttgtaaccacatcccgagtgtgtcagaaaccc	-18.5	PASS
J558.75.177	cacagtgttgcaaccacatcctgagagtgtcagaaaacc	-17.81	PASS
J558.76PG.179	cacagtgttgtaaccacatcctgagtgtgtcagaaaccc	-16.07	PASS
J558.77.180	cacagtgttgtaaccacatcctgagagtgtcagaaaccc	-17.23	PASS
J558.78.182	cacagtgttacaaccacatcctgagtgtgtcagaaaccc	-16.45	PASS
3609.15PG.183	catagcctcagttttcagctgtacagtatttcaggctgg	-81.1	FAIL
J558.79.184	cacagtgttacaaccacatcctgagtgtgtcagaaaccc	-16.45	PASS
J558.80.186	cacagtgttgtaaccacatcctgagtgtgtcagaaacac	-18.91	PASS
J558.81.187	cacagtgttgtaaccacatcctgagtgtgtcagaaaccc	-16.07	PASS
J558.82PG.188	cacagtgttgtaaccacatcctgagtgtatcagaaaccc	-18.37	PASS
J558.83.189	cacagtgttgcaaccacatcctgagtgtgtcagaaatcc	-16.42	PASS
J558.84.190	cacagtgttgtaaccacatcctgagtgtgtcagaaaacc	-17.39	PASS
J558.85.191	cacagtgttacaaccacatcctgagagtgtcagaaaccg	-20.59	PASS
J558.86.192	cacagtgttgtaaccacatcctgagtgtgtcagaaatcc	-17.16	PASS
J558.87.193	cacagtgttacaaccacatcctgagtgtgtcagaaaccc	-16.45	PASS
J558.88.194	cacagtgttgtaaccacatcctgagtgtgtcagaaatcc	-17.16	PASS
J558.89PG.195	cacagtgctacaaacacatcctgagtgtgtcagaaaccc	-20.08	PASS

Supplemental Table S1. V_H gene RIC scores

All predicted RSS sequences and RIC scores by DNAgrab for V_H genes are listed. A pass score for an RSS is RIC ≥ -58.45.