Supplementary Materials

Table S1: Genome data summary. All Brain Lower Glioma samples are Pilocytic Astrocytoma samples. See Subsection 3.1 for the data source definitions.

Cancer Type	Total Counts	# of Samples	Source
B Cell Lymphoma	43626	24	A1-2
Bone Cancer	36374	98	B1
Brain Lower Grade Glioma	3572	101	A1, C1
Breast Cancer	254381	119	A1, D1
Chronic Lymphocytic Leukemia	19489	134	A1, E1-2
Esophageal Cancer	1064	17	F1
Gastric Cancer	1996615	100	G1
Liver Cancer	3017487	389	H1-2
Lung Cancer	449527	24	I1
Medulloblastoma	44689	100	J1
Ovarian Cancer	668918	84	K1
Pancreatic Cancer	5087	100	L1
Prostate Cancer	29142	5	M1
Renal Cell Carcinoma	483329	94	N1
All Cancer Types	7053300	1389	Above

Table S2: Occurrence counts for the first 48 mutation categories for the genome data summarized in Table S1 aggregated by cancer types. X1 = B Cell Lymphoma, X2 = Bone Cancer, X3 = Brain Lower Grade Glioma, X4 = Breast Cancer, X5 = Chronic Lymphocytic Leukemia, X6 = Esophageal Cancer, X7 = Gastric Cancer, X8 = Liver Cancer, X9 = Lung Cancer, X10 = Medulloblastoma, X11 = Ovarian Cancer, X12 = Pancreatic Cancer, X13 = Prostate Cancer, X14 = Renal Cell Carcinoma. The mutations are encoded as follows: XYZW = Y > W: XYZ.

Mutation	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14
ACAA	466	716	59	3024	286	11	24884	51929	15865	801	13831	36	577	10734
ACCA	355	528	41	2600	249	3	14361	15227	9217	681	11192	42	422	4952
ACGA	43	112	6	446	55	4	2253	51156	3567	115	1804	9	59	1231
ACTA	309	577	38	2201	195	12	15833	33385	10038	557	10508	20	380	5573
CCAA	420	538	29	2814	238	11	21980	9507	19569	579	10943	59	459	7899
CCCA	245	361	30	2149	147	6	19624	26869	16889	424	9720	45	336	6037
CCGA	77	75	22	470	35	7	4034	8695	4995	105	1644	29	67	1069
CCTA	418	502	26	2380	211	10	43418	2967	15930	544	10037	80	388	6825
GCAA	452	624	41	2144	244	16	26007	42508	11084	532	6835	33	419	4795
GCCA	234	346	18	1677	149	6	10594	32252	9087	337	6423	33	247	3563
GCGA	67	66	7	375	29	5	2649	17426	3607	94	1295	17	67	853
GCTA	351	463	13	1684	197	11	21205	33670	7502	345	6543	30	332	3637
TCAA	584	628	38	5873	233	11	24288	33919	13358	766	9816	54	582	8973
TCCA	313	472	36	3735	145	19	17372	139576	13140	567	9697	53	479	7388
TCGA	66	57	7	543	28	4	3168	11569	2385	128	1334	17	87	1097
TCTA	916	849	54	4938	376	25	43364	20943	14028	1111	12202	56	817	8611
ACAG	232	260	19	2124	162	1	10057	42216	4369	445	8653	18	197	4551
ACCG	143	148	11	1307	92	4	4818	6202	2088	256	4506	21	188	2687
ACGG	48	82	10	641	32	2	1606	27957	953	121	2172	5	46	837
ACTG	290	240	25	2278	113	8	8670	90212	3091	394	8460	23	237	4457
CCAG	153	160	13	1726	78	7	4942	8975	3233	175	5559	30	125	2474
CCCG	131	154	14	1391	75	2	4117	27928	2902	163	4857	18	142	2601
CCGG	31	65	14	597	20	0	1176	87975	1210	122	1769	11	55	532
CCTG	213	227	19	2425	92	11	6840	14272	3348	238	7943	28	204	3846
GCAG	106	120	8	1128	52	2	3844	53180	2546	196	3621	12	95	1847
GCCG	147	148	7	1142	80	3	4174	11783	2406	160	3363	16	112	1630
GCGG	25	42	2	525	33	1	776	52658	1113	52	918	5	27	423
GCTG	225	146	9	1650	81	5	5116	43761	2187	177	5418	14	135	2045
TCAG	391	266	22	16099	79	46	12809	12172	8882	265	13033	49	359	3968
TCCG	279	185	18	4896	95	14	7208	41020	4566	244	7977	30	264	4441
TCGG	30	52	11	794	13	2	1294	9554	992	64	1423	11	33	553
TCTG	660	444	44	21847	202	53	21720	3519	10841	449	20292	75	563	7668
ACAT	950	931	97	3557	440	14	46364	28569	6530	1137	13367	66	542	8872
ACCT	482	482	49	1875	265	14	16724	47067	3418	590	6543	100	285	4786
ACGT	1085	2373	289	4978	792	70	78681	17833	3830	3694	17475	585	1603	9034
ACTT	603	628	57	2570	263	11	21545	63195	4179	827	10578	54	380	6567
CCAT	729	542	74	3344	294	16	19611	23743	7430	801	8689	79	428	7106
CCCT	607	545	78	2443	337	10	18553	52051	6155	810	7554	70	325	6038
CCGT	845	1095	180	3489	483	70	53496	7282	4362	1983	11157	498	888	4824
CCTT	784	774	124	3468	380	13	22137	29223	7932	854	11714	69	430	8606
GCAT	615	531	65	2815	285	16	31548	50399	4166	711	8492	107	420	6069
GCCT	583	484	64	2256	295	14	34372	10858	3715	825	7784	120	402	5474
GCGT	930	1382	152	3870	546	60	75814	35864	3544	2428	13447	629	1294	5232
GCTT	660	585	78	2254	316	15	26554	49322	3836	741	8329	93	378	5765
TCAT	1531	761	86	25251	268	69	30161	11611	13414	780	13880	131	681	9723
TCCT	1172	685	73	7268	319	25	23799	31779	7136	859	10287	112	544	8833
TCGT	628	903	127	4510	281	58	33759	53275	2998	1553	8055	300	708	3772
TCTT	1466	813	57	13615	313	43	29570	21922	11432	859	12692	79	662	8933

Table S3: Table S2 continued: occurrence counts (aggregated by cancer types) for the next 48 mutation categories.

Mutation	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14
ATAA	385	382	22	1375	248	2	9613	35715	3957	315	5776	7	313	9726
ATCA	241	274	13	1388	191	6	9419	7570	1917	235	4439	18	214	2973
ATGA	232	344	21	1459	211	4	7666	48117	3962	228	5983	18	197	7703
ATTA	580	516	29	2262	301	5	30067	32078	2928	590	9131	16	523	5833
CTAA	185	217	9	1009	98	3	5551	9978	4331	151	4473	10	175	12963
CTCA	211	256	17	1535	118	6	14584	41504	3430	224	6343	21	184	6465
CTGA	219	227	26	1406	146	12	8654	8508	7905	210	6473	28	207	14356
CTTA	379	408	27	1716	162	6	24273	2400	4255	303	8578	24	221	8077
GTAA	180	162	10	797	82	1	4092	36890	3147	104	3254	5	138	5769
GTCA	174	147	8	791	80	1	5919	25736	1399	113	3026	10	79	1954
GTGA	156	145	9	948	102	10	6717	9623	4021	122	4233	8	135	3924
GTTA	181	272	14	1168	129	3	10065	43279	2112	200	5741	10	156	2579
TTAA	576	454	29	2192	256	2	20211	13356	4086	510	6936	16	499	11629
TTCA	158	202	17	1095	110	3	7296	75515	1766	222	4859	12	142	4966
TTGA	179	156	4	774	144	3	5147	5013	2912	140	3493	10	129	7897
TTTA	434	467	37	2298	289	3	27521	12174	3117	481	10786	8	417	10311
ATAC	910	792	84	3342	519	10	34145	35102	7884	865	14628	36	552	11060
ATCC	382	255	32	1439	192	7	14365	4444	1952	354	6071	22	206	2821
ATGC	572	526	51	2354	329	14	28630	16789	5325	534	10017	48	331	6561
ATTC	792	734	94	3340	457	11	22018	48320	4344	769	13211	38	503	6714
CTAC	456	283	30	1378	187	1	21942	9143	4198	301	5972	21	202	4855
CTCC	427	295	31	1670	197	5	31474	13443	2361	331	7202	48	163	3092
CTGC	531	328	29	1659	222	6	38742	59589	3845	360	6553	60	206	4024
CTTC	795	328	48	1828	316	12	73708	10381	3566	383	8088	48	239	4982
GTAC	452	378	30	1533	215	4	25980	46065	3605	462	6804	48	345	4411
GTCC	404	332	25	981	176	10	15268	17372	1619	299	4123	20	195	1823
GTGC	370	284	33	1233	189	8	24550	54718	2912	332	5851	48	211	2962
GTTC	511	447	46	1680	269	7	22803	46663	2547	532	7513	36	367	3575
TTAC	541	428	48	1819	297	2	22540	16834	3732	497	7741	25	372	6232
TTCC	606	383	44	1610	211	2	25505	42903	1979	473	7086	24	280	3847
TTGC	306	242	22	1079	185	9	17328	8016	2277	323	4419	24	210	2892
TTTC	818	437	60	2187	415	4	48109	2717	3140	617	10866	28	427	13766
ATAG	462	133	9	862	229	2	5956	20568	1055	164	3114	5	158	2747
ATCG	134	69	3	451	51	0	5214	50363	476	92	1335	10	93	1949
ATGG	196	136	11	941	76	3	5505	35331	1134	165	3935	5	116	2726
ATTG	580	155	17	1030	166	2	31252	58405	1010	177	3455	11	221	4941
CTAG	416	110	4	601	134	3	5035	29104	779	85	1932	3	87	1381
CTCG	219	91	16	759	71	4	14376	86003	695	96	2754	15	96	1628
CTGG	342	137	7	1165	140	4	12511	13036	1684	142	4488	19	142	2080
CTTG	1780	202	21	1560	344	5	142206	27191	1801	187	4424	38	171	2944
GTAG	224	82	3	617	78	0	2552	45734	746	87	1792	3	45	896
GTCG	132	53	4	667	43	0	3804	10333	542	53	1290	10	47	628
GTGG	183	102	12	2989	116	2	5256	21041	2874	171	5467	16	58	1313
GTTG	1090	113	14	1194	142	3	37454	46981	1106	174	3439	13	122	1423
TTAG	654	199	19	1021	260	1	7674	11096	1235	187	3327	14	158	2799
TTCG	167	96	13	725	79	2	8315	32124	740	130	2507	12	125	3312
TTGG	265	132	16	1124	121	7	11452	62446	1693	161	4480	8	142	2974
TTTG	1349	296	43	2144	403	4	77262	28801	2361	379	7679	39	353	11415

Table S4: Top 10 clusterings by occurrence counts (second column) in 150,000 runs (performed as 15 consecutive batches of 10,000 runs in each batch). Each run is based on 1,000 samplings (i.e., `num.try = 1000` in the R function `qrm.stat.ind.class()`; also, the target number of clusters is `k = 7`; see Appendix A for details). The columns "Cl-1" through "Cl-7" give the numbers of mutations in each cluster (the total number of mutations in each clustering is 96). The entries "–" correspond to clusterings with fewer than 7 clusters. Note that Clustering-C and Clustering-H have the same numbers of mutations in their 7 clusters; however, these two clusterings are different, i.e., equally-sized clusters contain different mutations. While there was slight variability in the placement (by occurrence counts) of the top 10 clusterings within the aforesaid 15 batches of 10,000 runs, Clustering-A through Clustering-J invariably were the top 10 in each batch. The weights are given in Tables 1 through S10 (for Clustering-A through Clustering-D) and 3 and 4 (for Clustering-A).

Name	Count	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6	Cl-7
Clustering-A	12085	8	8	10	15	16	18	21
Clustering-B	10962	7	8	8	12	15	17	29
Clustering-C	10788	8	8	11	15	16	17	21
Clustering-D	10328	8	8	15	16	18	31	–
Clustering-E	6499	7	8	8	12	15	18	28
Clustering-F	5451	8	8	15	17	17	31	–
Clustering-G	5421	8	8	10	15	17	17	21
Clustering-H	5302	8	8	11	15	16	17	21
Clustering-I	4602	8	8	10	15	21	34	–
Clustering-J	3698	8	8	15	31	34	–	–

Table S5: Weights for the first 48 mutation categories for the 7 clusters in Clustering-B (see Table S4). The conventions are the same as in Table 1.

Mutation	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6	Cl-7	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6	Cl-7
ACAA	0.00	0.00	0.00	0.00	6.55	0.00	0.00	0.00	0.00	0.00	0.00	6.55	0.00	0.00
ACCA	0.00	0.00	0.00	6.66	0.00	0.00	0.00	0.00	0.00	0.00	7.03	0.00	0.00	0.00
ACGA	0.00	0.00	0.00	0.00	0.00	0.00	3.07	0.00	0.00	0.00	0.00	0.00	0.00	2.91
ACTA	0.00	0.00	0.00	6.99	0.00	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00
CCAA	0.00	0.00	0.00	9.30	0.00	0.00	0.00	0.00	0.00	0.00	9.73	0.00	0.00	0.00
CCCA	0.00	0.00	0.00	7.52	0.00	0.00	0.00	0.00	0.00	0.00	7.93	0.00	0.00	0.00
CCGA	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00	0.00	0.00	0.00	0.00	2.51
CCTA	0.00	0.00	0.00	8.69	0.00	0.00	0.00	0.00	0.00	0.00	9.10	0.00	0.00	0.00
GCAA	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	4.65	0.00	0.00	0.00	0.00	0.00
GCCA	0.00	0.00	0.00	5.20	0.00	0.00	0.00	0.00	0.00	0.00	5.46	0.00	0.00	0.00
GCGA	0.00	0.00	13.81	0.00	0.00	0.00	0.00	0.00	0.00	13.89	0.00	0.00	0.00	0.00
GCTA	0.00	0.00	0.00	5.70	0.00	0.00	0.00	0.00	0.00	0.00	5.97	0.00	0.00	0.00
TCAA	0.00	0.00	0.00	0.00	6.26	0.00	0.00	0.00	0.00	0.00	0.00	6.21	0.00	0.00
TCCA	0.00	0.00	0.00	9.80	0.00	0.00	0.00	0.00	0.00	0.00	10.21	0.00	0.00	0.00
TCGA	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	12.24	0.00	0.00	0.00	0.00
TCTA	0.00	0.00	0.00	0.00	8.05	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00
ACAG	13.14	0.00	0.00	0.00	0.00	0.00	0.00	13.38	0.00	0.00	0.00	0.00	0.00	0.00
ACCG	0.00	0.00	0.00	0.00	0.00	0.00	2.76	0.00	0.00	0.00	0.00	0.00	0.00	2.91
ACGG	0.00	0.00	12.62	0.00	0.00	0.00	0.00	0.00	0.00	12.22	0.00	0.00	0.00	0.00
ACTG	17.06	0.00	0.00	0.00	0.00	0.00	0.00	17.11	0.00	0.00	0.00	0.00	0.00	0.00
CCAG	0.00	0.00	0.00	0.00	0.00	0.00	3.16	0.00	0.00	0.00	0.00	0.00	0.00	3.32
CCCG	0.00	0.00	0.00	0.00	0.00	0.00	3.22	0.00	0.00	0.00	0.00	0.00	0.00	3.24
CCGG	0.00	0.00	0.00	0.00	0.00	0.00	3.64	0.00	0.00	0.00	0.00	0.00	0.00	3.27
CCTG	0.00	0.00	0.00	0.00	0.00	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	4.51
GCAG	0.00	0.00	0.00	0.00	0.00	0.00	3.48	0.00	0.00	0.00	0.00	0.00	0.00	3.34
GCCG	0.00	0.00	14.79	0.00	0.00	0.00	0.00	0.00	0.00	15.62	0.00	0.00	0.00	0.00
GCGG	0.00	0.00	15.50	0.00	0.00	0.00	0.00	0.00	0.00	13.92	0.00	0.00	0.00	0.00
GCTG	0.00	0.00	0.00	0.00	0.00	0.00	3.82	0.00	0.00	0.00	0.00	0.00	0.00	3.78
TCAG	0.00	0.00	0.00	12.20	0.00	0.00	0.00	0.00	0.00	0.00	10.90	0.00	0.00	0.00
TCCG	0.00	0.00	0.00	5.76	0.00	0.00	0.00	0.00	0.00	0.00	5.60	0.00	0.00	0.00
TCGG	0.00	0.00	8.40	0.00	0.00	0.00	0.00	0.00	0.00	8.65	0.00	0.00	0.00	0.00
TCTG	0.00	0.00	0.00	16.63	0.00	0.00	0.00	0.00	0.00	0.00	15.02	0.00	0.00	0.00
ACAT	0.00	0.00	0.00	0.00	7.67	0.00	0.00	0.00	0.00	0.00	0.00	7.71	0.00	0.00
ACCT	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	5.02	0.00	0.00	0.00	0.00	0.00
ACGT	0.00	23.47	0.00	0.00	0.00	0.00	0.00	0.00	23.18	0.00	0.00	0.00	0.00	0.00
ACTT	0.00	0.00	0.00	0.00	5.43	0.00	0.00	0.00	0.00	0.00	0.00	5.47	0.00	0.00
CCAT	0.00	0.00	0.00	0.00	6.02	0.00	0.00	0.00	0.00	0.00	0.00	6.02	0.00	0.00
CCCT	0.00	0.00	0.00	0.00	5.59	0.00	0.00	0.00	0.00	0.00	0.00	5.63	0.00	0.00
CCGT	0.00	17.66	0.00	0.00	0.00	0.00	0.00	0.00	17.12	0.00	0.00	0.00	0.00	0.00
CCTT	0.00	0.00	0.00	0.00	7.01	0.00	0.00	0.00	0.00	0.00	0.00	7.04	0.00	0.00
GCAT	0.00	0.00	0.00	0.00	5.98	0.00	0.00	0.00	0.00	0.00	0.00	6.01	0.00	0.00
GCCT	0.00	5.74	0.00	0.00	0.00	0.00	0.00	0.00	5.93	0.00	0.00	0.00	0.00	0.00
GCGT	0.00	20.46	0.00	0.00	0.00	0.00	0.00	0.00	19.80	0.00	0.00	0.00	0.00	0.00
GCTT	0.00	0.00	0.00	0.00	5.88	0.00	0.00	0.00	0.00	0.00	0.00	5.93	0.00	0.00
TCAT	0.00	11.42	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	0.00	0.00	0.00	0.00
TCCT	0.00	0.00	0.00	0.00	7.81	0.00	0.00	0.00	0.00	0.00	0.00	7.76	0.00	0.00
TCGT	0.00	12.42	0.00	0.00	0.00	0.00	0.00	0.00	12.30	0.00	0.00	0.00	0.00	0.00
TCTT	0.00	0.00	0.00	0.00	9.47	0.00	0.00	0.00	0.00	0.00	0.00	9.29	0.00	0.00

Table S6: Table S5 continued: weights for the next 48 mutation categories.

Mutation	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6	Cl-7	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6	Cl-7
ATAA	14.61	0.00	0.00	0.00	0.00	0.00	0.00	14.91	0.00	0.00	0.00	0.00	0.00	0.00
ATCA	0.00	0.00	0.00	0.00	0.00	0.00	3.46	0.00	0.00	0.00	0.00	0.00	0.00	3.65
ATGA	13.85	0.00	0.00	0.00	0.00	0.00	0.00	14.13	0.00	0.00	0.00	0.00	0.00	0.00
ATTA	0.00	0.00	0.00	0.00	0.00	5.95	0.00	0.00	0.00	0.00	0.00	0.00	6.08	0.00
CTAA	0.00	0.00	0.00	0.00	0.00	0.00	3.93	0.00	0.00	0.00	0.00	0.00	0.00	4.01
CTCA	12.75	0.00	0.00	0.00	0.00	0.00	0.00	12.93	0.00	0.00	0.00	0.00	0.00	0.00
CTGA	0.00	0.00	0.00	5.54	0.00	0.00	0.00	0.00	0.00	0.00	5.73	0.00	0.00	0.00
CTTA	0.00	0.00	0.00	0.00	0.00	4.55	0.00	0.00	0.00	0.00	0.00	0.00	4.62	0.00
GTAA	0.00	0.00	0.00	0.00	0.00	0.00	3.44	0.00	0.00	0.00	0.00	0.00	0.00	3.36
GTCA	0.00	0.00	15.20	0.00	0.00	0.00	0.00	0.00	0.00	15.36	0.00	0.00	0.00	0.00
GTGA	0.00	0.00	0.00	0.00	0.00	0.00	3.13	0.00	0.00	0.00	0.00	0.00	0.00	3.26
GTTA	0.00	0.00	0.00	0.00	0.00	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	4.00
TTAA	0.00	0.00	0.00	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	5.64	0.00
TTCA	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.00	0.00	0.00	0.00	0.00	0.00	4.77
TTGA	0.00	0.00	0.00	0.00	0.00	0.00	2.94	0.00	0.00	0.00	0.00	0.00	0.00	3.05
TTTA	0.00	0.00	0.00	0.00	0.00	5.65	0.00	0.00	0.00	0.00	0.00	0.00	5.77	0.00
ATAC	0.00	0.00	0.00	0.00	7.03	0.00	0.00	0.00	0.00	0.00	0.00	7.06	0.00	0.00
ATCC	0.00	0.00	0.00	0.00	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	3.64	0.00
ATGC	0.00	0.00	0.00	0.00	4.97	0.00	0.00	0.00	0.00	0.00	0.00	4.98	0.00	0.00
ATTC	0.00	0.00	0.00	0.00	6.30	0.00	0.00	0.00	0.00	0.00	0.00	6.34	0.00	0.00
CTAC	0.00	0.00	0.00	0.00	0.00	4.03	0.00	0.00	0.00	0.00	0.00	0.00	4.08	0.00
CTCC	0.00	0.00	0.00	0.00	0.00	4.59	0.00	0.00	0.00	0.00	0.00	0.00	4.61	0.00
CTGC	0.00	0.00	0.00	0.00	0.00	5.75	0.00	0.00	0.00	0.00	0.00	0.00	5.79	0.00
CTTC	0.00	0.00	0.00	0.00	0.00	7.65	0.00	0.00	0.00	0.00	0.00	0.00	7.41	0.00
GTAC	0.00	0.00	0.00	0.00	0.00	5.18	0.00	0.00	0.00	0.00	0.00	0.00	5.32	0.00
GTCC	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.00	0.00	0.00	0.00	0.00	0.00	4.36
GTGC	0.00	0.00	0.00	0.00	0.00	4.63	0.00	0.00	0.00	0.00	0.00	0.00	4.76	0.00
GTTC	0.00	0.00	0.00	0.00	0.00	5.42	0.00	0.00	0.00	0.00	0.00	0.00	5.62	0.00
TTAC	0.00	0.00	0.00	0.00	0.00	5.32	0.00	0.00	0.00	0.00	0.00	0.00	5.47	0.00
TTCC	0.00	0.00	0.00	0.00	0.00	5.05	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.00
TTGC	0.00	0.00	0.00	0.00	0.00	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	4.20
TTTC	0.00	0.00	0.00	0.00	0.00	7.82	0.00	0.00	0.00	0.00	0.00	0.00	7.82	0.00
ATAG	0.00	0.00	0.00	0.00	0.00	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	3.24
ATCG	0.00	0.00	0.00	0.00	0.00	0.00	2.70	0.00	0.00	0.00	0.00	0.00	0.00	2.52
ATGG	0.00	0.00	0.00	0.00	0.00	0.00	3.09	0.00	0.00	0.00	0.00	0.00	0.00	3.04
ATTG	14.44	0.00	0.00	0.00	0.00	0.00	0.00	14.09	0.00	0.00	0.00	0.00	0.00	0.00
CTAG	0.00	0.00	0.00	0.00	0.00	0.00	2.68	0.00	0.00	0.00	0.00	0.00	0.00	2.66
CTCG	0.00	0.00	0.00	0.00	0.00	0.00	4.59	0.00	0.00	0.00	0.00	0.00	0.00	4.30
CTGG	0.00	0.00	0.00	0.00	0.00	0.00	3.07	0.00	0.00	0.00	0.00	0.00	0.00	3.19
CTTG	0.00	0.00	0.00	0.00	0.00	10.44	0.00	0.00	0.00	0.00	0.00	0.00	9.55	0.00
GTAG	0.00	0.00	0.00	0.00	0.00	0.00	2.52	0.00	0.00	0.00	0.00	0.00	0.00	2.36
GTCG	0.00	0.00	7.80	0.00	0.00	0.00	0.00	0.00	0.00	8.11	0.00	0.00	0.00	0.00
GTGG	0.00	0.00	0.00	0.00	0.00	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	3.25
GTTG	14.14	0.00	0.00	0.00	0.00	0.00	0.00	13.44	0.00	0.00	0.00	0.00	0.00	0.00
TTAG	0.00	0.00	0.00	0.00	0.00	0.00	3.48	0.00	0.00	0.00	0.00	0.00	0.00	3.62
TTCG	0.00	0.00	0.00	0.00	0.00	0.00	2.91	0.00	0.00	0.00	0.00	0.00	0.00	2.87
TTGG	0.00	0.00	0.00	0.00	0.00	0.00	4.62	0.00	0.00	0.00	0.00	0.00	0.00	4.49
TTTG	0.00	0.00	0.00	0.00	0.00	8.95	0.00	0.00	0.00	0.00	0.00	0.00	8.65	0.00

Table S7: Weights for the first 48 mutation categories for the 7 clusters in Clustering-C (see Table S4). The conventions are the same as in Table 1.

Mutation	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6	Cl-7	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6	Cl-7
ACAA	0.00	0.00	0.00	6.55	0.00	0.00	0.00	0.00	0.00	0.00	6.55	0.00	0.00	0.00
ACCA	0.00	0.00	0.00	0.00	5.83	0.00	0.00	0.00	0.00	0.00	0.00	6.08	0.00	0.00
ACGA	0.00	0.00	0.00	0.00	0.00	0.00	4.06	0.00	0.00	0.00	0.00	0.00	0.00	4.00
ACTA	0.00	0.00	0.00	0.00	6.16	0.00	0.00	0.00	0.00	0.00	0.00	6.38	0.00	0.00
CCAA	0.00	0.00	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	8.10	0.00	0.00
CCCA	0.00	0.00	0.00	0.00	6.46	0.00	0.00	0.00	0.00	0.00	0.00	6.68	0.00	0.00
CCGA	0.00	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	6.40	0.00	0.00	0.00	0.00
CCTA	0.00	0.00	0.00	0.00	0.00	6.97	0.00	0.00	0.00	0.00	0.00	0.00	7.02	0.00
GCAA	4.05	0.00	0.00	0.00	0.00	0.00	0.00	4.65	0.00	0.00	0.00	0.00	0.00	0.00
GCCA	0.00	0.00	0.00	0.00	4.56	0.00	0.00	0.00	0.00	0.00	0.00	4.73	0.00	0.00
GCGA	0.00	13.81	0.00	0.00	0.00	0.00	0.00	0.00	13.89	0.00	0.00	0.00	0.00	0.00
GCTA	0.00	0.00	0.00	0.00	5.02	0.00	0.00	0.00	0.00	0.00	0.00	5.20	0.00	0.00
TCAA	0.00	0.00	0.00	6.26	0.00	0.00	0.00	0.00	0.00	0.00	6.21	0.00	0.00	0.00
TCCA	0.00	0.00	0.00	0.00	8.94	0.00	0.00	0.00	0.00	0.00	0.00	9.29	0.00	0.00
TCGA	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	12.24	0.00	0.00	0.00	0.00	0.00
TCTA	0.00	0.00	0.00	8.05	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00
ACAG	0.00	0.00	0.00	0.00	3.96	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.00	0.00
ACCG	0.00	0.00	7.23	0.00	0.00	0.00	0.00	0.00	0.00	7.29	0.00	0.00	0.00	0.00
ACGG	0.00	12.62	0.00	0.00	0.00	0.00	0.00	0.00	12.22	0.00	0.00	0.00	0.00	0.00
ACTG	0.00	0.00	0.00	0.00	4.77	0.00	0.00	0.00	0.00	0.00	0.00	5.03	0.00	0.00
CCAG	0.00	0.00	8.26	0.00	0.00	0.00	0.00	0.00	0.00	8.31	0.00	0.00	0.00	0.00
CCCG	0.00	0.00	0.00	0.00	0.00	0.00	3.91	0.00	0.00	0.00	0.00	0.00	0.00	4.02
CCGG	0.00	0.00	0.00	0.00	0.00	0.00	5.37	0.00	0.00	0.00	0.00	0.00	0.00	5.12
CCTG	0.00	0.00	11.12	0.00	0.00	0.00	0.00	0.00	0.00	11.19	0.00	0.00	0.00	0.00
GCAG	0.00	0.00	0.00	0.00	0.00	0.00	4.61	0.00	0.00	0.00	0.00	0.00	0.00	4.57
GCCG	0.00	14.79	0.00	0.00	0.00	0.00	0.00	0.00	15.62	0.00	0.00	0.00	0.00	0.00
GCGG	0.00	15.50	0.00	0.00	0.00	0.00	0.00	0.00	13.92	0.00	0.00	0.00	0.00	0.00
GCTG	0.00	0.00	0.00	0.00	0.00	0.00	4.86	0.00	0.00	0.00	0.00	0.00	0.00	4.92
TCAG	0.00	0.00	0.00	0.00	10.31	0.00	0.00	0.00	0.00	0.00	0.00	9.03	0.00	0.00
TCCG	0.00	0.00	0.00	0.00	5.10	0.00	0.00	0.00	0.00	0.00	0.00	4.95	0.00	0.00
TCGG	0.00	8.40	0.00	0.00	0.00	0.00	0.00	0.00	8.65	0.00	0.00	0.00	0.00	0.00
TCTG	0.00	0.00	0.00	0.00	14.10	0.00	0.00	0.00	0.00	0.00	0.00	12.53	0.00	0.00
ACAT	0.00	0.00	0.00	7.67	0.00	0.00	0.00	0.00	0.00	0.00	7.71	0.00	0.00	0.00
ACCT	4.78	0.00	0.00	0.00	0.00	0.00	0.00	5.02	0.00	0.00	0.00	0.00	0.00	0.00
ACGT	23.47	0.00	0.00	0.00	0.00	0.00	0.00	23.18	0.00	0.00	0.00	0.00	0.00	0.00
ACTT	0.00	0.00	0.00	5.43	0.00	0.00	0.00	0.00	0.00	0.00	5.47	0.00	0.00	0.00
CCAT	0.00	0.00	0.00	6.02	0.00	0.00	0.00	0.00	0.00	0.00	6.02	0.00	0.00	0.00
CCCT	0.00	0.00	0.00	5.59	0.00	0.00	0.00	0.00	0.00	0.00	5.63	0.00	0.00	0.00
CCGT	17.66	0.00	0.00	0.00	0.00	0.00	0.00	17.12	0.00	0.00	0.00	0.00	0.00	0.00
CCTT	0.00	0.00	0.00	7.01	0.00	0.00	0.00	0.00	0.00	0.00	7.04	0.00	0.00	0.00
GCAT	0.00	0.00	0.00	5.98	0.00	0.00	0.00	0.00	0.00	0.00	6.01	0.00	0.00	0.00
GCCT	5.74	0.00	0.00	0.00	0.00	0.00	0.00	5.93	0.00	0.00	0.00	0.00	0.00	0.00
GCGT	20.46	0.00	0.00	0.00	0.00	0.00	0.00	19.80	0.00	0.00	0.00	0.00	0.00	0.00
GCTT	0.00	0.00	0.00	5.88	0.00	0.00	0.00	0.00	0.00	0.00	5.93	0.00	0.00	0.00
TCAT	11.42	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00
TCCT	0.00	0.00	0.00	7.81	0.00	0.00	0.00	0.00	0.00	0.00	7.76	0.00	0.00	0.00
TCGT	12.42	0.00	0.00	0.00	0.00	0.00	0.00	12.30	0.00	0.00	0.00	0.00	0.00	0.00
TCTT	0.00	0.00	0.00	9.47	0.00	0.00	0.00	0.00	0.00	0.00	9.29	0.00	0.00	0.00

Table S8: Table S7 continued: weights for the next 48 mutation categories.

Mutation	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6	Cl-7	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6	Cl-7
ATAA	0.00	0.00	0.00	0.00	4.18	0.00	0.00	0.00	0.00	0.00	0.00	4.52	0.00	0.00
ATCA	0.00	0.00	8.99	0.00	0.00	0.00	0.00	0.00	0.00	9.10	0.00	0.00	0.00	0.00
ATGA	0.00	0.00	0.00	0.00	4.02	0.00	0.00	0.00	0.00	0.00	0.00	4.30	0.00	0.00
ATTA	0.00	0.00	0.00	0.00	0.00	5.72	0.00	0.00	0.00	0.00	0.00	0.00	5.85	0.00
CTAA	0.00	0.00	10.32	0.00	0.00	0.00	0.00	0.00	0.00	9.83	0.00	0.00	0.00	0.00
CTCA	0.00	0.00	0.00	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	3.98	0.00	0.00
CTGA	0.00	0.00	0.00	0.00	4.88	0.00	0.00	0.00	0.00	0.00	0.00	5.02	0.00	0.00
CTTA	0.00	0.00	0.00	0.00	0.00	4.42	0.00	0.00	0.00	0.00	0.00	0.00	4.47	0.00
GTAA	0.00	0.00	0.00	0.00	0.00	0.00	4.30	0.00	0.00	0.00	0.00	0.00	0.00	4.35
GTCA	0.00	15.20	0.00	0.00	0.00	0.00	0.00	0.00	15.36	0.00	0.00	0.00	0.00	0.00
GTGA	0.00	0.00	8.23	0.00	0.00	0.00	0.00	0.00	0.00	8.16	0.00	0.00	0.00	0.00
GTTA	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.00	0.00	0.00	0.00	0.00	0.00	5.19
TTAA	0.00	0.00	0.00	0.00	0.00	5.30	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.00
TTCA	0.00	0.00	0.00	0.00	0.00	0.00	6.64	0.00	0.00	0.00	0.00	0.00	0.00	6.58
TTGA	0.00	0.00	7.82	0.00	0.00	0.00	0.00	0.00	0.00	7.57	0.00	0.00	0.00	0.00
TTTA	0.00	0.00	0.00	0.00	0.00	5.44	0.00	0.00	0.00	0.00	0.00	0.00	5.55	0.00
ATAC	0.00	0.00	0.00	7.03	0.00	0.00	0.00	0.00	0.00	0.00	7.06	0.00	0.00	0.00
ATCC	0.00	0.00	10.75	0.00	0.00	0.00	0.00	0.00	0.00	10.92	0.00	0.00	0.00	0.00
ATGC	0.00	0.00	0.00	4.97	0.00	0.00	0.00	0.00	0.00	0.00	4.98	0.00	0.00	0.00
ATTC	0.00	0.00	0.00	6.30	0.00	0.00	0.00	0.00	0.00	0.00	6.34	0.00	0.00	0.00
CTAC	0.00	0.00	0.00	0.00	0.00	3.91	0.00	0.00	0.00	0.00	0.00	0.00	3.94	0.00
CTCC	0.00	0.00	0.00	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	4.45	0.00
CTGC	0.00	0.00	0.00	0.00	0.00	5.56	0.00	0.00	0.00	0.00	0.00	0.00	5.61	0.00
CTTC	0.00	0.00	0.00	0.00	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	7.16	0.00
GTAC	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.00
GTCC	0.00	0.00	10.41	0.00	0.00	0.00	0.00	0.00	0.00	10.61	0.00	0.00	0.00	0.00
GTGC	0.00	0.00	0.00	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	4.59	0.00
GTTC	0.00	0.00	0.00	0.00	0.00	5.21	0.00	0.00	0.00	0.00	0.00	0.00	5.40	0.00
TTAC	0.00	0.00	0.00	0.00	0.00	5.13	0.00	0.00	0.00	0.00	0.00	0.00	5.26	0.00
TTCC	0.00	0.00	0.00	0.00	0.00	4.84	0.00	0.00	0.00	0.00	0.00	0.00	4.96	0.00
TTGC	0.00	0.00	10.48	0.00	0.00	0.00	0.00	0.00	0.00	10.62	0.00	0.00	0.00	0.00
TTTC	0.00	0.00	0.00	0.00	0.00	7.53	0.00	0.00	0.00	0.00	0.00	0.00	7.52	0.00
ATAG	0.00	0.00	0.00	0.00	0.00	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	4.09
ATCG	0.00	0.00	0.00	0.00	0.00	0.00	3.81	0.00	0.00	0.00	0.00	0.00	0.00	3.70
ATGG	0.00	0.00	0.00	0.00	0.00	0.00	3.97	0.00	0.00	0.00	0.00	0.00	0.00	3.99
ATTG	0.00	0.00	0.00	0.00	0.00	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	7.08
CTAG	0.00	0.00	0.00	0.00	0.00	0.00	3.55	0.00	0.00	0.00	0.00	0.00	0.00	3.56
CTCG	0.00	0.00	0.00	0.00	0.00	0.00	6.52	0.00	0.00	0.00	0.00	0.00	0.00	6.31
CTGG	0.00	0.00	0.00	0.00	0.00	0.00	3.67	0.00	0.00	0.00	0.00	0.00	0.00	3.83
CTTG	0.00	0.00	0.00	0.00	0.00	10.06	0.00	0.00	0.00	0.00	0.00	0.00	9.27	0.00
GTAG	0.00	0.00	0.00	0.00	0.00	0.00	3.58	0.00	0.00	0.00	0.00	0.00	0.00	3.49
GTCG	0.00	7.80	0.00	0.00	0.00	0.00	0.00	0.00	8.11	0.00	0.00	0.00	0.00	0.00
GTGG	0.00	0.00	0.00	0.00	0.00	0.00	3.82	0.00	0.00	0.00	0.00	0.00	0.00	3.98
GTTG	0.00	0.00	0.00	0.00	0.00	0.00	7.02	0.00	0.00	0.00	0.00	0.00	0.00	6.97
TTAG	0.00	0.00	0.00	0.00	0.00	0.00	4.24	0.00	0.00	0.00	0.00	0.00	0.00	4.43
TTCG	0.00	0.00	0.00	0.00	0.00	0.00	3.73	0.00	0.00	0.00	0.00	0.00	0.00	3.75
TTGG	0.00	0.00	0.00	0.00	0.00	0.00	6.10	0.00	0.00	0.00	0.00	0.00	0.00	6.06
TTTG	0.00	0.00	0.00	0.00	0.00	8.61	0.00	0.00	0.00	0.00	0.00	0.00	8.36	0.00

Table S9: Weights for the first 48 mutation categories for the 6 clusters in Clustering-D (see Table S4). The conventions are the same as in Table 1.

Mutation	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6
ACAA	0.00	0.00	6.55	0.00	0.00	0.00	0.00	0.00	6.55	0.00	0.00	0.00
ACCA	0.00	0.00	0.00	5.83	0.00	0.00	0.00	0.00	0.00	6.08	0.00	0.00
ACGA	0.00	0.00	0.00	0.00	0.00	2.75	0.00	0.00	0.00	0.00	0.00	2.63
ACTA	0.00	0.00	0.00	6.16	0.00	0.00	0.00	0.00	0.00	6.38	0.00	0.00
CCAA	0.00	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	8.10	0.00	0.00
CCCA	0.00	0.00	0.00	6.46	0.00	0.00	0.00	0.00	0.00	6.68	0.00	0.00
CCGA	0.00	0.00	0.00	0.00	0.00	2.13	0.00	0.00	0.00	0.00	0.00	2.25
CCTA	0.00	0.00	0.00	0.00	6.75	0.00	0.00	0.00	0.00	0.00	6.79	0.00
GCAA	4.05	0.00	0.00	0.00	0.00	0.00	4.65	0.00	0.00	0.00	0.00	0.00
GCCA	0.00	0.00	0.00	4.56	0.00	0.00	0.00	0.00	0.00	4.73	0.00	0.00
GCGA	0.00	13.81	0.00	0.00	0.00	0.00	0.00	13.89	0.00	0.00	0.00	0.00
GCTA	0.00	0.00	0.00	5.02	0.00	0.00	0.00	0.00	0.00	5.20	0.00	0.00
TCAA	0.00	0.00	6.26	0.00	0.00	0.00	0.00	0.00	6.21	0.00	0.00	0.00
TCCA	0.00	0.00	0.00	8.94	0.00	0.00	0.00	0.00	0.00	9.29	0.00	0.00
TCGA	0.00	11.87	0.00	0.00	0.00	0.00	0.00	12.24	0.00	0.00	0.00	0.00
TCTA	0.00	0.00	8.05	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00
ACAG	0.00	0.00	0.00	3.96	0.00	0.00	0.00	0.00	0.00	4.18	0.00	0.00
ACCG	0.00	0.00	0.00	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	2.61
ACGG	0.00	12.62	0.00	0.00	0.00	0.00	0.00	12.22	0.00	0.00	0.00	0.00
ACTG	0.00	0.00	0.00	4.77	0.00	0.00	0.00	0.00	0.00	5.03	0.00	0.00
CCAG	0.00	0.00	0.00	0.00	0.00	2.81	0.00	0.00	0.00	0.00	0.00	2.98
CCCG	0.00	0.00	0.00	0.00	0.00	2.88	0.00	0.00	0.00	0.00	0.00	2.92
CCGG	0.00	0.00	0.00	0.00	0.00	3.29	0.00	0.00	0.00	0.00	0.00	2.97
CCTG	0.00	0.00	0.00	0.00	0.00	3.84	0.00	0.00	0.00	0.00	0.00	4.05
GCAG	0.00	0.00	0.00	0.00	0.00	3.13	0.00	0.00	0.00	0.00	0.00	3.02
GCCG	0.00	14.79	0.00	0.00	0.00	0.00	0.00	15.62	0.00	0.00	0.00	0.00
GCGG	0.00	15.50	0.00	0.00	0.00	0.00	0.00	13.92	0.00	0.00	0.00	0.00
GCTG	0.00	0.00	0.00	0.00	0.00	3.44	0.00	0.00	0.00	0.00	0.00	3.42
TCAG	0.00	0.00	0.00	10.31	0.00	0.00	0.00	0.00	0.00	9.03	0.00	0.00
TCCG	0.00	0.00	0.00	5.10	0.00	0.00	0.00	0.00	0.00	4.95	0.00	0.00
TCGG	0.00	8.40	0.00	0.00	0.00	0.00	0.00	8.65	0.00	0.00	0.00	0.00
TCTG	0.00	0.00	0.00	14.10	0.00	0.00	0.00	0.00	0.00	12.53	0.00	0.00
ACAT	0.00	0.00	7.67	0.00	0.00	0.00	0.00	0.00	7.71	0.00	0.00	0.00
ACCT	4.78	0.00	0.00	0.00	0.00	0.00	5.02	0.00	0.00	0.00	0.00	0.00
ACGT	23.47	0.00	0.00	0.00	0.00	0.00	23.18	0.00	0.00	0.00	0.00	0.00
ACTT	0.00	0.00	5.43	0.00	0.00	0.00	0.00	0.00	5.47	0.00	0.00	0.00
CCAT	0.00	0.00	6.02	0.00	0.00	0.00	0.00	0.00	6.02	0.00	0.00	0.00
CCCT	0.00	0.00	5.59	0.00	0.00	0.00	0.00	0.00	5.63	0.00	0.00	0.00
CCGT	17.66	0.00	0.00	0.00	0.00	0.00	17.12	0.00	0.00	0.00	0.00	0.00
CCTT	0.00	0.00	7.01	0.00	0.00	0.00	0.00	0.00	7.04	0.00	0.00	0.00
GCAT	0.00	0.00	5.98	0.00	0.00	0.00	0.00	0.00	6.01	0.00	0.00	0.00
GCCT	5.74	0.00	0.00	0.00	0.00	0.00	5.93	0.00	0.00	0.00	0.00	0.00
GCGT	20.46	0.00	0.00	0.00	0.00	0.00	19.80	0.00	0.00	0.00	0.00	0.00
GCTT	0.00	0.00	5.88	0.00	0.00	0.00	0.00	0.00	5.93	0.00	0.00	0.00
TCAT	11.42	0.00	0.00	0.00	0.00	0.00	12.00	0.00	0.00	0.00	0.00	0.00
TCCT	0.00	0.00	7.81	0.00	0.00	0.00	0.00	0.00	7.76	0.00	0.00	0.00
TCGT	12.42	0.00	0.00	0.00	0.00	0.00	12.30	0.00	0.00	0.00	0.00	0.00
TCTT	0.00	0.00	9.47	0.00	0.00	0.00	0.00	0.00	9.29	0.00	0.00	0.00

Table S10: Table S9 continued: weights for the next 48 mutation categories.

Mutation	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6	Cl-1	Cl-2	Cl-3	Cl-4	Cl-5	Cl-6
ATAA	0.00	0.00	0.00	4.18	0.00	0.00	0.00	0.00	0.00	4.52	0.00	0.00
ATCA	0.00	0.00	0.00	0.00	0.00	3.11	0.00	0.00	0.00	0.00	0.00	3.29
ATGA	0.00	0.00	0.00	4.02	0.00	0.00	0.00	0.00	0.00	4.30	0.00	0.00
ATTA	0.00	0.00	0.00	0.00	5.54	0.00	0.00	0.00	0.00	0.00	5.66	0.00
CTAA	0.00	0.00	0.00	0.00	0.00	3.49	0.00	0.00	0.00	0.00	0.00	3.60
CTCA	0.00	0.00	0.00	3.79	0.00	0.00	0.00	0.00	0.00	3.98	0.00	0.00
CTGA	0.00	0.00	0.00	4.88	0.00	0.00	0.00	0.00	0.00	5.02	0.00	0.00
CTTA	0.00	0.00	0.00	0.00	4.28	0.00	0.00	0.00	0.00	0.00	4.33	0.00
GTAA	0.00	0.00	0.00	0.00	0.00	3.09	0.00	0.00	0.00	0.00	0.00	3.04
GTCA	0.00	15.20	0.00	0.00	0.00	0.00	0.00	15.36	0.00	0.00	0.00	0.00
GTGA	0.00	0.00	0.00	0.00	0.00	2.79	0.00	0.00	0.00	0.00	0.00	2.93
GTTA	0.00	0.00	0.00	0.00	0.00	3.65	0.00	0.00	0.00	0.00	0.00	3.63
TTAA	0.00	0.00	0.00	0.00	5.13	0.00	0.00	0.00	0.00	0.00	5.26	0.00
TTCA	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00	0.00	0.00	0.00	4.33
TTGA	0.00	0.00	0.00	0.00	0.00	2.63	0.00	0.00	0.00	0.00	0.00	2.74
TTTA	0.00	0.00	0.00	0.00	5.27	0.00	0.00	0.00	0.00	0.00	5.38	0.00
ATAC	0.00	0.00	7.03	0.00	0.00	0.00	0.00	0.00	7.06	0.00	0.00	0.00
ATCC	0.00	0.00	0.00	0.00	3.30	0.00	0.00	0.00	0.00	0.00	3.39	0.00
ATGC	0.00	0.00	4.97	0.00	0.00	0.00	0.00	0.00	4.98	0.00	0.00	0.00
ATTC	0.00	0.00	6.30	0.00	0.00	0.00	0.00	0.00	6.34	0.00	0.00	0.00
CTAC	0.00	0.00	0.00	0.00	3.78	0.00	0.00	0.00	0.00	0.00	3.81	0.00
CTCC	0.00	0.00	0.00	0.00	4.30	0.00	0.00	0.00	0.00	0.00	4.31	0.00
CTGC	0.00	0.00	0.00	0.00	5.37	0.00	0.00	0.00	0.00	0.00	5.41	0.00
CTTC	0.00	0.00	0.00	0.00	7.14	0.00	0.00	0.00	0.00	0.00	6.92	0.00
GTAC	0.00	0.00	0.00	0.00	4.84	0.00	0.00	0.00	0.00	0.00	4.96	0.00
GTCC	0.00	0.00	0.00	0.00	0.00	3.81	0.00	0.00	0.00	0.00	0.00	3.95
GTGC	0.00	0.00	0.00	0.00	4.32	0.00	0.00	0.00	0.00	0.00	4.43	0.00
GTTC	0.00	0.00	0.00	0.00	5.05	0.00	0.00	0.00	0.00	0.00	5.23	0.00
TTAC	0.00	0.00	0.00	0.00	4.97	0.00	0.00	0.00	0.00	0.00	5.10	0.00
TTCC	0.00	0.00	0.00	0.00	4.69	0.00	0.00	0.00	0.00	0.00	4.79	0.00
TTGC	0.00	0.00	0.00	0.00	0.00	3.61	0.00	0.00	0.00	0.00	0.00	3.80
TTTC	0.00	0.00	0.00	0.00	7.29	0.00	0.00	0.00	0.00	0.00	7.28	0.00
ATAG	0.00	0.00	0.00	0.00	0.00	2.91	0.00	0.00	0.00	0.00	0.00	2.95
ATCG	0.00	0.00	0.00	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	2.30
ATGG	0.00	0.00	0.00	0.00	0.00	2.80	0.00	0.00	0.00	0.00	0.00	2.76
ATTG	0.00	0.00	0.00	0.00	0.00	4.93	0.00	0.00	0.00	0.00	0.00	4.79
CTAG	0.00	0.00	0.00	0.00	0.00	2.47	0.00	0.00	0.00	0.00	0.00	2.43
CTCG	0.00	0.00	0.00	0.00	0.00	4.21	0.00	0.00	0.00	0.00	0.00	3.93
CTGG	0.00	0.00	0.00	0.00	0.00	2.80	0.00	0.00	0.00	0.00	0.00	2.90
CTTG	0.00	0.00	0.00	0.00	9.67	0.00	0.00	0.00	0.00	0.00	8.89	0.00
GTAG	0.00	0.00	0.00	0.00	0.00	2.30	0.00	0.00	0.00	0.00	0.00	2.16
GTCG	0.00	7.80	0.00	0.00	0.00	0.00	0.00	8.11	0.00	0.00	0.00	0.00
GTGG	0.00	0.00	0.00	0.00	0.00	2.85	0.00	0.00	0.00	0.00	0.00	2.93
GTTG	0.00	0.00	0.00	0.00	0.00	4.83	0.00	0.00	0.00	0.00	0.00	4.73
TTAG	0.00	0.00	0.00	0.00	0.00	3.20	0.00	0.00	0.00	0.00	0.00	3.30
TTCG	0.00	0.00	0.00	0.00	0.00	2.64	0.00	0.00	0.00	0.00	0.00	2.60
TTGG	0.00	0.00	0.00	0.00	0.00	4.20	0.00	0.00	0.00	0.00	0.00	4.08
TTTG	0.00	0.00	0.00	0.00	8.31	0.00	0.00	0.00	0.00	0.00	8.05	0.00

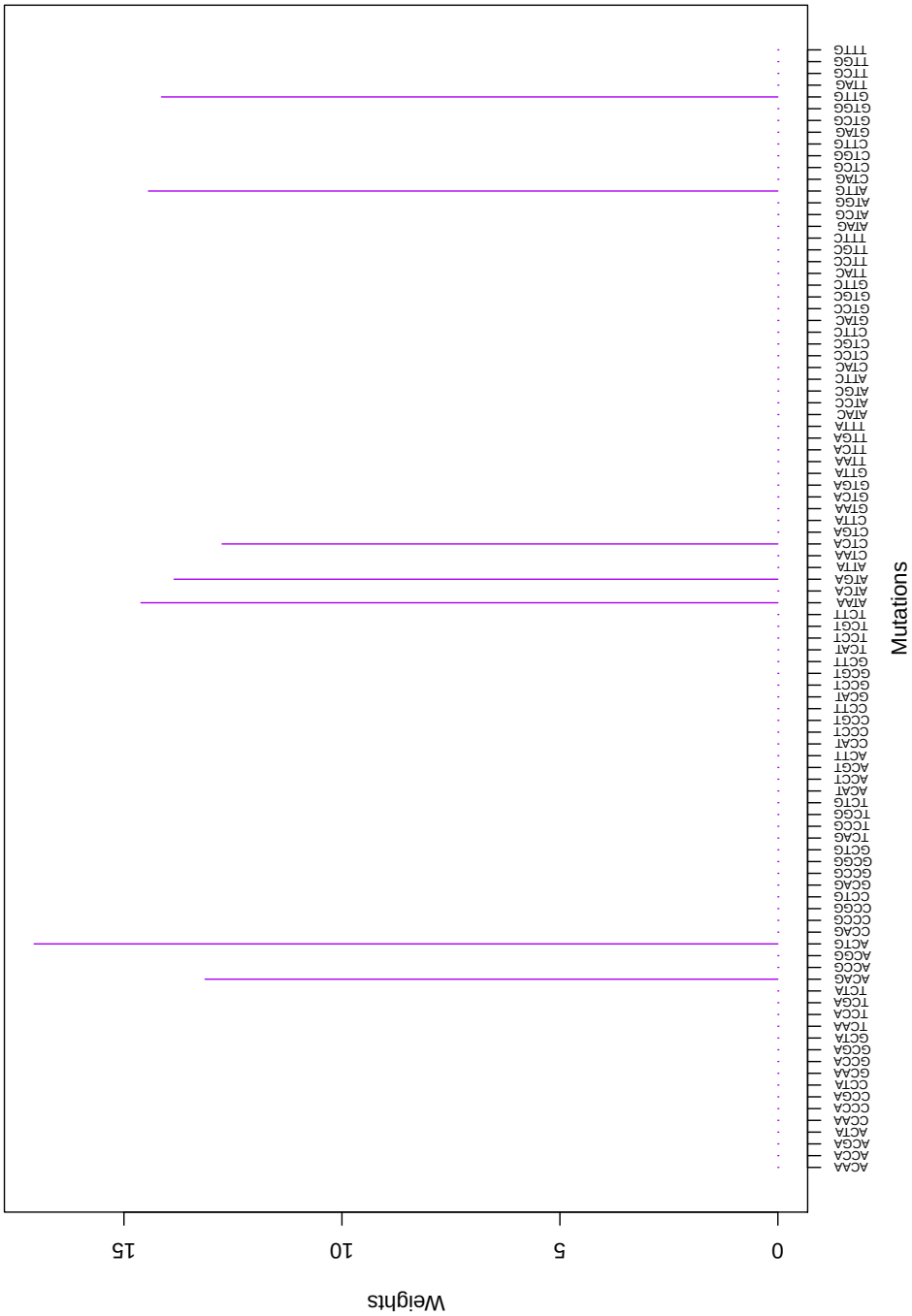

Figure S1: Cluster Cl-1 in Clustering-B with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

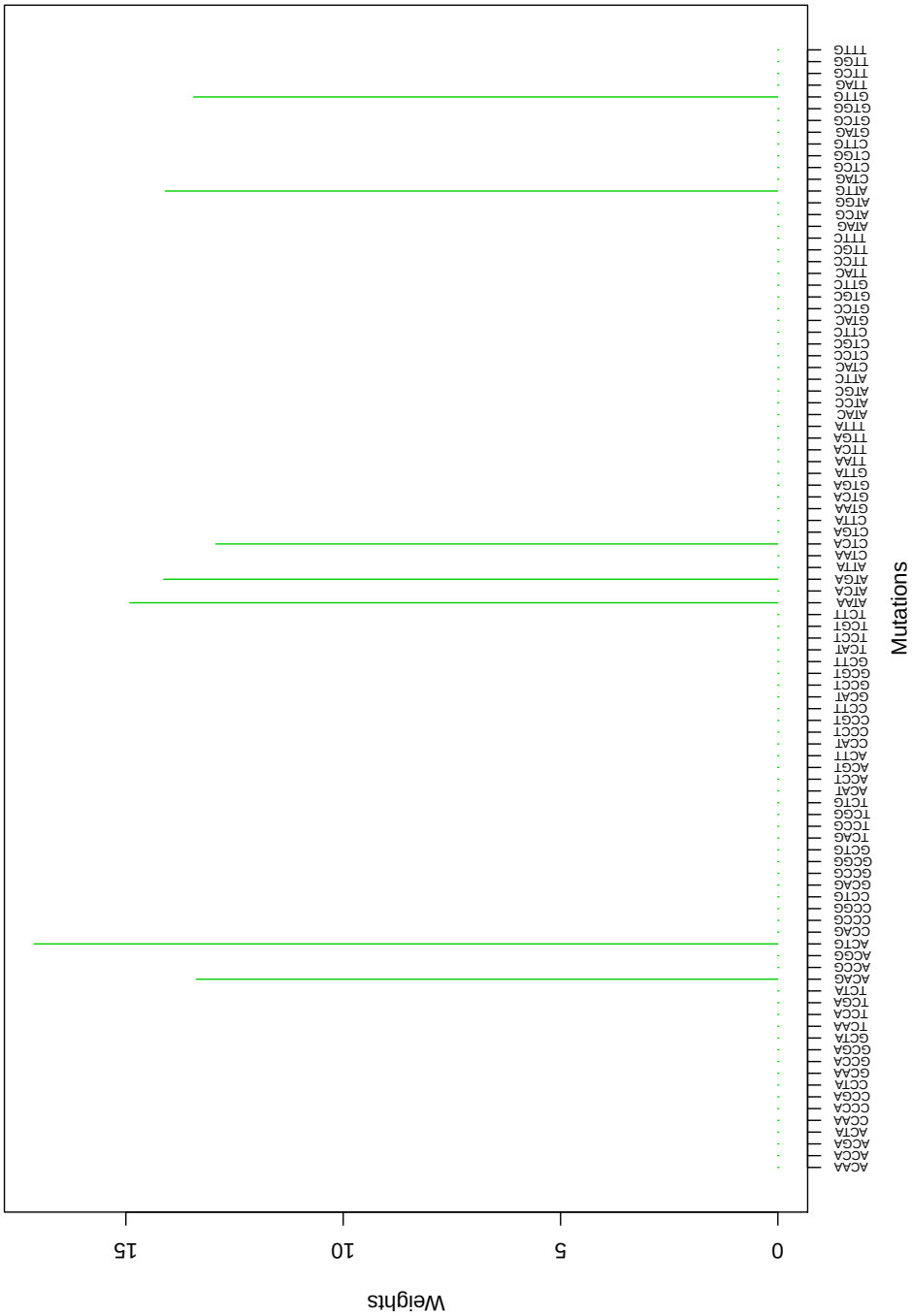

Figure S2: Cluster Cl-1 in Clustering-B with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

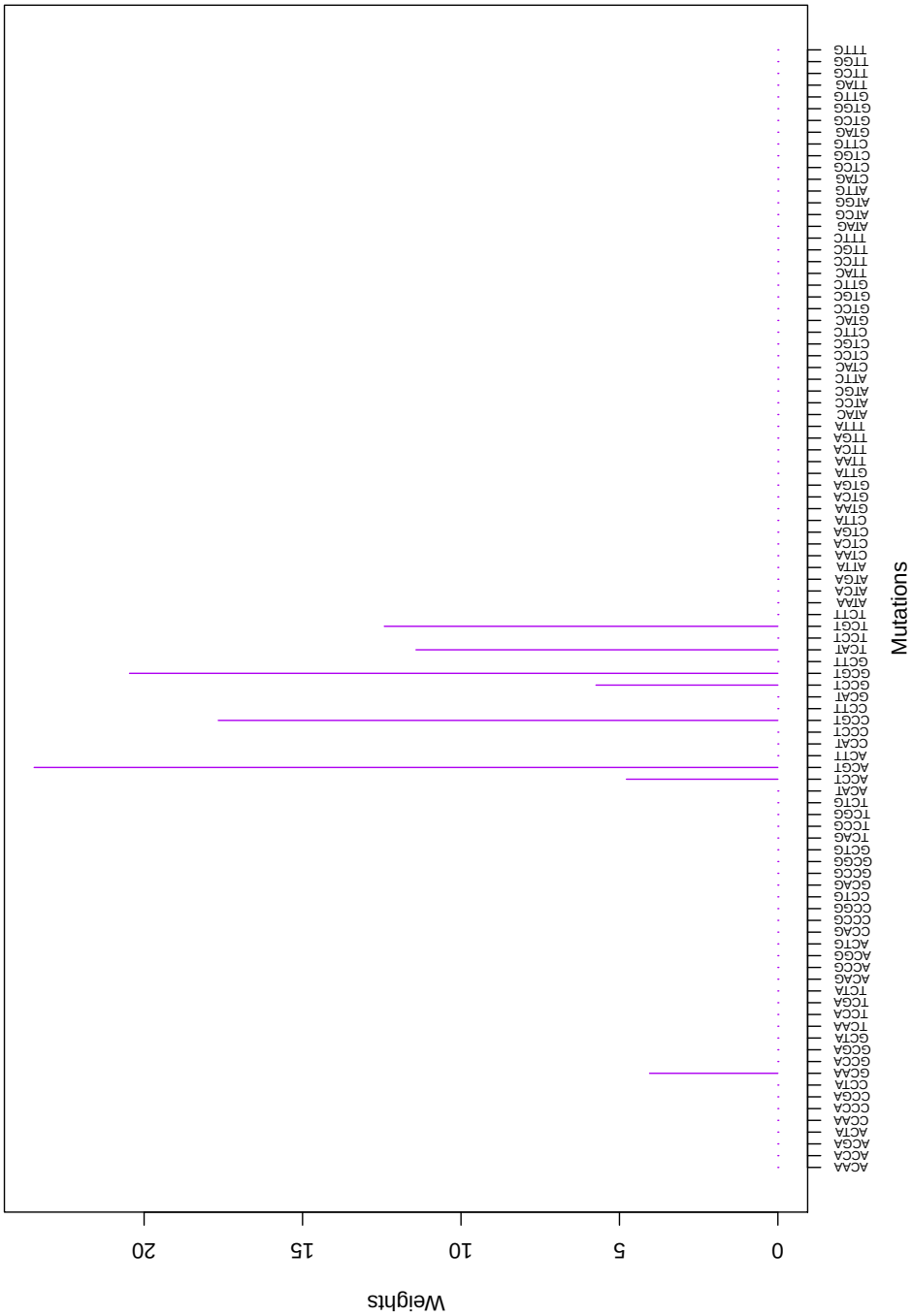

Figure S3: Cluster Cl-2 in Clustering-B with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

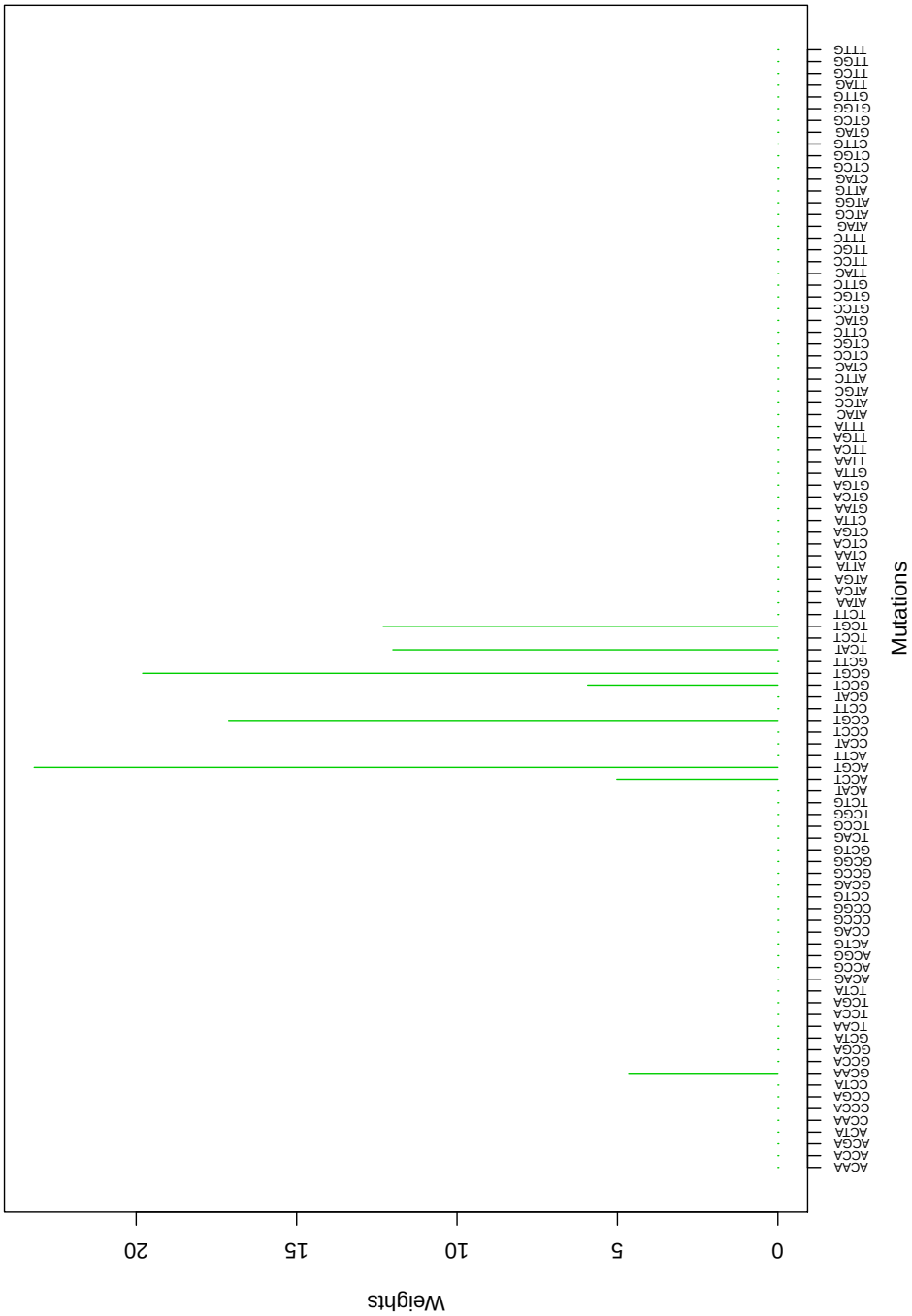

Figure S4: Cluster Cl-2 in Clustering-B with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

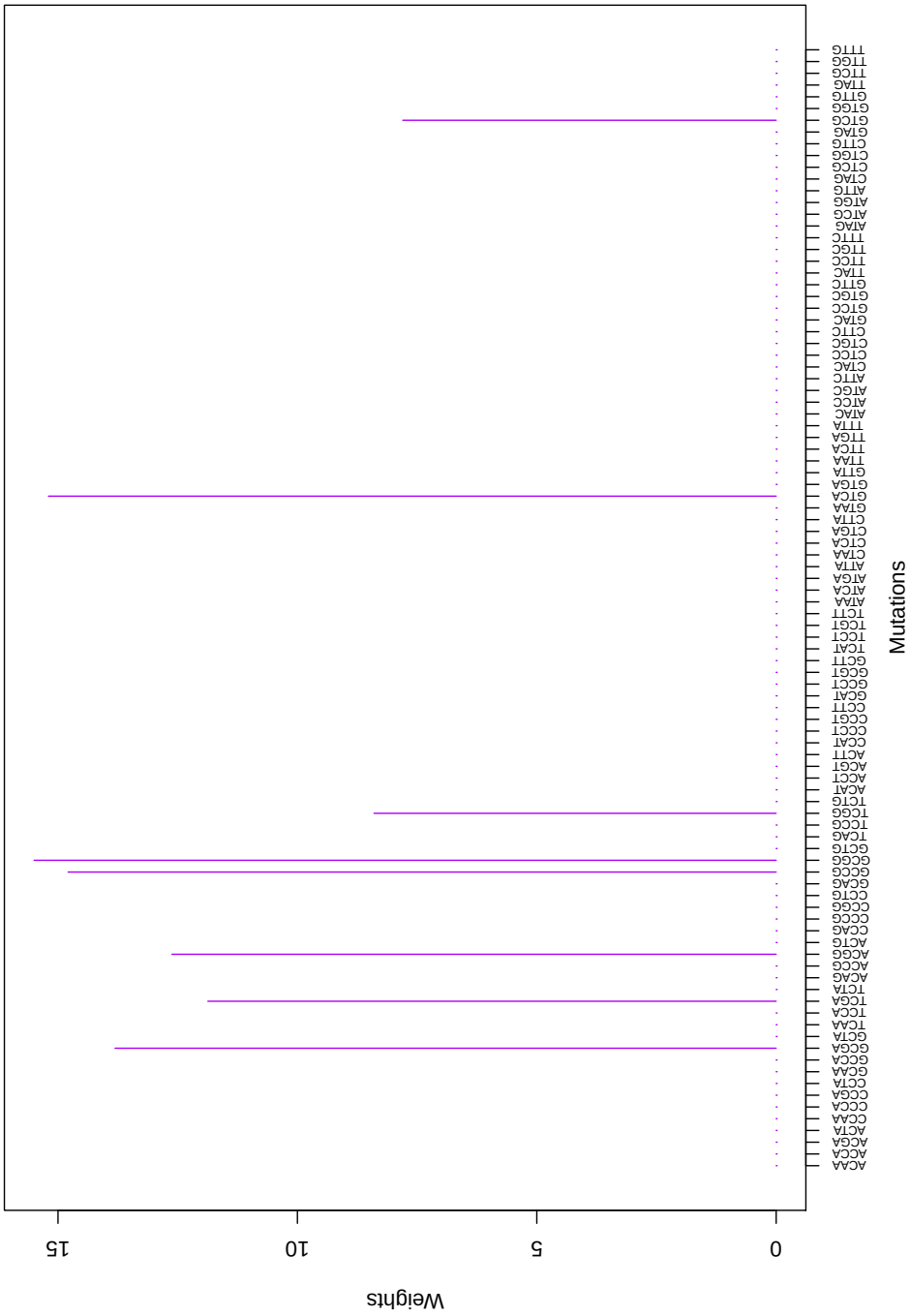

Figure S5: Cluster Cl-3 in Clustering-B with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

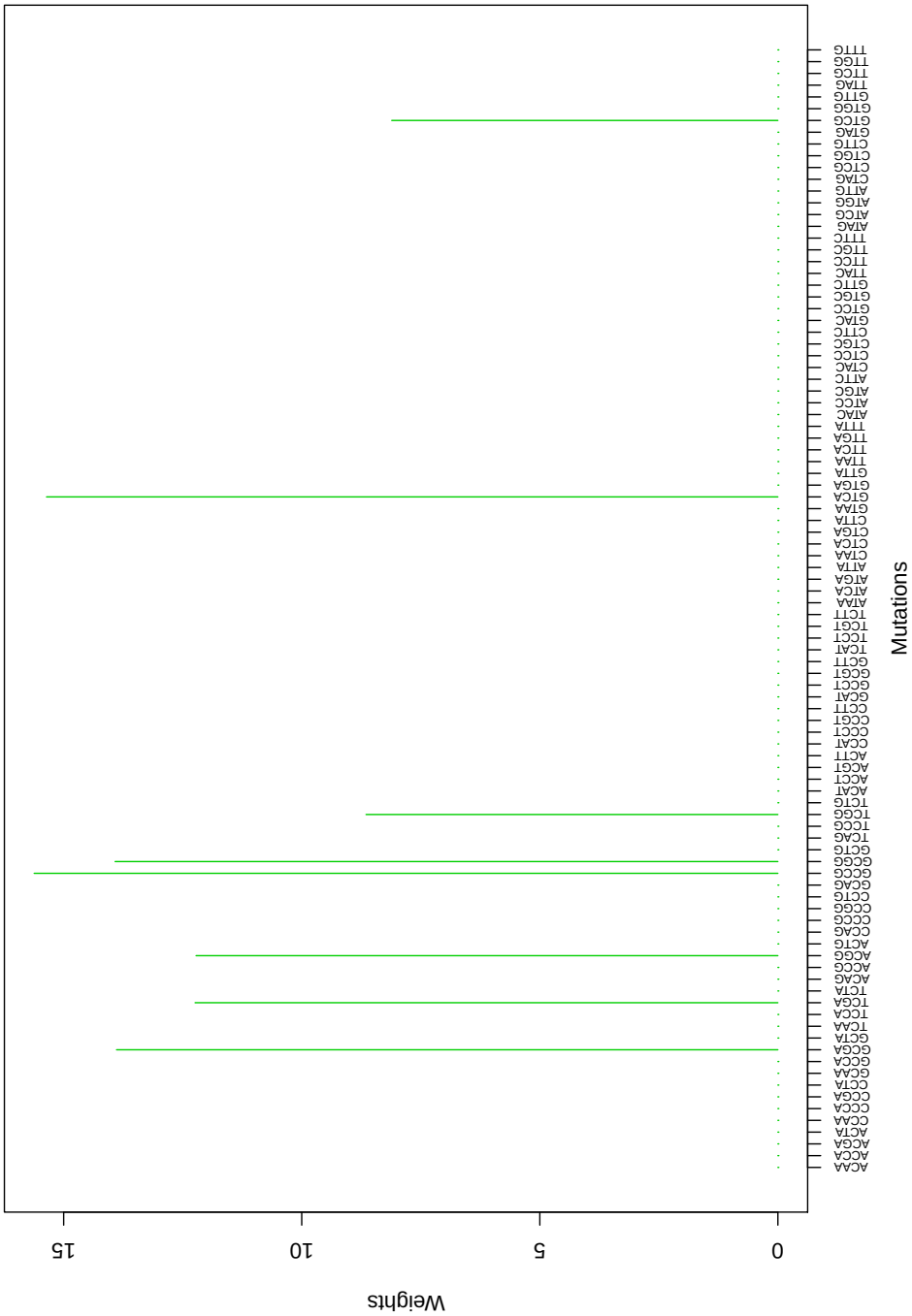

Figure S6: Cluster Cl-3 in Clustering-B with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

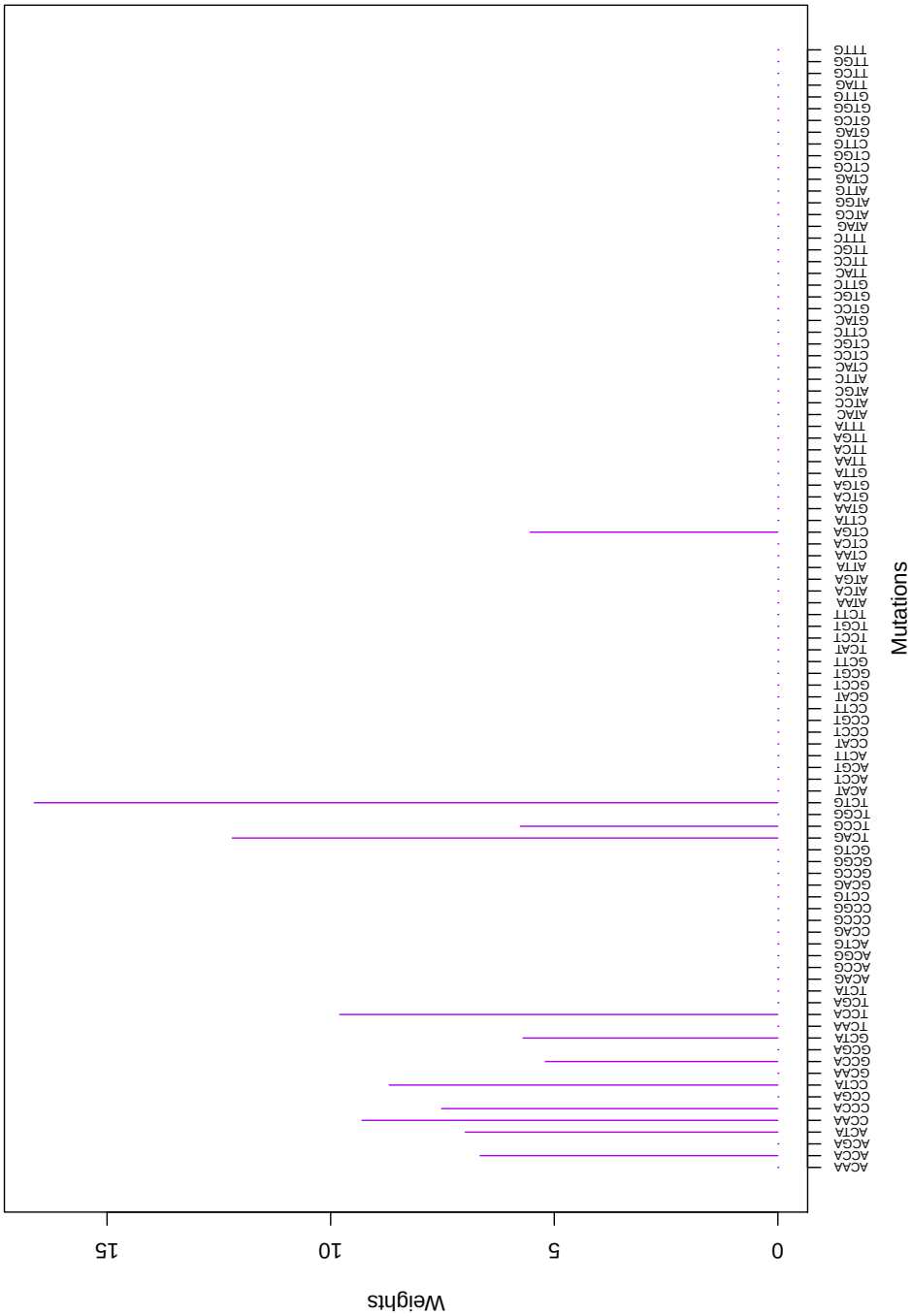

Figure S7: Cluster Cl-4 in Clustering-B with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

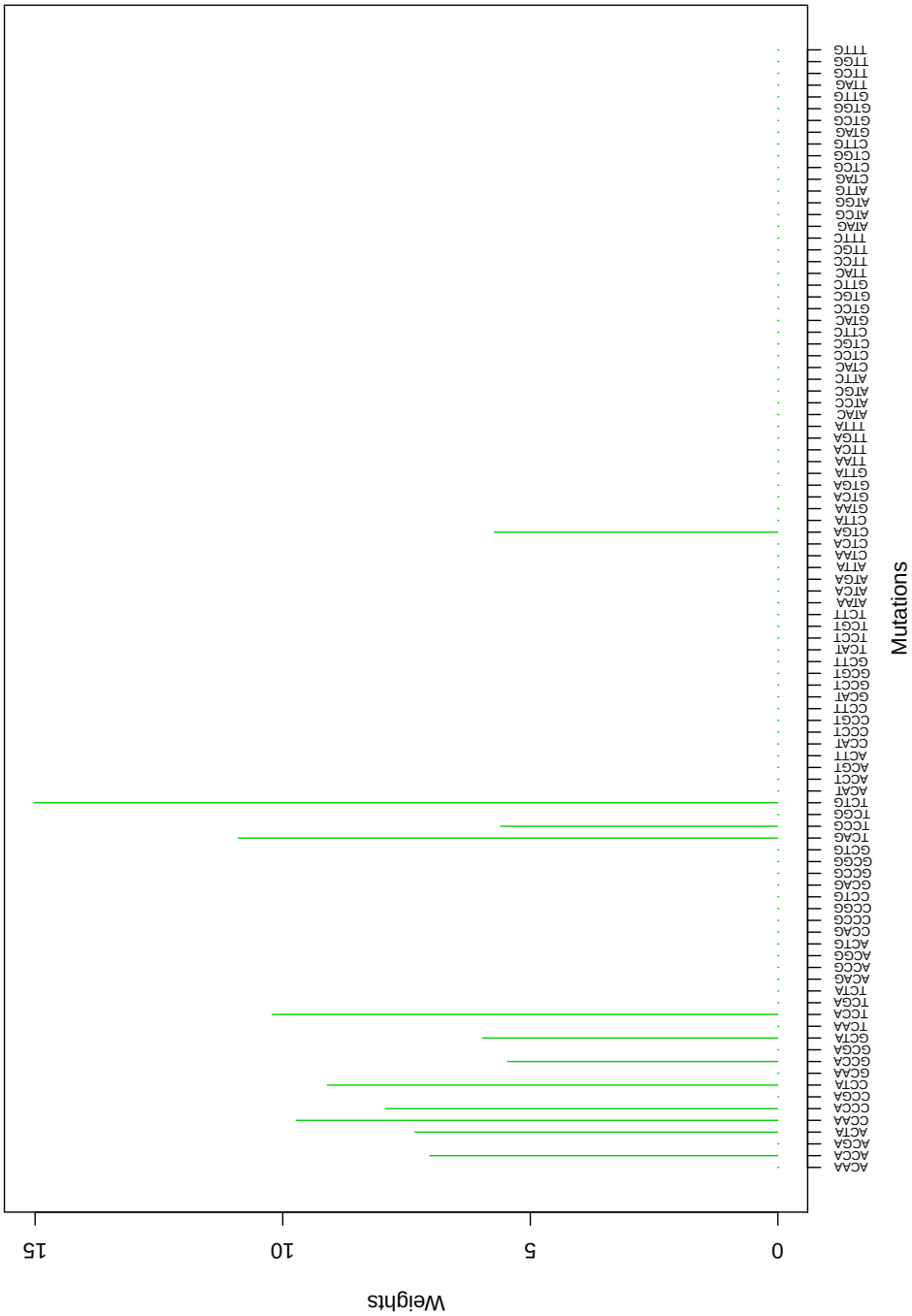

Figure S8: Cluster Cl-4 in Clustering-B with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

Figure S9: Cluster Cl-5 in Clustering-B with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

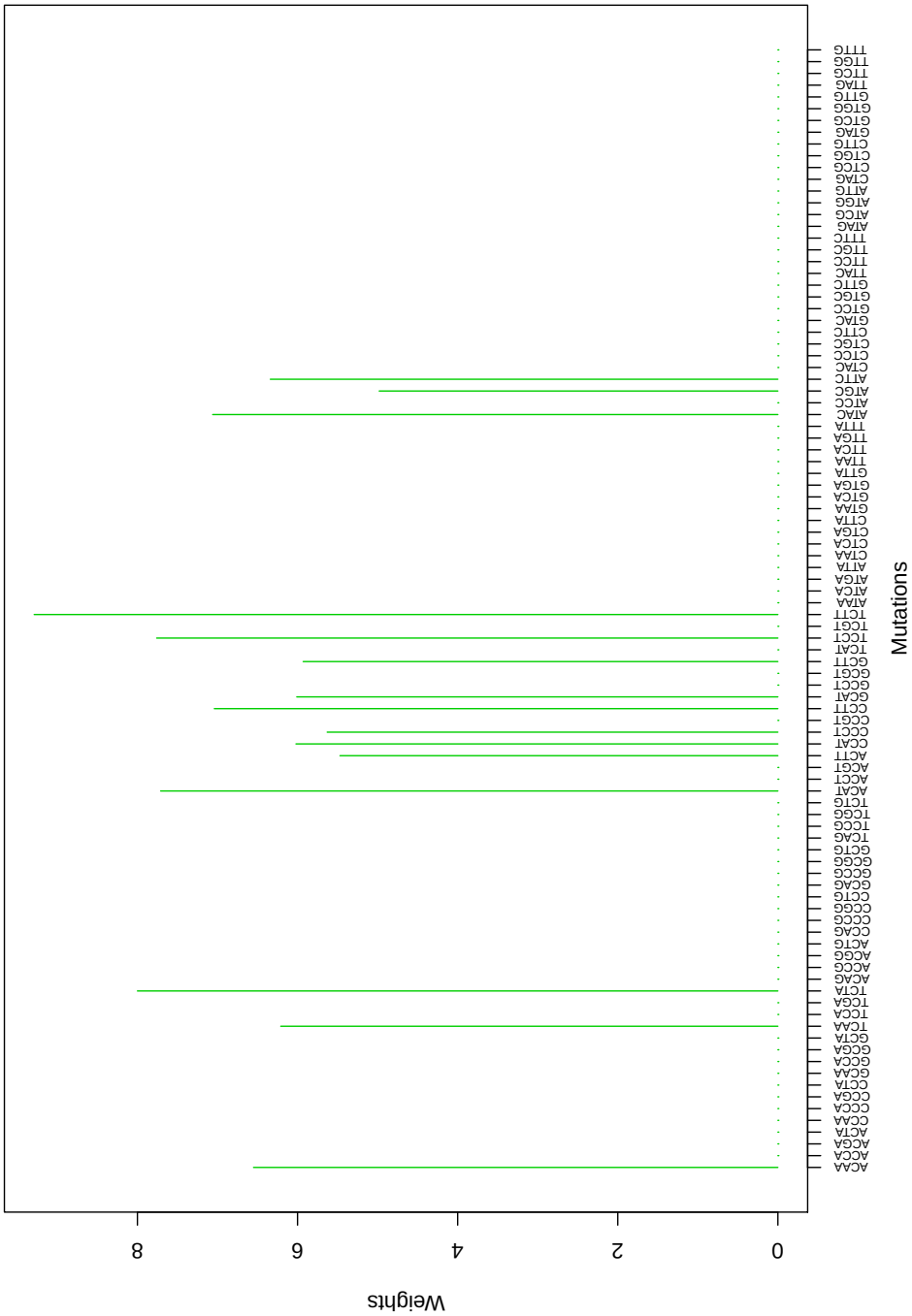

Figure S10: Cluster Cl-5 in Clustering-B with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

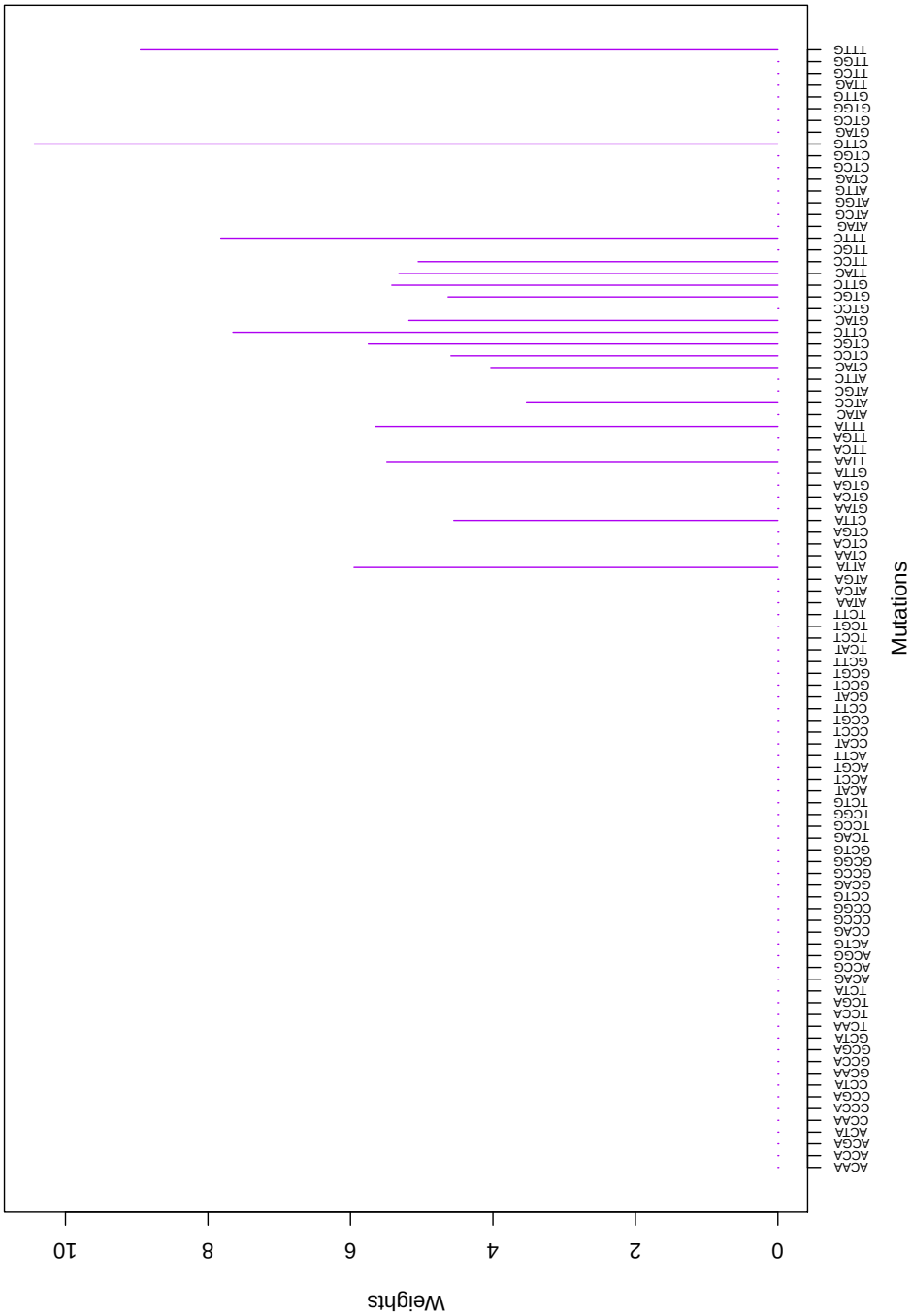

Figure S11: Cluster Cl-6 in Clustering-B with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

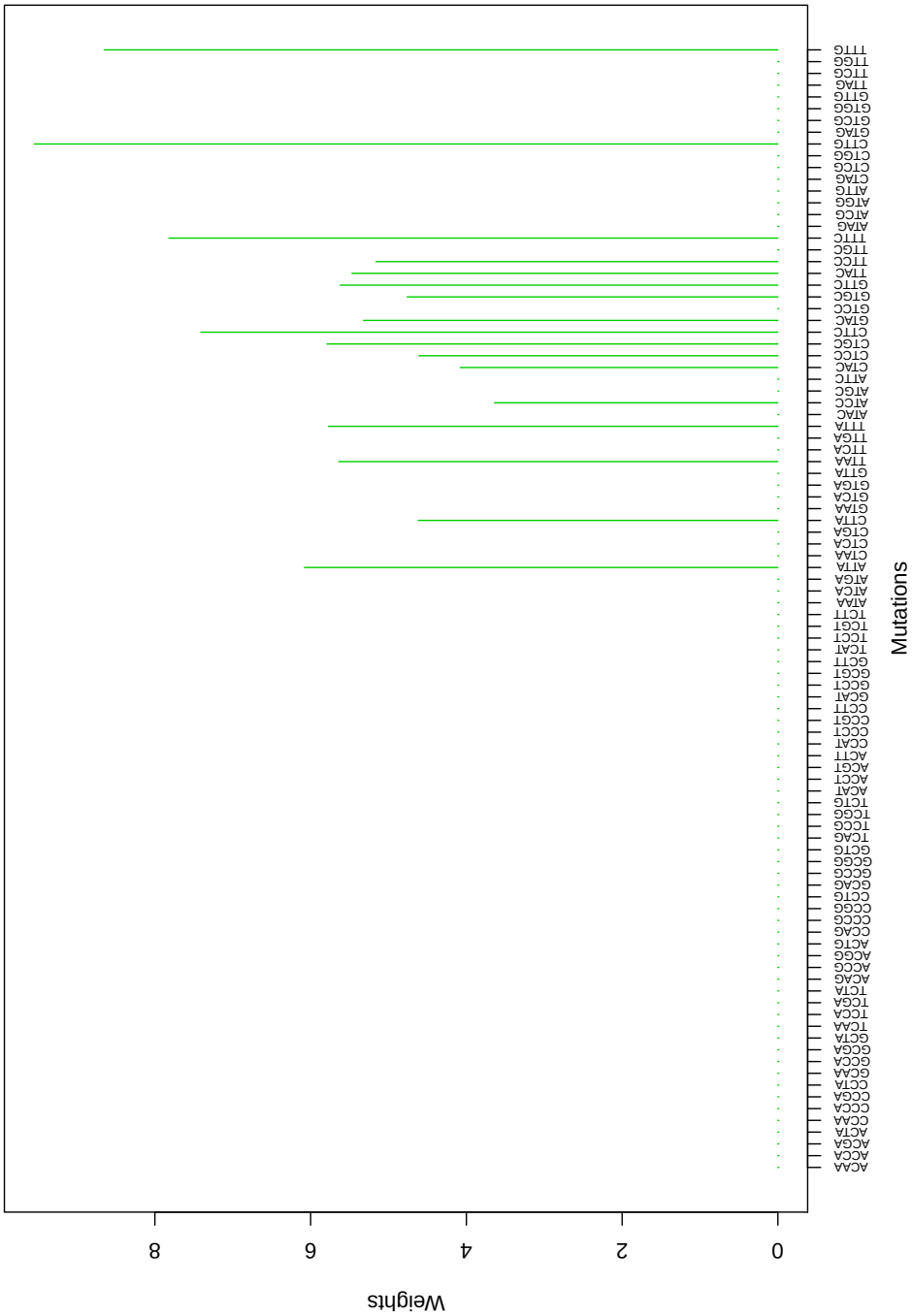

Figure S12: Cluster Cl-6 in Clustering-B with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

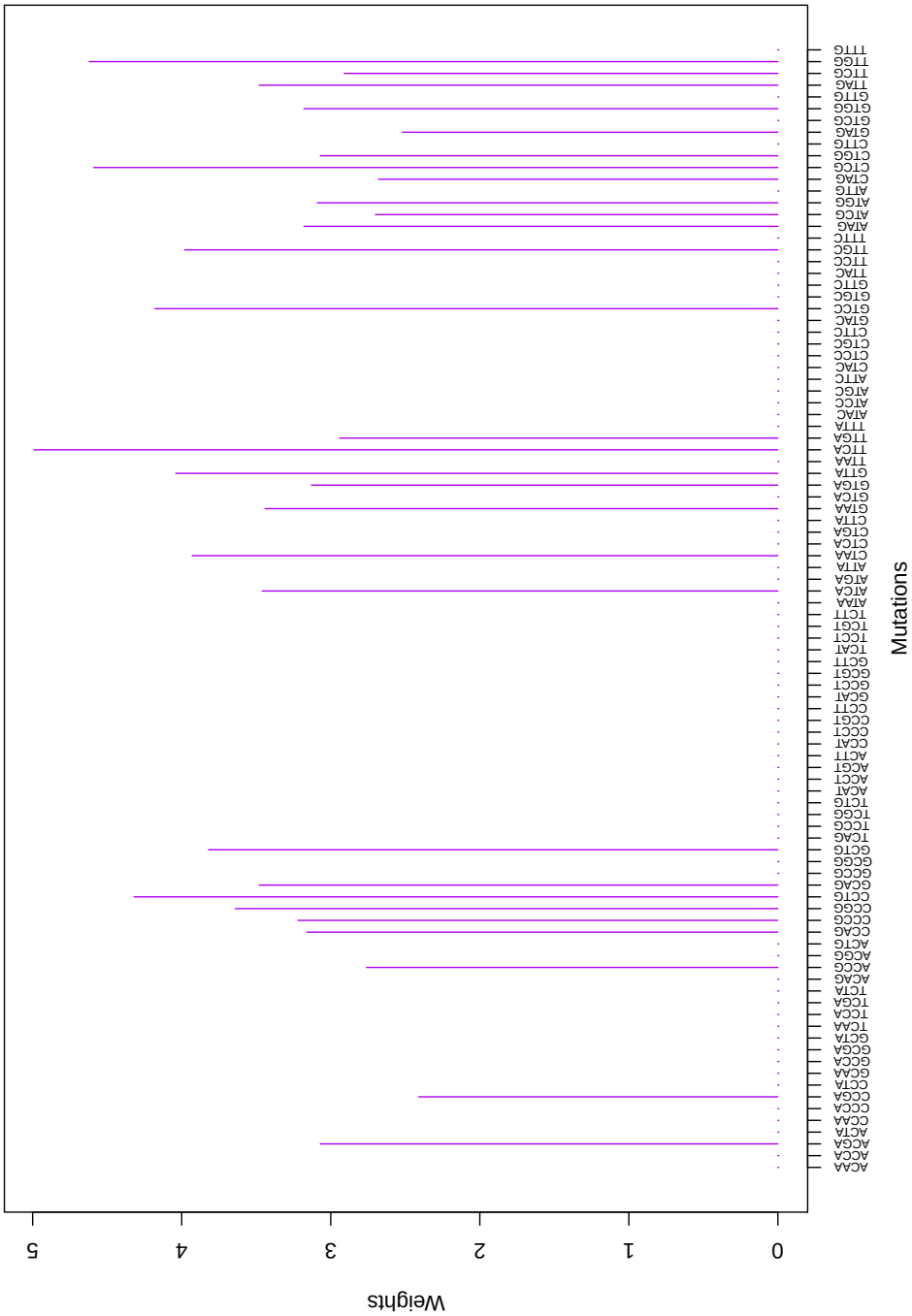

Figure S13: Cluster Cl-7 in Clustering-B with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

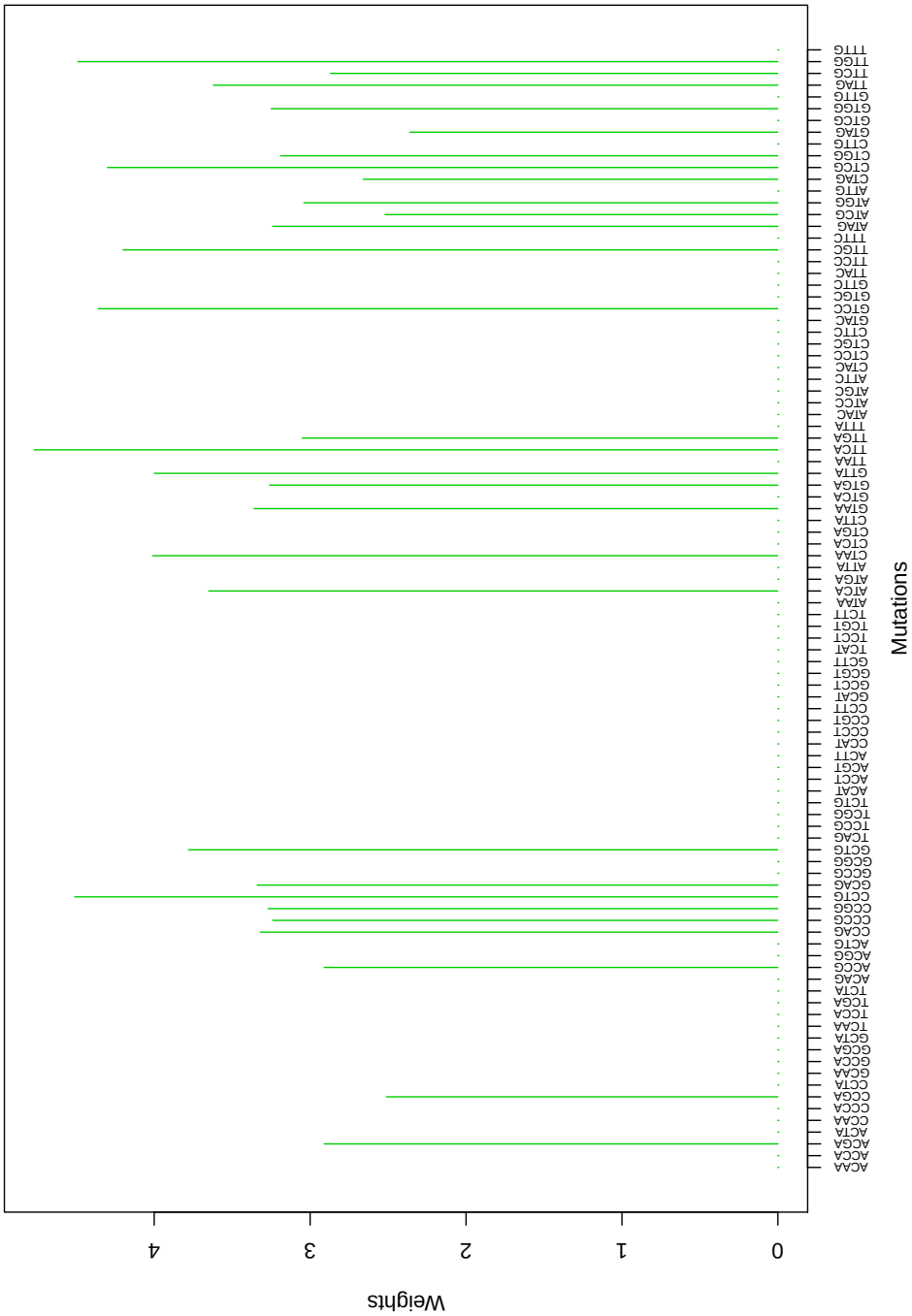

Figure S14: Cluster Cl-7 in Clustering-B with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S5, S6.

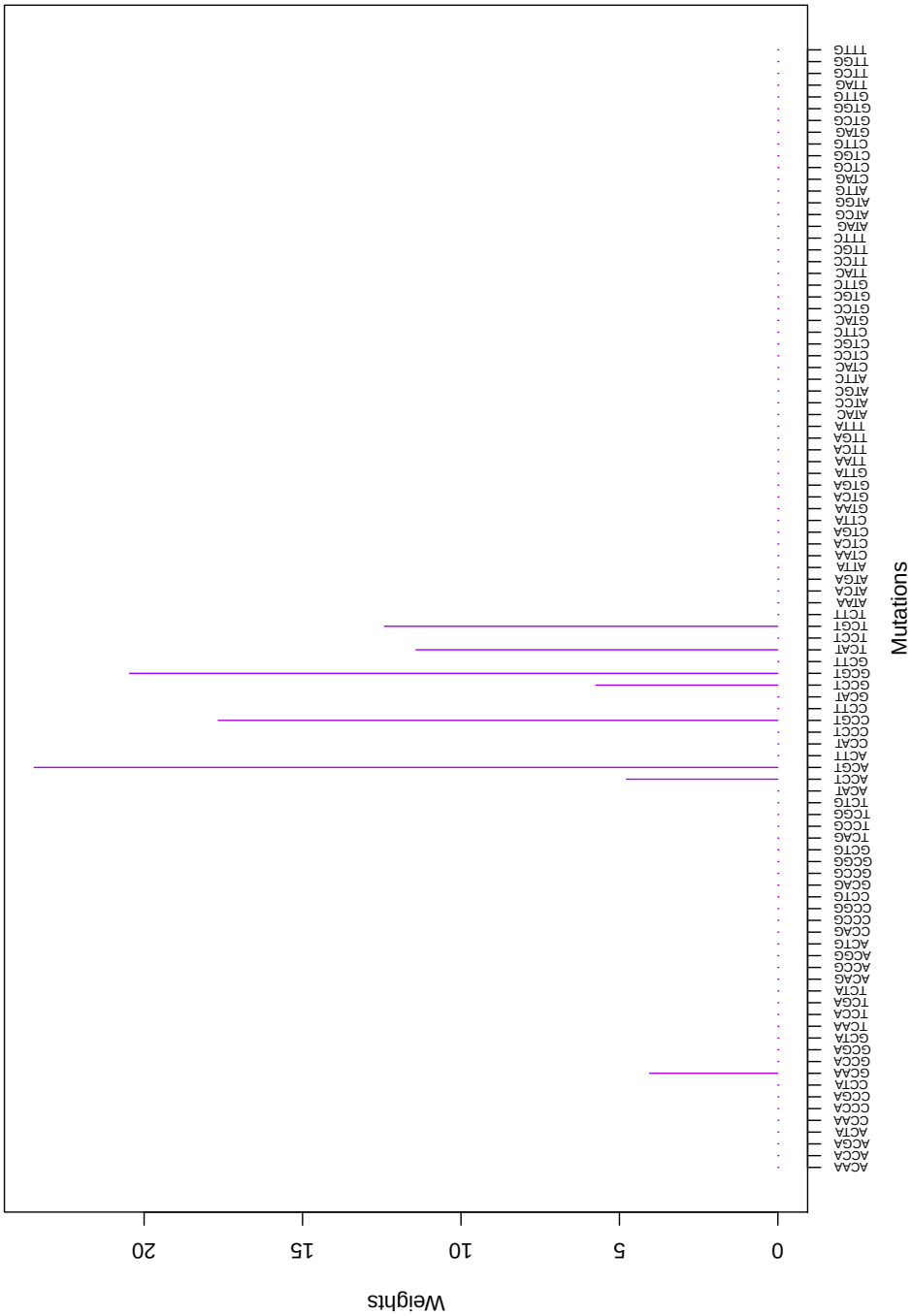

Figure S15: Cluster Cl-1 in Clustering-C with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

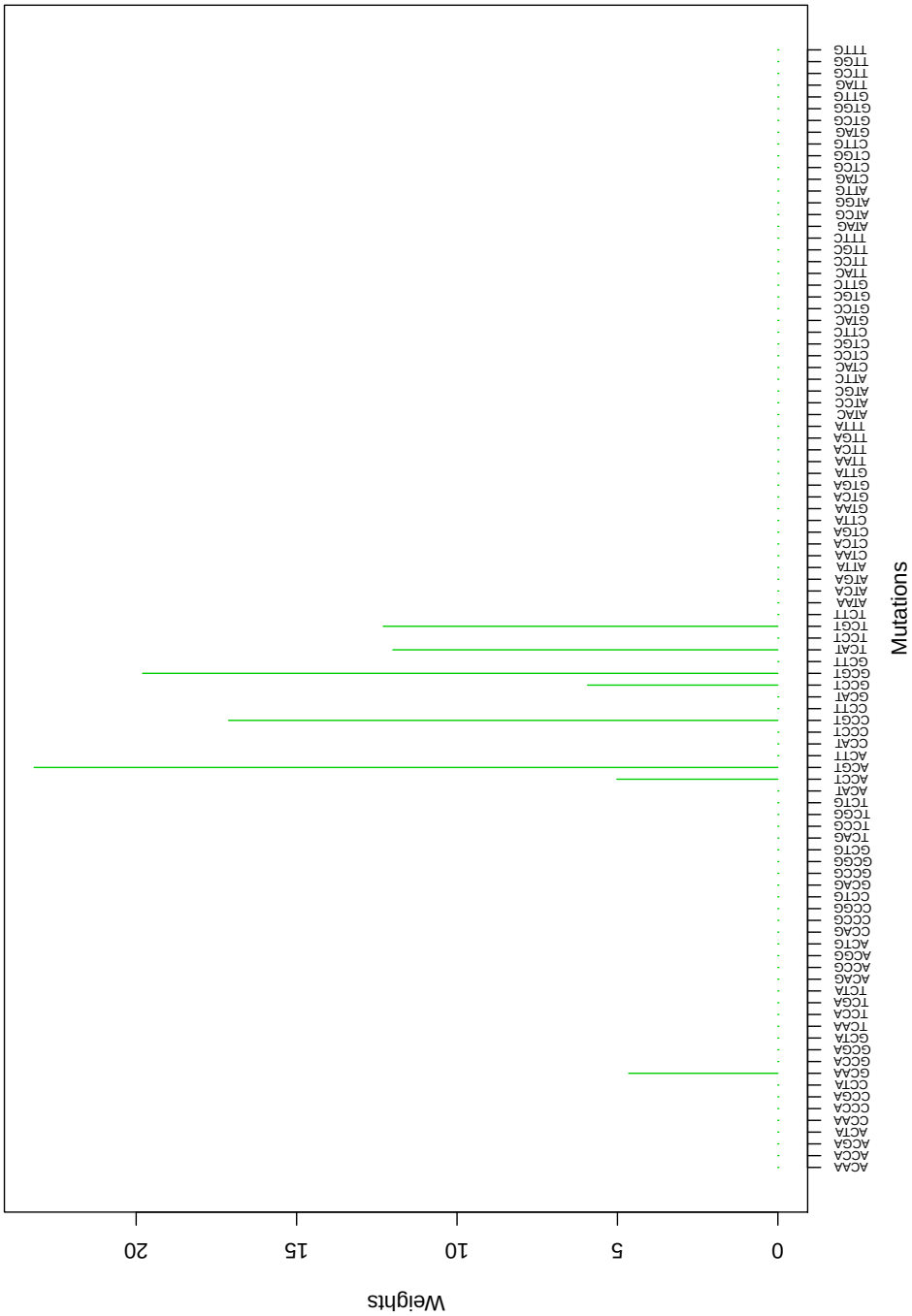

Figure S16: Cluster Cl-1 in Clustering-C with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

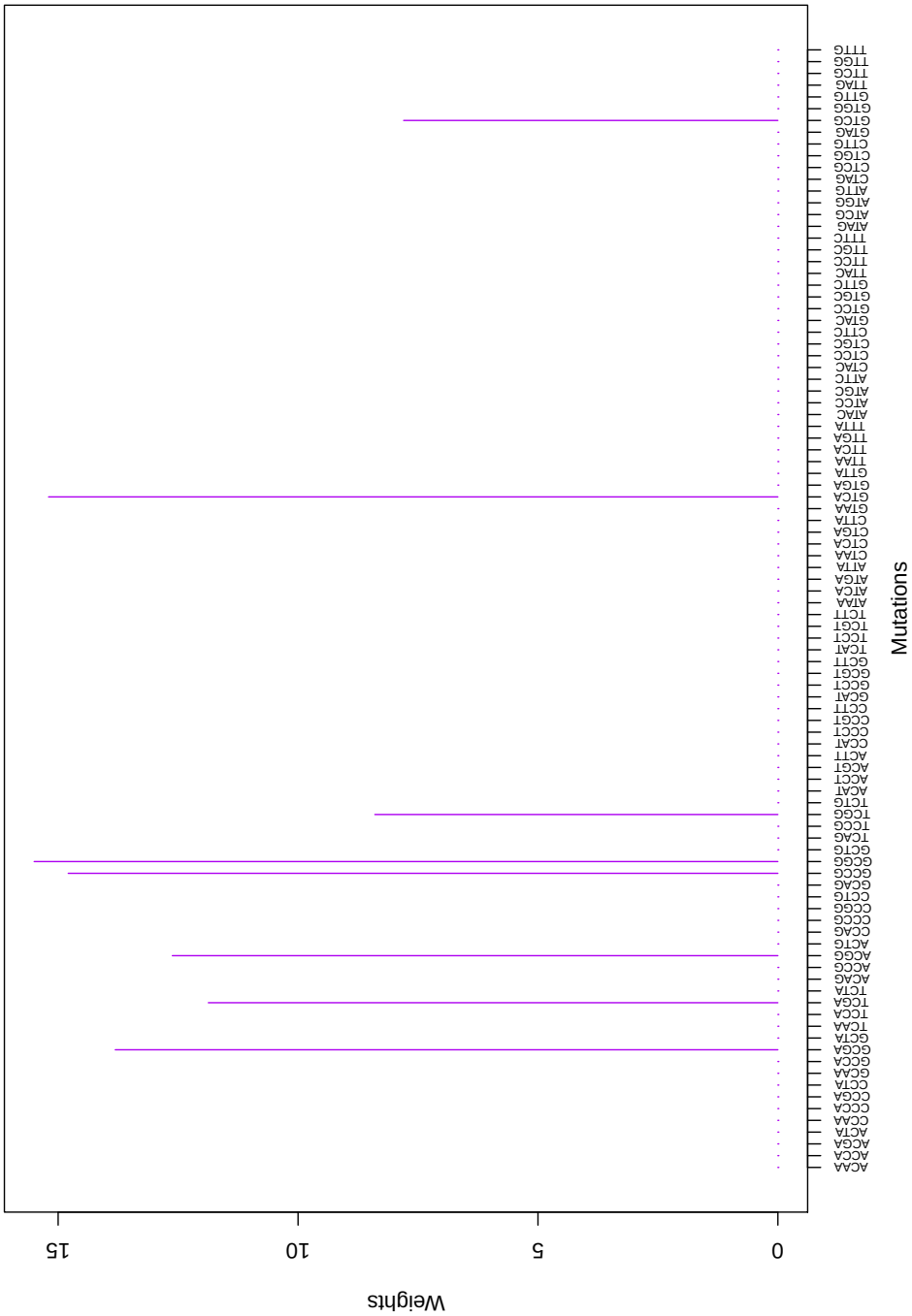

Figure S17: Cluster Cl-2 in Clustering-C with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

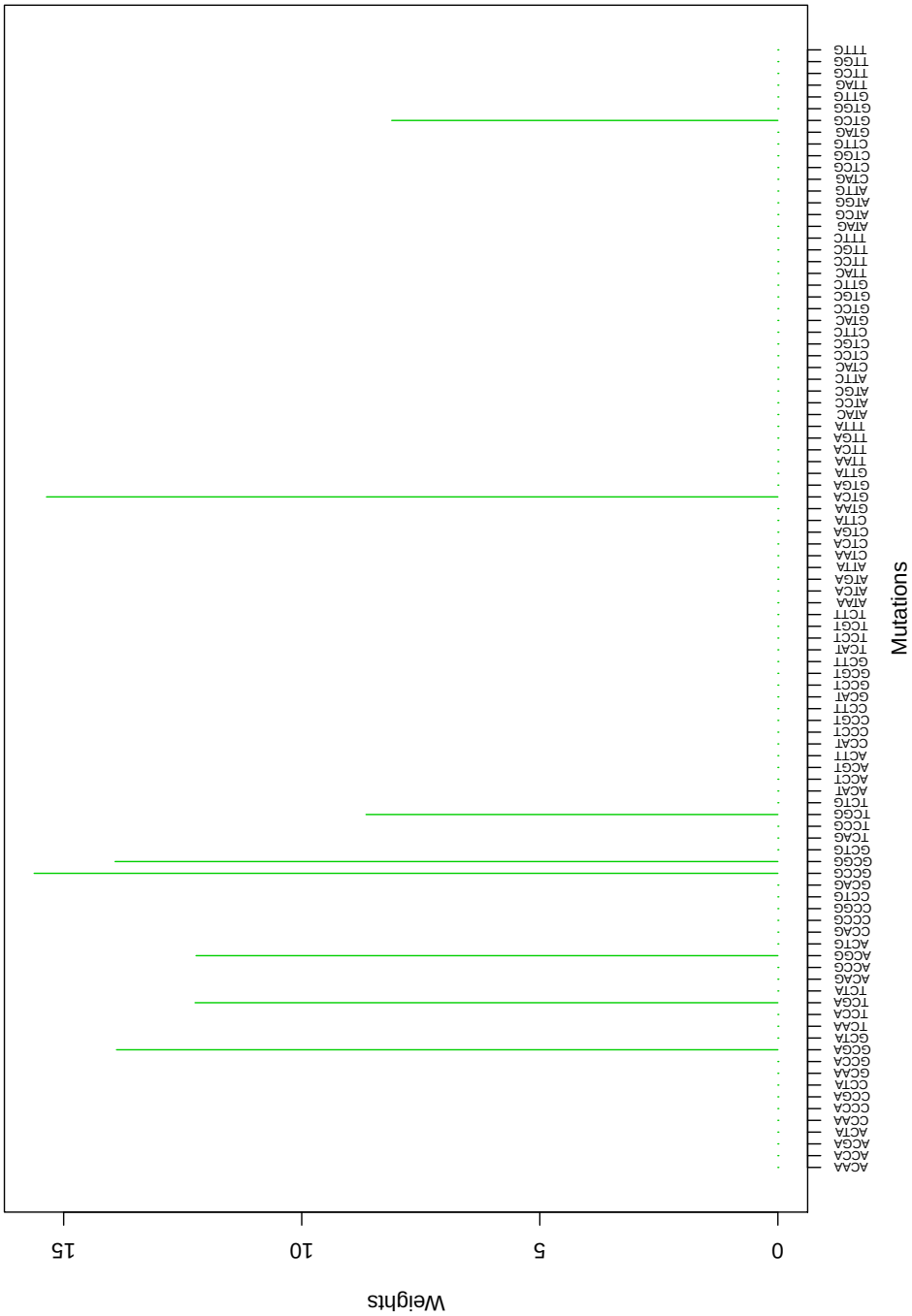

Figure S18: Cluster Cl-2 in Clustering-C with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

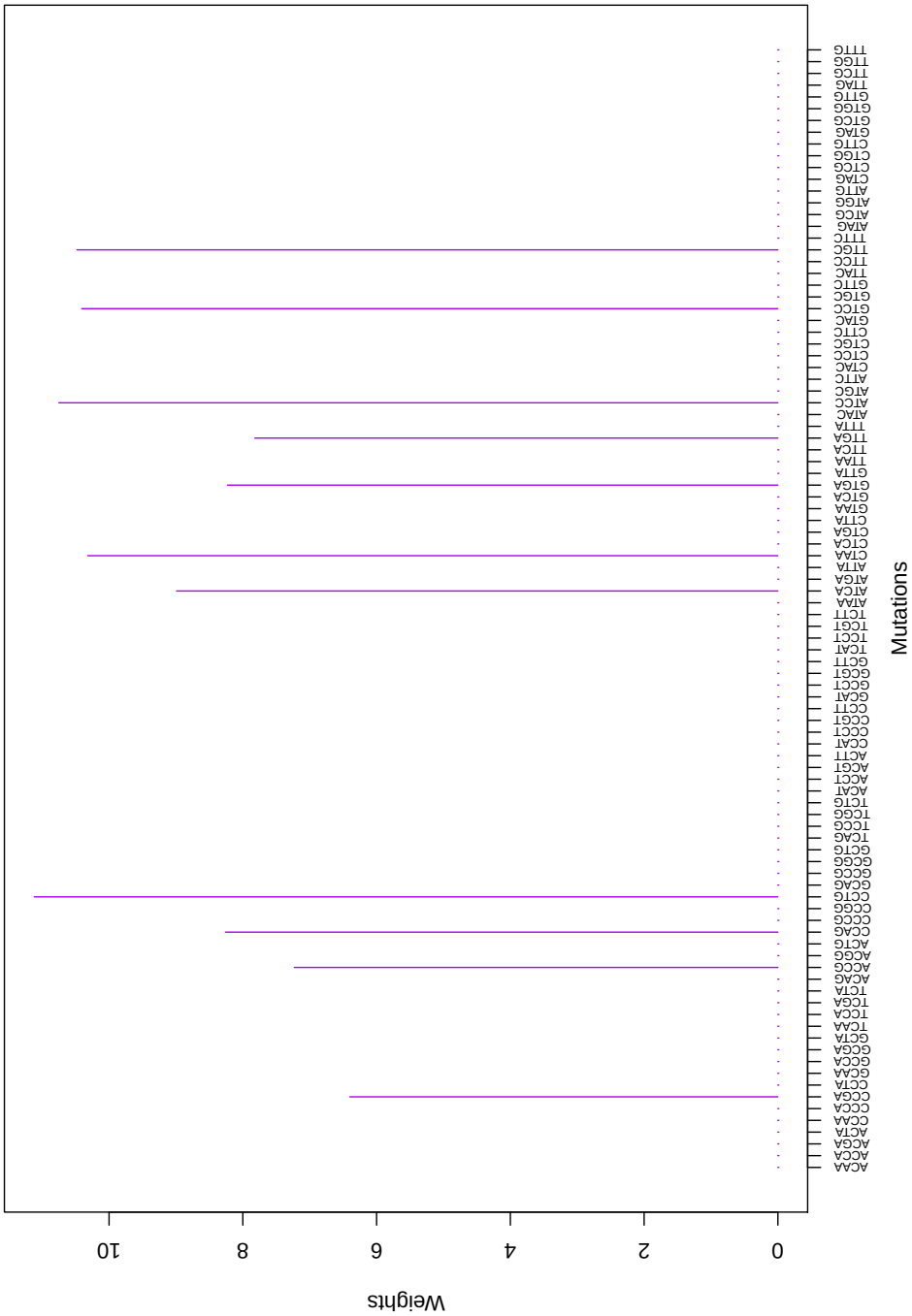

Figure S19: Cluster Cl-3 in Clustering-C with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

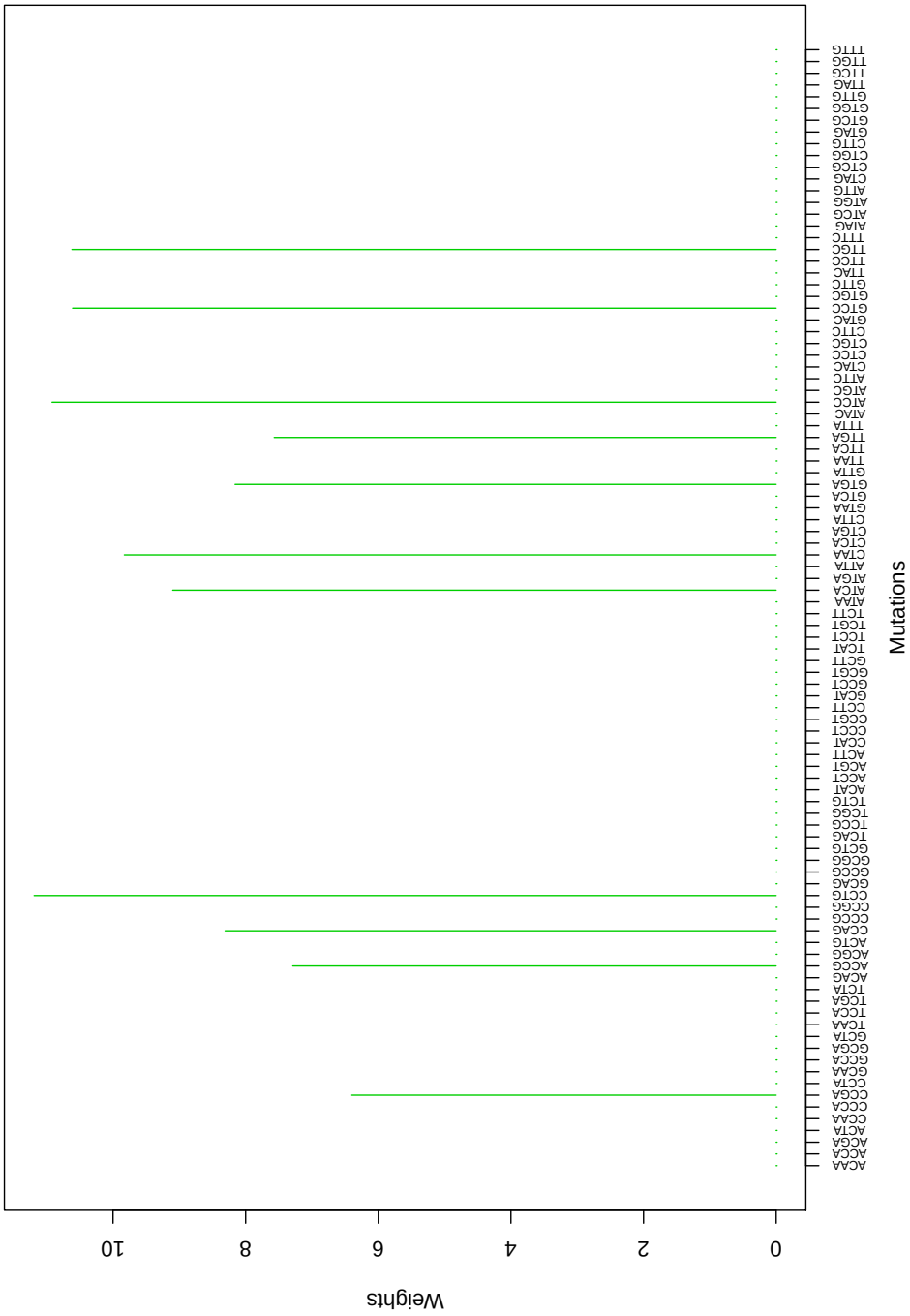

Figure S20: Cluster Cl-3 in Clustering-C with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

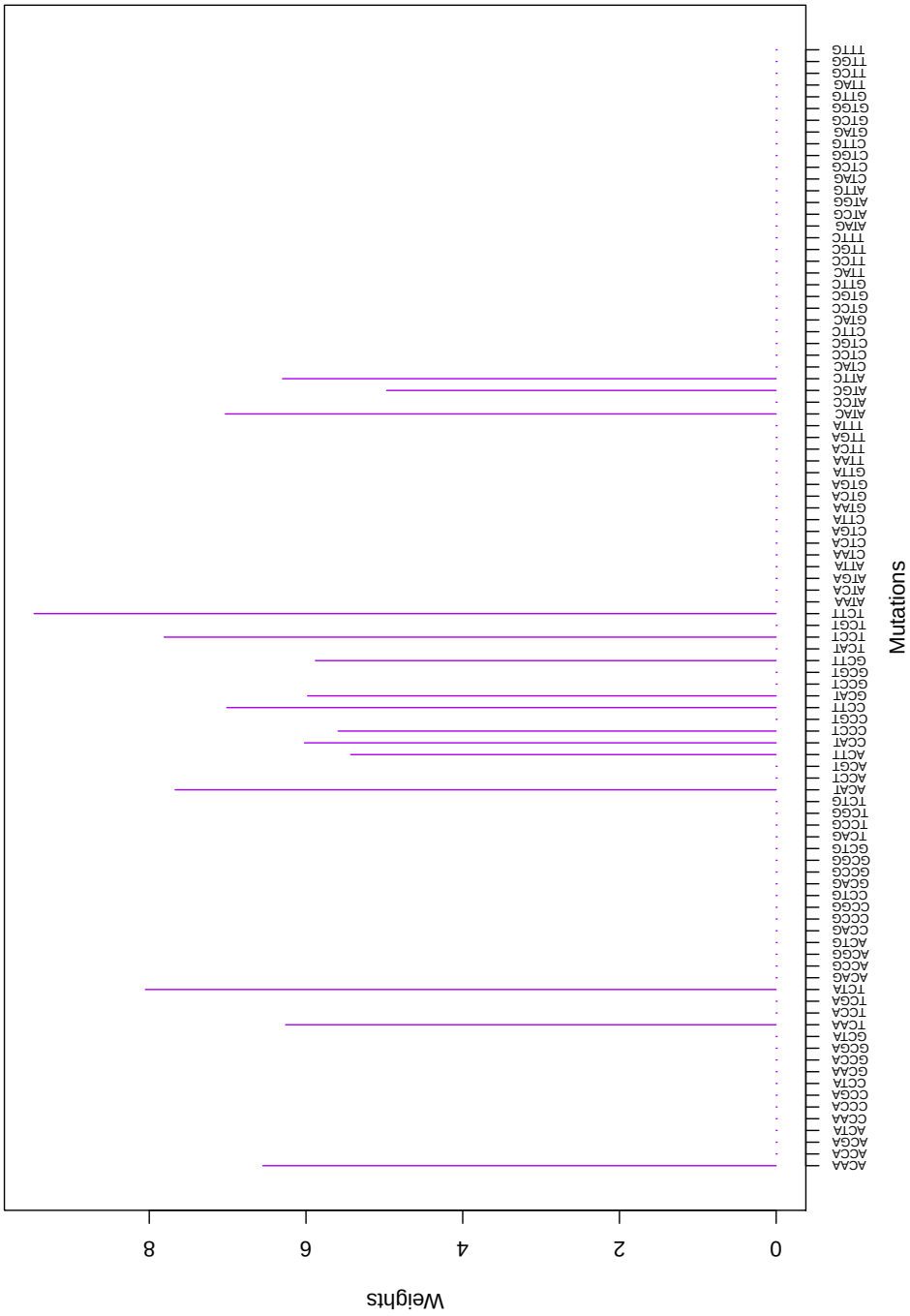

Figure S21: Cluster Cl-4 in Clustering-C with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

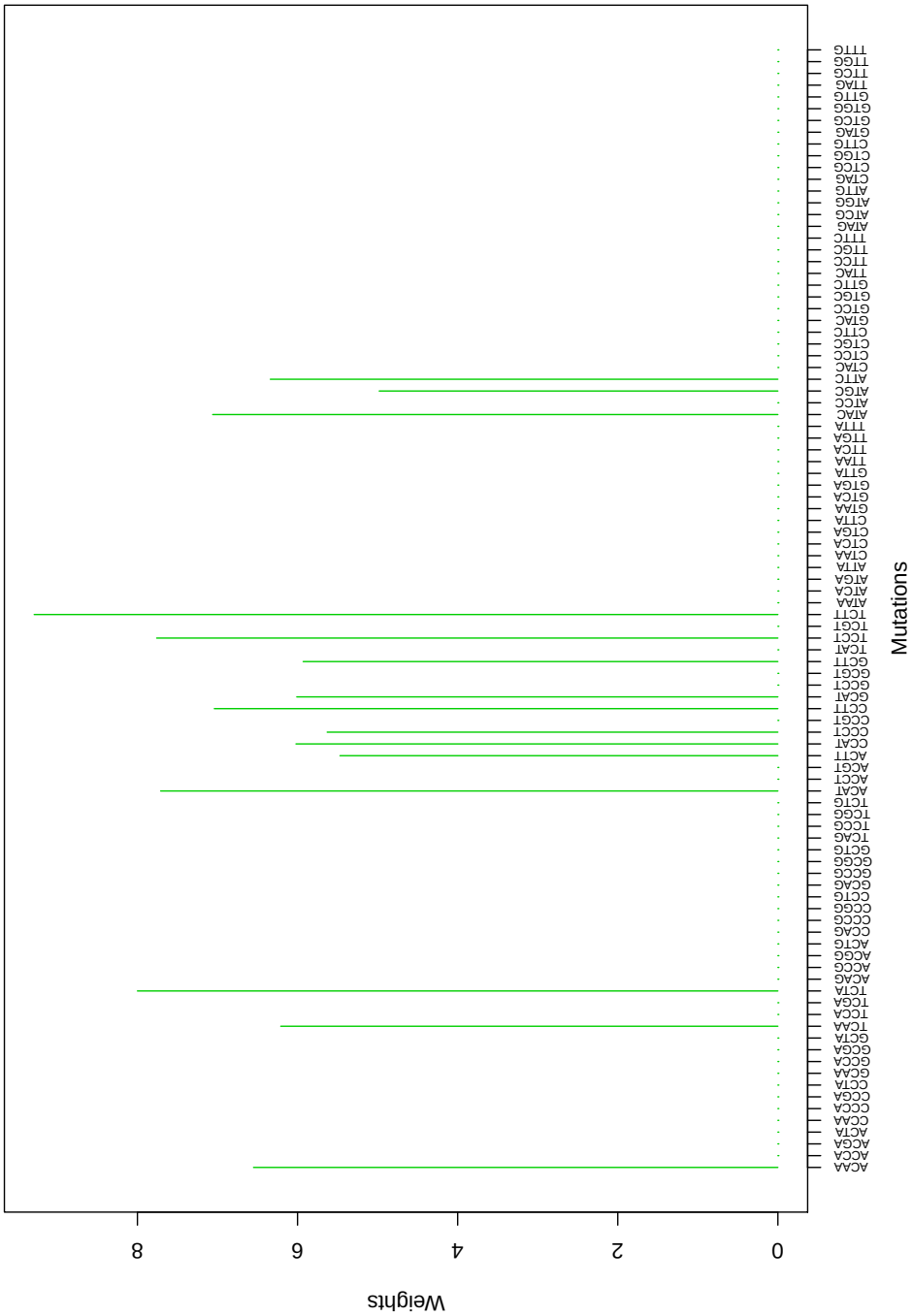

Figure S22: Cluster Cl-4 in Clustering-C with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

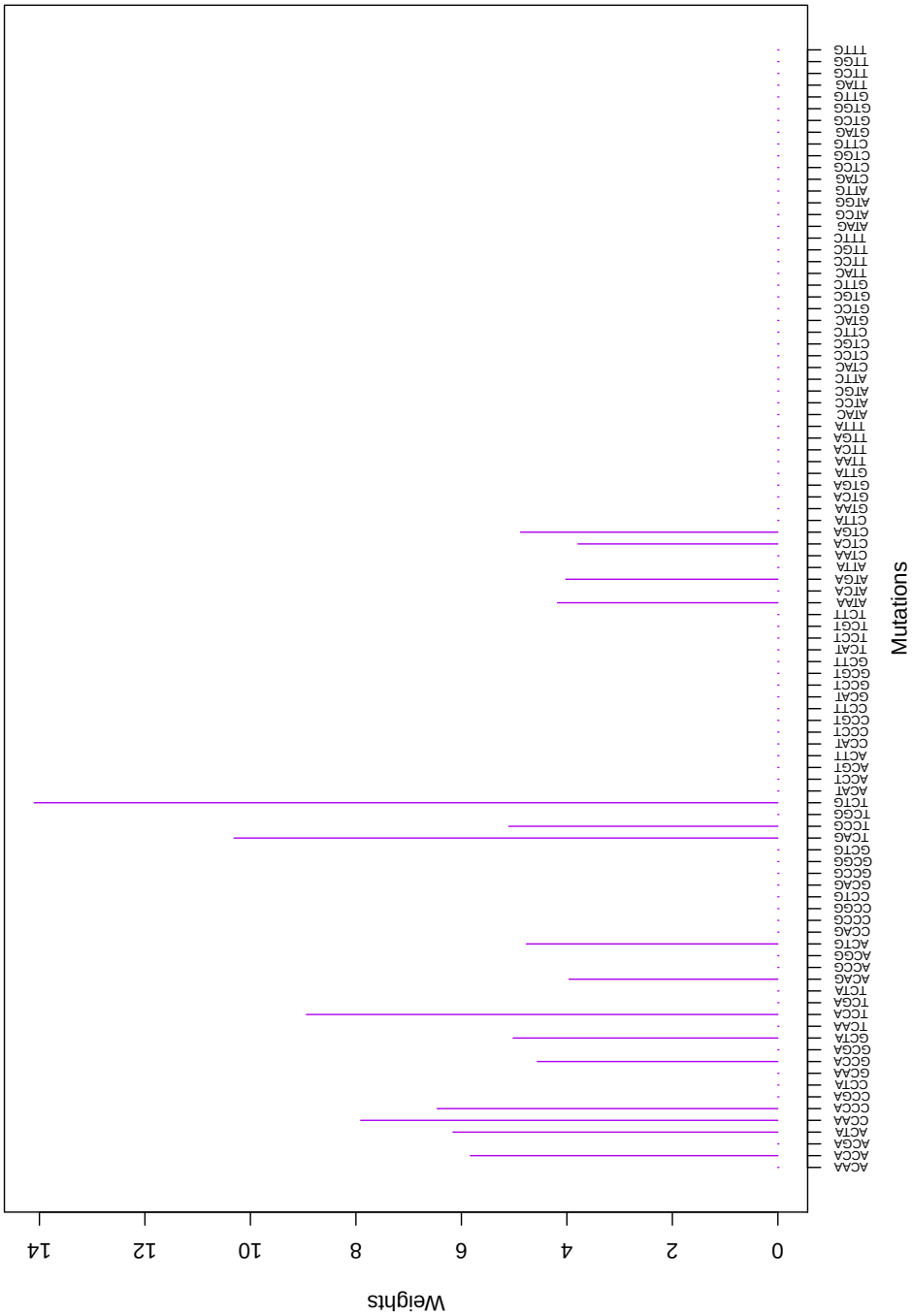

Figure S23: Cluster Cl-5 in Clustering-C with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

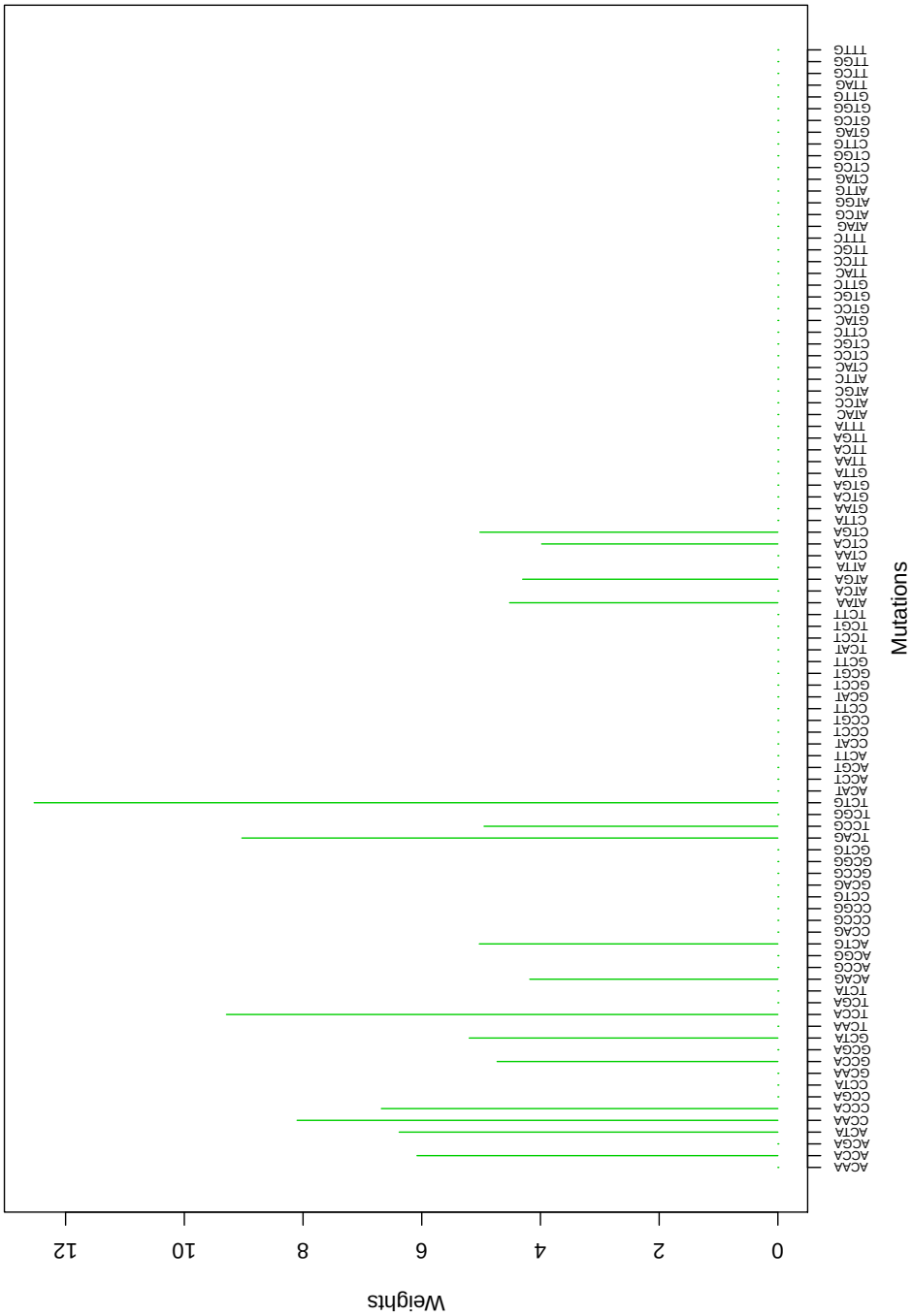

Figure S24: Cluster Cl-5 in Clustering-C with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

Figure S25: Cluster Cl-6 in Clustering-C with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

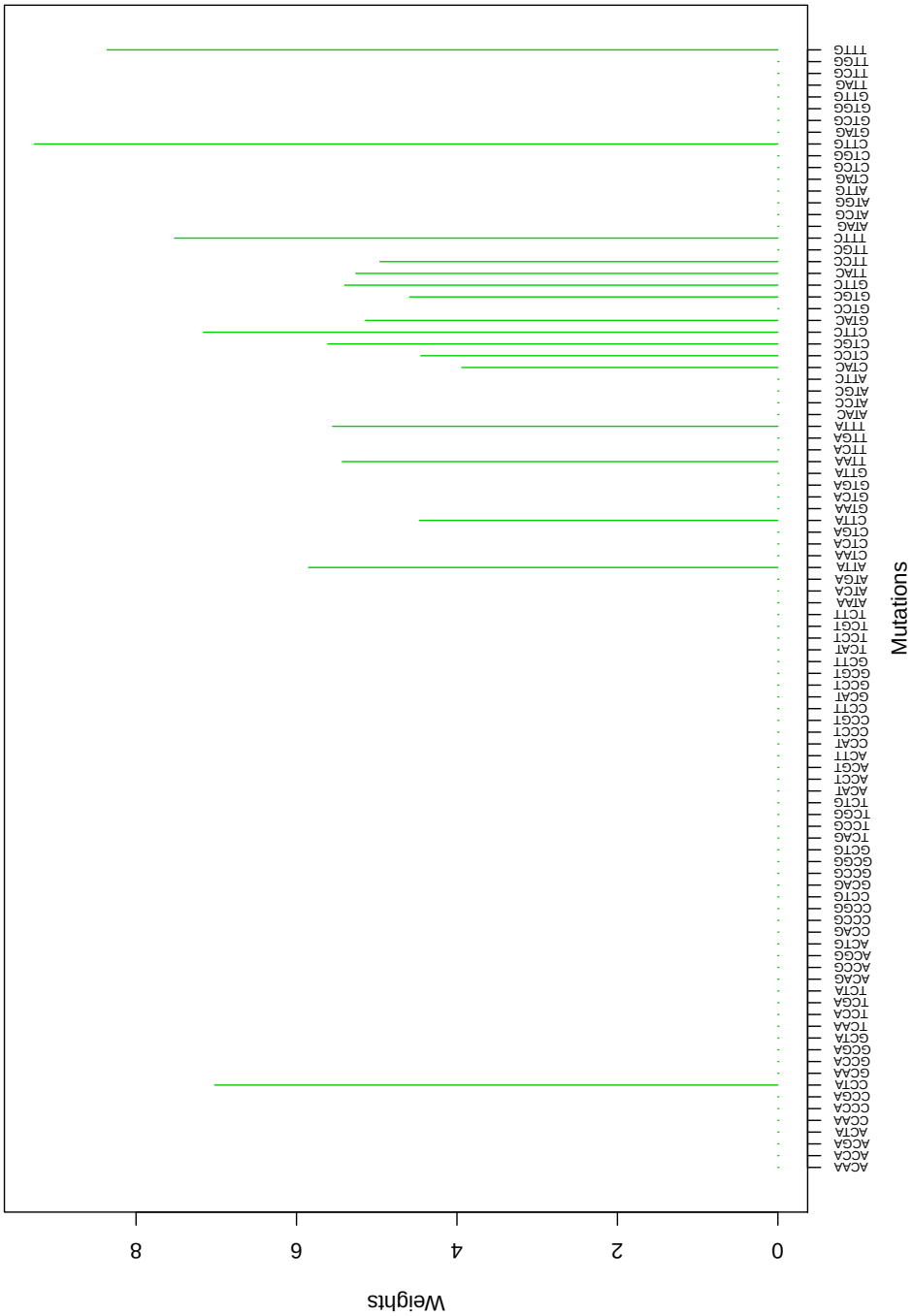

Figure S26: Cluster Cl-6 in Clustering-C with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

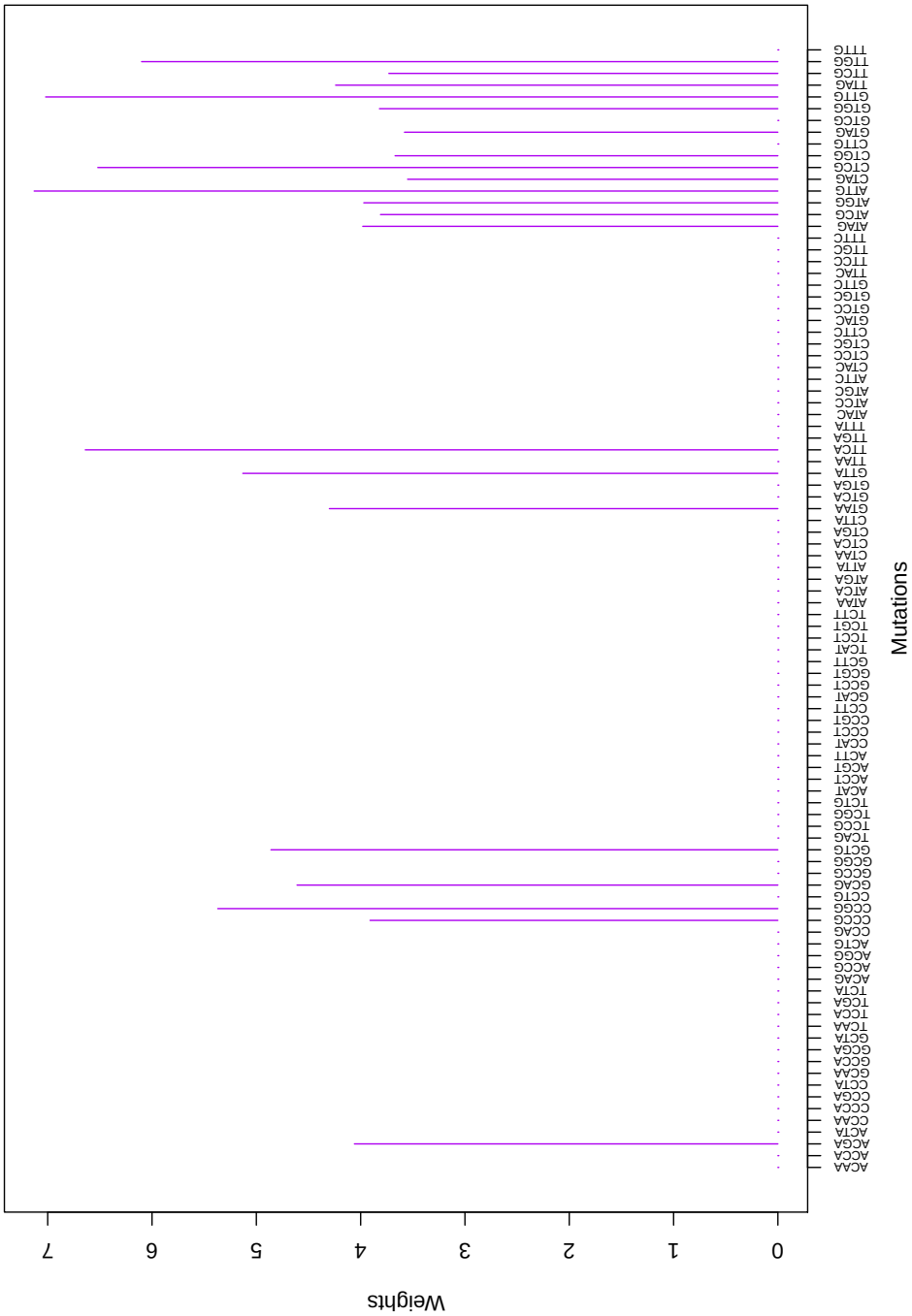

Figure S27: Cluster Cl-7 in Clustering-C with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

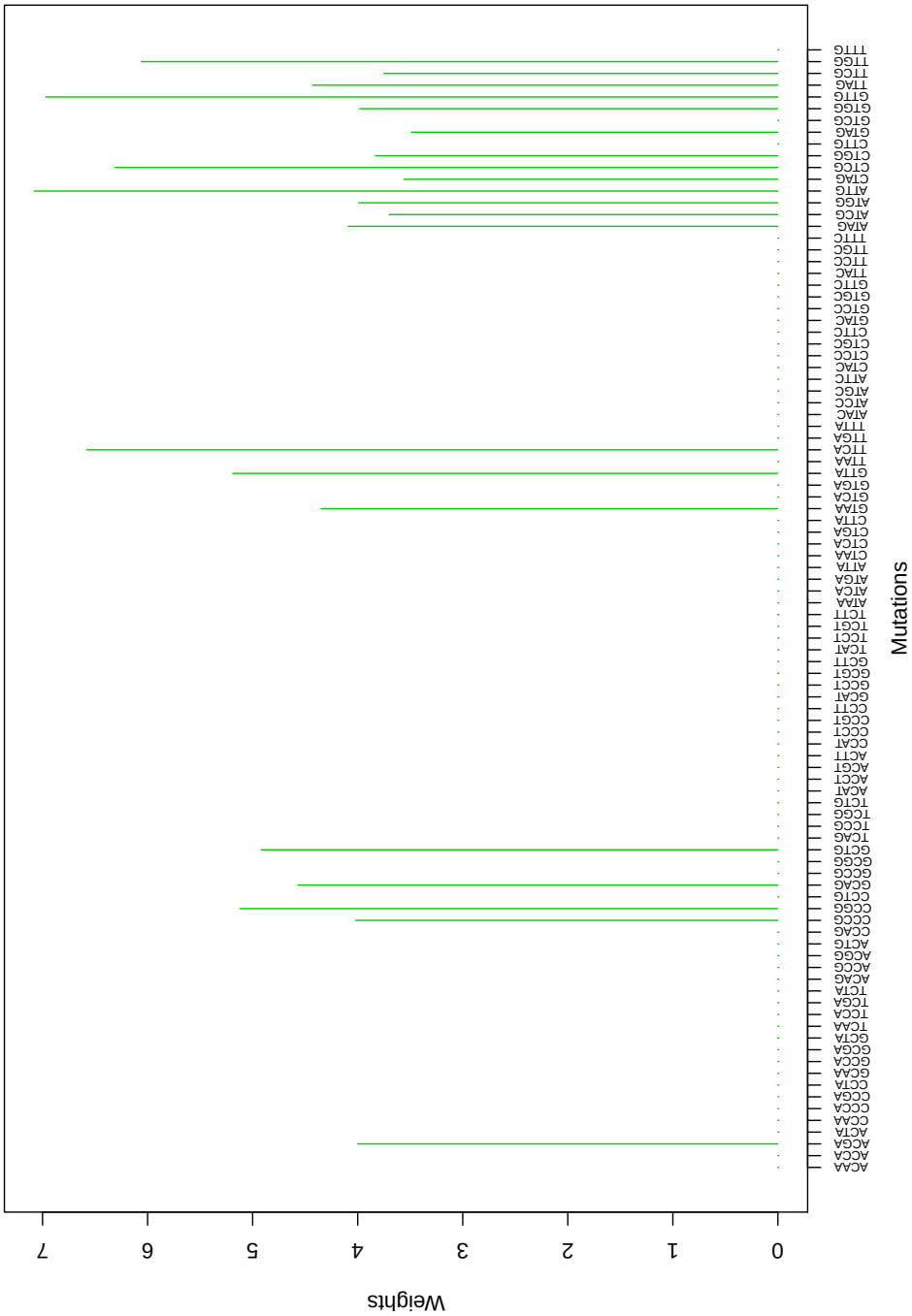

Figure S28: Cluster Cl-7 in Clustering-C with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S7, S8.

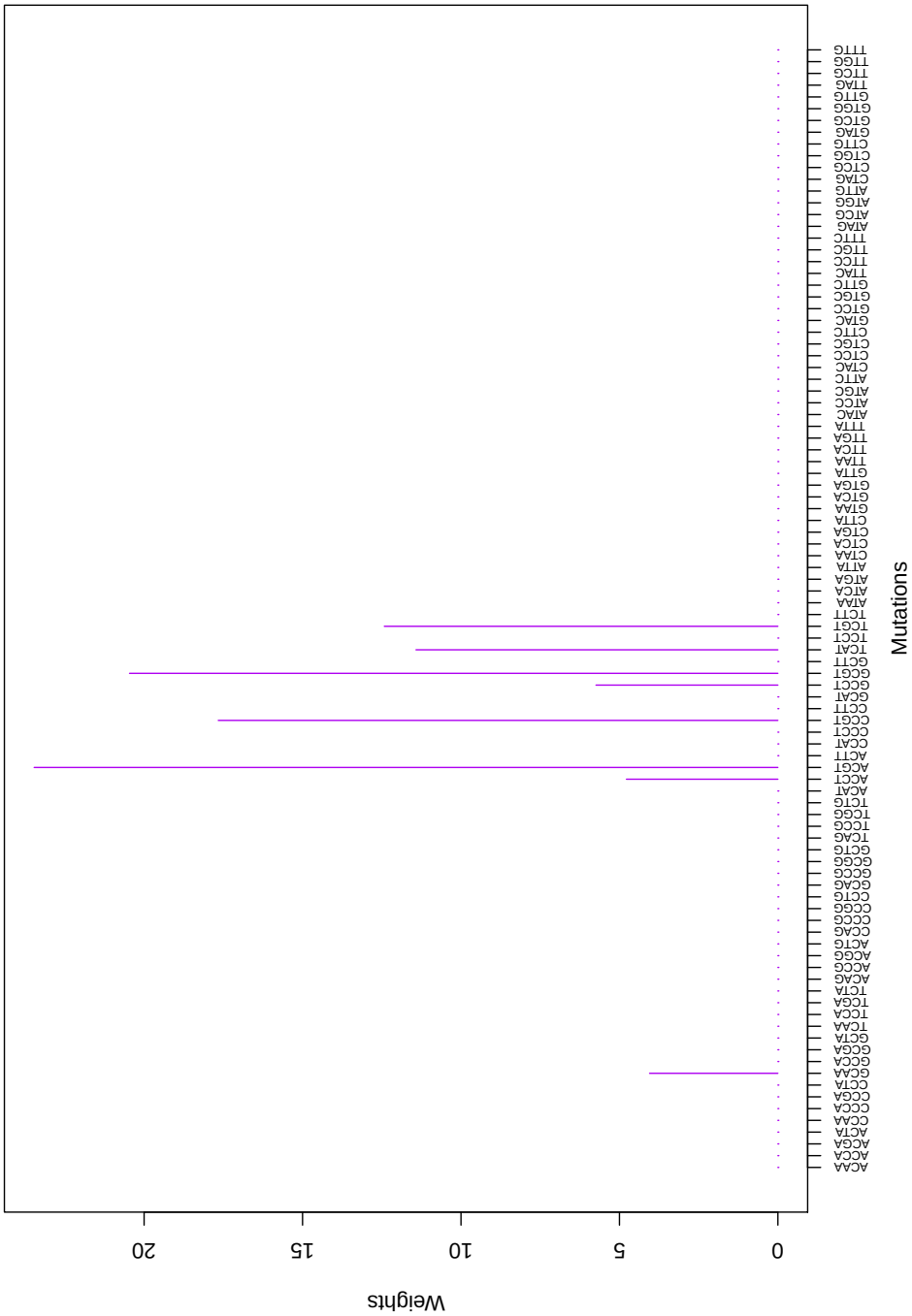

Figure S29: Cluster Cl-1 in Clustering-D with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S9, S10.

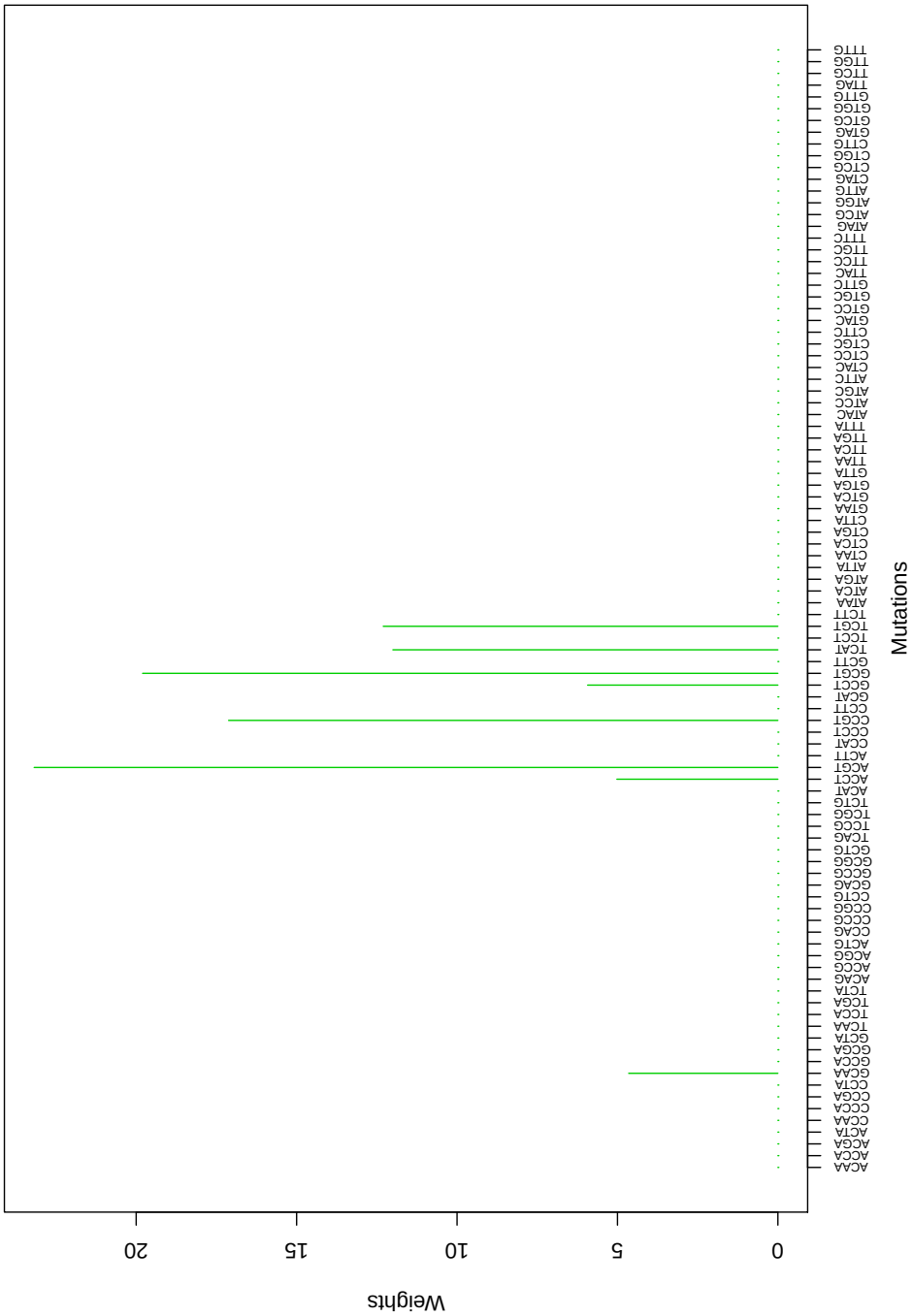

Figure S30: Cluster Cl-1 in Clustering-D with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S9, S10.

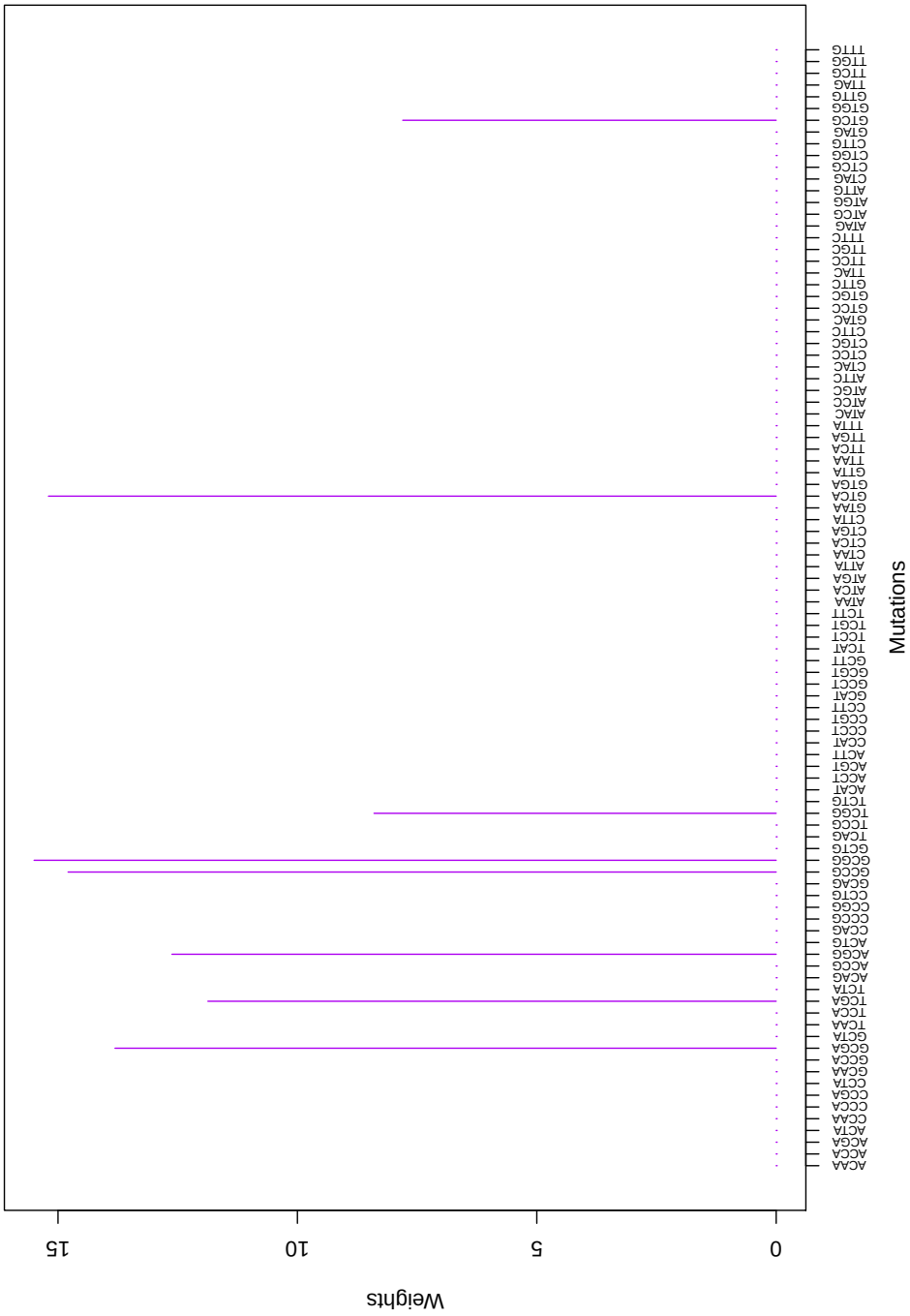

Figure S31: Cluster Cl-2 in Clustering-D with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S9, S10.

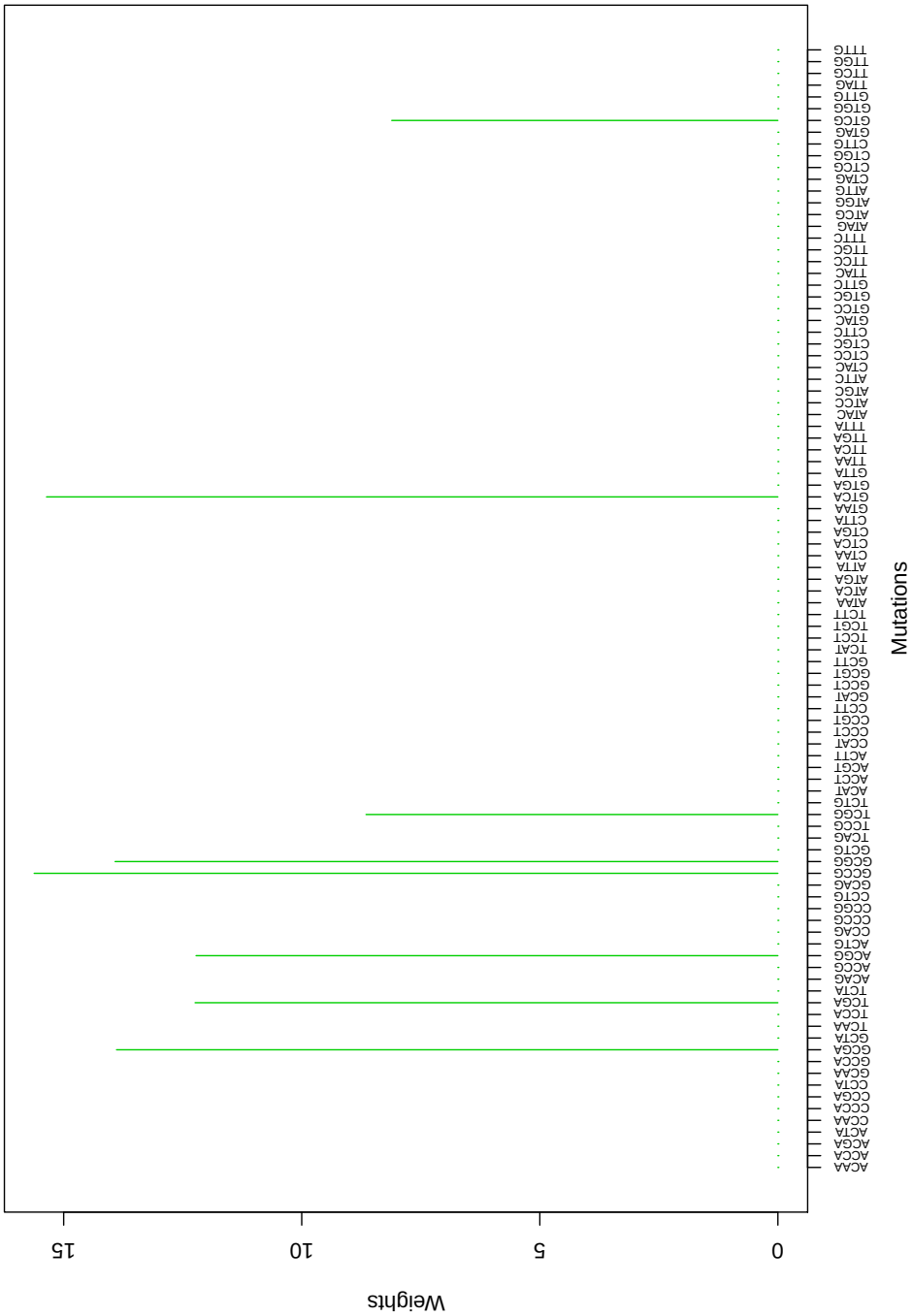

Figure S32: Cluster Cl-2 in Clustering-D with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S9, S10.

Figure S33: Cluster Cl-3 in Clustering-D with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S9, S10.

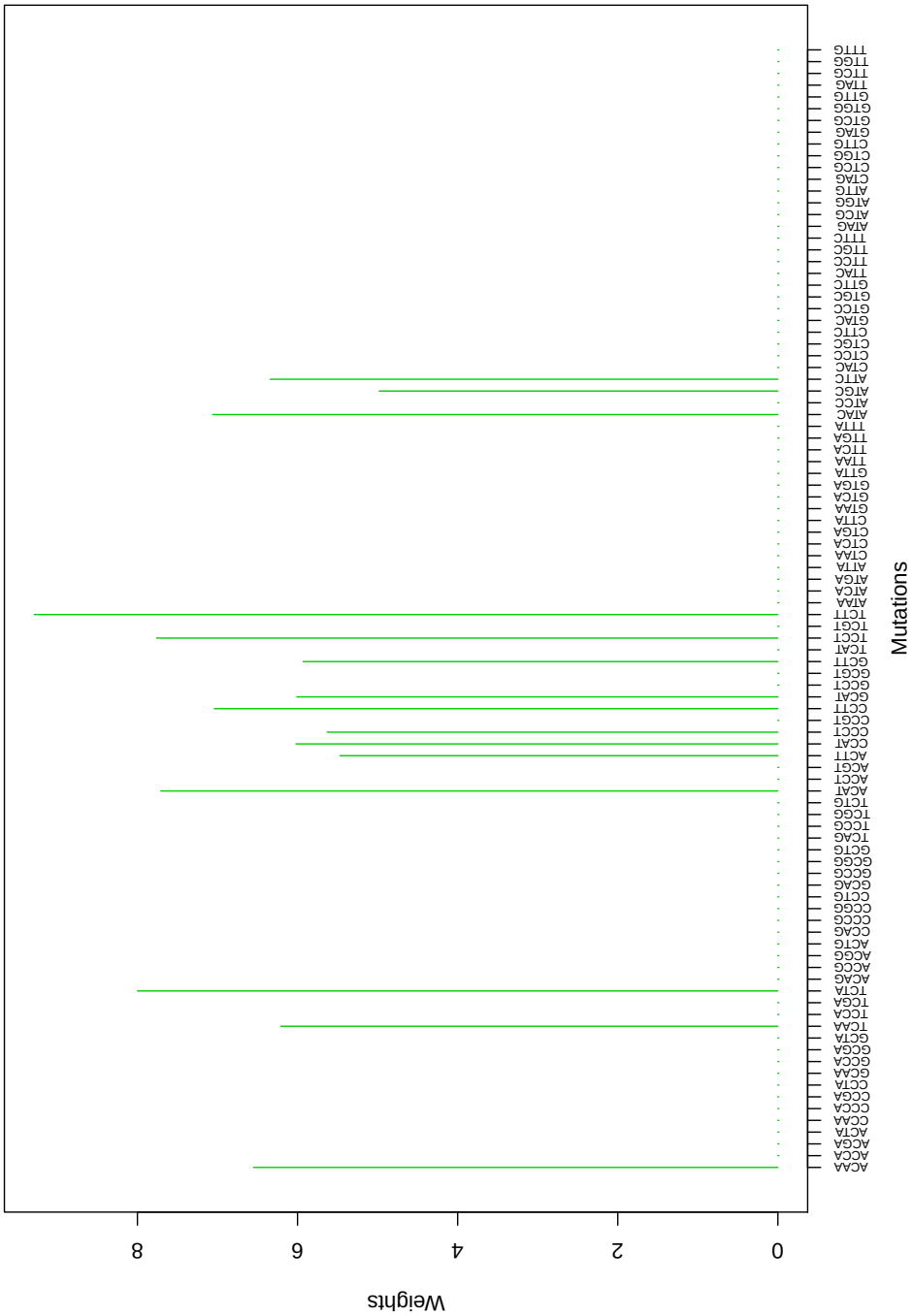

Figure S34: Cluster Cl-3 in Clustering-D with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S9, S10.

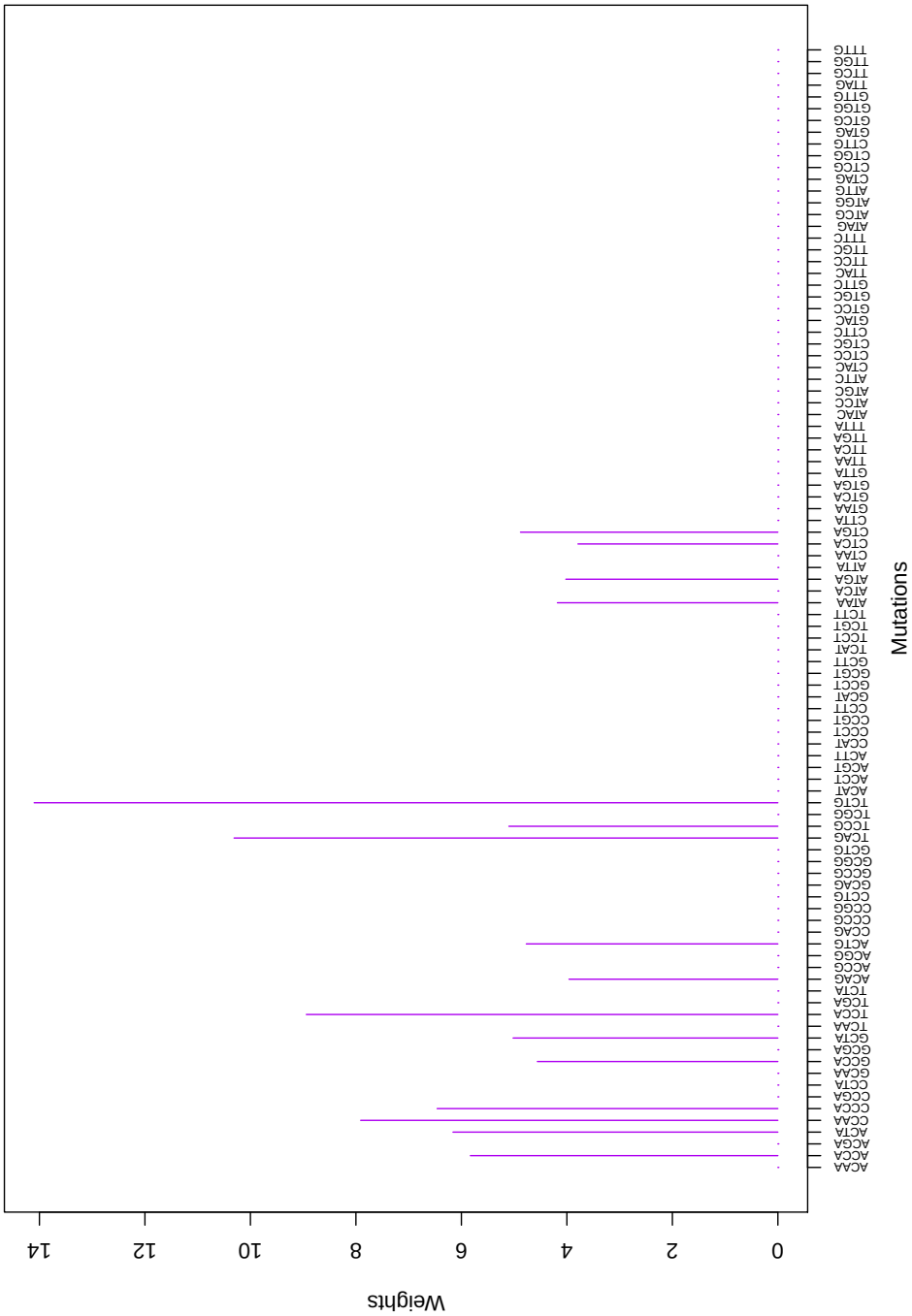

Figure S35: Cluster Cl-4 in Clustering-D with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S9, S10.

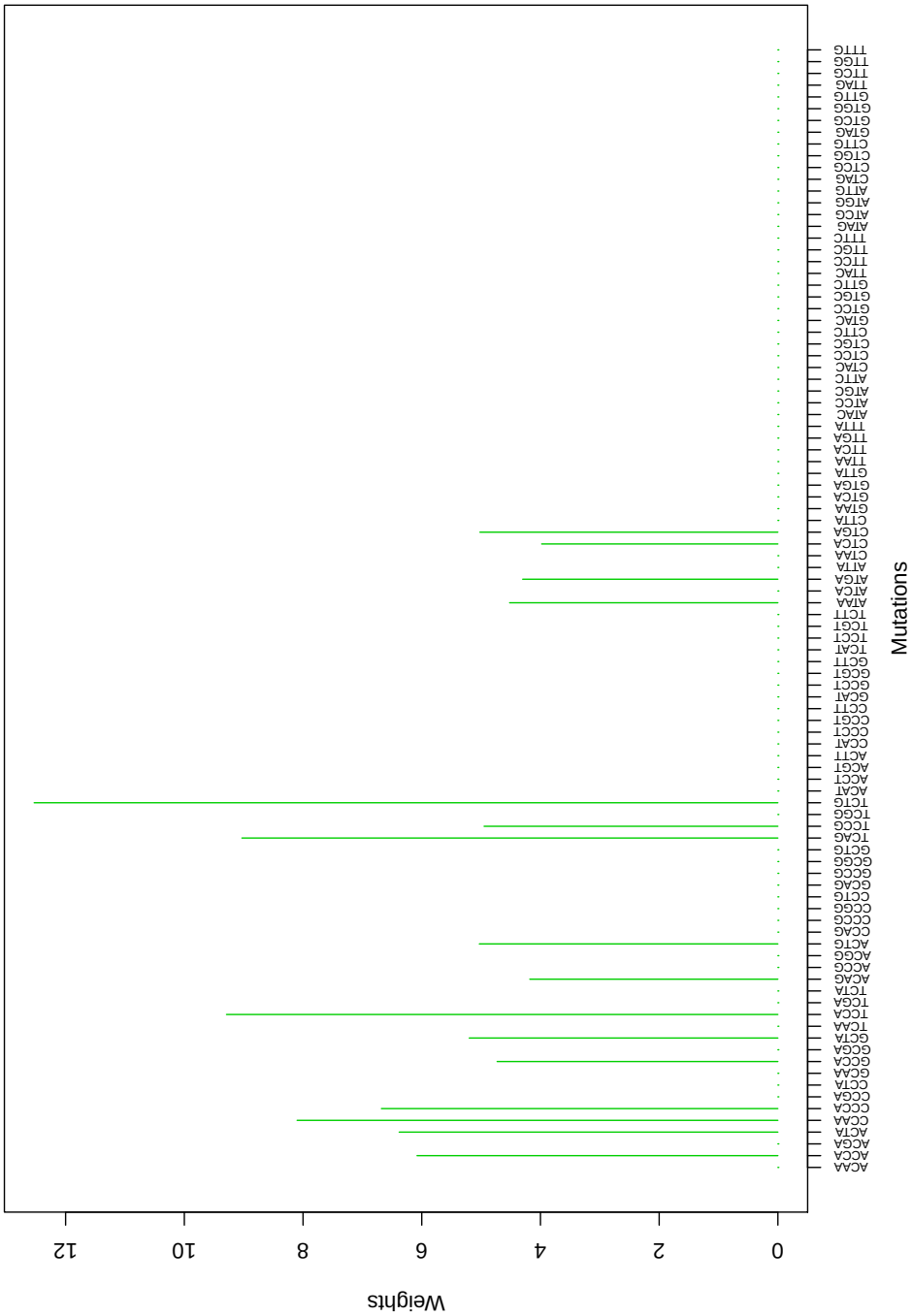

Figure S36: Cluster Cl-4 in Clustering-D with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S9, S10.

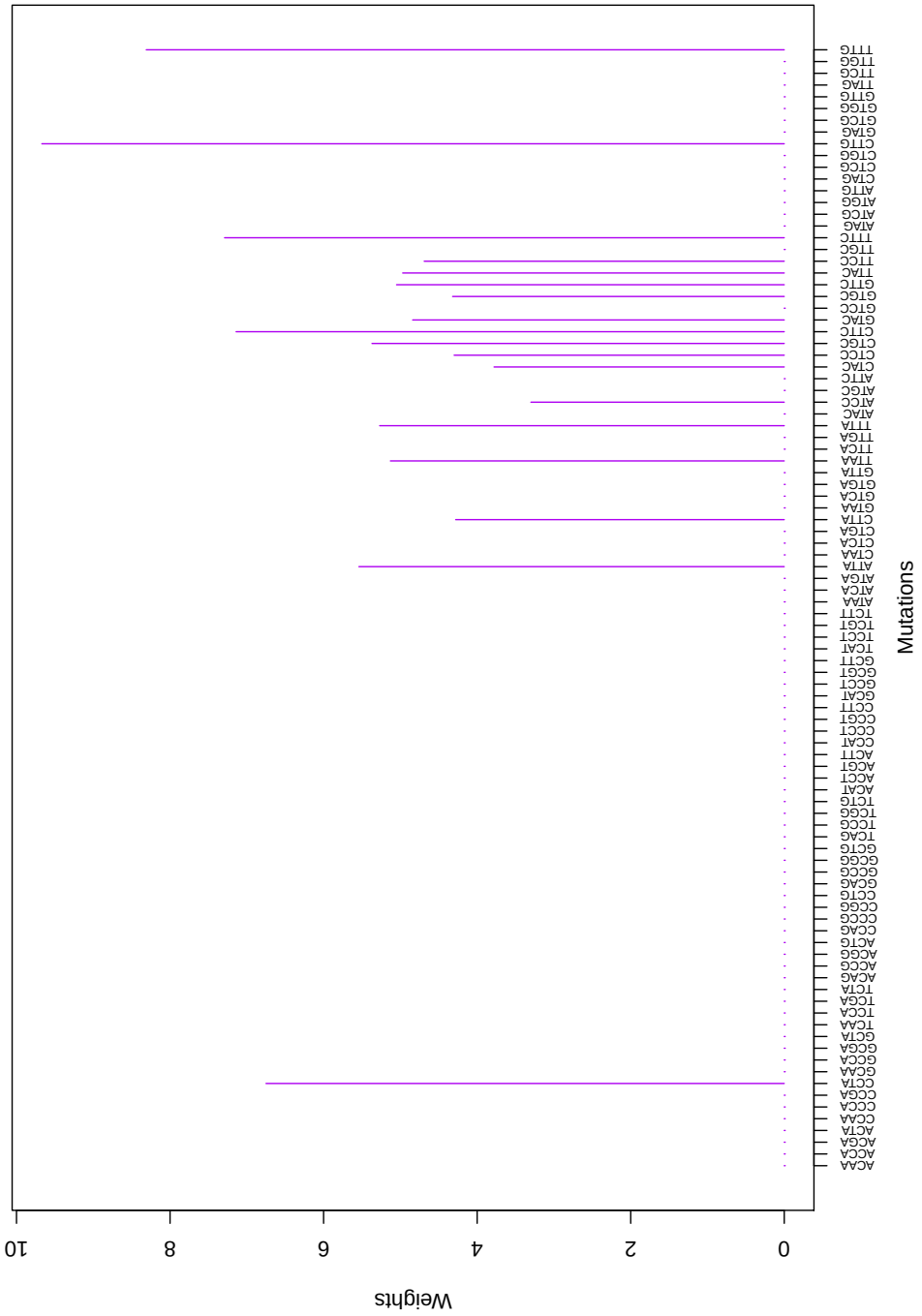

Figure S37: Cluster Cl-5 in Clustering-D with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S9, S10.

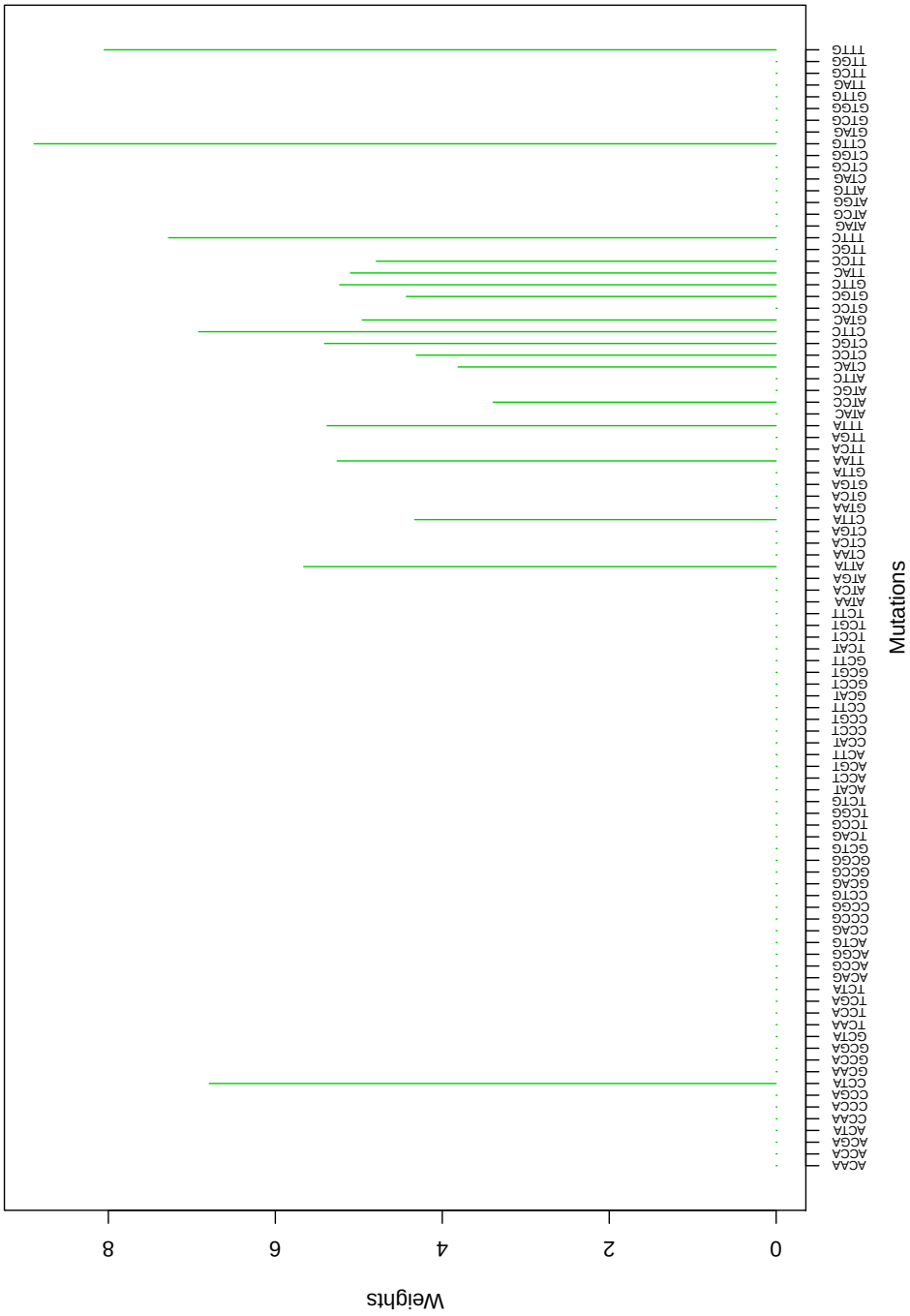

Figure S38: Cluster Cl-5 in Clustering-D with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S9, S10.

Figure S39: Cluster Cl-6 in Clustering-D with weights based on unnormalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S9, S10.

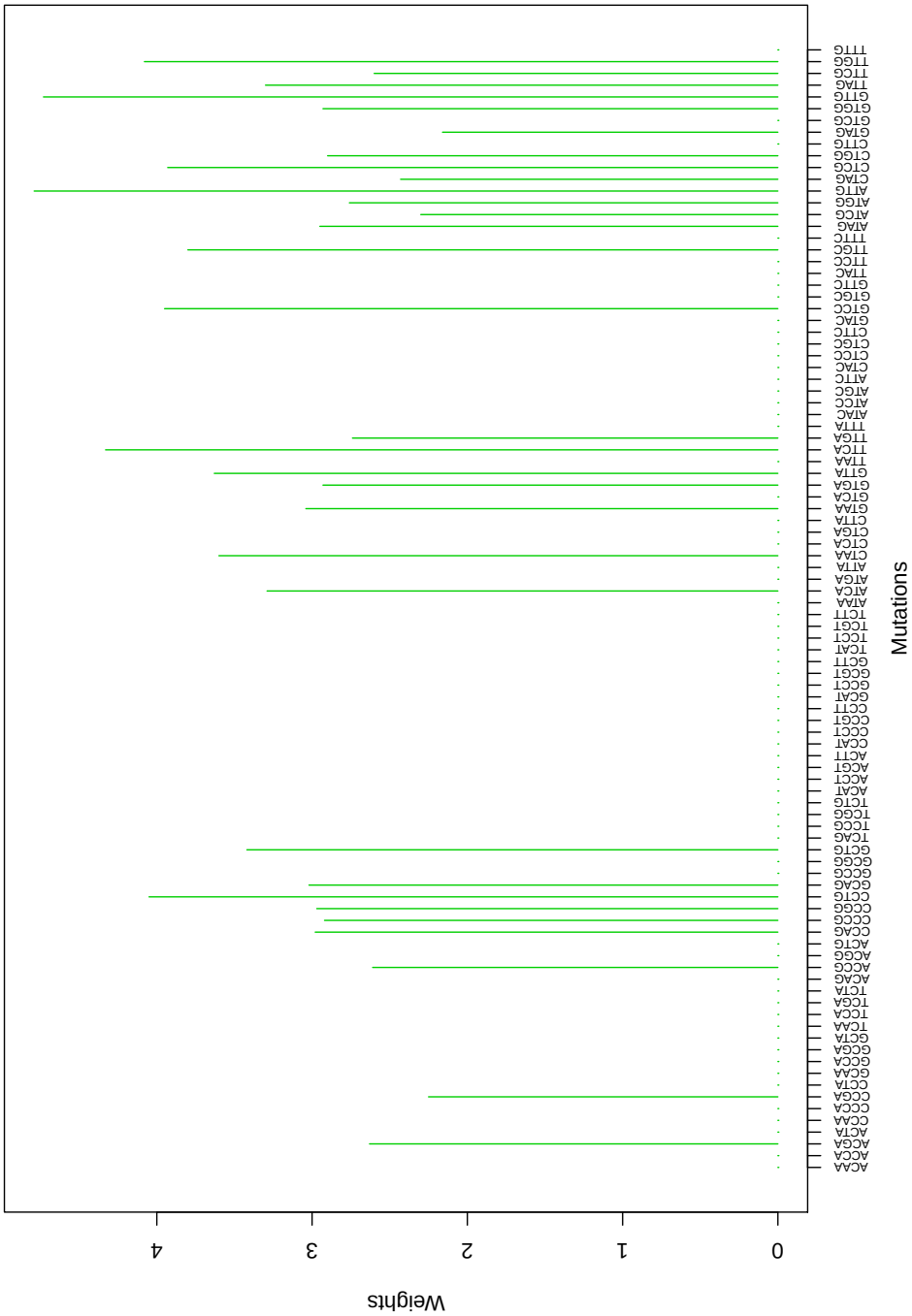

Figure S40: Cluster Cl-6 in Clustering-D with weights based on normalized regressions with arithmetic means (see Subsection 2.6). See Tables S4, S9, S10.

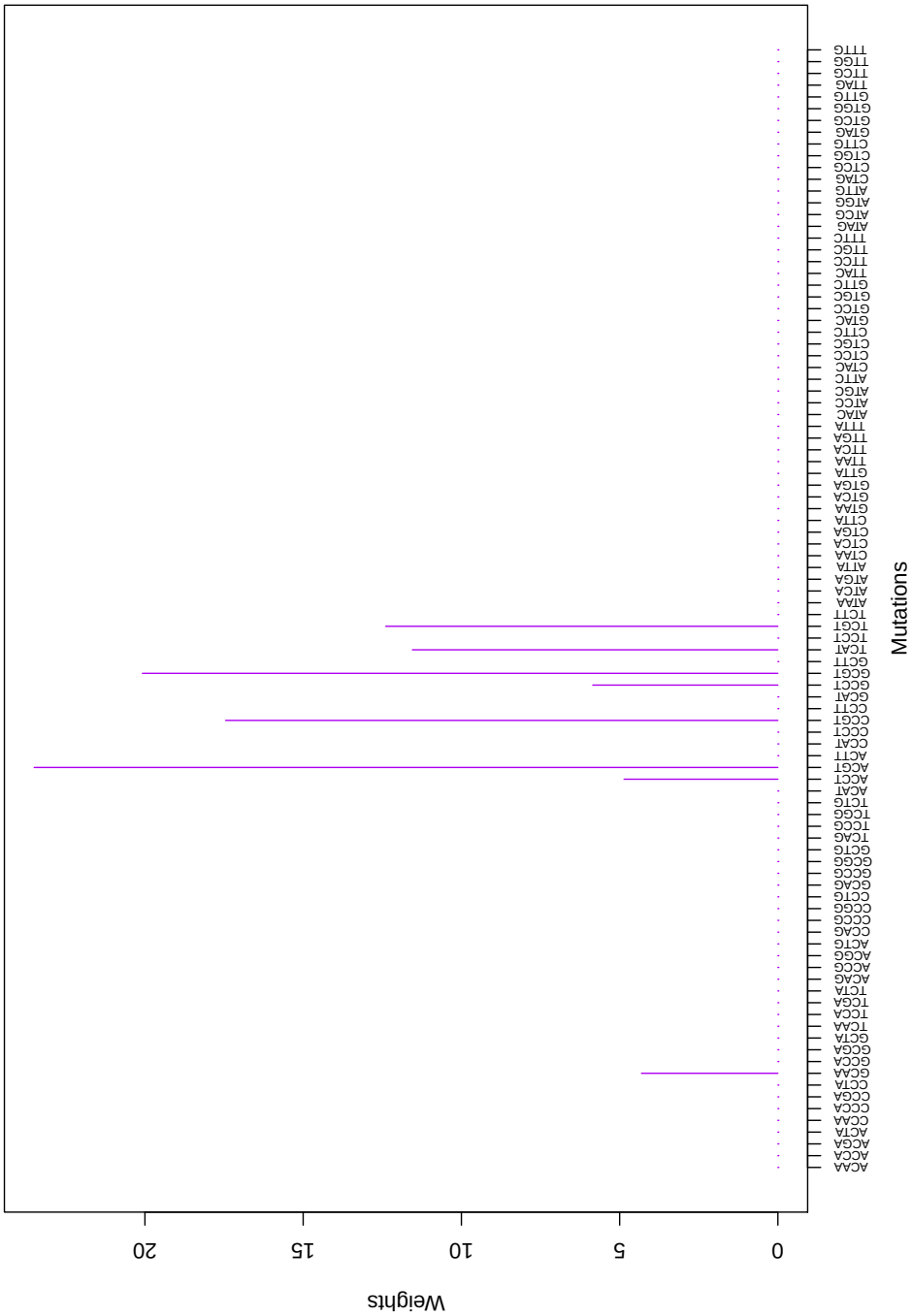

Figure S41: Cluster Cl-1 in Clustering-A with weights based on unnormalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

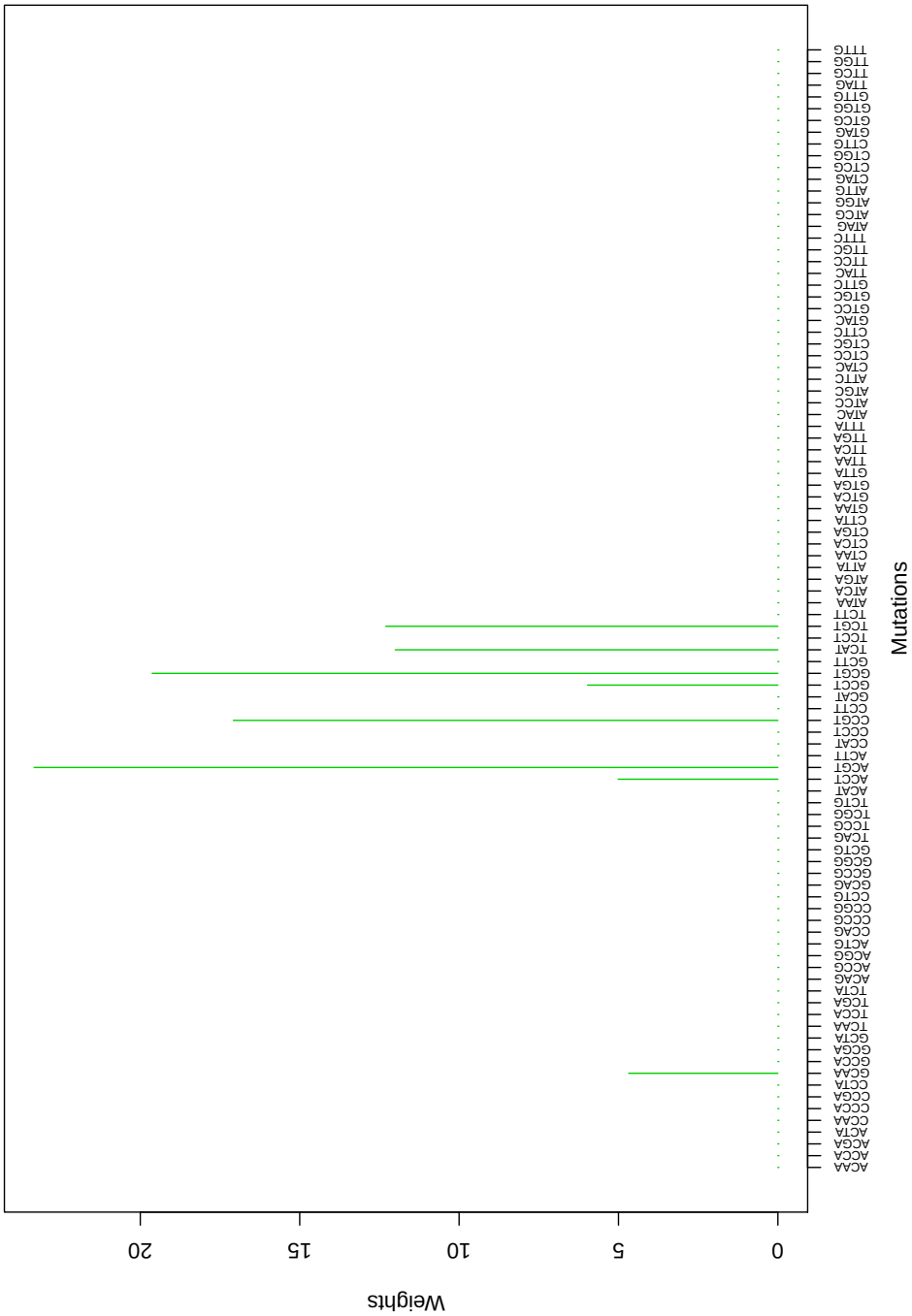

Figure S42: Cluster Cl-1 in Clustering-A with weights based on normalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

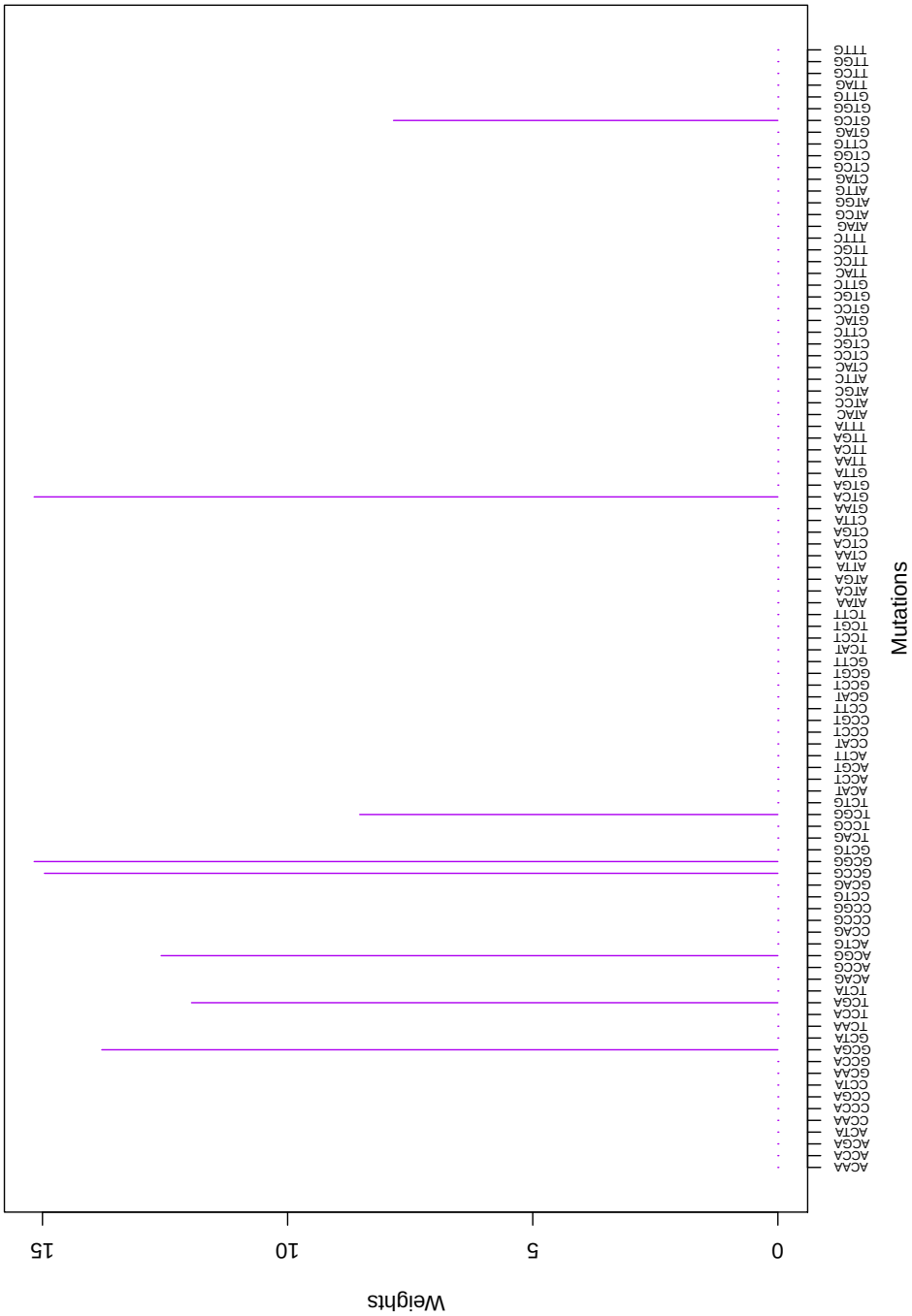

Figure S43: Cluster Cl-2 in Clustering-A with weights based on unnormalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

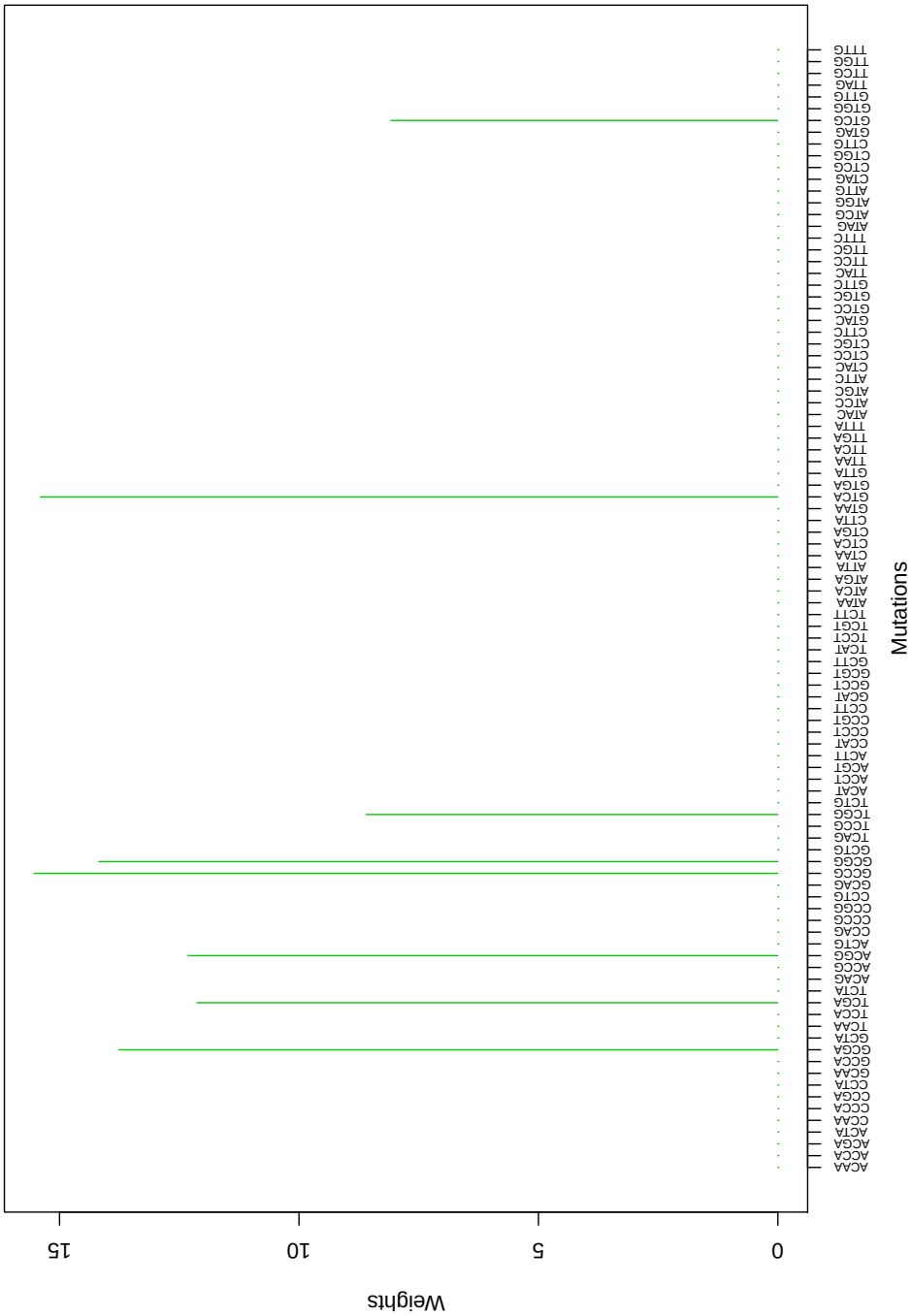

Figure S44: Cluster Cl-2 in Clustering-A with weights based on normalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

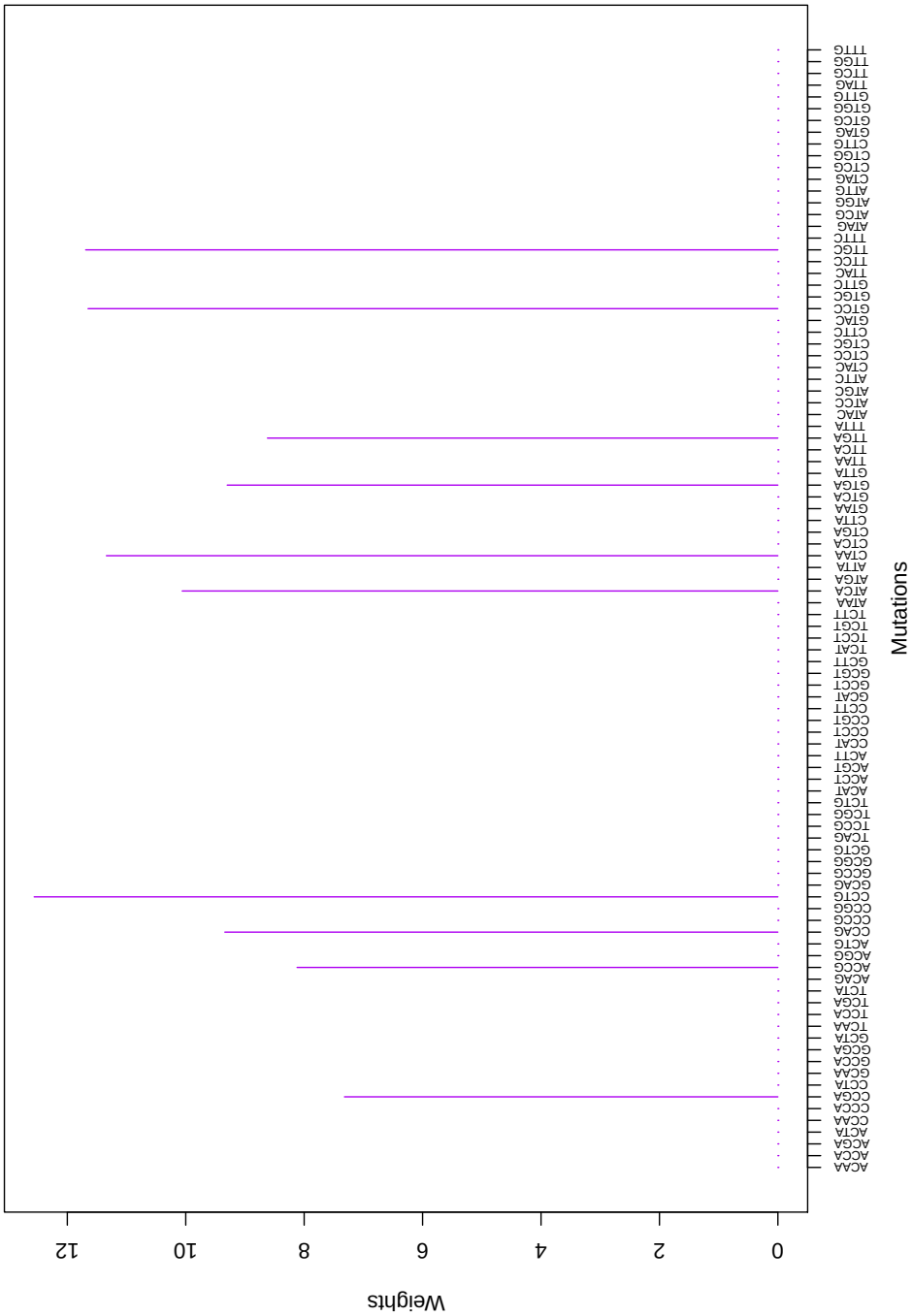

Figure S45: Cluster Cl-3 in Clustering-A with weights based on unnormalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

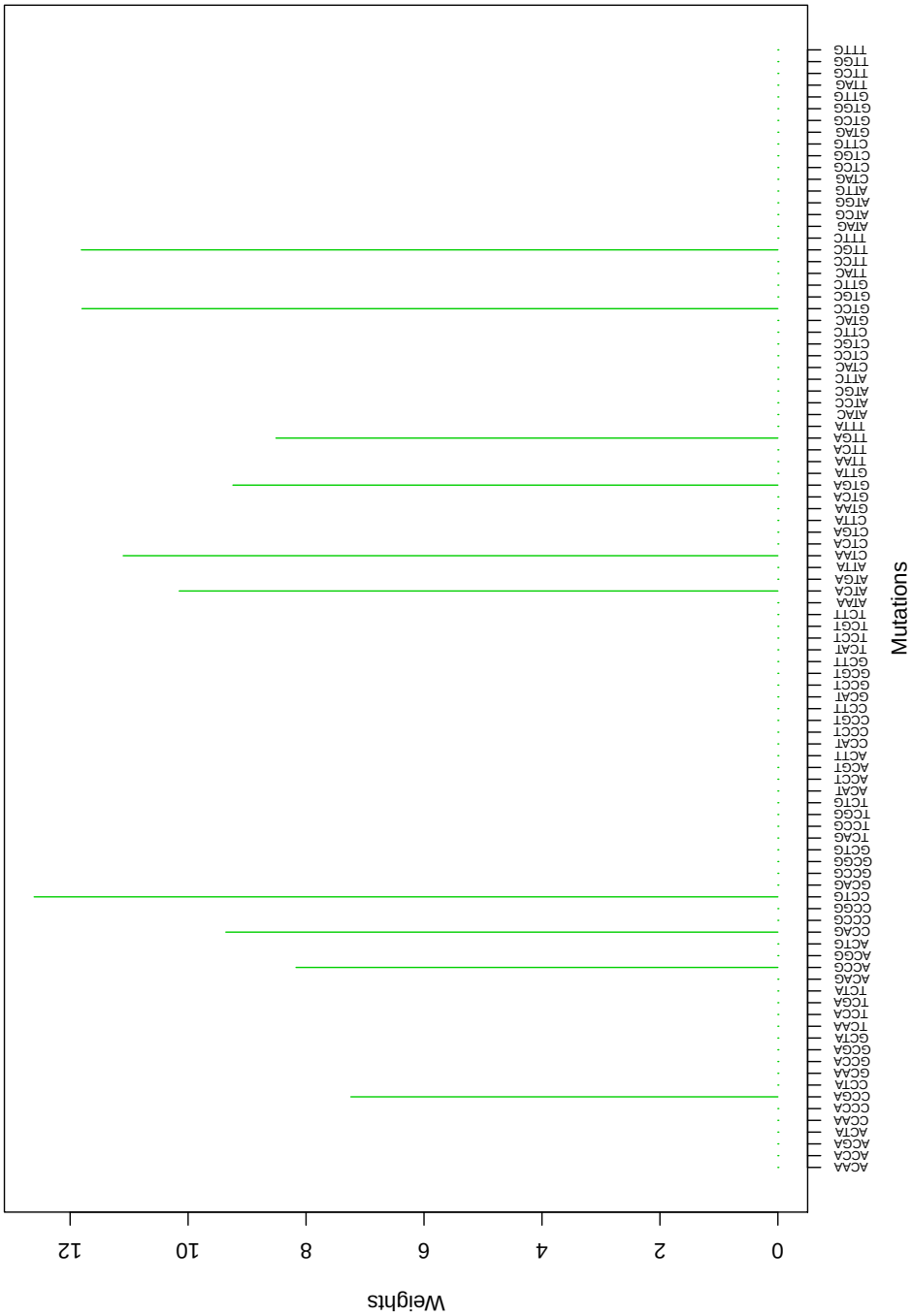

Figure S46: Cluster Cl-3 in Clustering-A with weights based on normalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

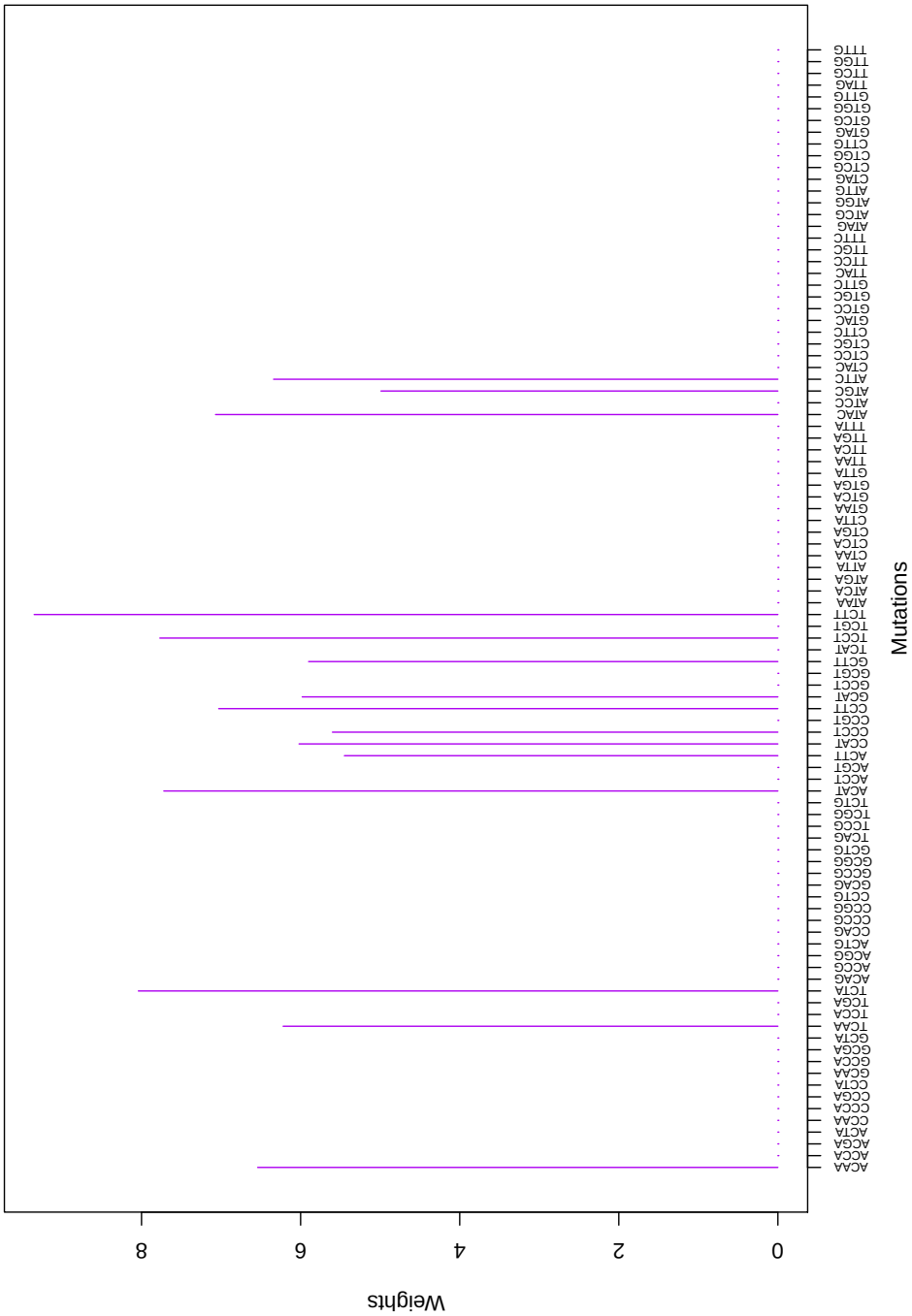

Figure S47: Cluster Cl-4 in Clustering-A with weights based on unnormalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

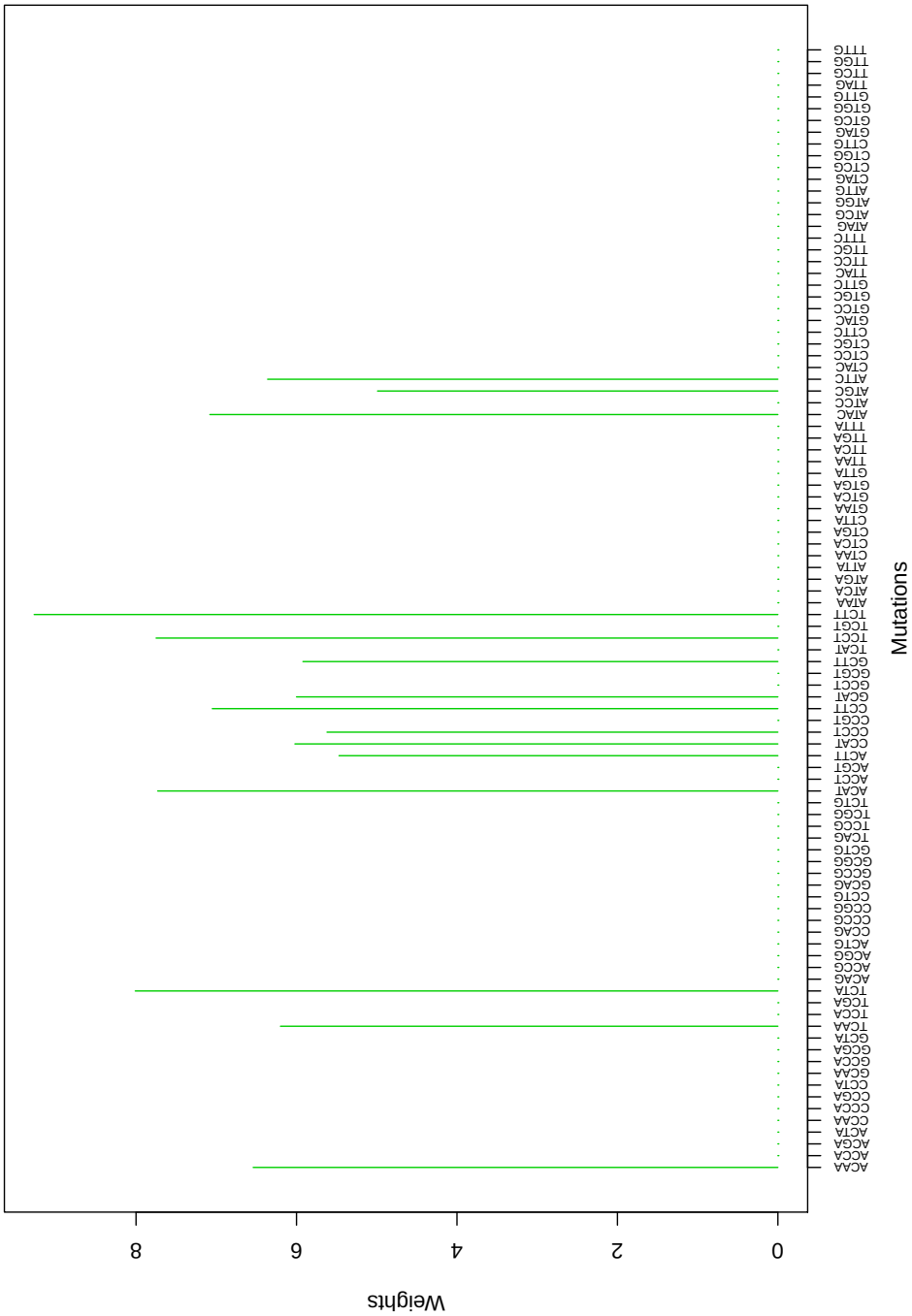

Figure S48: Cluster Cl-4 in Clustering-A with weights based on normalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

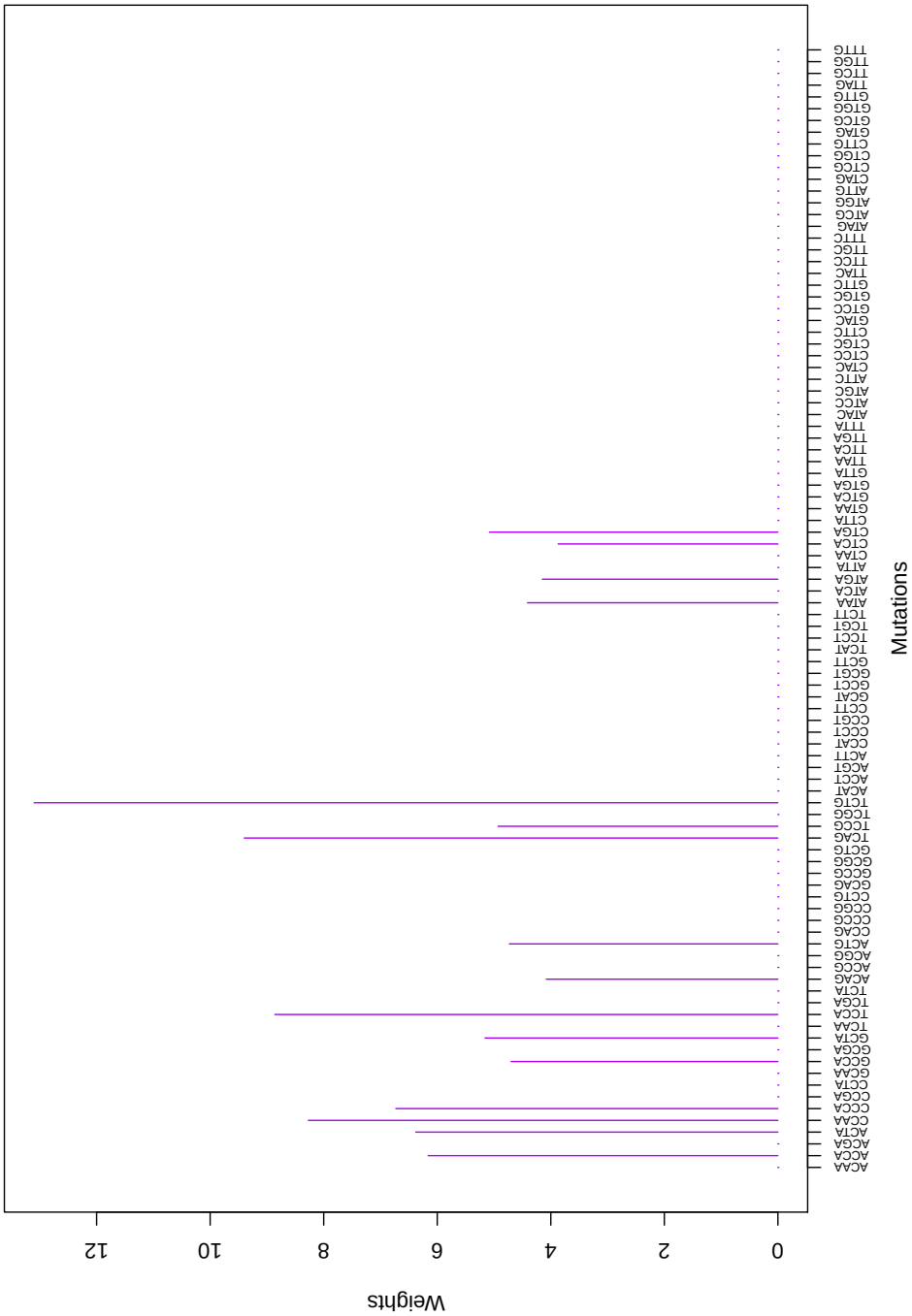

Figure S49: Cluster Cl-5 in Clustering-A with weights based on unnormalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

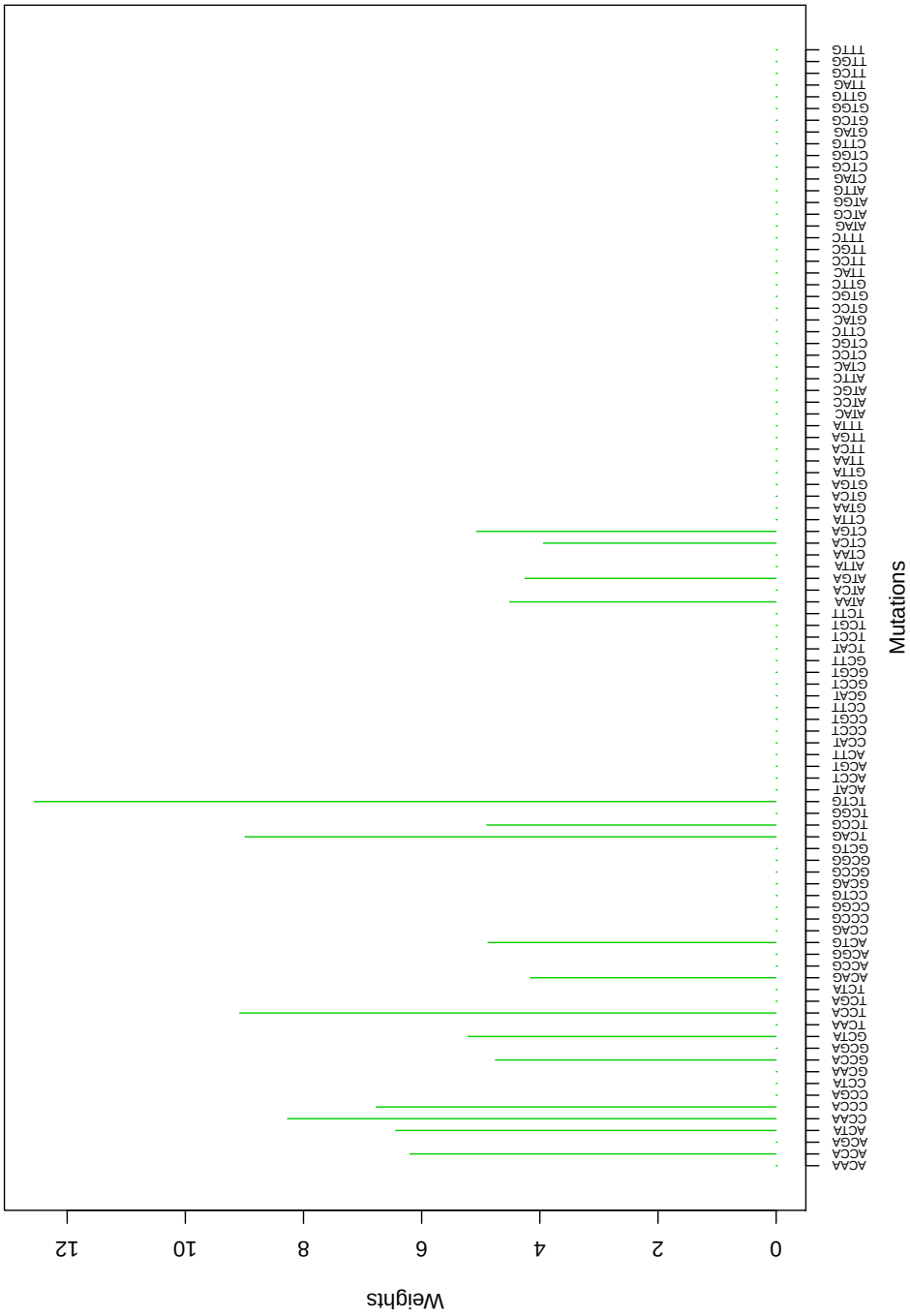

Figure S50: Cluster Cl-5 in Clustering-A with weights based on normalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

Figure S51: Cluster Cl-6 in Clustering-A with weights based on unnormalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

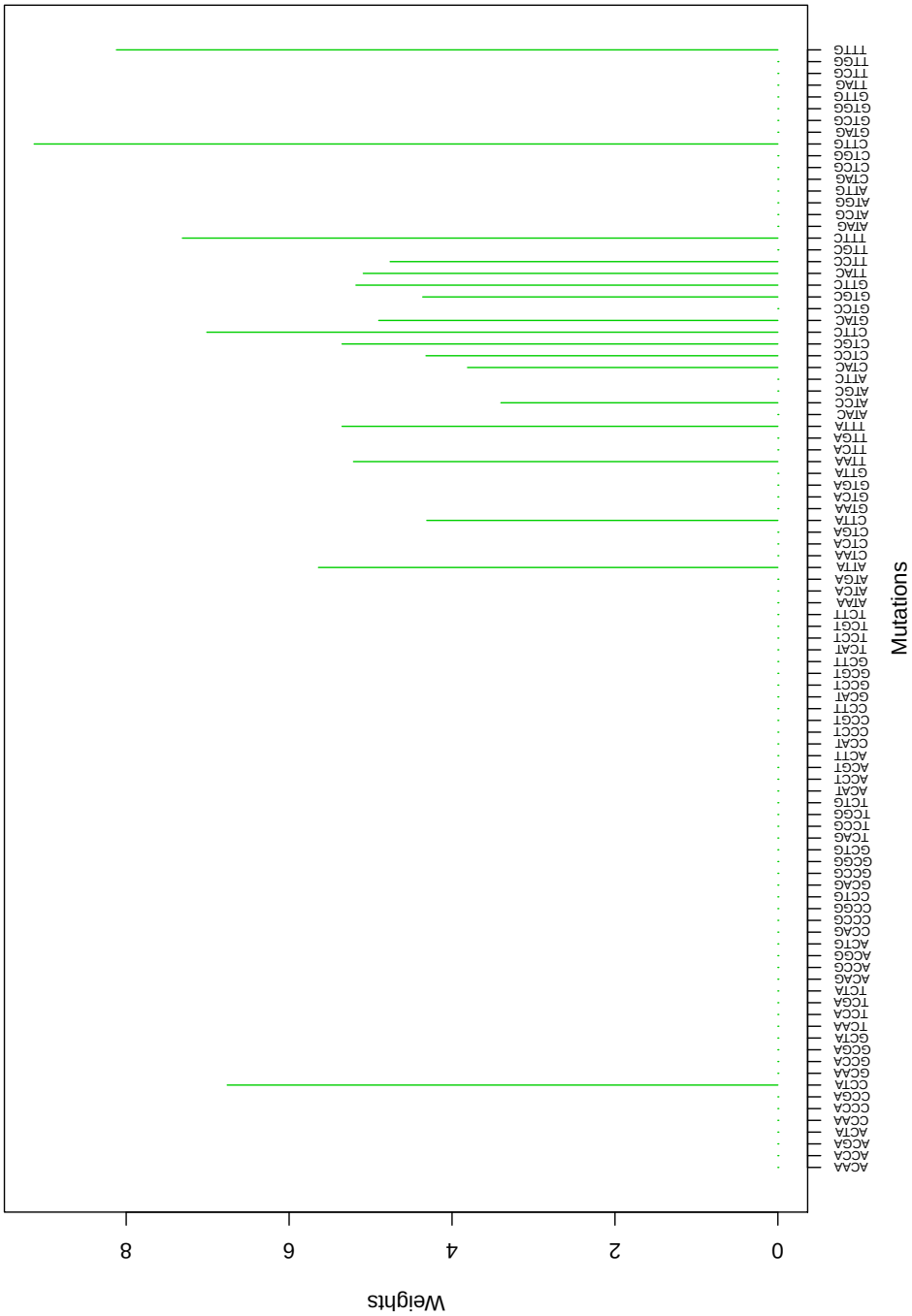

Figure S52: Cluster Cl-6 in Clustering-A with weights based on normalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

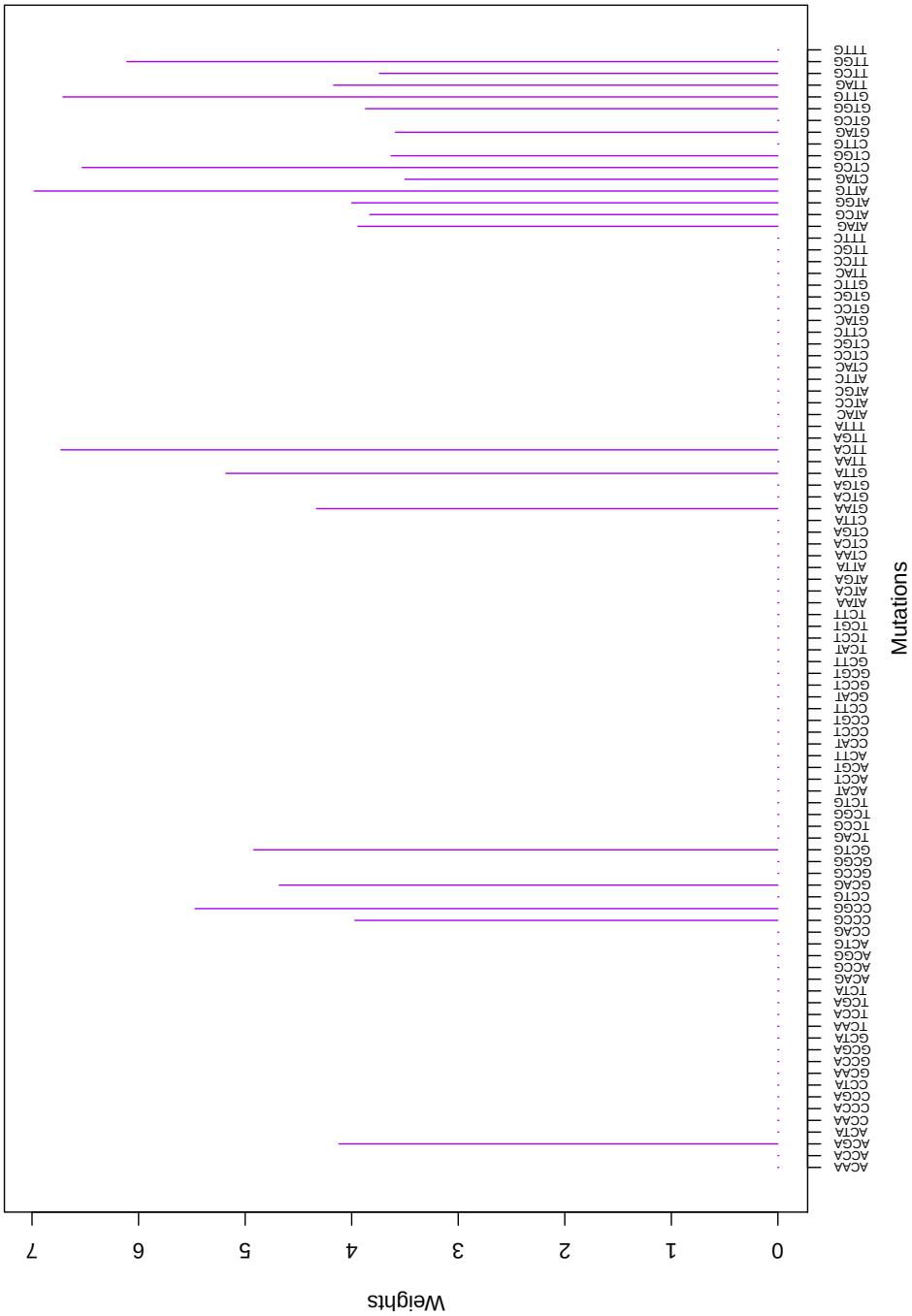

Figure S53: Cluster Cl-7 in Clustering-A with weights based on unnormalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.

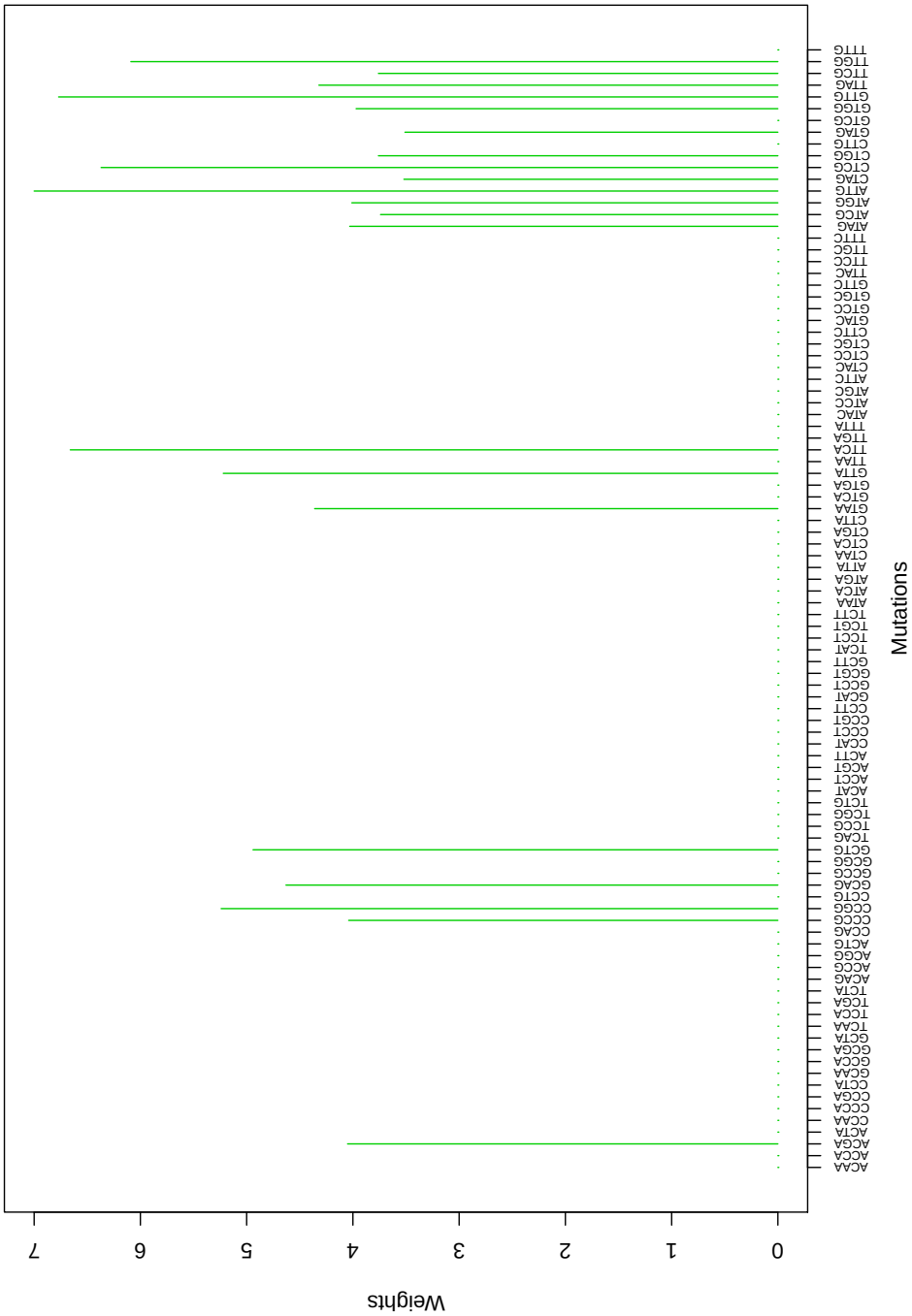

Figure S54: Cluster Cl-7 in Clustering-A with weights based on normalized regressions with geometric means (see Subsection 2.6). See Tables S4, 3, 4.