

TABLE 1
Performance evaluation on STR mining

Human chrs	CPU time (sec)				Memory (MB)							
	Kmer- SSR	STRSS with p=0	PERF	STRSS with p=1	Kmer- SSR		STRSS with p=0		PERF		STRSS with p=1	
					Total memory	Processing memory	Total memory	Processing memory	Total memory	Processing memory	Total memory	Processing memory
1	326.61	11.25	61.01	12.50	949.44	734.36	228.41	3.33	896.41	671.33	228.41	3.33
2	341.92	12.00	57.81	15.60	996.92	762.01	238.32	3.41	872.72	637.81	238.32	3.41
3	256.71	9.92	47.82	11.97	751.64	558.19	196.71	3.26	719.09	525.64	196.71	3.26
4	266.61	12.18	45.40	12.55	692.30	507.00	188.75	3.45	690.82	505.52	188.75	3.45
5	260.90	10.50	43.52	12.54	632.96	455.95	180.21	3.20	659.81	482.80	180.21	3.20
6	245.62	10.25	41.91	12.32	601.31	435.22	170.17	4.08	622.22	456.13	170.17	4.08
7	224.31	8.56	38.12	10.17	514.28	359.04	158.22	2.98	581.91	426.67	158.22	2.98
8	205.63	7.22	34.72	7.85	577.80	436.43	144.45	3.13	532.12	390.75	144.45	3.13
9	172.82	7.35	32.89	6.95	561.75	442.82	122.63	3.70	508.42	389.49	122.63	3.70
10	185.01	8.01	32.13	8.46	577.80	447.66	133.41	3.27	492.25	307.24	133.41	3.27
11	187.72	4.83	32.52	6.08	561.75	430.37	134.26	3.25	496.86	309.14	134.26	3.25
12	192.51	3.93	32.12	4.33	553.84	423.83	133.98	3.97	490.47	360.96	133.98	3.97
13	138.72	4.41	27.16	5.04	419.33	280.61	99.75	3.87	424.18	328.30	99.75	3.87
14	133.75	2.73	25.78	3.51	387.61	298.96	92.63	3.98	398.48	309.83	92.63	3.98
15	129.92	4.33	24.12	6.26	367.91	285.26	86.32	3.67	380.70	298.05	86.32	3.67
16	113.41	4.02	21.63	4.78	356.04	276.16	83.44	3.56	339.79	259.91	83.44	3.56
17	119.50	4.48	20.83	4.97	599.99	519.02	79.13	3.69	314.97	234.00	79.13	3.69
18	111.21	2.42	20.01	3.04	348.13	269.92	82.10	3.89	304.87	226.66	82.10	3.89
19	81.72	1.57	14.20	3.73	265.05	207.98	59.32	2.25	228.53	147.45	59.32	2.25
20	89.81	2.76	15.62	3.45	284.83	222.39	65.46	3.02	248.95	186.51	65.46	3.02
21	54.67	2.39	11.63	3.58	189.88	150.73	42.05	2.90	186.74	147.59	42.05	2.90
22	53.00	2.45	12.17	2.94	185.93	147.69	40.52	2.28	201.13	162.89	40.52	2.28
X	223.01	8.03	39.16	8.98	636.92	485.66	154.24	2.98	566.72	415.46	154.24	2.98
Y	36.09	1	13.11	1	110.76	85.04	27.89	2.15	223.61	187.52	27.89	2.15

TABLE 2
Performance evaluation on cutoff length

Cutoff length (nt)	CPU time(sec)																			
	Human chr 1				Human chr 2				Human chr 3				Human chr 4				Human chr 5			
	Kmer- SSR	STRSS with p=0	P E R F	STRSS with p=1	Kmer- SSR	STRSS with p=0	P E R F	STRSS with p=1	Kmer- SSR	STRSS with p=0	P E R F	STRSS with p=1	Kmer- SSR	STRSS with p=0	P E R F	STRSS with p=1	Kmer- SSR	STRSS with p=0	P E R F	STRSS with p=1
20	326	12	79	12.9	341	12	71	14.5	256	10.0	50	11.9	266	12.1	47	12.9	260	10.7	46	12.7
50	326	12.2	81	13.2	341	12.2	74	13.2	255	10.1	60	12.0	267	11.9	58	12.9	260	10.2	55	13.2
80	327	11.5	85	12.5	340	11.5	82	13.5	256	11.0	67	11.7	266	11.5	69	12.5	261	11.0	62	12.1
110	326	12	99	12.8	341	12	94	13.0	256	10.0	77	12.1	265	12.1	74	13.1	260	10.0	70	11.8
140	326	12	107	12.8	341	12	105	13.1	257	9.5	86	11.9	266	12.2	82	13.1	260	10.0	78	11.6
170	326	12.3	118	13.3	342	12.3	116	13.3	256	10.3	95	12.1	266	12.0	107	13.7	260	10.3	87	12.0
200	328	12.5	130	13.5	341	12.5	127	14.1	256	10.5	105	11.7	268	12.3	115	14.1	262	10.5	95	12.1
230	326	13	142	13.6	341	13	139	13.9	258	9.0	114	12.1	267	13.4	119	14.4	260	10.0	104	12.0
260	327	12	162	12.4	340	12	151	12.9	256	10.0	123	11.9	266	12.9	128	13.9	260	11.2	113	13.0
290	326	13	165	13.8	340	13	162	13.9	256	10.1	132	12.2	267	13.5	138	14.8	263	9.0	121	10.4
320	326	12	177	12.5	341	12	176	13.9	256	10.0	143	11.7	266	12.3	145	12.9	261	10.0	132	11.3
350	328	11	196	12.2	341	12	185	13.2	257	9.0	152	11.1	265	11.9	152	12.9	260	9.0	139	10.1

TABLE 3
Performance evaluation on whole genome sequences

Species (sequence length in MB)	Large STR (cutoff ≥ 350 nt)			Medium STR ($150\text{nt} \leq \text{cutoff} < 350\text{nt}$)			Short STR ($12\text{nt} \leq \text{cutoff} < 150\text{nt}$)			Memory requirement	
	No. of STR	Avg. STR length(nt)	CPU time (sec)	No. of STR	Avg. STR length(nt)	CPU time (sec)	No. of STR	Avg. STR length(nt)	CPU time (sec)	Total memory required in MB	Processing memory in MB
Reference genomes											
C elegans (100.27 MB)	2	496	5	33	187	5	94697	12	5	104.256	3.986
Drosophila (137.05 MB)	12	619	8	26	240	8	223123	13	8	140.675	3.625
Canis familiaris (2317.59 MB)	2	418	158	55	196	158	3877732	15	157	2321.486	3.896
Bos taurus (2640.16 MB)	2	411	179	14	197	180	2850953	13	178	2644.146	3.986
Mus musculus (2647.52 MB)	57	592	178	1058	186	177	4062928	17	178	2651.416	3.896
Macaca mulata (2763.46 MB)	2	545	187	29	205	187	3267234	14	187	2767.322	3.862
Pan troglodytes (2803.62 MB)	1	443	180	33	205	179	3190500	14	181	2807.587	3.967
Homo sapiens (2937.63 MB)	8	558	196	41	206	199	3211310	14	196	2941.564	3.934
Assembled human genomes											
NA12878 (2798.04 MB)	2	368	191	39	195	190	3213613	14	193	2801.974	3.934
HG00514 (2805.67 MB)	8	489	187	75	210	190	3192268	14	195	2809.615	3.945
NA19240 (2815.57 MB)	6	578	188	47	201	191	3221358	14	195	2819.238	3.668
CHM1.1 (2827.65 MB)	1	465	188	30	197	191	3191074	14	196	2831.584	3.934
HG00733 (2864.15 MB)	1	552	192	72	221	190	3240565	14	191	2868.117	3.967