SUPPLEMENTAL MATERIAL

Analysis of 100 high coverage genomes from a pedigreed captive baboon colony

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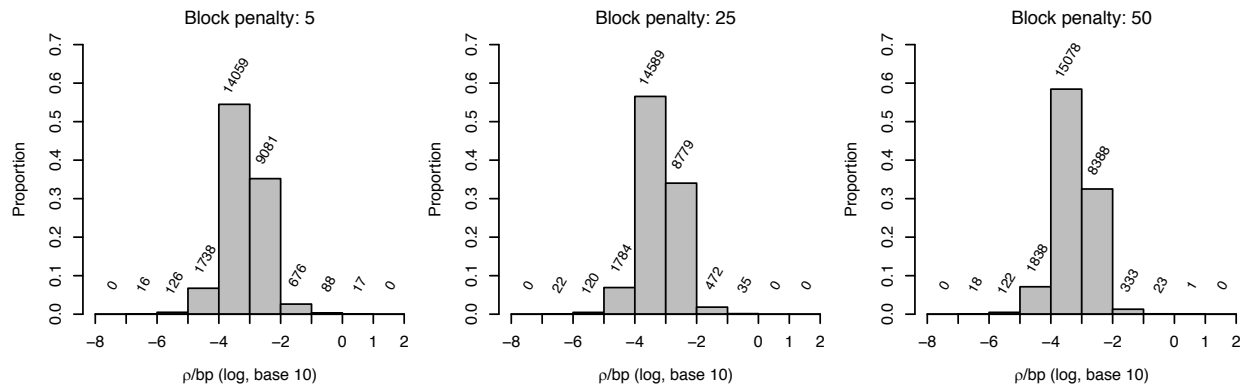
Figure S1. Inferred recombination rates in baboons with varying block penalty values. Estimates of ρ/bp were calculated in non-overlapping 100 kb windows across the genome (see Fig. 1). Numbers above bars indicate the number of windows in each bin. Results are largely consistent across multiple block penalty values.
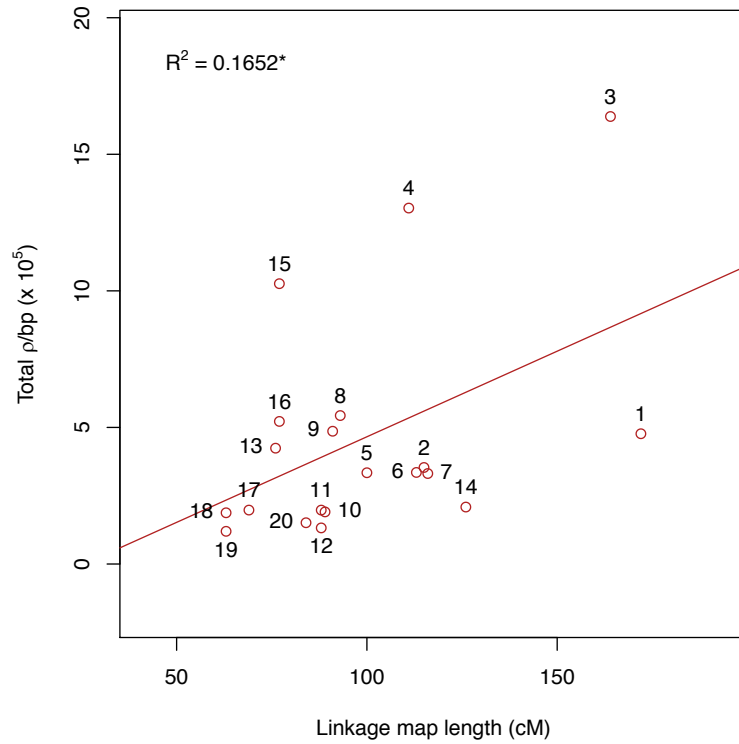
Figure S2. Correlation between genetic map lengths inferred from microsatellites versus total ρ estimated using LDhelmet for each autosome. The linkage map lengths were taken from Table 1 of Rogers et al. 2000. Total ρ was calculated by summing the estimated ρ/bp across all sites in each chromosome. The R^2 correlation coefficient is the adjusted R^2 value calculated with the *lm* function in R (R Core Team 2018). *$p<0.05$.
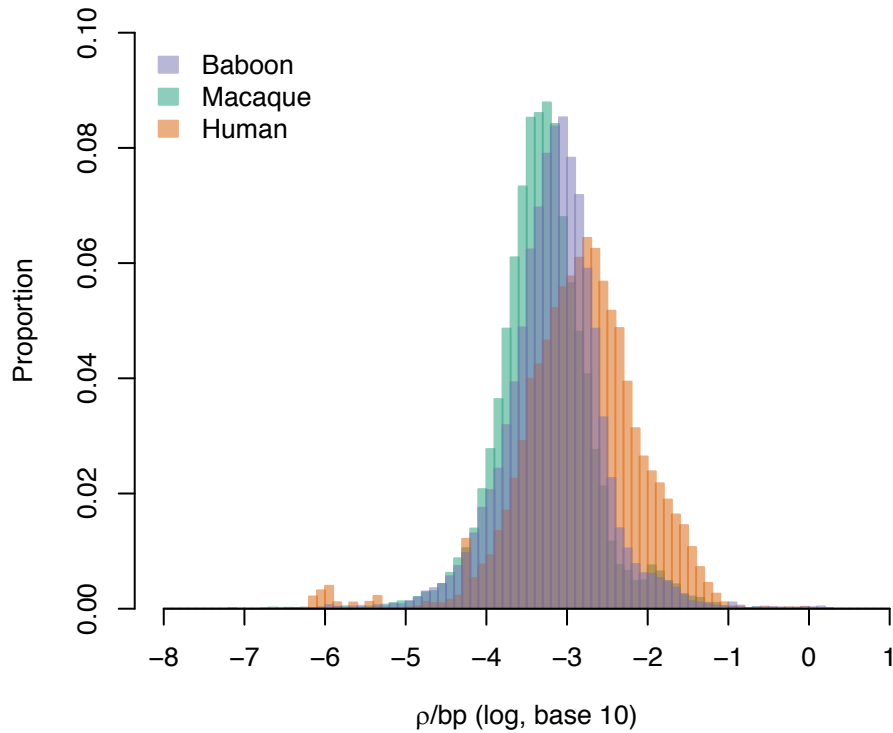
Figure S3. Distribution of inferred recombination rates in three primate species. Estimates of ρ/bp were calculated in non-overlapping 100 kb windows across the genome (see Fig. 1). In our analysis, estimates of recombination rates in baboons were the lowest overall in macaques, and highest overall in humans. Despite the generally elevated rate of recombination we observed in humans, the baboon dataset still contained a larger number of windows with extreme ρ values (>100-fold above the mean) than in the human dataset. The number of windows with extreme ρ values was also higher in baboons relative to macaques.
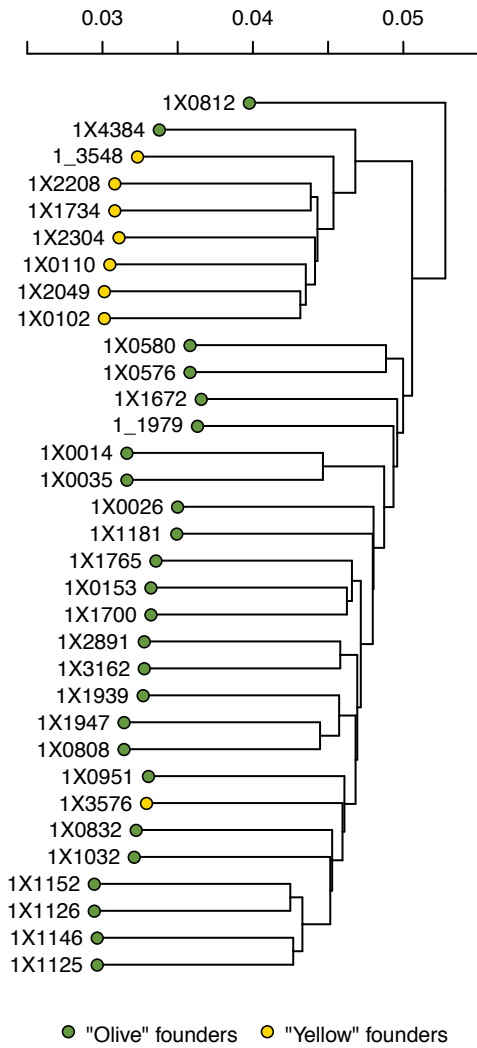
Figure S4. IBS clustering of olive and yellow baboon founders. Identity-by-state analysis shows distinct clusters of olive and yellow baboons, highlighting outliers (1X0812, 1X4384) and a mislabeled sample (1X3576). Results are consistent with patterns from PCA and ADMIXTURE analyses (Fig. 2, Fig. S5).
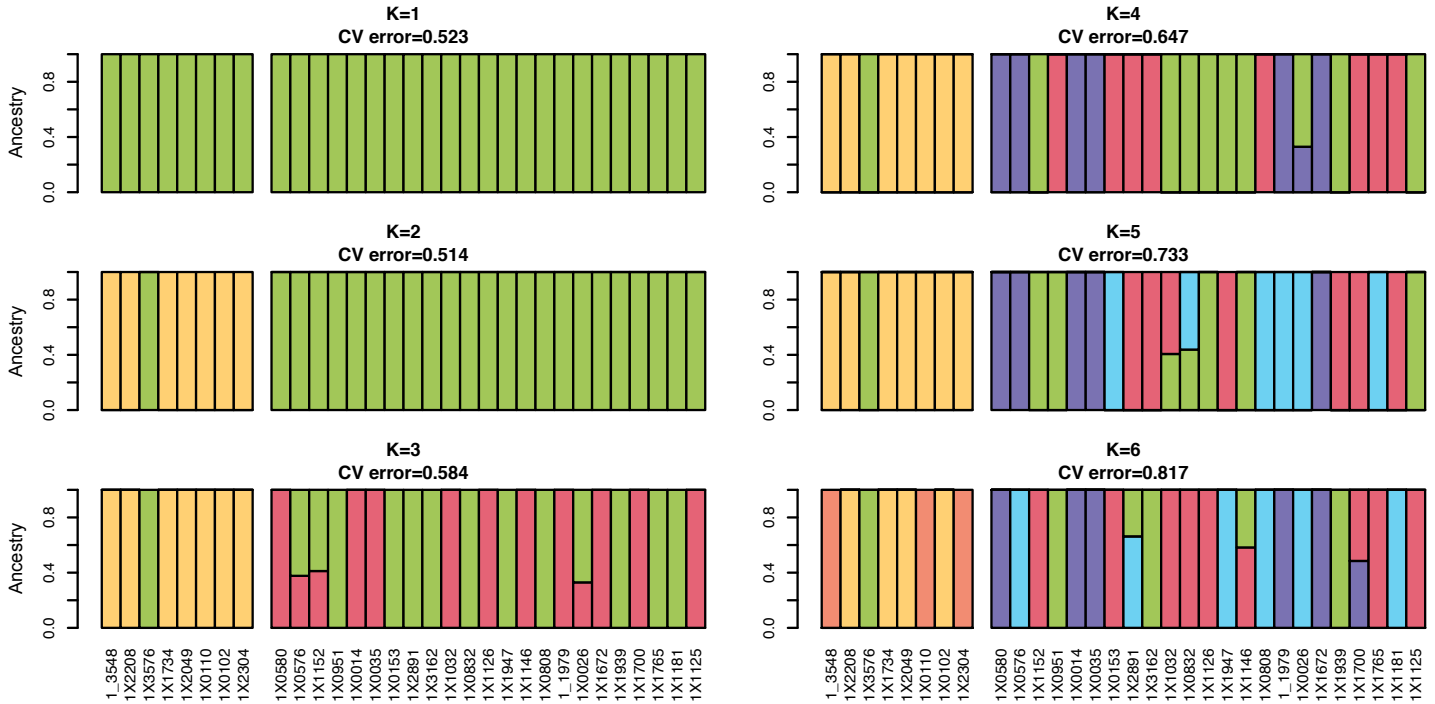
Figure S5. Genetic ancestry of baboon founders under a range of K values. The most likely number of ancestral populations (as indicated by the lowest cross-validation error) in 31 olive and yellow baboon founders is K=2. Here, the extreme outlier founders (1X0812, 1X4384) were excluded. The specimen misidentified as a yellow baboon (1X3576) is apparent. At higher K values, olive and yellow baboon partitions are unchanged, but more partitions within each group appear. None of our results suggest that the founders are the product of recent hybridization between olive and yellow baboons.
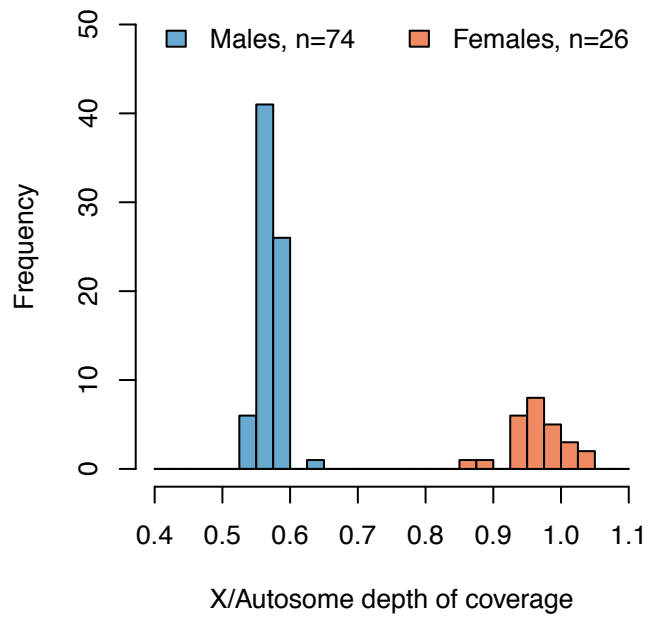
Figure S6. Histogram of the ratio of sequence coverage on the X Chromosome relative to the autosomes. Ratios are consistent with the labeled sex of all individuals, with males having approximately half as much sequence depth on the X Chromosome relative to the autosomes. Coverage statistics were calculated post-duplicate read removal.

Table S1. List of individuals included in this study. Type, sex, F_{ped} and admixture status are from colony records (e.g. the pedigree). Coverage statistics were calculated post-duplicate read removal.

Sample ID	Sequencing ID	Type	Sex	F_{ped} (%)	Admixed	Mean coverage (×)	SRA Run ID
1_3548	FR07886417	Founder, yellow	F	0	No	36.3	SRR8285731
1X0102	FR07921249	Founder, yellow	M	0	No	26.1	SRR8285751
1X0110	FR07921242	Founder, yellow	F	0	No	38.5	SRR8285726
1X1734	FR07921233	Founder, yellow	F	0	No	31.6	SRR8285733
1X2049	FR07921237	Founder, yellow	F	0	No	33.5	SRR8285729
1X2208	FR07886421	Founder, yellow	F	0	No	36.7	SRR8285732
1X2304	FR07921251	Founder, yellow	M	0	No	30.5	SRR8285728
1X3576	FR07921203	Founder, yellow	M	0	No	34.6	SRR8285727
1_1979	FR07921245	Founder, olive	M	0	No	33.6	SRR8285766
1X0014	FR07886416	Founder, olive	F	0	No	35.2	SRR8285765
1X0026	FR07921246	Founder, olive	F	0	No	35.0	SRR8285721
1X0035	FR07886425	Founder, olive	F	0	No	27.3	SRR8285748
1X0153	FR07886426	Founder, olive	F	0	No	28.8	SRR8285749
1X0576	FR07886409	Founder, olive	F	0	No	28.9	SRR8285730
1X0580	FR07886405	Founder, olive	F	0	No	35.6	SRR8285763
1X0808	FR07921241	Founder, olive	M	0	No	32.6	SRR8285767
1X0812	FR07886420	Founder, olive	F	0	No	36.5	SRR8285747
1X0832	FR07921221	Founder, olive	M	0	No	38.0	SRR8285722
1X0951	FR07886413	Founder, olive	M	0	No	34.0	SRR8285764
1X1032	FR07921215	Founder, olive	F	0	No	33.3	SRR8285723
1X1125	FR07921272	Founder, olive	F	0	No	34.5	SRR8723580
1X1126	FR07921226	Founder, olive	M	0	No	36.8	SRR8285768, SRR8285734
1X1146	FR07921240	Founder, olive	F	0	No	34.1	SRR8285724
1X1152	FR07886411	Founder, olive	F	0	No	34.7	SRR8285735
1X1181	FR07921270	Founder, olive	F	0	No	34.3	SRR8723583
1X1672	FR07921258	Founder, olive	M	0	No	35.0	SRR8285720
1X1700	FR07921265	Founder, olive	M	0	No	36.0	SRR8723582
1X1765	FR07921266	Founder, olive	M	0	No	28.9	SRR7639477, SRR7639464
1X1939	FR07921262	Founder, olive	M	0	No	35.0	SRR8285736
1X1947	FR07921235	Founder, olive	M	0	No	30.1	SRR8285725
1X2891	FR07919467	Founder, olive	M	0	No	22.3	SRR8285754
1X3162	FR07921212	Founder, olive	M	0	No	36.3	SRR8285753
1X4384	FR07921206	Founder, olive	M	0	No	35.1	SRR8285752
6716	FR07918883	Captive-born	M	0	Yes	36.5	SRR7624578
7091	FR07886418	Captive-born	M	0	No	36.4	SRR7588759
7158	FR07886424	Captive-born	M	12.5	Yes	35.3	SRR7588766
7937	FR07937957	Captive-born	M	0	Yes	33.6	SRR7624575
8170	FR07918874	Captive-born	M	0	No	33.8	SRR7624576
8344	FR07886410	Captive-born	M	0	Yes	30.2	SRR7588765
8465	FR07886414	Captive-born	M	12.5	Unknown	33.4	SRR7588764
8653	FR07886404	Captive-born	M	25	No	33.5	SRR7588763
8780	FR07918882	Captive-born	M	0	No	36.0	SRR7624579
9562	FR07918881	Captive-born	M	0	No	33.6	SRR7624580
9656	FR07937989	Captive-born	M	0	Yes	33.4	SRR7624592

9841	9841	Captive-born	F	0	No	39.7	SRR8723575, SRR8723574, SRR8723573, SRR8723572, SRR8723571, SRR8723570, SRR8723569, SRR8723568, SRR8723567
9860	FR07919264	Captive-born	M	0	Yes	28.7	SRR7624591
10173	FR07937952	Captive-born	M	0	No	21.4	SRR8723601, SRR8723600, SRR8723599, SRR8723598, SRR8723597, SRR8723596, SRR8723595, SRR8723594, SRR8723593, SRR8723592
10192	FR07918860	Captive-born	M	0	Unknown	26.3	SRR7624582
10349	FR07937956	Captive-born	M	12.5	Yes	33.9	SRR7624581
10488	FR07937951	Captive-born	M	0	Yes	27.3	SRR7624584
11887	FR07919462	Captive-born	M	0	Unknown	36.7	SRR7588769
12242	12242	Captive-born	F	0	No	31.9	SRR8723564, SRR8723553, SRR8723551, SRR8723550, SRR8723549, SRR8723548, SRR8723547, SRR8723545, SRR8723544, SRR8723543
13245	FR07921581	Captive-born	M	0	Unknown	35.7	SRR7588767
13644	FR07886422	Captive-born	M	0	Yes	35.2	SRR6710899, SRR7588768
14022	FR07919116	Captive-born	M	12.5	Yes	33.3	SRR7624586
14182	FR07919265	Captive-born	M	15.625	Yes	29.4	SRR7624585
14276	FR07886415	Captive-born	M	3.125	Yes	36.3	SRR7588774, SRR7588771
14460	FR07937948	Captive-born	M	9.375	Yes	27.9	SRR7624588
14652	FR07921230	Captive-born	M	25	No	34.8	SRR7588772
14712	FR07921574	Captive-born	M	0	Unknown	32.3	SRR7588775
14925	FR07919266	Captive-born	M	12.5	No	27.7	SRR7624587
14930	FR07918884	Captive-born	M	6.25	No	34.7	SRR7624590
14959	FR07921575	Captive-born	M	12.5	No	37.3	SRR7588776
15009	FR07921250	Captive-born	M	12.5	No	37.1	SRR7588779
15107	FR07921573	Captive-born	M	12.5	Yes	33.7	SRR7588780
15150	FR07886407	Captive-born	M	18.75	No	35.7	SRR7588777
15156	FR07919118	Captive-born	M	12.5	No	30.3	SRR7624589
15190	FR07921577	Captive-born	M	12.5	No	36.7	SRR7588778
15197	FR07919164	Captive-born	M	12.5	Unknown	23.8	SRR7624598
15421	FR07921261	Captive-born	M	12.5	Yes	31.9	SRR7588783

15444	15444	Captive-born	F	12.5	No	32.2	SRR7639485, SRR7693040, SRR7693041, SRR7698981, SRR7656061, SRR7639484, SRR7639481
15467	FR07921218	Captive-born	M	12.5	No	35.1	SRR7588784
15626	FR07886408	Captive-born	M	25	No	36.2	SRR7588781
15628	FR07918879	Captive-born	M	18.75	No	34.8	SRR7624597
15633	FR07919257	Captive-born	M	15.625	Yes	28.8	SRR7624596
16413	16413	Captive-born	F	12.5	No	31.3	SRR7639489, SRR7639483
16517	16517	Captive-born	M	12.5	No	31.5	SRR7639488, SRR7639487, SRR7639486
17199	17199	Captive-born	F	12.5	No	32.8	SRR7639479, SRR7656071, SRR7656072, SRR7656073, SRR7639478, SRR7639467
18385	18385	Captive-born	F	12.5	No	42.2	SRR8723591, SRR8723590, SRR8723581, SRR8723579, SRR8723578, SRR8723577, SRR8723576, SRR8723563
18929	FR07919259	Captive-born	M	0	Unknown	33.9	SRR7624595
19181	19181	Captive-born	F	12.5	No	42.3	SRR7639469, SRR7639468, SRR7639466, SRR7656098, SRR7656099, SRR7656100
19207	FR07919100	Captive-born	M	0	Unknown	36.0	SRR7624602
19348	19348	Captive-born	F	12.5	No	35.7	SRR7639473, SRR7639471, SRR7639470
25347	FR07937990	Captive-born	M	0	Unknown	26.8	SRR7624573
26196	FR07919258	Captive-born	M	0	Yes	31.3	SRR7624574
26988	26988	Captive-born	F	12.5	No	38.3	SRR8723562, SRR8723561, SRR8723560, SRR8723559, SRR8723558, SRR8723557, SRR8723556, SRR8723555
27351	FR07919260	Captive-born	M	12.5	Yes	32.5	SRR7624571

28246	28246	Captive-born	M	12.5	No	32.8	SRR8723589, SRR8723588, SRR8723587, SRR8723586, SRR8723585, SRR8723584, SRR8723566, SRR8723565, SRR8723554, SRR8723552, SRR8723546
28279	FR07918876	Captive-born	M	12.5	Yes	29.8	SRR7624572, SRR8285741
28635	FR07918877	Captive-born	M	23.4375	Yes	27.0	SRR7624577, SRR8285742
1X2231	FR07919268	Captive-born	M	0	No	36.5	SRR7624601
1X2816	FR07886419	Captive-born	M	0	No	36.9	SRR7588785, SRR7588782
1X3697	FR07886406	Captive-born	M	0	No	34.2	SRR7588786
1X3796	FR07937955	Captive-born	M	0	Yes	26.2	SRR7624600
1X3822	FR07886412	Captive-born	M	0	No	29.6	SRR7588762
1X3837	FR07886403	Captive-born	M	0	Yes	34.6	SRR7588761
1X4179	FR07919267	Captive-born	M	0	No	36.4	SRR7624599
1X4209	FR07937953	Captive-born	M	0	Unknown	27.6	SRR7624594
1X4777	FR07886423	Captive-born	M	0	Yes	35.7	SRR7588760
1X4853	FR07919263	Captive-born	M	0	Yes	29.9	SRR7624593

Table S2. Genetic ancestry assignments from ADMIXTURE. Samples are listed in the same order as in Table S1. Values that are bold and italicized were inferred using unsupervised ADMIXTURE (see Figure S5), and the remaining values were inferred using projection.

Sample ID	Sequencing ID	Olive Ancestry	Yellow Ancestry
1_3548	FR07886417	***0.000010***	***0.999990***
1X0102	FR07921249	***0.000010***	***0.999990***
1X0110	FR07921242	***0.000010***	***0.999990***
1X1734	FR07921233	***0.000010***	***0.999990***
1X2049	FR07921237	***0.000010***	***0.999990***
1X2208	FR07886421	***0.000010***	***0.999990***
1X2304	FR07921251	***0.000010***	***0.999990***
1X3576	FR07921203	***0.999990***	***0.000010***
1_1979	FR07921245	***0.999990***	***0.000010***
1X0014	FR07886416	***0.995254***	***0.004746***
1X0026	FR07921246	***0.999990***	***0.000010***
1X0035	FR07886425	***0.987652***	***0.012348***
1X0153	FR07886426	***0.999990***	***0.000010***
1X0576	FR07886409	***0.999990***	***0.000010***
1X0580	FR07886405	***0.999990***	***0.000010***
1X0808	FR07921241	***0.999990***	***0.000010***
1X0812	FR07886420	0.902903	0.097097
1X0832	FR07921221	***0.999990***	***0.000010***
1X0951	FR07886413	***0.999990***	***0.000010***
1X1032	FR07921215	***0.999990***	***0.000010***
1X1125	FR07921272	***0.999990***	***0.000010***
1X1126	FR07921226	***0.999990***	***0.000010***
1X1146	FR07921240	***0.999990***	***0.000010***
1X1152	FR07886411	***0.999990***	***0.000010***
1X1181	FR07921270	***0.999990***	***0.000010***
1X1672	FR07921258	***0.999990***	***0.000010***
1X1700	FR07921265	***0.999990***	***0.000010***
1X1765	FR07921266	***0.999990***	***0.000010***
1X1939	FR07921262	***0.999990***	***0.000010***
1X1947	FR07921235	***0.999990***	***0.000010***
1X2891	FR07919467	***0.999990***	***0.000010***
1X3162	FR07921212	***0.999990***	***0.000010***
1X4384	FR07921206	0.032652	0.967348
6716	FR07918883	0.686213	0.313787
7091	FR07886418	0.991585	0.008415
7158	FR07886424	0.438236	0.561764
7937	FR07937957	0.994127	0.005873
8170	FR07918874	0.989328	0.010672
8344	FR07886410	0.523729	0.476271
8465	FR07886414	0.773239	0.226761
8653	FR07886404	0.999985	0.000015
8780	FR07918882	0.992469	0.007531
9562	FR07918881	0.999990	0.000010
9656	FR07937989	0.266671	0.733329
9841	9841	0.995635	0.004365
9860	FR07919264	0.730542	0.269458
10173	FR07937952	0.984747	0.015253
10192	FR07918860	0.989728	0.010272
10349	FR07937956	0.521223	0.478777
10488	FR07937951	0.503682	0.496318

11887	FR07919462	0.978794	0.021206
12242	12242	0.996245	0.003755
13245	FR07921581	0.984998	0.015002
13644	FR07886422	0.820295	0.179705
14022	FR07919116	0.908253	0.091747
14182	FR07919265	0.620503	0.379497
14276	FR07886415	0.638200	0.361800
14460	FR07937948	0.753428	0.246572
14652	FR07921230	0.995640	0.004360
14712	FR07921574	0.987846	0.012154
14925	FR07919266	0.999990	0.000010
14930	FR07918884	0.993515	0.006485
14959	FR07921575	0.994056	0.005944
15009	FR07921250	0.985709	0.014291
15107	FR07921573	0.996415	0.003585
15150	FR07886407	0.995766	0.004234
15156	FR07919118	0.993400	0.006600
15190	FR07921577	0.999990	0.000010
15197	FR07919164	0.674958	0.325042
15421	FR07921261	0.994361	0.005639
15444	15444	0.992991	0.007009
15467	FR07921218	0.995813	0.004187
15626	FR07886408	0.986304	0.013696
15628	FR07918879	0.988046	0.011954
15633	FR07919257	0.995194	0.004806
16413	16413	0.988271	0.011729
16517	16517	0.990732	0.009268
17199	17199	0.991020	0.008980
18385	18385	0.992596	0.007404
18929	FR07919259	0.800807	0.199193
19181	19181	0.991495	0.008505
19207	FR07919100	0.953595	0.046405
19348	19348	0.992084	0.007916
25347	FR07937990	0.916109	0.083891
26196	FR07919258	0.888132	0.111868
26988	26988	0.989914	0.010086
27351	FR07919260	0.889554	0.110446
28246	28246	0.990031	0.009969
28279	FR07918876	0.868988	0.131012
28635	FR07918877	0.887375	0.112625
1X2231	FR07919268	0.999990	0.000010
1X2816	FR07886419	0.995236	0.004764
1X3697	FR07886406	0.993218	0.006782
1X3796	FR07937955	0.538506	0.461494
1X3822	FR07886412	0.992174	0.007826
1X3837	FR07886403	0.532980	0.467020
1X4179	FR07919267	0.987968	0.012032
1X4209	FR07937953	0.564182	0.435818
1X4777	FR07886423	0.996056	0.003944
1X4853	FR07919263	0.780150	0.219850