

**Table S2.**

BAC probes, long range PCR product coordinates in hg38 and their respective fluorescent labels that were designed to constitute the fiber FISH pattern for the LCR22s

Probe_ID	Probe coordinates (hg38)	Color	Probe size (basepairs)	Forward primer	Reverse primer
A1	chr22:18838945-18844821	blue	5877	CTTTCTAGATTGACCACTCAGGAGTTAC	CTTAGGAGCTTTTCTTCTAGTTGCAGT
A2	chr22:18846775-18854471	green	7697	GTCAAGACAACCTAAGAAGGTTTTCC	TCTACTGAATCACTTGTCAAGAAGC
A3	chr22:18863891-18870589	cyan	6699	GACCCGCTAACTCATTTTATACATC	GTTTATTCCACCTGTCAGTCTCACT
A4	chr22:18926025-18934677	green	8653	ATAAAGGTAGTTACCTGGTTCCAAGAC	AGCCCTAAGGTTTCTTGTCTAGATTC
A5	chr22:18952693-18960789	magenta	8096	GGATCTACGGAGTCTTCTAAGAGATTT	CATAATAGTTAGAACTGTCTCTCTGGGCTA
B1	chr22:20313062-20319545	yellow	6484	GTACAAGTATAGGGCTGTAGGTGCT	AGTGTTCGGAAGAGGTCTCTAAGAT
B2	chr22:20339592-20344598	red	5007	CTTTGGAACAAAGCCACAGTAGTAT	AATGAACTTCCACAGTACCTTCTTG
B3	chr22:20369408-20379200	yellow	9793	ATACCAAGAGAATCCCCTTACCAGT	CTTTTGTGGCAGTAGTGTTCCTAT
D1	chr22:21057588-21062418	blue	4831	GTGAGAGAGATTAGGATCCCTTTTCAT	TTAATACCACTAGGCTCAACCCGTAT
D2	chr22:21115365-21122584	red	7220	TAACTGTGAAGGATTCTTACTCTAGTGTCC	GATCATCTCTCTGCCAAAATAACAG
D3	chr22:21151184-21159924	cyan	8741	AACAAGCTCTTGACATTCTCTGAGT	AGCATTATTACTACTGCAGCTACCAC
D5	chr22:21486822-21489767	magenta	2946	GGTCAGGTACTTCTTATCTGAGAACAT	CAAATAGATGGGAGTGTGTTTCTTC
D6	chr22:21557969-21561954	green	3986	CACCATCCCAGTACATAATGACTTC	ATTGGCACCATAGAGCAGTACTAAC
D7	chr22:21221650-21229324	yellow	7675	GAGGCCTTAGCAGAAATAACAGAAG	CAGTGCTTTACCACAGAGTGTTTTA
CH17-320A22	chr22:17943114-18171048	green	227935	BAC	
CH17-203M7	chr22:19078955-19323096	red	244142	BAC	
CH17-289E17	chr22:20073602-20301293	green	227692	BAC	
CH17-131N14	chr22:20398072-20629441	blue	231370	BAC	
RP11-590C5	chr22:20726003-20906345	red	180343	BAC	
RP11-165F18	chr22:20934046-21099834	yellow	165789	BAC	
RP11-354K13	chr22:21588266-21764059	magenta	175794	BAC	