

Supplementary Data

Mutations in *MAPT* Gene Cause Chromosome Instability and Introduce Copy Number Variations Widely in the Genome

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Accepted 13 September 2012

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Supplementary Table 1
Chromosome aberrations in peripheral blood lymphocytes of control subjects

Subject	N met	% met with structural anomalies (breaks, gaps, stable lesions)	Stable lesions		Clonal numerical aberrations		% met with aberrations
			Type	% met	Type	% met	
CL1	20	15	/	0	/	0	15
CL2	20	20	/	0	/	0	20
CL3	20	10	/	0	/	0	10
CL4	20	10	/	0	/	0	10
CL5	16	25	/	0	/	0	25
CL6	20	10	/	0	/	0	10
CL7	20	10	/	0	/	0	10
CL8	20	20	/	0	/	0	20
CL9	16	18.75	/	0	/	0	18.75
CL10	16	12.5	/	0	/	0	12.5
CL11	16	12.5	/	0	/	0	12.5
CL12	16	6.25	/	0	/	0	6.25
CL13	16	6.25	/	0	/	0	6.25
CL14	16	25	/	0	/	0	25
CL15	16	31.25	/	0	/	0	31.25
CL16	16	18.75	/	0	/	0	18.75
CL17	16	25	/	0	/	0	25
CL18	16	25	/	0	/	0	25
CL19	16	25	/	0	/	0	25
CL20	16	12.5	/	0	/	0	12.5
CL21	16	12.5	/	0	/	0	12.5
CL22	16	18.75	/	0	/	0	18.75
CL23	16	25	/	0	/	0	25
CL24	16	12.5	/	0	/	0	12.5
CL25	16	12.5	/	0	/	0	12.5
CL26	16	12.5	/	0	/	0	12.5
CL27	16	31.25	/	0	/	0	31.25
CL28	16	25	inv(14)	6.25	/	0	25
CL29	16	6.25	/	0	/	0	6.25
CL30	16	31.25	t(3;7)	6.25	/	0	31.25
CL31	16	12.5	/	0	/	0	12.5
CL32	16	12.5	/	0	/	0	12.5
CL33	16	6.25	/	0	/	0	6.25
CL34	16	18.75	/	0	/	0	18.75
CL35	16	43.75	/	0	/	0	43.75
CL36	16	18.75	/	0	/	0	18.75
CL37	16	12.5	/	0	/	0	12.5
CL38	16	37.5	/	0	/	0	37.5
CL39	16	18.75	/	0	/	0	18.75
CL40	16	12.5	/	0	/	0	12.5
CL41	16	31.25	/	0	/	0	31.25
CL42	16	25	/	0	/	0	25
CL43	16	31.25	/	0	/	0	31.25
CL44	16	12.5	/	0	/	0	12.5
CL45	16	0	/	0	/	0	0
CL46	16	25	t(4;13)	6.25	/	0	25
CL47	16	6.25	/	0	/	0	6.25
CL48	16	6.25	/	0	/	0	6.25
CL49	16	12.5	/	0	/	0	12.5
CL50	16	31.25	/	0	/	0	31.25
CL51	16	18.75	/	0	/	0	18.75
CL52	16	37.5	/	0	/	0	37.5
CL53	16	31.25	/	0	/	0	31.25
CL54	16	17.65	/	0	loss of X	17.65	35.3
CL55	17	25	/	0	/	0	25
CL56	16	25	/	0	/	0	25

N, number; met, metaphases. The % of total aberrations are the same as the % of metaphases with aberrations, due to the presence of only single aberrations in single metaphases.

Supplementary Table 2
Chromosome aberrations in fibroblasts of control subjects

Subject	N met	p	% met with structural anomalies (breaks, gaps, stable lesions)	Stable lesions Type	% met	Clonal numerical aberrations Type	% met	% total aberrations	% met with aberrations
CF1	68	8	7.3	t(9;14)	1.5	loss of 22	2.9	10.2	10.2
	49	12	0	/	0	/	0	0	0
CF2	64	3	0	/	0	loss of 20	4.7	4.7	4.7
CF3	50	n.a.	0	/	0	/	0	0	0
CF4	50	n.a.	0	/	0	/	0	0	0
CF5	52	8	1.9	/	0	loss of 20	3.8	5.7	5.7
CF6	50	n.a.	0	/	0	loss of 15	4	8	8
						loss of 22	4		
CF7	48	6	2.1	/	0	/	0	2.1	2.1
CF8	53	6	0	/	0	loss of 19	3.75	7.5	7.5
						loss of 20	3.75		
CF9	47	6	8.5	del(10)	2.1	loss of X	4.25	25.5	25.5
				t(1;11)	2.1	loss of 18	4.25		
						loss of 19	4.25		
						loss of 21	4.25		
CF10	45	6	0	/	0	loss of 20	4.4	4.4	4.4
CF11	50	7	0	/	0	/	0	0	0
CF12	39	7	0	/	0	/	0	0	0
CF13	49	6	0	/	0	/	0	0	0
CF14	50	5	8	del(5)	2	loss of 19	4	42	30
				t(11;Y)	2	loss of 20	6		
						loss of 21	10		
						loss of 22	10		
						loss of Y	4		
CF15	50	4	6	/	0	loss of 10	4	38	30
						loss of 16	8		
						loss of 18	4		
						loss of 19	4		
						loss of 21	4		
						loss of 22	8		
CF16	50	12	4	/	0	/	0	4	4
CF17	50	4	6	/	0	loss of 16	4	20	20
						loss of 20	4		
						loss of 22	6		

N, number; met, metaphases; p, cell culture passage; n.a., not available. For CF14 and CF15 the % of metaphases with aberrations are lower than the % of total aberrations due to the presence of multiple aberrations in single metaphases.

Supplementary Table 3

Total results of comparative genome hybridization analysis. Peripheral blood lymphocytes (PBL) and skin fibroblasts at low (p3) and high (p6) culture passage

Subject	CNV position, probes, and size	PBL	Fibroblast culture p3	Fibroblast Culture p6
P1	1: 246812425-247118482 1q44; 9 probes; 306.1Kb	–	Duplication; non mosaic	Duplication; non mosaic
	5: 99486385-99633881 5q21.1; 3 probes; 147.5Kb	Loss in heteroz; 53% mosaic	–	–
	5: 147241899-147534200 5q33.1; 6 probes; 292.3Kb	Loss in heteroz; 45% mosaic	–	–
	7: 39952310-40008210 7p14.1; 3 probes; 55.9Kb	Duplication; 83% mosaic	Loss in heteroz; non mosaic	Loss in heteroz; non mosaic
	7: 120461205-120785352 7q31.31; 9 probes; 324Kb	–	Duplication; non mosaic	Duplication; non mosaic
	8: 30042803-30077496 8p12; 3 probes; 34.7Kb	–	Loss in heteroz; non mosaic	Loss in heteroz; non mosaic
	8: 37782033-37911894 8p12; 4 probes; 130Kb	Duplication; non mosaic	Loss in heteroz; 70% mosaic	Loss in heteroz; 75% mosaic
	8: 39378051-39505315 8p11.23-p11.22; 4 probes; 127.3Kb	Duplication; non mosaic	Duplication; non mosaic	Duplication; non mosaic
	10: 46568496-47992534 10q11.2; 6 probes; 1400Kb	Loss in heteroz; 29% mosaic	–	Duplication; 81% mosaic
	10: 69764706-69834720 10q21.3; 3 probes; 70Kb	–	Loss in heteroz; non mosaic	Loss in heteroz; non mosaic
	10: 88507154-88668858 10q23.2; 4 probes; 161.7Kb	Duplication; 42% mosaic	Loss in heteroz; non mosaic	Loss in heteroz; non mosaic
	11: 67109244-67130661 11q13.2; 3 probes; 21.4Kb	–	Duplication; 93% mosaic	Duplication; non mosaic
	13: 19140299-19303761 13q12.11; 7 probes; 163.5Kb	–	Loss in heteroz; 86% mosaic	Loss in heteroz; 79% mosaic
	14: 21540156-22034762 14q11.2; 10 probes; 494.6Kb	Loss in heteroz; 58% mosaic	Duplication; 91% mosaic	Duplication; non mosaic
	16: 33293241-33511969 16p11.2; 4 probes; 218.7Kb	Duplication; 83% mosaic	–	–
	18: 12521754-12705473 18p11.21; 8 probes; 183.7Kb	Duplication; 50% mosaic	Loss in heteroz; 92% mosaic	Loss in heteroz; 87% mosaic
	18: 35830793-36319688 18q12.3; 4 probes; 489Kb	Loss in heteroz; 39% mosaic	–	–
	20: 7632126-8271034 20p12.3; 12 probes; 639Kb	Loss in heteroz; 31% mosaic	–	–
	22: 37689058-37742886 22q13.1; 3 probes; 53.8Kb	Loss in homoz; non mosaic	Loss in homoz; non mosaic	Loss in homoz; non mosaic
	X: 105995875-106110820 Xq22.3; 5 probes; 114.9Kb	Duplication; 38% mosaic	Loss in homoz; non mosaic	Loss in homoz; non mosaic
P5	3: 199125249-199251188 3q29; 5 probes; 125.9Kb	Duplication; non mosaic	Duplication; 83% mosaic	–
	6: 204328-295412 6p25.3; 3 probes; 91.1Kb	Loss in heteroz; non mosaic	Loss in heteroz; non mosaic	Loss in heteroz; non mosaic
	6: 156045999-156337858 6q25.3; 4 probes; 291.9Kb	Loss in heteroz; 52% mosaic	–	–
	8: 103584178-104221338 8q22.3; 15 probes; 637.2Kb	Duplication; 57% mosaic	–	–
	9: 34105673-34300995 9p13.3; 5 probes; 195.3Kb	Duplication; non mosaic	–	–
	10: 69764706-69834720 10q21.3; 7 probes; 70Kb	–	Loss in heteroz; 98% mosaic	–
	17: 1605242-1725746 17p13.3; 6 probes; 120.5Kb	Duplication; non mosaic	–	Loss in heteroz; 53% mosaic (validated by FISH analysis)

Supplementary Table 3
(Continued)

Subject	CNV position, probes, and size	PBL	Fibroblast culture p3	Fibroblast Culture p6
P11	17: 84087-22005136 whole 17p-arm 17p13.3-p11.2; 613 probes; 21900Kb	—	—	
	18: 35697785-35931872 18q12.3; 4 probes; 234Kb	Loss in heteroz; 41% mosaic	—	—
	18: 40282934-40487437 18q12.3; 3 probes; 204.5Kb	Duplication; 73% mosaic	—	—
	20: 30263613-30448300 20q11.21; 7 probes; 185Kb	Duplication; 89% mosaic	—	—
	20: 51229862-51351479 20q13.2; 3 probes; 121.6Kb	Loss in heteroz; 35% mosaic	—	—
	22: 43436314-43713420 22q13.31; 8 probes; 277.1Kb	—	—	Duplication; non mosaic
	2: 208795-264517 2p25.3; 5probes; 268.6Kb	Loss in heteroz; 29% mosaic	Loss in heteroz; 35% mosaic	—
	6: 204528-295265 6p25.3; 3 probes; 91Kb	—	Loss in heteroz; 86% mosaic	Loss in heteroz; 94% mosaic
	6: 24531763-24631141 6p22.2; 5 probes; 99.4Kb	Duplication; 85% mosaic	Duplication; 85% mosaic	Duplication; 57% mosaic
	6: 101976116-103286768 6q16.3; 14 probes; 1311Kb	—	Loss in heteroz; 65% mosaic	Loss in heteroz; 65% mosaic
P13	7: 100585700-100836219 7q22.1; 14 probes; 250.5Kb	—	Duplication; 89% mosaic	Duplication; non mosaic
	10: 108940848-109978462 10q25.1; 10 probes; 1040Kb	Loss in heteroz; 29% mosaic	Loss in heteroz; 53% mosaic	Loss in heteroz; 68% mosaic
	22: 49005116-49291101 22q13.33; 10 probes; 286Kb	—	Duplication; 69% mosaic	Duplication; non mosaic
	1: 186223263-187367867 1q31.1; 9 probes; 1100Kb	—	Loss in heteroz; 80% mosaic	Loss in heteroz; 30% mosaic
	1: 227633624-227686505 1q42.13; 4 probes; 52.9Kb	Amplification; non mosaic	—	—
	2: 156046484-156783883 2q24.1; 6 probes; 737Kb	—	Loss in heteroz; 94% mosaic	Loss in heteroz; 44% mosaic
	2: 214062938-214257206 2q34; 5 probes; 194Kb	—	Loss in heteroz; 91% mosaic	Loss in heteroz; 34% mosaic
	3: 37045257-37122033 3p22.2; 3 probes; 76.8Kb	—	—	Duplication; non mosaic
	4: 190659468-190789299 4q35.2; 3 probes; 129.8Kb	—	Loss in heteroz; 94% mosaic	Loss in heteroz; 55% mosaic
	5: 26938336-27629033 5p14.1; 8 probes; 690.7Kb	—	Loss in heteroz; 67% mosaic	Loss in heteroz; 33% mosaic
	5: 106744698-106888204 5q21.3; 4 probes; 143.5Kb	Loss in heteroz; 56% mosaic	Duplication; 93% mosaic	—
	5: 179154835-179197014 5q35.3; 4 probes; 42.2Kb	—	Amplification; non mosaic	Duplication; 83% mosaic
	6: 102255955-102493547 6q16.3; 5 probes; 237.6Kb	—	Loss in heteroz; 86% mosaic	Loss in heteroz; 33% mosaic
	8: 39378051-39505315 8p11.23-p11.22; 4 probes; 127.3Kb	Loss in homoz; non mosaic	Loss in homoz; non mosaic	Loss in homoz; non mosaic
	8: 145659998-145782038 8q24.3; 7 probes; 122Kb	—	Duplication; non mosaic	Duplication; 62% mosaic
	9: 136759191-140128736 9q34.3; 9 probes; 3400Kb	—	Duplication; 89% mosaic	Duplication; 33% mosaic
	10: 134767642-135026325 10q26.3; 12 probes; 258.7Kb	—	Duplication; non mosaic	Duplication; 35% mosaic
	14: 83272607-83686125 14q31.2; 4 probes; 413.5Kb	—	Loss in heteroz; 82% mosaic	Loss in heteroz; 40% mosaic
	17: 1605242-1725746 17p13.3; 6 probes; 120.5Kb	Duplication; non mosaic	—	—

Supplementary Table 3
(Continued)

Subject	CNV position, probes, and size	PBL	Fibroblast culture p3	Fibroblast Culture p6
P14	17: 35840935-35897999 17q21.2; 4 probes; 57Kb	—	Duplication; non mosaic	Duplication; non mosaic
	19: 50088313-50156122 19q13.32; 5 probes; 67.8Kb	—	Amplification; non mosaic	Duplication; non mosaic
	20: 60315571-60553073 20q13.33; 10 probes; 237.5Kb	—	Duplication; non mosaic	Duplication; 35% mosaic
	22: 48934300-49451468 22q13.33; 23 probes; 517.2Kb	—	Duplication; non mosaic	Duplication; 35% mosaic
	1: 76872448-77235833 1p31.1; 5 probes; 363.4Kb	—	Loss in heteroz; 62% mosaic	Loss in heteroz; 59% mosaic
	1: 114248107-114275089 1p13.2; 3 probes; 27Kb	Loss in heteroz; non mosaic	—	—
	1: 201577506-201942982 1q32.1; 6 probes; 365.5Kb	—	Duplication; 89% mosaic	Duplication; 66% mosaic
	5: 68203607-68461275 5q13.1-q13.2; 4 probes; 257Kb	—	Duplication; 50% mosaic	Duplication; 55% mosaic
	5: 68764487-70870674 5q13.2; 8 probes; 2106Kb	—	Duplication; 51% mosaic	Duplication; 38% mosaic
	5: 140371498-140495077 5q31.3; 6 probes; 123.6Kb	Loss in heteroz; 85% mosaic	—	—
	7: 143483906-143706253 7q35; 3 probes; 222.3Kb	Loss in heteroz; 66% mosaic	—	—
	10: 138006-135084977 whole chr.10 10p15.3-q26.3; 1736 probes; 135000Kb	—	Duplication; 81% mosaic	Duplication; 70% mosaic
	11: 10423334-10465458 11p15.4; 4 probes; 42.1Kb	Loss in heteroz; 68% mosaic	Loss in heteroz; 44% mosaic	Loss in heteroz; 27% mosaic
	11: 18284221-18541986 11p15.1; 14 probes; 257.8Kb	—	Duplication; 49% mosaic	Duplication; 36% mosaic
	12: 116136132-116253651 12q24.22; 5 probes; 117.5Kb	Duplication; non mosaic	Duplication; non mosaic	Duplication; non mosaic
	14: 21392430-22086438 14q11.2; 15 probes; 694Kb	Loss in heteroz; 64% mosaic	—	—
	14: 89087216-89196226 14q32.11; 3 probes; 109Kb	Loss in heteroz; non mosaic	—	—
	16: 61831762-62268714 16q21; 4 probes; 437Kb	Loss in heteroz; 92% mosaic	—	—
	17: 75337846-75423291 17q25.3; 3 probes; 85.4Kb	Amplification; non mosaic	—	—
	18: 518074-762810 18p11.32; 6 probes; 244.7Kb	Duplication; 85% mosaic	Duplication; 43% mosaic	Duplication; 38% mosaic
P15	1: 227633624-227686505 1q42.13; 4 probes; 52.9Kb	Amplification; non mosaic	—	/
	5: 204737-323022 5p15.33; 3 probes; 118.3Kb	Loss in heteroz; 56% mosaic	—	/
	6: 68383776-68969954 6q12; 4 probes; 586.2Kb	Loss in heteroz; 56% mosaic	—	/
	6: 160161654-160248712 6q25.3; 5 probes; 87.1Kb	Duplication; non mosaic	—	/
	8: 103584178-104267201 8q22.3; 16 probes; 683Kb	Duplication; 81% mosaic	—	/
	8: 143689420-143780101 8q24.3; 6 probes; 90.7Kb	—	Duplication; 77% mosaic	/
	8: 144172829-144402463 8q24.3; 6 probes; 229.6Kb	Loss in heteroz; 42% mosaic	Duplication; 89% mosaic	/
	9: 4730392-4851086 9p24.1; 4 probes; 120.7Kb	—	Loss in heteroz; non mosaic	/
	9: 34177967-34300995 9p13.3; 3 probes; 123Kb	Duplication; non mosaic	Loss in heteroz; 91% mosaic	/

Supplementary Table 3
(Continued)

Subject	CNV position, probes, and size	PBL	Fibroblast culture p3	Fibroblast Culture p6
C1	11: 1438303-1833002 11p15.5; 11 probes; 394.7Kb	–	Duplication; 83% mosaic	/
	14: 21540156-21936635 14q11.2; 8 probes; 396.5Kb	Loss in heteroz; 81% mosaic	–	/
	15: 91701722-91887720 15q26.1; 5 probes; 186Kb	Duplication; non mosaic	–	/
	17: 1605242-1725746 17p13.3; 6 probes; 120.5Kb	Duplication; non mosaic	–	/
	17: 78154419-78289109 17q25.3; 6 probes; 134.7Kb	Duplication; non mosaic	–	/
	20: 30859563-30953113 20q11.21; 3 probes; 93.6Kb	–	Loss in heteroz; non mosaic	/
	22: 48956007-48976498 22q13.33; 3 probes; 20.5Kb	–	Duplication; 83% mosaic	/
	X: 85558157-85804440 Xq21.2; 3 probes; 246.3Kb	–	Loss in hemiz; non mosaic	/
	5: 32146491-32185480 5p13.3; 3 probes; 39Kb	Duplication; non mosaic	Duplication; 83% mosaic	/
	12: 3264342-3477431 12p13.32; 4 probes; 213Kb	Loss in heteroz; 41% mosaic	–	/
	13: 51791812-51885077 13q14.3; 3 probes; 93.3Kb	–	Duplication; 95% mosaic	/
	14: 19323579-19446107 14q11.2; 3 probes; 122.5Kb	Duplication; 69% mosaic	–	/
	14: 105028391-105080399 14q32.33; 4 probes; 52Kb	–	Duplication; 87% mosaic	/
	15: 19305294-19427409 15q11.2; 3 probes; 122Kb	–	Loss in heteroz; 56% mosaic	/
	17: 54084220-54618904 17q22; 18 probes; 534.9Kb	Duplication; 41% mosaic	–	/
	22: 17299942-17364519 22q11.21; 3 probes; 64.6Kb	–	Duplication; non mosaic	/
	X: 2719027-2788548 Xp22.33; 3 probes; 69.5Kb	Loss in heteroz; 87% mosaic	Loss in heteroz; non mosaic	/
	X: 48555526-48577686 Xp11.23; 3 probes; 22.1Kb	Duplication; non mosaic	–	/
C2	3: 196911055-196945260 3q29; 4 probes; 34.2Kb	Duplication; non mosaic	–	/
	8: 39378051-39469834 8p11.23; 3 probes; 91.8Kb	Loss in homoz; non mosaic	Loss in homoz; non mosaic	/
	14: 19323579-19446107 14q11.2; 3 probes; 122.5Kb	Loss in heteroz; 83% mosaic	Loss in heteroz; non mosaic	/
	15: 18741716-20010618 15q11.2; 13 probes; 1268.9Kb	Loss in heteroz; non mosaic	Loss in heteroz; non mosaic	/
	17: 37548773-37590506 17q21.2; 4 probes; 41.7Kb	–	Duplication; non mosaic	/
	17: 41566540-41700762 17q21.31; 4 probes; 134Kb	Duplication; non mosaic	Duplication; non mosaic	/
	17: 71435803-71511380 17q25.1; 4 probes; 75.6Kb	–	Loss in heteroz; 82% mosaic	/
C3	2: 35624087-36011502 2p22.3; 8 probes; 387.4Kb	–	Loss in heteroz; 72% mosaic	/
	7: 75177862-75279841 7q11.23; 4 probes; 102Kb	–	Loss in heteroz; non mosaic	/
	8: 7790934-8391131 8p23.1; 4 probes; 600.2Kb	–	Loss in heteroz; 78% mosaic	/
	8: 39377851-39505456 8p11.23-p11.22; 4 probes; 127.6Kb	Duplication; non mosaic	Duplication; non mosaic	/

Supplementary Table 3
(Continued)

Subject	CNV position, probes, and size	PBL	Fibroblast culture p3	Fibroblast Culture p6
C4	22: 49034136-49525271 22q13.33; 18 probes, 491.1Kb	Loss in heteroz; 53% mosaic	–	/
	X: 48263875-48319604 Xp11.23; 3 probes, 55.7Kb	Loss in heteroz; 53% mosaic	–	/
	8: 39377851-39505456 8p11.23-p11.22; 4 probes, 127.6Kb	Duplication; non mosaic	Duplication; non mosaic	/
	11: 1038586-1094539 11p15.5; 3 probes, 55.9Kb	Loss in heteroz; non mosaic	–	/
	11: 27857801-28248524 11p14.1; 10 probes, 390.7Kb	Loss in heteroz; 67% mosaic	–	/
	14: 21606619-22034904 14q11.2; 9 probes, 428.3Kb	Loss in heteroz; 83% mosaic	–	/
	18: 1715025-1863280 18p11.32; 4 probes, 148.2Kb	Loss in heteroz; non mosaic	Loss in heteroz; 96% mosaic	/
C5	2: 32548723-32697070 2p22.3; 5 probes, 148.3Kb	Duplication; non mosaic	–	/
	5: 90112591-90448306 5q14.3; 10 probes, 335.7Kb	–	Loss in heteroz; 74% mosaic	/
	17: 71457012-71511523 17q25.1; 3 probes, 54.5Kb	–	Loss in heteroz; non mosaic	/
	21: 35485876-35696813 21q22.12; 4 probes, 210.9Kb	Duplication; non mosaic	Loss in heteroz; non mosaic	/
	X: 105953099-106088426 Xq22.3; 5 probes, 135.3Kb	Duplication; 91% mosaic	Loss in heteroz; 13% mosaic	/
	Y: 26887747-27131964 Yq11.23; 6 probes, 244.2Kb	Duplication; non mosaic	–	/
	Y: 26957814-27069824 Yq11.23; 3 probes, 112Kb	–	Duplication; 93% mosaic	/

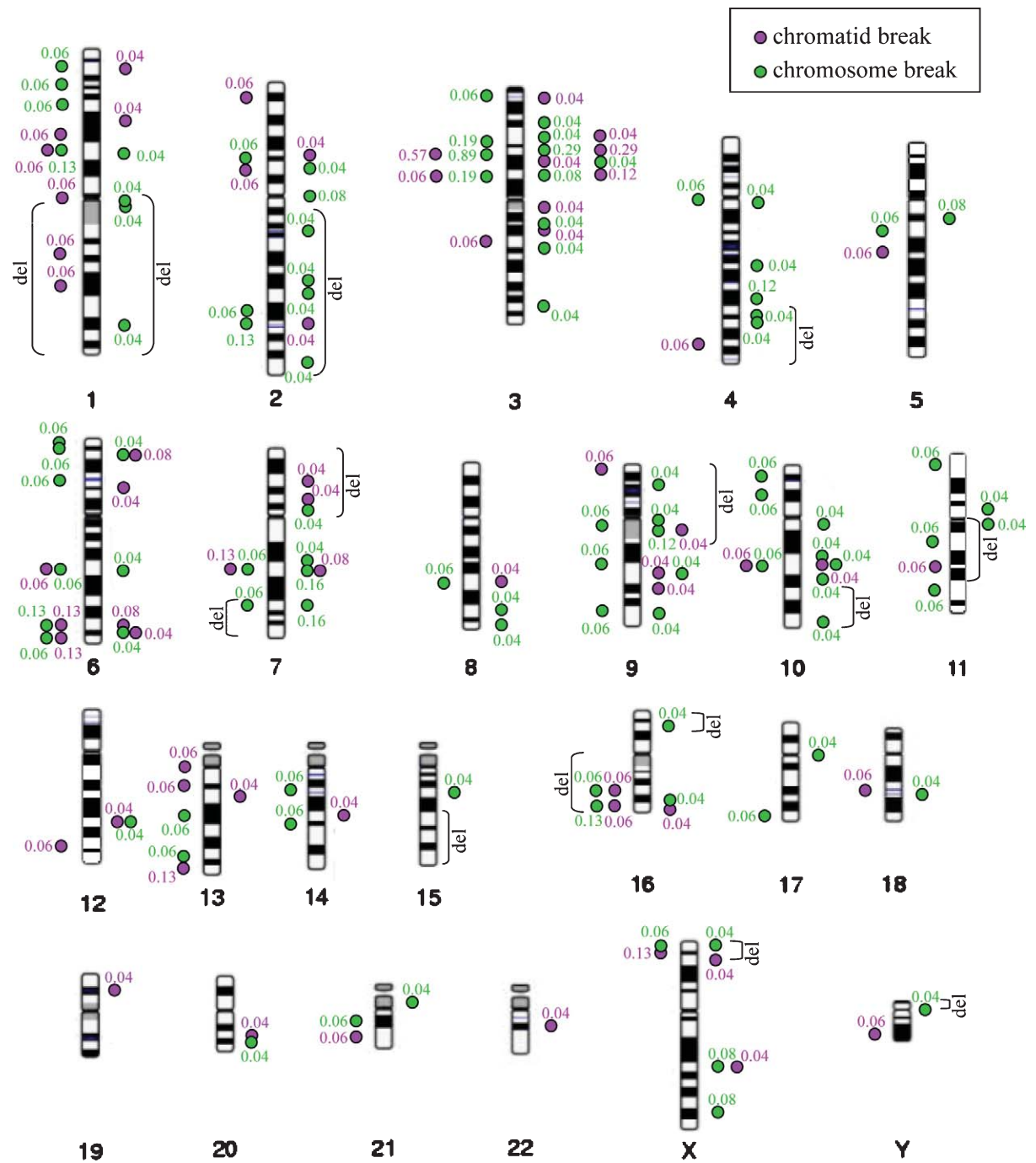
Gains are reported in red and losses in green. Copy number variants (CNVs) are defined as follows: 2 copies (alleles) of a region: normal condition; 3 copies (trisomy): duplication; more than 3 copies: amplification. heteroz, heterozygosis; homoz, homozygosis; P, patient; C, control.

Supplementary Table 4

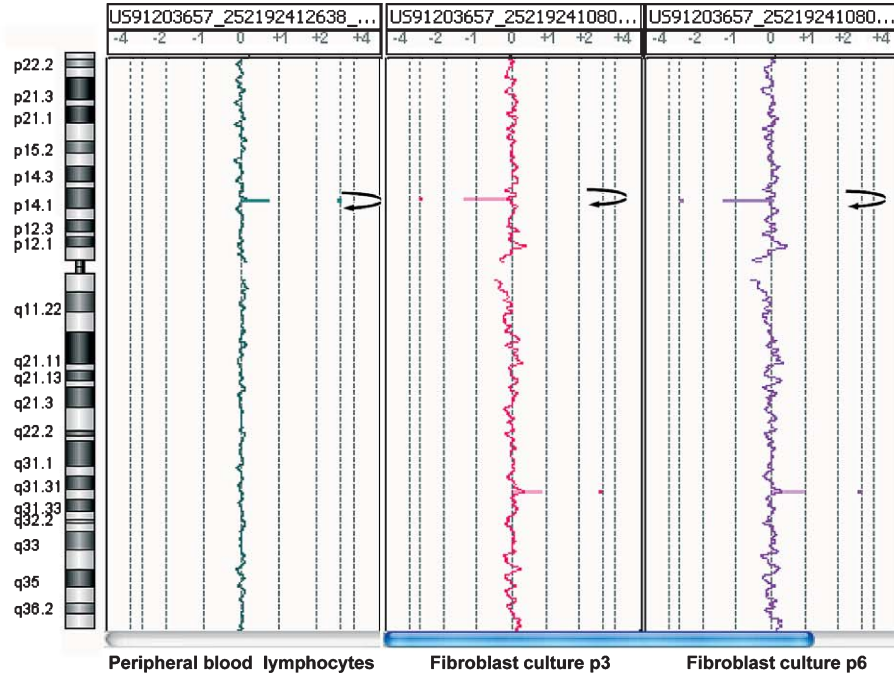
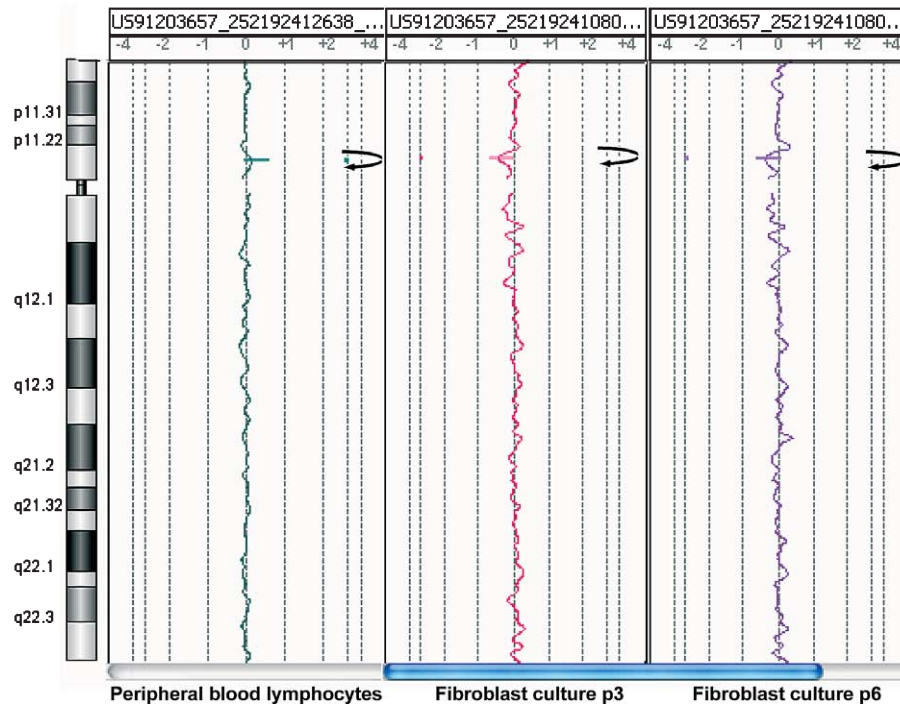
Chromosome gains or losses in regions where no copy number variant (CNV) has been so far described. Peripheral blood lymphocytes (PBL) and skin fibroblasts at low (p3) and high (p6) culture passage

Subject	CNV position, probes, and size	PBL	Fibroblast culture p3	Fibroblast culture p6	Annotations
P1	7: 39952310-40008210 7p14.1; 3 probes; 55.9Kb 8: 30042803-30077496 8p12; 3 probes; 34.7Kb 10: 69764706-69834720 10q21.3; 7 probes; 70Kb	Duplication; 83% mosaic - - -	Loss in heteroz; non mosaic Loss in heteroz; non mosaic Loss in heteroz; non mosaic	Loss in heteroz; non mosaic Loss in heteroz; non mosaic Loss in heteroz; non mosaic	Genes:CDC2L5 CNVs:no polymorphic CNV described Genes:TMEM66, LEPROTL1 CNVs:no polymorphic CNV described Genes:HNRNPH3, RUFY2 CNVs:no polymorphic CNV described.
P5	9: 34105673-34300995 9p13.3; 5 probes; 195.3Kb 10: 69764706-69834720 10q21.3; 7 probes; 70Kb 18: 40282934-40487437 18q12.3; 3 probes; 204.5Kb 20: 51229862-51351479 20q13.2; 3 probes; 121.6Kb	Duplication; non mosaic - - Duplication; 73% mosaic Loss in heteroz; 35% mosaic	- - Loss in heteroz; 98% mosaic - - -	- - - - - - -	Genes:WDR40A, NAG20, UBAP1, KIF24 CNVs:no polymorphic CNV described Genes:HNRNPH3, RUFY2 CNVs:no polymorphic CNV described Genes:no genes CNVs:no polymorphic CNV described Genes:TSHZ2 CNVs:no polymorphic CNV described
P13	1: 227633624-227686505 1q42.13; 4 probes; 52.9Kb 3: 37045257-37122033 3p22.2; 3 probes; 76.8Kb 17: 35840935-35897999 17q21.2; 4 probes; 57Kb	Amplification; non mosaic - - - -	- - - Duplication; non mosaic Duplication; non mosaic	- - - Duplication; non mosaic Duplication; non mosaic	Genes:ACTA1, NUP133 CNVs:no polymorphic CNV described Genes: MLH1, LRRFIP2 CNVs:no polymorphic CNV described Genes:IGFBP4, TNS4 CNVs: no polymorphic CNV described
P14	11: 10423334-10465458 11p15.4; 4 probes; 42.1Kb 14: 89087216-89196226 14q32.11; 3 probes; 109Kb	Loss in heteroz; 68% mosaic Loss in heteroz; non mosaic	Loss in heteroz; 44% mosaic - -	Loss in heteroz; 27% mosaic - -	Genes:AMPD3 CNVs:no polymorphic CNV described Genes:FOXN3 CNVs:no polymorphic CNV described
P15	1: 227633624-227686505 1q42.13; 4 probes; 52.9Kb 6: 160161654-160248712 6q25.3; 5 probes; 87.1Kb 9: 4730392-4851086 9p24.1; 4 probes; 120.7Kb 9: 34177967-34300995 9p13.3; 3 probes; 123Kb	Amplification; non mosaic Duplication; non mosaic - Duplication; non mosaic	- - - Loss in heteroz; non mosaic Loss in heteroz; 91% mosaic	/	Genes:ACTA1, NUP133 CNVs:no polymorphic CNV described Genes:PNLDC1, MAS1 CNVs:no polymorphic CNV described Genes:AK3, RCL1 CNVs:no polymorphic CNV described Genes:NAG20, UBAP1 CNVs:no polymorphic CNV described
C2	17: 71435803-71511380 17q25.1; 4 probes; 75.6Kb	- -	Loss in heteroz; 82% mosaic	/	Genes: FBF1, ACOX1, LOC100134934, CDK3 CNVs: no polymorphic CNV described
C5	5: 90112591-90448306 5q14.3; 10 probes; 335.7Kb 17: 71457012-71511523 17q25.1; 3 probes; 54.5Kb	- - -	Loss in heteroz; 74% mosaic Loss in heteroz; non mosaic	/	Genes: GPR98 CNVs: no polymorphic CNV described Genes: ACOX1, LOC100134934, CDK3 CNVs: no polymorphic CNV described

Gains are reported in red and losses in green. heteroz, heterozygosis; homoz, homozygosis; P, patient; C, control.



Supplementary Figure 1. Distribution of chromatid and chromosome breaks in 1,570 homologous chromosomes of 49 control subjects (left) and in 2,410 homologous chromosomes of 12 patients (right).

A**P1, CHROMOSOME 7****B****P1, CHROMOSOME 18**

Supplementary Figure 2. Array-CGH profiles. Copy number variants (CNVs) on chromosome 7 (A) and chromosome 18 (B) from Patient 1 are reported as an example. The arrows indicate a CNV as a gain (positive values) in DNA from peripheral blood lymphocytes and the same CNV as a loss (negative values) in DNA from culture fibroblasts (two passages). This observation suggests a non-allelic homologous recombination (NAHR) mechanism generating deletion/duplication at mosaic in somatic cells.