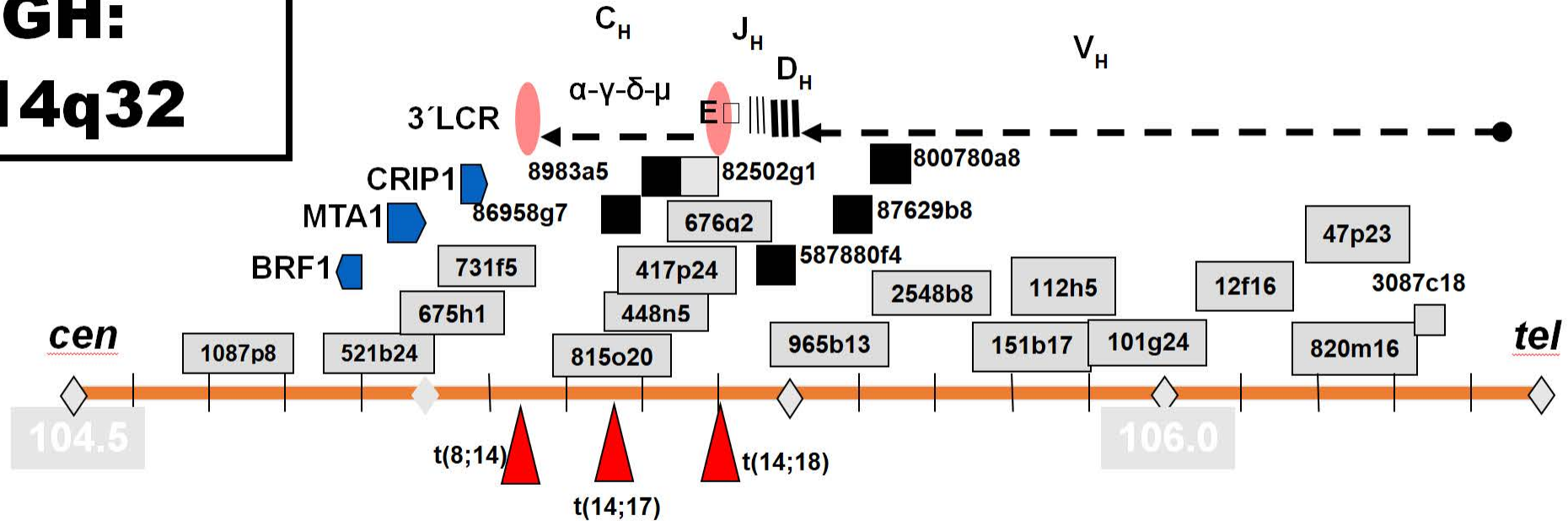
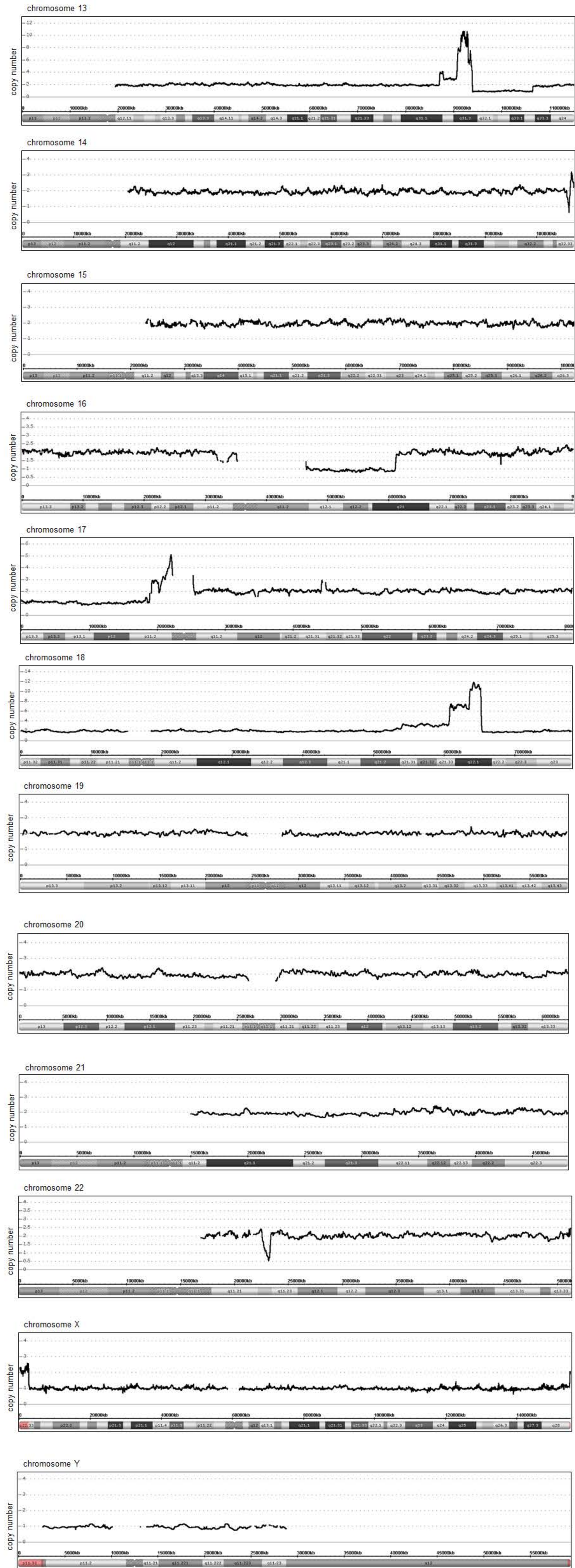
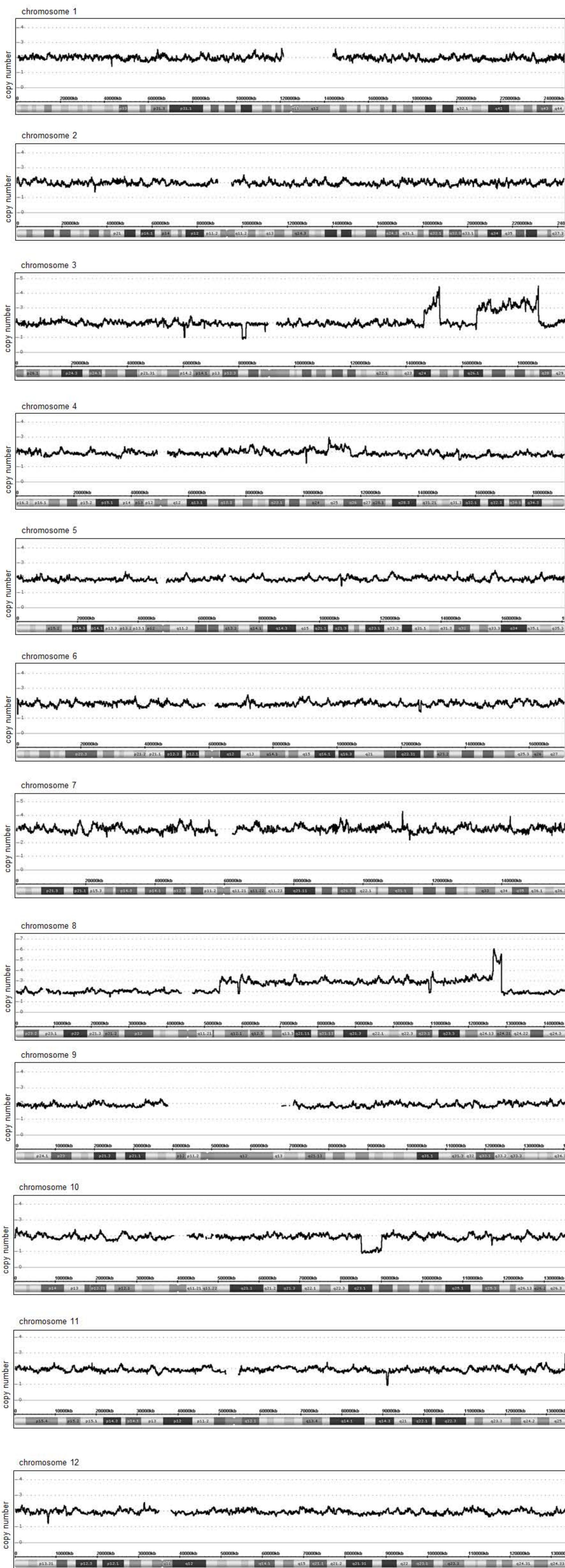


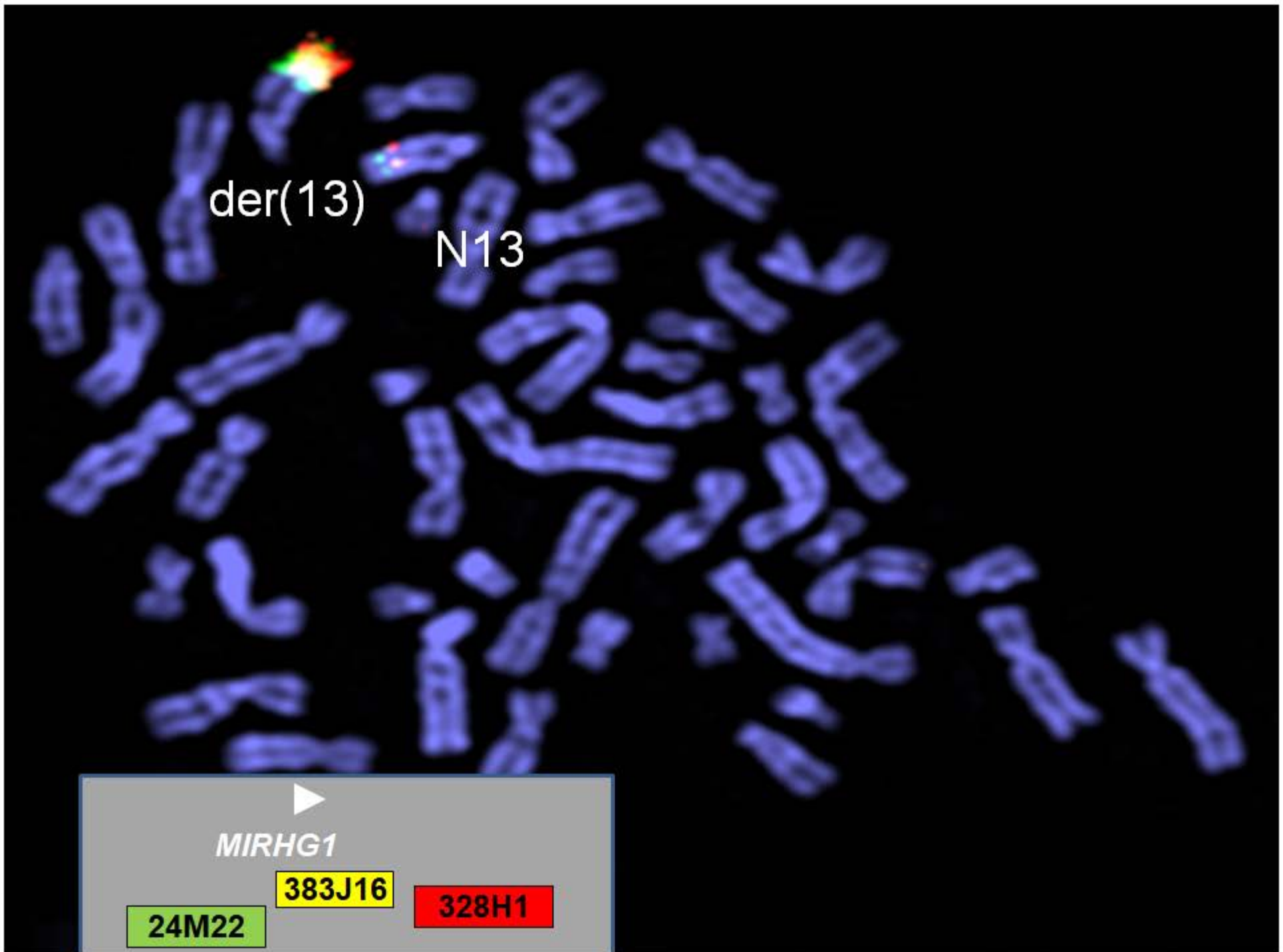
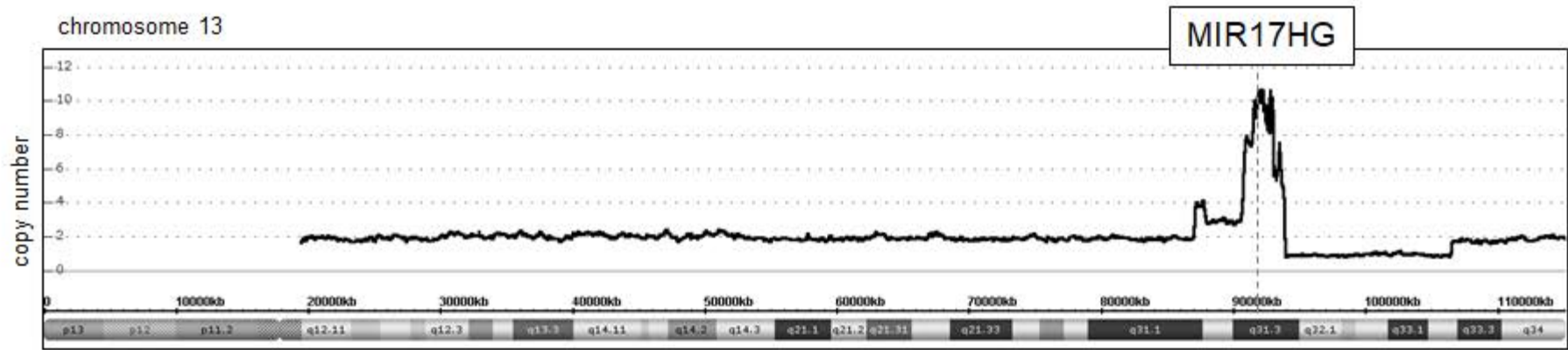
# IGH: 14q32



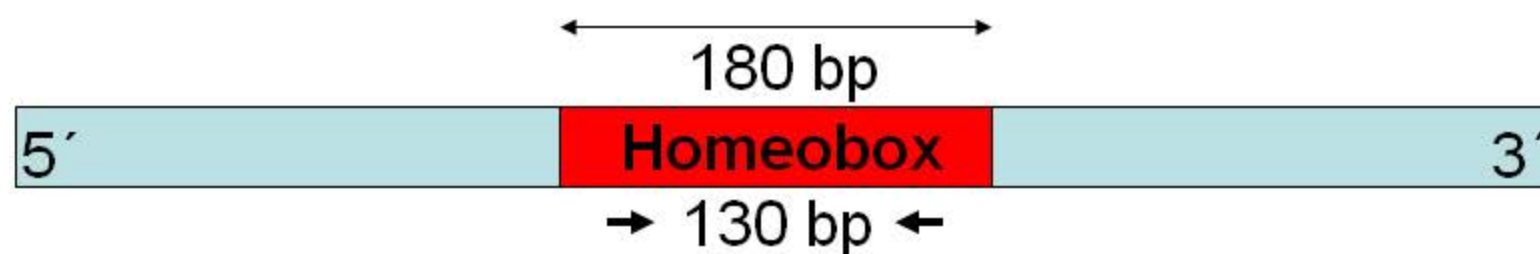
Supplementary Figure 1: FISH analysis of the IGH locus at 14q32.



Supplementary Figure 2: Copy number analysis of SC-1.



**Supplementary Figure 3:** Copy number data of SC-1 for MIR17HG (above). FISH analysis of MIR17HG in SC-1 (below). Used probes and their colors are indicated.



### Forward-Primer Design

HOMEBOX	
	G C C C C
	G G G G G
	A A A A A
	GCAGATATCGGA CTGGAG TT
L2	AAGCCGCGCAGCTCCTTTTCCCGGGTGCAGATCTGCGAGCTGGAAAAGCGCTTCCATCGCCAGAAGTACCTGGC
HLXB9	CGGCCGCGCACCCTTTCACAGCCAGCAGCTGCTGGAGCTGGAGCACCAGTTCAAGTTCAACAAGTACCTGTC
EVX	CGTTACCGCACCCTTTCACCCGAGAGCAGATTGCGCGGCTGGAGAAAGGAATTTCTACCGGGAGAATACGTATC
CSX	TTCTCGCAGGCGCAGGTCTATGAGCTGGAGCGGGCTTCAAGCAGCAGCGGTACCTGTC
HOXA9	AAAGCGGTGCCCCCTATACAAAACACCAGACCTGGAACTGGAGAAAAGAGTTTCTGTTCAACATGTACCTCAC
HOXA11	AAAAAGCGCTGCCCTTATACAAAGTACCAGATCCGAGAGCTGGAAACGGGAGTTCTTCTTCAGCGTCTACATTAA
HOXB7	CGAGGCCGCGCAGACCTACACCCGCTACCAGACCTGGAGCTGGAGAAAAGAAATTTCACTACAATCGCTACCTGAC
HOXC6	CGCGGCCGCGCAGATCTACTCGCGGTACCAGACCTGGAACTGGAGAAAGGAATTTCACTTCAATCGCTACCTAAC
HOXC12	CAACTGGCAGAGCTGGAGGGCGAGTTTCTGGTCAACGAGTTTATCAC
HOXD1	GCACGAATTTTCAGCACCAGCAAGCAACTGACAGAACTGGAAAAAGAGTTTCAATTCAATAAGTACTTAAC
HOXD13	AAGAAGAGAGTGCCTTACACCAAAGTGCAGCTTAAAGAACTGGAGAACGAGTATGCCATTAACAAATTCATTAA
DLX1	AAACCCAGGACGATTTATTCAGTTTGCAGTTGCGAGGCTTTGAAACCGGAGGTTCCAGCAAACTCAGTACCTAGC
DLX3	AAGCCGCGTACAATCTACTCCAGCTACCAGCTGGCCGCCCTGCGAGCGCGCTTCCAGAAAGGCCAGTACCTGGC
EN1	CGGCCGCGGACCGGCTTACCGCCGAGCAGCTGCAGAGACTCAAGGGCGGAGTTCCAGGCAAAACCGCTACATCAC
MEIS1	GGCATTTTCCCAAAGTAGCAACAAATATCATGAGAGCATGGCTCTTCCAGCATCTCACACATCCGTACCCCTTC
ENK	AAACAGAAGACCAGAACTGTGTTCTCTTCCACCCAGCTGTGTGTACTCAATGATA

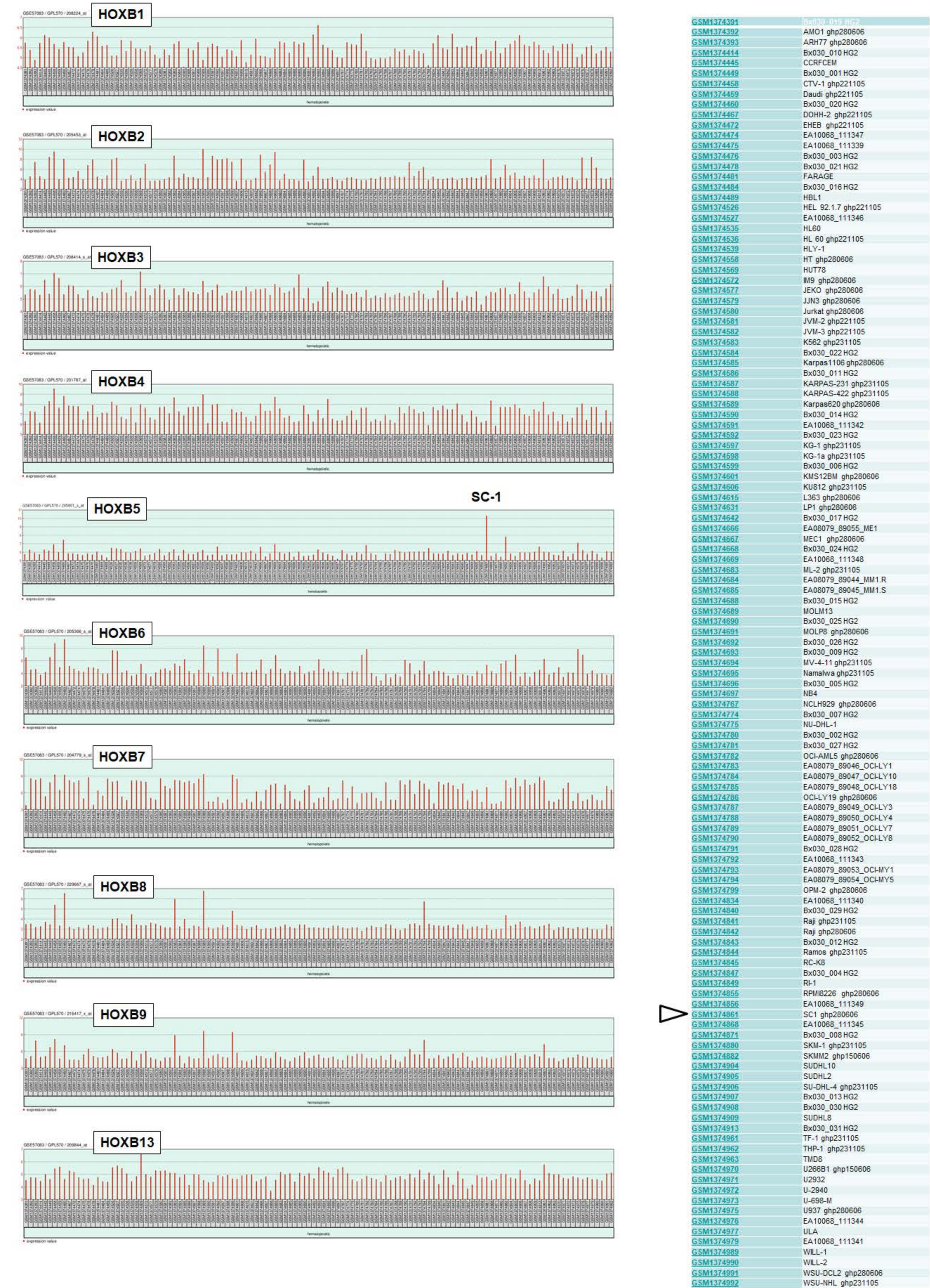
### Reverse-Primer Design

	A	A A A
	G	G
	T	T T T
	C	C C C
	AA AT TGGTT CAGAACC G GAATTCG	
CTCGCCAAGTCCCTCAAAATGACGGACGCGCAGGTCAAGACCTGGTTCCAAAACCGAGGACCAAGTGGCGG		
GTGGCCACCTCGCTCATGCTCACCGAGACCCAGGTGAAGATTGGTTCCAGAACC GCGGATGAAATGGAAA		
CTGGCGGCCGCTTAAACCTGCCGGAACACCATCAAGGTGTGGTTCCAGAACC GCGCATGAAGGACAAG		
CTGGCCAGCGTGTGAACTCACGTCCAGCAGGTCAAGATCTGGTTCCAGAACC GCGCTACAAGTGCAAG		
GTGGCTCGACTGCTCAACCTCACCGAGAGGCAGGTCAAGATCTGGTTCCAGAACC GCGAGGATGAAATGAAG		
CTGTCCCGCATGCTCAACCTCACTGATCGTCAAGTCAAAATCTGGTTCCAGAACC GAGAGAATGAAGGAAAAA		
ATCGCGCACACGCTCTGCCTCACGGAAAGACAGATCAAGATTGGTTCCAGAACC GCGCATGAAGTGGAAA		
ATCGCCAACGCGCTTTGCCTGACCGAGCGACAGATCAAAATCTGGTTCCAGAACC GCGGATGAAGTGGAAA		
CTCTCAGACCGCTTGAATCTTAGTGACCGCAGGTCAAGATCTGGTTCCAGAACC GAGAAATGAAAAAGAAA		
ATAGCCAACCTGCTTGCACCTGAATGACACGCAAGTCAAAATCTGGTTCCAGAACC GAGGATGAAACAGAAAG		
ATCTCGGCTGCTACGAACCTATCTGAGAGACAAGTGACCATTTGGTTCCAGAACC GAAAGTGAAAGGACAAG		
CTCGCGGCTCTTTGGGACTCACACAGACTCAGGTCAAGATCTGGTTCCAAAACAAGCGATCCAAGTTCAAG		
CTGGCCGCGCAGCTGGGCTCACGACAGACAGGTGAAATCTGGTTCCAGAACC GCGCTTCCAAGTTCAAG		
CTGGCCAGGAATCAGCCTCAACGAGTCCCAGATCAAGATCTGGTTCCAGAACAAGCGCGCCAAGATCAAG		
TTAGCGCAAGACAGGACTTACAATTCTCAAGTAAACAAGTGGTTTATTAATGCCAGAAGAAGA		
CCTCAGCCTCCAGCAGATGCAAGAATCTCCAACATCCTGAACCTCAGCTACAAACAGGTGAAGACCTGGTTC		

SC-1				
Clone No	Homeobox gene	Frequencies		
1	HOXA4	HOXB5	5x	31 %
2	HOXB6	HOXA4	4x	
3	HLXB9	HLXB9	4x	
4	HOXA4	HOXA1	2x	
5	HOXA1	HOXB6	1x	6 %
6	HOXA4			
7	HOXB5			
8	HLXB9			
9	HOXB5			
10	HOXA4			
11	HOXB5			
12	HLXB9			
13	HOXB5			
14	HOXA1			
15	HLXB9			
16	HOXB5			

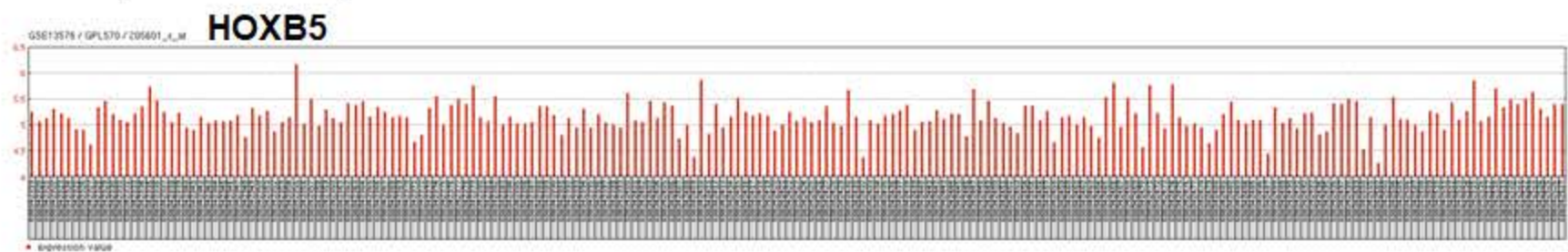
**Supplementary Figure 4:** RT-PCR screening approach and results for expressed homeobox genes in SC-1 using degenerate oligonucleotides.

Hematopoietic cell lines (GSE57083)

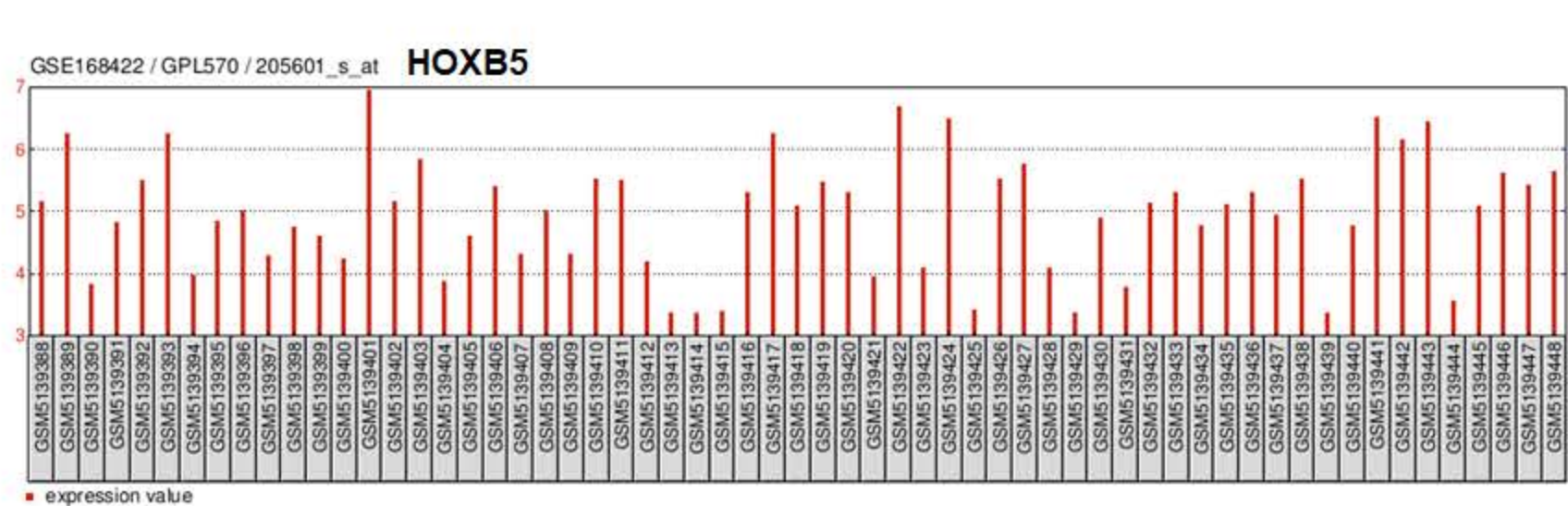


Supplementary Figure 5: Expression profiling data for HOXB genes in 114 hematopoietic cell lines including SC-1 (dataset GSE57083).

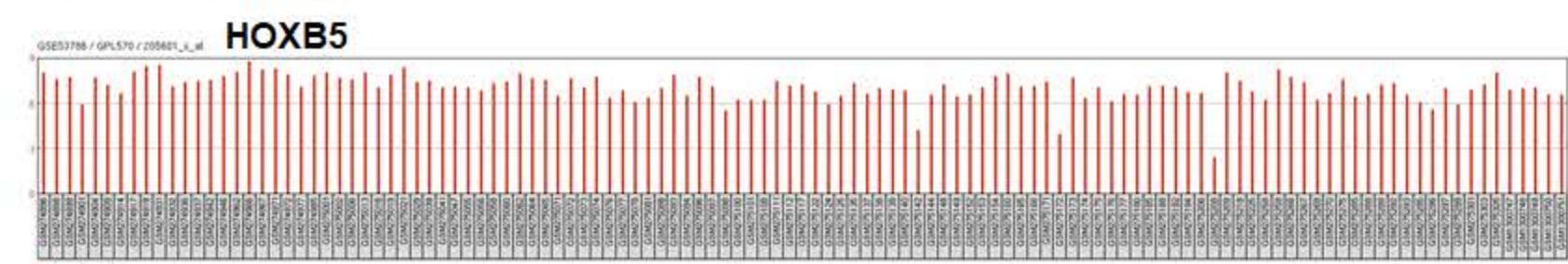
BCP-ALL (GSE13576)



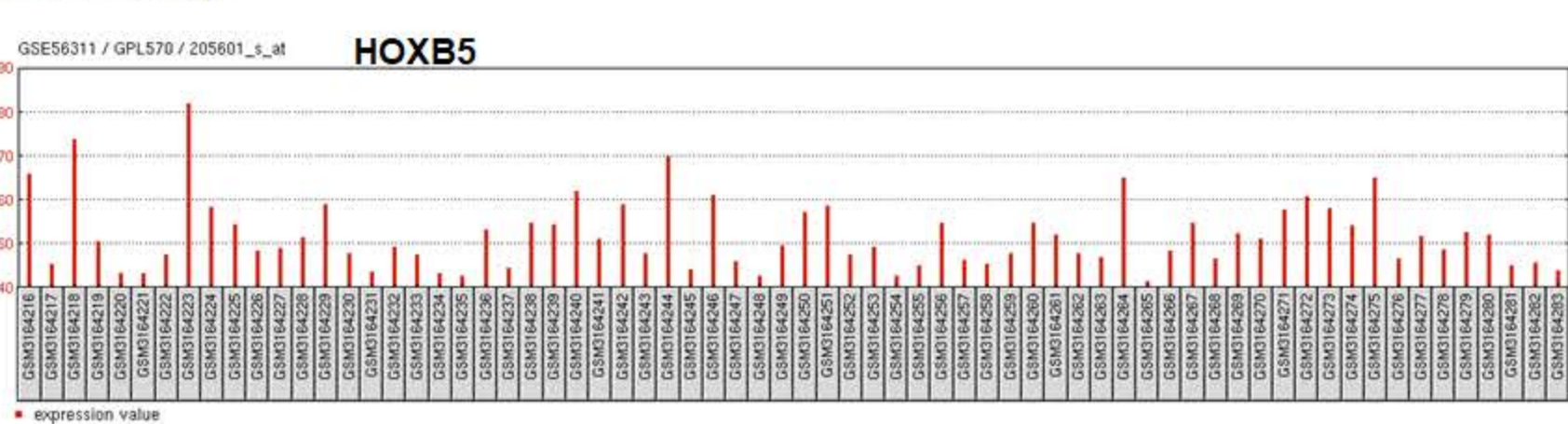
BL (GSE168422)



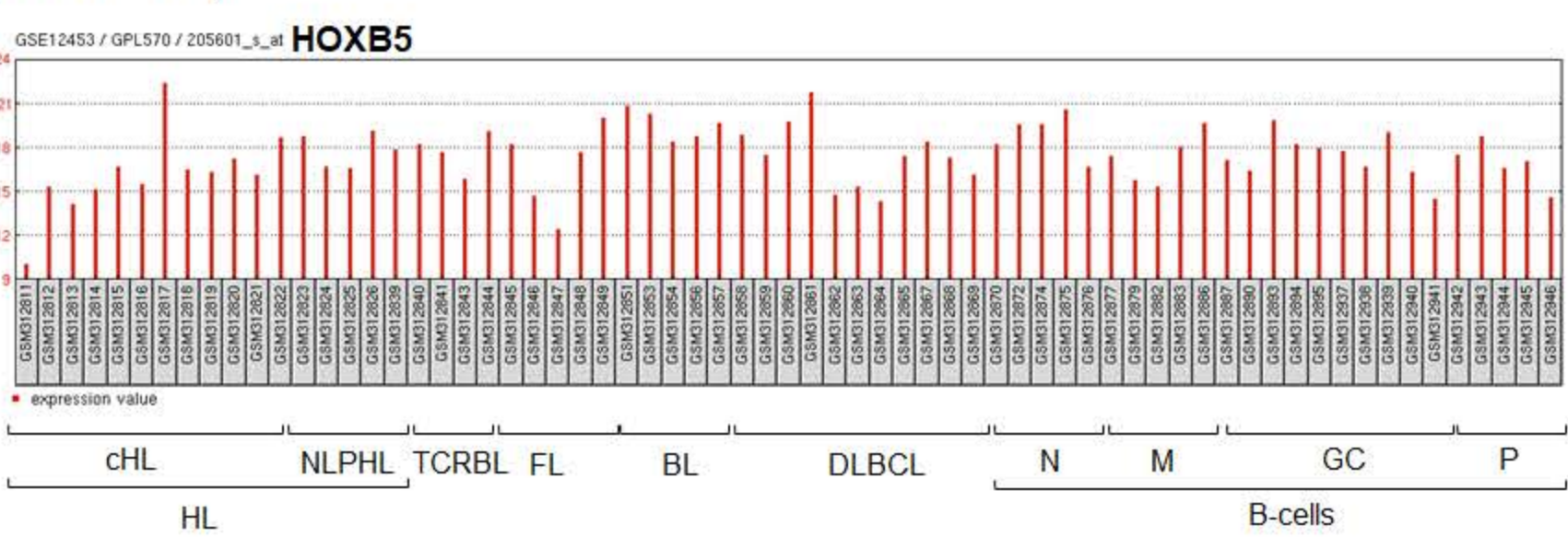
DLBCL (GSE53786)



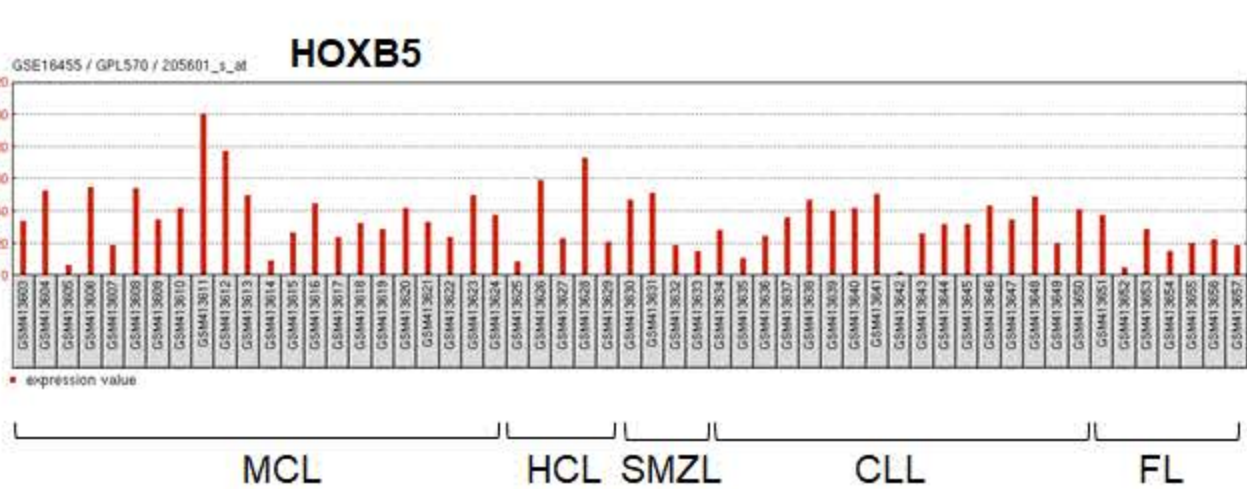
FL (GSE56311)



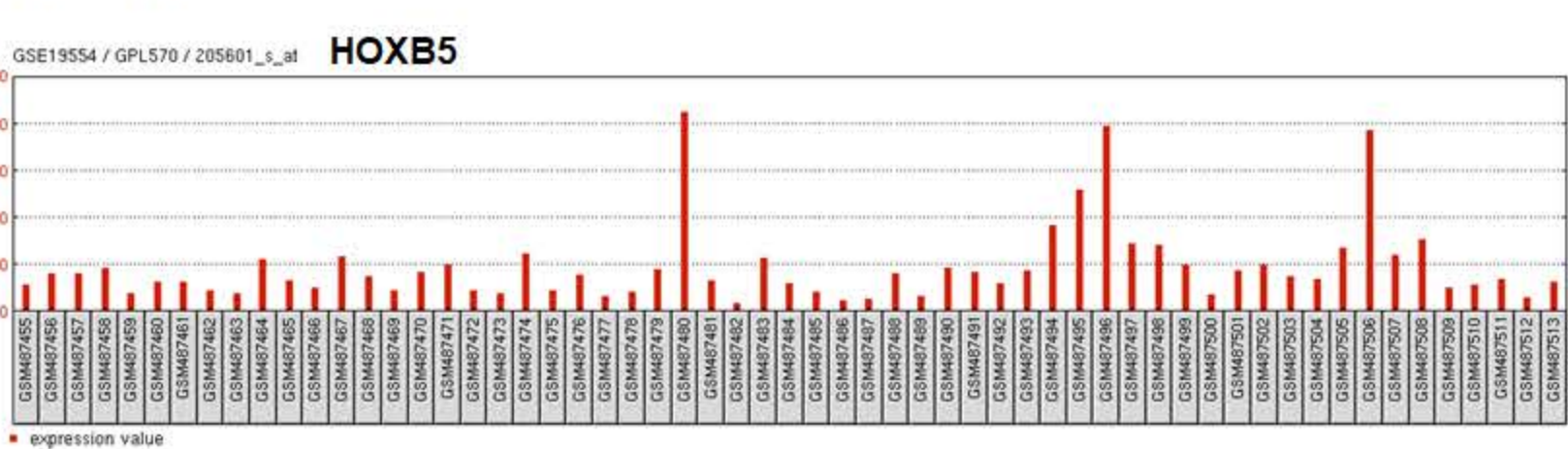
HL (GSE12453)



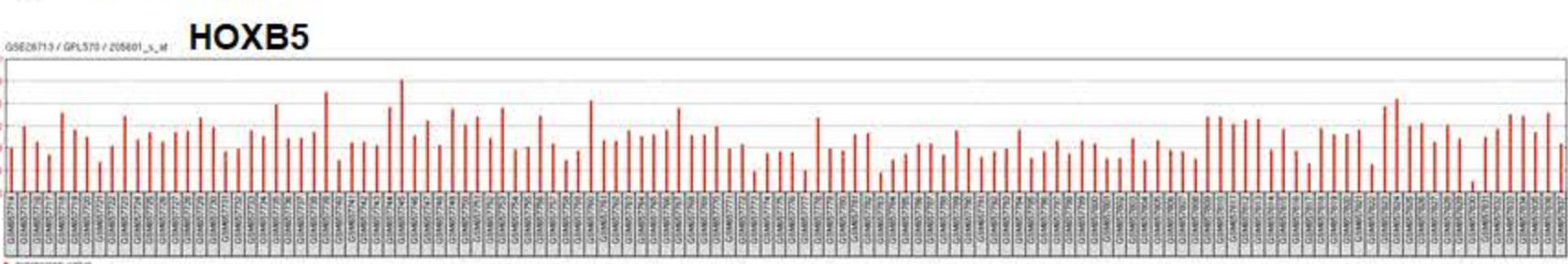
MCL, HCL, SMZL, CLL, FL (GSE16455)



MM (GSE19554)



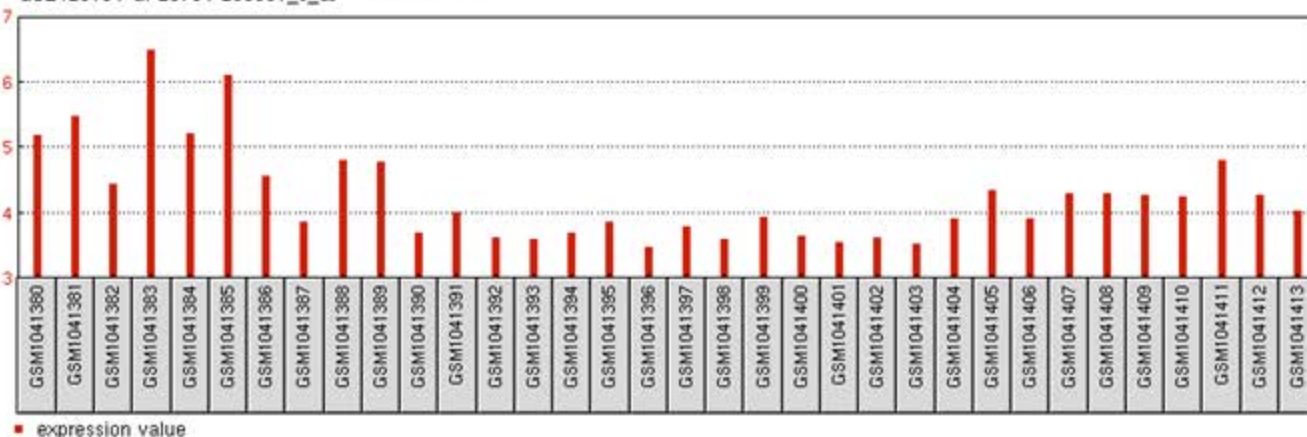
T-ALL (GSE26713)



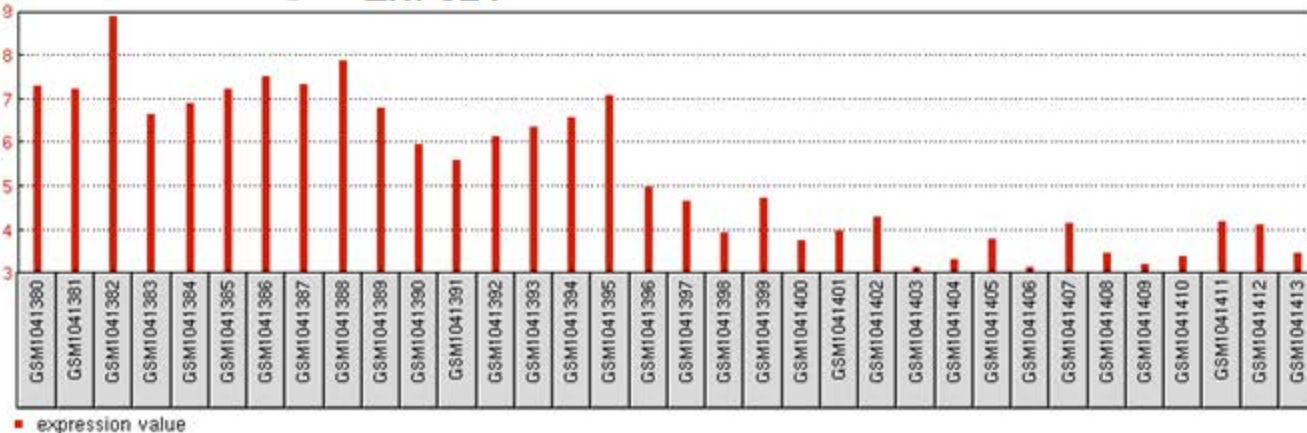
**Supplementary Figure 6:** Expression profiling data for HOXB genes in leukemia/lymphoma patients using public datasets.

# Myelopoiesis (GSE42519)

GSE42519 / GPL570 / 205601\_s\_at **HOXB5**

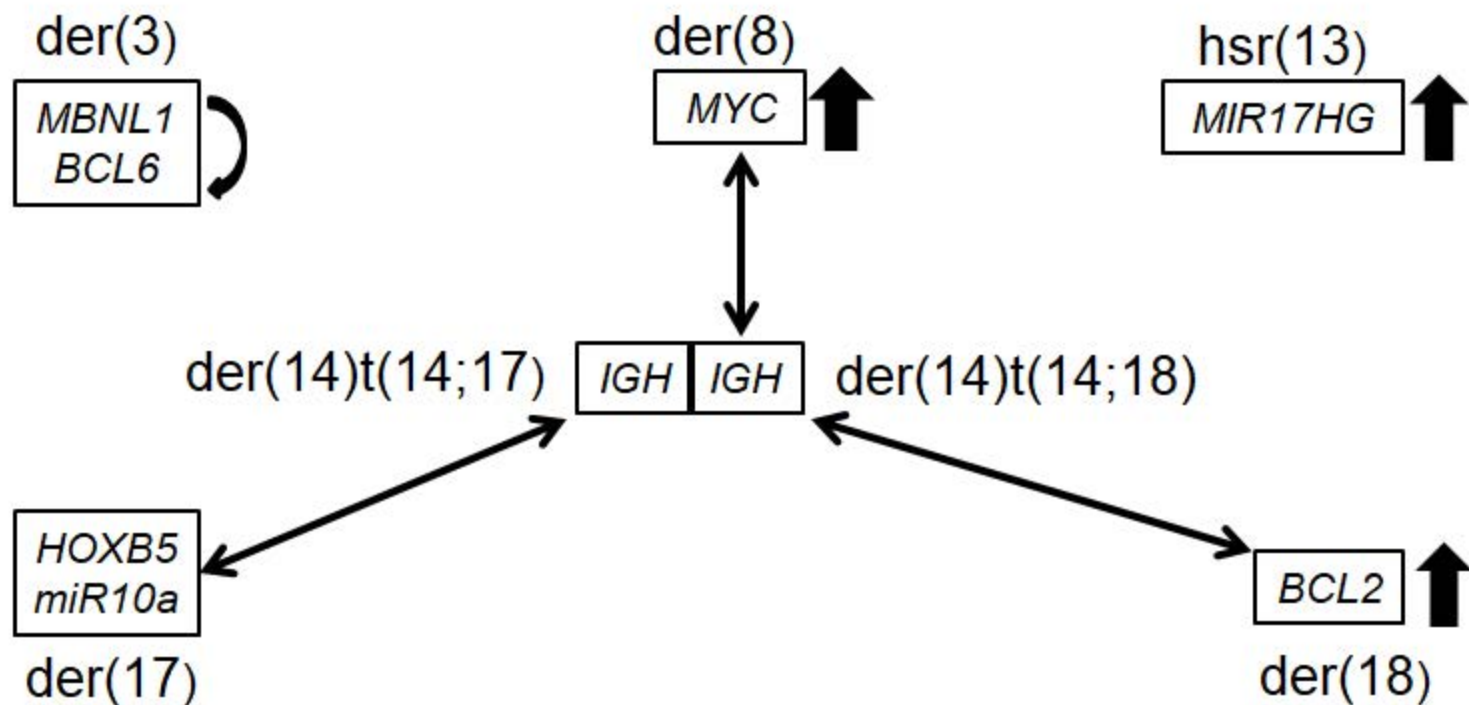


GSE42519 / GPL570 / 226676\_at **ZNF521**



GSM1041380	HSC 1
GSM1041381	HSC 2
GSM1041382	HSC 3
GSM1041383	HSC 4
GSM1041384	MPP 1
GSM1041385	MPP 2
GSM1041386	CMP 1
GSM1041387	CMP 2
GSM1041388	CMP 3
GSM1041389	GMP 1
GSM1041390	GMP 2
GSM1041391	GMP 3
GSM1041392	GMP 4
GSM1041393	GMP 5
GSM1041394	MEP 1
GSM1041395	MEP 2
GSM1041396	early_PM 1
GSM1041397	early_PM 2
GSM1041398	early_PM 3
GSM1041399	late_PM 1
GSM1041400	late_PM 2
GSM1041401	late_PM 3
GSM1041402	MY 1
GSM1041403	MY 2
GSM1041404	MM 1
GSM1041405	MM 2
GSM1041406	MM 3
GSM1041407	BC 1
GSM1041408	BC 2
GSM1041409	BC 3
GSM1041410	BC 4
GSM1041411	PMN 1
GSM1041412	PMN 2
GSM1041413	PMN 3

**Supplementary Figure 7:** Expression profiling data for HOXB5 and ZNF521 in primary myelopoiesis (dataset GSE42519).



**Suppl. Fig. 8: Key rearrangements present in SC-1**

Diagramme shows multiple coordinated cytogenetic changes in SC-1 and the genes targeted. Note: 1) biallelic *IGH* translocations targeting *MYC*, *HOXB5*, *miR10a*, and *BCL2*; 2) genomic amplification of *MYC*, *MIR17HG* and *BCL2*; and 3) juxtapositional inversion of chr.3 targeting *MBNL1* and *BCL6*.

**Supplementary Table 1**

Gene ID	Gene Symbol	RC-K8	RI-1	SC-1	SU-DHL-4	SU-DHL-5	SU-DHL-6	SU-DHL-10	SU-DHL-16	controls	SC1-controls
201841_s_at	HSPB1	2,07	1,18	6,06	-4,44	-6,23	0,63	-2,63	-3,32	-1,82	7,88
213478_at	KIAA1026	-7,08	-2,74	2,98	-3,46	-5,17	-3,46	-8,12	-3,32	-4,76	7,75
236523_at	LOC285556	-3,01	-5,16	2,28	-7,83	-6,12	-8,12	-4,21	-3,32	-5,40	7,68
202718_at	IGFBP2	-1,68	-3,74	3,18	-6,38	-4,37	-5,53	-6,31	-3,32	-4,48	7,66
204971_at	CSTA	-2,70	-1,80	4,32	-2,29	-3,73	-3,29	-5,15	-3,32	-3,18	7,50
210993_s_at	SMAD1	-6,86	-2,33	3,08	-5,24	-4,42	-2,14	-6,10	-3,32	-4,35	7,43
229349_at	FLJ16517	-8,29	-2,79	2,58	-6,33	-4,21	-6,80	-1,98	-3,32	-4,82	7,40
236892_s_at	LOC404266	-7,43	-2,78	2,35	-4,74	-5,22	-4,66	-6,97	-3,32	-5,02	7,36
209278_s_at	TFPI2	-8,04	1,86	1,73	-7,00	-7,28	-7,76	-6,64	-3,32	-5,46	7,19
206163_at	MAB21L1	-6,08	-2,45	3,03	-6,04	-4,56	-1,20	-7,43	2,20	-3,65	6,69
210683_at	NRTN	-7,00	-7,12	-0,07	-8,20	-8,58	-6,51	-6,20	-3,32	-6,70	6,64
226676_at	<b>ZNF521</b>	-6,24	-5,56	1,62	-6,93	-5,84	-1,11	-6,10	-3,32	-5,01	6,63
213880_at	LGR5	-4,40	-4,57	0,67	-7,16	-4,54	-8,38	-8,97	-3,32	-5,91	6,57
239791_at	LOC404266	-3,27	-1,87	1,90	-6,70	-5,13	-6,90	-4,98	-3,32	-4,59	6,49
227798_at	SMAD1	-7,16	-3,42	2,21	-4,55	-4,32	-3,46	-3,48	-3,32	-4,24	6,45
1559394_a_at	ROR1	-5,53	0,79	1,40	-7,64	-6,43	-6,76	-5,93	-3,32	-4,98	6,37
235557_at	LOC150763	-5,13	-5,51	0,46	-6,56	-6,06	-6,43	-7,20	-3,32	-5,74	6,21
232760_at	TEX15	-6,86	-6,12	0,40	-4,53	-6,08	-8,38	-4,67	-3,32	-5,71	6,11
222921_s_at	HEY2	-3,07	-3,05	2,03	-5,47	-5,28	-2,14	-6,06	-3,32	-4,06	6,09
228280_at	MGC14289	-4,02	1,82	2,40	-3,57	-3,96	-5,09	-6,64	-3,32	-3,54	5,94
236163_at	LIX1	-3,13	-5,55	0,19	-7,64	-6,16	-8,04	-6,27	-3,32	-5,73	5,92
230487_at	LOC389440	-2,12	-2,53	3,15	-3,22	-2,16	-3,44	-2,77	-2,86	-2,73	5,88
205601_s_at	<b>HOXB5</b>	-3,41	-0,47	3,28	-2,01	-2,39	-2,05	-4,98	-2,69	-2,57	5,85
201161_s_at	CSDA	2,69	-5,30	2,48	-6,97	1,36	-5,02	-6,90	-3,32	-3,35	5,83
211796_s_at	TRBC1	-6,31	4,23	4,32	-0,91	0,47	-1,47	-3,26	-3,12	-1,48	5,80
204749_at	NAP1L3	-6,16	-4,30	0,96	-5,22	-6,54	-7,83	-4,76	1,00	-4,83	5,78
232628_at	FAM13A1	-5,16	-3,81	0,56	-4,37	-6,05	-6,27	-7,64	-3,19	-5,21	5,77
219471_at	C13orf18	-1,84	3,55	4,80	-2,74	1,24	2,42	-6,00	-3,32	-0,96	5,76
202973_x_at	FAM13A1	-2,89	-4,14	1,90	-6,29	-3,39	-5,86	-3,79	-0,48	-3,84	5,73
227792_at	---	-5,44	-5,64	0,58	-3,86	-6,42	-6,76	-4,15	-3,32	-5,09	5,67
208567_s_at	<b>KCNJ12</b>	-5,88	-1,39	1,05	-3,85	-6,18	-5,49	-6,02	-3,32	-4,59	5,64
226248_s_at	KIAA1324	-7,04	-3,73	1,17	-7,33	-4,48	-1,27	-3,71	-3,32	-4,41	5,59
203685_at	<b>BCL2</b>	2,72	5,56	5,40	-2,93	-2,53	-3,18	-4,34	3,41	-0,18	5,58
1570445_a_at	LOC441117	-7,48	-5,91	-0,27	-4,73	-6,52	-6,22	-6,67	-3,32	-5,84	5,57
230743_at	LOC404266	-4,48	-2,80	1,18	-3,59	-3,13	-6,59	-6,48	-3,32	-4,34	5,52
217728_at	S100A6	-5,97	0,58	1,53	-5,41	-0,04	-7,20	-6,51	-3,32	-3,98	5,51
207110_at	KCNJ12	-6,31	-1,74	0,96	-3,63	-5,48	-6,64	-4,41	-3,32	-4,51	5,47
200799_at	HSPA1A	-6,73	-4,87	0,57	-5,67	1,10	-6,59	-8,48	-2,98	-4,89	5,46
1553183_at	UMODL1	-8,59	-4,29	1,22	0,48	-5,36	-4,62	-3,56	-3,32	-4,18	5,40
225564_at	---	-7,43	-4,14	0,67	-6,31	-5,49	-7,20	1,15	-3,32	-4,68	5,35
205600_x_at	HOXB5	-2,59	-1,47	3,48	-1,46	-1,15	-1,63	-1,47	-3,31	-1,87	5,34
242468_at	---	-7,64	-2,40	1,04	-4,38	-5,68	-4,92	-3,14	-1,73	-4,27	5,31
1568619_s_at	LOC162073	-4,15	-3,18	0,19	-5,49	-7,38	-3,65	-8,29	-3,32	-5,07	5,26
235416_at	LOC441117	-6,67	-5,14	-0,06	-5,39	-4,84	-4,96	-6,70	-3,32	-5,29	5,23
204918_s_at	MLLT3	-0,12	-1,38	2,06	-7,48	-0,89	-2,28	-7,70	-2,34	-3,17	5,23