

# Cell-free DNA sequencing as a potential screening tool for phase I targeted treatment in refractory/relapse diffuse large B-cell lymphoma

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## SUPPLEMENTARY FIGURES/TABLES

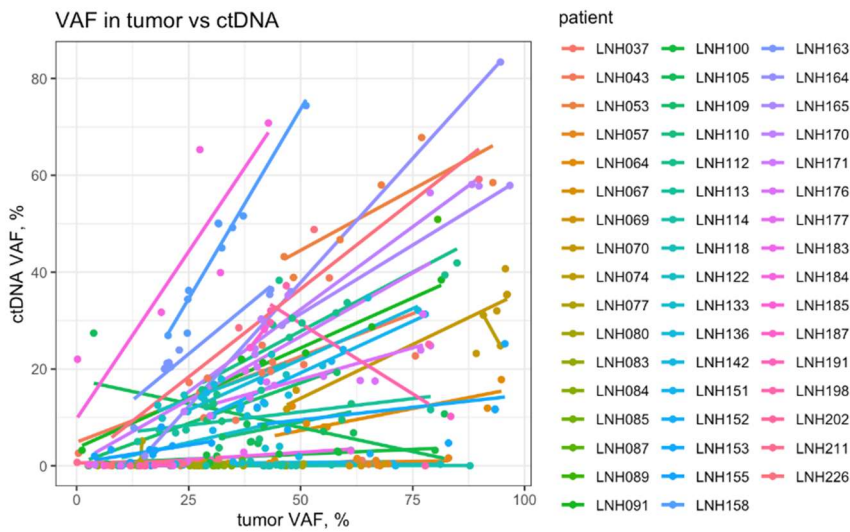
Supplementary Figure 1: **Comparison of the tumor biopsy and cell-free tumor DNA (ctDNA) sequencing.**

**Panel A:** Detection of tumor biopsy variants (TB\_variants) in ctDNA, per patient;

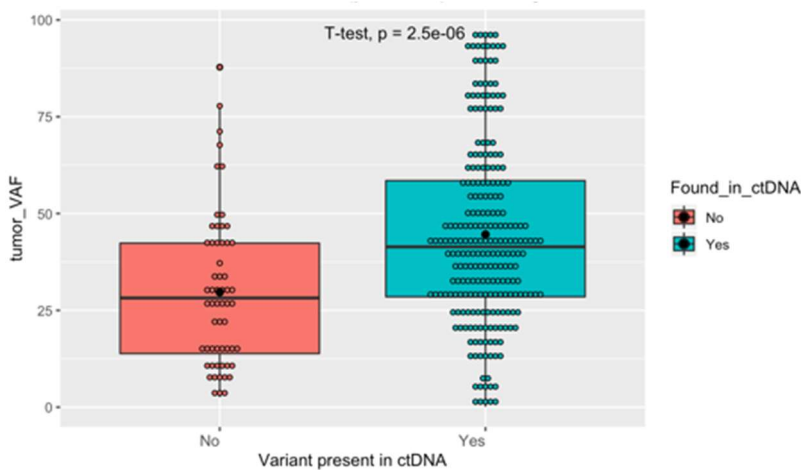
**Panel B:** Detection of tumor biopsy variants (TB\_variants) in ctDNA according to TB\_variants allele fractions (AF);

**Panel C:** co-oncoplot for the 20 most recurrently mutated genes (TB versus ctDNA; non-significant difference in frequency for any genes, Fisher's exact test P-values shown).

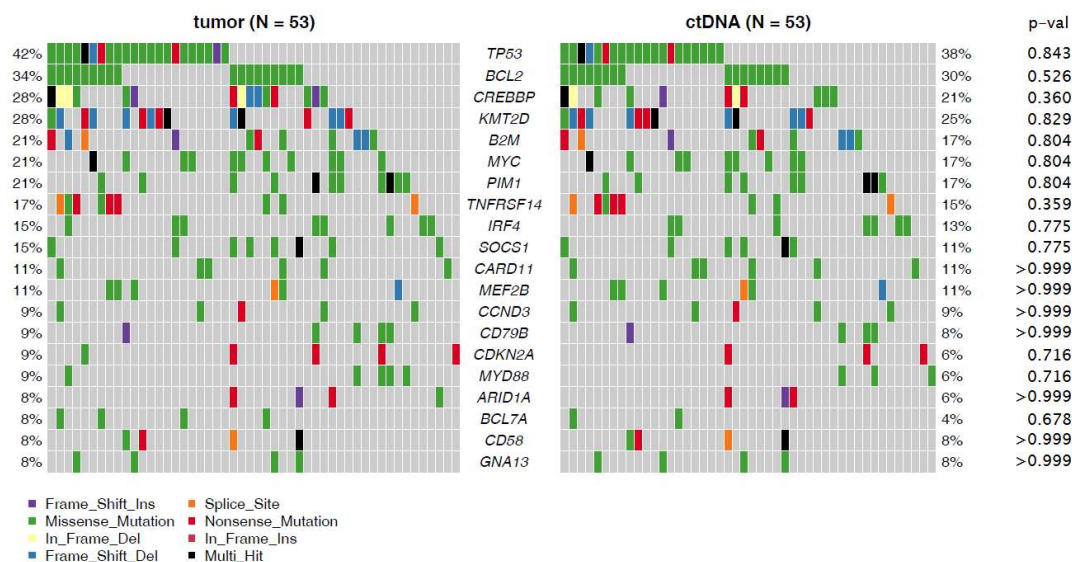
### Panel A:



### Panel B:



### Panel C:



Supplementary Table 1: Relapsed and refractory DLBCL patient characteristics at time of comparative molecular analysis.

Characteristics at time of tumor biopsy (rrDLBCL)		
<b>Age</b>	Median	68 y.o. (range: 26-87)
<b>Gender</b> <i>N</i> (%)	Male	35 (66)
	Female	18 (34)
<b>Ann Arbor stage</b> <i>N</i> (%)	I	11 (20.7)
	II	5 (9.4)
	III	10 (18.9)
	IV	27 (51)
<b>Bulky disease (10cm)</b> <i>N</i> (%)	Yes	14 (26.4)
	No	39 (73.6)
<b>LDH</b> <i>N</i> (%)	Normal range	21 (39.6)
	High	32 (60.4)
<b>Number of prior chemotherapy lines</b> <i>N</i> (%)	Median	2 (range: 1-10)
	1-2	27 (50.9)
	≥ 3	26 (49.1)
<b>Treatment between solid biopsy and blood sample</b> <i>N</i> (%)	Yes	28 (52.8)
	No	25 (47.2)

Supplementary Table 2: **Single nucleotide variants (SNVs) & indels reported in tumor biopsy and/or ctDNA from rrDLBCL patients.**

sample_ID	hg19_coordinates	ref	alt	transcript	gene	cDNA change	AA change	altReads/depth in TB	altReads/depth in ctDNA
LNH037	chr9:139390648	CA	C	NM_017617.5	NOTCH1	c.7541_7542delICT	p.P2514fs	2184/3427	19/1663
LNH037	chr17:7577089	G	GCGCC	NM_000546.5	TP53	c.848_849insGGCG	p.T284fs	926/1974	NA
LNH043	chr18:60985311	C	T	NM_000657.2	BCL2	c.589G>A	p.G197S	1459/5132	277/2793
LNH043	chr18:60985349	T	C	NM_000633.3	BCL2	c.551A>G	p.H184R	1549/3740	311/1624
LNH043	chr18:60985550	C	T	NM_000633.3	BCL2	c.350G>A	p.S117N	2367/5416	1216/5683
LNH043	chr18:60985725	G	A	NM_000633.3	BCL2	c.175C>T	p.P59S	139/274	100/479
LNH043	chr18:60985760	C	T	NM_000633.3	BCL2	c.140G>A	p.G47D	501/1997	264/1539
LNH043	chr18:60985878	C	T	NM_000633.3	BCL2	c.21_24delAGGGinsG AAC	p.G8N	1232/4222	710/3919
LNH043	chr12:122459999	T	A	NM_020993.4	BCL7A	c.2T>C	p.M1T	258/727	36/383
LNH043	chr7:2985462	T	G	NM_001324281.1	CARD11	c.349A>C	p.T117P	2032/3606	688/1775
LNH043	chr6:41903710	T	A	NM_001760.5	CCND3	c.604A>T	p.T283S	17/3922	120/4661
LNH043	chr16:3781324	AAGG	A	NM_004380.3	CREBBP	c.5040_5042delICTT	p.S1680del	1130/2608	485/2491
LNH043	chr12:49420050	AC	A	NM_003482.3	KMT2D	c.15698delIG	p.G5233fs	782/2839	671/4422
LNH043	chr1:2489163	A	C	NM_003820.4	TNFRSF14	c.70-2A>C	NA	1494/3612	755/3029
LNH043	chr17:7577581	A	T	NM_000546.5	TP53	c.700T>A	p.Y234N	2509/3318	1034/4552
LNH053	chr1:117087175	A	G	NM_001779.3	CD58	c.122T>C	p.V41A	694/1433	1107/2846
LNH053	chr17:62006657	A	AGGTG GCT	NM_001039933.2	CD79B	c.621_622insAGCCAC C	p.Y208fs	935/1589	3186/6822
LNH053	chr16:3786784	G	A	NM_004380.3	CREBBP	c.4427C>T	p.P1476L	478/1033	1160/2687
LNH053	chr12:49444046	CAG	C	NM_003482.3	KMT2D	c.3323_3324delICT	p.P1108fs	1507/2217	1947/3355
LNH053	chr8:128751258	C	G	NM_002467.6	MYC	c.795C>G	p.S265R	1048/1362	2503/3693
LNH053	chr17:7577580	T	C	NM_000546.5	TP53	c.701A>G	p.Y234C	1184/1275	2136/3652
LNH057	chr17:62006798	T	A	NM_001039933.2	CD79B	c.590A>T	p.Y197F	1895/2284	38/2451
LNH057	chr9:21971120	G	A	NM_001195132.2	CDKN2A	c.238C>T	p.R80Ter	759/1213	82/5420
LNH057	chr16:3820835	C	CGT	NM_004380.3	CREBBP	c.2615_2616insAC	p.T873fs	1357/5839	NA

<b>LNH057</b>	chr6:397230	G	C	NM_002460.4	IRF4	c.615G>C	p.W205C	568/1999	31/4888
<b>LNH057</b>	chr6:37138329	G	A	NM_001243186.1	PIM1	c.251G>A	p.C84Y	756/1207	40/3178
<b>LNH057</b>	chr6:37138630	G	A	NM_001243186.1	PIM1	c.437G>A	p.G146D	404/1206	36/8122
<b>LNH057</b>	chr6:37138656	G	A	NM_001243186.1	PIM1	c.462+1G>A	NA	112/1562	8/6948
<b>LNH057</b>	chr6:37138769	C	T	NM_001243186.1	PIM1	c.475C>T	p.H159Y	664/956	28/7601
<b>LNH057</b>	chr6:37138950	G	A	NM_001243186.1	PIM1	c.563G>A	p.S188N	1233/1891	13/3964
<b>LNH057</b>	chr6:37139072	G	C	NM_001243186.1	PIM1	c.685G>C	p.A229P	1080/1609	8/4029
<b>LNH057</b>	chr6:37139097	G	A	NM_001243186.1	PIM1	c.710G>A	p.S237N	1099/1623	NA
<b>LNH057</b>	chr6:37139237	C	T	NM_001243186.1	PIM1	c.850C>T	p.L284F	157/235	5/458
<b>LNH057</b>	chr6:37141792	G	A	NM_001243186.1	PIM1	c.1140G>A	p.W380Ter	1165/2707	19/4037
<b>LNH064</b>	chr12:122459999	T	A	NM_020993.4	BCL7A	c.2T>A	p.M1K	1291/1362	96/538
<b>LNH064</b>	chr7:148506467	G	C	NM_004456.5	EZH2	c.2045C>G	p.A682G	1443/3001	312/2528
<b>LNH064</b>	chr13:41240273	G	A	NM_002015.4	FOXO1	c.77C>T	p.P26L	1353/2639	210/2410
<b>LNH064</b>	chr6:397189	T	C	NM_002460.4	IRF4	c.574T>C	p.Y192H	1380/3121	26/2394
<b>LNH064</b>	chr8:128748855	G	A	NM_002467.6	MYC	c.16G>A	p.V6I	1104/1976	295/3693
<b>LNH064</b>	chr8:128748858	G	A	NM_002467.6	MYC	c.19G>A	p.V7M	1102/1979	296/3696
<b>LNH064</b>	chr8:128748869	G	C	NM_002467.6	MYC	c.30G>C	p.Q10H	1112/2013	302/3780
<b>LNH064</b>	chr17:7578442	T	G	NM_000546.5	TP53	c.488A>C	p.Y163S	1394/1520	150/1261
<b>LNH067</b>	chr7:2979559	C	T	NM_001324281.1	CARD11	c.688G>A	p.D230N	1513/4466	10/1937
<b>LNH069</b>	chr12:49428020	GC	G	NM_003482.3	KMT2D	c.10569delG	p.M3523fs	2611/6259	NA
<b>LNH069</b>	chr17:7577112	C	G	NM_000546.5	TP53	c.826G>C	p.A276P	1159/1690	7/1558
<b>LNH069</b>	chr17:7579380	A	T	NM_000546.5	TP53	c.307T>A	p.Y103N	932/1467	NA
<b>LNH069</b>	chr17:7579416	A	T	NM_000546.5	TP53	c.271T>A	p.W91R	801/1315	NA
<b>LNH070</b>	chr1:27100207	C	T	NM_006015.6	ARID1A	c.4003C>T	p.R1335Ter	NA	38/902
<b>LNH070</b>	chr18:60985363	C	G	NM_000633.3	BCL2	c.537G>C	p.E179D	1598/3258	390/2505
<b>LNH070</b>	chr18:60985566	A	G	NM_000633.3	BCL2	c.334T>C	p.F112L	1297/2766	234/1997
<b>LNH070</b>	chr16:3786766	T	G	NM_004380.3	CREBBP	c.4445A>C	p.Y1482S	2852/3042	641/2000
<b>LNH070</b>	chr17:63010635	T	C	NM_006572.6	GNA13	c.874A>G	p.K292E	1839/1914	706/1996
<b>LNH070</b>	chr17:63010637	T	C	NM_006572.6	GNA13	c.872A>G	p.N291S	1837/1914	704/1993

<b>LNH070</b>	chr1:2491320	C	A	NM_003820.4	TNFRSF14	c.363C>A	p.C121Ter	5375/5614	1925/4730
<b>LNH070</b>	chr17:7578191	A	G	NM_000546.5	TP53	c.658T>C	p.Y220H	1560/1748	748/3227
<b>LNH074</b>	chr12:49426469	G	A	NM_003482.3	KMT2D	c.12019C>T	p.Q4007Ter	3428/3774	620/2003
<b>LNH074</b>	chr17:7577113	A	C	NM_000546.5	TP53	c.825T>G	p.C275W	1293/1367	257/1038
<b>LNH077</b>	chr9:21971028	C	T	NM_001195132.2	CDKN2A	c.330G>A	p.W110Ter	552/3864	56/6246
<b>LNH077</b>	chr2:136875630	T	C	NM_001348056.1	CXCR4	c.1A>G	p.M1V	372/2539	157/3061
<b>LNH080</b>	chr15:45003780	ACT	A	NM_004048.4	B2M	c.37_38delCT	p.L13fs	1807/3583	NA
<b>LNH080</b>	chr18:60985545	G	T	NM_000633.3	BCL2	c.355C>A	p.L119M	1613/4665	NA
<b>LNH080</b>	chr18:60985760	C	G	NM_000633.3	BCL2	c.140G>C	p.G47A	548/1874	17/2048
<b>LNH080</b>	chr16:3781324	AAGG	A	NM_004380.3	CREBBP	c.5039_5041delCCT	p.S1680del	738/1982	NA
<b>LNH080</b>	chr22:41533698	CT	C	NM_001429.4	EP300	c.1665delT	p.P555fs	860/3143	NA
<b>LNH080</b>	chr6:393153	A	T	NM_002460.4	IRF4	c.1A>T	p.M1L	698/2674	6/4449
<b>LNH080</b>	chr6:393172	G	A	NM_002460.4	IRF4	c.20G>A	p.G7D	710/2700	NA
<b>LNH080</b>	chr6:393206	C	A	NM_002460.4	IRF4	c.54C>A	p.S18R	1667/5917	NA
<b>LNH080</b>	chr6:393207	T	A	NM_002460.4	IRF4	c.55T>A	p.C19S	1669/5918	NA
<b>LNH080</b>	chr6:393297	A	G	NM_002460.4	IRF4	c.145A>G	p.I49V	1101/3580	NA
<b>LNH080</b>	chr6:393324	G	A	NM_002460.4	IRF4	c.172G>A	p.G58S	1084/3569	NA
<b>LNH080</b>	chr6:393325	G	A	NM_002460.4	IRF4	c.173G>A	p.G58N	1086/3565	NA
<b>LNH080</b>	chr3:38182032	C	G	NM_001172567.1	MYD88	c.656C>G	p.S219C	817/3024	NA
<b>LNH080</b>	chr1:2489898	T	C	NM_003820.4	TNFRSF14	c.295T>C	p.C99R	1367/2699	15/3833
<b>LNH080</b>	chr17:7578406	C	T	NM_000546.5	TP53	c.524G>A	p.R175H	1182/2734	NA
<b>LNH083</b>	chr16:3788617	C	T	NM_004380.3	CREBBP	c.4337G>A	p.R1446H	1201/3675	5/1593
<b>LNH083</b>	chr12:49426007	C	A	NM_003482.3	KMT2D	c.12481G>T	p.E4161Ter	1053/3200	NA
<b>LNH083</b>	chr6:138198257	G	GAAGAC TT	NM_001270508.2	TNFAIP3	c.851_852insAAGACT T	p.K287fs	832/3290	NA
<b>LNH084</b>	chr1:27099884	G	A	NM_006015.6	ARID1A	c.3763G>A	p.G1255R	52/1983	NA
<b>LNH084</b>	chr2:198266803	G	A	NM_012433.4	SF3B1	c.2129C>T	p.A710V	94/2000	NA
<b>LNH084</b>	chr16:11349287	C	T	NM_003745.2	SOCS1	c.49G>A	p.A17T	175/1877	NA
<b>LNH084</b>	chr16:11349290	C	T	NM_003745.2	SOCS1	c.46G>A	p.A16T	174/1877	NA

<b>LNH085</b>	chr18:60985635	C	T	NM_000633.3	BCL2	c.265G>A	p.V89M	238/753	NA
<b>LNH085</b>	chr18:60985721	G	A	NM_000633.3	BCL2	c.179C>T	p.A60V	285/930	NA
<b>LNH085</b>	chr18:60985725	G	A	NM_000633.3	BCL2	c.175C>T	p.P59S	438/942	NA
<b>LNH085</b>	chr12:122460013	G	C	NM_020993.4	BCL7A	c.16G>C	p.V6L	117/1214	NA
<b>LNH085</b>	chr16:3786797	A	C	NM_004380.3	CREBBP	c.4414T>G	p.W1472G	391/2865	NA
<b>LNH085</b>	chr16:3820630	T	G	NM_004380.3	CREBBP	c.2821A>C	p.T941P	598/4786	7/7287
<b>LNH085</b>	chr8:128748869	G	C	NM_002467.6	MYC	c.30G>C	p.Q10H	94/1186	NA
<b>LNH085</b>	chr1:2491304	A	T	NM_003820.4	TNFRSF14	c.347A>T	p.N116I	885/2561	NA
<b>LNH087</b>	chr12:49431178	G	A	NM_003482.3	KMT2D	c.9961C>T	p.R3321Ter	1753/4736	67/6148
<b>LNH089</b>	chr17:7577085	C	T	NM_000546.5	TP53	c.853G>A	p.E285K	382/474	509/1000
<b>LNH091</b>	chr18:60985725	G	C	NM_000633.3	BCL2	c.175C>G	p.P59A	475/930	188/807
<b>LNH091</b>	chr22:41525969	T	C	NM_001429.4	EP300	c.1244T>C	p.L415P	788/1896	202/949
<b>LNH091</b>	chr19:19261493	G	C	NM_001145785.2	MEF2B	c.52C>G	p.Q18E	1528/4153	815/3698
<b>LNH091</b>	chr1:2491320	C	A	NM_003820.4	TNFRSF14	c.363C>A	p.C121Ter	7035/8640	2165/5642
<b>LNH091</b>	chr17:7577127	C	T	NM_000546.5	TP53	c.811G>A	p.E271K	20/1652	50/1559
<b>LNH091</b>	chr17:7577586	A	C	NM_000546.5	TP53	c.695T>G	p.I232S	2683/4073	1015/3541
<b>LNH100</b>	chr18:60985433	A	G	NM_000633.3	BCL2	c.467T>C	p.V156A	3003/10111	30/4737
<b>LNH100</b>	chr18:60985725	G	C	NM_000633.3	BCL2	c.175C>G	p.P59A	463/796	23/758
<b>LNH100</b>	chr18:60985743	G	A	NM_000633.3	BCL2	c.157C>T	p.P53S	463/792	21/748
<b>LNH100</b>	chr18:60985900	C	T	NM_000633.3	BCL2	c.-1G>A	NA	640/2206	54/2411
<b>LNH100</b>	chr12:49434258	GCAG A	G	NM_003482.3	KMT2D	c.7291_7294delTCTG	p.S2431fs	1958/6250	40/1961
<b>LNH100</b>	chr8:128748867	C	T	NM_002467.6	MYC	c.28C>T	p.Q10Ter	86/1274	9/2537
<b>LNH100</b>	chr8:128750677	C	CTGT	NM_002467.6	MYC	c.215_216insTGT	p.P72_T73in sLS	2174/4804	57/2401
<b>LNH100</b>	chr17:7578527	CA	C	NM_000546.5	TP53	c.403delT	p.C135fs	1592/1990	34/1073
<b>LNH105</b>	chr18:60985282	T	C	NM_000657.2	BCL2	c.618A>G	p.Ter206W	233/423	102/1437
<b>LNH105</b>	chr16:3790455	G	A	NM_004380.3	CREBBP	c.4078C>T	p.R1360Ter	476/580	153/1430
<b>LNH105</b>	chr13:41240279	G	A	NM_002015.4	FOXO1	c.71C>T	p.T24I	192/495	83/1681
<b>LNH105</b>	chr13:41240281	G	C	NM_002015.4	FOXO1	c.69C>G	p.C23W	193/495	84/1683



<b>LNH105</b>	chr13:41240285	G	C	NM_002015.4	FOXO1	c.65C>G	p.S22W	19/494	460/1681
<b>LNH105</b>	chr17:63010887	C	G	NM_006572.6	GNA13	c.622G>C	p.E208Q	110/263	60/737
<b>LNH105</b>	chr19:19256832	C	G	NM_001145785.2	MEF2B	c.882-1G>C	NA	114/300	173/1999
<b>LNH105</b>	chr6:37138901	C	T	NM_001243186.1	PIM1	c.514C>T	p.P172S	162/400	92/1998
<b>LNH105</b>	chr16:11349038	T	G	NM_003745.2	SOCS1	c.298A>C	p.T100P	136/220	60/876
<b>LNH105</b>	chr16:11349200	GG	AA	NM_003745.2	SOCS1	c.135_136delCCinsTT	p.P46S	82/134	40/1230
<b>LNH109</b>	chr15:45007901	T	G	NM_004048.4	B2M	c.346+2T>G	NA	1162/1999	386/1998
<b>LNH109</b>	chr18:60985311	C	T	NM_000657.2	BCL2	c.589G>A	p.G197S	2596/7984	211/3521
<b>LNH109</b>	chr9:21971138	C	A	NM_001195132.2	CDKN2A	c.220G>T	p.D74Y	30/1120	NA
<b>LNH109</b>	chr12:49426019	G	A	NM_003482.3	KMT2D	c.12469C>T	p.Q4157Ter	997/3428	174/1847
<b>LNH109</b>	chr17:7578203	C	T	NM_000546.5	TP53	c.646G>A	p.V216M	1135/3987	396/2522
<b>LNH109</b>	chr17:7579345	CA	C	NM_000546.5	TP53	c.341delT	p.L114fs	939/3077	195/1535
<b>LNH110</b>	chr12:49420561	GCA	G	NM_003482.3	KMT2D	c.15186_15187delTG	p.C5062fs	1441/4533	106/2839
<b>LNH110</b>	chr8:128750579	A	C	NM_002467.6	MYC	c.116A>C	p.Y39S	4010/6541	383/2856
<b>LNH110</b>	chr8:128750938	C	T	NM_002467.6	MYC	c.475C>T	p.L159F	2847/4809	233/2448
<b>LNH110</b>	chr8:128750945	C	T	NM_002467.6	MYC	c.482C>T	p.S161L	2895/7095	240/4347
<b>LNH110</b>	chr6:37138423	G	C	NM_001243186.1	PIM1	c.345G>C	p.K115N	622/1923	86/937
<b>LNH112</b>	chr1:27056241	C	T	NM_006015.6	ARID1A	c.1237C>T	p.Q413Ter	199/635	450/3058
<b>LNH112</b>	chr18:60985509	C	T	NM_000633.3	BCL2	c.391G>A	p.A131T	700/1474	530/1997
<b>LNH112</b>	chr18:60985718	G	T	NM_000633.3	BCL2	c.182C>A	p.A61E	515/890	256/809
<b>LNH112</b>	chr1:117078585	A	G	NM_001779.3	CD58	c.628+2T>C	NA	261/432	359/1064
<b>LNH112</b>	chr9:21971186	G	A	NM_001195132.2	CDKN2A	c.172C>T	p.R58Ter	387/456	616/1470
<b>LNH112</b>	chr16:3807341	T	A	NM_004380.3	CREBBP	c.3646A>T	p.K1216Ter	281/622	813/2123
<b>LNH112</b>	chr12:49444886	CAG	C	NM_003482.3	KMT2D	c.2578_2579delCT	p.L860fs	239/546	981/3374
<b>LNH112</b>	chr8:128750677	C	T	NM_002467.6	MYC	c.214C>T	p.P72S	149/532	375/2392
<b>LNH112</b>	chr8:128750782	A	G	NM_002467.6	MYC	c.319A>G	p.S107G	119/391	243/1857
<b>LNH112</b>	chr8:128750901	G	C	NM_002467.6	MYC	c.438G>C	p.Q146H	143/493	244/1995
<b>LNH112</b>	chr8:128750938	C	T	NM_002467.6	MYC	c.475C>T	p.L159F	NA	54/1757
<b>LNH112</b>	chr6:37138953	C	T	NM_001243186.1	PIM1	c.566C>T	p.S189L	1923/3996	610/1999

<b>LNH112</b>	chr16:11348875	T	A	NM_003745.2	SOCS1	c.461A>T	p.Y154F	222/441	249/845
<b>LNH112</b>	chr6:138200473	TAC	T	NM_001270508.2	TNFAIP3	c.1892_1893delAC	p.Y631fs	329/400	631/1602
<b>LNH113</b>	chr17:62006798	T	A	NM_001039933.2	CD79B	c.590A>T	p.Y197F	349/442	395/3394
<b>LNH113</b>	chr6:393328	A	G	NM_002460.4	IRF4	c.176A>G	p.K59R	107/583	195/2644
<b>LNH113</b>	chr3:38182641	T	C	NM_001172567.1	MYD88	c.613T>C	p.L273P	317/786	516/4339
<b>LNH113</b>	chr6:37138908	G	A	NM_001243186.1	PIM1	c.521G>A	p.G174D	68/499	100/2000
<b>LNH113</b>	chr6:37138950	AGCTC	A	NM_001243186.1	PIM1	c.564_567delCTCG	p.S188fs	232/950	453/6093
<b>LNH113</b>	chr6:37139063	G	T	NM_001243186.1	PIM1	c.676G>T	p.E226Ter	142/643	208/3053
<b>LNH113</b>	chr6:37139097	G	C	NM_001243186.1	PIM1	c.710G>C	p.S237T	269/653	474/3032
<b>LNH114</b>	chr17:62006799	A	C	NM_001039933.2	CD79B	c.589T>G	p.Y197D	1463/3209	NA
<b>LNH114</b>	chr9:21971120	G	A	NM_001195132.2	CDKN2A	c.238C>T	p.R80Ter	2867/3266	NA
<b>LNH114</b>	chr8:128750595	G	C	NM_002467.6	MYC	c.132G>C	p.E44D	1796/4198	NA
<b>LNH114</b>	chr8:128750831	G	A	NM_002467.6	MYC	c.368G>A	p.G123E	2478/5943	NA
<b>LNH114</b>	chr8:128751181	T	C	NM_002467.6	MYC	c.718T>C	p.S240P	276/2939	NA
<b>LNH114</b>	chr8:128751241	C	T	NM_002467.6	MYC	c.778C>T	p.P260S	284/1853	NA
<b>LNH114</b>	chr3:38182641	T	C	NM_001172567.1	MYD88	c.818T>C	p.L273P	2492/5411	19/6382
<b>LNH114</b>	chr6:37139210	C	T	NM_001243186.1	PIM1	c.823C>T	p.L275F	419/855	NA
<b>LNH114</b>	chr2:61719472	C	T	NM_003400.4	XPO1	c.1711G>A	p.E571K	1185/4102	NA
<b>LNH118</b>	chr15:45007836	A	T	NM_004048.4	B2M	c.283A>T	p.K95Ter	2037/2507	11/3203
<b>LNH118</b>	chr18:60985292	C	G	NM_000657.2	BCL2	c.608G>C	p.S203T	862/1998	NA
<b>LNH118</b>	chr18:60985508	G	T	NM_000633.3	BCL2	c.392C>A	p.A131D	914/4377	NA
<b>LNH118</b>	chr18:60985562	G	A	NM_000633.3	BCL2	c.338C>T	p.A113V	1597/3592	5/3254
<b>LNH118</b>	chr18:60985625	A	G	NM_000633.3	BCL2	c.275T>C	p.V92A	357/746	NA
<b>LNH118</b>	chr18:60985806	C	T	NM_000633.3	BCL2	c.94G>A	p.A32T	1332/3432	28/3217
<b>LNH118</b>	chr18:60985900	C	T	NM_000633.3	BCL2	c.-1G>A	NA	711/1921	14/2198
<b>LNH118</b>	chr16:3786806	CCT	C	NM_004380.3	CREBBP	c.4404_4405delAG	p.G1469fs	834/1991	NA
<b>LNH118</b>	chr2:136873415	C	T	NM_001348056.1	CXCR4	c.83G>A	p.C32Y	1513/2660	8/3562
<b>LNH122</b>	chr1:117078619	G	C	NM_001779.3	CD58	c.596C>G	p.S199Ter	936/2000	375/2000
<b>LNH122</b>	chr22:41573542	G	C	NM_001429.4	EP300	c.5827G>C	p.A1943P	NA	43/1401

<b>LNH122</b>	chr12:49425680	G	A	NM_003482.3	KMT2D	c.12808C>T	p.Q4270Ter	283/1560	242/1931
<b>LNH122</b>	chr6:37138299	C	T	NM_001243186.1	PIM1	c.221C>T	p.S74F	178/933	164/1668
<b>LNH122</b>	chr6:37140788	C	G	NM_001243186.1	PIM1	c.897C>G	p.S299R	346/1443	291/1998
<b>LNH122</b>	chr19:1612368	T	G	NM_001351779.1	TCF3	c.1651A>C	p.N551H	869/1999	459/1994
<b>LNH122</b>	chr17:7578502	A	C	NM_000546.5	TP53	c.428T>G	p.V143G	139/487	206/1502
<b>LNH133</b>	chr16:10989623	T	C	NM_001286402.1	CIITA	c.295+2T>C	NA	354/782	159/3925
<b>LNH133</b>	chr6:393205	G	A	NM_002460.4	IRF4	c.53G>A	p.S18N	566/1343	73/2000
<b>LNH133</b>	chr6:393222	C	T	NM_002460.4	IRF4	c.70C>T	p.L24F	536/1408	1147/11088
<b>LNH133</b>	chr6:394855	G	A	NM_002460.4	IRF4	c.251G>A	p.G84D	296/705	377/2953
<b>LNH133</b>	chr6:394888	C	A	NM_002460.4	IRF4	c.284C>A	p.T95K	257/705	346/2974
<b>LNH133</b>	chr17:7574003	G	A	NM_000546.5	TP53	c.1024C>T	p.R342Ter	NA	113/7997
<b>LNH133</b>	chr2:61719472	C	T	NM_003400.4	XPO1	c.1711G>A	p.E571K	56/562	NA
<b>LNH136</b>	chr15:45007787	G	GGACT GGT	NM_004048.4	B2M	c.235_236insGACTGG T	p.D79_W80fs	476/1564	177/1713
<b>LNH136</b>	chr11:85961431	A	G	NM_001308007.1	EED	c.208A>G	p.K70E	804/2618	336/1999
<b>LNH136</b>	chr6:394899	T	C	NM_002460.4	IRF4	c.295T>C	p.C99R	532/2141	201/1803
<b>LNH136</b>	chr20:49195059	C	T	NM_002827.4	PTPN1	c.595C>T	p.R199Ter	913/2829	1057/5910
<b>LNH136</b>	chr16:11348882	C	G	NM_003745.2	SOCS1	c.454G>C	p.E152Q	292/1052	170/1193
<b>LNH136</b>	chr16:11348888	G	T	NM_003745.2	SOCS1	c.448C>A	p.L150M	489/1033	174/1188
<b>LNH136</b>	chr16:11348960	T	C	NM_003745.2	SOCS1	c.376A>G	p.I126V	405/738	135/651
<b>LNH136</b>	chr6:138192619	G	A	NM_001270508.2	TNFAIP3	c.255G>A	p.W85Ter	1255/1646	739/2304
<b>LNH136</b>	chr17:7578263	G	A	NM_000546.5	TP53	c.586C>T	p.R196Ter	415/638	322/928
<b>LNH142</b>	chr18:60985307	G	T	NM_000657.2	BCL2	c.593C>A	p.A198E	456/4501	NA
<b>LNH142</b>	chr18:60985868	T	G	NM_000633.3	BCL2	c.32A>C	p.N11T	1576/4513	16/1999
<b>LNH142</b>	chr12:122460008	G	C	NM_020993.4	BCL7A	c.11G>C	p.R4T	1331/1868	NA
<b>LNH142</b>	chr6:37138908	G	A	NM_001243186.1	PIM1	c.521G>A	p.G174D	442/2000	10/3629
<b>LNH142</b>	chr6:37139038	GC	AG	NM_001243186.1	PIM1	c.651_652delGCinsAG	p.Q218E	482/1989	7/1087
<b>LNH142</b>	chr1:2488106	G	A	NM_003820.4	TNFRSF14	c.3G>A	p.M1I	296/1241	4/1645
<b>LNH142</b>	chr17:7578212	G	A	NM_000546.5	TP53	c.637C>T	p.R213Ter	1070/2156	63/3391

<b>LNH151</b>	chr1:27057843	A	AT	NM_006015.6	ARID1A	c.1552_1553insT	p.Y518_S519fs	526/1434	132/1062
<b>LNH151</b>	chr18:60985562	G	A	NM_000633.3	BCL2	c.338C>T	p.A113V	2506/4403	591/2738
<b>LNH151</b>	chr18:60985726	A	T	NM_000633.3	BCL2	c.174T>A	p.H58Q	1472/1891	161/514
<b>LNH151</b>	chr1:117086941	TAAAG	T	NM_001779.3	CD58	c.352_355delCTTT	p.L118fs	411/1000	131/747
<b>LNH151</b>	chr1:117087073	G	T	NM_001779.3	CD58	c.224C>A	p.S75Ter	1730/4145	370/2828
<b>LNH151</b>	chr17:63052587	T	A	NM_006572.6	GNA13	c.125A>T	p.K42M	993/3320	104/1008
<b>LNH151</b>	chr16:11349077	G	A	NM_003745.2	SOCS1	c.259C>T	p.H87Y	905/3117	142/943
<b>LNH151</b>	chr16:11349332	C	G	NM_003745.2	SOCS1	c.4G>C	p.V2L	540/1779	62/845
<b>LNH151</b>	chr16:11349386	C	G	NM_003745.2	SOCS1	c.-50-1G>C	NA	1055/1773	199/828
<b>LNH152</b>	chr15:45003780	ACT	A	NM_004048.4	B2M	c.37_38delCT	p.L13fs	3240/4947	23/930
<b>LNH153</b>	chr18:60985293	T	C	NM_000657.2	BCL2	c.607A>G	p.S203G	1441/1543	184/1577
<b>LNH153</b>	chr18:60985311	C	T	NM_000657.2	BCL2	c.589G>A	p.G197S	3366/3605	366/3158
<b>LNH153</b>	chr22:41566522	T	C	NM_001429.4	EP300	c.4399T>C	p.Y1467H	1520/3228	187/2516
<b>LNH153</b>	chr19:19260045	T	A	NM_001145785.2	MEF2B	c.248A>T	p.D83V	1084/2692	174/1437
<b>LNH153</b>	chr1:2493168	G	A	NM_003820.4	TNFRSF14	c.608G>A	p.W203Ter	991/1037	216/859
<b>LNH153</b>	chr17:7578532	A	C	NM_000546.5	TP53	c.398T>G	p.M133R	541/652	53/1127
<b>LNH155</b>	chr1:27023492	C	T	NM_006015.6	ARID1A	c.598C>T	p.Q200Ter	345/2879	14/1997
<b>LNH155</b>	chr15:45003746	T	C	NM_004048.4	B2M	c.2T>G	p.M1R	548/3305	NA
<b>LNH155</b>	chr15:45007681	T	C	NM_004048.4	B2M	c.128T>C	p.L43P	364/2141	25/1099
<b>LNH155</b>	chr12:49438252	CA	C	NM_003482.3	KMT2D	c.5016delT	p.P1672fs	167/4196	40/1991
<b>LNH155</b>	chr8:128750680	A	G	NM_002467.6	MYC	c.217A>G	p.T73A	350/2142	41/1239
<b>LNH155</b>	chr8:128750711	G	C	NM_002467.6	MYC	c.248G>C	p.G83A	292/1667	38/1194
<b>LNH155</b>	chr6:37138804	G	C	NM_001243186.1	PIM1	c.510G>C	p.E170D	237/2000	6/1668
<b>LNH155</b>	chr16:11349018	G	T	NM_003745.2	SOCS1	c.318C>A	p.S106R	890/2957	62/1309
<b>LNH155</b>	chr16:11349284	C	T	NM_003745.2	SOCS1	c.52G>A	p.E18K	363/1918	44/553
<b>LNH155</b>	chr6:138192518	AGAAC TTGCC AG	A	NM_001270508.2	TNFAIP3	c.155_165delGAACTT GCCAG	p.R52fs	723/3372	91/2203
<b>LNH155</b>	chr2:61719472	C	T	NM_003400.4	XPO1	c.1711G>A	p.E571K	545/7089	37/1127

<b>LNH158</b>	chr18:60985542	G	T	NM_000633.3	BCL2	c.358C>A	p.H120N	986/3111	1357/2716
<b>LNH158</b>	chr18:60985545	G	C	NM_000633.3	BCL2	c.355C>G	p.L119V	985/3112	1360/2713
<b>LNH158</b>	chr18:60985725	G	A	NM_000633.3	BCL2	c.175C>T	p.P59S	147/453	188/418
<b>LNH158</b>	chr18:60985737	G	A	NM_000633.3	BCL2	c.163C>T	p.H55Y	158/454	206/419
<b>LNH158</b>	chr6:41903731	G	A	NM_001760.5	CCND3	c.583C>T	p.Q195Ter	906/3653	1715/4987
<b>LNH158</b>	chr16:3781324	AAGG	A	NM_004380.3	CREBBP	c.5039_5041delCCT	p.S1680del	839/1637	1595/2144
<b>LNH158</b>	chr7:148506437	G	A	NM_004456.5	EZH2	c.2075C>T	p.A692V	390/1558	724/1997
<b>LNH158</b>	chr7:148508728	A	G	NM_004456.5	EZH2	c.1936T>C	p.Y646H	NA	76/3512
<b>LNH158</b>	chr12:49425756	CT	C	NM_003482.3	KMT2D	c.12731delA	p.Q4244fs	578/1555	799/1548
<b>LNH158</b>	chr12:49426832	G	A	NM_003482.3	KMT2D	c.11656C>T	p.Q3886Ter	541/2655	685/2546
<b>LNH158</b>	chr8:128750638	G	A	NM_002467.6	MYC	c.175G>A	p.A59T	761/3077	809/2948
<b>LNH163</b>	chr18:60985339	GG	AA	NM_000633.3	BCL2	c.560_561delCCinsTT	p.T187I	389/1977	399/1989
<b>LNH163</b>	chr18:60985379	G	A	NM_000633.3	BCL2	c.521C>T	p.A174V	389/1990	400/1996
<b>LNH163</b>	chr18:60985405	C	A	NM_000633.3	BCL2	c.495G>T	p.E165D	404/1998	424/1999
<b>LNH163</b>	chr18:60985412	T	C	NM_000633.3	BCL2	c.488A>G	p.N163S	419/1996	407/2000
<b>LNH163</b>	chr18:60985492	C	G	NM_000633.3	BCL2	c.408G>C	p.E136D	411/2000	426/1998
<b>LNH163</b>	chr18:60985514	C	T	NM_000633.3	BCL2	c.386G>A	p.R129H	457/1999	478/1998
<b>LNH163</b>	chr18:60985861	C	G	NM_000633.3	BCL2	c.39G>C	p.E13D	255/2000	155/2000
<b>LNH163</b>	chr8:128750677	C	T	NM_002467.6	MYC	c.214C>T	p.P72S	865/1999	728/2000
<b>LNH163</b>	chr8:128750681	C	T	NM_002467.6	MYC	c.218C>T	p.T73I	862/1998	707/2000
<b>LNH164</b>	chr8:128750686	C	T	NM_002467.6	MYC	c.223C>T	p.P75S	63/414	13/659
<b>LNH164</b>	chr8:128750921	T	C	NM_002467.6	MYC	c.458T>C	p.F153S	1022/2138	685/1902
<b>LNH164</b>	chr17:7578406	C	T	NM_000546.5	TP53	c.524G>A	p.R175H	1268/1341	1184/1419
<b>LNH165</b>	chr6:41903707	G	A	NM_001760.5	CCND3	c.607C>T	p.P284S	1087/2371	1219/4198
<b>LNH165</b>	chr1:2489908	G	A	NM_003820.4	TNFRSF14	c.304+1G>A	NA	1109/1147	853/1473
<b>LNH170</b>	chr11:108121504	A	T	NM_001351834.1	ATM	c.1312A>T	p.I438L	1602/3888	337/1112
<b>LNH170</b>	chr15:45003746	T	C	NM_004048.4	B2M	c.2T>C	p.M1T	3334/3780	351/604
<b>LNH170</b>	chr18:60985301	CC	TT	NM_000657.2	BCL2	c.598_599delGGinsAA	p.G200N	940/1990	347/986
<b>LNH170</b>	chr7:2977602	T	G	NM_001324281.1	CARD11	c.1082A>C	p.Y361S	1953/8136	435/3900

<b>LNH170</b>	chr7:148508727	T	A	NM_004456.5	EZH2	c.1937A>T	p.Y646F	2163/5429	292/1269
<b>LNH170</b>	chr19:19260045	T	A	NM_001145785.2	MEF2B	c.248A>T	p.D83V	1855/4655	378/1562
<b>LNH170</b>	chr1:2491361	G	A	NM_003820.4	TNFRSF14	c.404G>A	p.C135Y	4125/4595	997/1724
<b>LNH171</b>	chr7:2984129	T	C	NM_001324281.1	CARD11	c.401A>G	p.E134G	82/1994	12/1652
<b>LNH171</b>	chr7:2984163	C	T	NM_001324281.1	CARD11	c.367G>A	p.G123S	4047/10036	693/3395
<b>LNH171</b>	chr6:41903707	G	A	NM_001760.5	CCND3	c.607C>T	p.P284S	4814/11390	1466/5048
<b>LNH171</b>	chr9:139390648	CA	C	NM_017617.5	NOTCH1	c.7541_7542delCT	p.P2514fs	2583/3275	2413/4278
<b>LNH171</b>	chr17:7574018	G	A	NM_000546.5	TP53	c.1009C>T	p.R337C	3708/4696	445/1793
<b>LNH176</b>	chr15:45003764	T	A	NM_004048.4	B2M	c.20T>G	p.L7Ter	2290/2980	361/1513
<b>LNH176</b>	chr18:60985290	G	C	NM_000657.2	BCL2	c.610C>G	p.L204V	848/1998	345/1995
<b>LNH176</b>	chr18:60985546	C	G	NM_000633.3	BCL2	c.354G>C	p.Q118H	3499/7942	1288/7741
<b>LNH176</b>	chr18:60985802	C	G	NM_000633.3	BCL2	c.98G>C	p.G33A	1485/3833	516/3694
<b>LNH176</b>	chr16:11001092	C	A	NM_001286402.1	CIITA	c.1746C>A	p.Y582Ter	1012/1519	497/2844
<b>LNH176</b>	chr16:3786704	A	T	NM_004380.3	CREBBP	c.4507T>A	p.Y1503N	596/1997	205/1997
<b>LNH176</b>	chr16:3807287	A	C	NM_004380.3	CREBBP	c.3698+2T>G	NA	2789/5058	487/2629
<b>LNH176</b>	chr12:49420288	C	T	NM_003482.3	KMT2D	c.15461G>A	p.R5154Q	2133/5652	1367/6973
<b>LNH176</b>	chr16:11348888	G	C	NM_003745.2	SOCS1	c.448C>G	p.L150V	414/654	220/1247
<b>LNH176</b>	chr17:7577548	C	T	NM_000546.5	TP53	c.733G>A	p.G245S	3262/4218	1451/4640
<b>LNH177</b>	chr15:45003746	T	C	NM_004048.4	B2M	c.2T>C	p.M1T	688/3204	NA
<b>LNH177</b>	chr18:60985725	G	C	NM_000633.3	BCL2	c.175C>G	p.P59A	93/945	NA
<b>LNH177</b>	chr16:3817741	GGA	G	NM_004380.3	CREBBP	c.3228_3229delTC	p.S1076fs	638/4157	NA
<b>LNH177</b>	chr16:11348831	G	A	NM_003745.2	SOCS1	c.505C>T	p.R169C	643/4547	NA
<b>LNH183</b>	chr7:2976810	T	A	NM_001324281.1	CARD11	c.1202A>T	p.D401V	1779/4769	124/4496
<b>LNH183</b>	chr6:41903688	A	T	NM_001760.5	CCND3	c.626T>A	p.I290K	1586/6406	63/7005
<b>LNH183</b>	chr16:3788649	A	C	NM_004380.3	CREBBP	c.4305T>G	p.D1435E	1490/2435	70/2242
<b>LNH183</b>	chr6:393217	G	T	NM_002460.4	IRF4	c.65G>T	p.G22V	329/5400	NA
<b>LNH184</b>	chr16:3832688	A	AG	NM_004380.3	CREBBP	c.1570insC	p.L524fs	373/1972	627/1977
<b>LNH184</b>	chr17:63010569	C	A	NM_006572.6	GNA13	c.940G>T	p.G314W	53/1975	13/5909
<b>LNH184</b>	chr17:63010844	T	A	NM_006572.6	GNA13	c.665A>T	p.D222V	1028/3206	1210/3032

<b>LNH184</b>	chr17:63049765	A	T	NM_006572.6	GNA13	c.365T>A	p.M122K	16/6863	926/4215
<b>LNH184</b>	chr19:19260088	A	G	NM_001145785.2	MEF2B	c.205T>C	p.Y69H	856/2000	4951/6991
<b>LNH184</b>	chr17:7578427	T	A	NM_000546.5	TP53	c.503A>T	p.H168L	2369/8605	2843/4355
<b>LNH185</b>	chr19:19260079	ACT	A	NM_001145785.2	MEF2B	c.212_213delAG	p.E71fs	699/1807	400/1640
<b>LNH185</b>	chr6:37139073	C	T	NM_001243186.1	PIM1	c.686C>T	p.A229V	838/1998	283/1005
<b>LNH187</b>	chr15:45003747	G	A	NM_004048.4	B2M	c.3G>T	p.M1I	2751/3294	161/1573
<b>LNH187</b>	chr17:7577121	G	A	NM_000546.5	TP53	c.817C>T	p.R273C	NA	22/2471
<b>LNH191</b>	chr6:393222	C	T	NM_002460.4	IRF4	c.70C>T	p.L24F	296/4428	6/6192
<b>LNH191</b>	chr6:393270	C	G	NM_002460.4	IRF4	c.118C>G	p.L40V	816/4701	9/6450
<b>LNH191</b>	chr6:394888	C	A	NM_002460.4	IRF4	c.284C>A	p.T95K	628/3024	6/3986
<b>LNH198</b>	chr15:45003780	ACT	A	NM_004048.4	B2M	c.37_38delCT	p.L13fs	715/910	106/422
<b>LNH198</b>	chr17:62006799	A	G	NM_001039933.2	CD79B	c.589T>C	p.Y197H	924/1973	552/1482
<b>LNH198</b>	chr3:38181887	C	A	NM_001172567.1	MYD88	c.511C>A	p.P171T	1078/2490	685/2138
<b>LNH198</b>	chr3:38182292	G	A	NM_001172567.1	MYD88	c.752G>A	p.S251N	825/1911	435/1469
<b>LNH198</b>	chr6:106536213	C	G	NM_001198.4	PRDM1	c.180C>G	p.Y60Ter	1264/1624	NA
<b>LNH198</b>	chr17:7577538	C	T	NM_000546.5	TP53	c.743G>A	p.R248Q	NA	159/4371
<b>LNH198</b>	chr17:7577539	G	A	NM_000546.5	TP53	c.742C>T	p.R248W	NA	788/4367
<b>LNH202</b>	chr3:38182025	G	T	NM_001172567.1	MYD88	c.649G>T	p.V217F	297/1942	NA
<b>LNH202</b>	chr6:37138423	G	C	NM_001243186.1	PIM1	c.345G>T	p.K115N	210/1383	NA
<b>LNH202</b>	chr6:37138956	G	A	NM_001243186.1	PIM1	c.569G>A	p.G190D	275/2299	NA
<b>LNH202</b>	chr6:37139204	C	T	NM_001243186.1	PIM1	c.817C>T	p.L273F	61/424	NA
<b>LNH211</b>	chr7:2985468	A	T	NM_001324281.1	CARD11	c.343T>A	p.F115I	728/2294	19/1329
<b>LNH211</b>	chr17:7578406	C	T	NM_000546.5	TP53	c.524G>A	p.R175H	7/6339	36/5027
<b>LNH211</b>	chr17:7578554	A	C	NM_000546.5	TP53	c.376T>G	p.Y126D	889/3740	11/2508
<b>LNH226</b>	chr11:108117843	T	TA	NM_001351834.1	ATM	c.1054insA	p.I352fs	90/1154	NA
<b>LNH226</b>	chr12:49431856	CCCAA GGT	C	NM_003482.3	KMT2D	c.9276_9283delACCCT TGG	p.L3094fs	648/1788	94/330
<b>LNH226</b>	chr12:49443617	G	A	NM_003482.3	KMT2D	c.3754C>T	p.R1252Ter	1053/1985	974/1997
<b>LNH226</b>	chr17:7577115	A	G	NM_000546.5	TP53	c.823T>C	p.C275R	762/849	183/309