SUPPLEMENTARY INFORMATION

(ONLINE SUPPORTING INFORMATION)

Characterization of the genomic features and expressed fusion genes in micropapillary carcinomas of the breast

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Supplementary Methods

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SUPPLEMENTARY METHODS

Tumor samples

Two cohorts of micropapillary carcinomas (MPCs) were analyzed; the first cohort comprised 16 consecutive formalin fixed paraffin embedded (FFPE) MPCs, 11 pure and 5 mixed, which were retrieved from the authors' institutions (Table 1), and a second, validation cohort comprised 14 additional consecutive FFPE MPCs, retrieved from Molinette Hospital, Turin, Italy. Frozen samples were available from five out of the 16 cases from the first cohort of MPCs.

As a comparator for the results of the Sequenom mutation profiling, a cohort of 16 consecutive IC-NSTs matched to the first cohort of 16 MPCs according to ER and HER2 status and histological grade were retrieved from a series of breast cancers previously analyzed by aCGH[1]. In addition, 14 IC-NSTs matched according to grade, and ER and HER2 status to tumors from the second cohort of 14 MPCs, and 48 grade 3 IC-NSTs were retrieved from Hospital La Paz, Madrid, Spain[1] (Supplementary Table S1).

Power calculation

For power calculations, we have assumed that if MPCs were driven by a recurrent fusion gene in a way akin to secretory carcinomas (which harbor the *ETV6-NTRK3* fusion gene in >95% of cases[2-4]) or adenoid cystic carcinomas of the breast (which harbor the *MYB-NFIB* fusion gene in >90% of cases[5]), a 'pathognomonic' driver event would be present in at least ≥70% of cases (an estimate that is conservative). Therefore, based on a binomial distribution, by sequencing 5 samples we would have been able to identify a recurrent event (i.e. in two or more cases) with 97% statistical power. Furthermore, a 'pathognomonic' driver event present in 50% of cases would be detectable with 80% power.

Immunohistochemical analysis

Representative sections of each case were cut at 3μm and mounted on silane-coated slides. Immunohistochemistry was performed as previously described [6,7], using antibodies raised against estrogen receptor (ER), progesterone receptor (PR), HER2, and epithelial membrane antigen (EMA). Antibody clones, dilution, antigen retrieval methods, scoring systems, and cut-offs [8,9] are summarized in Supplementary Table 2.

Positive and negative controls (omission of the primary antibody and IgG-matched serum) were included for each immunohistochemical run. The scoring was performed by at least two pathologists (CM, AS and/ or JSR-F).

Microdissection, DNA extraction, RNA extraction

Representative 8μm-thick sections of the MPCs and IC-NSTs were subjected to microdissection with a sterile needle under a stereomicroscope (Olympus SZ61, Tokyo, Japan) to ensure a percentage of tumor cells greater than 90%, as previously described[7,10]. DNA was extracted from the 16 MPCs and 16 grade-, ER-, and HER2-matched IC-NSTs using the DNeasy Blood and Tissue Kit (Qiagen, Crawley, UK). In addition, for 8 MPCs matched adjacent normal breast tissue was microdissected and subjected to DNA extraction. Double-stranded DNA concentration and DNA quality were determined using a Qubit Fluorometer (Invitrogen, Paisley, UK) and a multiplex PCR, respectively, as previously described[6,10]. RNA was extracted from the microdissected MPCs and IC-NSTs FFPE samples using the RNeasy kit (Qiagen). Frozen samples from five MPCs and 48 grade 3 IC-NSTs were cut, microdissected, and subjected to RNA extraction with Trizol (Invitrogen), according to the manufacturer's protocol. RNA quantity and quality was assessed using Agilent 2100 Bioanalyzer with RNA Nano LabChip Kits (Agilent Biosystems, Stockport, UK).

Microarray comparative genomic hybridization (aCGH)

aCGH data were pre-processed and analyzed using the Base.R script in R version 2.14.0, as previously described[1,11]. Genomic DNA from each sample was hybridized against a pool of normal female DNA derived from peripheral blood. Raw Log_2 ratios of intensity between samples and pooled female genomic DNA were read without background subtraction and normalized in the LIMMA package in R using PrinTipLoess. Outliers were removed based upon their deviation from neighboring genomic probes, using an estimation of the genome-wide median absolute deviation of all probes. Log_2 ratios were rescaled using the genome wide median absolute deviation in each sample and then smoothed using circular binary segmentation (cbs) in the DNACopy package [12-15]. After filtering polymorphic BACs and BACs mapping to chromosome Y, a final dataset of 31,157 clones with unambiguous mapping information according to build hg19 of the human genome (http://www.ensembl.org). A categorical analysis was applied to the BACs after classifying them as representing amplification (>0.45), gain (>0.08 and

≤0.45), loss (<−0.08) or no change, according to their cbs-smoothed log2 ratio values [7,14]. Threshold values were determined and validated as previously described [13,14].

Mutation screening and validation

Sixteen MPCs and 16 grade-, ER- and HER2-matched IC-NSTs were subjected to mutation screening using the OncoCarta Panel v 1.0 (Sequenom, San Diego, CA, USA), detecting 238 mutations in 19 common cancer-related genes, as previously described[12,15]. The prevalence of mutant alleles was estimated by calculating the ratio of the area of the raw spectra of the mutant allele to its wild-type allele. Mutations were validated using Sanger sequencing as previously described[12,15]. Primer sequences are available at http://rock.icr.ac.uk/collaborations/Mackay/Micropapillary. Sequences were visualized using 4Peaks (http://4peaks.en.softonic.com/).

Eight MPCs, from which both primary tumor and normal breast tissue could be microdissected, were subjected to microdissection, and DNA was extracted as previously described[7,10]. Tumor and germline DNA were subjected to targeted capture massively parallel sequencing using a platform containing baits targeting all exons of 273 genes that were either recurrently mutated in breast cancer or are involved in DNA repair pathways (Supplementary Table S3). Custom oligonucleotides (NimblegenSeqCap) were designed for hybridization capture of all protein-coding exons of 273 genes (Supplementary Table S3). Barcoded sequence libraries were prepared (New England Biolabs, KapaBiosystems) using 50ng DNA and pooled at equimolar concentrations into a single exon capture reaction as previously described[16,17]. Sequencing was performed in a single lane of an Illumina HiSeq2000 (San Diego, CA), and reads were aligned to the reference human genome hg19 using the Burrows-Wheeler Aligner (BWA) [6,18]. Somatic single nucleotide variants were identified using a combination of muTect[19], MutationSeq[20], Haplotypecaller[21] and VarScan2[22]; only single nucleotide variations identified by at least two out of the four callers employed were considered as valid. This conservative approach has been employed to minimize false positive results obtained with high depth targeted massively parallel sequencing performed with DNA extracted from formalin-fixed, paraffin-embedded tissues. For small insertions and deletions (indels), Haplotype Caller and VarScan2 were employed. All candidate mutations were reviewed manually using the Integrative Genomics Viewer[23]. Mutations with allelic frequency of <1% and/ or supported by <5

reads were disregarded. Regions with loss of heterozygosity were identified using exomeCNV[24].

Paired-end massively parallel RNA sequencing

Briefly, messenger RNA was selected using oligo-dT magnetic beads from 3µg of total tumor RNA. RNA was fragmented at 94°C for 5 minutes in fragmentation buffer (Illumina) and converted to single stranded cDNA using SuperScript II reverse transcriptase, followed by second-strand cDNA synthesis using Escherichia coli DNA polymerase I. Double-stranded cDNA was end repaired by using T4 DNA polymerase and T4 polynucleotide kinase; monoadenylated using a Klenow DNA polymerase I (3'-5' exonucleotide activity), and adapters ligated using T4 DNA ligase. The adaptor-ligated cDNA library was then fractioned on a 2% agarose gel, and a smear corresponding to 200 nucleotides was excised, purified, and PCR amplified using high fidelity Phusion DNA polymerase (Finnenzymes, Vantaa, Finland). The library was quantified using the Agilent 1000 kit on the Agilent 2100 Bioanalyzer following the manufacturer's instructions. 3pM was then loaded onto each lane of a flowcell, and sequencing performed with and 2x 54bp cycles on the Genome Analyser II.

Reverse-transcription PCR (RT-PCR), PCR and Sanger sequencing validation

Breakpoints of validated in-frame fusion genes were verified at the genomic level using the Expand Long Template PCR system (Roche Diagnostics Ltd, Burgess Hill, UK). For each fusion gene pair, the maximum size of intervening intronic sequence was calculated and primers were designed for the amplicon to encompass the fusion junction. Reverse transcription was performed with Superscript III (Invitrogen) using 500ng of RNA per reaction, according to the manufacturer's instructions. RT-PCR was performed using AmpliTaq Gold (Applied Biosystems, Warrington, UK) as previously described [25]. Products were sequenced using a DNA Sequencing Kit BigDye Terminator v 1.1 Cycle Sequencing Ready Reaction Mix (Applied Biosystems), as previously described[13]. Sequences were visualized using 4Peaks (http://4peaks.en.softonic.com/).

Validated in-frame fusion genes (i.e. *SLC2A1-FAF1* and *BCAS4-AURKA*) and out-of-frame fusion genes with recurrent partners found in independent datasets [26-29](i.e. *ELMO2-RAE1* and *LASP1-CDK12*) were screened at the cDNA level in an independent

cohort of MPCs (n=14), grade- and ER-matched IC-NSTs (n=14) and grade 3 IC-NSTs (n=48) using RT-PCR. Quantitative real-time PCR (qRT-PCR) assays for *BCAS4-AURKA* and *SLC2A1-FAF1* were performed as previously described[27], using SYBR green master mix (Applied Biosystems) and run on the 7900 Real time PCR device (Applied Biosystems). Relative mRNA levels were normalized to the expression of β-actin as previously described[27].

Cell line models

The ER-positive breast cancer cell lines, MCF7, BT474, T47D and ZR75.1 were obtained from ATCC (LGC Standards, Teddington, UK). The *HER2*-amplified cell lines JIMT1, UACC812, UACC893, VP229, SKBR3, ZR75.30, HCC1569, HCC1954, MDA-MB-453, MDA-MB-361 were obtained from ATCC and the cell lines SUM225, SUM190 were obtained from Asterand, Herts, UK). All cell lines were and maintained as previously described[30,31]. Cell lines were authenticated using short tandem repeat (STR) genotyping using the PowerPlex 1.2 STR system (Promega UK, Southampton, UK), according to the manufacturer's instructions.

Functional assessment of in-frame fusion genes

The *SLC2A1-FAF1* and *BCAS4-AURKA* fusion open reading frames (ORFs) were PCR amplified from primary tumor MPC10 and cloned into a mammalian expression vector pCMVentry, with a C-terminal DDK tag (Origene). Cloned fusions, full-length 3-prime partner gene constructs or empty vectors were transfected into in four ER-positive breast cancer cell lines (MCF7, BT474, T47D and ZR75.1) using Lipofectamine 2000 (Invitrogen). Antibiotic selection using geneticin (Invitrogen) was performed 48 hours after transfection for 5-7 days, before cells were then seeded in 96 well plates for growth assays. Cell population was estimated every 24 hours, for 9 days, using the CellTiter-Glo® cell viability assay (Promega), as previously described[32], with each reading normalized to day 1 to determine the fold change. Western blotting was performed to confirm expression of DDK in transfected cell lines prior to performing growth assays as previously described[32].

Analysis of RAD51 foci formation

In brief, cells were grown on coverslips (12mm, Thermo Scientific) and exposed to 10 Gray (Gy) of ionizing radiation. After 4-6 hours recovery, cells were fixed, permeabilized,

and immunostained with primary antibodies targeting RAD51 (polyclonal rabbit antibody, Santa Cruz) and detected with alexa fluor 488 (Invitrogen). Nuclei were counterstained with 4′,6-diamidino-2- phenylindole (DAPI). The presence of RAD51 foci was evaluated in a minimum of 100 cells in three independent experiments with an automated inverted fluorescence microscope (LEICA – DMI6000 B). RAD51 foci formation was scored as a percentage of cells with phospho-γ-H2AX foci formation without treatment, 6 hours after 10 Gy of irradiation, and with 1nM BMN673 for 24 hours. A minimum of 100 cells was counted to determine RAD51 focus formation frequency in three independent experiments.

Long-term survival assay

Long-term survival assays were performed as previously described[32,33]. In brief, cells were seeded in six-well plates in triplicates at a concentration of 1000-2000 per well and treated with the inhibitor after 24 hours, being continuously exposed to the drug (10^{-11} to 10^{-7} M) dissolved in dimethyl sulfoxide (DMSO) (control: DMSO). Media and drug were replaced every 3 days. After 14 days, cells were fixed with 10% tri-chloro-acetic acid (TCA) and stained with sulforhodamine B (SRB) (Sigma) and a colorimetric assay was performed as described previously[32,33]. The PARP inhibitor BMN673 was a kind gift from BioMarin Pharmaceuticals, USA, and olaparib (AZD2281/KU0058948) was obtained from SelleckBio (Munich, Germany).

Statistical analyses

Growth curves and drug sensitivity curves were constructed using non-linear regression (curve fit) analyses in Prism v5.04 (Graphpad Software Inc, La Jolla, CA, USA). Mann-Whitney U test was employed to compare the mean survival fractions of cell lines transfected with siRNAs targeting an out-of-frame fusion gene partner with those of cell lines transfected with control siRNA. One-way ANOVA tests, with a Bonferroni correction for multiple testing, were used to compare the fold-change in cell population on the final day of each growth assay for cancer cells transfected with a fusion gene construct, full length 3’ partner or empty vector. For all tests, two-tailed p values <0.05 were considered significant.

REFERENCES

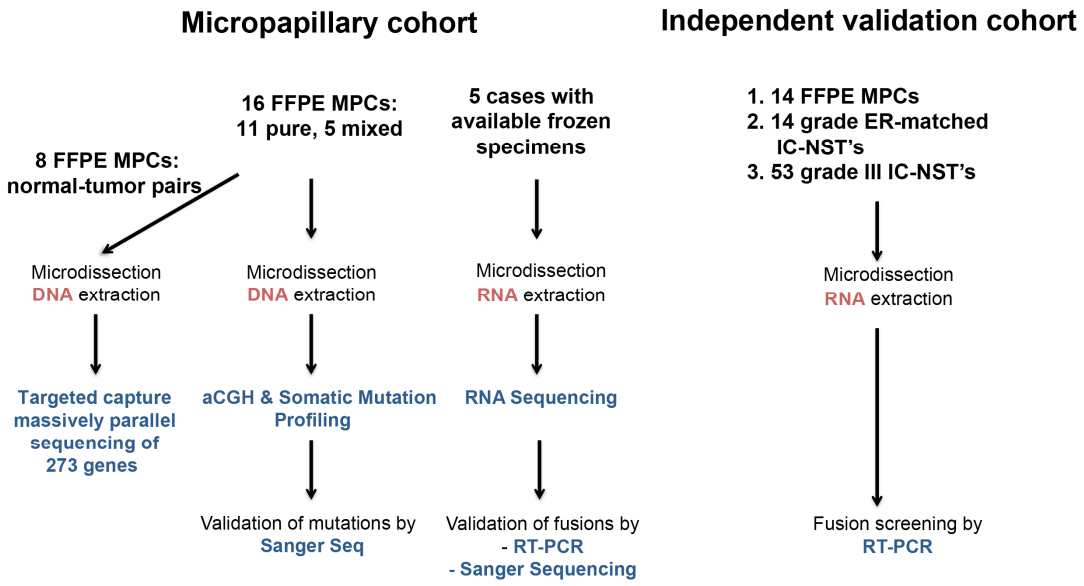
1. Natrajan R, Weigelt B, Mackay A*, et al.* An integrative genomic and transcriptomic analysis reveals molecular pathways and networks regulated by copy number aberrations in basal-like, HER2 and luminal cancers. *Breast Cancer Res Treat* 2010; **121**: 575-589.
2. Tognon C, Knezevich SR, Huntsman D*, et al.* Expression of the ETV6-NTRK3 gene fusion as a primary event in human secretory breast carcinoma. *Cancer Cell* 2002; **2**: 367-376.
3. Weigelt B, Geyer FC, Reis-Filho JS. Histological types of breast cancer: how special are they? *Mol Oncol* 2010; **4**: 192-208.
4. Weigelt B, Reis-Filho JS. Histological and molecular types of breast cancer: is there a unifying taxonomy? *Nat Rev Clin Oncol* 2009; **6**: 718-730.
5. Wetterskog D, Lopez-Garcia MA, Lambros MB*, et al.* Adenoid cystic carcinomas constitute a genomically distinct subgroup of triple-negative and basal-like breast cancers. *J Pathol* 2012; **226**: 84-96.
6. Marchio C, Iravani M, Natrajan R*, et al.* Mixed micropapillary-ductal carcinomas of the breast: a genomic and immunohistochemical analysis of morphologically distinct components. *J Pathol* 2009; **218**: 301-315.
7. Marchio C, Iravani M, Natrajan R*, et al.* Genomic and immunophenotypical characterization of pure micropapillary carcinomas of the breast. *J Pathol* 2008; **215**: 398-410.
8. Harvey JM, Clark GM, Osborne CK*, et al.* Estrogen receptor status by immunohistochemistry is superior to the ligand-binding assay for predicting response to adjuvant endocrine therapy in breast cancer. *J Clin Oncol* 1999; **17**: 1474-1481.
9. Jacobs TW, Gown AM, Yaziji H*, et al.* Specificity of HercepTest in determining HER-2/neu status of breast cancers using the United States Food and Drug Administration-approved scoring system. *J Clin Oncol* 1999; **17**: 1983-1987.
10. Marchio C, Natrajan R, Shiu KK*, et al.* The genomic profile of HER2-amplified breast cancers: the influence of ER status. *J Pathol* 2008; **216**: 399-407.
11. Mackay A, Tamber N, Fenwick K*, et al.* A high-resolution integrated analysis of genetic and expression profiles of breast cancer cell lines. *Breast Cancer Res Treat* 2009; **118**: 481-498.

12. Duprez R, Wilkerson PM, Lacroix-Triki M*, et al.* Immunophenotypic and genomic characterization of papillary carcinomas of the breast. *J Pathol* 2012; **226**: 427-441.
13. Geyer FC, Weigelt B, Natrajan R*, et al.* Molecular analysis reveals a genetic basis for the phenotypic diversity of metaplastic breast carcinomas. *J Pathol* 2010; **220**: 562-573.
14. Natrajan R, Lambros MB, Rodriguez-Pinilla SM*, et al.* Tiling path genomic profiling of grade 3 invasive ductal breast cancers. *Clin Cancer Res* 2009; **15**: 2711-2722.
15. Hernandez L, Wilkerson PM, Lambros MB*, et al.* Genomic and mutational profiling of ductal carcinomas in situ and matched adjacent invasive breast cancers reveals intra-tumour genetic heterogeneity and clonal selection. *J Pathol* 2012.
16. Wagle N, Berger MF, Davis MJ*, et al.* High-throughput detection of actionable genomic alterations in clinical tumor samples by targeted, massively parallel sequencing. *Cancer Discov* 2012; **2**: 82-93.
17. De Mattos-Arruda L, Bidard FC, Won HH*, et al.* Establishing the origin of metastatic deposits in the setting of multiple primary malignancies: The role of massively parallel sequencing. *Mol Oncol* 2013.
18. DePristo MA, Banks E, Poplin R*, et al.* A framework for variation discovery and genotyping using next-generation DNA sequencing data. *Nat Genet* 2011; **43**: 491-498.
19. Cibulskis K, Lawrence MS, Carter SL*, et al.* Sensitive detection of somatic point mutations in impure and heterogeneous cancer samples. *Nat Biotechnol* 2013; **31**: 213-219.
20. Ding J, Bashashati A, Roth A*, et al.* Feature-based classifiers for somatic mutation detection in tumour-normal paired sequencing data. *Bioinformatics* 2012; **28**: 167-175.
21. McKenna A, Hanna M, Banks E*, et al.* The Genome Analysis Toolkit: a MapReduce framework for analyzing next-generation DNA sequencing data. *Genome Res* 2010; **20**: 1297-1303.
22. Koboldt DC, Zhang Q, Larson DE*, et al.* VarScan 2: somatic mutation and copy number alteration discovery in cancer by exome sequencing. *Genome Res* 2012; **22**: 568-576.

23. Robinson JT, Thorvaldsdottir H, Winckler W*, et al.* Integrative genomics viewer. *Nat Biotechnol* 2011; **29**: 24-26.
24. Sathirapongsasuti JF, Lee H, Horst BA*, et al.* Exome sequencing-based copy-number variation and loss of heterozygosity detection: ExomeCNV. *Bioinformatics* 2011; **27**: 2648-2654.
25. Ha KC, Lalonde E, Li L*, et al.* Identification of gene fusion transcripts by transcriptome sequencing in BRCA1-mutated breast cancers and cell lines. *BMC Med Genomics* 2011; **4**: 75.
26. Banerji S, Cibulskis K, Rangel-Escareno C*, et al.* Sequence analysis of mutations and translocations across breast cancer subtypes. *Nature* 2012; **486**: 405-409.
27. Robinson DR, Kalyana-Sundaram S, Wu YM*, et al.* Functionally recurrent rearrangements of the MAST kinase and Notch gene families in breast cancer. *Nat Med* 2011; **17**: 1646-1651.
28. Stephens PJ, McBride DJ, Lin ML*, et al.* Complex landscapes of somatic rearrangement in human breast cancer genomes. *Nature* 2009; **462**: 1005-1010.
29. Network TCGA. Comprehensive molecular portraits of human breast tumours. *Nature* 2012; **490**: 61-70.
30. Brough R, Frankum JR, Sims D*, et al.* Functional Viability Profiles of Breast Cancer. *Cancer Discov* 2011; **1**: 260-273.
31. Shiu KK, Wetterskog D, Mackay A*, et al.* Integrative molecular and functional profiling of ERBB2-amplified breast cancers identifies new genetic dependencies. *Oncogene* 2013.
32. Wilkerson PM, Dedes KJ, Wetterskog D*, et al.* Functional characterization of EMSY gene amplification in human cancers. *J Pathol* 2011; **225**: 29-42.
33. Dedes KJ, Wetterskog D, Mendes-Pereira AM*, et al.* PTEN deficiency in endometrioid endometrial adenocarcinomas predicts sensitivity to PARP inhibitors. *Sci Transl Med* 2010; **2**: 53ra75.

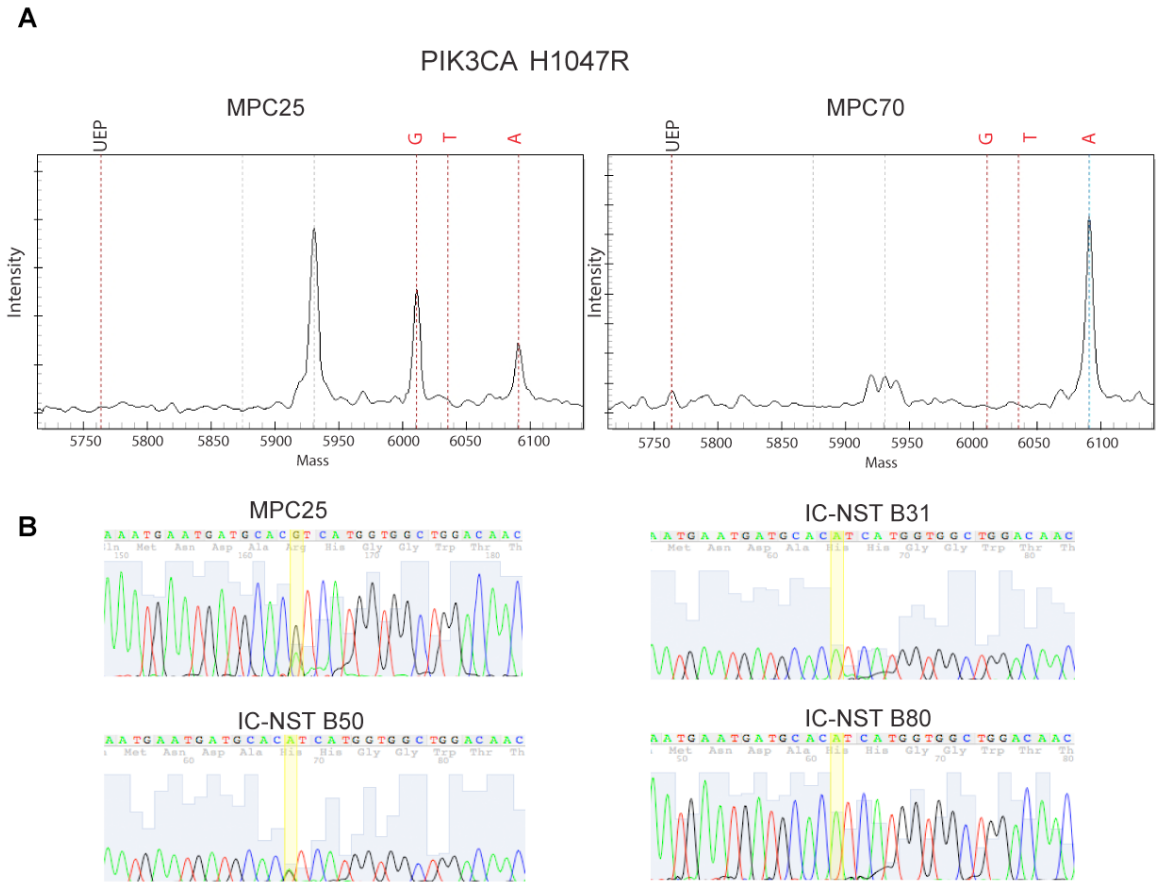
SUPPLEMENTARY FIGURES

Supplementary Figure S1.



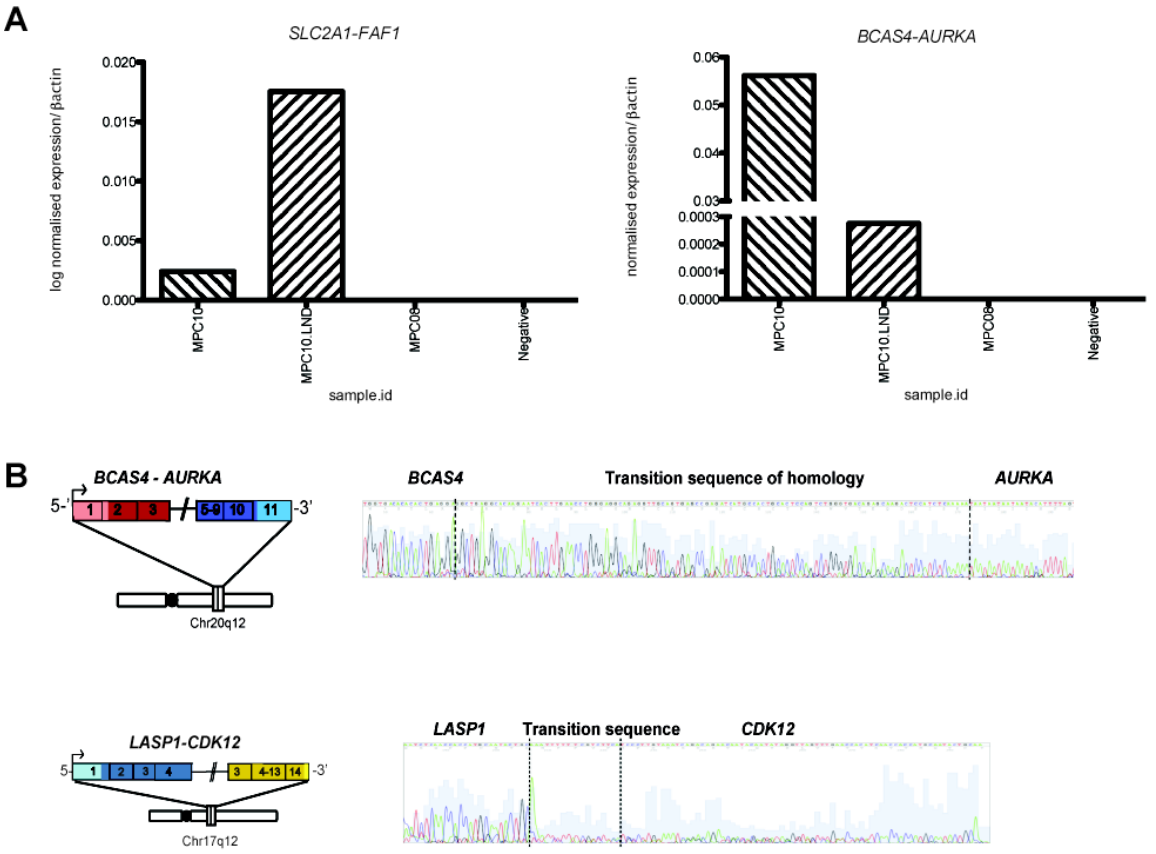
Supplementary Figure S1. Flow diagram of the study design.

Supplementary Figure S2.



Supplementary Figure S2. Identification and validation of *PIK3CA* mutations by the Sequenom Oncocarta v1.0 panel. Using the Oncocarta v1.0 panel on the Sequenom platform, mutations were identified in a single micropapillary carcinoma (MPC25). **A**) Mass spectrometry profile illustrating the allele called in MPC25 and in the *PIK3CA* wild-type (WT) MPC70. **B**) Validation and identification of *PIK3CA* H1047R using conventional Sanger sequencing in MPC25 and in B50, the only case of the series of 16 grade-, ER-, and HER2-matched invasive ductal carcinomas of no special type (IC-NST) harboring a *PIK3CA* gene mutation. By comparison no mutations were identified in IC-NSTs B31 and B80.

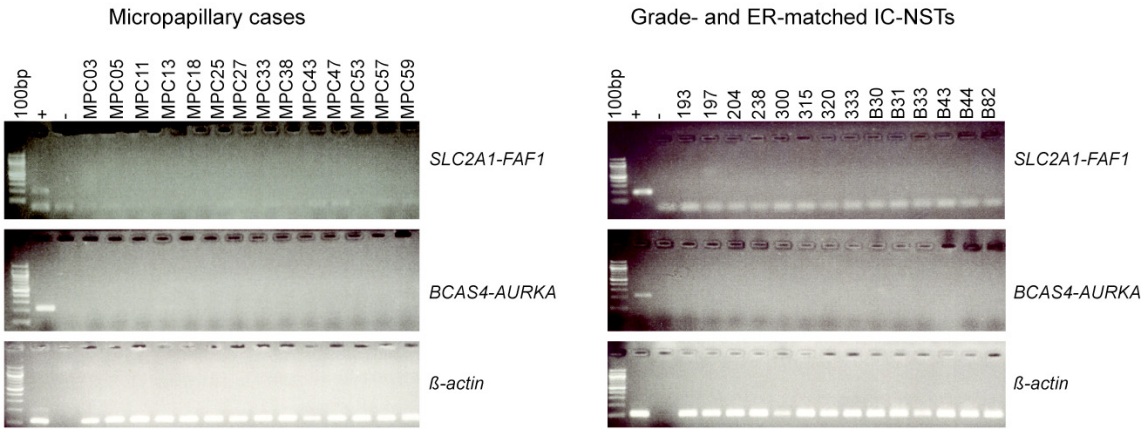
Supplementary Figure S3



Supplementary Figure S3. Validation of high-confidence fusion genes.

A) Real-time reverse transcription PCR (qRT-PCR) analysis of validated in-frame fusion genes in selected cases. qRT-PCR of *SLC2A1-FAF1* and *BCAS4-AURKA*. MPCLND = lymph node metastasis of MPC10. Expression of fusion transcripts are normalized to the expression of β-actin. **B**) Long-range PCR validation of the DNA breakpoints of *BCAS4-AURKA*, *ELMO2-RAE1* and *LASP1-CDK12* in the index cases. Sanger sequencing validation of the DNA breakpoints of *BCAS4-AURKA* in MPC10 and *LASP1-CDK12* in MPC70. A schematic representation of nominated fusion transcripts is shown on the left. Fusion junctions with respective exon numbers are shown. Light colors represent 3' and 5' UTRs. Sequence chromatograms spanning the junction (dotted line) of the fusion transcript are shown on the right.

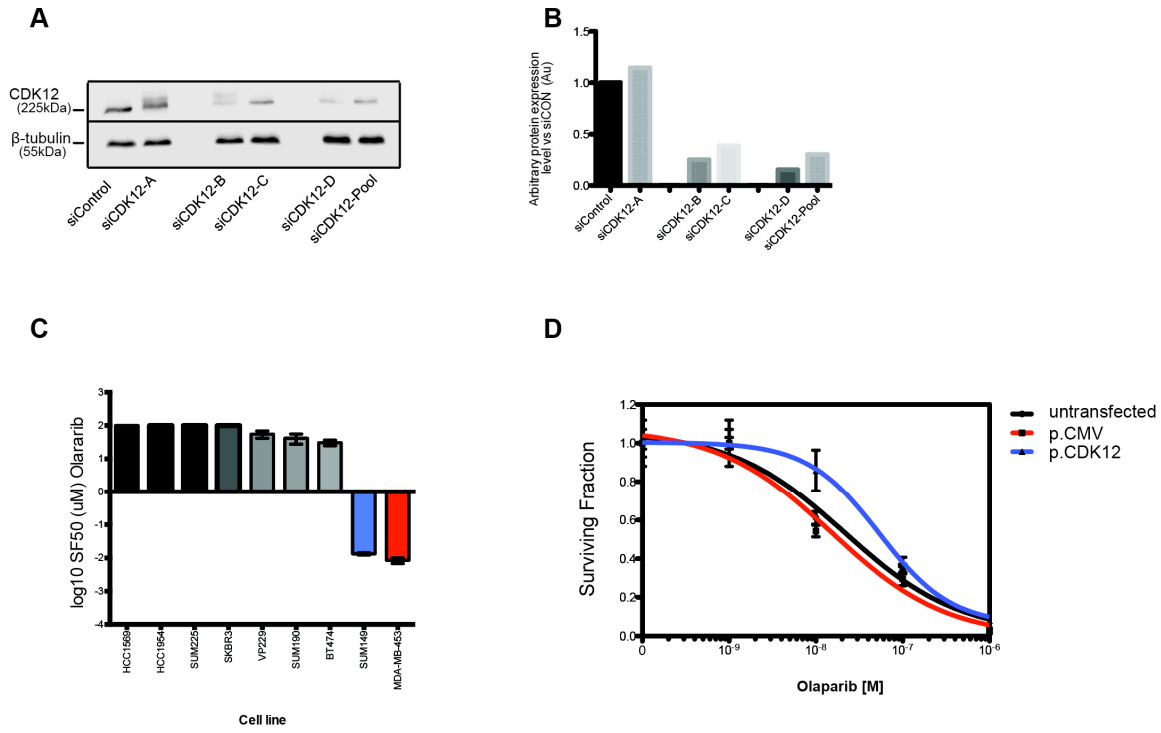
Supplementary Figure S4



Supplementary Figure S4. Recurrence RT-PCR screen for nominated fusions in 14 micropapillary and 14 grade- and ER-matched IC-NST.

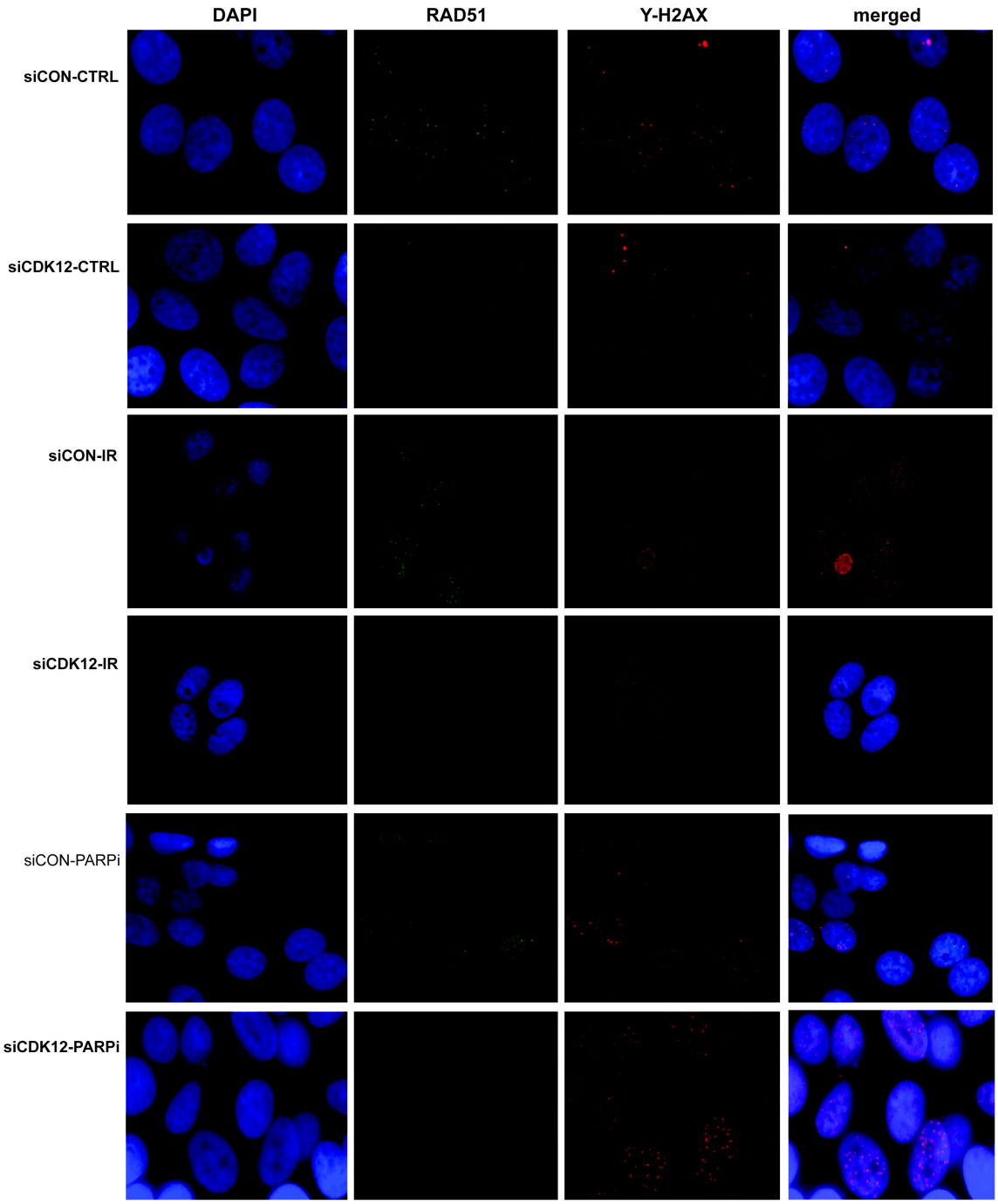
To determine if the nominated fusion genes (in-frame fusions) were recurrent, 14 micropapillary (MPCs) and 14 grade- and ER-matched invasive carcinomas of no special type (IC-NSTs) were screened with primers for *SLC2A1-FAF1*, *BCAS4-AURKA*, and β-actin as a control. Positive (index case) and negative (no template) controls were included in each run.

Supplementary Figure S5



Supplementary Figure S5. Reconstitution of CDK12 in MDA-MB-453 with olararib. **A**) Western blot analysis of siRNA against CDK12 and **B**) quantification, showing 3 out of 4 oligos and the pool reduce CDK12 protein expression. **C**) Bar plot of $\log_{10}$ (SF50) of *HER2*-amplified cell lines to the PARP inhibitor olaparib. SUM149 (BRCA1 mutant) was used as a positive control (blue). MDA-MB-453 are sensitive to olaparib (red). **D**) Reconstitution of full length CDK12 (p.CDK12) in MDA-MB-453 results in increased resistance to olaparib (blue) relative to empty vector (red) (p.CMV) and untransfected cells (black).

Supplementary Figure S6



Supplementary Figure S6. Assessment of RAD51 foci formation in MCF7 cells with CDK12 silencing. Immunofluorescence images of representative fields of MCF7 cells with si-control (siCON) cells or CDK12-silenced (siCDK12) cells using a pool of four individual oligos showing DAPI-stained nuclei (blue), γ-H2AX (red), and RAD51 foci (green) after no treatment (CTRL), 10 Gy of irradiation (IR) or 24 hour treatment with 1μM of the PARP inhibitor BMN673.

Supplementary Table S1. Details of the complete cohort of breast cancers

Sample ID	Histology	Pure/ Mixed	Histological grade	ER	PR	HER2	aCGH	Sequenom	PIK3CA H1047R mutation screen	RNA-sequencing	RT-PCR fusion screen screen				
											Tested	*BCAS4-AURKA*	*SLC2A1-FAF1*	*ELMO2-RAE1*	*LASP1-CDK12*
MPC10	Micropapillary	pure	3	Positive	Positive	Negative	Y	Y	WT	Y	N	Y	Y	Y	N
MPC08	Micropapillary	pure	2	Positive	Positive	Negative	Y	Y	WT	Y	N	N	N	N	N
MPC70	Micropapillary	pure	2	Positive	Positive	Negative	Y	Y	WT	Y	N	N	N	N	N
MPC72	Micropapillary	pure	3	Positive	Negative	Negative	Y	Y	WT	Y	N	N	N	N	N
MPC71	Micropapillary	pure	3	Positive	Positive	Positive	Y	Y	WT	Y	N	N	N	N	Y
MPC37	Micropapillary	mixed	3	Positive	Positive	Negative	Y	Y	WT	N	N	NA	NA	NA	NA
MPC59	Micropapillary	mixed	2	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
MPC27	Micropapillary	mixed	2	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
MPC33	Micropapillary	mixed	2	Positive	Positive	Positive	N	N	NA	N	Y	N	N	N	N
MPC03	Micropapillary	pure	2	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
MPC13	Micropapillary	pure	2	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
MPC43	Micropapillary	mixed	2	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
MPC11	Micropapillary	pure	2	Positive	Positive	Negative	Y	Y	WT	N	Y	N	N	N	N
MPC25	Micropapillary	mixed	2	Positive	Positive	Negative	Y	Y	H1047R	N	Y	N	N	N	N
MPC57	Micropapillary	mixed	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
MPC05	Micropapillary	pure	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
MPC47	Micropapillary	mixed	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
MPC18	Micropapillary	pure	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
MPC38	Micropapillary	mixed	3	Positive	Positive	Negative	Y	Y	WT	N	Y	N	N	N	N
MPC53	Micropapillary	mixed	3	Negative	Negative	Positive	Y	Y	WT	N	Y	N	N	N	N
MPC07	Micropapillary	pure	3	Positive	Negative	Positive	N	N	NA	N	N	NA	NA	NA	NA
MPC19	Micropapillary	pure	3	Positive	Positive	Negative	N	N	NA	N	N	NA	NA	NA	NA
MPC16	Micropapillary	pure	3	Positive	Positive	Negative	N	N	NA	N	N	NA	NA	NA	NA
MPC06	Micropapillary	pure	2	Positive	Positive	Negative	Y	Y	WT	N	N	NA	NA	NA	NA
MPC02	Micropapillary	pure	2	Positive	Positive	Negative	Y	Y	WT	N	N	NA	NA	NA	NA
MPC04	Micropapillary	pure	3	Positive	Negative	Negative	Y	Y	WT	N	N	NA	NA	NA	NA
MPC01	Micropapillary	pure	2	Positive	Positive	Negative	Y	Y	WT	N	N	NA	NA	NA	NA
MPC23	Micropapillary	pure	3	Positive	Negative	Negative	Y	Y	WT	N	N	NA	NA	NA	NA
MPC45	Micropapillary	mixed	3	Positive	Positive	Positive	Y	Y	WT	N	N	NA	NA	NA	NA
BC2468	IC-NST	NA	2	Positive	Positive	Negative	N	Y	WT	N	N	NA	NA	NA	NA
BC2472	IC-NST	NA	2	Positive	Positive	Negative	N	Y	WT	N	N	NA	NA	NA	NA
BC2522	IC-NST	NA	2	Positive	Positive	Negative	N	Y	WT	N	N	NA	NA	NA	NA
BC2512	IC-NST	NA	2	Positive	Negative	Negative	N	Y	WT	N	N	NA	NA	NA	NA
BC2469	IC-NST	NA	2	Positive	Positive	Negative	N	Y	WT	N	N	NA	NA	NA	NA
BC2473	IC-NST	NA	2	Positive	Positive	Negative	N	Y	WT	N	N	NA	NA	NA	NA
BC2700	IC-NST	NA	2	Positive	Positive	Negative	N	N	NA	N	N	NA	NA	NA	NA
B1	IC-NST	NA	3	Positive	Negative	Negative	N	Y	WT	N	Y	N	N	N	N
B11	IC-NST	NA	3	Negative	Positive	Negative	N	N	NA	N	Y	N	N	N	N
B12	IC-NST	NA	3	Negative	Negative	Positive	N	N	NA	N	Y	N	N	N	N
B15	IC-NST	NA	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
B16	IC-NST	NA	3	Positive	Positive	Negative	N	Y	WT	N	Y	N	N	N	N
B17	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B2	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B20	IC-NST	NA	3	Negative	Negative	Positive	N	N	NA	N	Y	N	N	N	N
B21	IC-NST	NA	3	Positive	Positive	Negative	N	Y	WT	N	Y	N	N	N	N
B24	IC-NST	NA	3	Positive	Negative	Negative	N	Y	WT	N	Y	N	N	N	N
B26	IC-NST	NA	3	Positive	Negative	Positive	N	N	NA	N	Y	N	N	N	N
B27	IC-NST	NA	3	Positive	Positive	Negative	N	Y	WT	N	Y	N	N	N	N
B29	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B32	IC-NST	NA	3	Negative	Negative	Positive	N	N	NA	N	Y	N	N	N	N
B34	IC-NST	NA	3	Negative	Negative	Positive	N	N	NA	N	Y	N	N	N	N
B35	IC-NST	NA	3	Negative	Negative	Positive	N	N	NA	N	Y	N	N	N	N
B37	IC-NST	NA	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
B39	IC-NST	NA	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
B40	IC-NST	NA	3	Negative	Positive	Positive	N	N	NA	N	Y	N	N	N	N
B41	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B45	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B46	IC-NST	NA	3	Negative	Negative	Positive	N	N	NA	N	Y	N	N	N	N
B47	IC-NST	NA	3	Positive	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B49	IC-NST	NA	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
B5	IC-NST	NA	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
B50	IC-NST	NA	3	Positive	Positive	Negative	N	Y	H1047R	N	N	NA	NA	NA	NA
B6	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B60	IC-NST	NA	3	Positive	Positive	Negative	N	Y	WT	N	Y	N	N	N	N
B61	IC-NST	NA	3	Positive	Positive	Negative	N	Y	WT	N	Y	N	N	N	N
B62	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B64	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B65	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B66	IC-NST	NA	3	Negative	Negative	Positive	N	N	NA	N	Y	N	N	N	N
B67	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B69	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B7	IC-NST	NA	3	Positive	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B72	IC-NST	NA	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
B74	IC-NST	NA	3	Positive	Negative	Negative	N	Y	WT	N	Y	N	N	N	N
B76	IC-NST	NA	3	Positive	Positive	Positive	N	N	NA	N	Y	N	N	N	N
B77	IC-NST	NA	3	Positive	Positive	Positive	N	N	NA	N	Y	N	N	N	N
B78	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B79	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B80	IC-NST	NA	3	Negative	Negative	Positive	N	N	NA	N	Y	N	N	N	N
B81	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B84	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B86	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B87	IC-NST	NA	3	Negative	Negative	Negative	N	N	NA	N	Y	N	N	N	N
B9	IC-NST	NA	3	Positive	Negative	Negative	N	Y	WT	N	Y	N	N	N	N
193	IC-NST	NA	2	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
197	IC-NST	NA	2	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
204	IC-NST	NA	2	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
238	IC-NST	NA	2	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
315	IC-NST	NA	2	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
320	IC-NST	NA	2	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
333	IC-NST	NA	2	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
300	IC-NST	NA	2	Positive	Positive	Positive	N	N	NA	N	Y	N	N	N	N
B30	IC-NST	NA	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
B31	IC-NST	NA	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
B33	IC-NST	NA	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
B44	IC-NST	NA	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
B82	IC-NST	NA	3	Positive	Positive	Negative	N	N	NA	N	Y	N	N	N	N
B43	IC-NST	NA	3	Negative	Negative	Positive	N	N	NA	N	Y	N	N	N	N

ER: estrogen receptor; PR: progesterone receptor; NA: not applicable; N: no; Y: yes.

Supplementary Table S2. Summary of antibodies, clones, dilutions, antigen retrieval methods, scoring and cut-offs used

Marker	Antibody clone	Dilution	Antigen retrival	Company	Scoring system	Cut-off
EMA	E29	1:100	None	DAKO, Glostrup, Denmark	Qualitative assessment of the positivity: membranous or cytoplasmic; lining the luminal or stroma-facing border of the cells ('inside out' pattern)	-
ER	ID5	1:200	2 min, PC citrate, pH 6.0	DAKO, Glostrup, Denmark	Allred scoring system	Positive: >2 (ref 3)
PR	Pgr 636	1:200	3 min, PC citrate, pH 6.0	DAKO, Glostrup, Denmark	Allred scoring system	Positive: >2 (3)
HER2	Polyclonal	1:1200	41 min water bath, DAKO antigen retrieval solution, pH 6.0	DAKO, Glostrup, Denmark	Score 0, 1, 2, 3 according to Hercep Test kit scoring guidelines	Positive ≥2 (4)

PC=Pressure cooker

Supplementary Table S3: List of 273 genes included in the targeted capture massively parallel sequencing platform.

Gene_name	Number of cases with mutation in the TCGA breast cancer study	% of cases with mutation in the TCGA breast cancer study	Number of cases with amplification of homozygous deletion in the TCGA breast cancer study	% of cases with amplification of homozygous deletion in the TCGA breast cancer study
ABCA13	14	2.80%	2	0.40%
ABCB1	3	0.60%	1	0.20%
ADAMTSL1	3	0.60%	4	0.80%
AGFG2	3	0.60%	4	0.80%
AHNAK2	9	1.80%	6	1.20%
AK9	9	1.80%	2	0.40%
AKAP9	4	0.80%	16	3.20%
AKT1	12	2.40%	6	1.20%
AKT2	1	0.20%	7	1.40%
AKT3	3	0.60%	24	4.70%
ANK3	10	2.00%	9	1.80%
AOAH	0	0.00%	1	0.20%
APC	3	0.60%	0	0.00%
APOB	15	3.00%	0	0.00%
APOBEC1	1	0.20%	7	1.40%
APOBEC2	1	0.20%	5	1.00%
APOBEC3A	1	0.20%	1	0.20%
APOBEC3C	0	0.00%	1	0.20%
APOBEC3D	0	0.00%	2	0.40%
APOBEC3F	0	0.00%	2	0.40%
APOBEC3G	1	0.20%	2	0.40%
APOBEC3H	0	0.00%	2	0.40%
APOBEC4	1	0.20%	20	3.90%
ARAF	1	0.20%	0	0.00%
ARID1A	11	2.20%	2	0.40%
ATM	16	3.20%	5	1.00%
ATN1	8	1.60%	8	1.60%
ATR	2	0.40%	4	0.80%
ATRX	9	1.80%	0	0.00%
AURKA	1	0.20%	20	3.90%
AURKB	0	0.00%	2	0.40%
AURKC	1	0.20%	12	2.40%
BIRC5	0	0.00%	21	4.10%
BIRC6	6	1.20%	2	0.40%
BRAF	3	0.60%	3	0.60%
BRCA1	15	3.00%	5	1.00%
BRCA2	22	4.30%	8	1.60%
BRIP1	8	1.60%	36	7.10%
CACNA1A	6	1.20%	6	1.20%
CACNA1C	6	1.20%	7	1.40%
CACNA1E	13	2.60%	19	3.70%
CBFB	8	1.60%	8	1.60%
CDC25A	1	0.20%	0	0.00%
CDC25B	3	0.60%	5	1.00%
CDC25C	1	0.20%	1	0.20%
CDH1	33	6.50%	10	2.00%
CDK1	0	0.00%	9	1.80%
CDK4	0	0.00%	10	2.00%
CDK6	1	0.20%	3	0.60%
CDKN1A	0	0.00%	3	0.60%
CDKN1B	5	1.00%	2	0.40%
CDKN2A	0	0.00%	23	4.50%
CDKN2B	0	0.00%	24	4.70%
CEP164	4	0.80%	0	0.00%
CFH	8	1.60%	23	4.50%
CHD4	7	1.40%	8	1.60%
CHD6	7	1.40%	6	1.20%
CHEK1	0	0.00%	2	0.40%
CHEK2	4	0.80%	3	0.60%
COL12A1	10	2.00%	3	0.60%
CROCCP2	0	0.00%	0	0.00%
CSMD1	15	3.00%	23	4.50%
CSMD2	10	2.00%	0	0.00%
CSMD3	9	1.80%	57	11.20%
CTCF	13	2.60%	8	1.60%
CTNNB1	0	0.00%	1	0.20%
CUBN	7	1.40%	6	1.20%
DCHS2	8	1.60%	3	0.60%
DEPTOR	0	0.00%	56	11.00%
DMC1	2	0.40%	2	0.40%
DOCK11	9	1.80%	0	0.00%
DSPP	7	1.40%	4	0.80%
DST	7	1.40%	6	1.20%
EGFR	4	0.80%	8	1.60%
EME1	0	0.00%	34	6.70%

EME2	0	0.00%	12	2.40%
EPPK1	1	0.20%	35	6.90%
ERBB2	7	1.40%	66	13.00%
ERBB3	8	1.60%	2	0.40%
ERBB4	6	1.20%	3	0.60%
ERCC1	1	0.20%	6	1.20%
ERCC2	0	0.00%	6	1.20%
ERCC3	2	0.40%	1	0.20%
ERCC5	4	0.80%	8	1.60%
ESR1	2	0.40%	10	2.00%
ESR2	2	0.40%	4	0.80%
FAM157B	1	0.20%	2	0.40%
FAM186A	4	0.80%	1	0.20%
FANCA	7	1.40%	13	2.60%
FANCB	0	0.00%	0	0.00%
FANCC	1	0.20%	2	0.40%
FANCD2	3	0.60%	7	1.40%
FANCE	1	0.20%	1	0.20%
FANCF	1	0.20%	6	1.20%
FANCG	1	0.20%	4	0.80%
FANCI	3	0.60%	10	2.00%
FANCL	1	0.20%	3	0.60%
FANCM	2	0.40%	3	0.60%
FAT3	20	3.90%	8	1.60%
FBN1	7	1.40%	3	0.60%
FCGBP	6	1.20%	9	1.80%
FGFR1	0	0.00%	54	10.70%
FGFR2	4	0.80%	9	1.80%
FGFR3	1	0.20%	5	1.00%
FGFR4	3	0.60%	5	1.00%
FLG	22	4.30%	34	6.70%
FMN2	8	1.60%	24	4.70%
FOXA1	8	1.60%	8	1.60%
FOXC2	0	0.00%	12	2.40%
FRG1B	0	0.00%	2	0.40%
FRMPD4	7	1.40%	0	0.00%
GATA3	54	10.70%	12	2.40%
GATA4	0	0.00%	16	3.20%
GPR98	11	2.20%	2	0.40%
GRB2	1	0.20%	20	3.90%
GRIN2A	10	2.00%	10	2.00%
GRIN2B	8	1.60%	3	0.60%
HECW1	8	1.60%	1	0.20%
HERC2	6	1.20%	5	1.00%
HIF1A	1	0.20%	4	0.80%
HMCN1	19	3.70%	20	3.90%
HRAS	0	0.00%	4	0.80%
HRNR	9	1.80%	34	6.70%
HSP90AA1	2	0.40%	4	0.80%
HSP90AB1	2	0.40%	6	1.20%
HUWE1	9	1.80%	0	0.00%
HYDIN	13	2.60%	10	2.00%
IGF1R	2	0.40%	21	4.10%
INPP4B	4	0.80%	6	1.20%
IRS1	1	0.20%	1	0.20%
JAK1	2	0.40%	6	1.20%
JAK2	5	1.00%	4	0.80%
KIT	5	1.00%	0	0.00%
KRAS	4	0.80%	7	1.40%
LAMA1	7	1.40%	5	1.00%
LAMA5	7	1.40%	20	3.90%
LRP2	17	3.40%	2	0.40%
MACF1	11	2.20%	1	0.20%
MAP1A	10	2.00%	1	0.20%
MAP2K1	1	0.20%	4	0.80%
MAP2K2	1	0.20%	7	1.40%
MAP2K3	1	0.20%	7	1.40%
MAP2K4	21	4.10%	11	2.20%
MAP2K6	0	0.00%	23	4.50%
MAP3K1	39	7.70%	4	0.80%
MAP3K10	4	0.80%	7	1.40%
MAP3K4	4	0.80%	4	0.80%
MAP4K4	1	0.20%	3	0.60%
MAPK1	1	0.20%	3	0.60%
MAPK8	2	0.40%	1	0.20%
MAPK9	0	0.00%	3	0.60%
MDM2	2	0.40%	19	3.70%
MDN1	11	2.20%	4	0.80%
MED12	8	1.60%	0	0.00%
MET	3	0.60%	0	0.00%
MGAM	6	1.20%	3	0.60%

MGMT	2	0.40%	6	1.20%
MLH1	1	0.20%	0	0.00%
MLH3	3	0.60%	3	0.60%
MLL2	8	1.60%	2	0.40%
MLL3	37	7.30%	1	0.20%
MRE11A	1	0.20%	9	1.80%
MSH2	2	0.40%	2	0.40%
MSH3	2	0.40%	1	0.20%
MSH4	1	0.20%	2	0.40%
MSH5	1	0.20%	1	0.20%
MSH6	4	0.80%	2	0.40%
MST1L	5	1.00%	0	0.00%
MTOR	8	1.60%	2	0.40%
MUTYH	2	0.40%	2	0.40%
MXRA5	7	1.40%	0	0.00%
MYH8	5	1.00%	2	0.40%
NBEAL2	6	1.20%	2	0.40%
NBN	2	0.40%	37	7.30%
NBPF1	1	0.20%	0	0.00%
NCOA3	6	1.20%	12	2.40%
NCOR1	17	3.40%	4	0.80%
NCOR2	3	0.60%	5	1.00%
NEB	19	3.70%	0	0.00%
NF1	14	2.80%	12	2.40%
NF2	2	0.40%	3	0.60%
NR1H2	3	0.60%	10	2.00%
NRAS	0	0.00%	2	0.40%
OBSCN	16	3.20%	21	4.10%
PALB2	0	0.00%	9	1.80%
PARP1	1	0.20%	22	4.30%
PARP2	1	0.20%	1	0.20%
PARP3	2	0.40%	1	0.20%
PCLO	6	1.20%	1	0.20%
PCNXL2	9	1.80%	24	4.70%
PDGFRA	3	0.60%	1	0.20%
PDGFRB	2	0.40%	2	0.40%
PGR	2	0.40%	7	1.40%
PIK3CA	178	35.10%	22	4.30%
PIK3CB	4	0.80%	5	1.00%
PIK3R1	13	2.60%	2	0.40%
PKHD1L1	12	2.40%	53	10.50%
PLEC	7	1.40%	35	6.90%
PLK1	2	0.40%	9	1.80%
PLXNA4	8	1.60%	1	0.20%
PMS1	5	1.00%	3	0.60%
PMS2	1	0.20%	3	0.60%
POLB	1	0.20%	37	7.30%
POLD1	0	0.00%	11	2.20%
POLE	5	1.00%	1	0.20%
POLH	2	0.40%	5	1.00%
POLQ	6	1.20%	2	0.40%
PRKCA	0	0.00%	36	7.10%
PRKCB	3	0.60%	9	1.80%
PRKCD	0	0.00%	1	0.20%
PRKCG	2	0.40%	11	2.20%
PTCH1	6	1.20%	2	0.40%
PTEN	18	3.60%	9	1.80%
PTK2	3	0.60%	37	7.30%
RAD50	2	0.40%	0	0.00%
RAD51	1	0.20%	3	0.60%
RAD51B	0	0.00%	1	0.20%
RAD51C	2	0.40%	33	6.50%
RAD51D	1	0.20%	10	2.00%
RAD52	0	0.00%	13	2.60%
RAD54B	4	0.80%	38	7.50%
RAD54L	2	0.40%	3	0.60%
RAF1	1	0.20%	4	0.80%
RB1	9	1.80%	7	1.40%
RBBP8	0	0.00%	3	0.60%
RELN	13	2.60%	1	0.20%
RICTOR	3	0.60%	6	1.20%
RPS6KB1	0	0.00%	47	9.30%
RPTOR	2	0.40%	14	2.80%
RUNX1	17	3.40%	3	0.60%
SHC1	1	0.20%	32	6.30%
SHROOM4	5	1.00%	0	0.00%
SMO	2	0.40%	3	0.60%
SOS1	4	0.80%	2	0.40%
SPEN	13	2.60%	0	0.00%
SPRY1	0	0.00%	4	0.80%
SPTA1	14	2.80%	24	4.70%

SRCAP	9	1.80%	15	3.00%
SSPO	15	3.00%	5	1.00%
STAT1	1	0.20%	4	0.80%
STAT3	1	0.20%	10	2.00%
SVEP1	11	2.20%	3	0.60%
SYNE1	17	3.40%	11	2.20%
SYNE2	17	3.40%	4	0.80%
TBX3	13	2.60%	1	0.20%
TENM1	10	2.00%	0	0.00%
TEX15	10	2.00%	14	2.80%
TGFBR1	2	0.40%	3	0.60%
TGFBR2	3	0.60%	0	0.00%
TGFBR3	2	0.40%	2	0.40%
TMC2	4	0.80%	2	0.40%
TOP2A	1	0.20%	24	4.70%
TP53	187	36.90%	3	0.60%
TP53BP1	3	0.60%	1	0.20%
TSC1	3	0.60%	2	0.40%
TSC2	2	0.40%	12	2.40%
TYK2	4	0.80%	6	1.20%
UBR4	12	2.40%	0	0.00%
USH2A	27	5.30%	21	4.10%
USP36	3	0.60%	19	3.70%
VWF	8	1.60%	7	1.40%
WDFY3	9	1.80%	3	0.60%
XBP1	2	0.40%	3	0.60%
XIRP2	12	2.40%	0	0.00%
XPA	0	0.00%	1	0.20%
XPC	0	0.00%	5	1.00%
XRCC1	1	0.20%	4	0.80%
XRCC2	0	0.00%	1	0.20%
XRCC3	0	0.00%	6	1.20%
ZFHX3	10	2.00%	9	1.80%
ZFHX4	16	3.20%	28	5.50%
ZNF384	0	0.00%	8	1.60%
ZNF703	0	0.00%	61	12.00%

Supplementary Table S4. Breast cancer cell line characteristics

	MCF7	BT474	T47D	ZR75.1	MDA-MB-361	HCC1954	MDA-MB-453	JIMT1	UACC812	UACC893	VP229	SKBR3	ZR75.30	SUM225	SUM190	HCC1569	SUM149
ER	Positive	Positive	Positive	Positive	Positive	Negative	Negative	Negative	Positive	Positive	Positive	Negative	Positive	Negative	Negative	Negative	Negative
HER2	Negative	Positive	Negative	Negative	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Negative
TP53	Negative	Positive/ Mutant	Positive/ Mutant	Negative	Negative/ WT	Negative/ Mutant	Negative/ WT	NA	Negative/ WT	Mutant	Mutant	Positive/ Mutant	Negative/ WT	Positive/ Mutant	Negative/ Mutant	Negative/ Mutant	Positive/ Mutant
1q gain	Gain	Gain	Gain	Gain	NC	Gain	Gain	Gain	Gain	Gain	NC	Gain	Gain	Gain	Gain	Gain	Gain
8q gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain
17q gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	NC	NC
20q gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	NC	Gain	NC	Gain	Gain
1p loss	Loss	Loss	Loss	Loss	Loss	Loss	NC	Loss	Loss	Loss	Loss	Loss	Loss	NC	NC	NC	NC
8p loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss
13q loss	Loss	NA	Loss	NA	NC	NC	Loss	NC	Loss	Loss	Loss	NC	NC	NC	Loss	Loss	NC
16q loss	Loss	Loss	Loss	Loss	NC	Gain	Loss	Loss	Loss	Loss	NC	Loss	Loss	NC	NC	NC	Loss
22q loss	Loss	Loss	Loss	Loss	Loss	Loss	Gain	Loss	Loss	Loss	NC	Loss	NC	Loss	Loss	NC	Loss
RAE1	Amp	Amp/fusion	NC	NC	NC	Amp	NC	Amp	Amp	NC	Amp	Amp	NC	NC	NC	NC	Amp
ELMO2	NC	NC	NC	NC	NC	NC	NC	Amp	NC	NC	Amp	Amp	NC	NC	NC	Amp	Amp
BCAS4	Amp/fusion	Amp	NC	NC	NC	NC	NC	Amp	Amp	NC	Amp	NC	NC	NC	NC	NC	NC
AURKA	Amp	Amp	NC	NC	NC	Amp	NC	Amp	Amp	NC	Amp	Amp	NC	NC	NC	NC	Amp
SLC2A1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
FAF1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
CDK12	NC	Amp	NC	NC	Fusion /breakpoint	Fusion/ breakpoint	Breakpoint	No breakpoint	No breakpoint	No breakpoint	No breakpoint	No breakpoint	No breakpoint	Breakpoint	Breakpoint	Breakpoint	NC
LASP1	NC	Amp	NC	NC													
BRCA1	WT	WT	WT	WT	WT	WT	WT	WT	WT	WT	WT	WT	WT	WT	WT	WT	Mutant

Amp: amplification; fusion: fusion gene detected involving this gene; gain: chromosomal arm gain; loss: chromosomal arm loss; NC: no copy number change/alteration, not assessed breakpoint; breakpoint identified in gene from aCGH analysis.

Supplementary Table S5. Chromosomal regions of recurrent copy number changes in 16 MPCs, and the protein coding genes, microRNAs and copy number variations mapping to these regions mapping to these regions.

GAIN (in 3 or more cases)																
Chrom	Start	End	Start MB	End MB	Cytobands	Start Probe	End Probe	Probes	Length MB	maxM	max.overlap	Cases	Genes	miRNAs	aCGH CNVs	Full CNVs
1	1365313	3679535	1:37	0.17222222	p36.33-p36.32	TP0124F03	TP0114H0	25	2,314,222	0.385086463316099	5	C10, C11, C17 , C18, C24	VWA1, ATAD3C, ATAD3B, ATAD3A, C1orf70, SSU72, MIB2, MMP23B, CDC2L2, SLC35E2, NADK, GNB1, CALML6, TMEM52, C1orf222, KIAA1751, GABRD, PRKCZ, C1orf86, SKI, MORN1, RER1, PEX10, PLCH2, PANK4, HES5, TNFRSF14, C1orf93, MMEL1, TTC34, ACTRT2, PRDM16, ARHGEF16, MEGF6, TPRG1L, WDR8, TP73, CCDC27	hsa-mir-551a	V_2295, V_2296, V_38832, V_30362, V_31596, V_30363, V_31597, V_63709, V_63811, V_63891, V_3276, V_2042, V_0002, V_4192, V_4193, V_3277, V_4194, V_4195, V_4196, V_3278, V_4197, V_74286, V_84001, V_84002, V_74292, V_74288, V_84004, V_115662, V_115773, V_110821, V_110932, V_111043, V_111154, V_111265, V_111487, V_111376, V_111598, V_111709, V_111821, V_111932, V_112153, V_112042, V_112375, V_112486, V_112597, V_112708, V_107678, V_107682, V_106334, V_53347, V_29812, V_9865, V_29813, V_29814, V_29816, V_29815, V_29817, V_29818, V_29819, V_29820, V_9866, V_29821, V_29822, V_29823, V_29824, V_29825, V_9867, V_9868, V_68436, V_68487, V_68652, V_68654, V_68817, V_68972, V_68974, V_68971, V_68970, V_68975, V_69032, V_69148, V_69199, V_69343, V_69514	V_30362, V_3276, V_68436, V_115662, V_115773, V_2295, V_2042, V_107678, V_68487, V_63709, V_74286, V_23342, V_110821, V_0002, V_31596, V_38832, V_22925, V_84001, V_110932, V_111043, V_111154, V_60788, V_97251, V_84002, V_30363, V_68652, V_68654, V_111265, V_63811, V_74292, V_74288, V_63891, V_104761, V_84004, V_97254, V_43449, V_107682, V_4192, V_29812, V_9865, V_29813, V_4193, V_97255, V_29814, V_68817, V_111487, V_111376, V_97256, V_111598, V_29816, V_29815, V_29817, V_53347, V_111709, V_3277, V_29818, V_29819, V_29820, V_111821, V_9866, V_37095, V_111932, V_0378, V_29446, V_103304, V_112153, V_112042, V_37096, V_37097, V_106713, V_68972, V_112375, V_5453, V_104872, V_68974, V_5454, V_5455, V_43773, V_105913, V_68971, V_34805, V_105914, V_105915, V_5456, V_5457, V_105917, V_68970, V_63034, V_5458, V_5459, V_5460, V_5461, V_5462, V_68975, V_69032, V_104983, V_97260, V_106716, V_29821, V_69148, V_112486, V_69199, V_106334, V_69343, V_4194, V_4195, V_112597, V_97263, V_69514, V_4196, V_29822, V_29823, V_3278, V_29824, V_110567, V_29825, V_34820, V_112708, V_34821, V_34822, V_9867, V_31597, V_9868, V_97264, V_97265, V_4197, V_2296, V_110601
1	23806982	24417619	1.01458333	24:42:00	p36.12-p36.11	TP0124E05	TP0125B0	8	0.610637	0.37804448288153	4	C11, C13, C17 , C22	ASAP3, E2F2, ID3, MDS2, RPL11, TCEB3, C1orf128, LYPLA2, GALE, HMGCL, FUCA1, CNR2, PNRC2, FUSIP1, MYOM3		V_63279, V_58372, V_84129, V_84130	V_58372, V_5477, V_5478, V_84129, V_63279, V_106702, V_84130, V_23358, V_97319
1	27334076	28315498	27:33:00	28:32:00	p36.11-p35.3	TP0125C06	TP0121A0	11	0.981422	0.327032743907021	4	C11, C13, C17 , C18	FAM46B, SLC9A1, WDTC1, TMEM222, SYTL1, MAP3K6, FCN3, CD164L2, GPR3, WASF2, AHDC1, FGR, IFI6, FAM76A, STX12, PPP1R8, C1orf38, RPA2, SMPDL3B, XKR8, EYA3		V_63340, V_84149, V_84150, V_84152, V_53092, V_48306	V_63340, V_48306, V_110512, V_53092, V_97325, V_84149, V_84150, V_84152
1	35377305	35698671	35:38:00	35:07:00	p34.3	TP0105A10	TP0101E0	3	0.321366	0.376507533322556	3	C4, C11, MPC960	DLGAP3, ZMYM6, ZMYM1, SFPQ		V_74443, V_84174, V_84175, V_74444, V_74445	V_74443, V_84174, V_84175, V_74444, V_74445, V_97331, V_23365
1	38415142	44418424	38:42:00	44:42:00	p34.3-p34.1	TP0125A04	TP0124E1	64	6,003,282	114,815,243,545,795	3	C4, C4LN, MPC960	SF3A3, FHL3, UTP11L, POU3F1, RRAGC, MYCBP, GJA9, RHBDL2, AKIRIN1, NDUFS5, MACF1, BMP8A, PABPC4, HEYL, NT5C1A, HPCAL4, PPIE, BMP8B, OXCT2, TRIT1, MYCL1, MFSD2, CAP1, PPT1, RLF, TMCO2, ZMPSTE24, COL9A2, SMAP2, ZNF643, ZNF642, DEM1, ZNF684, RIMS3, NFYC, , KCNQ4, CITED4, CTPS, SLFNL1, SCMH1, FOXO6, EDN2, HIVEP3, GUCA2B, GUCA2A, FOXJ3, RIMKLA, ZMYND12, PPCS, PPIH, YBX1, CLDN19, LEPRE1, C1orf50, CCDC23, ERMAP, ZNF691, SLC2A1, FAM183A, EBNA1BP2, WDR65, TIE1, MPL, CDC20, ELOVL1, MED8, C1orf84, KIAA0467, HYI, PTPRF, KDM4A, ST3GAL3, ARTN, IPO13	hsa-mir-30e, hsa-mir-30c-1	V_2305, V_8322, V_103399, V_103410, V_38178, V_38179, V_38180, V_37647, V_37648, V_31620, V_63490, V_63496, V_63507, V_63526, V_63534, V_63543, V_63552, V_63561, V_63570, V_63578, V_63579, V_63602, V_63618, V_63624, V_63634, V_58388, V_58389, V_58390, V_3289, V_4219, V_84177, V_84178, V_74449, V_84179, V_84182, V_84181, V_84183, V_74452, V_74453, V_84184, V_84185, V_84189, V_84188, V_84187, V_84186, V_74455, V_84190, V_74456, V_74457, V_84191, V_84192, V_84194, V_74458, V_74459, V_84193, V_84197, V_74462, V_84198, V_84199, V_74463, V_84200, V_84201, V_74464, V_74465, V_115807, V_115818, V_115829, V_115840, V_115851, V_115862, V_115873, V_110711, V_110733, V_107689, V_53124, V_53952, V_9881, V_9360, V_29578, V_48318, V_48320, V_48321, V_48322, V_48323, V_48324, V_48325, V_48326, V_68462, V_68477	V_115807, V_63490, V_38178, V_63496, V_84177, V_48318, V_84178, V_74449, V_84179, V_115818, V_115829, V_58388, V_63507, V_115840, V_2305, V_38179, V_31620, V_9881, V_84182, V_84181, V_84183, V_74452, V_23108, V_106723, V_33926, V_63526, V_63534, V_74453, V_84184, V_48320, V_58389, V_63543, V_53124, V_3289, V_5487, V_8322, V_48321, V_4219, V_60817, V_115851, V_38993, V_84185, V_97338, V_38180, V_103399, V_63552, V_58390, V_115862, V_63561, V_5488, V_115873, V_48322, V_103410, V_84189, V_84188, V_84187, V_84186, V_53952, V_63570, V_37647, V_9360, V_29578, V_48323, V_48324, V_5489, V_34824, V_63578, V_97339, V_63579, V_74455, V_84190, V_97340, V_68462, V_74456, V_74457, V_84191, V_84192, V_84194, V_74458, V_74459, V_84193, V_63602, V_84197, V_68477, V_97342, V_110711, V_63618, V_97343, V_97344, V_59653, V_97345, V_97346, V_63624, V_110733, V_43776, V_74462, V_84198, V_84199, V_74463, V_97347, V_1541, V_48325, V_48326, V_84200, V_84201, V_59654, V_103306, V_74464, V_5490, V_74465, V_63634, V_37648, V_107689
1	49072679	50582651	49:07:00	50:58:00	p33	TP0103E11	TP0112C1	10	1,509,972	0.731558965079183	3	C4, C4LN, C5	AGBL4, BEND5, ELAVL4		V_63719, V_58392, V_48333	V_106727, V_58392, V_48333, V_63719, V_5492, V_34825
1	120449470	120650514	120:45:00	120.65	p12	TP0117B05	TP0117H1	4	0.201044	0.538518726074713	5	C9, C10, C21, C22, MPC960	NOTCH2		V_30405, V_64724, V_3309, V_74666, V_84502, V_84503, V_74667, V_111921	V_3309, V_22949, V_74666, V_84502, V_64724, V_104928, V_111921, V_84503, V_30405, V_39005, V_74667, V_23235
1	143510356	248876423	143:51:00	248.88	q21.1-q44	TP0113F03	TP0125B0	1081	105,366,067	149,470,120,465,415	15	C4, C4LN, C5, C8, C9, C10, C11, C13, C17 , C18, C21, C22, C24, MPC600, MPC298, MPC960	PPIAL4G, FAM72D, SRGAP2P2, PPIAL4B, NBPF9, PDE4DIP, SEC22B, NOTCH2NL, HFE2, TXNIP, POLR3GL, ANKRD34A, LIX1L, RBM8A, GNRHR2, PEX11B, ITGA10, ANKRD35, PIAS3, NUDT17, POLR3C, RNF115, CD160, PDZK1, GPR89A, GPR89C, NBPF8, NBPF8, NBPF12, PRKAB2, FMO5, CHD1L, BCL9, ACP6, GJA5, GJA8, GPR89B, NBPF11, FAM108A2, , PPIAL4A, NBPF14, NBPF10, NBPF16, FCGR1C, HIST2H3PS2, FAM72C, PPIAL4C, FAM91A2, FCGR1A, HIST2H2BF, HIST2H3D, HIST2H4A, HIST2H3C, HIST2H2AA3, HIST2H2AA4, HIST2H3A, HIST2H4B, HIST2H2BE, BOLA1, HIST2H2AC, HIST2H2AB, SV2A, SF3B4, MTMR11, OTUD7B, VPS45, PLEKHO1, ANP32E, CA14, APH1A, C1orf54, C1orf51, MRPS21, PRPF3, RPRD2, TARS2, ECM1, ADAMTSL4, C1orf138, MCL1, ENSA, GOLPH3L, HORMAD1, CTSS, CTSK, ARNT, SETDB1, LASS2, ANXA9, FAM63A, PRUNE, BNIPL, C1orf56, CDC42SE1, MLLT11, GABPB2, SEMA6C, TNFAIP8L2, LYSMD1, SCNM1, TMOD4, VPS72, PIP5K1A, PSMD4, ZNF687, PI4KB, RFX5, SELENBP1, PSMB4, POGZ, CGN, TUFT1, SNX27, TNRC4, MRPL9, OAZ3, TDRKH, LINGO4, RORC, THEM5, THEM4, S100A10, S100A11, TCHHL1, TCHH, RPTN, HRNR, FLG, FLG2, CRNN, LCE5A, , CRCT1, LCE3E, LCE3D, LCE3B, LCE3A, LCE2D, LCE2C, LCE2B, LCE2A, LCE4A, C1orf68, KPRP, LCE1E, LCE1D, LCE1C, LCE1B, LCE1A, LCE6A, SMCP, IVL, SPRR4,	hsa-mir-554, hsa-mir-190b, hsa-mir-92b, hsa-mir-555, hsa-mir-9-1, hsa-mir-765, hsa-mir-556, hsa-mir-921, hsa-mir-1255b-2, hsa-mir-557, hsa-mir-1295, hsa-mir-214, hsa-mir-199a-2, hsa-mir-488, hsa-mir-1278, hsa-mir-181b-1, hsa-mir-181a-1, hsa-mir-1231, hsa-mir-135b, hsa-mir-29c, hsa-mir-29b-2, hsa-mir-205, hsa-mir-215, hsa-mir-194-1, hsa-mir-320b-2, hsa-mir-1182, hsa-mir-1537	V_34580, V_34420, V_34421, V_34581, V_34655, V_34422, V_34583, V_34510, V_34582, V_34424, V_34423, V_34425, V_2324, V_2325, V_2326, V_2327, V_2328, V_2329, V_2330, V_2331, V_2332, V_2333, V_2334, V_2335, V_2336, V_2337, V_2338, V_2339, V_2340, 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V_30438, V_31661, V_31662, V_31663, V_30439, V_30440, V_31664, V_30441,	V_0683, V_69808, V_69815, V_69814, V_84506, V_74671, V_69816, V_74672, V_84507, V_69817, V_69818, V_64777, V_64778, V_3310, V_30410, V_30411, V_4247, V_30412, V_111943, V_0684, V_69828, V_97492, V_31648, V_31649, V_2324, V_69829, V_69827, V_69833, V_69834, V_105903, V_69835, V_69845, V_69848, V_69849, V_30413, V_69846, V_4248, V_97493, V_69847, V_69854, V_69856, V_31650, V_30415, V_30416, V_69855, V_69862, V_69863, V_69874, V_106319, V_74678, V_84513, V_84514, V_69878, V_69879, V_69880, V_69881, V_69882, V_30417, V_97494, V_69883, V_0387, V_34695, V_106980, V_0260, V_31652, V_60882, V_23199, V_22850, V_43736, V_39007, V_39008, V_43737, V_97495, V_104950, V_111954, V_6780, V_69888, V_30418, V_58332, V_60883, V_0685, V_4249, V_97496, V_97498, V_34696, V_84515, V_22945, V_23251, V_74679, V_97499, V_22602, V_97500, V_60885, V_107090, V_23009, V_105904, V_5514, V_43738, V_103308, V_84516, V_97501, V_97502, V_34697, 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2	196119668	196641923	196:12:00	196.64	q32.3	TP0206B01	TP0222C0	5	0.522255	0.324358117583938	3	C9, C17 , MPC298	SLC39A10, DNAH7		V_63271, V_63272, V_58951, V_106224, V_106463	V_63271, V_106224, V_110323, V_63272, V_106463, V_6019, V_58951
2	212235402	213737112	212:24:00	213.74	q34	TP0209E07	TP0203A0	14	150,171	0.380250882858708	4	C4LN, C9, MPC298, MPC960	ERBB4	hsa-mir-548f-2	V_2423, V_103420, V_38419, V_7245, V_32394, V_63295, V_63296, V_63297, V_90251, V_90254, V_90255, V_115587, V_53435, V_53484, V_53615, V_53060, V_53707, V_9440, V_9441, V_9977, V_9976, V_50392, V_50393, V_50394, V_50395	V_9440, V_47898, V_90251, V_6025, V_115587, V_63295, V_63296, V_53435, V_53484, V_53615, V_9441, V_53060, V_53707, V_9977, V_50392, V_63297, V_32394, V_7245, V_103420, V_38419, V_9976, V_50393, V_50394, V_2423, V_48038, V_90254, V_90255, V_98127, V_50395
2	241415713	242721830	241:42:00	242.72	q37.3	TP0202B05	TP0222B0	17	1,306,117	0.398607750938161	7	C10, C11, C13, C17 , C18, C22, C24	ANKMY1, DUSP28, RNPEPL1, CAPN10, GPR35, AQP12B, AQP12A, KIF1A, AGXT, C2orf54, SNED1, MTERFD2, PASK, PPP1R7, ANO7, HDLBP, Sep-02, FARP2, STK25, BOK, THAP4, ATG4B, DTYMK, ING5, D2HGDH, GAL3ST2		V_34635, V_34658, V_2428, V_2429, V_8969, V_8968, V_31022, V_31023, V_31024, V_32400, V_63351, V_63352, V_63353, V_63354, V_58974, V_3409, V_3410, V_4331, V_79080, V_90403, V_90405, V_79081, V_79079, V_90404, V_90406, V_90407, V_90412, V_90413, V_79085, V_79084, V_90414, V_115622, V_115623, V_115624, V_115626, V_115627, V_107799, V_29706, V_29707, V_30112, V_30111, V_50436, V_50437, V_50438, V_50439, V_50440, V_68289, V_68290, V_68291, V_68292, V_68293, V_68294, V_68295, V_68297, V_68298, V_68300, V_68301	V_3409, V_2428, V_115622, V_50436, V_31022, V_1609, V_59768, V_58974, V_115623, V_115624, V_31023, V_68289, V_104657, V_37220, V_29706, V_29707, V_30112, V_50437, V_37221, V_68290, V_63351, V_63352, V_98189, V_68291, V_30111, V_50438, V_68292, V_79080, V_90403, V_90405, V_79081, V_68293, V_68294, V_79079, V_90404, V_90406, V_90407, V_115626, V_115627, V_104658, V_68295, V_68297, V_98191, V_98192, V_90412, V_63353, V_3410, V_4331, V_31024, V_98193, V_61901, V_39283, V_44021, V_63354, V_68298, V_8969, V_68300, V_23608, V_34635, V_34658, V_32400, V_2429, V_8968, V_90413, V_110351, V_79085, V_79084, V_90414, V_68301, V_107799, V_50439, V_50440
3	9421022	10540466	9:42	10:54	p25.3	TP0317F09	TP0322A0	12	1,119,444	0.396549770186094	4	C5, C17 , C18, C22	THUMPD3, SETD5, LHFPL4, MTMR14, CPNE9, BRPF1, OGG1, CAMK1, TADA3L, TTLL3, RPUSD3, CIDEC, JAGN1, IL17RE, IL17RC, CRELD1, PRRT3, TMEM111, FANCD2, VHL, IRAK2, TATDN2, GHRL, SEC13, ATP2B2	hsa-mir-885	V_63390, V_63391, V_91181, V_79671, V_91182, V_115654, V_115656, V_115657, V_115658, V_68332	V_115654, V_6155, V_63390, V_68332, V_91181, V_6156, V_98228, V_115656, V_39323, V_62030, V_115657, V_22725, V_63391, V_79671, V_91182, V_1052, V_115658, V_6157, V_98230
3	12361374	14528477	12:36	14:53	p25.2-p25.1	TP0316A01	TP0303H0	19	2,167,103	0.442559430621964	3	C5, C18, C22	PPARG, TSEN2, MKRN2, RAF1, TMEM40, CAND2, RPL32, IQSEC1, NUP210, HDAC11, FBLN2, WNT7A, TPRXL, CHCHD4, TMEM43, XPC, LSM3, SLC6A6		V_8414, V_38468, V_7362, V_7363, V_63398, V_63399, V_63400, V_63402, V_63403, V_63404, V_63407, V_3417, V_79683, V_91200, V_91202, V_91203, V_79682, V_91201, V_91204, V_115666, V_115667, V_115669, V_115670, V_53782, V_29726, V_9446, V_50935, V_50936, V_50946, V_68337, V_68338	V_37239, V_8414, V_53782, V_29726, V_63398, V_115666, V_115667, V_9446, V_63399, V_98238, V_3417, V_110495, V_7362, V_7363, V_39324, V_63400, V_110497, V_63402, V_63403, V_50935, V_50936, V_110500, V_110501, V_104670, V_115669, V_115670, V_63404, V_38468, V_68337, V_79683, V_91200, V_91202, V_91203, V_79682, V_91201, V_39325, V_48019, V_63407, V_91204, V_50946, V_68338
3	16862126	18929393	0.72638889	0.81458333	p24.3	TP0309B09	TP0319H0	23	2,067,267	0.333352404452367	3	C5, C10, C18	PLCL2, TBC1D5, SATB1		V_37925, V_63411, V_63412, V_59106, V_59107, V_79698, V_91215, V_79699, V_79700, V_91214, V_79696, V_91213, V_91216, V_79697, V_91217, V_91218, V_79701, V_91219, V_79702, V_91220, V_115684	V_79698, V_91215, V_79699, V_79700, V_91214, V_79696, V_91213, V_91216, V_79697, V_91217, V_59106, V_59107, V_36104, V_37925, V_36105, V_91218, V_79701, V_63411, V_115684, V_91219, V_63412, V_98248, V_79702, V_91220, V_98249, V_107197, V_23674, V_98250
3	46562202	53308680	46:56:00	53:31:00	p21.31-p21.1	TP0307F05	TP0323D0	76	6,746,478	0.32535668994214	5	C11, C13, C22, C24, MPC960	LRRC2, LUZPP1, TDGF1, ALS2CL, TMIE, MYL3, PTH1R, CCDC12, NBEAL2, SETD2, KIF9, KLHL18, PTPN23, SCAP, C3orf75, CSPG5, SMARCC1, DHX30, MAP4, CDC25A, CAMP, ZNF589, NME6, SPINK8, FBXW12, PLXNB1, CCDC51, CCDC72, ATRIP, TREX1, SHISA5, PFKFB4, UCN2, COL7A1, UQCRC1, TMEM89, SLC26A6, CELSR3, NCKIPSD, IP6K2, PRKAR2A, SLC25A20, C3orf71, ARIH2, P4HTM, WDR6, DALRD3, NDUFAF3, IMPDH2, QRICH1, QARS, USP19, LAMB2, CCDC71, KLHDC8B, CCDC36, C3orf62, USP4, GPX1, RHOA, TCTA, AMT, NICN1, DAG1, BSN, APEH, MST1, RNF123, AMIGO3, GMPPB, IP6K1, CDH29, C3orf54, UBA7, TRAIP, CAMKV, MST1R, MON1A, RBM6, , RBM5, SEMA3F, GNAT1, GNAI2, SEMA3B, C3orf45, IFRD2, NAT6, HYAL1, HYAL2, TUSC2, RASSF1, ZMYND10, TUSC4, CYB561D2, TMEM115, CACNA2D2, C3orf18, HEMK1, CISH, MAPKAPK3, DOCK3, ARMET, RBM15B, VPRBP, RAD54L2, TEX264, GRM2, IQCF6, , IQCF3, IQCF2, IQCF5, IQCF1, RRP9, PARP3, GPR62, PCBP4, ABHD14B, ACY1, RPL29, DUSP7, C3orf74, WDR51A, ALAS1, TWF2, PPM1M, WDR82, GLYCTK, DNAH1, BAP1, PHF7, SEMA3G, TNNC1, NISCH, STAB1, NT5DC2, PBRM1, GNL3, GLT8D1, SPCS1, NEK4, ITIH1, ITIH3, ITIH4, TMEM110, SFMBT1, RFT1, PRKCD, TKT	hsa-mir-1226, hsa-mir-425, hsa-mir-191, hsa-mir-566, hsa-let-7g, hsa-mir-135a-1	V_2452, V_103444, V_103445, V_38100, V_106651, V_37908, V_7411, V_7412, V_7413, V_31104, V_32491, V_31105, V_63460, V_63462, V_63463, V_63465, V_63467, V_63468, V_63469, V_3428, V_4334, V_3429, V_4335, V_4336, V_4337, V_4338, V_4339, V_79754, V_79756, V_91297, V_91298, V_79755, V_79757, V_91299, V_79758, V_79759, V_91300, V_79761, V_79762, V_91301, V_91302, V_79763, V_91303, V_79764, V_91304, V_91306, V_79768, V_91308, V_106246, V_115716, V_115719, V_115720, V_115721, V_115723, V_115724, V_115725, V_115727, V_115728, V_115730, V_115731, V_115732, V_106505, V_53228, V_53931, V_9448, V_9993, V_30175, V_30176, V_9994, V_51104, V_51105, V_51107, V_51108, V_51109, V_51110, V_51111, V_51112, V_51113, V_51114, V_51115, V_51116, V_51117, V_51118, V_51119, V_51120, V_23276, V_68370, V_68371, V_68372, V_68373, V_68374, V_68375, V_68377	V_3428, V_51104, V_51105, V_31104, V_7411, V_36147, V_98303, V_79754, V_79756, V_91297, V_91298, V_36148, V_36149, V_63460, V_79755, V_37420, V_32491, V_7412, V_79757, V_91299, V_103444, V_98304, V_1621, V_38100, V_79758, V_6176, V_36150, V_23686, V_107215, V_36151, V_22510, V_62055, V_43505, V_63462, V_79759, V_91300, V_115716, V_7413, V_6177, V_0551, V_31105, V_107216, V_63463, V_4334, V_98306, V_44111, V_36152, V_107217, V_107218, V_23687, V_9448, V_115719, V_110541, V_98308, V_6178, V_6179, V_6180, V_104678, V_68370, V_68371, V_115720, V_79761, V_79762, V_91301, V_91302, V_68372, V_6181, V_6182, V_98310, V_110542, V_115721, V_51107, V_115723, V_104679, V_115724, V_9993, V_30175, V_51108, V_51109, V_51110, V_51111, V_51112, V_53228, V_3429, V_4335, V_30176, V_4336, V_110543, V_63465, V_68373, V_110544, V_115725, V_110546, V_79763, V_91303, V_79764, V_37245, V_37246, V_0552, V_37247, V_29444, V_110140, V_29440, V_0553, V_37248, V_63467, V_91304, V_91306, V_63468, V_68374, V_36153, V_98311, V_36154, V_107219, V_107220, V_23688, V_107221, V_6183, V_51113, V_68375, V_4337, V_115727, V_4338, V_115728, V_115730, V_98313, V_4339, V_36155, V_2452, V_23276, V_51114, V_110547, V_63469, V_106246, V_115731, V_106505, V_37421, V_9994, V_51115, V_51116, V_53931, V_103445, V_106666, V_51117, V_106651, V_37908, V_1366, V_1622, V_51118, V_98314, V_115732, V_68377, V_79768, V_91308, V_51119, V_51120
3	96145806	97242413	96:15:00	97:24:00	q11.2	TP0319H08	TP0311B0	9	1,096,607	0.445679253176561	3	C4LN, C5, C9	EPHA6		V_7422, V_32503, V_63525, V_3439, V_51196, V_51197	V_39340, V_51196, V_51197, V_63525, V_32503, V_7422, V_3439
3	182609690	184338903	182.61	184:34:00	q26.33-q27.1	TP0316C08	TP0310B0	16	1,729,213	0.271026423937201	3	C11, C18, C22	ATP11B, DCUN1D1, MCCC1, LAMP3, MCF2L2, B3GNT5, KLHL6, KLHL24, YEATS2, MAP6D1, PARL, ABCC5, HTR3D, HTR3C, HTR3E, EIF2B5, DVL3, AP2M1, ABCF3, VWA5B2, ALG3, ECE2, CAMK2N2, PSMD2, EIF4G1, FAM131A, CLCN2, POLR2H, THPO, CHRD, EPHB3	hsa-mir-1224	V_59112, V_4364, V_4365, V_80024, V_91740, V_80025, V_91741, V_91742, V_91743, V_91744, V_91745, V_110741, V_110742, V_106498, V_5215, V_10026, V_51025, V_51026, V_51027, V_51028, V_68514	V_110741, V_51025, V_23672, V_59112, V_10026, V_51026, V_68514, V_106498, V_4364, V_98553, V_5215, V_110742, V_4365, V_36110, V_36111, V_36112, V_36113, V_23673, V_107196, V_51027, V_51028, V_80024, V_91740, V_80025, V_91741, V_91742, V_91743, V_98554, V_91744, V_91745
3	193646036	197791562	193.65	197.79	q29	TP0307G10	TP0319C0	44	4,145,526	0.327594935159035	5	C9, C11, C13, C18, C24	HES1, CPN2, LRRC15, GP5, ATP13A3, TMEM44, LSG1, FAM43A, C3orf21, ACAP2, PPP1R2, APOD, MUC20, MUC4, TNK2, TFRC, ZDHHC19, PCYT1A, TCTEX1D2, TM4SF19, UBXN7, RNF168, C3orf43, WDR53, FBXO45, PIGX, LRRC33, C3orf34, PAK2, SENP5, NCBP2, PIGZ, MFI2, DLG1, BDH1, KIAA0226, FYTTD1, LRCH3, IQCG, RPL35A, LMLN	hsa-mir-570, hsa-mir-922	V_2491, V_2492, V_8439, V_8440, V_103500, V_38486, V_7398, V_7399, V_7400, V_7401, V_7402, V_7403, V_32546, V_32547, V_31135, V_32548, V_32549, V_31136, V_31137, V_31138, V_32550, V_32551, V_32552, V_32553, V_32554, V_31139, V_32555, V_31140, V_31141, V_31142, V_32556, V_31143, V_31144, V_32557, V_32558, V_31145, V_32559, V_31146, V_63702, V_63704, V_63705, V_63708, V_63712, V_63714, V_63715, V_63717, V_63718, V_59124, V_59125, V_59126, V_59127, V_59128, V_59130, V_2063, V_3472, V_0696, V_2064, V_4366, V_4367, V_0697, V_2065, V_0042, V_4368, V_4369, V_3473, V_0043, V_4370, V_0044, V_3474, V_80070, V_91803, V_91806, V_80073, V_91807, V_91808, V_91809, V_80077, V_80076, V_91810, V_80078, V_80081, V_91811, V_91813, V_91814, V_80080, V_91812, V_91815, V_80079, V_80082, V_91816, V_80085, V_80086, V_91818, V_80083, V_91819, V_80084, V_91817, V_91820, V_91821, V_91822, V_80087, V_91823, V_80088, V_80089, V_91824, V_80090, V_80091, V_80093, V_91825, V_80094, V_91827, V_80092, V_91826, V_91828, V_80095, V_80096, V_80099, V_91832, V_91829, V_80102, V_80103, V_91830, V_80100, V_80097, V_91831, V_91833, V_91834, V_80098, V_80105, V_80106, V_80107, V_91836, V_80108, V_91837, V_91838, V_91839, V_80110, V_80111, V_80109, V_91840, V_91842, V_80112, V_91841, V_91843, V_80113, V_91844, V_91852, V_80118, V_80119, V_91849, V_91848, V_91851, V_80120, V_80121, V_80116, V_91853, V_80117, V_91847, V_80122, V_91845, V_80115, V_91850, V_91855, V_91856, V_91857, V_80123, V_91858, V_80124, V_91860, V_80125, V_91859, V_91861, V_110763,	V_110763, V_68530, V_80070, V_91803, V_91806, V_68532, V_98581, V_51066, V_51067, V_51068, V_98582, V_63702, V_110527, V_62145, V_43376, V_106022, V_23677, V_68534, V_104724, V_110765, V_80073, V_91807, V_91808, V_68535, V_2063, V_43519, V_6225, V_98583, V_32546, V_63704, V_91809, V_80077, V_80076, V_91810, V_63705, V_68536, V_68537, V_63708, V_110768, V_59124, V_7398, V_110769, V_39354, V_110528, V_22975, V_2491, V_32547, V_80078, V_80081, V_91811, V_91813, V_91814, V_104726, V_80080, V_91812, V_68541, V_68539, V_106501, V_31135, V_32548, V_91815, V_68540, V_106023, V_6226, V_6227, V_6228, V_80079, V_32549, V_98585, V_104727, V_59125, V_80082, V_91816, V_68542, V_110770, V_68543, V_3472, V_68544, V_80085, V_37243, V_80086, V_91818, V_80083, V_91819, V_0696, V_2064, V_68545, V_7399, V_104729, V_4366, V_31136, V_68549, V_80084, V_91817, V_98586, V_91820, V_0568, V_8439, V_1383, V_110772, V_98587, V_91821, V_68548, V_91822, V_104730, V_110771, V_31137, V_59126, V_104731, V_110773, V_68546, V_6229, V_68547, V_59127, V_104732, V_51069, V_31138, V_68550, V_68551, V_104734, V_32550, V_104735, V_107840, V_107199, V_106024, V_80087, V_91823, V_80088, V_62148, V_63712, V_4367, V_80089, V_91824, V_80090, V_68552, V_43244, V_80091, V_80093, V_91825,
4	369140	3962053	0:37	0.19166667	p16.3	TP0402G09	TP0410A1	48	3,592,913	186,435,397,501,789	7	C8, C9, C11, C13, C17 , C18, C22, C24	ZNF721, PIGG, PDE6B, ATP5I, MYL5, MFSD7, PCGF3, CPLX1, GAK, TMEM175, DGKQ, SLC26A1, IDUA, FGFRL1, RNF212, TMED11P, SPON2, CTBP1, C4orf42, MAEA, KIAA1530, CRIPAK, NKX1-1, FAM53A, SLBP, TMEM129, TACC3, FGFR3, LETM1, WHSC1, WHSC2, NAT8L, POLN, HAUS3, MXD4, ZFYVE28, RNF4, C4orf8, TNIP2, SH3BP2, ADD1, MFSD10, NOP14, GRK4, HTT, C4orf44, RGS12, HGFAC, DOK7, LRPAP1, ADRA2C	hsa-mir-943	V_2494, V_2495, V_8442, V_37806, V_7453, V_7440, V_7444, V_31150, V_31151, V_31152, V_32563, V_32564, V_32565, V_32566, V_31153, V_31154, V_31155, V_32567, V_32568, V_32569, V_32570, V_63721, V_63723, V_63724, V_63726, V_2066, V_3475, V_3476, V_3477, V_4371, V_4372, V_80140, V_80141, V_91874, V_91875, V_91876, V_80139, V_91873, V_80144, V_91878, V_80146, V_91879, V_80145, V_91880, V_80147, V_91881, V_80149, V_91883, V_91884, V_80151, V_91886, V_91887, V_110784, V_110785, V_110786, V_110787, V_110789, V_110791, V_110792, V_110783, V_110794, V_110795, V_110797, V_110798, V_110801, V_110802, V_106523, V_53617, V_53656, V_53334, V_9466, V_30188, V_30187, V_30189, V_30190, V_30191, V_30192, V_30193, V_30194, V_30195, V_10033, V_30196, V_51459, V_51374, V_51384, V_51390, V_51391, V_51401, V_51402, V_51403, V_68587, V_68588, V_68589, V_68590, V_68592, V_68593, V_68594, V_68596, V_68598, V_68599, V_68600, V_68601, V_68602, V_68603, V_68609, V_68610, V_68608, V_68611, V_68612, V_68615, V_68617, V_68618, V_68620, V_68621, V_68625, V_68626, V_68629, V_68630, V_68631, V_68632, V_68633, V_68634	V_2066, V_110784, V_68587, V_104745, V_68588, V_3475, V_110632, V_36288, V_63721, V_68589, V_31150, V_31151, V_110785, V_68590, V_106523, V_23731, V_31152, V_98602, V_68592, V_6233, V_6234, V_110641, V_68593, V_32563, V_9466, V_51459, V_32564, V_30188, V_110786, V_7453, V_68594, V_30187, V_30189, V_30190, V_110787, V_110789, V_68596, V_68598, V_68599, V_80140, V_80141, V_91874, V_91875, V_91876, V_80139, V_91873, V_68600, V_23701, V_98603, V_53617, V_110791, V_68601, V_110792, V_68602, V_68603, V_36199, V_68609, V_68610, V_107242, V_104746, V_68608, V_110783, V_68611, V_68612, V_110794, V_30191, V_110580, V_68615, V_30192, V_110795, V_98606, V_63723, V_32565, V_3476, V_68617, V_32566, V_110797, V_68618, V_110798, V_68620, V_80144, V_91878, V_6235, V_98607, V_68621, V_98610, V_7440, V_68625, V_98612, V_30193, V_51374, V_30194, V_110621, V_80146, V_63724, V_91879, V_80145, V_91880, V_68626, V_80147, V_91881, V_3477, V_53656, V_30195, V_10033, V_51384, V_31153, V_4371, V_37548, V_63726, V_31154, V_37806, V_2494, V_31155, V_68629, V_30196, V_68630, V_80149, V_91883, V_32567, V_68631, V_4372, V_98613, V_110801, V_68632, V_98614, V_98615, V_23105, V_62158, V_22572, V_43584, V_44158, V_2495, V_8442, V_91884, V_32568, V_53334, V_51390, V_51391,
4	6506548	8583657	6:51	8:58	p16.1	TP0404C04	TP0418E0	25	2,077,109	0.413680888609372	3	C11, C13, C24	MAN2B2, MRFAP1, S100P, MRFAP1L1, CNO, KIAA0232, TBC1D14, CCDC96, GRPEL1, SORCS2, PSAPL1, AFAP1, ABLIM2, SH3TC1, HTRA3, ACOX3, C4orf23, GPR78	hsa-mir-95	V_2496, V_38571, V_32572, V_32573, V_63731, V_63732, V_63733, V_63734, V_63735, V_63736, V_63737, V_63741, V_63742, V_3478, V_4373, V_4374, V_4375, V_4376, V_3479, V_80161, V_91902, V_80163, V_91903, V_91904, V_91909, V_80165, V_91907, V_80167, V_91917, V_80172, V_80173, V_80174, V_91915, V_80175, V_91916, V_91918, V_80177, V_107617, V_110809, V_110811, V_110814, V_107854, V_107855, V_53659, V_53393, V_53248, V_30198, V_30197, V_30199, V_30200, V_51446, V_51458, V_51460, V_68648, V_68650, V_68649, V_68651, V_68655, V_68656	V_36289, V_6237, V_63731, V_2496, V_32572, V_63732, V_32573, V_63733, V_62160, V_39355, V_104751, V_104752, V_110809, V_63734, V_43544, V_107854, V_22505, V_80161, V_91902, V_107617, V_63735, V_51446, V_36291, V_63736, V_98619, V_80163, V_91903, V_91904, V_110639, V_110811, V_6238, V_47919, V_3478, V_68648, V_98620, V_63737, V_44168, V_68650, V_68649, V_107855, V_107277, V_68651, V_68655, V_68656, V_51458, V_47947, V_62161, V_91909, V_80165, V_91907, V_53659, V_80167, V_47948, V_53393, V_51460, V_6239, V_59630, V_47968, V_91917, V_63741, V_104756, V_80172, V_80173, V_80174, V_91915, V_80175, V_91916, V_91918, V_59792, V_4373, V_63742, V_80177, V_4374, V_43314, V_106043, V_23736, V_39356, V_30198, V_30197, V_53248, V_110814, V_38571, V_30199, V_4375, V_30200, V_4376, V_110651, V_3479
4	38594738	41243420	38:59:00	41:24:00	p14-p13	TP0420D02	TP0401A1	38	2,648,682	0.282332479037612	3	C11, C13, C17	KLF3, TLR10, TLR1, TLR6, FAM114A1, TMEM156, KLHL5, WDR19, RFC1, KLB, RPL9, LIAS, UGDH, C4orf34, UBE2K, PDS5A, N4BP2, RHOH, CHRNA9, RBM47, NSUN7, APBB2	hsa-mir-574	V_38551, V_38552, V_32597, V_32598, V_32599, V_31169, V_63806, V_63808, V_59201, V_3492, V_4390, V_80259, V_92051, V_80260, V_92053, V_92054, V_80261, V_92055, V_80265, V_92057, V_92059, V_80266, V_92056, V_92060, V_80268, V_110862, V_110863, V_110864, V_110865, V_5217, V_9472, V_51396, V_51397, V_51399, V_51400, V_68703, V_68704, V_68706, V_68707	V_59201, V_110862, V_68703, V_68704, V_9472, V_80259, V_92051, V_98682, V_98683, V_110863, V_68706, V_98684, V_98685, V_80260, V_92053, V_38551, V_51396, V_38552, V_51397, V_1387, V_68707, V_5217, V_51399, V_110864, V_63806, V_92054, V_98686, V_62180, V_80261, V_92055, V_63808, V_29431, V_6258, V_51400, V_80265, V_92057, V_92059, V_80266, V_92056, V_92060, V_80268, V_3492, V_32597, V_32598, V_32599, V_6259, V_37393, V_31169, V_110865, V_59795, V_4390
5	18263	17652178	0:02	0.75347222	p15.33-p15.1	TP0522B10	TP0521G0	243	17,633,915	0.835890447000148	7	C9, C11, C13, C17 , C18, C22, C24, MPC600	PLEKHG4B, CCDC127, SDHA, PDCD6, C5orf55, EXOC3, SLC9A3, CEP72, TPPP, ZDHHC11, ZDHHC11B, BRD9, TRIP13, NKD2, SLC12A7, SLC6A19, SLC6A18, TERT, CLPTM1L, SLC6A3, LPCAT1, MRPL36, NDUFS6, IRX4, IRX2, C5orf38, IRX1, ADAMTS16, MED10, NSUN2, SRD5A1, POLS, ADCY2, C5orf49, FASTKD3, MTRR, SEMA5A, TAS2R1, FAM173B, CCT5, CMBL, Mar-06, ROPN1L, ANKRD33B, DAP, CTNND2, DNAH5, TRIO, FAM105A, FAM105B, ANKH, FBXL7, Mar-11, ZNF622, FAM134B, MYO10, BASP1	hsa-mir-887	V_34525, V_34440, V_34441, V_34515, V_2564, V_2565, V_2566, V_2567, V_2568, V_2569, V_2570, V_2571, V_8470, V_8476, V_8474, V_8471, V_8472, V_8473, V_9013, V_8477, V_8475, V_8478, V_8479, V_9014, V_8480, V_9015, V_9016, V_103582, V_103583, V_103584, V_103585, V_103587, V_103588, V_103589, V_103590, V_103591, V_37739, V_37748, V_38614, V_38615, V_38583, V_38586, V_38101, V_37941, V_37928, V_38600, V_38904, V_37893, V_7503, V_7506, V_7471, V_7505, V_7461, V_7462, V_7464, V_7466, V_7472, V_7486, V_38968, V_31215, V_32687, V_31216, V_32688, V_32689, V_32690, V_31217, V_32691, V_31218, V_32692, V_32693, V_32694, V_32695, V_31219, V_32696, V_32697, V_32698, V_32699, V_32700, V_32701, V_32702, V_32703, V_32704, V_32705, V_31220, V_31222, V_64073, V_64075, V_64076, V_64077, V_64078, V_64079, V_64080, V_64083, V_64084, V_64090, V_64091, V_64092, V_64093, V_64094, V_64095, V_64098, V_64099, V_64100, V_64101, V_64103, V_64104, V_64105, V_64108, V_64109, V_64110, V_64112, V_64113, V_64115, V_64116, V_64117, V_64121, V_64122, V_64123, V_64125, V_64127, V_64128, V_64130, V_64134, V_64135, V_64136, V_64137, V_64139, V_64140, V_64141, V_59274, V_59230, V_3536, V_4228, V_4427, V_4428, V_0704, V_2077, V_3537, V_0705, V_2078, V_0706, V_2079, V_0707, V_2080, V_4429, V_2081, V_3538, V_4430, V_3539, V_3540, V_3541, V_2082, V_3542, V_3543, V_3544, V_4431, V_3545, V_0061, V_4432, V_80739, V_92764, V_92765, V_80744, V_92766, V_92769, V_92774, V_92775, V_80746, V_92767, V_92771, V_92773, V_80743, V_80745, V_92776, V_80741, V_92770, V_92768, V_80747,	V_22654, V_3536, V_8470, V_111124, V_37739, V_31215, V_68916, V_64073, V_32687, V_68918, V_23749, V_104838, V_68919, V_23755, V_80739, V_92764, V_92765, V_51661, V_51662, V_68920, V_104840, V_99027, V_51670, V_99028, V_31216, V_32688, V_105545, V_68921, V_80744, V_92766, V_92769, V_92774, V_92775, V_80746, V_92767, V_92771, V_92773, V_80743, V_80745, V_92776, V_32689, V_80741, V_92770, V_104841, V_92768, V_68922, V_80747, V_68923, V_80742, V_92779, V_80749, V_23761, V_80740, V_80750, V_92772, V_92780, V_80751, V_80752, V_80753, V_92781, V_4228, V_80754, V_80757, V_92782, V_92785, V_4427, V_36414, V_68925, V_8476, V_68926, V_68927, V_32690, V_51709, V_51710, V_99030, V_31217, V_68931, V_111125, V_64075, V_51717, V_99031, V_99032, V_4428, V_64076, V_104843, V_106538, V_107873, V_53290, V_68936, V_0704, V_2077, V_3537, V_0705, V_2078, V_111127, V_104844, V_68938, V_32691, V_2564, V_0706, V_2079, V_105564, V_68939, V_106539, V_80759, V_80760, V_92789, V_92792, V_92791, V_111128, V_92790, V_8474, V_111129, V_64077, V_99033, V_10086, V_51735, V_7503, V_31218, V_68944, V_68946, V_32692, V_92794, V_34525, V_80761, V_92796, V_92798, V_8471, V_8472, V_8473, V_111133, V_111134, V_80763, V_92797, V_80764, V_106540, V_38968, V_68947, V_22931, V_9013,
5	30780094	39839094	30.78	39.84	p13.3-p13.1	TP0501F07	TP0504C0	126	9,059	0.314326668140019	5	C11, C17 , C18, C22, MPC600	CDH6, RNASEN, C5orf22, PDZD2, GOLPH3, MTMR12, ZFR, SUB1, NPR3, C5orf23, TARS, ADAMTS12, RXFP3, SLC45A2, AMACR, RAI14, TTC23L, RAD1, BXDC2, DNAJC21, AGXT2, PRLR, SPEF2, IL7R, CAPSL, UGT3A1, UGT3A2, LMBRD2, SKP2, C5orf33, RANBP3L, SLC1A3, NIPBL, C5orf42, NUP155, WDR70, GDNF, EGFLAM, LIFR, OSMR, FYB, C9, DAB2	hsa-mir-579, hsa-mir-580	V_34517, V_34516, V_2575, V_2576, V_8483, V_8481, V_8482, V_37808, V_38607, V_7494, V_7495, V_7496, V_7497, V_7498, V_31229, V_31230, V_32719, V_31231, V_64176, V_64177, V_64178, V_64180, V_64183, V_64184, V_64185, V_64187, V_59261, V_59262, V_59263, V_3550, V_3551, V_3552, V_4437, V_3553, V_2086, V_4438, V_2087, V_0062, V_59621, V_92981, V_92985, V_92986, V_80883, V_80884, V_92987, V_92989, V_92988, V_80885, V_92990, V_80886, V_92991, V_111205, V_111206, V_111207, V_53964, V_53459, V_9508, V_10109, V_10110, V_51678, V_51679, V_51680, V_51681, V_51682, V_51683, V_51686, V_51688, V_51689, V_51691, V_51692, V_51693, V_51696, V_51697, V_69043, V_69044, V_69049, V_69048, V_69050, V_69051, V_69052, V_69053, V_69054, V_69055	V_69043, V_99100, V_3550, V_99101, V_44204, V_69044, V_47879, V_59261, V_39415, V_99102, V_51678, V_6390, V_51679, V_51680, V_64176, V_105547, V_3551, V_34517, V_2575, V_8483, V_53964, V_111205, V_7494, V_37808, V_9508, V_51681, V_51682, V_51683, V_8481, V_8482, V_34516, V_3552, V_111206, V_31229, V_105548, V_92981, V_31230, V_6391, V_6392, V_51686, V_99103, V_23762, V_64177, V_99104, V_99105, V_99106, V_53459, V_10109, V_2576, V_107323, V_23763, V_105549, V_36402, V_59262, V_7495, V_4437, V_64178, V_92985, V_92986, V_3553, V_2086, V_36403, V_69049, V_4438, V_2087, V_69048, V_104869, V_32719, V_59621, V_0586, V_36404, V_80883, V_80884, V_92987, V_92989, V_36405, V_69050, V_36406, V_36407, V_92988, V_69051, V_0587, V_36408, V_31231, V_36409, V_80885, V_99107, V_99108, V_44205, V_39416, V_6393, V_6394, V_99109, V_7497, V_23764, V_51688, V_64180, V_69052, V_69053, V_44206, V_99110, V_51689, V_69054, V_0062, V_36410, V_7498, V_51691, V_51692, V_23765, V_99112, V_64183, V_6395, V_99113, V_69055, V_59263, V_99114, V_64184, V_51693, V_64185, V_92990, V_38607, V_51696, V_10110, V_80886, V_92991, V_107325, V_51697, V_111207
5	43319910	50256774	43:32:00	50:26:00	p12-q11.1	TP0526B03	TP0508F0	40	6,936,864	0.398434613764823	5	C9, C11, C13, C17 , MPC600	CCL28, C5orf28, C5orf34, PAIP1, NNT, FGF10, MRPS30, HCN1, EMB, PARP8		V_103602, V_38798, V_38787, V_31232, V_64192, V_64193, V_64194, V_64196, V_64198, V_64199, V_64200, V_64201, V_64202, V_59266, V_59267, V_4441, V_4442, V_4443, V_3554, V_93009, V_93013, V_93014, V_80896, V_80897, V_93015, V_93016, V_93017, V_80905, V_93025, V_80906, V_80907, V_93026, V_93027, V_93028, V_80908, V_80909, V_80910, V_93029, V_80911, V_93030, V_93031, V_80912, V_80913, V_93032, V_93033, V_93034, V_80914, V_93035, V_93040, V_80916, V_93041, V_93042, V_93043, V_93044, V_80918, V_93045, V_93048, V_93049, V_80917, V_93047, V_80920, V_80919, V_93046, V_93050, V_111217, V_111218, V_106537, V_53915, V_53309, V_53072, V_9510, V_10113, V_10114, V_10115, V_51703, V_51704, V_51705, V_51706, V_51707, V_51708, V_51711, V_51712, V_51713, V_51714, V_51715, V_69059, V_69060, V_69061, V_69062	V_93009, V_64192, V_111217, V_105552, V_4441, V_6397, V_99121, V_62369, V_104870, V_111218, V_64193, V_93013, V_59266, V_39418, V_93014, V_80896, V_80897, V_93015, V_93016, V_93017, V_4442, V_99122, V_64194, V_103602, V_99123, V_105553, V_51703, V_51704, V_64196, V_104871, V_80905, V_93025, V_9510, V_10113, V_10114, V_51705, V_51706, V_51707, V_53915, V_51708, V_80906, V_80907, V_93026, V_93027, V_93028, V_53309, V_99125, V_80908, V_80909, V_80910, V_93029, V_99126, V_62371, V_43393, V_44208, V_51711, V_80911, V_93030, V_64198, V_93031, V_51712, V_51713, V_38798, V_80912, V_80913, V_93032, V_93033, V_93034, V_64199, V_99127, V_23032, V_22614, V_64200, V_104874, V_38787, V_80914, V_93035, V_51714, V_99128, V_69059, V_69060, V_69061, V_104875, V_106537, V_62373, V_23767, V_23768, V_4443, V_99129, V_23769, V_51715, V_3554, V_69062, V_31232, V_64201, V_93040, V_10115, V_80916, V_93041, V_93042, V_93043, V_53072, V_59267, V_93044, V_80918, V_93045, V_93048, V_93049, V_80917, V_93047, V_80920, V_80919, V_93046, V_22599, V_99130, V_64202, V_44209, V_93050
5	55573225	56228895	55:57:00	56:23:00	q11.2	TP0505E07	TP0527H1	10	0.65567	0.461865493528956	3	C9, C13, C17	MAP3K1, C5orf35, MIER3		V_2579, V_32720, V_64209	V_2579, V_32720, V_105555, V_99144, V_6406, V_64209
5	65203593	65327823	65:02:00	65:33:00	q12.3	TP0521H11	TP0527E0	3	0.12423	0.324517149134078	3	C13, C17 , C18	ERBB2IP		V_64224, V_4446, V_93082, V_93084, V_80943, V_93083, V_69075	V_4446, V_69075, V_93082, V_93084, V_64224, V_80943, V_93083
5	68855238	70144801	68.86	70:14:00	q13.2	TP0527A09	TP0508H0	11	1,289,563	0.417957851693426	4	C4LN, C8, C17 , MPC298	GTF2H2B, SERF1B, SMN2, GUSBP1		V_7500, V_7501, V_31238, V_32723, V_31239, V_31240, V_32724, V_31241, V_64229, V_64227, V_64228, V_4448, V_3557, V_4451, V_0064, V_0711, V_2089, V_4450, V_0710, V_2088, V_4449, V_80944, V_80945, V_93086, V_69143, V_69118, V_69119, V_69145, V_69104, V_69120, V_69099, V_69121, V_69096, V_69106, V_69087, V_69107, V_69123, V_69124, V_69090, V_69098, V_69115, V_69125, V_69126, V_69127, V_69112, V_69116, V_69128, V_69091, V_69089, V_69102, V_69129, V_69082, V_69130, V_69131, V_69083, V_69113, V_69084, V_69114, V_69117, V_69086, V_69103, V_69132, V_69134	V_0283, V_31238, V_7500, V_69143, V_80944, V_80945, V_93086, V_69118, V_107874, V_32723, V_37550, V_69119, V_104883, V_69145, V_69104, V_69120, V_31239, V_69099, V_4451, V_69121, V_69096, V_69106, V_64229, V_69087, V_69107, V_105608, V_69123, V_69124, V_69090, V_64227, V_7501, V_69098, V_69115, V_69125, V_69126, V_69127, V_69112, V_69116, V_69128, V_37580, V_69091, V_69089, V_31240, V_69102, V_32724, V_69129, V_105612, V_69082, V_69130, V_69131, V_104885, V_69083, V_69113, V_31241, V_4450, V_69114, V_69117, V_69086, V_69103, V_69132, V_0710, V_2088, V_4449
5	74186633	74573937	74:19:00	74:57:00	q13.3	TP0120F09	TP0527A0	4	0.387304	0.237816807641674	3	C6, C17 , MPC600	GCNT4, ANKRD31		V_4455, V_3559, V_93100, V_80957	V_4455, V_99172, V_93100, V_80957, V_36427, V_3559, V_6413
5	75339160	81542777	75:34:00	81:54:00	q13.3-q14.2	TP0527B02	TP0519B0	73	6,203,617	0.447545498842974	4	C9, C13, C17 , C22, MPC600	SV2C, IQGAP2, F2RL2, F2R, F2RL1, S100Z, CRHBP, AGGF1, ZBED3, PDE8B, WDR41, OTP, TBCA, AP3B1, SCAMP1, LHFPL2, ARSB, DMGDH, BHMT2, BHMT, JMY, HOMER1, PAPD4, CMYA5, MTX3, THBS4, SERINC5, SPZ1, ZFYVE16, FAM151B, ANKRD34B, DHFR, MSH3, RASGRF2, CKMT2, ZCCHC9, ACOT12, SSBP2, ATG10		V_2582, V_2583, V_8488, V_8489, V_8490, V_7504, V_32727, V_31243, V_64234, V_64235, V_64236, V_64238, V_64240, V_64242, V_64243, V_59275, V_0065, V_4456, V_4457, V_3560, V_93101, V_93102, V_93105, V_93104, V_80961, V_93106, V_93107, V_93108, V_80962, V_93110, V_93112, V_80963, V_93113, V_93111, V_93114, V_93117, V_93118, V_93115, V_93116, V_80964, V_93120, V_80965, V_80966, V_93121, V_106265, V_111241, V_111242, V_106541, V_53437, V_9511, V_51742, V_51743, V_51744, V_51745, V_69152, V_69154, V_69155, V_69157, V_69156	V_99174, V_2582, V_8488, V_8489, V_9511, V_105566, V_107332, V_2583, V_6415, V_105567, V_47921, V_6416, V_111241, V_64234, V_64235, V_99175, V_111242, V_99178, V_99179, V_36430, V_69152, V_105568, V_106265, V_111244, V_106063, V_64236, V_93101, V_93102, V_7504, V_93104, V_80961, V_93106, V_93107, V_93108, V_80962, V_93110, V_111245, V_59813, V_99181, V_51742, V_53437, V_51743, V_93105, V_64238, V_0065, V_69154, V_69155, V_99183, V_93112, V_80963, V_93113, V_93111, V_93114, V_59275, V_93117, V_93118, V_93115, V_93116, V_80964, V_93120, V_80965, V_80966, V_93121, V_99184, V_4456, V_51744, V_51745, V_4457, V_3560, V_104887, V_64240, V_64242, V_64243, V_69157, V_69156
5	131687191	134838807	131.69	134.84	q31.1	TP0511B01	TP0508F0	42	3,151,616	0.355697118115425	5	C10, C13, C17 , C18, C22	SLC22A5, C5orf56, IRF1, IL5, RAD50, IL13, IL4, KIF3A, CCNI2, Sep-08, ANKRD43, SHROOM1, GDF9, UQCRQ, LEAP2, AFF4, ZCCHC10, HSPA4, FSTL4, C5orf15, VDAC1, TCF7, SKP1, PPP2CA, CDKL3, UBE2B, PHF15, SAR1B, SEC24A, CAMLG, DDX46, C5orf24, TXNDC15, PCBD2, CATSPER3, PITX1, H2AFY, TIFAB, C5orf20	hsa-mir-1289-2, hsa-mir-1974	V_64309, V_59233, V_59234, V_4479, V_81042, V_93236, V_93238, V_81045, V_93240, V_81047, V_106259, V_111329, V_111330, V_111331, V_111333, V_111334, V_111335, V_106528, V_10134, V_51571, V_51572, V_51573, V_51575, V_69201, V_69202, V_69204, V_69205, V_69206	V_51571, V_69201, V_110677, V_99300, V_111329, V_69202, V_51572, V_36345, V_99301, V_110678, V_62434, V_22666, V_43604, V_106053, V_44186, V_104898, V_111330, V_64309, V_110679, V_106259, V_59233, V_106528, V_81042, V_93236, V_93238, V_10134, V_99302, V_107299, V_51573, V_4479, V_69204, V_99303, V_69205, V_111331, V_59234, V_81045, V_93240, V_81047, V_69206, V_111333, V_111334, V_111335, V_110680
5	136600472	142272006	136:06:00	142:27:00	q31.2-q31.3	TP0505H11	TP0517G1	74	5,671,534	0.38803030379667	4	C13, C17 , C18, C22	SPOCK1, KLHL3, HNRNPA0, MYOT, PKD2L2, FAM13B, WNT8A, NME5, BRD8, KIF20A, CDC23, GFRA3, CDC25C, FAM53C, KDM3B, REEP2, EGR1, ETF1, HSPA9, CTNNA1, LRRTM2, SIL1, MATR3, , PAIP2, SLC23A1, DNAJC18, ECSCR, TMEM173, UBE2D2, CXXC5, PSD2, NRG2, PURA, C5orf53, C5orf32, PFDN1, HBEGF, SLC4A9, ANKHD1, SRA1, APBB3, SLC35A4, CD14, TMCO6, NDUFA2, WDR55, DND1, HARS, ZMAT2, PCDHA1, PCDHA2, PCDHA3, PCDHA4, PCDHA5, PCDHAC2, PCDHA7, PCDHA8, PCDHA9, PCDHB1, PCDHB2, PCDHB3, PCDHB4, PCDHB5, PCDHB6, PCDHB7, PCDHB8, PCDHB16, PCDHB10, PCDHB11, PCDHB12, PCDHB13, PCDHB14, PCDHB18, PCDHB15, SLC25A2, TAF7, PCDHGA1, PCDHGC4, DIAPH1, HDAC3, RELL2, FCHSD1, ARAP3, PCDH1, KIAA0141, PCDH12, RNF14, GNPDA1, NDFIP1, SPRY4, FGF1, ARHGAP26	hsa-mir-874	V_2603, V_103619, V_103621, V_103622, V_103623, V_38591, V_37968, V_38592, V_7473, V_7474, V_23281, V_31247, V_31248, V_32748, V_31249, V_31250, V_32749, V_31251, V_64313, V_64314, V_64315, V_64316, V_64318, V_64319, V_64320, V_64321, V_64322, V_64323, V_64325, V_59238, V_59240, V_59241, V_3578, V_0714, V_81056, V_93253, V_81057, V_93255, V_93256, V_81058, V_81059, V_93257, V_81060, V_81061, V_93259, V_93261, V_93262, V_93265, V_93266, V_81063, V_93263, V_81064, V_81065, V_93269, V_107621, V_111339, V_111340, V_111344, V_111345, V_111347, V_111349, V_111348, V_111351, V_111352, V_111355, V_111356, V_107623, V_53833, V_9521, V_9522, V_51578, V_51579, V_51580, V_51581, V_51582, V_69207, V_69209, V_69210, V_69211	V_36347, V_110681, V_99307, V_62435, V_43408, V_23750, V_44187, V_64313, V_104900, V_107300, V_23751, V_99308, V_106054, V_23752, V_39433, V_6446, V_44188, V_107302, V_107621, V_107863, V_107303, V_107304, V_36348, V_2603, V_111339, V_59238, V_104901, V_64314, V_37439, V_103619, V_38591, V_6447, V_103621, V_22501, V_39434, V_69207, V_111340, V_51578, V_9521, V_110682, V_81056, V_93253, V_64315, V_6448, V_64316, V_3578, V_81057, V_111344, V_31248, V_64318, V_64319, V_32748, V_7473, V_111346, V_64320, V_104902, V_111341, V_59240, V_23281, V_93255, V_37968, V_103622, V_53833, V_1701, V_51579, V_111345, V_111347, V_81058, V_31250, V_99310, V_9522, V_51580, V_64321, V_32749, V_0714, V_111349, V_0593, V_36349, V_36350, V_59241, V_69209, V_111348, V_81060, V_81061, V_7474, V_36351, V_36352, V_111351, V_111352, V_69210, V_111355, V_6450, V_69211, V_51581, V_36353, V_110683, V_107305, V_23753, V_64322, V_93261, V_93262, V_111356, V_93265, V_93266, V_64323, V_51582, V_103623, V_38592, V_81064, V_64325, V_81065, V_93269
5	148593233	150093627	148:59:00	150:09:00	q32-q33.1	TP0505F12	TP0518D0	14	1,500,394	0.337164282129486	5	C11, C13, C17 , C22, C24	ABLIM3, AFAP1L1, GRPEL2, PCYOX1L, IL17B, PPARGC1B, PDE6A, SLC26A2, TIGD6, HMGXB3, CSF1R, PDGFRB, CDX1, SLC6A7, CAMK2A, ARSI, TCOF1, CD74, RPS14, NDST1, SYNPO, MYOZ3, RBM22, DCTN4	hsa-mir-143, hsa-mir-145, hsa-mir-378	V_7476, V_7477, V_64333, V_3580, V_81072, V_93286, V_53289, V_51590, V_51591, V_51592, V_51593, V_69218, V_69219, V_69220, V_69222, V_69221, V_69223	V_51590, V_69218, V_51591, V_51592, V_51593, V_64333, V_81072, V_93286, V_69219, V_7476, V_53289, V_69220, V_69222, V_69221, V_99323, V_3580, V_7477, V_69223
5	160495477	162350004	160:05:00	162:35:00	q34	TP0516H12	TP0509D0	18	1,854,527	0.32189881750552	3	C4LN, C17 , MPC600	GABRB2, GABRA6, GLRXP3, GABRA1, GABRG2		V_2607, V_38597, V_64352, V_3584, V_93331, V_111378, V_10137, V_51608, V_51609	V_2607, V_111378, V_38597, V_10137, V_3584, V_99337, V_64352, V_99338, V_47996, V_51608, V_51609, V_99339, V_93331, V_1702, V_36366, V_107311, V_6460
5	170410834	180676573	170:41:00	180.68	q35.1-q35.3	TP0527C05	TP0507D1	151	10,265,739	0.412359211840646	8	C4LN, C9, C11, C13, C17 , C18, C22, C24, MPC600	RANBP17, TLX3, NPM1, FGF18, C5orf50, FBXW11, STK10, EFCAB9, UBTD2, SH3PXD2B, NEURL1B, DUSP1, ERGIC1, RPL26L1, ATP6V0E1, C5orf41, BNIP1, NKX2-5, STC2, BOD1, CPEB4, C5orf47, MSX2, DRD1, SFXN1, HRH2, CPLX2, THOC3, FAM153B, C5orf25, KIAA1191, ARL10, NOP16, HIGD2A, CLTB, FAF2, RNF44, PCDH24, GPRIN1, SNCB, EIF4E1B, TSPAN17, UNC5A, HK3, UIMC1, ZNF346, FGFR4, NSD1, RAB24, PRELID1, MXD3, LMAN2, RGS14, SLC34A1, PFN3, F12, GRK6, PRR7, DBN1, PDLIM7, DOK3, DDX41, TMED9, B4GALT7, FAM153A, PROP1, FAM153C, RMND5B, NHP2, HNRNPAB, AGXT2L2, COL23A1, CLK4, ZNF354A, ZNF354B, ZFP2, ZNF454, GRM6, ZNF354C, ADAMTS2, RUFY1, HNRNPH1, CBY3, CANX, MAML1, LTC4S, MGAT4B, SQSTM1, C5orf45, TBC1D9B, RNF130, RASGEF1C, RPS8P7, MAPK9, GFPT2, CNOT6, SCGB3A1, FLT4, OR2Y1, MGAT1, ZFP62, BTNL8, , BTNL3, BTNL9, OR2V1, OR2V2, TRIM7, TRIM41, GNB2L1	hsa-mir-1271, hsa-mir-1229, hsa-mir-340	V_34493, V_2608, V_2609, V_2610, V_2611, V_2612, V_2613, V_8501, V_8500, V_8503, V_8502, V_8504, V_103630, V_103632, V_103633, V_103634, V_37741, V_37742, V_38601, V_37743, V_38797, V_37830, V_38602, V_38090, V_37744, V_37745, V_38106, V_7482, V_7483, V_7484, V_7485, V_7487, V_7488, V_7489, V_7490, V_23282, V_32758, V_32759, V_31253, V_31254, V_32760, V_32761, V_31255, V_31256, V_31257, V_31258, V_32762, V_31259, V_31260, V_31261, V_32763, V_31262, V_32764, V_32765, V_64367, V_64369, V_64370, V_64371, V_64374, V_64375, V_64377, V_64379, V_64380, V_64381, V_64382, V_64383, V_64384, V_64386, V_64387, V_64388, V_64391, V_64392, V_64393, V_64396, V_64395, V_64397, V_64398, V_64400, V_64402, V_59250, V_59251, V_59252, V_59253, V_59254, V_59255, V_3586, V_3587, V_2092, V_3588, V_3589, V_3590, V_4481, V_0068, V_3591, V_4482, V_3592, V_2093, V_2094, V_81124, V_81125, V_93357, V_81129, V_93358, V_81132, V_93364, V_93366, V_93372, V_93373, V_81139, V_81138, V_93375, V_81142, V_93378, V_93377, V_81143, V_93379, V_81145, V_81147, V_93380, V_93381, V_81144, V_93382, V_93383, V_81149, V_93385, V_93386, V_81150, V_81151, V_93387, V_93388, V_81151, V_93389, V_81152, V_81153, V_93391, V_81155, V_93395, V_81156, V_93397, V_81158, V_93399, V_81160, V_93400, V_81161, V_93406, V_93403, V_81162, V_93409, V_81166, V_81167, V_93410, V_81165, V_93412, V_81168, V_81169, V_81164, V_93404, V_81163, V_93401, V_81171, V_93402, V_81172, V_93414, V_93415, V_81173, V_93420, V_107624, V_111390, V_111391, V_111392, V_111393, V_111394, V_111395, V_111396, V_111397, V_111398,	V_111390, V_110695, V_47957, V_6466, V_32758, V_3586, V_99354, V_99355, V_5221, V_3587, V_8501, V_2608, V_53358, V_37741, V_81124, V_8500, V_9524, V_81125, V_93357, V_110696, V_51618, V_51619, V_51620, V_51621, V_6467, V_51622, V_110697, V_99356, V_99357, V_47883, V_110699, V_99358, V_7482, V_62457, V_111391, V_43392, V_64367, V_6468, V_81129, V_93358, V_64369, V_99360, V_99361, V_47922, V_37742, V_99362, V_2609, V_62458, V_6469, V_110700, V_99363, V_64370, V_93366, V_22980, V_107316, V_64371, V_38601, V_51624, V_99365, V_6470, V_99366, V_6471, V_93372, V_93373, V_64374, V_32759, V_99367, V_2610, V_8503, V_31253, V_31254, V_3588, V_32760, V_37743, V_103630, V_32761, V_81139, V_64375, V_64377, V_9525, V_51627, V_51628, V_51629, V_53634, V_53873, V_31257, V_81138, V_7484, V_37552, V_51630, V_51631, V_51632, V_31258, V_32762, V_93374, V_7485, V_99369, V_30222, V_30223, V_51633, V_64378, V_53250, V_51636, V_51637, V_110701, V_22514, V_99370, V_62459, V_43477, V_39437, V_106056, V_44193, V_93375, V_99371, V_44194, V_64379, V_111394, V_64380, V_64381, V_110703, V_3589, V_51638, V_30224, V_59250, V_36374, V_110704, V_99372, V_64382, V_104910, V_110145, V_23756, V_81142, V_93378, V_93377, V_81143, V_93379, V_7487,
6	129242	37853446	0:13	37.85	p25.3-p21.2	TP0619G09	TP0616C0	451	37,724,204	0.746312499222747	8	C4, C4LN, C8, C10, C11, C13, C17 , C18, C24, MPC298, MPC960	DUSP22, IRF4, EXOC2, HUS1B, FOXQ1, FOXF2, FOXC1, GMDS, C6orf195, MYLK4, WRNIP1, SERPINB1, SERPINB9, SERPINB6, NQO2, RIPK1, BPHL, TUBB2A, TUBB2B, PSMG4, SLC22A23, C6orf145, FAM50B, C6orf50, PRPF4B, C6orf146, C6orf201, PECI, CDYL, RPP40, PPP1R3G, FARS2, C6orf202, NRN1, F13A1, LY86, RREB1, SSR1, CAGE1, RIOK1, DSP, SNRNP48, BMP6, TXNDC5, EEF1E1, SLC35B3, OFCC1, TFAP2A, C6orf218, GCNT2, GCNT6, C6orf52, PAK1IP1, TMEM14C, TMEM14B, MAK, GCM2, SYCP2L, ELOVL2, NEDD9, TMEM170B, C6orf105, HIVEP1, EDN1, PHACTR1, TBC1D7, GFOD1, C6orf114, SIRT5, NOL7, RANBP9, CCDC90A, CD83, JARID2, DTNBP1, MYLIP, GMPR, ATXN1, RBM24, CAP2, FAM8A1, NUP153, KIF13A, NHLRC1, TPMT, AOF1, DEK, RNF144B, ID4, MBOAT1, E2F3, CDKAL1, SOX4, PRL, HDGFL1, NRSN1, DCDC2, KAAG1, MRS2, GPLD1, ALDH5A1, KIAA0319, TTRAP, ACOT13, C6orf62, GMNN, , FAM65B, CMAH, LRRC16A, SCGN, HIST1H2AA, 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6	41249867	56418599	41:25:00	56:42:00	p21.1-p12.1	TP0608C08	TP0606C0	176	15,168,732	0.82671583714761	6	C4, C4LN, C5, C8, C11, C13, C22, C24	TREM1, NCR2, FOXP4, MDFI, TFEB, PGC, FRS3, PRICKLE4, TOMM6, USP49, MED20, BYSL, CCND3, TAF8, C6orf132, GUCA1A, GUCA1B, MRPS10, TRERF1, UBR2, PRPH2, TBCC, KIAA0240, RPL7L1, C6orf226, PTCRA, CNPY3, GNMT, PEX6, PPP2R5D, MEA1, KLHDC3, C6orf153, CUL7, MRPL2, KLC4, PTK7, SRF, CUL9, C6orf108, TTBK1, SLC22A7, CRIP3, ZNF318, ABCC10, DLK2, TJAP1, C6orf154, YIPF3, POLR1C, XPO5, POLH, GTPBP2, MAD2L1BP, RSPH9, MRPS18A, VEGFA, MRPL14, TMEM63B, CAPN11, SLC29A1, HSP90AB1, SLC35B2, NFKBIE, TMEM151B, TCTE1, AARS2, CDC5L, SUPT3H, RUNX2, CLIC5, ENPP4, ENPP5, RCAN2, CYP39A1, SLC25A27, TDRD6, PLA2G7, MEP1A, GPR116, GPR110, TNFRSF21, CD2AP, GPR111, GPR115, OPN5, C6orf138, MUT, CENPQ, C6orf140, RHAG, CRISP2, CRISP3, PGK2, CRISP1, DEFB133, DEFB114, DEFB113, DEFB111, DEFB112, TFAP2D, TFAP2B, RPS17P5, PKHD1, IL17A, IL17F, MCM3, PAQR8, EFHC1, TRAM2, TMEM14A, GSTA2, GSTA1, GSTA5, GSTA3, GSTA4, ICK, FBXO9, GCM1, ELOVL5, GCLC, KLHL31, LRRC1, C6orf142, TINAG, FAM83B, HCRTR2, GFRAL, HMGCLL1, BMP5, COL21A1, DST	hsa-mir-586, hsa-mir-206, hsa-mir-133b	V_2626, V_2627, V_2628, V_2629, V_2630, V_2631, V_2632, V_8514, V_8515, V_8516, V_103661, V_103662, V_103663, V_103666, V_37852, V_38008, V_37753, V_38642, V_37944, V_38643, V_7579, V_31286, V_31287, V_32801, V_32802, V_32803, V_31288, V_64492, V_64493, V_64494, V_64496, V_64498, V_64499, V_64500, V_64501, V_64503, V_64504, V_64505, V_64507, V_64509, V_64510, V_64511, V_64512, V_64513, V_64515, V_64516, V_64517, V_64518, V_59341, V_59342, V_59344, V_59345, V_59346, V_3609, V_3610, V_0078, V_3611, V_0718, V_4494, V_4495, V_4496, V_3612, V_4497, V_81380, V_93694, V_81381, V_81382, V_93695, V_81383, V_81384, V_93696, V_93697, V_93698, V_93699, V_81385, V_93700, V_93701, V_93702, V_93703, V_93704, V_93705, V_81386, V_81387, V_81388, V_81389, V_81390, V_93706, V_81391, V_93708, V_93707, V_81392, V_93710, V_93711, V_81395, V_93712, V_93713, V_93714, V_93715, V_93716, V_93717, V_81394, V_93718, V_93719, V_81396, V_93720, V_93721, V_93722, V_93723, V_93724, V_93726, V_93727, V_93728, V_81403, V_93729, V_81397, V_81398, V_93725, V_81399, V_81400, V_81401, V_81402, V_93730, V_81406, V_93731, V_93733, V_93734, V_93735, V_93736, V_93737, V_81407, V_111571, V_111572, V_111573, V_111574, V_111575, V_111577, V_111580, V_111582, V_111583, V_111584, V_53255, V_9530, V_10150, V_10151, V_10152, V_51914, V_51915, V_51919, V_51920, V_51925, V_51926, V_51927, V_69497, V_69498, V_69500, V_69503, V_69504, V_69505, V_69506, V_69507, V_69508, V_69509, V_69510, V_69511, V_69512, V_69513, V_69518, V_69516, V_69519, V_69520, V_69521,	V_51914, V_105620, V_64492, V_64493, V_99516, V_59341, V_93694, V_3609, V_2626, V_31286, V_69497, V_99517, V_39447, V_111571, V_99518, V_59342, V_99519, V_69498, V_9530, V_111572, V_10150, V_107370, V_23805, V_69500, V_81383, V_36526, V_51919, V_39448, V_51920, V_36527, V_81384, V_93696, V_64494, V_103661, V_37852, V_103662, V_99523, V_2627, V_99524, V_105621, V_69503, V_2628, V_0078, V_99526, V_69504, V_6491, V_3611, V_99527, V_64496, V_111573, V_111574, V_105622, V_99528, V_81385, V_93697, V_0718, V_36528, V_36529, V_36530, V_107371, V_59344, V_69506, V_2629, V_4494, V_64499, V_64500, V_93698, V_64501, V_93700, V_99529, V_69507, V_4495, V_69508, V_8514, V_99530, V_69510, V_69511, V_36531, V_22822, V_62513, V_64503, V_111575, V_93701, V_38008, V_64504, V_93702, V_81390, V_93704, V_93705, V_81391, V_37753, V_111577, V_10151, V_3612, V_7579, V_32801, V_93708, V_99531, V_69513, V_59345, V_99532, V_99533, V_3613, V_93710, V_6492, V_6493, V_37275, V_99535, V_99536, V_64507, V_69516, V_69519, V_36532, V_99537, V_22759, V_6494, V_69520, V_105624, V_99539, V_81395, V_93713, V_93714, V_8515, V_2630, V_99540, V_63088, V_43357, V_44257, V_36533, V_99541, V_2631, V_44258, V_32802, V_64510, V_64511, V_93717, V_32803, V_38642, V_81396, V_81397, V_93718, V_93721, V_110152, V_51925, V_103663, V_99543, V_51927, V_111582, V_31288, V_111583, V_8516, V_36534, V_36535, V_43642, V_104946, V_111580, V_59346, V_105625, V_93722, V_1421, V_2632, V_111584, V_99545, V_69521, V_99546, V_64513, V_93723, V_99548, V_99549, V_1712, V_93724, V_64514
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7	758897	43545884	0.05277778	43:55:00	p22.3-p13	TP0701D10	TP0711A0	454	42,786,987	0.929383531810751	9	C4, C4LN, C5, C9, C10, C11, C13, C17 , C18, C22, C24, MPC600, MPC298, MPC960	PRKAR1B, HEATR2, UNC84A, ADAP1, CYP2W1, C7orf50, GPR146, GPER, ZFAND2A, UNCX, MICALL2, INTS1, MAFK, TMEM184A, PSMG3, MAD1L1, FTSJ2, NUDT1, SNX8, EIF3B, CHST12, LFNG, C7orf27, IQCE, TTYH3, AMZ1, GNA12, CARD11, SDK1, FOXK1, RADIL, PAPOLB, MMD2, RNF216L, RBAK, WIPI2, SLC29A4, TNRC18, FBXL18, ACTB, FSCN1, RNF216, OCM, C7orf28A, RSPH10B, PMS2, AIMP2, EIF2AK1, ANKRD61, USP42, CYTH3, C7orf70, RAC1, DAGLB, KDELR2, GRID2IP, ZDHHC4, C7orf26, ZNF12, RSPH10B2, C7orf28B, C1GALT1, COL28A1, MIOS, RPA3, GLCCI1, ICA1, NXPH1, NDUFA4, PHF14, THSD7A, TMEM106B, VWDE, SCIN, ARL4A, ETV1, DGKB, TMEM195, MEOX2, SOSTDC1, ANKMY2, BZW2, TSPAN13, AGR2, AGR3, AHR, SNX13, PRPS1L1, HDAC9, TWIST1, FERD3L, TWISTNB, TMEM196, MACC1, ITGB8, ABCB5, SP8, SP4, DNAH11, CDCA7L, RAPGEF5, IL6, TOMM7, FAM126A, KLHL7, NUPL2, GPNMB, C7orf30, IGF2BP3, 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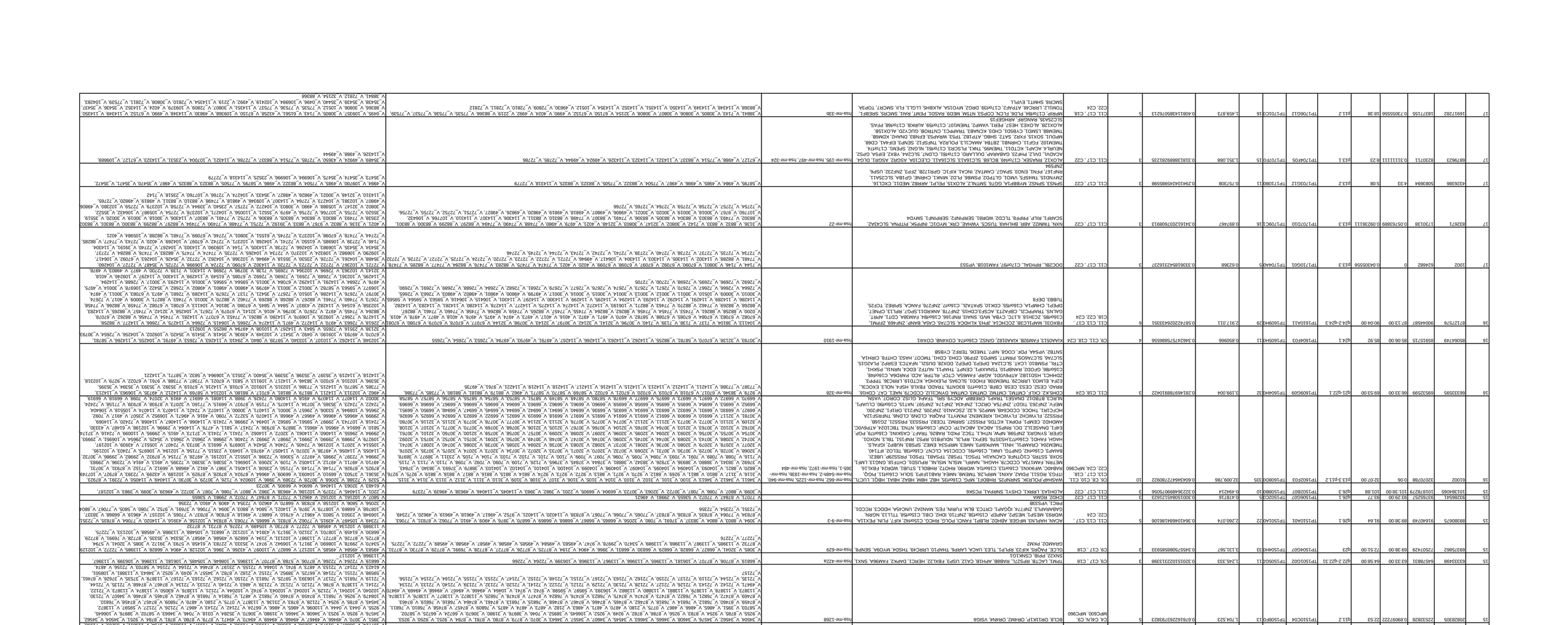
7	44048777	45152091	44:05:00	45:15:00	p13	TP0710C09	TP0719E0	16	1,103,314	0.276443942487491	4	C10, C11, C22, MPC298	POLR2J4, SPDYE1, DBNL, PGAM2, POLM, AEBP1, POLD2, MYL7, GCK, YKT6, CAMK2B, NUDCD3,NPC1L1, DDX56, TMED4, OGDH, ZMIZ2, PPIA, H2AFV, PURB, MYO1G, C7orf40, CCM2, NACAD, TBRG4		V_7628, V_31342, V_59412, V_4531, V_3677, V_4532, V_81922, V_94462, V_81923, V_81924, V_94463, V_81925, V_111854, V_52230, V_69864, V_69866, V_69868, V_69869	V_4531, V_3677, V_81922, V_94462, V_31342, V_69864, V_7628, V_81923, V_4532, V_105713, V_69866, V_81924, V_94463, V_81925, V_52230, V_59412, V_99939, V_69868, V_62648, V_111854, V_69869
7	45921643	49563171	45.92	49:56:00	p12.3-p12.2	TP0703C08	TP0716H0	42	3,641,528	0.976837723969196	3	C10, MPC600, MPC298	IGFBP1, IGFBP3, TNS3, C7orf65, HUS1, PKD1L1, C7orf69, SUNC1, C7orf57, UPP1, ABCA13, CDC14C		V_2694, V_9055, V_103715, V_103716, V_103717, V_38678, V_38679, V_38680, V_38681, V_7629, V_32884, V_64806, V_64807, V_64808, V_64809, V_64810, V_4534, V_4535, V_4536, V_94467, V_94472, V_94473, V_94474, V_94475, V_94476, V_94477, V_94478, V_107642, V_111856, V_111857, V_111858, V_111859, V_111860, V_111861, V_9564, V_10186, V_52232, V_52233, V_52234, V_52235, V_52236, V_52237, V_69875	V_99940, V_9564, V_99941, V_64806, V_94467, V_111856, V_52232, V_111857, V_23838, V_111858, V_52233, V_99942, V_111859, V_64807, V_94472, V_94473, V_94474, V_2694, V_94475, V_10186, V_9055, V_32884, V_4534, V_52234, V_64808, V_94476, V_103715, V_38678, V_6543, V_105715, V_105717, V_111860, V_37286, V_4535, V_69875, V_111861, V_105718, V_36675, V_44311, V_94477, V_99945, V_52235, V_38679, V_64810, V_38680, V_103716, V_107642, V_37287, V_0606, V_7629, V_52236, V_99946, V_6544, V_94478, V_38681, V_103717, V_52237, V_4536
7	52875271	54199428	52.88	54:02:00	p12.1-p11.2	TP0708G06	TP0713C1	11	1,324,157	0.295371839092899	3	C10, MPC600, MPC298	POM121L12		V_9056, V_103722, V_103723, V_103724, V_38683, V_38684, V_38685, V_7630, V_32885, V_32886, V_32887, V_32888, V_32889, V_64818, V_64819, V_64820, V_64821, V_59415, V_3678, V_4537, V_3679, V_94500, V_94501, V_94502, V_94504, V_94505, V_94506, V_94507, V_94508, V_94509, V_111870, V_53909, V_53894, V_53820, V_10187, V_30261, V_52252, V_52254, V_52255, V_52256	V_32885, V_59415, V_64818, V_105013, V_94500, V_64819, V_38683, V_103722, V_52252, V_94501, V_111870, V_64820, V_94502, V_32886, V_10187, V_52254, V_52255, V_94504, V_94505, V_3678, V_4537, V_32887, V_53909, V_64821, V_94506, V_38684, V_103723, V_32888, V_94507, V_30261, V_52256, V_7630, V_9056, V_53894, V_53820, V_36680, V_107426, V_105722, V_6545, V_3679, V_32889, V_38685, V_94508, V_103724, V_94509
7	54640605	55702142	54.64	55:07:00	p11.2	TP0707H12	TP0705A1	8	1,061,537	0.473430280590767	3	C10, C18, MPC600	SEC61G, EGFR, LANCL2		V_64824, V_64825, V_64828, V_111873, V_9567, V_52258, V_52259, V_52260, V_52261	V_39494, V_48009, V_52258, V_64824, V_62653, V_36681, V_105724, V_22555, V_99958, V_62654, V_43453, V_6546, V_106079, V_44313, V_23840, V_6547, V_111873, V_64825, V_105725, V_9567, V_105726, V_64828, V_52259, V_52260, V_52261
7	57191874	57557880	57:19:00	57:56:00	p11.2-p11.1	TP0716F11	TP0707C0	7	0.366006	0.518123748573589	3	C4, C4LN, C18	ZNF479, ZNF716		V_2695, V_8558, V_8559, V_8560, V_8561, V_81956, V_94525, V_111880, V_53442, V_52262, V_69900, V_69901	V_8558, V_52262, V_8559, V_69900, V_81956, V_94525, V_99962, V_0610, V_36691, V_8560, V_111880, V_23841, V_53442, V_2695, V_8561, V_69901, V_62658, V_99963, V_22551
7	64571369	65190324	64:57:00	65:19:00	q11.21	TP0717G04	TP0701B1	26	0.618955	0.361636539973445	3	C9, MPC600, MPC960	ZNF92		V_34624, V_34593, V_34594, V_2698, V_9059, V_9058, V_8564, V_9057, V_38846, V_7636, V_32908, V_32909, V_31352, V_32910, V_32911, V_64839, V_64841, V_64842, V_64844, V_64843, V_64847, V_64845, V_64846, V_3682, V_0722, V_2101, V_81986, V_94556, V_94560, V_94562, V_94561, V_94563, V_94565, V_94566, V_94564, V_81992, V_94567, V_94568, V_81993, V_94569, V_111884, V_111885, V_5239, V_5398, V_53749, V_53866, V_29783, V_52268, V_52269, V_52270, V_52271, V_69933, V_69932, V_69935, V_69937, V_69936, V_69938	V_5239, V_9059, V_9058, V_34624, V_69933, V_3682, V_8564, V_64839, V_105023, V_69932, V_32908, V_38846, V_69935, V_37292, V_7636, V_32909, V_5398, V_29783, V_52268, V_52269, V_52270, V_53749, V_53866, V_36696, V_2698, V_52271, V_105732, V_36697, V_111884, V_64841, V_69937, V_69936, V_105024, V_111885, V_81986, V_94556, V_31352, V_69938, V_9057, V_34593, V_34594, V_99979, V_94560, V_94562, V_94561, V_94563, V_105733, V_64842, V_48045, V_23846, V_94565, V_94566, V_36698, V_36699, V_64844, V_105025, V_0722, V_2101, V_32910, V_94564, V_32911, V_64843, V_64847, V_105026, V_64845, V_64846, V_81992, V_94567, V_94568, V_81993, V_94569
7	72399774	76124370	72:04:00	76:12:00	q11.23	TP0713E12	TP0706D1	51	3,724,596	0.343451032167656	6	C10, C11, C13, C18, C22, C24	POM121, NSUN5C, TRIM74, STAG3L3, NSUN5, TRIM50, FKBP6, FZD9, BAZ1B, BCL7B, TBL2, MLXIPL, VPS37D, DNAJC30, WBSCR22, STX1A, ABHD11, CLDN3, CLDN4, WBSCR27, WBSCR28, ELN, LIMK1, EIF4H, LAT2, RFC2, CLIP2, GTF2IRD1, GTF2I, STAG3L2, NCF1, GTF2IRD2, PMS2L5, WBSCR16, GTF2IRD2B, NCF1C, GATSL1, STAG3L1, TRIM73, NSUN5B, POM121C, PMS2L3, HIP1, CCL26, CCL24, RHBDD2, POR, TMEM120A, STYXL1, MDH2, HSPB1, YWHAG, SRCRB4D, ZP3, UPK3B	hsa-mir-590	V_2699, V_2700, V_8567, V_8569, V_9060, V_8568, V_9061, V_103729, V_37760, V_7645, V_7646, V_32915, V_31357, V_31358, V_32916, V_31359, V_32917, V_31360, V_31361, V_32918, V_31362, V_31363, V_31364, V_31365, V_32919, V_31366, V_31367, V_32920, V_31368, V_31369, V_32921, V_32922, V_32923, V_31370, V_32924, V_64860, V_64861, V_64862, V_64863, V_64864, V_64865, V_64866, V_59421, V_59422, V_3685, V_2103, V_4541, V_4542, V_4543, V_3686, V_4544, V_4545, V_82033, V_94606, V_94607, V_82034, V_94608, V_82035, V_94609, V_82037, V_94610, V_82038, V_94611, V_94612, V_82039, V_94613, V_94614, V_94615, V_94616, V_94617, V_94618, V_106287, V_111896, V_111897, V_5241, V_9574, V_52280, V_52281, V_69954, V_69955, V_69956, V_69957, V_69958, V_69959, V_69960, V_69961, V_69966	V_3685, V_2699, V_8567, V_2103, V_4541, V_69954, V_105030, V_82033, V_94606, V_32915, V_31357, V_94607, V_82034, V_94608, V_31358, V_32916, V_31359, V_32917, V_106287, V_4542, V_111896, V_59421, V_4543, V_22999, V_99990, V_105031, V_111897, V_23850, V_105740, V_64860, V_82035, V_94609, V_64861, V_3686, V_7645, V_52280, V_31360, V_31361, V_69955, V_82037, V_94610, V_82038, V_94611, V_94612, V_32918, V_31362, V_69956, V_64862, V_105032, V_4544, V_31364, V_31365, V_82039, V_94613, V_94614, V_94615, V_32919, V_31366, V_105033, V_69957, V_31367, V_32920, V_64863, V_31368, V_105034, V_105035, V_94616, V_94617, V_94618, V_69958, V_31369, V_32921, V_4545, V_32922, V_32923, V_22956, V_69960, V_69959, V_31370, V_32924, V_64864, V_37760, V_103729, V_9574, V_52281, V_69961, V_69966, V_105036, V_59422, V_64865, V_5241, V_8569, V_9060, V_2700, V_8568, V_9061, V_64866, V_7646, V_37295
7	76287792	95471519	76:29:00	95:47:00	q11.23-q21.3	TP0707B02	TP0702E0	217	19,183,727	0.429661463677706	4	C5, C9, C10, C18, MPC600	PMS2L11, CCDC146, FGL2, PION, PTPN12, RSBN1L, TMEM60, PHTF2, MAGI2, GNAI1, CD36, GNAT3, SEMA3C, HGF, CACNA2D1, PCLO, SEMA3E, SEMA3A, SEMA3D, GRM3, KIAA1324L, DMTF1, C7orf23, CROT, ABCB4, ABCB1, RUNDC3B, SLC25A40, DBF4, ADAM22, SRI, STEAP4, ZNF804B, C7orf62, STEAP1, STEAP2, C7orf63, GTPBP10, CLDN12, PFTK1, FZD1, MTERF, AKAP9, CYP51A1, KRIT1, ANKIB1, GATAD1, PEX1, C7orf64, FAM133B, CDK6, SAMD9, SAMD9L, HEPACAM2, CCDC132, CALCR, GNGT1, TFPI2, GNG11, BET1, COL1A2, CASD1, SGCE, PPP1R9A, PON1, PON3, PON2, ASB4, PDK4, DYNC1I1	hsa-mir-1285-1, hsa-mir-653, hsa-mir-489	V_34497, V_34447, V_34446, V_2700, V_2701, V_2702, V_2703, V_2704, V_8569, V_9060, V_8568, V_9061, V_8570, V_8571, V_9062, V_9063, V_8572, V_8573, V_9064, V_8574, V_103730, V_103732, V_103734, V_103735, V_103736, V_103737, V_38912, V_38688, V_37933, V_38690, V_38691, V_38692, V_37761, V_37948, V_38694, V_7648, V_7649, V_7653, V_7654, V_7655, V_7656, V_32927, V_32928, V_31372, V_32929, V_32930, V_31373, V_31374, V_32931, V_32932, V_31375, V_31376, V_32933, V_64869, V_64870, V_64871, V_64872, V_64873, V_64874, V_64875, V_64876, V_64878, V_64879, V_64880, V_64881, V_64882, V_64883, V_64884, V_64885, V_64886, V_64887, V_64888, V_64889, V_64890, V_64891, V_59424, V_59425, V_59426, V_59427, V_59428, V_59429, V_3686, V_0723, V_3687, V_0105, V_3688, V_3689, V_0106, V_3690, V_4546, V_82055, V_82056, V_94631, V_94632, V_94633, V_82057, V_82058, V_94634, V_94635, V_94636, V_94637, V_82059, V_82061, V_82063, V_94638, V_94639, V_94641, V_94645, V_94642, V_94644, V_82060, V_94643, V_94640, V_82062, V_94646, V_82065, V_94648, V_82068, V_94651, V_94653, V_94654, V_82070, V_94656, V_94658, V_94659, V_94660, V_94661, V_94662, V_94663, V_94664, V_94665, V_94669, V_82076, V_94667, V_82077, V_94672, V_94673, V_94674, V_82078, V_94675, V_94677, V_82080, V_82081, V_94679, V_94683, V_94682, V_94681, V_94686, V_94687, V_94688, V_94689, V_94690, V_94691, V_94692, V_94693, V_94695, V_94696, V_94701, V_94699, V_82083, V_94702, V_82085, V_94700, V_82086, V_94698, V_82087, V_94697,	V_3686, V_5241, V_8569, V_9060, V_2700, V_8568, V_9061, V_10191, V_52282, V_52283, V_52284, V_34497, V_34447, V_111904, V_69968, V_103730, V_9575, V_29785, V_29786, V_52285, V_52286, V_52287, V_53226, V_53809, V_52288, V_5240, V_1727, V_53965, V_52289, V_38912, V_7648, V_111905, V_8570, V_34446, V_52290, V_52291, V_52292, V_52293, V_1427, V_7649, V_105741, V_1428, V_9576, V_32927, V_36712, V_47979, V_69970, V_32928, V_69976, V_105038, V_82055, V_82056, V_94631, V_94632, V_69967, V_31372, V_94633, V_82057, V_69974, V_82058, V_6557, V_64869, V_32929, V_32930, V_64870, V_94634, V_94635, V_99994, V_52294, V_99995, V_6558, V_10192, V_0723, V_64871, V_36713, V_94636, V_2701, V_1151, V_1153, V_64872, V_32931, V_38688, V_103732, V_10193, V_52295, V_1152, V_1154, V_1728, V_1155, V_99996, V_52297, V_10194, V_99997, V_3687, V_94637, V_36714, V_82059, V_82061, V_82063, V_94638, V_94639, V_94641, V_94645, V_36715, V_99998, V_64873, V_44319, V_94642, V_94644, V_82060, V_94643, V_94640, V_10195, V_99999, V_64874, V_100000, V_82065, V_94648, V_23851, V_69983, V_100003, V_100004, V_62682, V_64875, V_105040, V_111908, V_64876, V_82068, V_10196, V_69984, V_10197, V_8571, V_94653, V_94654, V_62683, V_43559, V_111911, V_100006,
7	97741101	102185532	97.74	102:19:00	q21.3-q22.1	TP0704F11	TP0717H1	49	4,444,431	0.465121938252889	4	C10, C11, C13, C22	LMTK2, BHLHA15, TECPR1, BRI3, BAIAP2L1, NPTX2, TMEM130, TRRAP, SMURF1, KPNA7, ARPC1B, PDAP1, BUD31, PTCD1, CPSF4, ZNF789, ZNF394, ZKSCAN5, C7orf38, ZNF655, ZNF498, CYP3A5, CYP3A7, CYP3A5P1, CYP3A4, CYP3A43, TRIM4, GJC3, AZGP1, AZGP1P1, ZKSCAN1, ZSCAN21, ZNF3, COPS6, MCM7, AP4M1, TAF6, CNPY4, MBLAC1, C7orf59, C7orf43, GAL3ST4, GPC2, STAG3, GATS, PVRIG, PMS2L1, PILRB, PILRA, ZCWPW1, MEPCE, C7orf47, C7orf61, TSC22D4, C7orf51, AGFG2, LRCH4, FBXO24, PCOLCE, MOSPD3, TFR2, ACTL6B, GNB2, GIGYF1, POP7, EPO, ZAN, EPHB4, SLC12A9, TRIP6, SRRT, UFSP1, ACHE, MUC3B, MUC3A, MUC12, MUC17, TRIM56, SERPINE1, AP1S1, VGF, C7orf52, MOGAT3, PLOD3, ZNHIT1, CLDN15, FIS1, RABL5, EMID2, MYL10, CUX1, SH2B2, PRKRIP1, ORAI2, ALKBH4, LRWD1, POLR2J, RASA4B, POLR2J3	hsa-mir-25, hsa-mir-93, hsa-mir-106b, hsa-mir-548o	V_34535, V_34448, V_8576, V_8575, V_38035, V_7658, V_7592, V_7593, V_31378, V_31379, V_32937, V_32938, V_32939, V_31380, V_31381, V_32940, V_31382, V_31383, V_32941, V_31384, V_31385, V_64898, V_64899, V_64900, V_64901, V_64902, V_64905, V_64906, V_64908, V_64909, V_59371, V_4547, V_4548, V_2104, V_4549, V_4550, V_3692, V_4551, V_4552, V_0107, V_3693, V_4553, V_0724, V_2105, V_82099, V_94725, V_94730, V_94731, V_82103, V_94733, V_82104, V_82105, V_82106, V_94734, V_94735, V_94737, V_94738, V_82107, V_94739, V_94740, V_94736, V_94741, V_82108, V_82109, V_94742, V_82111, V_82112, V_94746, V_94747, V_94748, V_82113, V_82117, V_82118, V_94752, V_94753, V_82116, V_94750, V_82115, V_94754, V_82114, V_94751, V_94755, V_82119, V_94756, V_82120, V_82121, V_94759, V_94760, V_94761, V_82122, V_94762, V_94763, V_94764, V_111939, V_111940, V_111942, V_111944, V_111945, V_111947, V_111946, V_111948, V_5245, V_5244, V_53523, V_53774, V_10204, V_52037, V_52038, V_52039, V_70008, V_70009, V_70010, V_70014, V_70016, V_70017, V_70019, V_70018, V_70020	V_100048, V_64898, V_105047, V_82099, V_94725, V_44321, V_36731, V_36732, V_36733, V_107436, V_107437, V_94730, V_94731, V_100049, V_70008, V_53523, V_4547, V_4548, V_100052, V_105048, V_111939, V_100053, V_70009, V_82103, V_94732, V_94733, V_64899, V_111940, V_37533, V_64900, V_7658, V_2104, V_64901, V_31378, V_82104, V_82105, V_82106, V_94734, V_94735, V_94737, V_94738, V_70010, V_82107, V_94739, V_31379, V_32937, V_23856, V_94740, V_94736, V_4549, V_4550, V_7592, V_36734, V_22860, V_111942, V_64902, V_94741, V_38035, V_82108, V_32938, V_100054, V_44277, V_7593, V_82109, V_94742, V_3692, V_82111, V_82112, V_94746, V_94747, V_94748, V_82113, V_82117, V_82118, V_94752, V_94753, V_32939, V_64905, V_59371, V_1431, V_31380, V_82116, V_94750, V_36582, V_0616, V_105049, V_82115, V_94754, V_107392, V_70014, V_111944, V_31381, V_82114, V_94751, V_23819, V_94755, V_0617, V_36583, V_36584, V_70016, V_105051, V_82119, V_94756, V_31382, V_6562, V_6563, V_5245, V_8576, V_111945, V_5244, V_34535, V_8575, V_34448, V_52037, V_53774, V_52038, V_52039, V_105657, V_100056, V_70017, V_64906, V_105658, V_106072, V_105659, V_4551, V_10204, V_4552, V_100057, V_100058, V_111947, V_111946, V_64908, V_111948, V_0107, V_82120, V_31383,
7	106489894	108246283	106:49:00	108:25:00	q22.3-q31.1	TP0708H11	TP0703D0	20	1,756,389	0.294168427501831	3	C10, C13, MPC600	PIK3CG, PRKAR2B, HBP1, COG5, GPR22, DUS4L, BCAP29, SLC26A4, CBLL1, SLC26A3, DLD, LAMB1, LAMB4, NRCAM, PNPLA8, THAP5, DNAJB9		V_7594, V_59374, V_4554, V_94794, V_82142, V_111952	V_7594, V_59374, V_111952, V_37277, V_110153, V_29403, V_103373, V_37278, V_29420, V_29418, V_94794, V_82142, V_23821, V_107396, V_100071, V_62713, V_48029, V_100072, V_4554, V_23822, V_107397
7	119465059	126034819	119:47:00	126:03:00	q31.31-q31.33	TP0709B08	TP0706D0	62	656,976	0.499544862531796	3	C10, C18, MPC600	KCND2, TSPAN12, ING3, C7orf58, WNT16, FAM3C, PTPRZ1, AASS, FEZF1, CADPS2, RNF133, RNF148, TAS2R16, SLC13A1, IQUB, NDUFA5, ASB15, LMOD2, WASL, HYAL4, SPAM1, GPR37,POT1		V_2710, V_2711, V_2712, V_8580, V_103751, V_38659, V_38660, V_7598, V_31391, V_64935, V_64936, V_64937, V_64938, V_64939, V_64940, V_4555, V_4556, V_4557, V_3700, V_94836, V_94837, V_82160, V_94840, V_82161, V_94839, V_94838, V_94841, V_94843, V_94842, V_82162, V_94845, V_94847, V_82163, V_94848, V_82164, V_82165, V_82169, V_94850, V_82168, V_94851, V_94852, V_82166, V_94853, V_94854, V_82170, V_94861, V_111973, V_111974, V_111981, V_5402, V_10209, V_9582, V_9583, V_52070, V_52071, V_52072, V_52073, V_52076, V_52077, V_52078, V_70033, V_70034, V_70035, V_70036, V_70037, V_70038	V_94836, V_52070, V_4555, V_94837, V_82160, V_94840, V_82161, V_94839, V_94838, V_94841, V_64935, V_94843, V_94842, V_6568, V_10209, V_52071, V_52072, V_82162, V_105666, V_1434, V_1741, V_64936, V_100094, V_2710, V_2711, V_70033, V_111973, V_38659, V_70034, V_64937, V_64938, V_94845, V_111974, V_100095, V_6569, V_94847, V_82163, V_94848, V_82164, V_82165, V_82169, V_94850, V_82168, V_94851, V_94852, V_82166, V_94853, V_94854, V_82170, V_64939, V_100096, V_70035, V_70036, V_100097, V_100098, V_4556, V_64940, V_70037, V_105668, V_100100, V_105669, V_5402, V_100101, V_23826, V_111981, V_9583, V_100103, V_4557, V_52076, V_100104, V_52077, V_52078, V_94861, V_103751, V_38660, V_70038, V_7598, V_105670, V_3700, V_31391
7	127612119	130292156	127.61	130:29:00	q32.1-q32.2	TP0714B07	TP0717H0	30	2,680,037	0.413501276338488	5	C10, C11, C13, C18, C22	SND1, C7orf54, LRRC4, LEP, RBM28, IMPDH1, C7orf68, METTL2B, FAM71F2, FAM71F1, CALU, OPN1SW, CCDC136, FLNC, ATP6V1F, KCP, IRF5, TNPO3, TSPAN33, SMO, AHCYL2, FAM40B, NRF1, UBE2H, ZC3HC1, KLHDC10, TMEM209, C7orf45, CPA2, CPA4, CPA5, CPA1, TSGA14, MEST	hsa-mir-593, hsa-mir-129-1, hsa-mir-182, hsa-mir-96, hsa-mir-183, hsa-mir-335	V_7600, V_7601, V_64948, V_59381, V_59382, V_59383, V_4558, V_4559, V_4560, V_94867, V_82179, V_94868, V_82180, V_111984, V_106560, V_9584, V_52080, V_52081, V_52083, V_52084, V_52085, V_52088, V_52089, V_52090, V_52091, V_70039, V_70040, V_70041, V_70042	V_100112, V_100113, V_7600, V_105673, V_1435, V_59381, V_4558, V_100115, V_6570, V_52080, V_52081, V_6571, V_106560, V_4559, V_70039, V_59382, V_94867, V_9584, V_82179, V_94868, V_82180, V_52083, V_52084, V_70040, V_64948, V_52085, V_100118, V_70041, V_52088, V_52089, V_52090, V_7601, V_59383, V_6572, V_111984, V_6573, V_70042, V_52091, V_4560
7	137327576	140778447	137:33:00	140.78	q33-q34	TP0715H01	TP0707G0	41	3,450,871	0.335434772594161	4	C10, C13, C18, C22	DGKI, CREB3L2, AKR1D1, TRIM24, SVOPL, ATP6V0A4, TMEM213, KIAA1549, ZC3HAV1L, ZC3HAV1, TTC26, UBN2, LUC7L2, C7orf55, KLRG2, CLEC2L, HIPK2, TBXAS1, PARP12, JHDM1D, SLC37A3, RAB19, MKRN1, DENND2A, ADCK2, NDUFB2, BRAF, MRPS33		V_103757, V_38662, V_38663, V_7605, V_32951, V_64962, V_64963, V_59386, V_4562, V_3705, V_94892, V_94895, V_111993, V_111997, V_9585, V_52102, V_52103, V_52104, V_52105, V_52106, V_52107, V_70046	V_7605, V_111993, V_100138, V_100139, V_47950, V_1436, V_100140, V_100141, V_94892, V_100143, V_36622, V_37521, V_62731, V_100144, V_9585, V_52102, V_52103, V_100145, V_4562, V_3705, V_100146, V_100147, V_70046, V_100148, V_64962, V_52104, V_52105, V_111997, V_38662, V_59386, V_100149, V_103757, V_38663, V_64963, V_32951, V_94895, V_52106, V_107400, V_1169, V_52107
7	144215478	147585702	144:22:00	147:59:00	q35	TP0706C03	TP0705D0	34	3,370,224	0.454793015056337	4	C5, C6, C10, MPC600	TPK1, CNTNAP2	hsa-mir-548f-4	V_103762, V_38906, V_7613, V_32963, V_64979, V_64981, V_64982, V_59391, V_3708, V_94947, V_94948, V_82251, V_82252, V_94949, V_94950, V_82253, V_94951, V_106283, V_106284, V_107641, V_112021, V_112022, V_112023, V_106561, V_106562, V_106563, V_53690, V_10219, V_10218, V_52143, V_52145, V_70065, V_70066, V_70067, V_70069, V_70070	V_3708, V_32963, V_100159, V_100160, V_100161, V_105678, V_70065, V_106561, V_94947, V_94948, V_106283, V_82251, V_82252, V_94949, V_59391, V_105679, V_6578, V_106284, V_112021, V_64979, V_106562, V_112022, V_94950, V_82253, V_36643, V_100162, V_94951, V_64981, V_44294, V_38906, V_103762, V_52143, V_53690, V_70066, V_10219, V_10218, V_100163, V_7613, V_107641, V_64982, V_106563, V_70067, V_70069, V_70070, V_52145, V_100164
7	148491471	151956442	148:49:00	151.96	q36.1	TP0719F08	TP0703D1	36	3,464,971	0.371584360633918	4	C9, C10, C13, C22	CUL1, EZH2, PDIA4, ZNF786, ZNF398, ZNF425, ZNF282, ZNF212, ZNF783, ZNF777, ZNF746, ZNF767, KRBA1, ZNF467, SSPO, ZNF862, ATP6V0E2, LRRC61, C7orf29, RARRES2, REPIN1, ZNF775, GIMAP8, GIMAP7, GIMAP4, GIMAP6, GIMAP2, GIMAP1, GIMAP5, TMEM176B, TMEM176A, ABP1, KCNH2, NOS3, ATG9B, ABCB8, ACCN3, CDK5, SLC4A2, FASTK, TMUB1, AGAP3, GBX1, ASB10, ABCF2, SMARCD3, NUB1, WDR86, CRYGN, RHEB, PRKAG2, GALNTL5, GALNT11, MLL3	hsa-mir-1975, hsa-mir-671	V_2716, V_2717, V_38907, V_38031, V_38666, V_7615, V_7616, V_31399, V_32964, V_32965, V_31400, V_31401, V_64984, V_64985, V_3709, V_0727, V_0728, V_3710, V_3711, V_4574, V_82260, V_94957, V_94959, V_94961, V_94960, V_82261, V_82262, V_94964, V_94965, V_94966, V_82265, V_94967, V_112030, V_112033, V_112035, V_53471, V_53781, V_9588, V_52146, V_52147, V_52148, V_52149, V_52150, V_52151, V_52152, V_70073, V_70075, V_70076, V_70078, V_70080, V_70081, V_70083, V_70082, V_70084	V_107402, V_6582, V_105681, V_100168, V_100156, V_100157, V_107403, V_70073, V_100169, V_112030, V_3709, V_53471, V_52146, V_52147, V_105684, V_52148, V_52149, V_2716, V_31399, V_53781, V_52150, V_0727, V_112033, V_0728, V_7615, V_82260, V_94957, V_100170, V_36646, V_38907, V_36647, V_64984, V_94959, V_94961, V_32964, V_94960, V_82261, V_82262, V_52151, V_2717, V_1437, V_1749, V_70075, V_3710, V_38031, V_70076, V_105685, V_22718, V_3711, V_7616, V_38666, V_32965, V_31400, V_4574, V_52152, V_70078, V_23122, V_59846, V_112035, V_9588, V_70080, V_100171, V_70081, V_44295, V_47959, V_6583, V_105686, V_105687, V_22675, V_64985, V_70083, V_105065, V_94964, V_94965, V_94966, V_82265, V_31401, V_70082, V_94967, V_70084, V_105066



17	25310878	81020949	25:31:00	81:02:00	q11.1-q25.3	TP1709A10	TP1707C0	661	55,710,071	232,960,608,273,114	10	C4, C4LN, C5, C6, C8, C9, C10, C11, C13, C17 , C18, C21, C22, C24, MPC600, MPC298	WSB1, KSR1, LGALS9, NOS2, NLK, PPY2, TMEM97, IFT20, TNFAIP1, POLDIP2, SARM1, VTN, SLC46A1, SLC13A2, FOXN1, UNC119, PIGS, ALDOC, SPAG5, KIAA0100, SDF2, SUPT6H, PROCA1, RAB34, RPL23A, TLCD1, NEK8, TRAF4, ERAL1, FLOT2, DHRS13, PHF12, SEZ6, PIPOX, TIAF1, MYO18A, CRYBA1, NUFIP2, TAOK1, ABHD15, TP53I13, GIT1, ANKRD13B, CORO6, SSH2, EFCAB5, CCDC55, SLC6A4, BLMH, TMIGD1, CPD, GOSR1, TBC1D29, CRLF3, ATAD5, C17orf42, ADAP2, RNF135, NF1, OMG, EVI2B, EVI2A, , RAB11FIP4, C17orf79, UTP6, SUZ12, LRRC37B, RHOT1, RHBDL3, C17orf75, ZNF207, PSMD11, CDK5R1, MYO1D, TMEM98, SPACA3, ACCN1, CCL2, CCL7, CCL11, CCL8, CCL13, CCL1, C17orf102, TMEM132E, CCT6B, ZNF830, LIG3, RFFL, RAD51L3, FNDC8, NLE1, UNC45B, AMAC1, SLFN5, SLFN11, SLFN12, SLFN13, SLFN12L, SLFN14, PEX12, AP2B1, RASL10B, GAS2L2, C17orf50, MMP28, TAF15, C17orf66, 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18	20492631	21668532	20:49	0.92152778	q11.2	TP1805A01	TP1804H0	11	1,175,901	0.221902283821002	3	C10, C11, C24	RBBP8, CABLES1, C18orf45, RIOK3, C18orf8, NPC1, ANKRD29, LAMA3, TTC39C		V_7180, V_4054, V_88752, V_77829, V_88753, V_114552	V_88752, V_77829, V_88753, V_5896, V_110134, V_4054, V_7180, V_47911, V_102610, V_114552
18	43385615	46642103	43:39:00	46.64	q12.3-q21.1	TP1801D04	TP1806B0	33	3,256,488	0.675609712865275	6	C9, C10, C11, C13, C24, MPC298, MPC960	SIGLEC15, KIAA1632, PSTPIP2, ATP5A1, HAUS1, C18orf25, RNF165, LOXHD1, ST8SIA5, PIAS2, KATNAL2, TCEB3CL2, TCEB3CL, TCEB3C, TCEB3B, HDHD2, IER3IP1, SMAD2, ZBTB7C, C18orf12, KIAA0427, SMAD7, DYM		V_30870, V_32213, V_67350, V_67352, V_58832, V_5054, V_5055, V_5056, V_88824, V_77872, V_88827, V_77873, V_88828, V_107582, V_114580, V_114581, V_114582, V_114583, V_9781, V_49993, V_49994, V_73138, V_73139, V_73140, V_73142, V_73144, V_73143, V_73145, V_73147	V_9781, V_114580, V_102652, V_114581, V_88824, V_73138, V_67350, V_102653, V_5054, V_110188, V_77872, V_88827, V_30870, V_32213, V_104348, V_77873, V_88828, V_73139, V_35546, V_73140, V_35547, V_35548, V_5055, V_35549, V_35550, V_35551, V_35552, V_0506, V_35553, V_35554, V_35555, V_35556, V_35557, V_35558, V_35559, V_35560, V_35561, V_35562, V_35563, V_35564, V_35565, V_35566, V_35567, V_114582, V_107582, V_114583, V_73142, V_73144, V_73143, V_104349, V_110189, V_102655, V_110190, V_67352, V_73145, V_102656, V_35568, V_35569, V_35570, V_35571, V_107024, V_33924, V_110191, V_49993, V_49994, V_110193, V_1976, V_58832, V_73147, V_5056
18	76235066	76435024	76:24:00	76:44:00	q23	TP1803B06	TP1801E0	3	0.199958	0.553837676417986	3	C9, C24, MPC298			V_8861, V_30876, V_30877, V_32225, V_30878, V_67413, V_67414, V_58852, V_4064, V_88968, V_88972, V_88974, V_77970, V_88975, V_77972, V_77973, V_77974, V_88976, V_88977, V_88979, V_77975, V_88978, V_88980, V_88981, V_88982, V_106439, V_73195, V_73197, V_73200, V_73201, V_73202	V_4064, V_88968, V_102733, V_30876, V_35597, V_73195, V_35598, V_30877, V_73197, V_104371, V_102734, V_32225, V_104372, V_67413, V_88972, V_1519, V_1988, V_58852, V_30878, V_88974, V_77970, V_88975, V_77972, V_77973, V_77974, V_88976, V_88977, V_88979, V_77975, V_88978, V_88980, V_88981, V_88982, V_102735, V_61651, V_35599, V_8861, V_67414, V_104374, V_35600, V_73200, V_73201, V_73202, V_106439, V_23546
18	76651842	77875127	76.65	77.88	q23	TP1015G12	TP1804G0	16	1,223,285	0.368114810306816	6	C10, C11, C13, C18, C24, MPC298	SALL3, ATP9B, NFATC1, CTDP1, KCNG2, PQLC1, TXNL4A, C18orf22, ADNP2		V_38378, V_67417, V_67418, V_67421, V_5064, V_77988, V_77991, V_77993, V_88991, V_88994, V_88995, V_89001, V_77989, V_88993, V_77996, V_88996, V_89002, V_77997, V_88997, V_77995, V_89003, V_88999, V_89004, V_77992, V_88998, V_89007, V_89008, V_77999, V_78001, V_89009, V_78000, V_89006, V_78002, V_89011, V_78005, V_78003, V_78004, V_89012, V_78006, V_89013, V_78007, V_89014, V_78015, V_78016, V_89018, V_78018, V_89019, V_89022, V_78020, V_89023, V_89024, V_114655, V_114656, V_114657, V_114658, V_114659, V_114661, V_114662, V_106440, V_107771, V_106441, V_50058, V_50059, V_50060, V_73210, V_73211, V_73212, V_73213, V_73214, V_73215, V_73216, V_73219, V_73218, V_73220, V_73221, V_73222, V_73223, V_73225, V_73229, V_73228, V_73230, V_73232, V_73233, V_73234, V_73235	V_50058, V_67417, V_38378, V_50059, V_73210, V_114655, V_114656, V_114657, V_73211, V_35601, V_77988, V_77991, V_77993, V_88991, V_88994, V_88995, V_89001, V_35602, V_110207, V_102739, V_104376, V_73212, V_43980, V_77989, V_88993, V_77996, V_88996, V_89002, V_77997, V_88997, V_77995, V_89003, V_35603, V_88999, V_89004, V_73213, V_106440, V_73214, V_77992, V_88998, V_23547, V_89007, V_89008, V_77999, V_78001, V_89009, V_78000, V_89006, V_1989, V_73215, V_104377, V_23548, V_102741, V_78002, V_89011, V_78005, V_78003, V_78004, V_89012, V_78006, V_89013, V_102743, V_61652, V_114658, V_43310, V_67418, V_5927, V_78007, V_89014, V_73216, V_73219, V_107771, V_73218, V_114659, V_102745, V_5064, V_73220, V_78015, V_78016, V_89018, V_73221, V_114661, V_110208, V_61653, V_43431, V_105992, V_23549, V_73223, V_106441, V_23550, V_35604, V_104378, V_73225, V_78018, V_89019, V_89022, V_78020, V_89023, V_102747, V_110209, V_114661, V_102749, V_102750, V_73229, V_73228, V_102751, V_73230, V_104379, V_73232, V_89024, V_67421, V_50060, V_102753, V_73233, V_104380, V_23551, V_73234, V_61656, V_104381, V_73235, V_114662
19	124843	8687198	0:12	0.38125	p13.3-p13.2	TP1409H01	TP1610G0	90	8,562,355	0.517701771927568	8	C5, C10, C11, C13, C17 , C18, C22, C24, MPC298	PPAP2C, MIER2, THEG, FAM148C, SHC2, ODF3L2, MADCAM1, C19orf20, CDC34, GZMM, BSG, HCN2, POLRMT, FGF22, RNF126, FSTL3, PRSSL1, PALM, C19orf21, PTBP1, AZU1, PRTN3, ELANE, CFD, MED16, C19orf22, KISS1R, ARID3A, WDR18, GRIN3B, C19orf6, CNN2, ABCA7, HMHA1, POLR2E, GPX4, SBNO2, STK11, C19orf26, ATP5D, MIDN, C19orf23, CIRBP, C19orf24, MUM1, EFNA2, NDUFS7, GAMT, DAZAP1, RPS15, APC2, C19orf25, PCSK4, REEP6, ADAMTSL5, PLK5P, MEX3D, MBD3, UQCR, TCF3, ONECUT3, ATP8B3, REXO1, KLF16, FAM108A1, SCAMP4, ADAT3, CSNK1G2, C19orf34, BTBD2, MKNK2, MOBKL2A, C19orf36, AP3D1, DOT1L, PLEKHJ1, SF3A2, AMH, JSRP1, OAZ1, C19orf35, LINGO3, LSM7,TMPRSS9, TIMM13, LMNB2, GADD45B, DIRAS1, SLC39A3, SGTA, THOP1, ZNF554, ZNF555, ZNF556, ZNF77, ZNF57, TLE6, AES, GNA11, GNA15, S1PR4, NCLN, BRUNOL5, NFIC, DOHH, RAX2, FZR1, C19orf28, C19orf71, HMG20B, GIPC3, C19orf64, TBXA2R, C19orf29OS, PIP5K1C, TJP3, APBA3, MRPL54, MATK, ZFR2, ATCAY, ITGB1BP3, DAPK3, EEF2, PIAS4, ZBTB7A, MAP2K2, CREB3L3, SIRT6, ANKRD24, EBI3, CCDC94, SHD, TMIGD2, FSD1, STAP2, MPND, SH3GL1, CHAF1A, UBXN6, , KIAA1881, LRG1, SEMA6B, TNFAIP8L1, C19orf10, FEM1A, TICAM1, M6PRBP1, ARRDC5, C19orf31, KDM4B, PTPRS, ZNRF4, SAFB2, SAFB, C19orf70, HSD11B1L, RPL36, LONP1,	hsa-mir-1909, hsa-mir-1227, hsa-mir-637, hsa-mir-7-3, hsa-mir-220b	V_34508, V_34616, V_8862, V_8863, V_9301, V_9302, V_38123, V_37710, V_38392, V_37640, V_7203, V_7191, V_7202, V_7223, V_7224, V_30879, V_32226, V_30880, V_30881, V_32227, V_30882, V_30883, V_30884, V_32228, V_30885, V_30886, V_30887, V_67423, V_67424, V_67425, V_67427, V_67429, V_67428, V_67431, V_67433, V_67435, V_67437, V_67438, V_67439, V_67442, V_67445, V_67446, V_67449, V_67450, V_67451, V_67452, V_67454, V_67455, V_67456, V_67457, V_67458, V_58866, V_4065, V_4066, V_2237, V_5065, V_5066, V_5067, V_5068, V_5069, V_5070, V_5071, V_5072, V_5073, V_5074, V_5075, V_5076, V_5077, V_5078, V_2238, V_78024, V_78025, V_78026, V_78027, V_89029, V_78028, V_89028, V_78029, V_89030, V_78030, V_89038, V_89039, V_78031, V_89036, V_78037, V_89037, V_78040, V_78036, V_89040, V_78044, V_89044, V_89047, V_78049, V_89049, V_78051, V_78050, V_89052, V_89050, V_89053, V_78054, V_78057, V_89056, V_78059, V_78060, V_89058, V_78061, V_78063, V_89062, V_89063, V_78065, V_106213, V_114665, V_114666, V_114667, V_114669, V_114670, V_114668, V_114671, V_114672, V_114673, V_114674, V_114676, V_114677, V_114678, V_114679, V_114680, V_114682, V_114684, V_114685, V_114687, V_114688, V_114690, V_114691, V_114693, V_114694, V_114696, V_114700, V_114701, V_114702, V_114703, V_114704, V_114705, V_114706, V_114707, V_114710, V_114711, V_114712, V_114713, V_114716, V_114717, V_114719, V_114721, V_114722, V_106443, V_106446, V_5341, V_5342, V_5340, V_53253, V_53678, V_53463, V_53487, V_53554, V_10540, V_30050, V_30051, V_30052, V_30053, V_30049, V_30054, V_30055, V_30056, V_29682, V_29683, V_29684, V_30057, V_30058, V_10541, V_30059, V_30060, V_30061, V_30062, V_30063, V_30064, V_30065, V_30066, V_30067, V_30068, V_30069, V_30070, V_10542, V_50140, V_50077, V_50078, V_50093, V_50156, V_50167, V_50191, V_50199, V_50241, V_50242, V_73240, V_73242, V_73243, V_73244, V_73245, V_73246, V_73241, V_73247, V_73249, V_73250, V_73248, V_73251, V_73252, V_73253, V_73257, V_73256, V_73259, V_73263, V_73262, V_73264, V_73261, V_73266, V_73267, V_73268, V_73270, V_73272, V_73274, V_73275, V_73276, V_73277, V_73278, V_73279, V_73281, V_73282, V_73283, V_73284, V_73285, V_73288, V_73289, V_73290, V_73292, V_73293, V_73296, V_73297,	V_73240, V_73242, V_30879, V_78024, V_73243, V_104383, V_32226, V_73244, V_78025, V_73245, V_73246, V_73241, V_106443, V_73247, V_4065, V_78026, V_102754, V_30880, V_30881, V_67423, V_67424, V_104384, V_32227, V_61657, V_30882, V_30883, V_78027, V_89029, V_78028, V_89028, V_30884, V_5928, V_32228, V_67425, V_107046, V_73249, V_73250, V_73248, V_10540, V_102755, V_73251, V_61659, V_73252, V_30050, V_73253, V_102756, V_78029, V_89030, V_78030, V_73257, V_35624, V_73256, V_104385, V_37636, V_23563, V_23564, V_73259, V_67427, V_73263, V_7203, V_73262, V_50140, V_73264, V_73261, V_114665, V_104387, V_67429, V_102757, V_30051, V_30052, V_114666, V_43526, V_30053, V_73266, V_114667, V_30049, V_110266, V_114669, V_114670, V_114668, V_73267, V_114671, V_30054, V_30055, V_107060, V_73268, V_33960, V_30056, V_114672, V_30885, V_4066, V_2237, V_5065, V_5929, V_114673, V_102758, V_102759, V_73270, V_107062, V_114674, V_114676, V_29682, V_114677, V_114678, V_29683, V_29684, V_35605, V_50070, V_35606, V_73272, V_35607, V_35608, V_107037, V_102761, V_23552, V_30057, V_110213, V_23553, V_114679, V_30058, V_114680, V_73274, V_114682, V_7191, V_37201, V_114684, V_5066, V_114685, V_114687, V_10541, V_67431, V_30059, V_30060, V_50077, V_5930, V_50078, V_73275, V_114688, V_73276, V_114690, V_110219, V_50093, V_30061, V_30062, V_114691, V_102764, V_73277, V_114693, V_30063, V_104388, V_114694, V_73278, V_73279, V_30064, V_30065, V_114696, V_67433, V_5067, V_5068, V_114700, V_114701, V_114702, V_110115, V_73281, V_73282, V_5069, V_114703, V_67435, V_73283, V_73284, V_114704, V_58866, V_102768, V_73285, V_102769, V_110226, V_102770, V_67437, V_23559, V_67438, V_67439, V_5070, V_5071, V_23262, V_110227, V_104390, V_102772, V_73288, V_106446, V_5931, V_105994, V_23560, V_5072, V_102774, V_89038, V_89039, V_78038, V_89036, V_78037, V_89037, V_78040,
19	10189325	11998892	10:19	12	p13.2	TP1901H09	TP1901H0	23	1,809,567	0.398196889052288	4	C11, C17 , C22, C24	C19orf66, ANGPTL6, PPAN, EIF3G, DNMT1, S1PR2, MRPL4, ICAM1, ICAM4, ICAM5, FDX1L, RAVER1, ICAM3, TYK2, CDC37, PDE4A, KEAP1, S1PR5, ATG4D, KRI1, CDKN2D, AP1M2, SLC44A2, ILF3, QTRT1, DNM2, TMED1, C19orf38, CARM1, YIPF2, C19orf52, SMARCA4, LDLR, SPC24, KANK2, DOCK6, TSPAN16, RAB3D, TMEM205, C19orf39, EPOR, RGL3, CCDC151, PRKCSH, ELAVL3, ZNF653, ECSIT, CNN1, ELOF1, ACP5, ZNF627, ZNF823, ZNF441, ZNF491, ZNF440, ZNF439, ZNF69	hsa-mir-1181, hsa-mir-1238, hsa-mir-638, hsa-mir-199a-1	V_67464, V_67465, V_67466, V_67467, V_67468, V_58853, V_58856, V_5085, V_5086, V_5087, V_78083, V_89089, V_78086, V_78087, V_89090, V_89092, V_78084, V_89091, V_78089, V_114729, V_29685, V_29686, V_73312	V_5085, V_78083, V_89089, V_67464, V_110211, V_29685, V_29686, V_67465, V_104396, V_114729, V_58853, V_110212, V_5086, V_5087, V_5939, V_37199, V_37200, V_67466, V_78086, V_78087, V_89090, V_89092, V_73312, V_78084, V_89091, V_78089, V_67467, V_110215, V_58856, V_67468
19	16059937	16662066	16:06	0.7125	p13.12-p13.11	TP1903E02	TP1904B1	5	0.602129	0.369027069251275	3	C9, C11, C24	OR10H4, TPM4, RAB8A, HSH2D, CIB3, FAM32A, AP1M1, KLF2, EPS15L1, CALR3, C19orf44, CHERP, SLC35E1		V_67483, V_89138, V_89146, V_89150, V_114751, V_50084, V_50085, V_50086, V_50087, V_50088, V_50089	V_89138, V_89146, V_50084, V_50085, V_67483, V_89150, V_50086, V_50087, V_50088, V_5942, V_50089, V_114751
19	17349068	19912960	17:35	0.85486111	p13.11	TP1905E11	TP1908H1	37	2,563,892	0.360955868275793	5	C11, C13, C17 , C18, C24	NR2F6, USHBP1, ANKLE1, ABHD8, MRPL34, DDA1, ANO8, GTPBP3, PLVAP, BST2, FAM125A, TMEM221, NXNL1, SLC27A1, PGLS, FAM129C, GLT25D1, UNC13A, MAP1S, FCHO1, B3GNT3, JAK3, RPL18A, SLC5A5, CCDC124, KCNN1, ARRDC2, IL12RB1, MAST3, PIK3R2, IFI30, MPV17L2, RAB3A, PDE4C, KIAA1683, JUND, LSM4, PGPEP1, GDF15, LRRC25, SSBP4, ISYNA1, ELL, FKBP8, C19orf50, C19orf60, CRLF1, TMEM59L, KLHL26, CRTC1, COMP, UPF1, GDF1, COPE, DDX49, HOMER3, SFRS14, ARMC6, SLC25A42, TMEM161A, MEF2B, RFXANK, NR2C2AP, NCAN, HAPLN4, TM6SF2, SF4, KIAA0892, GATAD2A, TSSK6, NDUFA13, CILP2, PBX4, LPAR2, GMIP, ATP13A1, ZNF101, ZNF14	hsa-mir-640	V_7193, V_7194, V_67488, V_67489, V_67490, V_58863, V_58864, V_58865, V_5091, V_5092, V_5093, V_78133, V_89151, V_107586, V_114755, V_114756, V_114757, V_114758, V_114760, V_114761, V_114762, V_5338, V_30072, V_30071, V_30073, V_30074, V_30075, V_10545, V_50091, V_50094, V_73321, V_73323, V_73324, V_73326	V_30072, V_73321, V_30071, V_50091, V_110220, V_39226, V_67488, V_5338, V_5091, V_110221, V_107586, V_5092, V_5093, V_114755, V_58863, V_30073, V_30074, V_30075, V_114756, V_67489, V_73323, V_73324, V_107040, V_114757, V_114758, V_10545, V_114760, V_73326, V_58864, V_35613, V_35614, V_7193, V_35615, V_67490, V_114761, V_22740, V_58865, V_104404, V_114762, V_7194, V_78133, V_89151, V_50094
19	27797078	28296632	27:08:00	28:03:00	q11	TP1906A02	TP1906C0	6	0.499554	0.341459154445495	3	C4, C6, C21			V_7198, V_67512, V_67513, V_5096, V_4074, V_78149, V_89178, V_78150, V_89179, V_78151, V_89180, V_10549, V_50122, V_73334, V_73335	V_78149, V_89178, V_102814, V_73334, V_23232, V_102815, V_23082, V_22521, V_102816, V_5096, V_102818, V_63062, V_10549, V_50122, V_59747, V_61692, V_23561, V_73335, V_78150, V_89179, V_78151, V_4074, V_102819, V_67512, V_22529, V_89180, V_67513, V_7198
19	30102080	30525340	30:01:00	30:53:00	q12	TP1903A02	TP1906D0	5	0.42326	0.29607361820357	4	C13, C17 , C18, C22	POP4, PLEKHF1, C19orf12, CCNE1, C19orf2		V_67522, V_78160, V_89194, V_114780, V_114781, V_50126	V_61695, V_67522, V_78160, V_89194, V_59748, V_114780, V_114781, V_35622, V_35623, V_110229, V_102825, V_61698, V_22542, V_43569, V_39229, V_23051, V_23562, V_5948, V_43985, V_39230, V_50126
19	38442569	43016302	38:44:00	43:02:00	q13.13-q13.2	TP1908C02	TP1903A0	64	4,573,733	0.407985507594435	4	C11, C17 , C18, C22	SIPA1L3, DPF1, PPP1R14A, SPINT2, C19orf33, YIF1B, KCNK6, C19orf15, PSMD8, GGN, SPRED3, FAM98C, RASGRP4, RYR1, MAP4K1, EIF3K, ACTN4, CAPN12, LGALS7, LGALS7B, LGALS4, ECH1, HNRNPL, RINL, SIRT2, NFKBIB, FBXO17, MRPS12, FBXO27, PAK4, NCCRP1, SYCN, IL28B, IL28A, IL29, LRFN1, GMFG, SAMD4B, PAF1, MED29, ZFP36, PLEKHG2, RPS16, SUPT5H, TIMM50, DLL3, EID2B, EID2, LGALS13, LGALS14, CLC, LEUTX, DYRK1B, FBL, FCGBP, PSMC4, ZNF546, ZNF780B, ZNF780A, MAP3K10, TTC9B, CNTD2, AKT2, C19orf47, PLD3, HIPK4, PRX, SERTAD1, SERTAD3, BLVRB, SPTBN4, SHKBP1, LTBP4, NUMBL, ADCK4, ITPKC, C19orf54, SNRPA, MIA, RAB4B, EGLN2, CYP2A7, CYP2B6, CYP2A7P1, CYP2A13, CYP2F1, CYP2S1, AXL, HNRNPUL1, CCDC97, TGFB1, B9D2, TMEM91, EXOSC5, B3GNT8, ATP5SL, C19orf69, CEACAM21, CEACAM4, CEACAM7, CEACAM5, CEACAM6, CEACAM3, LYPD4, DMRTC2, RPS19, CD79A, ARHGEF1, RABAC1, ATP1A3, GRIK5, ZNF574, POU2F2, DEDD2, ZNF526, GSK3A, ERF, CIC, PAFAH1B3, PRR19, TMEM145, MEGF8, CNFN, LIPE, CXCL17, CEACAM1	hsa-mir-641	V_3191, V_38886, V_38821, V_38382, V_38383, V_38384, V_37707, V_7204, V_7205, V_30904, V_30905, V_32253, V_30906, V_32254, V_30907, V_32255, V_67543, V_67546, V_67547, V_67548, V_67549, V_67550, V_67551, V_67552, V_67554, V_58877, V_58878, V_58880, V_4079, V_4080, V_5100, V_4081, V_78182, V_89222, V_78183, V_89223, V_89226, V_89227, V_89225, V_89224, V_78184, V_78185, V_78186, V_89228, V_89229, V_78188, V_78189, V_89231, V_89233, V_78190, V_78191, V_78187, V_89232, V_89234, V_89235, V_89236, V_78193, V_78192, V_89237, V_89238, V_78194, V_89239, V_78195, V_89240, V_89241, V_89242, V_89244, V_89243, V_89245, V_78198, V_78199, V_89246, V_89247, V_78200, V_78201, V_89248, V_89249, V_78202, V_78203, V_89250, V_107591, V_106212, V_114802, V_114804, V_107779, V_107781, V_5445, V_5446, V_53890, V_53651, V_9794, V_10554, V_9795, V_10556, V_9796, V_10555, V_30076, V_10557, V_50139, V_50141, V_50142, V_50143, V_50144, V_50145, V_50146, V_73364, V_73365, V_73366, V_73367, V_73368, V_73370, V_73371, V_73373, V_73374, V_73375	V_102837, V_5953, V_73364, V_39234, V_50139, V_73365, V_9794, V_37203, V_110116, V_37204, V_37205, V_0513, V_30904, V_30905, V_73366, V_102839, V_73367, V_5954, V_47964, V_10554, V_43691, V_32253, V_4079, V_30906, V_0514, V_35640, V_67543, V_78182, V_89222, V_107779, V_35641, V_0515, V_35642, V_35643, V_38886, V_35644, V_107781, V_35645, V_32254, V_4080, V_102841, V_61705, V_39235, V_43987, V_78183, V_89223, V_89226, V_89227, V_89225, V_89224, V_78184, V_78185, V_78186, V_89228, V_7204, V_89229, V_89230, V_30907, V_78188, V_78189, V_89231, V_89233, V_78190, V_78191, V_78187, V_89232, V_89234, V_110240, V_110241, V_110242, V_58877, V_5100, V_73368, V_4081, V_89235, V_89236, V_9795, V_10556, V_78193, V_67546, V_32255, V_7205, V_50141, V_38821, V_23223, V_1990, V_114802, V_35646, V_9796, V_10555, V_50142, V_53890, V_78192, V_89237, V_50143, V_89238, V_107591, V_78194, V_89239, V_78195, V_89240, V_3191, V_102842, V_30076, V_50144, V_50145, V_53651, V_89241, V_1299, V_38382, V_67547, V_67548, V_73370, V_67549, V_89242, V_89244, V_89243, V_89245, V_78198, V_78199, V_89246, V_89247, V_106212, V_58878, V_73371, V_110243, V_78200, V_78201, V_89248, V_89249, V_38383, V_67550, V_10557, V_50146, V_35647, V_38384, V_67551, V_107052, V_67552, V_37707, V_78202, V_102845, V_73373, V_104416, V_78203, V_89250, V_5955, V_110117, V_67554, V_73374, V_58880, V_5445, V_114804, V_73375, V_5446
19	45106386	51621674	45:11:00	51.62	q13.31-q13.41	TP1903A11	TP1901A0	91	6,515,288	0.639230203170743	6	C11, C13, C17 , C18, C22, C24	PVR, CEACAM19, CEACAM16, BCL3, CBLC, BCAM, PVRL2, TOMM40, APOE, APOC1, APOC4, APOC2, CLPTM1, RELB, SFRS16, ZNF296, GEMIN7, LRRC68, NKPD1, TRAPPC6A, BLOC1S3, EXOC3L2, MARK4, CKM, KLC3, ERCC2, PPP1R13L, CD3EAP, ERCC1, FOSB, RTN2, VASP, OPA3, GPR4, EML2, GIPR, SNRPD2, QPCTL, FBXO46, SIX5, DMPK, DMWD, RSHL1, SYMPK, FOXA3, IRF2BP1, MYPOP, NANOS2, NOVA2, CCDC61, PGLYRP1, IGFL4, IGFL3, IGFL2, HIF3A, PPP5C, CCDC8, PNMAL1, PNMAL2, CALM3, PTGIR, GNG8, DACT3, PRKD2, STRN4, FKRP, SLC1A5, AP2S1, GRLF1, NPAS1, TMEM160, ZC3H4, SAE1, BBC3, CCDC9, C5AR1, GPR77, DHX34, MEIS3, SLC8A2, KPTN, NAPA, ZNF541, GLTSCR1, EHD2, GLTSCR2, SEPW1, TPRX1, CRX, SULT2A1, BSPH1, ELSPBP1, CABP5, CABP3, PLA2G4C, LIG1, C19orf68, CARD8, ZNF114, CCDC114, EMP3, TMEM143, SYNGR4, KDELR1, GRIN2D, GRWD1, KCNJ14, CYTH2, LMTK3, SULT2B1, FAM83E, SPACA4, RPL18, SPHK2, DBP, CA11, NTN5, FUT2, MAMSTR, RASIP1, IZUMO1, FUT1, FGF21, BCAT2, HSD17B14, PLEKHA4, PPP1R15A, TULP2, NUCB1, DHDH, BAX, FTL, GYS1, RUVBL2, LHB, CGB, CGB2, CGB1, NTF6B, CGB5, CGB8, CGB7, NTF4, KCNA7, SNRNP70, LIN7B, C19orf73, PPFIA3, HRC, TRPM4, SLC6A16, CD37, TEAD2, DKKL1, CCDC155, PTH2, SLC17A7, PIH1D1, ALDH16A1, FLT3LG, RPL13A, RPS11, FCGRT, RCN3, NOSIP, PRRG2,	hsa-mir-330, hsa-mir-642, hsa-mir-769, hsa-mir-220c, hsa-mir-150	V_8874, V_104177, V_37708, V_38386, V_38387, V_38890, V_7208, V_7209, V_7210, V_7211, V_7212, V_7213, V_30910, V_30911, V_32261, V_30912, V_67562, V_67565, V_67568, V_67569, V_67570, V_67571, V_67572, V_67573, V_67574, V_67577, V_67579, V_67580, V_67581, V_67582, V_67583, V_67585, V_67584, V_67586, V_67587, V_67588, V_67590, V_58883, V_58884, V_58885, V_58886, V_0221, V_5103, V_5104, V_4083, V_5105, V_5106, V_5107, V_5108, V_5109, V_5110, V_5111, V_5112, V_2246, V_5113, V_5114, V_4084, V_2247, V_78217, V_89268, V_89269, V_78218, V_89271, V_89270, V_78220, V_89275, V_78221, V_89276, V_78222, V_89277, V_78223, V_89278, V_78226, V_89282, V_78227, V_89283, V_78236, V_89288, V_78238, V_78237, V_89289, V_78239, V_78242, V_78243, V_78244, V_89292, V_78245, V_89293, V_78247, V_89294, V_78248, V_114812, V_114815, V_114816, V_114817, V_114818, V_114821, V_114822, V_114824, V_114825, V_114826, V_114827, V_114828, V_114829, V_107783, V_106449, V_5343, V_9802, V_10563, V_9803, V_9804, V_50181, V_50182, V_50183, V_50184, V_50185, V_50186, V_50187, V_50188, V_50189, V_50190, V_50192, V_50193, V_50194, V_50195, V_50196, V_50197, V_73385, V_73389, V_73390, V_73391, V_73392, V_73393, V_73394, V_73395, V_73397, V_73398, V_73399, V_73402, V_73403, V_73405, V_73406, V_73404, V_73407, V_73408	V_0221, V_67562, V_30910, V_5956, V_67565, V_5103, V_114812, V_110244, V_5343, V_23566, V_73385, V_9802, V_37708, V_50181, V_110245, V_102850, V_35650, V_78217, V_102851, V_35651, V_114815, V_67568, V_89268, V_67569, V_73389, V_102852, V_102853, V_110246, V_23567, V_89269, V_78218, V_102854, V_89271, V_89270, V_67570, V_38386, V_114816, V_78220, V_89275, V_5104, V_110248, V_67571, V_5957, V_50182, V_50183, V_7208, V_102855, V_58883, V_67572, V_67573, V_4083, V_30911, V_50184, V_102856, V_110249, V_67574, V_50185, V_107053, V_114817, V_0516, V_35652, V_107783, V_32261, V_73390, V_73391, V_35653, V_73392, V_35654, V_35655, V_73393, V_73394, V_35656, V_35657, V_73395, V_35658, V_0517, V_35659, V_35660, V_5105, V_47965, V_59751, V_50186, V_5106, V_50187, V_50188, V_50189, V_78221, V_89276, V_73397, V_114818, V_73398, V_10563, V_114821, V_5958, V_38387, V_50190, V_78222, V_89277, V_78223, V_5107, V_102858, V_61710, V_5108, V_5109, V_67577, V_114822, V_50192, V_110250, V_58884, V_107054, V_5110, V_89278, V_78226, V_89282, V_5111, V_35661, V_5112, V_114824, V_2246, V_5113, V_9803, V_30912, V_73399, V_37206, V_102859, V_5114, V_78227, V_89283, V_110252, V_37207, V_37208, V_67579, V_8874, V_67580, V_58885, V_4084, V_2247, V_67581, V_78236, V_89288, V_78238, V_78237, V_89289, V_102860, V_7209, V_35662, V_35663, V_73402, V_104420, V_35664, V_35665, V_73403, V_35666, V_35667, V_35668, V_35669, V_7210, V_78239, V_78242, V_78243, V_110253, V_110254, V_78244, V_89292, V_61711, V_67582, V_78245, V_89293, V_114825, V_114826, V_102862, V_73405, V_73406, V_73404, V_78247, V_89294, V_78248, V_114827, V_7211, V_7212, V_7213, V_114828, V_114829, V_67583, V_67585, V_38890, V_9804, V_50193, V_50194, V_67584, V_73407, V_50195, V_50196, V_50197, V_104177, V_110255, V_67586, V_104421, V_23568, V_5959, V_106449, V_73408, V_110256, V_67587, V_67588, V_67590, V_48034, V_58886
19	54081620	54741521	54:08:00	54.74	q13.42	TP1905A01	TP1904E1	12	0.659901	0.278532445727914	3	C11, C17 , C18	ZNF331, DPRX, NLRP12, MYADM, PRKCG, CACNG7, CACNG8, CACNG6, VSTM1, NDUFA3, OSCAR, TFPT, PRPF31, CNOT3, LENG1, TMC4, MBOAT7, TSEN34, RPS9, LILRB3	hsa-mir-512-1, hsa-mir-512-1, hsa-mir-1323, hsa-mir-498, hsa-mir-520e, hsa-mir-515-1, hsa-mir-519e, hsa-mir-520f, hsa-mir-515-1, hsa-mir-519c, hsa-mir-1283-1, hsa-mir-520a, hsa-mir-526b, hsa-mir-519b, hsa-mir-525, hsa-mir-523, hsa-mir-518f, hsa-mir-520b, hsa-mir-518b, hsa-mir-526a-1, hsa-mir-520c, hsa-mir-518c, hsa-mir-524, hsa-mir-517a, hsa-mir-519d, hsa-mir-521-2, hsa-mir-520d, hsa-mir-517b, hsa-mir-520g, hsa-mir-516b-2, hsa-mir-526a-2, hsa-mir-518e, hsa-mir-518a-1, hsa-mir-518d, hsa-mir-516b-1, hsa-mir-518a-2, hsa-mir-517c, hsa-mir-520h, hsa-mir-521-1, hsa-mir-522, hsa-mir-519a-1, hsa-mir-527, hsa-mir-516a-1, hsa-mir-1283-2, hsa-mir-516a-2, hsa-mir-519a-2, hsa-mir-371, hsa-mir-372, hsa-mir-373, hsa-mir-935	V_3199, V_104182, V_107993, V_38845, V_7218, V_30919, V_30920, V_30921, V_32268, V_67601, V_67602, V_67603, V_67604, V_67605, V_67606, V_67610, V_67608, V_67609, V_58891, V_5115, V_4088, V_78263, V_78264, V_89309, V_78265, V_78266, V_89310, V_78267, V_78268, V_89311, V_89312, V_107592, V_107593, V_114845, V_114846, V_114847, V_114848, V_107784, V_53265, V_53540, V_53564, V_9813, V_9814, V_9815, V_10566, V_10567, V_50205, V_50206, V_50207, V_50208, V_50209, V_50210, V_50211, V_50212, V_73418, V_73420, V_73421, V_73422	V_61715, V_67601, V_102875, V_67602, V_5115, V_67603, V_73418, V_104423, V_67604, V_104424, V_114845, V_78263, V_78264, V_89309, V_78265, V_50205, V_30919, V_23143, V_0519, V_35674, V_114846, V_104425, V_67605, V_107784, V_102876, V_78266, V_89310, V_58891, V_107592, V_67606, V_50206, V_30920, V_4088, V_3199, V_35675, V_48058, V_53265, V_0520, V_35676, V_50207, V_35677, V_107993, V_35678, V_61717, V_107055, V_67610, V_30921, V_114847, V_73420, V_35679, V_32268, V_78267, V_78268, V_89311, V_89312, V_37528, V_107593, V_7218, V_38845, V_104182, V_9813, V_9814, V_9815, V_10566, V_10567, V_50208, V_50209, V_50210, V_50211, V_50212, V_53540, V_53564, V_108008, V_67608, V_104426, V_114848, V_67609, V_73421, V_73422
19	55821629	56148436	55.82	56:15:00	q13.42	TP1908G08	TP1906A0	3	0.326807	0.33085689808496	3	C11, C17 , C18	BRSK1, TMEM224, SUV420H2, COX6B2, FAM71E2, IL11, TMEM190, RPL28, UBE2S, ISOC2, ZNF628, NAT14, SBK2, ZNF579, FIZ1, ZNF524, ZNF784		V_67618, V_78280, V_114856, V_114857, V_30085, V_50228	V_30085, V_50228, V_114856, V_67618, V_114857, V_78280
19	58575280	59077721	58:58:00	59:08:00	q13.43	TP1908A06	TP1908H0	6	0.502441	0.317280040456992	4	C11, C13, C17 , C18	ZNF135, ZSCAN18, ZNF329, ZNF274, ZNF544, ZNF8, ZSCAN22, A1BG, ZNF497, ZNF837, RPS5, ZNF324B, ZNF132, ZNF324, ZNF446, SLC27A5, ZBTB45, TRIM28, CHMP2A, UBE2M, MZF1		V_3204, V_5118, V_5119, V_114868, V_114869, V_10572, V_50237, V_50238, V_50239, V_50240, V_73449	V_5118, V_5119, V_10572, V_50237, V_50238, V_50239, V_50240, V_3204, V_102892, V_114868, V_114869, V_73449
20	2869480	8758526	0.14375	0.38611111	p13-p12.3	TP2003E09	TP2004D0	63	5,889,046	0.476713988752898	3	C10, C17 , C21	PTPRA, GNRH2, MRPS26, OXT, AVP, UBOX5, FASTKD5, DDRGK1, ITPA, SLC4A11, C20orf194, ATRN, GFRA4, ADAM33, SIGLEC1, HSPA12B, C20orf27, SPEF1, CENPB, CDC25B, C20orf29, MAVS, PANK2, RNF24, SMOX, ADRA1D, PRNP, PRND, PRNT, RASSF2, SLC23A2, C20orf30, PCNA, CDS2, PROKR2, C20orf196, CHGB, TRMT6, MCM8, CRLS1, LRRN4, FERMT1, BMP2, HAO1, TMX4, PLCB1	hsa-mir-103-2	V_3206, V_8879, V_104188, V_38443, V_37888, V_7305, V_7313, V_32408, V_67638, V_67642, V_67643, V_67644, V_67645, V_67647, V_67648, V_67649, V_67650, V_59029, V_5121, V_5122, V_5123, V_5124, V_4092, V_90443, V_90445, V_79109, V_90446, V_79111, V_90448, V_79112, V_90447, V_90449, V_90450, V_90451, V_90454, V_79113, V_90455, V_79114, V_79115, V_90456, V_90458, V_106235, V_114880, V_114881, V_114882, V_114884, V_114885, V_114887, V_114888, V_106478, V_5346, V_50655, V_50660, V_50665, V_50676, V_50692, V_50693, V_50694, V_50695, V_50723, V_50724, V_50725, V_73462	V_6046, V_7305, V_102901, V_6047, V_5121, V_114880, V_102902, V_102903, V_44048, V_67638, V_114881, V_90443, V_50655, V_114882, V_90445, V_102904, V_67642, V_44049, V_38443, V_50660, V_107127, V_102905, V_50665, V_35922, V_35923, V_35924, V_35925, V_35926, V_107130, V_22540, V_67643, V_79109, V_90446, V_37888, V_104188, V_6048, V_79111, V_90448, V_79112, V_90447, V_90449, V_90450, V_6049, V_50676, V_110416, V_67644, V_106235, V_114884, V_106478, V_6050, V_102907, V_50692, V_50693, V_73462, V_50694, V_50695, V_7313, V_47915, V_114885, V_39285, V_67645, V_90451, V_59029, V_102908, V_114887, V_67647, V_61908, V_5122, V_6051, V_5123, V_6052, V_102911, V_44053, V_6053, V_35940, V_110428, V_22761, V_102912, V_61910, V_43612, V_39286, V_6054, V_106009, V_23632, V_6055, V_44054, V_102913, V_6056, V_90454, V_102914, V_5124, V_79113, V_90455, V_67648, V_107142, V_6057, V_67649, V_79114, V_79115, V_90456, V_114888, V_67650, V_50723, V_5346, V_90458, V_4092, V_3206, V_8879, V_50724, V_50725, V_102916, V_6058, V_32408
20	13926859	26046190	0.60625	26:05:00	p12.1-p11.1	TP2002G12	TP2008F0	122	12,119,331	11,441,387,069,432	5	C10, C11, C17 , C18, C21, C22	SEL1L2, MACROD2, FLRT3, KIF16B, SNRPB2, OTOR, PCSK2, BFSP1, DSTN, RRBP1, BANF2, SNX5, C20orf72, OVOL2, CSRP2BP, ZNF133, C20orf12, POLR3F, RBBP9, SEC23B, HARS2, C20orf78, C20orf79, SLC24A3, , RIN2, NAT5, CRNKL1, C20orf26, INSM1, C20orf74, NCRNA00153, XRN2, NKX2-4, NKX2-2, PAX1, FOXA2, SSTR4, THBD, CD93, NXT1, GZF1, NAPB, CSTL1, CST11, CST8, CST9L, CST9, CST3, CST4, CST1, CST2, CST5, GGTLC1, C20orf39, CST7, C20orf3, ACSS1, VSX1, ENTPD6, PYGB, ABHD12, GINS1, NINL, NANP, ZNF337, FAM182B, FAM182A		V_34631, V_3209, V_3210, V_3211, V_3212, V_3213, V_3214, V_9315, V_9314, V_9316, V_9317, V_9318, V_8882, V_8883, V_104189, V_104190, V_38439, V_37880, V_38440, V_37719, V_7295, V_7298, V_7301, V_32412, V_32413, V_32414, V_31033, V_32415, V_31034, V_32417, V_31035, V_32419, V_67656, V_67658, V_67657, V_67659, V_67660, V_67661, V_67662, V_67663, V_67664, V_67665, V_67668, V_67669, V_67670, V_67671, V_67674, V_59020, V_4096, V_5126, V_5127, V_0224, V_5128, V_4097, V_5129, V_4098, V_90477, V_90479, V_90480, V_90481, V_90482, V_90483, V_90484, V_90485, V_90486, V_90487, V_79133, V_79134, V_79137, V_79136, V_90489, V_90490, V_79135, V_90488, V_90491, V_79138, V_90492, V_90493, V_79140, V_90496, V_90497, V_79142, V_90498, V_90499, V_90500, V_79143, V_79144, V_90502, V_79145, V_79146, V_79147, V_79148, V_90503, V_90504, V_79150, V_79152, V_90506, V_90508, V_90507, V_90509, V_79153, V_79155, V_90511, V_79159, V_90517, V_90518, V_90519, V_79160, V_79161, V_90520, V_90521, V_79162, V_106233, V_106234, V_114892, V_114893, V_114894, V_114895, V_114896, V_114898, V_114901, V_114904, V_114905, V_114906, V_107815, V_5449, V_5448, V_53207, V_53359, V_53335, V_53813, V_53865, V_53365, V_53372, V_53836, V_10574, V_30119, V_30120, V_30121, V_10575, V_30118, V_30122, V_30123, V_10577, V_10576, V_10578, V_30124, V_9821, V_10579, V_29708, V_29723, V_50613, V_50614, V_50615, V_50616, V_50617, V_50618, V_50619, V_50620, V_50621, V_50622, V_50623, V_50624, V_50625, V_50626, V_50627, V_50628, V_50631,	V_35891, V_35892, V_35893, V_35894, V_35895, V_107121, V_59769, V_90477, V_67656, V_67658, V_90479, V_38439, V_10574, V_67657, V_6062, V_90480, V_67659, V_50613, V_61914, V_9315, V_53207, V_50614, V_5449, V_3209, V_4096, V_50615, V_50616, V_50617, V_30119, V_53359, V_0537, V_35896, V_30120, V_53335, V_30121, V_37529, V_7295, V_67660, V_23247, V_10575, V_34631, V_50618, V_53813, V_53865, V_1523, V_1993, V_48024, V_32412, V_53365, V_53372, V_30118, V_90481, V_9316, V_3210, V_9317, V_5448, V_30123, V_6063, V_6064, V_90481, V_90482, V_3211, V_102921, V_61915, V_114892, V_39287, V_6065, V_6066, V_67661, V_90483, V_32413, V_7298, V_35906, V_10577, V_102922, V_44042, V_67662, V_90484, V_37880, V_104189, V_9318, V_10576, V_50619, V_50620, V_6067, V_8882, V_67663, V_102923, V_5126, V_90485, V_90486, V_90487, V_79133, V_50621, V_114893, V_5127, V_6068, V_79134, V_79137, V_79136, V_90489, V_50622, V_90490, V_79135, V_90488, V_106233, V_67664, V_50623, V_67665, V_1994, V_10578, V_30124, V_50624, V_53836, V_104190, V_38440, V_90491, V_110390, V_6069, V_6070, V_114894, V_0224, V_47977, V_102925, V_6071, V_3212, V_50625, V_73473, V_50626, V_73474, V_50627, V_50628, V_114895, V_73475, V_102926, V_35907, V_6072, V_104446, V_114896, V_79138, V_90492
20	30024259	62964520	30:02:00	62.96	q11.21-q13.33	TP2006B06	TP2004A0	390	32,940,261	145,558,956,277,928	11	C4, C4LN, C5, C9, C10, C11, C13, C17 , C18, C21, C22, C24, MPC600, MPC298	DEFB123, DEFB124, REM1, HM13, ID1, COX4I2, BCL2L1, TPX2, MYLK2, FOXS1, DUSP15, TTLL9, PDRG1, XKR7, C20orf160, HCK, TM9SF4, PLAGL2, POFUT1, KIF3B, ASXL1, C20orf112, COMMD7, DNMT3B, MAPRE1, EFCAB8, SPAG4L, BPIL1, BPIL3, C20orf185, C20orf186, C20orf70, C20orf71, PLUNC, C20orf114, CDK5RAP1, SNTA1, CBFA2T2, NECAB3, C20orf144, C20orf134, E2F1, PXMP4, ZNF341, CHMP4B, RALY, EIF2S2, AHCY, ASIP, ITCH, DYNLRB1, MAP1LC3A, PIGU, TP53INP2, NCOA6, GGT7, ACSS2, GSS, MYH7B, TRPC4AP, EDEM2, PROCR, EIF6, MMP24, FAM83C, UQCC, GDF5OS, GDF5, CEP250, C20orf173, ERGIC3, SPAG4, CPNE1, ROMO1, RBM39, PHF20, SCAND1, C20orf152, EPB41L1, C20orf4, DLGAP4, MYL9, TGIF2, C20orf24, SLA2, NDRG3, DSN1, C20orf117, C20orf118, SAMHD1, RBL1, C20orf132, RPN2, GHRH, MANBAL, SRC, BLCAP, NNAT, CTNNBL1, VSTM2L, KIAA0406, RPRD1B, TGM2, KIAA1755, BPI, LBP, KIAA1219, ADIG, C20orf95, SLC32A1, ACTR5, PPP1R16B, FAM83D, DHX35, MAFB, TOP1, PLCG1, ZHX3, LPIN3, EMILIN3, CHD6, PTPRT, SFRS6, L3MBTL, SGK2, IFT52, MYBL2, GTSF1L, TOX2, JPH2, C20orf111, GDAP1L1, FITM2, R3HDML, HNF4A, C20orf62, TTPAL, SERINC3, PKIG, ADA, WISP2, KCNK15, RIMS4, YWHAB, PABPC1L, TOMM34, STK4, KCNS1, WFDC5, WFDC12, PI3, SEMG1, SEMG2, SLPI, MATN4, RBPJL, SDC4, SYS1, TP53TG5,	hsa-mir-1825, hsa-mir-644, hsa-mir-499, hsa-mir-1289-1, hsa-mir-645, hsa-mir-1302-5, hsa-mir-296, hsa-mir-298, hsa-mir-646, hsa-mir-1257, hsa-mir-1-1, hsa-mir-133a-2, hsa-mir-124-3, hsa-mir-941-1, hsa-mir-941-1, hsa-mir-941-1, hsa-mir-941-1, hsa-mir-1914, hsa-mir-647	V_34533, V_34483, V_3216, V_3217, V_3218, V_3219, V_3220, V_3221, V_3222, V_3223, V_9319, V_8884, V_8885, V_8886, V_9320, V_9321, V_8887, V_8888, V_8889, V_104191, V_104192, V_104193, V_104194, V_104195, V_104197, V_38442, V_38444, V_38445, V_38446, V_38447, V_37720, V_7304, V_7306, V_7307, V_7308, V_7309, V_7310, V_7311, V_7312, 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V_79177, V_90538, V_90540, V_79178, V_79179, V_90541, V_90539, V_79180, V_79182, V_90542, V_90544, V_79186, V_90545, V_79185, V_79184, V_90546, V_79187, V_90548, V_79188, V_79189, V_79190, V_79191, V_90549, V_79192, V_90550, V_90554, V_90555, V_90557, V_79195, V_79199, V_90561, V_90562, V_90563, V_90568, V_79204, V_79205, V_90570, V_90572, V_90571, V_90573, V_79206, V_79211, V_90579, V_79214, V_90581, V_79219, V_90584, V_79220, V_90585, V_79221, V_90587, V_79223, V_90589, V_90590, V_90591, V_79224, V_79225, V_79226, V_79227, V_90596, V_90594, V_79228, V_79229, V_90592, V_90597, V_79231, V_79232, V_90598, V_79233, V_90599, V_79234, V_90601, V_79236, V_79237, V_79238, V_79235, V_90603, V_79240, V_90606, V_79242, V_90608, V_90612, V_90613, V_90610, V_79241, V_90614, V_79243, V_90611, V_90615, V_90616, V_90617, V_79244, V_90607, V_90618, V_90619, V_79248, V_79249, V_90620, V_90621, V_90622, V_90623, V_79251, V_79252, V_90628, V_79253, V_90629, V_79254, V_90630, V_90631, V_90632, V_90633, V_79255, V_90634, V_79256, V_90638, V_79260,	V_7304, V_6085, V_79174, V_67676, V_9822, V_50644, V_50645, V_50646, V_50647, V_102949, V_9823, V_5132, V_67678, V_6086, V_67679, V_102952, V_107123, V_110397, V_102953, V_79176, V_79175, V_90537, V_5133, V_6087, V_110398, V_6088, V_4100, V_35916, V_73512, V_110399, V_79177, V_90538, V_90540, V_79178, V_79179, V_90541, V_90539, V_9319, V_6089, V_6090, V_6091, V_59022, V_102955, V_114911, V_79180, V_110400, V_114912, V_6092, V_110401, V_23011, V_110402, V_22513, V_61926, V_102956, V_43531, V_23624, V_44046, V_110404, V_102957, V_6093, V_67681, V_59023, V_59024, V_102958, V_5134, V_102959, V_102960, V_6094, V_6095, V_50650, V_6096, V_114913, V_5135, V_79182, V_90542, V_35917, V_44047, V_107125, V_37230, V_73513, V_67682, V_67683, V_6097, V_102962, V_53529, V_50651, V_90544, V_79186, V_90545, V_79185, V_79184, V_90546, V_10580, V_3216, V_6098, V_5136, V_79187, V_90547, V_102963, V_73517, V_73518, V_8884, V_3217, V_9824, V_4101, V_114914, 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21	16196185	16904300	16:02	16:09	q11.2-q21.1	TP0228C12	TP0718H0	6	0.708115	0.421534656541652	3	C9, C21, MPC600	NRIP1		V_38449, V_7318, V_7319, V_67745, V_67746, V_59035, V_90701, V_114981, V_50732	V_50732, V_67745, V_103040, V_7318, V_7319, V_59035, V_104482, V_114981, V_39300, V_106010, V_23633, V_110434, V_67746, V_35952, V_90701, V_38449
21	39974761	40466852	39.97	40:47:00	q22.2	TP0718H09	TP1410F0	4	0.492091	0.41721562886207	3	C21, C24, MPC600	ERG, ETS2, C21orf104		V_67786, V_67787, V_90775, V_53778	V_67786, V_90775, V_67787, V_53778, V_103095
21	42543050	48102348	42:54:00	48:01:00	q22.2-q22.3	TP0718H11	TP0620H0	72	5,559,298	0.987056350001611	6	C8, C9, C10, C11, C13, C18, C21, C24	BACE2, FAM3B, MX2, MX1, TMPRSS2, RIPK4, PRDM15, C2CD2, ZNF295, UMODL1, C21orf128, ABCG1, TFF3, TFF2, TFF1, TMPRSS3, UBASH3A, RSPH1, SLC37A1, PDE9A, WDR4, NDUFV3, PKNOX1, CBS, U2AF1, CRYAA, C21orf136, SIK1, HSF2BP, RRP1B, PDXK, CSTB, RRP1, AGPAT3, TRAPPC10, C21orf33, C21orf32, ICOSLG, DNMT3L, AIRE, PFKL, C21orf2, TRPM2, LRRC3, C21orf30, C21orf29, C21orf90, KRTAP10-1, KRTAP10-2, KRTAP10-3, KRTAP10-4, KRTAP10-6, KRTAP10-7, KRTAP10-8, KRTAP10-9, KRTAP10-10, KRTAP10-11, KRTAP12-4, KRTAP12-2, KRTAP12-1, KRTAP10-12, UBE2G2, SUMO3, PTTG1IP, ITGB2, C21orf67, C21orf69, C21orf70, ADARB1, POFUT2, C21orf86, COL18A1, NCRNA00175, SLC19A1, PCBP3, COL6A1, COL6A2, FTCD, C21orf56, LSS, MCM3AP, C21orf57, C21orf58, PCNT, DIP2A, S100B, PRMT2		V_3234, V_3235, V_9329, V_8897, V_104212, V_104213, V_37721, V_38804, V_38457, V_38458, V_7325, V_7326, V_7327, V_31064, V_31065, V_67792, V_67794, V_67795, V_67798, V_67800, V_67801, V_67802, V_67803, V_67804, V_67805, V_67807, V_67809, V_67811, V_67812, V_67813, V_67818, V_67819, V_67820, V_67821, V_59051, V_59052, V_59053, V_5162, V_5163, V_90792, V_90794, V_90795, V_90796, V_79364, V_79367, V_90798, V_90801, V_90803, V_79368, V_79369, V_90805, V_79370, V_90806, V_90804, V_79375, V_90812, V_90813, V_79376, V_90814, V_79379, V_90815, V_90816, V_90817, V_90818, V_79380, V_79382, V_90819, V_90821, V_90822, V_90825, V_79384, V_79388, V_79389, V_90828, V_90829, V_79393, V_90833, V_107603, V_107604, V_115024, V_115026, V_115027, V_115028, V_115029, V_115032, V_115033, V_115034, V_115035, V_115036, V_115037, V_115038, V_115039, V_115040, V_107822, V_106484, V_107823, V_106485, V_59581, V_53623, V_53434, V_53268, V_53305, V_10602, V_29711, V_29712, V_9832, V_9833, V_30144, V_30145, V_30146, V_30147, V_10603, V_10604, V_50776, V_50777, V_50778, V_50779, V_50780, V_50781, V_50782, V_50783, V_50784, V_50786, V_50787, V_50788, V_50789, V_50790, V_50791, V_50792, V_73640, V_73641, V_73644, V_73645, V_73646, V_73647, V_73651, V_73652, V_73654, V_73655, V_73657, V_73658, V_73659, V_73661, V_73663, V_73664, V_73665, V_73667, V_73668	V_37236, V_6139, V_110445, V_73640, V_103100, V_61978, V_107603, V_115024, V_67792, V_90792, V_50776, V_110446, V_37237, V_103101, V_90794, V_90795, V_90796, V_79364, V_73641, V_10602, V_67794, V_59051, V_115026, V_110448, V_103102, V_103103, V_50777, V_79367, V_90798, V_90801, V_90803, V_59052, V_73644, V_104487, V_73645, V_107822, V_23641, V_50778, V_110449, V_106484, V_79368, V_79369, V_90805, V_79370, V_90806, V_90804, V_107155, V_23642, V_35972, V_67795, V_103105, V_104490, V_7325, V_115027, V_29711, V_53623, V_67798, V_59053, V_29712, V_9832, V_9833, V_50779, V_50780, V_104212, V_37721, V_30144, V_39304, V_115028, V_115029, V_50781, V_107156, V_35973, V_22579, V_103106, V_104491, V_115032, V_79375, V_90812, V_61980, V_67800, V_107823, V_90813, V_115033, V_38804, V_104213, V_43516, V_39305, V_44058, V_79376, V_90814, V_73646, V_6140, V_110450, V_30145, V_7326, V_5162, V_67801, V_7327, V_67802, V_50782, V_38457, V_73647, V_79379, V_90815, V_90816, V_90817, V_90818, V_79380, V_67803, V_79382, V_90819, V_90821, V_90822, V_59777, V_110451, V_103107, V_67804, V_104492, V_43382, V_30146, V_30147, V_50783, V_50784, V_67805, V_107604, V_115034, V_115035, V_10603, V_73651, V_73652, V_103108, V_103109, V_5163, V_115036, V_115037,
22	16061103	16505264	16:06	16:51	q11.1	TP1410H01	TP0620D1	13	0.444161	0.568164752822507	4	C5, C21, MPC298, MPC960	POTEH, OR11H1		V_34559, V_3236, V_8898, V_38459, V_7329, V_32445, V_31066, V_31067, V_5164, V_5165, V_4115, V_4821, V_5166, V_0813, V_2257, V_79394, V_90834, V_90836, V_79396, V_90838, V_79397, V_90839, V_79398, V_79399, V_79401, V_90840, V_79400, V_79402, V_79403, V_90841, V_90842, V_90843, V_90844, V_79404, V_90845, V_106486, V_106487, V_73669, V_73676, V_73673, V_73671, V_73674, V_73677, V_73672, V_73678, V_73670, V_73679	V_73669, V_73676, V_104501, V_106486, V_8898, V_34559, V_32445, V_31066, V_5164, V_5165, V_3236, V_73673, V_73671, V_73674, V_106487, V_0331, V_7329, V_4115, V_4821, V_79394, V_90834, V_90836, V_79396, V_90838, V_79397, V_90839, V_79398, V_73677, V_73672, V_73678, V_79399, V_79401, V_90840, V_79400, V_79402, V_73670, V_79403, V_90841, V_90842, V_90843, V_35976, V_5166, V_31067, V_90844, V_0813, V_2257, V_79404, V_90845, V_38459, V_73679, V_104502
22	19880186	21949089	0.85277778	0.94097222	q11.21	TP0125D11	TP1312E0	19	2,068,903	0.324961348563814	4	C11, C13, C22, C24	TXNRD2, COMT, ARVCF, C22orf25, DGCR8, TRMT2A, RANBP1, ZDHHC8, RTN4R, DGCR6L, GGTLC3, TMEM191B, RIMBP3, USP41, ZNF74, KLHL22, MED15, POM121L4P, TOP3B, SERPIND1, SNAP29, CRKL, AIFM3, LZTR1, THAP7, P2RX6, SLC7A4, POM121L7, GGT2, RIMBP3B, HIC2, RIMBP3C, UBE2L3	hsa-mir-185, hsa-mir-1306, hsa-mir-1286, hsa-mir-649	V_38956, V_7332, V_31071, V_31072, V_67838, V_67839, V_59056, V_2261, V_5168, V_4117, V_5169, V_5170, V_0816, V_2262, V_5171, V_5172, V_0817, V_2263, V_5173, V_90891, V_79451, V_79454, V_90890, V_90892, V_79453, V_90893, V_79455, V_90894, V_90889, V_90896, V_79457, V_79458, V_79459, V_90897, V_79461, V_90898, V_90899, V_79462, V_79463, V_90900, V_79464, V_115055, V_115057, V_115062, V_115063, V_115065, V_115067, V_115068, V_115069, V_115070, V_115071, V_115072, V_106489, V_53346, V_30151, V_30152, V_30155, V_30154, V_30153, V_30156, V_30157, V_30158, V_30159, V_50812, V_50813, V_50814, V_50815, V_50816, V_73719, V_73728, V_73727, V_73732, V_73729, V_73720, V_73726, V_73721, V_73731, V_73730, V_73722, V_73724, V_73725, V_73739, V_73741, V_73734, V_73737, V_73743, V_73735, V_73744, V_73740, V_73733, V_73738, V_73742, V_73736, V_73745, V_73746, V_73751, V_73750, V_73749, V_73748, V_73747, V_73768, V_73755, V_73770, V_73767, V_73757, V_73752, V_73766, V_73753, V_73769, V_73758, V_73756, V_73754, V_73759, V_73765, V_73763, V_73771, V_73760, V_73764, V_73772, V_73773	V_31071, V_115055, V_2261, V_5168, V_73719, V_30151, V_30152, V_4117, V_50812, V_115057, V_30155, V_30154, V_110460, V_30153, V_30156, V_30157, V_53346, V_90891, V_79451, V_79454, V_90890, V_90892, V_7332, V_104510, V_79453, V_90893, V_73728, V_73727, V_73732, V_73729, V_73720, V_73726, V_79455, V_90894, V_90889, V_73721, V_73731, V_73730, V_73722, V_73724, V_73725, V_73739, V_73741, V_73734, V_115062, V_73737, V_73743, V_73735, V_73744, V_73740, V_106489, V_90896, V_73733, V_73738, V_73742, V_73736, V_5169, V_115063, V_35983, V_35984, V_35985, V_107161, V_59056, V_104511, V_67838, V_115065, V_22750, V_73745, V_50813, V_50814, V_73746, V_115067, V_67839, V_73751, V_73750, V_79457, V_73749, V_73748, V_73747, V_79458, V_115068, V_6143, V_30158, V_50815, V_50816, V_5170, V_115069, V_30159, V_115070, V_0816, V_2262, V_79459, V_90897, V_1310, V_2009, V_104512, V_73768, V_73755, V_79461, V_90898, V_90899, V_31072, V_73770, V_73767, V_73757, V_5171, V_5172, V_73752, V_73766, V_79462, V_73753, V_104513, V_73769, V_73758, V_73756, V_73754, V_73759, V_73765, V_73763, V_73771, V_0817, V_2263, V_79463, V_73760, V_90900, V_38956, V_73764, V_5173, V_115071, V_115072, V_79464, V_73772, V_0543, V_73773
22	50053636	51186519	50:05:00	51:19:00	q13.33	TP0125G07	TP0001G0	12	1,132,883	0.314039620427027	7	C11, C13, C17 , C18, C22, MPC298, MPC960	BRD1, ZBED4, ALG12, CRELD2, PIM3, IL17REL, TTLL8, MLC1, MOV10L1, PANX2, TRABD, TUBGCP6, HDAC10, MAPK12, MAPK11, PLXNB2, FAM116B, SAPS2, SBF1, ADM2, MIOX, LMF2, NCAPH2, SCO2, TYMP, ODF3B, KLHDC7B, C22orf41, CPT1B, CHKB, MAPK8IP2, ARSA, SHANK3, ACR		V_7354, V_67909, V_67911, V_5192, V_4139, V_5193, V_4140, V_0239, V_79636, V_79637, V_91128, V_91130, V_79635, V_91129, V_91131, V_79639, V_91132, V_115280, V_115281, V_115282, V_115284, V_115285, V_115283, V_115288, V_115289, V_115290, V_115291, V_115292, V_115293, V_115294, V_115295, V_115296, V_59582, V_53621, V_29723, V_30166, V_30167, V_9854, V_50888, V_50889, V_73872, V_73873, V_73874, V_73877, V_73879, V_73878	V_115280, V_103215, V_115281, V_115282, V_79636, V_79637, V_91128, V_91130, V_79635, V_91129, V_91131, V_79639, V_91132, V_29723, V_53621, V_50888, V_50889, V_115284, V_115285, V_30166, V_30167, V_67909, V_115283, V_73872, V_104535, V_115288, V_73873, V_59582, V_73874, V_115289, V_5192, V_4139, V_115290, V_115291, V_7354, V_115292, V_5193, V_67911, V_9854, V_4140, V_0239, V_73877, V_73879, V_106013, V_23655, V_73878, V_115294, V_115295, V_115296
23	152443438	155031692	152:44:00	155:03:00	q28	TPX012A12	TPX004C0	31	2,588,254	0.449763874668613	5	C5, C8, C17 , C18, C21, C22, C24, MPC600	MAGEA1, ZNF275, TREX2, HAUS7, BGN, ATP2B3FAM58A, DUSP9, PNCK, SLC6A8, BCAP31, ABCD1, PLXNB3, SRPK3, IDH3G, SSR4, PDZD4, L1CAM, AVPR2, ARHGAP4, ARD1A, RENBP, HCFC1, TMEM187, IRAK1, MECP2, OPN1LW, TEX28P2, OPN1MW2, TEX28, TKTL1, FLNA, EMD, RPL10, DNASE1L1, TAZ, ATP6AP1, GDI1, FAM50A, PLXNA3, LAGE3, UBL4A, SLC10A3, FAM3A, G6PD, IKBKG, CXorf52, CTAG1A, CTAG1B, CXorf52B, CTAG2, GAB3, DKC1, MPP1, F8, H2AFB1, F8A1, FUNDC2, MTCP1NB, BRCC3, VBP1, RAB39B, CLIC2, H2AFB2, F8A2, F8A3, H2AFB3, TMLHE, SPRY3	hsa-mir-1184, hsa-mir-1184, hsa-mir-1184	V_3259, V_8314, V_31574, V_31575, V_68060, V_68061, V_68063, V_68064, V_68066, V_68067, V_4178, V_0828, V_97102, V_97103, V_83863, V_83864, V_97104, V_83868, V_97108, V_83869, V_83870, V_97109, V_97110, V_83872, V_97111, V_97127, V_97128, V_83879, V_97130, V_97129, V_97132, V_97133, V_83884, V_83883, V_107655, V_115346, V_115347, V_115348, V_115349, V_107972, V_9357, V_52965, V_52966, V_52967, V_23331, V_74082, V_74083, V_74084, V_74085, V_74086, V_74087, V_74090	V_4178, V_3259, V_31574, V_37361, V_8314, V_37362, V_0672, V_115346, V_59884, V_107972, V_74082, V_74083, V_97102, V_74084, V_97103, V_115347, V_115348, V_107655, V_83863, V_83864, V_97104, V_74085, V_83868, V_97108, V_37014, V_37363, V_37364, V_0673, V_83869, V_31575, V_37365, V_0674, V_74086, V_74087, V_37366, V_68060, V_83870, V_23331, V_52965, V_97109, V_97110, V_83872, V_68061, V_97111, V_105890, V_52966, V_103296, V_44407, V_74090, V_37367, V_37368, V_9357, V_1870, V_52967, V_37015, V_68063, V_97127, V_37016, V_37017, V_97128, V_37018, V_83879, V_68064, V_37019, V_105891, V_104572, V_115349, V_97130, V_97129, V_0828, V_103297, V_22709, V_68066, V_44408, V_68067, V_97132, V_97133, V_83884, V_83883

LOSSES (in 3 or more cases)

Chrom	Start	End	Start MB	End MB	Cytobands	Start Probe	End Probe	Probes	Length MB	maxM	max.overlap	Cases	Genes	miRNAs	aCGH CNVs	Full CNVs
1	11754	35407496	0:01	35:41:00	p36.33-p34.3	TP0121D10	TP0114C0	377	35,395,742	-0.738498442024359	12	C4, C4LN, C5, C8, C9, C10, C11, C13, C17 , C18, C22, C24, MPC600, MPC298, MPC960	WASH5P, OR4F5, OR4F29, OR4F16, SAMD11, NOC2L, KLHL17, PLEKHN1, C1orf170, HES4, ISG15, AGRN, C1orf159, TTLL10, TNFRSF18, TNFRSF4, SDF4, B3GALT6, FAM132A, UBE2J2, SCNN1D, ACAP3, PUSL1, CPSF3L, GLTPD1, TAS1R3, DVL1, MXRA8, AURKAIP1, CCNL2, MRPL20, VWA1, ATAD3C, ATAD3B, ATAD3A, C1orf70, SSU72, MIB2, MMP23B, CDC2L2,SLC35E2, NADK, GNB1, CALML6, TMEM52, C1orf222, KIAA1751, GABRD, PRKCZ, C1orf86, SKI, MORN1, RER1, PEX10, PLCH2, PANK4, HES5, TNFRSF14, C1orf93, MMEL1, TTC34, ACTRT2, PRDM16, ARHGEF16, MEGF6, TPRG1L, WDR8, TP73, CCDC27, LRRC47, KIAA0562, DFFB, C1orf174, AJAP1,NPHP4, KCNAB2, CHD5, RPL22, RNF207, ICMT, HES3, GPR153, ACOT7, HES2, ESPN, TNFRSF25, PLEKHG5, NOL9, TAS1R1, ZBTB48, KLHL21, PHF13, THAP3, DNAJC11, CAMTA1, VAMP3, PER3, UTS2, TNFRSF9, PARK7, ERRFI1, SLC45A1, RERE, ENO1, CA6, SLC2A7, SLC2A5, GPR157, H6PD, SPSB1, SLC25A33, TMEM201, PIK3CD, C1orf200, CLSTN1,CTNNBIP1, LZIC, NMNAT1, RBP7, UBE4B, KIF1B, PGD, APITD1, DFFA, PEX14, CASZ1, C1orf127, TARDBP, MASP2, SRM, EXOSC10, FRAP1, ANGPTL7, UBIAD1, PTCHD2, FBXO2, FBXO44, FBXO6, MAD2L2, C1orf187, AGTRAP, C1orf167, MTHFR, CLCN6, NPPA, NPPB, KIAA2013, PLOD1, MFN2, MIIP, TNFRSF8, TNFRSF1B, VPS13D, DHRS3,	hsa-mir-1302-2, hsa-mir-1977, hsa-mir-200b, hsa-mir-200a, hsa-mir-429, hsa-mir-551a, hsa-mir-34a, hsa-mir-1290, hsa-mir-1256, hsa-mir-1976, hsa-mir-552	V_34418, V_34489, V_2294, V_2295, V_2296, V_2297, V_2298, V_2299, V_2300, V_2301, V_2302, V_2303, V_2304, V_8315, V_8316, V_8317, V_8318, V_8319, V_8320, V_8321, V_103387, V_103498, V_103608, V_103719, V_103830, V_103940, V_104051, V_104162, V_104229, V_103388, V_38932, V_38832, V_37859, V_37651, V_37940, V_38811, V_38931, V_38812, V_38147, V_37834, V_37643, V_106636, V_38172, V_38078, V_37836, V_6826, V_6778, V_6792, V_6795, V_6797, V_6799, V_6810, V_6821, V_6822, V_6823, V_38959, V_23270, 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1	44351052	120529415	44:35:00	120:53:00	p34.1-p12	TP0123H09	TP0110B0	792	76,178,363	-0.683898120270863	11	C4, C4LN, C8, C9, C10, C11, C13, C17 , C18, C22, MPC600, MPC960	ST3GAL3, ARTN, IPO13, DPH2, ATP6V0B, B4GALT2, CCDC24, SLC6A9, KLF17, DMAP1, ERI3, RNF220, TMEM53, KIF2C, RPS8, BEST4, PLK3, TCTEX1D4, PTCH2, EIF2B3, HECTD3, UROD, ZSWIM5, HPDL, MUTYH, TOE1, TESK2, MMACHC, PRDX1, AKR1A1, NASP, CCDC17, GPBP1L1, TMEM69, IPP, MAST2, PIK3R3, TSPAN1, POMGNT1, C1orf190, RAD54L, LRRC41, UQCRH, NSUN4, FAAH, DMBX1, KNCN, MKNK1, MOBKL2C, ATPAF1, KIAA0494, CYP4B1, CYP4A11, CYP4X1, CYP4Z1, CYP4A22, PDZK1IP1, TAL1, STIL, CMPK1, FOXE3, FOXD2, SLC5A9, SPATA6, AGBL4, BEND5, ELAVL4, DMRTA2, FAF1, CDKN2C, C1orf185, RNF11, TTC39A, EPS15, OSBPL9, NRD1, RAB3B, TXNDC12, KTI12, BTF3L4, ZFYVE9, CC2D1B, ORC1L, PRPF38A, ZCCHC11, GPX7, C1orf163, ZYG11B, ZYG11A, ECHDC2, SCP2, PODN, SLC1A7, CPT2, C1orf123, MAGOH, LRP8, DMRTB1, GLIS1, TMEM48, YIPF1, DIO1, HSPB11, LRRC42, LDLRAD1, TMEM59, C1orf83, CDCP2, CYB5RL, MRPL37, SSBP3, C1orf191, ACOT11, FAM151A, C1orf175, PARS2, TTC22, C1orf177, DHCR24, TMEM61, BSND, PCSK9, USP24, PPAP2B, PRKAA2, C1orf168, C8A, C8B, DAB1, OMA1, TACSTD2, MYSM1, JUN, FGGY, HOOK1, CYP2J2, C1orf87, NFIA, TM2D1, INADL, KANK4, USP1, DOCK7, ANGPTL3, ATG4C, FOXD3, ALG6, ITGB3BP, EFCAB7, DLEU2L, PGM1, ROR1, UBE2U, CACHD1, RAVER2, JAK1, AK3L1, DNAJC6,	hsa-mir-101-1, hsa-mir-1262, hsa-mir-186, hsa-mir-760, hsa-mir-137, hsa-mir-553, hsa-mir-197, hsa-mir-320b-1, hsa-mir-942	V_34579, V_34634, V_2306, V_2307, V_2308, V_2309, V_2310, V_2311, V_2312, V_2313, V_2314, V_2315, V_2316, V_2317, V_2318, V_2319, V_2320, V_2321, V_2322, V_2323, V_8915, V_8916, V_8917, V_8918, V_8919, V_8323, V_8920, V_8921, V_8324, V_8922, V_8325, V_8326, V_103421, V_103432, V_103443, V_103454, V_103476, V_103487, V_103499, V_103510, V_103521, V_103532, V_103543, V_103554, V_103564, V_103575, V_103586, V_103597, V_103609, V_103620, V_37649, V_38181, V_38182, V_38183, V_37989, V_37913, V_37931, V_37834, 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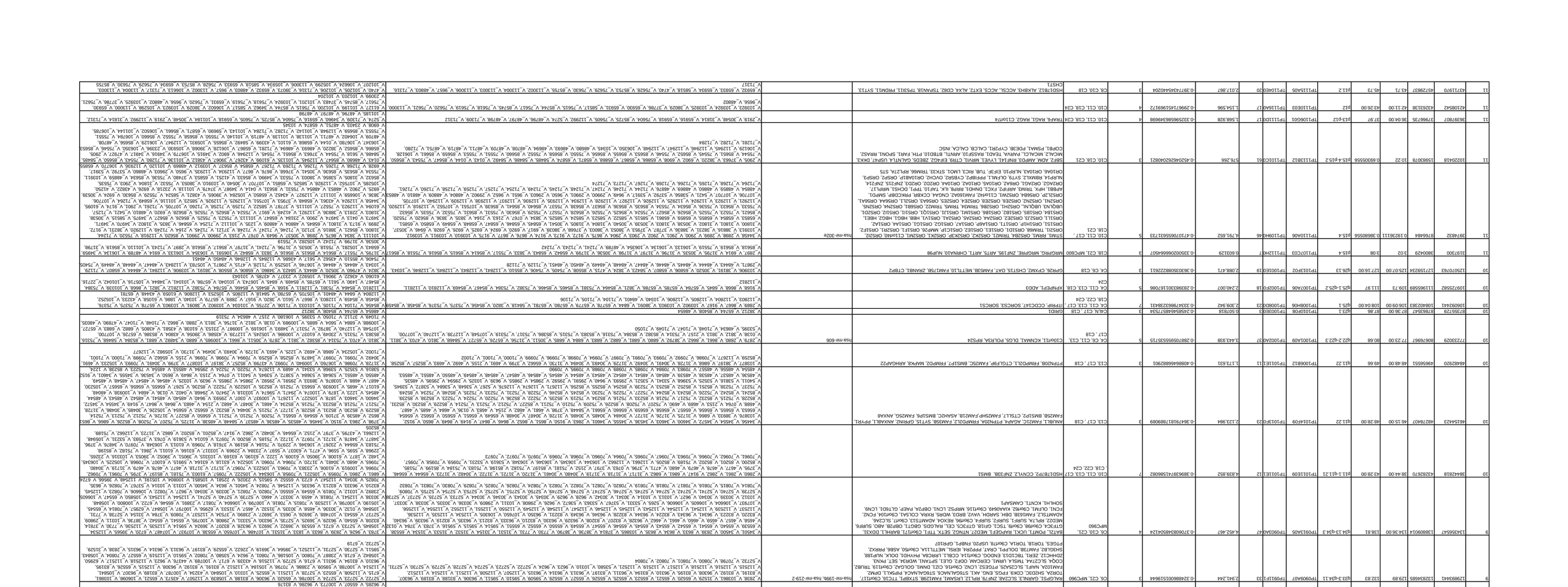
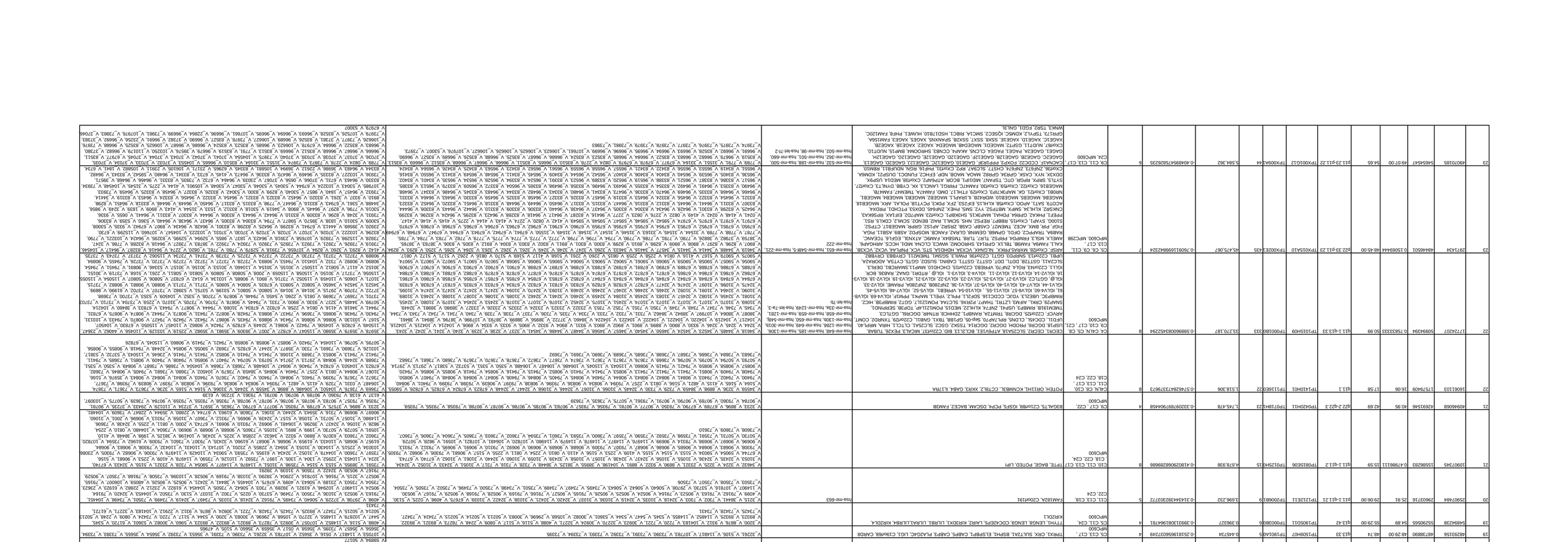
2	11860437	13351459	0.51805556	13:35	p25.1-p24.3	TP1212G12	TP0207D0	12	1,491,022	-0.403190995735365	3	C5, C17 , C18	LPIN1, TRIB2		V_67086, V_67095, V_58903, V_3344, V_78438, V_89482, V_114531, V_53891, V_29700, V_50284, V_50286, V_72685	V_97772, V_78438, V_89482, V_72685, V_104408, V_104419, V_67086, V_58903, V_114531, V_59753, V_67095, V_50284, V_53891, V_50286, V_29700, V_97773, V_3344
2	14604456	15088384	14:06	15:09	p24.3	TP0226F03	TP0214B0	4	0.483928	-0.259616272388105	3	C5, C17 , C18	FAM84A		V_2370, V_8937, V_104063, V_38406, V_7236, V_32286, V_32287, V_67116, V_67123, V_0689, V_89492, V_78447, V_89493, V_89494, V_9921, V_50313, V_50314	V_32286, V_2370, V_35740, V_67116, V_37405, V_104063, V_32287, V_7236, V_9921, V_50313, V_50314, V_38406, V_89492, V_8937, V_78447, V_89493, V_89494, V_67123, V_0689
2	15800132	27623158	15:08	27.62	p24.3-p23.3	TP0212C02	TP0220D1	119	11,823,026	-0.533212857767187	7	C5, C6, C13, C17 , C18, C22, C24, MPC298, MPC960	MYCN, FAM49A, RAD51AP2, VSNL1, SMC6, GEN1, MSGN1, KCNS3, NT5C1B, OSR1, TTC32, WDR35, MATN3, LAPTM4A, SDC1, PUM2, RHOB, HS1BP3, GDF7, C2orf43, APOB,KLHL29, ATAD2B, UBXN2A, C2orf44, FKBP1B, TP53I3, PFN4, C2orf84, ITSN2, NCOA1, C2orf79, CENPO, ADCY3, DNAJC27, EFR3B, POMC, DNMT3A, DTNB, ASXL2, KIF3C, RAB10, FAM59B, HADHA, HADHB, GPR113, C2orf39, OTOF, C2orf70, CIB4, KCNK3, C2orf18, CENPA, DPYSL5, MAPRE3, TMEM214, AGBL5, EMILIN1, KHK, CGREF1, ABHD1, PREB, C2orf53, TCF23, SLC5A6, C2orf28, CAD, SLC30A3, DNAJC5G, TRIM54, UCN, MPV17, GTF3C2, EIF2B4, SNX17, ZNF513, PPM1G	hsa-mir-1301	V_34426, V_2371, V_2372, V_2373, V_8362, V_8363, V_8364, V_8365, V_104074, V_38411, V_38423, V_38424, V_7250, V_7255, V_7256, V_7258, V_7259, V_7260, V_7261, V_7262, V_32288, V_67129, V_67151, V_67158, V_67165, V_67185, V_67234, V_67258, V_67277, V_67295, V_58946, V_58965, V_58966, V_58977, V_4275, V_3346, V_78457, V_89502, V_89507, V_89508, V_89509, V_78464, V_89510, V_78467, V_89512, V_78468, V_89513, V_78470, V_89514, V_89515, V_89516, V_89518, V_89519, V_78471, V_89521, V_89522, V_89524, V_89525, V_78474, V_89526, V_89527, V_89528, V_89531, V_89532, V_89533, V_89534, V_89535, V_89538, V_89539, V_106228, V_114598, V_114609, V_114620, V_114642, V_114653, V_114664, V_114697, V_107793, V_106470, V_106471, V_59571, V_59572, V_59603, V_5207, V_9922, V_9923, V_9924, V_9399, V_50323, V_50324, V_50333, V_50334, V_50342, V_50343, V_50344, V_50362, V_50364, V_50375, V_50376, V_50377, V_50405, V_50454, V_50455, V_50456, V_72835, V_72854, V_72869, V_72933, V_72996, V_73010, V_73035, V_73042, V_73090, V_73111	V_114598, V_50323, V_97777, V_97778, V_50324, V_47944, V_67129, V_4275, V_2371, V_5207, V_9922, V_50333, V_50334, V_1348, V_1566, V_97779, V_22748, V_67151, V_97780, V_23052, V_44007, V_39244, V_107793, V_78457, V_89502, V_89507, V_89508, V_89509, V_78464, V_89510, V_2372, V_97781, V_97782, V_67158, V_44009, V_114609, V_78467, V_89512, V_78468, V_89513, V_78470, V_2373, V_89514, V_1567, V_38411, V_1028, V_89515, V_9923, V_50342, V_50343, V_72835, V_97783, V_8362, V_34426, V_50344, V_8363, V_8364, V_8365, V_67165, V_89516, V_72854, V_97784, V_89518, V_114620, V_39245, V_5970, V_110320, V_35772, V_0522, V_35773, V_23595, V_50362, V_89519, V_50364, V_72869, V_35776, V_22562, V_58946, V_97785, V_104441, V_114642, V_67185, V_44011, V_78471, V_89521, V_97786, V_35777, V_89522, V_89524, V_110328, V_72933, V_97788, V_50375, V_50376, V_50377, V_89525, V_114653, V_97789, V_97790, V_107093, V_107094, V_23601, V_58965, V_59603, V_59571, V_59572, V_7250, V_78474, V_89526, V_50405, V_59628, V_89527, V_89528, V_104452, V_114664, V_67234, V_3346, V_58966, V_72996, V_35791, V_107096, V_35794, V_89531, V_97791, V_73010, V_5971, V_97792, V_89532, V_7255, V_7256, V_35800, V_110352, V_89533, V_89534, V_97793, V_37406, V_67258, V_106470, V_104074, V_106228, V_32288,
2	28215006	31923994	28:22:00	31.92	p23.2-p23.1	TP0217G04	TP0207A0	41	3,708,988	-0.433400996729642	3	C5, C18, MPC960	MRPL33, FOSL2, PLB1, PPP1CB, SPDYA, TRMT61B, WDR43, FAM179A, C2orf71, CLIP4, ALK, YPEL5, LBH, LCLAT1, CAPN13, GALNT14, CAPN14, EHD3, XDH, SRD5A2		V_2374, V_8366, V_104096, V_38895, V_7264, V_32289, V_67308, V_67323, V_67336, V_67344, V_67355, V_58978, V_3347, V_3348, V_89545, V_89546, V_89548, V_89547, V_78478, V_78483, V_114709, V_114720, V_107800, V_9401, V_9925, V_50457, V_50458, V_50459, V_73151, V_73153	V_3347, V_97797, V_50457, V_58978, V_114709, V_97798, V_9401, V_67308, V_114720, V_2374, V_8366, V_43237, V_61755, V_3348, V_1569, V_1570, V_32289, V_67323, V_89545, V_9925, V_50458, V_50459, V_104096, V_38895, V_67336, V_89546, V_89548, V_89547, V_78478, V_67344, V_1571, V_1572, V_1573, V_110355, V_67355, V_5973, V_7264, V_73151, V_73153, V_107800, V_35808, V_110356, V_97801, V_78483
2	34657446	36143245	34.66	36:14:00	p22.3	TP0223A11	TP0215F0	22	1,485,799	-0.373478103711075	4	C18, C24, MPC298, MPC960			V_2375, V_2376, V_104107, V_104118, V_38075, V_38425, V_38426, V_38789, V_7267, V_7268, V_7269, V_30939, V_32290, V_32291, V_32292, V_32293, V_32294, V_32295, V_67419, V_67420, V_67430, V_67432, V_67441, V_67447, V_58985, V_4278, V_3349, V_4279, V_3350, V_0018, V_4280, V_89562, V_89564, V_78488, V_78489, V_78490, V_89566, V_89567, V_89568, V_78491, V_89569, V_78492, V_89570, V_78493, V_89571, V_78495, V_78494, V_89572, V_106229, V_114808, V_114820, V_114831, V_106472, V_53497, V_53505, V_53569, V_30089, V_30088, V_9926, V_30091, V_30090, V_50468, V_50469, V_50470, V_50471, V_50472, V_50473, V_73239	V_4278, V_2375, V_35811, V_114808, V_7267, V_104497, V_35812, V_58985, V_67419, V_30939, V_32290, V_37407, V_38075, V_1574, V_35813, V_0983, V_44023, V_67420, V_89562, V_32291, V_50468, V_97814, V_73239, V_97815, V_50469, V_89564, V_50470, V_38425, V_50471, V_78488, V_78489, V_78490, V_89566, V_89567, V_89568, V_3349, V_78491, V_89569, V_7268, V_30089, V_53497, V_35814, V_78492, V_2376, V_35815, V_30088, V_67430, V_104107, V_97816, V_97817, V_37408, V_89570, V_38426, V_9926, V_50472, V_53505, V_32292, V_1030, V_1575, V_30091, V_4279, V_53569, V_35816, V_3350, V_0018, V_4280, V_32293, V_30090, V_32294, V_35817, V_35818, V_114820, V_106229, V_35819, V_35820, V_110361, V_78493, V_89571, V_35821, V_22891, V_67432, V_106472, V_37409, V_78495, V_38789, V_104118, V_114831, V_78494, V_89572, V_32295, V_7269, V_50473, V_67441, V_67447
2	39298197	42182467	39:03:00	42:18:00	p22.1-p21	TP0215E07	TP0202F0	29	288,427	-0.371183323486268	4	C13, C18, C22, MPC960	SOS1, CDKL4, MAP4K3, TMEM178, THUMPD2, SLC8A1		V_2381, V_8940, V_104163, V_38429, V_38430, V_37996, V_7272, V_32299, V_32300, V_32301, V_67519, V_67525, V_67528, V_67536, V_67544, V_67559, V_3353, V_89597, V_89598, V_78509, V_89599, V_89601, V_78510, V_89604, V_78511, V_78512, V_89605, V_78515, V_78516, V_89608, V_89609, V_89610, V_78517, V_89611, V_78513, V_89607, V_78514, V_89612, V_106230, V_114964, V_114975, V_114986, V_114997, V_53304, V_53769, V_53080, V_53966, V_53936, V_53937, V_29701, V_30094, V_29702, V_30092, V_30093, V_30095, V_30096, V_9404, V_9928, V_9929, V_9405, V_50483, V_50485, V_50486, V_50487, V_50488, V_50489, V_50490, V_50491, V_50492, V_50493, V_50494, V_50495, V_50496, V_50497	V_89597, V_97822, V_97823, V_5977, V_39246, V_89598, V_53304, V_47975, V_3353, V_97824, V_50483, V_78509, V_89599, V_67519, V_32299, V_38429, V_89601, V_29701, V_30094, V_29702, V_30092, V_30093, V_30095, V_67525, V_8940, V_114964, V_38430, V_2381, V_32300, V_97825, V_67528, V_61763, V_50485, V_53769, V_50486, V_50487, V_53080, V_50488, V_50489, V_67536, V_78510, V_89604, V_114975, V_37996, V_104163, V_30096, V_9404, V_9928, V_9929, V_50490, V_50491, V_50492, V_50493, V_50494, V_50495, V_53936, V_53937, V_32301, V_50496, V_1576, V_50497, V_7272, V_1031, V_1032, V_78511, V_5978, V_9405, V_107108, V_33965, V_97826, V_110363, V_104540, V_106230, V_114986, V_114997, V_44024, V_67544, V_78512, V_89605, V_5979, V_78515, V_78516, V_89608, V_89609, V_97827, V_110364, V_43493, V_39247, V_106002, V_44025, V_89610, V_78517, V_89611, V_78513, V_89607, V_78514, V_89612, V_67559, V_0524, V_35827
2	47147859	48560755	47:15:00	48:56:00	p21-p16.3	TP0201F01	TP0210C0	13	1,412,896	-0.399493583713812	3	C9, C18, MPC960	MCFD2, TTC7A, CALM2, EPCAM, MSH2, KCNK12, MSH6, FBXO11, FOXN2	hsa-mir-559	V_67677, V_4284, V_50509, V_73515	V_110365, V_50509, V_35831, V_67677, V_73515, V_4284
2	48832073	50087738	48.83	50:09:00	p16.3	TP0208D05	TP0227H0	14	1,255,665	-0.308240865944252	3	C18, C22, MPC960	STON1, LHCGR, FSHR		V_8945, V_104185, V_37955, V_67693, V_67706, V_89631, V_89634, V_89633, V_89635, V_115108, V_115119, V_106474, V_53857, V_53119, V_9409, V_9410, V_9411, V_9932, V_50510, V_50511, V_50512, V_50513, V_50514, V_73536	V_89631, V_110368, V_89634, V_39248, V_67693, V_106474, V_89633, V_89635, V_9409, V_50510, V_97846, V_8945, V_9410, V_115108, V_50511, V_9411, V_5983, V_115119, V_9932, V_50512, V_50513, V_53857, V_104185, V_67706, V_37955, V_50514, V_53119, V_97847, V_35833, V_73536
2	56469773	60685174	56:47:00	60.69	p16.1	TP0220C01	TP0205E0	41	4,215,401	-0.442198844471504	3	C11, C18, C22	CCDC85A, VRK2, FANCL, BCL11A		V_34542, V_2384, V_2385, V_2386, V_8370, V_8948, V_8371, V_8372, V_8373, V_104227, V_7278, V_30947, V_30948, V_30949, V_32309, V_30950, V_67810, V_67817, V_67822, V_67836, V_67841, V_58992, V_3358, V_3359, V_3360, V_4286, V_3361, V_78556, V_89667, V_78557, V_78558, V_89668, V_89670, V_89677, V_89678, V_107598, V_115297, V_115308, V_115319, V_115330, V_115350, V_107807, V_53136, V_9413, V_9938, V_9939, V_9940, V_50532, V_50533, V_50534, V_50535, V_50536, V_50537, V_50539, V_73695	V_3358, V_35841, V_67810, V_58992, V_104574, V_115297, V_107598, V_115308, V_78556, V_89667, V_107807, V_3359, V_2384, V_50532, V_30947, V_67817, V_9413, V_37602, V_50533, V_78557, V_78558, V_89668, V_8370, V_35842, V_8948, V_9938, V_115319, V_50534, V_3360, V_67822, V_107111, V_30948, V_97864, V_2385, V_8371, V_8372, V_50535, V_30949, V_35843, V_1581, V_35843, V_50537, V_89670, V_53136, V_115330, V_9939, V_73695, V_4286, V_107112, V_23617, V_97865, V_44032, V_67836, V_89677, V_9940, V_2386, V_3361, V_8373, V_89678, V_32309, V_97866, V_7278, V_35844, V_115350, V_67841, V_37411, V_1582, V_104227, V_30950, V_50539
2	66025873	68050532	66:03:00	68:05:00	p14	TP0220C04	TP0204D0	23	2,024,659	-0.274319181399663	4	C11, C18, C22, C24	MEIS1, ETAA1		V_2388, V_2389, V_8949, V_104228, V_38435, V_32312, V_32313, V_32314, V_67900, V_67908, V_67910, V_67919, V_67928, V_67933, V_58999, V_3363, V_3364, V_89698, V_78578, V_89700, V_89705, V_89707, V_89706, V_78584, V_106232, V_115356, V_115358, V_115357, V_106475, V_9414, V_50547, V_50548, V_73843, V_73855	V_67900, V_89698, V_73843, V_73855, V_2388, V_67908, V_35846, V_67910, V_3363, V_32312, V_110375, V_61775, V_106232, V_115356, V_58999, V_67919, V_106475, V_32313, V_78578, V_89700, V_67928, V_2389, V_8949, V_3364, V_115358, V_115357, V_32314, V_9414, V_50547, V_67933, V_89705, V_89707, V_50548, V_104228, V_38435, V_89706, V_78584, V_97875, V_35847
2	70731148	71428685	70.73	71:43:00	p13.3	TP0211G08	TP0212G0	8	0.697537	-0.232825720831073	3	C6, C9, C18	TGFA, ADD2, FIGLA, CLEC4F, CD207, VAX2, ATP6V1B1, TEX261, ANKRD53, NAGK, MCEE, MPHOSPH10, PAIP2B		V_2390, V_7280, V_32315, V_67958, V_67966, V_89714, V_78587, V_89715, V_78590, V_89717, V_89718, V_89719, V_78591, V_78592, V_89720, V_9941, V_9942, V_9943, V_50550, V_50551, V_73947	V_89714, V_78587, V_89715, V_73947, V_22868, V_9941, V_7280, V_1583, V_35848, V_78590, V_89717, V_89718, V_2390, V_67958, V_22568, V_9942, V_9943, V_50550, V_50551, V_32315, V_89719, V_78591, V_78592, V_89720, V_67966
2	76005001	80453533	76:01:00	80:45:00	p12	TP0225A09	TP0217G0	50	4,448,532	-0.251293809024348	3	C11, C18, C22	LRRTM4, REG3G, REG1B, REG1A, REG3A, CTNNA2		V_2393, V_2394, V_2395, V_2396, V_8377, V_8950, V_8951, V_104230, V_37801, V_38436, V_37802, V_7281, V_32317, V_30955, V_32318, V_32319, V_32320, V_68012, V_68019, V_68031, V_68043, V_68049, V_68059, V_3367, V_4289, V_3368, V_3369, V_3370, V_3371, V_78598, V_89734, V_89737, V_89741, V_78601, V_78602, V_89740, V_89742, V_78603, V_89743, V_89744, V_78604, V_89745, V_89747, V_89748, V_89749, V_115369, V_115370, V_115372, V_115373, V_115375, V_53410, V_53323, V_9419, V_9420, V_9946, V_9947, V_9948, V_9949, V_30100, V_9950, V_9421, V_9422, V_9951, V_50563, V_50564, V_50565, V_50566, V_50567, V_50568, V_50569, V_50570, V_50571, V_50572, V_50573, V_74077, V_74091	V_3367, V_9419, V_110377, V_4289, V_68012, V_97890, V_97891, V_61779, V_110378, V_43460, V_106003, V_44034, V_23618, V_39253, V_3368, V_50563, V_32317, V_110379, V_104577, V_115369, V_68019, V_9420, V_9946, V_2393, V_7281, V_50564, V_50565, V_53410, V_97893, V_89737, V_68031, V_9947, V_2394, V_115370, V_97894, V_9948, V_39254, V_3369, V_30955, V_32318, V_2395, V_53323, V_32319, V_37801, V_1586, V_50566, V_50567, V_8377, V_97896, V_3370, V_2396, V_89741, V_8950, V_8951, V_78601, V_9949, V_78602, V_89740, V_32320, V_115372, V_89742, V_78603, V_30100, V_38436, V_9950, V_50568, V_50569, V_68043, V_89744, V_78604, V_89745, V_89747, V_23053, V_89748, V_115373, V_68049, V_74077, V_35857, V_50570, V_50571, V_104230, V_104578, V_115375, V_35858, V_37802, V_97897, V_44035, V_68059, V_89749, V_9421, V_9422, V_9951, V_50572, V_50573, V_35859, V_97898, V_35861, V_47976, V_74091, V_3371
2	81275403	85032078	81:28:00	85:03:00	p12-p11.2	TP0208E04	TP0227B0	39	3,756,675	-0.305235339605927	3	C11, C18, C22	SUCLG1, DNAH6		V_2397, V_2398, V_8378, V_8952, V_8379, V_104231, V_38437, V_32321, V_30956, V_32322, V_68070, V_59007, V_0020, V_3372, V_3373, V_89754, V_89756, V_78611, V_89757, V_78612, V_59606, V_53473, V_53805, V_9952, V_50578, V_50579, V_74096, V_74097	V_50578, V_0020, V_2397, V_68070, V_89754, V_38437, V_104231, V_8378, V_53473, V_50579, V_39255, V_0265, V_97900, V_97901, V_32321, V_30956, V_97902, V_35862, V_53805, V_74096, V_3372, V_8952, V_2398, V_9952, V_8379, V_89756, V_97903, V_32322, V_110382, V_59007, V_59606, V_74097, V_78611, V_89757, V_5987, V_78612, V_3373, V_97906, V_110383
2	87080910	87608239	87:08:00	87.61	p11.2	TP0225F03	TP0211B0	10	0.527329	-0.29856759271697	3	C17 , C18, C24	CD8B, RGPD1, PLGLB1		V_2399, V_104233, V_104234, V_38939, V_38137, V_38897, V_7283, V_30958, V_30959, V_30960, V_32323, V_30961, V_32324, V_30962, V_68073, V_68074, V_68077, V_3374, V_59618, V_89760, V_89761, V_89759, V_78615, V_89762, V_89763, V_78616, V_78617, V_89764, V_89765, V_78618, V_115383, V_9424, V_50581, V_50582, V_50583, V_74101	V_68073, V_50581, V_89760, V_2399, V_89761, V_7283, V_89759, V_35864, V_30958, V_3374, V_74101, V_30959, V_68074, V_68077, V_78615, V_89762, V_89763, V_30960, V_78616, V_115383, V_38939, V_104233, V_1587, V_9424, V_50582, V_50583, V_104234, V_1588, V_1351, V_1352, V_38137, V_38897, V_104581, V_78617, V_89764, V_89765, V_32323, V_59618, V_30961, V_32324, V_35865, V_30962, V_78618
2	87956698	88258429	87.96	88:26:00	p11.2	TP0213G07	TP0203G0	3	0.301731	-0.325662872917286	3	C17 , C18, C24	PLGLB2, RGPD2		V_2399, V_104235, V_38940, V_7284, V_30962, V_30963, V_30964, V_68077, V_68075, V_68079, V_3374, V_4293, V_4294, V_78620, V_78621, V_89767, V_89768, V_89769, V_78622, V_78624, V_89770, V_89773, V_89774, V_89775, V_78625, V_78626, V_78623, V_89776, V_89772, V_89771, V_115384, V_115386, V_115387, V_50583	V_2399, V_3374, V_68077, V_50583, V_30962, V_68075, V_115384, V_7284, V_4293, V_104235, V_38940, V_30963, V_4294, V_104582, V_68079, V_78620, V_78621, V_89767, V_89768, V_30964, V_89769, V_115386, V_78622, V_78624, V_89770, V_89773, V_89774, V_115387, V_89775, V_78625, V_78626, V_78623, V_89776, V_89772, V_89771
2	88987222	90265836	88.99	90:27:00	p11.2-p11.1	TP0211G09	TP0223G0	9	1,278,614	-0.351079346165815	3	C17 , C18, C24	RPIA, IGKV2-19, IGKC, IGKV4-1, IGKV1-5, IGKV3D-15		V_34427, V_34620, V_104236, V_107994, V_37972, V_7285, V_7286, V_7287, V_7288, V_23274, V_23275, V_68082, V_68084, V_68083, V_59009, V_59010, V_59011, V_59012, V_59013, V_4295, V_4296, V_4297, V_2057, V_2058, V_4298, V_78633, V_78634, V_78635, V_78636, V_78638, V_89781, V_89782, V_89783, V_89785, V_89786, V_78637, V_78640, V_89787, V_89788, V_89789, V_89790, V_89791, V_78641, V_78642, V_89792, V_89784, V_78646, V_89794, V_89795, V_78647, V_89796, V_89797, V_89798, V_89799, V_89800, V_89801, V_78648, V_78649, V_78650, V_89802, V_89803, V_78651, V_78652, V_89805, V_89806, V_78653, V_89807, V_89808, V_78656, V_78654, V_78655, V_89809, V_89810, V_107599, V_115388, V_115392, V_115390, V_115391, V_115398, V_115401, V_115402, V_115397, V_115403, V_115404, V_115405, V_115399, V_115406, V_115408, V_115409, V_107808, V_59607, V_53731, V_9954, V_9956, V_9957, V_50591, V_50592, V_50596, V_50597, V_50598, V_74102, V_74118, V_74114, V_74111, V_74120, V_74107, V_74123, V_74122, V_74112, V_74121, V_74106, V_74113, V_74104, V_74124, V_74115, V_74108, V_74105, V_74119, V_74116, V_74109, V_74103, V_74117, V_74126, V_74137, V_74127, V_74125, V_74139, V_74138, V_74128, V_74129, V_74136, V_74141, V_74130, V_74131, V_74135, V_74134, V_74132, V_74133	V_97913, V_61789, V_110385, V_43524, V_39257, V_44036, V_106005, V_23619, V_5989, V_35868, V_74102, V_0525, V_35869, V_35870, V_35871, V_115388, V_35872, V_34427, V_35873, V_22905, V_107994, V_35874, V_97914, V_104583, V_44037, V_78633, V_78634, V_78635, V_78636, V_78638, V_78639, V_89781, V_89782, V_89783, V_89785, V_89786, V_74118, V_107808, V_115392, V_59009, V_7285, V_37225, V_1589, V_4295, V_35875, V_74114, V_115400, V_97915, V_78637, V_78640, V_74111, V_74120, V_115389, V_115390, V_115391, V_103346, V_74107, V_74123, V_104585, V_115398, V_7286, V_37226, V_74122, V_37227, V_89787, V_89788, V_89789, V_0526, V_74112, V_107599, V_89790, V_89791, V_1590, V_78641, V_59010, V_74121, V_23274, V_115401, V_78642, V_89792, V_106006, V_35876, V_61790, V_115402, V_74106, V_104586, V_74113, V_89784, V_74104, V_74124, V_68082, V_74115, V_34620, V_115397, V_115403, V_115404, V_74108, V_74105, V_78646, V_89794, V_89795, V_23246, V_4296, V_115405, V_78647, V_89796, V_74119, V_115399, V_7287, V_35877, V_74116, V_89797, V_89798, V_7288, V_89799, V_89800, V_89801, V_74109, V_4297, V_74103, V_104587, V_74117, V_104588, V_115406, V_78648, V_89802, V_89803, V_78649, V_78650, V_89804, V_2057, V_74126, V_74137, V_74127, V_115408, V_74125, V_74139, V_59011, V_104589,
2	91877692	95652499	91.88	95.65	q11.1	TP0120C04	TP0209E0	17	3,774,807	-0.440203960007509	4	C17 , C18, C24, MPC960	TEKT4		V_2401, V_30972, V_32328, V_30973, V_32329, V_30974, V_32330, V_30975, V_32331, V_30976, V_30977, V_32332, V_30978, V_32333, V_30979, V_68086, V_3375, V_3376, V_78657, V_89811, V_89812, V_89813, V_89814, V_89815, V_89816, V_78658, V_89817, V_78659, V_89818, V_78660, V_89819, V_89820, V_78662, V_89821, V_78661, V_115414, V_115415, V_115416, V_115417, V_115419, V_115420, V_74149, V_74150, V_74145, V_74146, V_74144, V_74151, V_74152, V_74153, V_74154, V_74155, V_74156, V_74157, V_74159, V_74158, V_74160, V_74161, V_74162	V_3375, V_74149, V_115414, V_74150, V_115415, V_30972, V_74145, V_32328, V_74146, V_74144, V_30973, V_32329, V_78657, V_89811, V_89812, V_89813, V_115416, V_30974, V_74151, V_89814, V_89815, V_89816, V_68086, V_32330, V_78658, V_89817, V_74152, V_30975, V_32331, V_78659, V_89818, V_89819, V_115417, V_115419, V_74153, V_74154, V_63066, V_74155, V_23620, V_78660, V_89820, V_61794, V_74156, V_61795, V_63157, V_61796, V_63065, V_74157, V_115420, V_30976, V_2401, V_3376, V_74159, V_30977, V_32332, V_74158, V_74160, V_74161, V_30978, V_78662, V_61797, V_89821, V_78661, V_32333, V_30979, V_74162
2	97611213	99159030	97.61	99:16:00	q11.2	TP0207D02	TP0208E1	20	1,547,817	-0.412637329277762	6	C9, C10, C11, C13, C17 , C18, C24	FAM178B, FAHD2B, ANKRD36B, COX5B, ACTR1B, ZAP70, TMEM131, VWA3B, CNGA3, INPP4A		V_2402, V_104238, V_38898, V_38784, V_7289, V_7290, V_7291, V_7292, V_7293, V_30981, V_32335, V_32336, V_30982, V_30983, V_32337, V_30984, V_30985, V_30986, V_68089, V_68090, V_68092, V_68093, V_59016, V_3378, V_89828, V_78664, V_89829, V_89830, V_107811, V_106476, V_30101, V_9958, V_9959, V_50603, V_50604, V_50605, V_74171, V_74172, V_74174, V_74175, V_74173, V_74176, V_74179, V_74180, V_74177, V_74182, V_74183	V_3378, V_7289, V_89828, V_2402, V_30101, V_74171, V_104596, V_68089, V_68090, V_74172, V_9958, V_50603, V_50604, V_50605, V_7290, V_74174, V_104597, V_30981, V_32335, V_5990, V_38898, V_61798, V_74175, V_74173, V_107811, V_104598, V_32336, V_61799, V_22810, V_97917, V_74176, V_30982, V_7291, V_78664, V_74179, V_30983, V_74180, V_74177, V_104599, V_38784, V_104238, V_7292, V_32337, V_35887, V_30984, V_35888, V_35889, V_30985, V_74182, V_74183, V_106476, V_7293, V_30986, V_59016, V_68092, V_89829, V_97918, V_9959, V_89830, V_68093, V_50606, V_1033, V_1592
2	99915480	101989117	99.92	101.99	q11.2	TP0202H07	TP0223D0	17	2,073,637	-0.377778554662325	3	C17 , C18, C21	MRPL30, LYG1, TXNDC9, EIF5B, REV1, AFF3, LONRF2, CHST10, NMS, PDCL3, NPAS2, RPL31, TBC1D8, C2orf29, RNF149, CREG2		V_34428, V_7294, V_68094, V_3379, V_4302, V_89836, V_78668, V_89837, V_107600, V_115423, V_115424, V_115425, V_107812, V_53283	V_53283, V_34428, V_59759, V_97921, V_89836, V_78668, V_104600, V_115423, V_43318, V_44041, V_89837, V_39258, V_68094, V_107812, V_107600, V_7294, V_3379, V_115424, V_4302, V_115425, V_47994, V_97922
2	108831404	112758612	108.83	112.76	q12.3-q13	TP0209H11	TP0222A1	39	3,927,208	-0.30129111512823	3	C17 , C18, MPC298	SULT1C3, SULT1C2, SULT1C4, GCC2, LIMS1, RANBP2, CCDC138, EDAR, SH3RF3, ANKRD57, RGPD5, LIMS3, MALL, NPHP1, RGPD6, BUB1, ACOXL, BCL2L11, ANAPC1, MERTK		V_34511, V_2403, V_2404, V_8382, V_8954, V_8383, V_8953, V_37798, V_7227, V_32341, V_32342, V_30987, V_32343, V_30988, V_30989, V_32344, V_30990, V_32345, V_30991, V_32346, V_30992, V_30993, V_32347, V_30994, V_32348, V_30995, V_30996, V_30997, V_68112, V_68113, V_68114, V_68115, V_68117, V_68118, V_68119, V_68120, V_68121, V_68122, V_68123, V_68125, V_68124, V_68126, V_58902, V_58904, V_58905, V_3382, V_3384, V_2060, V_4303, V_89880, V_89881, V_89883, V_89884, V_89882, V_89885, V_89887, V_78702, V_78703, V_89888, V_78704, V_78705, V_89889, V_78706, V_89890, V_78707, V_89891, V_89892, V_89893, V_78708, V_89894, V_78709, V_89895, V_89896, V_89897, V_115438, V_115442, V_115443, V_115444, V_106453, V_53344, V_53565, V_53943, V_9960, V_29704, V_9428, V_50249, V_50250, V_50251, V_50252, V_50253, V_50254, V_50255, V_50256, V_50257, V_50262, V_74195, V_74194, V_74198, V_74199, V_74200, V_74201, V_74202, V_74203	V_3382, V_2403, V_8382, V_104603, V_115438, V_68112, V_110276, V_58902, V_32341, V_50249, V_68113, V_68114, V_89880, V_89881, V_89883, V_89884, V_23577, V_106453, V_89882, V_89885, V_89887, V_78702, V_78703, V_50250, V_68115, V_97935, V_74195, V_74194, V_115442, V_68117, V_8954, V_78704, V_89888, V_68118, V_78705, V_89889, V_32342, V_30987, V_78706, V_89890, V_78707, V_37209, V_89891, V_32343, V_74198, V_30988, V_30989, V_32344, V_97936, V_9960, V_29704, V_50251, V_53344, V_53565, V_8383, V_8953, V_34511, V_2404, V_48026, V_50252, V_50253, V_50254, V_53943, V_50255, V_50256, V_50257, V_89892, V_89893, V_74199, V_68119, V_30990, V_32345, V_74200, V_30991, V_32346, V_74201, V_30992, V_68120, V_78708, V_89894, V_30993, V_32347, V_78709, V_58904, V_58905, V_115443, V_115444, V_3384, V_74202, V_104604, V_30994, V_32348, V_23579, V_0268, V_2060, V_68121, V_89895, V_30995, V_30996, V_1595, V_9428, V_37798, V_74203, V_7227, V_4303, V_68122, V_22527, V_68123, V_68125, V_89896, V_30997, V_68124, V_68126, V_89897, V_50262, V_5995
2	121659718	122097634	121.66	122:01:00	q14.2	TP0218H10	TP0221F1	3	0.437916	-0.226199433641248	3	C17 , C18, MPC298	GLI2, TFCP2L1, CLASP1		V_68144, V_68145	V_68144, V_68145, V_104614, V_97959
2	126717176	127783664	126.72	127.78	q14.3	TP0225F09	TP0227E0	12	1,066,488	-0.218521559624999	3	C9, C17 , C18	GYPC		V_68154, V_68155, V_3390, V_78742, V_89933, V_89934, V_89935, V_78743, V_89936, V_115470, V_106456, V_74243	V_74243, V_3390, V_35719, V_35720, V_97971, V_110287, V_61817, V_115470, V_43483, V_78742, V_89933, V_89934, V_89935, V_23581, V_39263, V_68154, V_104618, V_78743, V_89936, V_110288, V_68155, V_106456
2	132279581	132994118	132:28:00	132.99	q21.1-q21.2	TP0212A06	TP1011H1	9	0.714537	-0.37250803069263	4	C11, C13, C17 , C18	CCDC74A, C2orf27A, C2orf27B, ZNF72, C21orf99		V_2409, V_8389, V_7230, V_7231, V_31011, V_32376, V_31012, V_32377, V_31013, V_58918, V_3393, V_0025, V_4307, V_59619, V_89994, V_78775, V_78776, V_89995, V_89996, V_89997, V_78777, V_89993, V_89998, V_89999, V_90006, V_78781, V_90002, V_90009, V_78782, V_78783, V_78784, V_90003, V_90000, V_78780, V_90004, V_78779, V_90010, V_115478, V_115479, V_53313, V_30104, V_50290, V_74262, V_74263, V_74265, V_74264, V_74267, V_74266, V_74268, V_74271	V_3393, V_2409, V_30104, V_53313, V_8389, V_31011, V_0025, V_50290, V_32376, V_89994, V_74262, V_78775, V_74263, V_35729, V_61822, V_58918, V_4307, V_74265, V_115478, V_78776, V_89995, V_89996, V_115479, V_74264, V_89997, V_78777, V_89993, V_89998, V_89999, V_74267, V_74266, V_74268, V_90006, V_37212, V_7230, V_31012, V_7231, V_78781, V_90002, V_90009, V_32377, V_78782, V_78783, V_78784, V_90003, V_97978, V_74271, V_90000, V_31013, V_78780, V_90004, V_78779, V_90010, V_59619, V_97979
2	220536177	223352361	220:54:00	223:35:00	q35-q36.1	TP0217D10	TP0215G1	33	2,816,184	-0.344257503949619	4	C10, C17 , C18, C22	EPHA4, PAX3, CCDC140, SGPP2		V_2425, V_63309, V_58968, V_3407, V_4328, V_90289, V_90290, V_90291, V_90293, V_9978, V_50403, V_50404, V_68232, V_68233, V_68234	V_68232, V_98141, V_68233, V_6030, V_35789, V_107095, V_47935, V_63309, V_90289, V_98142, V_90290, V_37217, V_58968, V_98143, V_6031, V_98144, V_104647, V_68234, V_23603, V_2425, V_3407, V_90291, V_9978, V_90293, V_103349, V_4328, V_50403, V_50404





23	54874167	152884368	54.87	152.88	p11.21-q28	TPX006G05	TPX001F1	940	98,010,201	-0.540360585806094	6	C6, C8, C9, C11, C13, C17 , MPC600, MPC298, MPC960	TRO, PFKFB1, APEX2, ALAS2, PAGE2B, PAGE2, FAM104B, PAGE5, PAGE3, MAGEH1, RRAGB, KLF8, UBQLN2, SPIN3, SPIN2B, SPIN2A, FAAH2, ZXDB, ZXDA, SPIN4, ARHGEF9, FAM123B, ASB12, MTMR8, ZC4H2, ZC3H12B, LAS1L, MSN, VSIG4, HEPH, EDA2R, AR, OPHN1, YIPF6, STARD8, EFNB1, PJA1, FAM155B, EDA, OTUD6A, IGBP1, DGAT2L6, AWAT1, P2RY4, ARR3, RAB41, PDZD11, KIF4A, GDPD2, DLG3, TEX11, SLC7A3, SNX12, FOXO4, CXorf65, IL2RG, MED12, NLGN3, GJB1, ZMYM3, NONO, ITGB1BP2, TAF1, OGT, ACRC, CXCR3, RPS26P11, NHSL2, PIN4, ERCC6L, RPS4X, CITED1, HDAC8, PHKA1, DMRTC1, DMRTC1B, CXorf50, PABPC1L2B, PABPC1L2A, NAP1L6, NAP1L2, CDX4, CHIC1, FXYD8, BMP2KL, ZCCHC13, SLC16A2, RLIM, KIAA2022, ABCB7, UPRT, ZDHHC15, MAGEE2, CXorf26, MAGEE1, FGF16, ATRX, MAGT1, COX7B, ATP7A, PGAM4, PGK1, TAF9B, CYSLTR1, ZCCHC5, LPAR4, P2RY10, GPR174, ITM2A, TBX22, FAM46D, BRWD3, NSBP1, SH3BGRL, POU3F4, CYLC1, RPS6KA6, HDX, APOOL, SATL1, ZNF711, POF1B, CHM, DACH2, KLHL4, CPXCR1, TGIF2LX, PABPC5, PCDH11X, NAP1L3, FAM133A, DIAPH2, RPA4, PCDH19, TNMD, TSPAN6, SRPX2, SYTL4, CSTF2, NOX1, XKRX, ARL13A, TRMT2B, TMEM35, CENPI, DRP2, TAFTL, TIMM8A, BTK, RPL36A, GLA, ARMCX1, ARMCX6, ARMCX3, ARMCX2, NXF5, ZMAT1, TCEAL2, TCEAL6, BEX5, NXF2, NXF2B, TMSB15A, ARMCX5, GPRASP1, GPRASP2, BHLHB9, RAB40AL, BEX1, NXF3, BEX4, TCEAL8, TCEAL5, BEX2, TCEAL7, WBP5, NGFRAP1, RAB40A, TCEAL4, TCEAL3, TCEAL1, MORF4L2, GLRA4, TMEM31, PLP1, RAB9B, H2BFWT, H2BFM, MCART6, CXorf39, ESX1, IL1RAPL2, TEX13A, NRK, SERPINA7, MUM1L1, CXorf57, RNF128, TBC1D8B, RIPPLY1, CLDN2, MORC4, RBM41, NUP62CL, CXorf41, MYCL2, FRMPD3, PRPS1, TSC22D3, NCBP2L, MID2, TEX13B, VSIG1, PSMD10, ATG4A, COL4A6, COL4A5, IRS4, GUCY2F, NXT2, KCNE1L, ACSL4, TMEM164, AMMECR1, GNG5P2, CHRDL1, PAK3, CAPN6, DCX, ALG13, TRPC5,	hsa-mir-1468, hsa-mir-223, hsa-mir-421, hsa-mir-374b, hsa-mir-545, hsa-mir-374a, hsa-mir-325, hsa-mir-548i-4, hsa-mir-361, hsa-mir-548m, hsa-mir-652, hsa-mir-1912, hsa-mir-1298, hsa-mir-1911, hsa-mir-448, hsa-mir-1277, hsa-mir-766, hsa-mir-220a, hsa-mir-363, hsa-mir-92a-2, hsa-mir-19b-2, hsa-mir-20b, hsa-mir-106a, hsa-mir-450b, hsa-mir-450a-1, hsa-mir-450a-2, hsa-mir-542, hsa-mir-503, hsa-mir-424, hsa-mir-934, hsa-mir-504, hsa-mir-505, hsa-mir-3206-2, hsa-mir-890, hsa-mir-888, hsa-mir-892a, hsa-mir-892b, hsa-mir-891b, hsa-mir-891a, hsa-mir-513c, hsa-mir-513b, hsa-mir-513a-1, hsa-mir-513a-2, hsa-mir-506, hsa-mir-507, hsa-mir-508, hsa-mir-509-2, hsa-mir-509-3, hsa-mir-509-2, hsa-mir-510, hsa-mir-514-1, hsa-mir-514-2, hsa-mir-514-2, hsa-mir-224, hsa-mir-452, hsa-mir-105-1, hsa-mir-767, hsa-mir-105-2	V_3417_V_34578_V_34509_V_3251_V_3266_V_3252_V_3267_V_3268_V_3253_V_3254_V_3269_V_3255_V_3256_V_3270_V_3257_V_3271_V_3272_V_3258_V_3273_V_3259_V_8307_V_8308_V_8309_V_8310_V_8913_V_8914_V_8311_V_8312_V_8313_V_8314_V_38778_V_38768_V_38930_V_38946_V_38758_V_38760_V_108005_V_108006_V_38763_V_38762_V_38782_V_38928_V_108004_V_38767_V_38761_V_38001_V_38929_V_7792_V_7793_V_7795_V_7797_V_7799_V_7800_V_7756_V_7757_V_7758_V_7759_V_7760_V_7761_V_7762_V_7763_V_7764_V_7765_V_7766_V_7767_V_7768_V_7769_V_23330_V_31552_V_31553_V_33165_V_31554_V_33166_V_33167_V_33168_V_33169_V_31555_V_33170_V_33171_V_33172_V_33173_V_33174_V_31556_V_31557_V_33175_V_31558_V_31559_V_31560_V_33176_V_31561_V_33177_V_31562_V_31563_V_33178_V_33179_V_31564_V_33180_V_31565_V_31566_V_33181_V_31567_V_31568_V_31569_V_33182_V_33183_V_31570_V_33184_V_33185_V_31571_V_31572_V_31573_V_31574_V_67980_V_67981_V_67982_V_67983_V_67984_V_67985_V_67986_V_67987_V_67988_V_67989_V_67990_V_67991_V_67992_V_67993_V_67995_V_67996_V_67994_V_67997_V_67998_V_68002_V_68000_V_68001_V_68003_V_68004_V_68005_V_68006_V_68008_V_68009_V_68010_V_68011_V_68014_V_68015_V_68016_V_68017_V_68018_V_68021_V_68023_V_68022_V_68024_V_68027_V_68028_V_68029_V_68030_V_68032_V_68033_V_68034_V_68035_V_68036_V_68037_V_68039_V_68040_V_68041_V_68042_V_68044_V_68045_V_68046_V_68047_V_68048_V_68050_V_68051_V_68052_V_68053_V_68054_V_68055_V_68056_V_68057_V_68058_V_59550_V_59551_V_59552_V_59553_V_59554_V_59545_V_59546_V_59547_V_4150_V_4151_V_4152_V_2279_V_4153_V_4154_V_4155_V_0244_V_4156_V_0245_V_0246_V_0247_V_0248_V_4157_V_4158_V_0249_V_4159_V_4160_V_4161_V_0250_V_4162_V_0251_V_4163_V_4164_V_4166_V_4167_V_4168_V_0252_V_4169_V_0253_V_4170_V_4171_V_4172_V_0254_V_4173_V_2130_V_2280_V_4174_V_0826_V_2281_V_4175_V_0827_V_2282_V_0255_V_4176_V_4177_V_4178_V_83529_V_96700_V_83530_V_96701_V_83531_V_96704_V_83534_V_96705_V_96706_V_83535_V_96707_V_96708_V_96709_V_96710_V_96711_V_83537_V_83538_V_83539_V_83540_V_83542_V_96712_V_96715_V_83541_V_96716_V_96714_V_83543_V_96713_V_83544_V_83545_V_96717_V_83547_V_83548_V_83549_V_83550_V_83551_V_96721_V_96722_V_83552_V_96723_V_83553_V_96724_V_96725_V_83557_V_96726_V_83563_V_83564_V_83565_V_96730_V_83566_V_83567_V_96731_V_83569_V_96732_V_83572_V_83570_V_96733_V_96734_V_83573_V_96735_V_83576_V_96736_V_83578_V_96740_V_96741_V_83583_V_96745_V_96746_V_83584_V_96752_V_96753_V_96754_V_96755_V_96756_V_83589_V_96757_V_83596_V_96763_V_96764_V_83598_V_96765_V_96766_V_83603_V_96770_V_96773_V_83609_V_96777_V_96779_V_96780_V_83610_V_96778_V_96781_V_96782_V_96783_V_83611_V_96784_V_96785_V_96788_V_96789_V_83613_V_96790_V_83614_V_96791_V_96793_V_83615_V_96794_V_96795_V_96797_V_96799_V_96796_V_96800_V_96798_V_83616_V_83617_V_96801_V_96802_V_96803_V_96805_V_83621_V_96807_V_96809_V_83622_V_96812_V_96814_V_96815_V_83623_V_83624_V_96816_V_83625_V_96818_V_83627_V_96821_V_96822_V_83632_V_96823_V_83633_V_96824_V_83635_V_96825_V_96830_V_96831_V_96832_V_96833_V_96834_V_96839_V_96840_V_83648_V_96845_V_96846_V_83649_V_96847_V_96848_V_96850_V_96851_	V_23256_V_105896_V_107527_V_73984_V_83529_V_96700_V_83530_V_96701_V_83531_V_63100_V_44414_V_44415_V_44416_V_43647_V_62973_V_37384_V_37385_V_37047_V_107528_V_23921_V_73985_V_73986_V_38778_V_37048_V_96704_V_103252_V_53011_V_59550_V_67980_V_22863_V_38768_V_83534_V_96705_V_96706_V_4150_V_37049_V_37050_V_37051_V_7792_V_0661_V_37052_V_37053_V_83535_V_96707_V_73987_V_107529_V_31552_V_96708_V_31553_V_96709_V_96710_V_96711_V_83537_V_83538_V_1848_V_83539_V_0243_V_7793_V_73988_V_4151_V_33165_V_83540_V_67981_V_83542_V_96712_V_96715_V_37054_V_83541_V_96716_V_96714_V_83543_V_96713_V_31554_V_83544_V_53013_V_83545_V_96717_V_53014_V_115307_V_9344_V_83547_V_1849_V_83548_V_83549_V_83550_V_83551_V_96721_V_96722_V_83552_V_96723_V_83553_V_96724_V_1850_V_73990_V_73991_V_22834_V_23922_V_96725_V_73989_V_103385_V_104555_V_22884_V_23923_V_23924_V_107977_V_63102_V_63101_V_59880_V_62974_V_9345_V_53015_V_83557_V_96726_V_4152_V_67982_V_2279_V_67983_V_38930_V_7795_V_73993_V_73994_V_73995_V_37055_V_3251_V_4153_V_83563_V_9346_V_73996_V_38946_V_107978_V_73997_V_1851_V_107981_V_73998_V_103253_V_44417_V_105897_V_53017_V_34417_V_115309_V_67984_V_83564_V_83565_V_96730_V_115310_V_83566_V_1852_V_4154_V_3266_V_53019_V_33166_V_9347_V_83567_V_96731_V_107530_V_103254_V_37056_V_22769_V_67985_V_83569_V_96732_V_83572_V_83570_V_115311_V_33167_V_53020_V_53021_V_53022_V_53023_V_22600_V_103255_V_53024_V_53025_V_53026_V_96733_V_115312_V_115313_V_74000_V_96734_V_83573_V_96735_V_83576_V_96736_V_74002_V_83578_V_96740_V_103386_V_7797_V_37057_V_67986_V_96741_V_53027_V_53028_V_53029_V_53030_V_53031_V_53032_V_53033_V_67987_V_67988_V_104556_V_74003_V_6739_V_83583_V_96745_V_96746_V_83584_V_96752_V_4155_V_33168_V_53034_V_37386_V_33169_V_104557_V_67989_V_67990_V_106629_V_31555_V_33170_V_33171_V_33172_V_53035_V_53036_V_103257_V_74005_V_96753_V_96754_V_74006_V_37387_V_96755_V_96756_V_83589_V_96757_V_37388_V_74008_V_74009_V_74010_V_115314_V_37389_V_115315_V_37390_V_115316_V_107982_V_74011_V_9348_V_37058_V_67991_V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23	153266863	153647227	153:27:00	153.65	q28	TPX007E04	TPX017BD	5	0.380364	-0.521380507410593	3	C4LN, MPC600, MPC298	IRAK1, MECP2, OPN1LW, TEX28P2, OPN1MW, TEX28P1, OPN1MW2, TEX28, TKTL1, FLNA, EMD, RPL10, DNASE1L1, TAZ			V_31575_V_83863_V_83864_V_97104_V_83868_V_97108_V_83869_V_74085	V_83863_V_83864_V_97104_V_74085_V_83868_V_97108_V_83869_V_31575_V_37365_V_0674
23	153782867	155186928	153.78	155:19:00	q28	TPX010B11	TPX014F0	16	1,404,061	-0.363013544519161	5	C11, C13, C17 , C22, MPC298	IKBKG, CXorf52, CTAG1A, CTAG1B, CXorf52B, CTAG2, GAB3, DKC1, MPP1, F8, H2AFB1, F8A1, FUNDC2, MTCP1NB, BRCC3, VBP1, RAB39B, CLIC2, H2AFB2, F8A2, F8A3, H2AFB3, TMLHE, SPRY3, VAMP7	hsa-mir-1184, hsa-mir-1184, hsa-mir-1184	V_68060_V_68061_V_68063_V_68064_V_68066_V_68067_V_68068_V_68028_V_0825_V_83870_V_97109_V_97110_V_83872_V_97127_V_97128_V_83879_V_97130_V_97129_V_97132_V_97133_V_83884_V_83883_V_83885_V_97134_V_115349_V_9357_V_52965_V_52966_V_52967_V_23331_V_74086_V_74087_V_74090_V_74092	V_74086_V_74087_V_37366_V_68060_V_83870_V_23331_V_52965_V_97109_V_97110_V_83872_V_68061_V_97111_V_105897_V_52966_V_103296_V_44407_V_74090_V_37367_V_37368_V_9357_V_1870_V_52967_V_37015_V_68063_V_97127_V_37016_V_37017_V_97128_V_37018_V_83879_V_68064_V_37019_V_105891_V_104572_V_115349_V_97130_V_97129_V_0828_V_103297_V_22709_V_68066_V_44408_V_68067_V_97132_V_97133_V_83884_V_83883_V_0825_V_74092_V_83885_V_97134_V_68068

AMPLIFICATIONS (in 2 or more cases)

Chrom	Start	End	Start MB	End MB	Cytobands	Start Probe	End Probe	Probes	Length MB	maxN	max.overlap	Cases	Genes	miRNAs	aCGH CNVs	Full CNVs
1	38415142	41009944	38:42:00	41:01:00	p34.3-p34.2	TP0125A04	TP0120G0	31	2,594,802	114,815,243,545,795	2	C4, MPC960	SF3A3, FHL3, UTP11L, POU3F1, RRAGC, MYCBP, GJA9, RHBDL2, AKIRIN1, NDUFS5, MACF1, BMP8A, PABPC4, HEYL, NT5C1A, HPCAL4, PPIE, BMP8B, OXCT2, TRIT1, MYCL1, MFSD2, CAP1, PPT1, RLF, TMCO2, ZMPSTE24, COL9A2, SMAP2, ZNF643, ZNF642, DEM1, ZNF684		V_2305_V_8322_V_103399_V_38178_V_38179_V_38180_V_31620_V_63490_V_63496_V_63507_V_63526_V_63534_V_63543_V_63552_V_58388_V_58389_V_58390_V_3289_V_4219_V_84177_V_84178_V_74449_V_84179_V_84182_V_84181_V_84183_V_74452_V_74453_V_84184_V_84185_V_115807_V_115818_V_115829_V_115840_V_115851_V_115862_V_53124_V_9881_V_48318_V_48320_V_48321	V_115807_V_63490_V_38178_V_63496_V_84177_V_48318_V_84178_V_74449_V_84179_V_115818_V_115829_V_58388_V_63507_V_115840_V_2305_V_38179_V_31620_V_9881_V_84182_V_84181_V_84183_V_74452_V_23108_V_106723_V_33926_V_63526_V_63534_V_74453_V_84184_V_48320_V_58389_V_63543_V_53124_V_3289_V_5487_V_8322_V_48321_V_4219_V_60817_V_115851_V_38993_V_84185_V_97338_V_38180_V_103399_V_63552_V_58390_V_115862
8	33813206	41855494	33.81	41.86	p12-p11.21	TP0811B04	TP0809A0	93	8,042,288	144,034,104,782,479	5	C9, C10, C18, C21,	RPL10AP3, UNC5D, KCNU1, ZNF703, ERLIN2, PROSC, GPR124, BRF2, RAB11FIP1, GOT1L1, ADRB3, EIF4EBP1, ASH2L, STAR, LSM1, BAG4, DDHD2, PPAPDC1B, WHSC1L1, LETM2, FGFR1, C8orf86, TACC1, PLEKHA2, HTR4A, TM2D2, ADAM9, ADAM32, ADAM5P, ADAM3A, ADAM18, ADAM2, IDO1, C8orf4, ZMAT4, SFRP1, GOLGA7, GINS4, AGPAT6, NKX6-3, ANK1, MYST3	hsa-mir-486	V_2749_V_9090_V_9091_V_103788_V_103789_V_103790_V_103791_V_38715_V_38716_V_38096_V_38717_V_7683_V_7684_V_7685_V_7686_V_7687_V_31439_V_33030_V_33031_V_33032_V_65105_V_65107_V_65108_V_65109_V_65110_V_65111_V_65112_V_65113_V_65114_V_65116_V_65117_V_65119_V_59470_V_59471_V_59472_V_59473_V_59476_V_4589_V_3728_V_95365_V_82560_V_95366_V_82561_V_82568_V_82573_V_95370_V_95394_V_82583_V_95395_V_106294_V_112155_V_112156_V_112157_V_112161_V_112162_V_112166_V_112168_V_112169_V_106595_V_107920_V_10250_V_10251_V_52517_V_52518_V_52521_V_52523_V_52528_V_52529_V_52530_V_52531_V_52532_V_52533_V_70332_V_70333	V_9090_V_107456_V_100315_V_100316_V_65105_V_95365_V_65107_V_100317_V_82560_V_95366_V_82561_V_65108_V_70332_V_59470_V_38715_V_103788_V_112155_V_65109_V_82568_V_95373_V_65110_V_9091_V_107458_V_100320_V_1196_V_100321_V_82792_V_43242_V_112156_V_95375_V_82572_V_95376_V_95377_V_36812_V_82573_V_95378_V_22601_V_38716_V_103789_V_65111_V_65112_V_23872_V_6610_V_112158_V_6611_V_1778_V_4589_V_62793_V_70333_V_65113_V_95379_V_59471_V_52517_V_52518_V_59472_V_2749_V_36815_V_105114_V_112161_V_59473_V_36816_V_105798_V_65114_V_106294_V_37462_V_7683_V_82574_V_95380_V_106595_V_31439_V_1779_V_103790_V_106668_V_33030_V_38096_V_1462_V_107920_V_3728_V_1197_V_1463_V_1198_V_112162_V_1460_V_1199_V_1200_V_1461_V_1465_V_95381_V_1464_V_112166_V_82575_V_82576_V_95382_V_7684_V_82578_V_95385_V_33031_V_52523_V_52524_V_100322_V_65116_V_6612_V_100323_V_36817_V_65117_V_33032_V_95387_V_38717_V_103791_V_1466_V_1760_V_10250_V_52528_V_52529_V_52530_V_52531_V_52532_V_52533_V_22754_V_62795_V_95388_V_95389_V_7685_V_7686_V_39524_V_82580_V_95391_V_95392_V_105799_V_105116_V_112168_V_59476_V_23044_V_65119_V_82581_V_95393_V_100324_V_82582_V_95394_V_76872
8	46851417	73266692	46.85	73:27:00	q11.1-q13.3	TP0816G07	TP0809C1	263	26,415,275	120,138,809,984,784	3	C4, C5, C6, C21	KIAA0146, CEBPD, PRKDC, MCM4, UBE2V2, EFCAB1, SNAI2, C8orf22, SNTG1, PXDNL, PCMTD1,ST18, FAM150A, RB1CC1, NPBWR1, OPRK1, ATP6V1H, RGS20, TEX264, LYPLA1, MRPL15, SOX17, RP1, XKR4, TMEM68, TGS1, LYN, RPS20, MOS, PLAG1, CHCHD7, SDR16C5, SDR16C6, PENK, MTMR7, C8orf71, FAM110B, UBXN2A, CYP7A1, SOCBP, NSMCE1, TOX, CA8, RAB2A, RALBP1L1, ASPH, NKAIN3, GGH, TTPA, YTHDF3, IFITM5P, BHLHE22, CYP7B1, ARMC1, MTFR1, PDE7A, DNAJC5B, TRIM55, CRH, RRS1, ADHFE1, C8orf46, MYBL1, VCPIP1, C8orf44, SGK3, PTTG3, C8orf45, TCF24, LRRC67, COPS5, CSPP1, ARFGEF1, CPA6, PREX2, C8orf34, RPS15AP25, SULF1, SLCO5A1, PRDM14, NCOA2, TRAM1, LACTB2, XKR9, EYA1, MSC, TRPA1	hsa-mir-124-2	V_2750_V_2751_V_2752_V_2753_V_2754_V_2755_V_2756_V_2757_V_2758_V_8601_V_9093_V_8602_V_8603_V_8604_V_8605_V_8606_V_8607_V_103792_V_103793_V_103794_V_103795_V_103796_V_103797_V_103798_V_103799_V_103800_V_103801_V_38713_V_37765_V_38026_V_38718_V_37943_V_37766_V_38082_V_38719_V_37854_V_106660_V_37922_V_38723_V_38724_V_37998_V_7688_V_7689_V_7691_V_7694_V_7696_V_7697_V_7701_V_7703_V_7704_V_7705_V_31440_V_31441_V_33033_V_33034_V_31442_V_33035_V_33036_V_33037_V_33038_V_33039_V_33040_V_33041_V_31443_V_31444_V_31445_V_31446_V_33042_V_33043_V_33044_V_33045_V_33046_V_65124_V_65125_V_65126_V_65131_V_65132_V_65133_V_65136_V_65138_V_65140_V_65141_V_65142_V_65143_V_65144_V_65147_V_65148_V_65149_V_65150_V_65151_V_65152_V_65154_V_65157_V_65158_V_65159_V_65160_V_65162_V_65163_V_93478_V_59482_V_59484_V_59488_V_59489_V_59490_V_4590_V_3729_V_3730_V_4591_V_3731_V_3732_V_4592_V_4593_V_3733_V_3734_V_3735_V_3736_V_4594_V_4595_V_4596_V_4597_V_4598_V_95400_V_95402_V_95401_V_82589_V_82590_V_82591_V_95403_V_95404_V_82592_V_82593_V_95405_V_82594_V_82595_V_95407_V_82596_V_95406_V_95408_V_82597_V_95409_V_95410_V_95412_V_95413_V_95415_V_95417_V_95418_V_82601_V_95419_V_95424_V_95425_V_95427_V_95430_V_95431_V_95432_V_82607_V_82608_V_95434_V_95435_V_82609_V_95437_V_95439_V_95438_V_95442_V_95443_V_95444_V_95445_V_82613_V_95446_V_95447_V_95448_V_82614_V_82615_V_82616_V_95449_V_95450_V_95451_V_82618_V_82619_V_95452_V_95453_V_95454_V_82620_V_95455_V_95456_V_95457_V_95458_V_82621_V_95459_V_95460_V_82622_V_95461_V_82623_V_95462_V_95463_V_95464_V_82624_V_95465_V_95466_V_82625_V_95467_V_82626_V_95468_V_82627_V_95469_V_95470_V_95471_V_82628_V_95472_V_95473_V_95474_V_82629_V_95475_V_95476_V_82630_V_95477_V_82631_V_95478_V_95479_V_82632_V_95480_V_82633_V_95481_V_82634_V_95482_V_82635_V_95483_V_82636_V_95484_V_82637_V_95485_V_82638_V_95486_V_82639_V_95487_V_82640_V_95488_V_82641_V_95489_V_82642_V_95490_V_82643_V_95491_V_82644_V_95492_V_82645_V_95493_V_82646_V_95494_V_82647_V_95495_V_44360_V_95507_V_106297_V_112204_V_100394_V_70392_V_70390_V_100395_V_52622_V_100396_V_4599_V_52623_V_100397_V_95508_V_52624_V_7707_V_43272_V_106095_V_23879_V_39529_V_6638_V_100400_V_6639_V_95509_V_70393_V_95510_V_6640_V_95511_V_65171_V_95512_V_100401_V_62823_V_9094_V_65172_V_95513_V_95517_V_38726_V_65174_V_9605_V_65175_V_95521_V_3737_V_95522_V_7708_V_2759_V_70394_V_82656_V_95524_V_0119_V_65176_V_95525_V_105817_V_6641_V_47902_V_6642_V_112205_V_65178_V_105125_V_59493_V_95532_V_1793_V_100403_V_6643_V_100404_V_22775_V_95533_V_65179_V_95535_V_95534_V_82662_V_70397_V_96536_V_95537_V_82663_V_100405_V_100406_V_70398_V_105126_V_82665_V_95538_V_52630_V_52631_V_100407_V_52632_V_52633_V_53474_V_112206_V_95539_V_107476_V_36874_V_29795_V_29794_V_29796_V_29797_V_100409_V_53427_V_8608_V_59494_V_100410_V_95540_V_36875_V_82666_V_95541_V_105127_V_112208_V_22795_V_59495_V_65182_V_37469_V_1467_V_1794_V_103803_V_31447_V_37942_V_52634_V_36876_V_85183_V_95542_V_112210_V_4600_V_65184_V_100411_V_6644_V_4601_V_3738_V_4602_V_7712_V_52637_V_112211_V_37768_V_82667_V_95543_V_70400_V_36877_V_105129_V_0636_V_36878_V_0637_V_36879_V_36880_V_107933_V_36881_V_4603_V_107934_V_70401_V_105130_V_0638_V_36882_V_4604_V_0639_V_36883_V_6640_V_36884_V_4605_
17	36563876	39502562	36:56:00	39:05:00	q12-q21.2	TP1707B02	TP1709D0	34	2,938,686	229,054,079,831,212	3	C18, C24, MPC600	C17orf96, MLLT6, CISD3, PCGF2, PSMB3, PIP4K2B, CCDC49, C17orf98, RPL23, LASP1, FBXO47, PLXDC1, CACNB1, RPL19, STAC2, FBXL20, MED1, CDK12, NEUROD2, PPP1R1B, STARD3, TCAP, PNMT, PERLD1, ERBB2, C17orf37, GRB7, IKZF3, ZPBP2, GSDMB, ORMDL3, GSDMA, PSMD3, CSF3, MED24, THRA, NR1D1, MSL1, CASC3, RAPGEFL1, WIPF2, CDC6, RARA, GJD3, TOP2A, IGFBP4, TNS4, CCR7, SMARCE1, KRT222P, KRT24, KRT25, KRT26, KRT27, KRT28, KRT10, TMEM99, KRT12, KRT20, KRT23, KRT39, KRT40, KRTAP3-3, KRTAP3-2, KRTAP3-1, KRTAP1-5, KRTAP1-4, KRTAP1-3, KRTAP1-1, KRTAP2-2, KRTAP2-1, KRTAP2-4, KRTAP4-9, KRTAP4-8, KRTAP4-11, KRTAP4-12, KRTAP4-6, KRTAP4-5, KRTAP4-4, KRTAP4-3, KRTAP4-2, KRTAP4-7, KRTAP9-3, KRTAP9-8, KRTAP9-6, KRTAP9-7, KRTAP16-1, KRTAP17-1, KRT33A	hsa-mir-645, hsa-mir-1302-5	V_3219_V_3220_V_3221_V_3222_V_8887_V_8888_V_104192_V_104193_V_38444_V_38445_V_7308_V_7309_V_7310_V_7311_V_32425_V_32426_V_31041_V_67703_V_67704_V_67705_V_67707_V_67708_V_67709_V_67710_V_67711_V_67712_V_67714_V_67715_V_4103_V_2251_V_5139_V_5140_V_5141_V_0226_V_5142_V_5143_V_90590_V_90591_V_79224_V_79225_V_79226_V_79227_V_90596_V_90594_V_79228_V_79229_V_90592_V_90597_V_79231_V_79232_V_90598_V_79233_V_90599_V_79230_V_79234_V_90601_V_79236_V_79237_V_79238_V_79235_V_90603_V_79240_V_90606_V_79242_V_90608_V_90612_V_90613_V_90610_V_79241_V_90614_V_90609_V_79243_V_90611_V_90615_V_90616_V_90617_V_79244_V_90607_V_90618_V_90622_V_114925_V_114926_V_114928_V_114929_V_114932_V_114934_V_114935_V_114936_V_114938_V_106479_V_53893_V_9825_V_10583_V_50671_V_50678_V_50679_V_50680_V_50681_V_50682_V_50684_V_50685_V_50686_V_50687_V_50688_V_50689_V_50690_V_50696_V_50697_V_50698_V_73521_V_73522_V_73524_V_73523_V_73525_V_73526_V_73527_V_73530_V_73533_V_73532_V_73534_V_73535_V_73537_V_73538_V_73539	V_3219_V_3220_V_107135_V_50671_V_3220_V_7309_V_38444_V_104192_V_114926_V_110411_V_102979_V_90590_V_90591_V_79224_V_6114_V_6115_V_4103_V_32425_V_79225_V_79226_V_0538_V_35927_V_2251_V_23627_V_59771_V_37232_V_35928_V_0539_V_35929_V_73521_V_104459_V_23628_V_5139_V_73522_V_1996_V_79227_V_90596_V_90594_V_67703_V_79228_V_79229_V_90592_V_90597_V_32426_V_79231_V_79232_V_90598_V_107132_V_73524_V_35930_V_0540_V_35931_V_79233_V_90599_V_79230_V_73523_V_59645_V_110412_V_102981_V_102983_V_22989_V_79234_V_90601_V_79236_V_79237_V_79238_V_79235_V_5140_V_47899_V_102984_V_114928_V_39294_V_90603_V_5141_V_110413_V_6116_V_7310_V_6117_V_7311_V_8888_V_110415_V_102985_V_3221_V_114929_V_31041_V_6118_V_6119_V_50678_V_67704_V_50679_V_50680_V_9825_V_50681_V_107133_V_110417_V_102987_V_44050_V_6120_V_67705_V_106479_V_73525_V_73526_V_73527_V_114932_V_0226_V_102988_V_102989_V_5142_V_102990_V_5143_V_47945_V_50682_V_67707_V_6121_V_50684_V_1524_V_35932_V_67708_V_79240_V_90606_V_79242_V_90608_V_90612_V_90613_V_90610_V_79241_V_90614_V_90609_V_79243_V_90611_V_90615_V_90616_V_90617_V_79244_V_90607_V_90618_V_73530_V_114940_V_114943_V_73531_V_73532_V_73534_V_73535_V_73537_V_73538_V_73539
20	45213999	55159095	45:21:00	55:16:00	q13.12-q13.31	TP2005G05	TP2005H0	115	9,945,096	137,084,421,921,317	3	C4, C4LN, MPC600	SLC13A3, TPS3RK, SLC2A10, EYA2, ZMYND8, NCOA3, SULF2, PREX1, ARFGEF2, CSE1L, STAU1, DOK2, ZNFX1, KCNB1, PTGIS, B4GALT5, SLC9A8, SPATA2, RNF114, SNAI1, TMEM189, CEBPB, PTPN1, FAM65C, PARD6B, BCAS4, ADNP, DPM1, MOCS3, KCNG1, NFATC2, ATP9A, SALL4, ZFR64, TSHZ2, ZNF217, BCAS1, CYP24A1, PFDN4, DOK5, CBLN4, MC3R, C20orf108, AURKA, CSTF1, CASS4, C20orf43, GCNT7, C20orf106, C20orf107	hsa-mir-646	V_3446_V_38447_V_67721_V_67722_V_67724_V_67725_V_59032_V_90634_V_79256_V_53131_V_10586_V_10587_V_50700_V_50701_V_73546_V_73547	V_59032_V_103006_V_73546_V_67721_V_103008_V_73547_V_10586_V_50700_V_53131_V_67722_V_38446_V_90634_V_67724_V_38447_V_10587_V_50701_V_79256_V_67725_V_103009
20	55929883	57147285	55.93	57:15:00	q13.31-q13.32	TP2006B01	TP2001F0	9	1,217,402	145,558,956,277,928	2	C4, C4LN	RAE1, RBM38, CTCFL, PCK1, ZBP1, PMEPA1, C20orf85, ANKRD60, PPP4R1L, RAB22A, VAPB, APCDD1L		V_7312_V_31042_V_67718_V_4104_V_90623_V_114943_V_114944_V_73543	V_7312_V_90623_V_114943_V_73543_V_4104_V_31042_V_67718_V_6126_V_114944
20	58579298	59535518	58:58:00	59:54:00	q13.33	TP2001E10	TP2001C0	10	0.95622	104,220,600,393,435	2	C4, C4LN	CDH26, C20orf197			

aCGH: microarray-comparative genomic hybridization; Chr: chromosome; CNV: copy number variation; MB: megabase.

Supplementary Table S6. Summary of mRNA-sequencing statistics

Sample ID	Total sequencing per lane (GB)	Aligned reads per lane (GB)
MPC08	1.43	1.77
MPC10	1.92	2.67
MPC70	1.33	1.89
MPC71	1.37	1.88
MPC72	1.35	1.83

Supplementary Table S7. Recurrent alterations identified through re-analysis of public datasets (n=185)

Index case			Recurrence					
Fusion partner gene	**Index case**	**Index case in frame**	**Sample characteristics**	**Sample phenotype**	**In frame**	**DNA or RNA**	**Reference**	**Number of samples sequenced in study**
BCAS4	MPC10	Y	Cell line MCF7	ER+ HER2-	Y	RNA	Robinson et al; Edgren et al	89; 5
C17orf57	MPC71	N	Primary breast cancer	ER-HER2+	N	DNA	Nik-Zainal et al	21
CDK12	MPC71	N	Cell line HCC1954	ER- HER2+	Unknown	DNA	Stephens et al	24
CDK12	MPC71	N	Cell line HCC2218	ER- HER2+	Unknown	DNA	Stephens et al	24
CDK12	MPC71	N	Primary breast cancer	ER- HER2+	N	DNA	Nik-Zainal et al	21
CDK12	MPC71	N	Cell line MDA-MB-361	ER+ HER2+	Y	RNA	Robinson et al	89
CDK12	MPC71	N	Primary breast cancer	HER2+	Y	DNA	Banerji et al	22
FAF1	MPC10	N	Primary breast cancer	ER- HER2-	N	DNA	Nik-Zainal et al	21
LASP1	MPC71	N	Primary breast cancer	ER+ HER2-	N	DNA	Nik-Zainal et al	21
LASP1	MPC71	N	Primary breast cancer	Unknown	Unknown	DNA	Stephens et al	24
NSF	MPC71	N	Primary breast cancer	ER+ HER2+	Unknown	DNA	Nik-Zainal et al	21
RAE1	MPC10	N	Cell line BT474	ER+ HER2+	N	RNA	Robinson et al	89
RAE1	MPC10	N	Primary breast cancer	ER+ HER2-	N	RNA	Robinson et al	89
USH2A	MPC10	N	Primary breast cancer	ER+ HER2-	N	DNA	Nik-Zainal et al	21
USH2A	MPC10	N	Primary breast cancer	Unknown	N	DNA	Ellis et al	46