

Supplementary Information

Genomic and molecular characterization of esophageal squamous cell carcinoma

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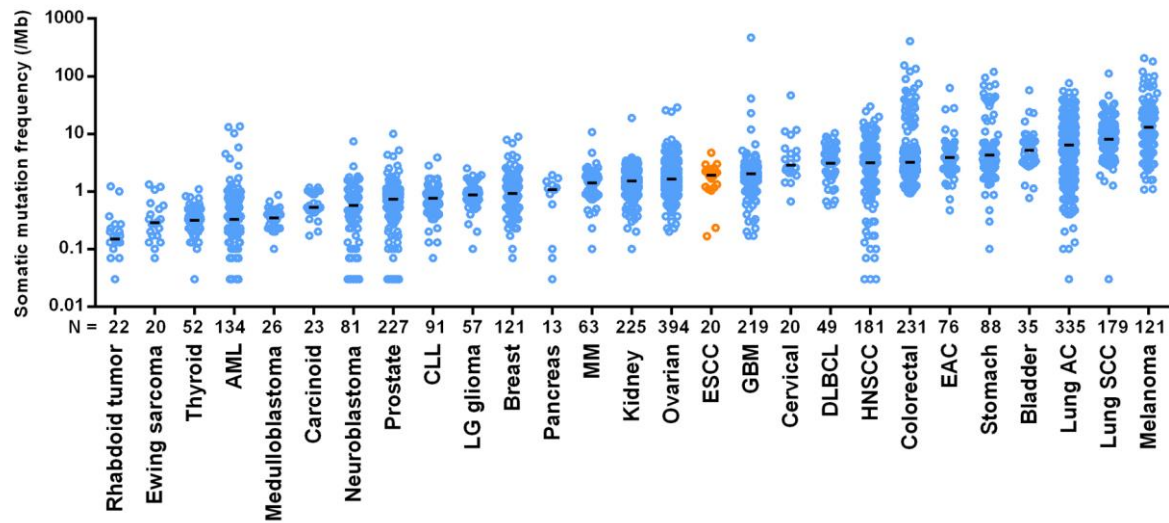
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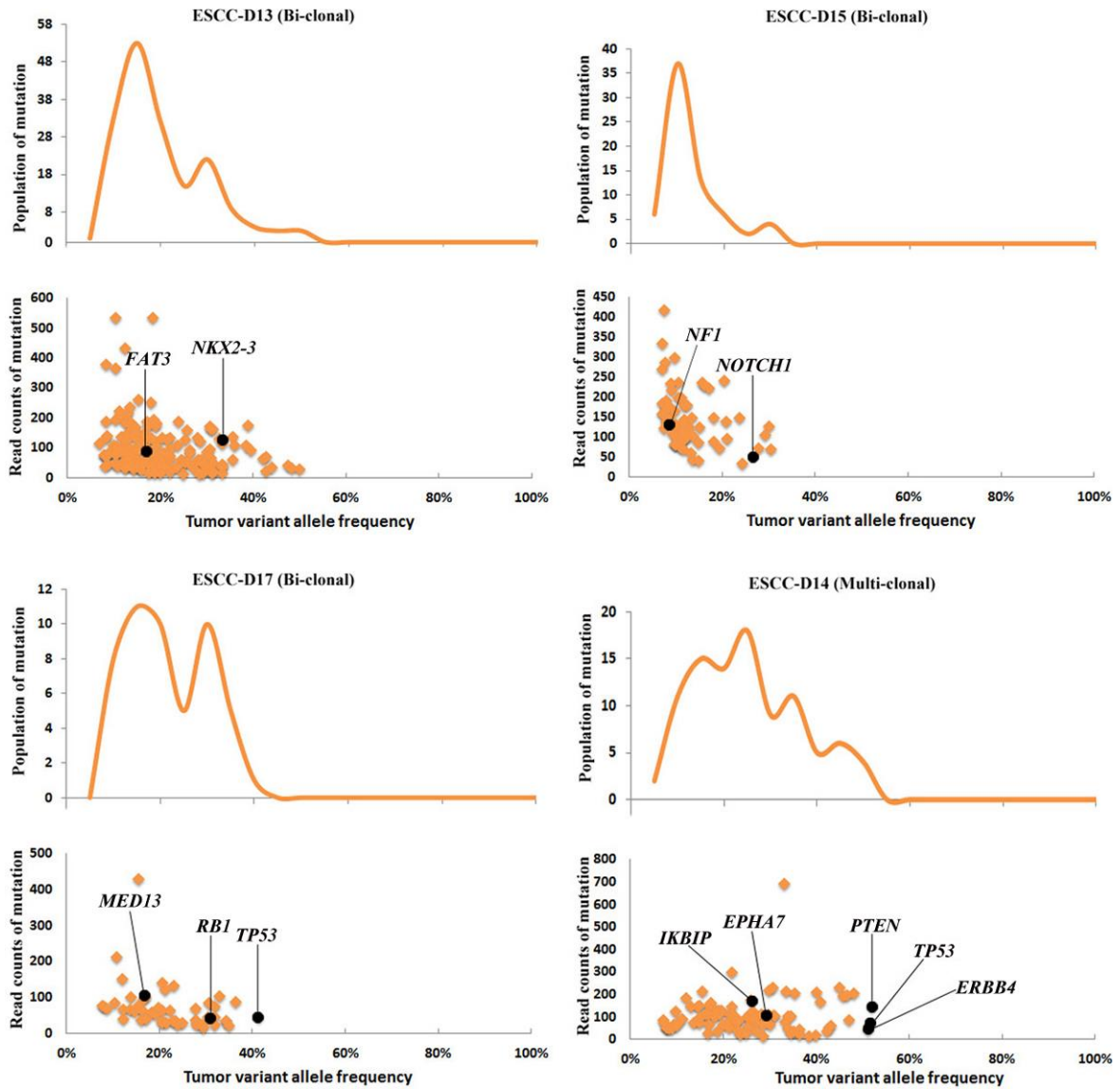
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Supplementary Figures



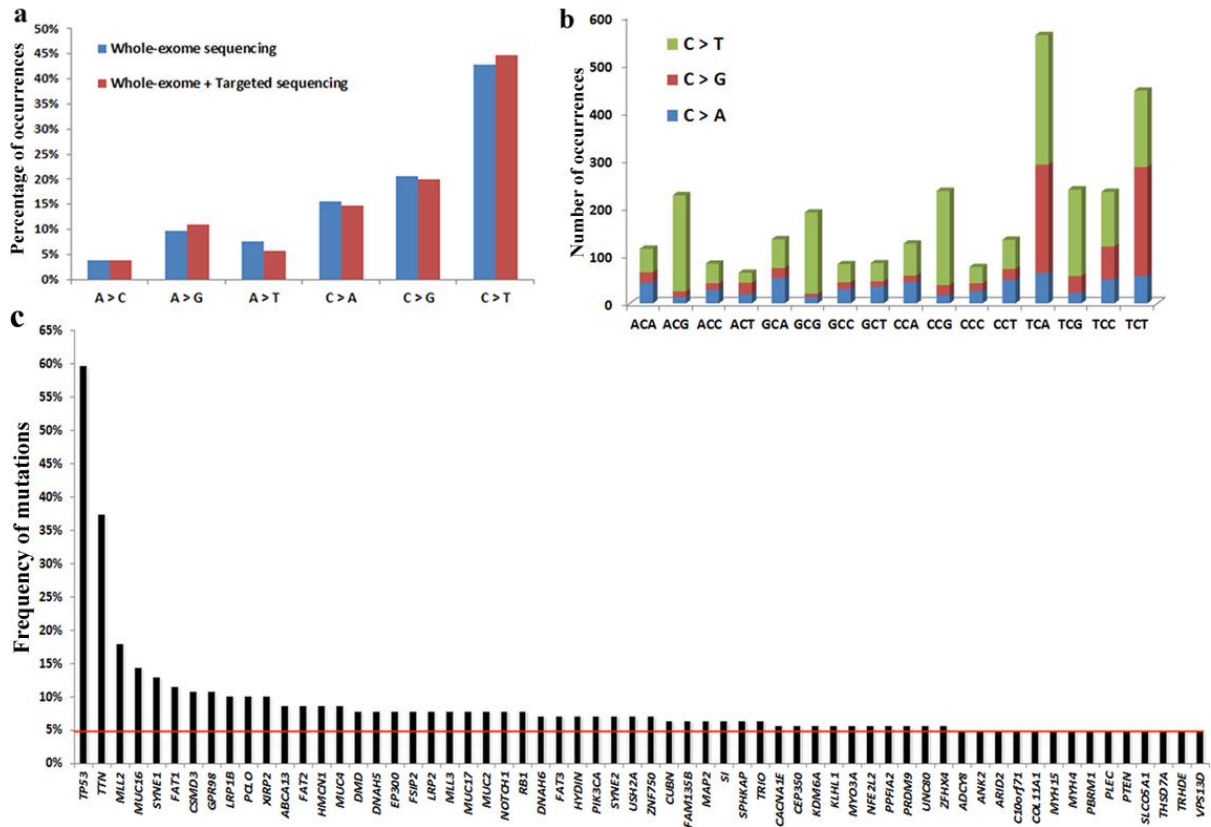
Supplementary Figure 1. Somatic mutation frequencies detected in exomes from ESCC and other human cancers.

Each dot represents an examined case (tumor-germline pair), and tumor types are ordered by their median somatic mutation frequencies (indicated by the black dash line). The number beneath X-axis indicates the number of examined cases of each cancer. Except ESCC, all of the other cancers were sequenced and published elsewhere, and their data were re-analyzed by Lawrence *et al*¹. CLL, chronic lymphocytic leukemia; MM, multiple myeloma; GBM, glioblastoma multiforme; DLBCL, diffuse large B-cell lymphoma; HNSCC, head and neck squamous cell carcinoma; EAC, esophageal adenocarcinoma; Lung AC, lung adenocarcinoma; Lung SCC, lung squamous cell carcinoma.



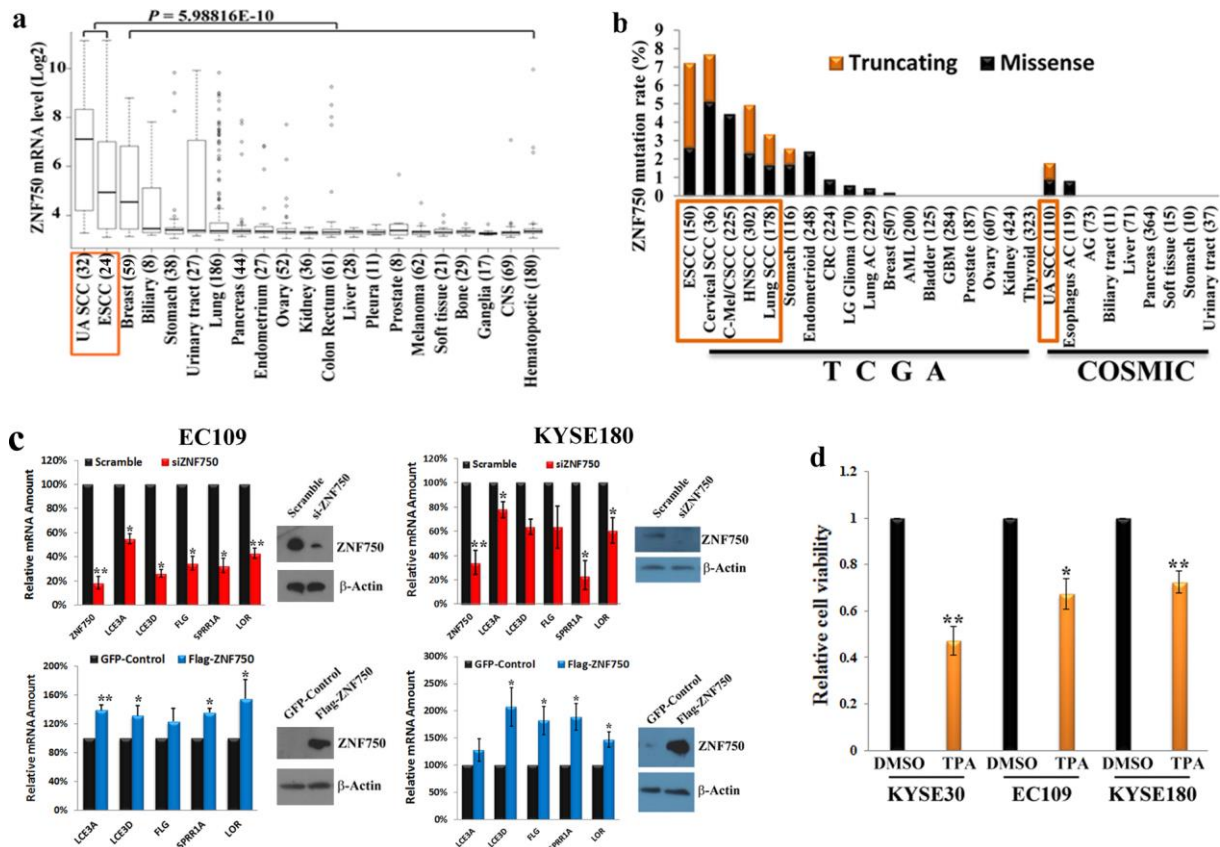
Supplementary Figure 2. Intratumoral clonality analysis.

Intratumoral clonality plots of four representative ESCC cases from Discovery Cohort. ESCC-D13, D15, D17 tumors were developed bi-clonally whereas ESCC-D14 tumor showed multi-clonal structure. Variant allele frequency was calculated with copy-number neutral variants, which was further used to plot intratumoral clonal architectures²⁻⁵.



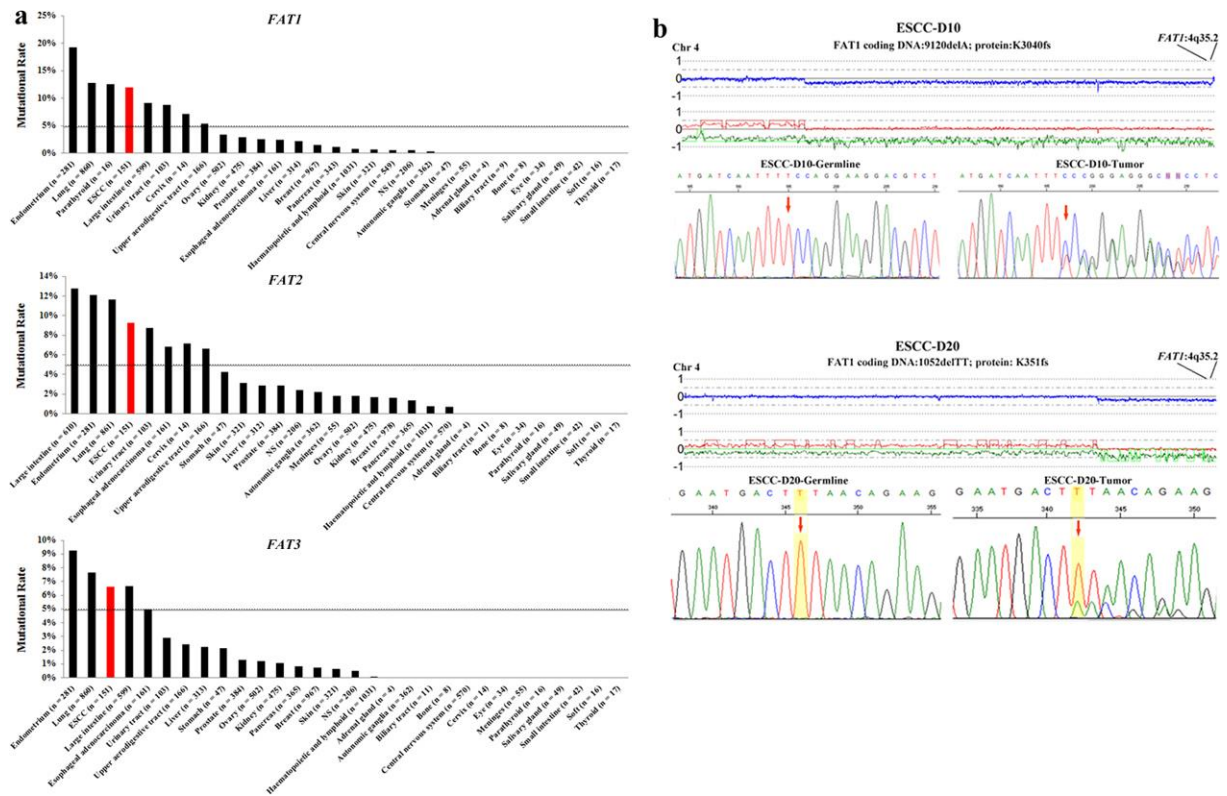
Supplementary Figure 3. Mutation types and signatures in ESCC

(a) The occurrence of the six types of base-substitution mutations observed in ESCC. (b) The occurrence of cytosine mutations at each group of trinucleotide, which shows biases toward mutations of TCN motifs. (c) Genes mutated in over 5% (≥ 7 cases) of the entire cohort.



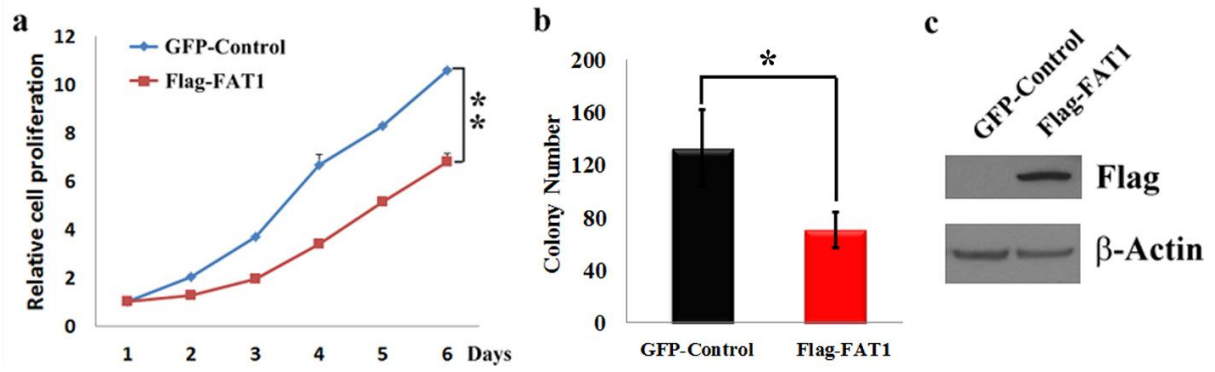
Supplementary Figure 4. Identification of ZNF750 as a novel recessive cancer gene in ESCC.

(a) Box plot showing relative ZNF750 mRNA levels in 1019 human cancer cell lines across 21 cancer types analyzed from CCLE database (see URL for the description of Box Plot). Number in the parentheses indicates the number of cell lines analyzed. (b) Summary of somatic mutations affecting *ZNF750* across different tumor types including mutation data reported by The Cancer Genome Atlas (TCGA, see URL) and Catalogue Of Somatic Mutations In Cancer (COSMIC, see URL). Number in the parentheses indicates the number of cases sequenced. Concerning C-Mel/CSCC, in TCGA pathological reports, several cutaneous melanoma (C-Mel) patients with ZNF750 mutations also had cutaneous squamous cell carcinoma (CSCC). UASCC, upper aerodigestive squamous cell carcinoma; HNSCC, head and neck squamous cell carcinoma; CRC, colon and rectum adenocarcinoma; LG Glioma, lower grade glioma; AML, acute myeloid leukemia; GBM, glioblastoma multiforme; AG, autonomic ganglia carcinoma. Squamous cell carcinomas were highlighted with Orange Square. (c) Upper panel, mRNA expression of indicated terminal differentiation-related genes quantified with q-PCR in EC109 and KYSE180 cells transfected with either siRNAs against ZNF750 (siZNF750) or control siRNA (Scramble), as well as (lower panel) infected with lentivirus encoding either of ZNF750 protein (Flag-ZNF750) or GFP (GFP-control). WB results showing ZNF750 protein level in indicated samples. β -Actin was used as a loading control. Value represent mean \pm SD. N = 5. (d) Short-term cell proliferation assay of ESCC cells treated with control medium (DMSO) or TPA (100nM) for 5 days. N = 3. **, $P < 0.01$; *, $P < 0.05$.



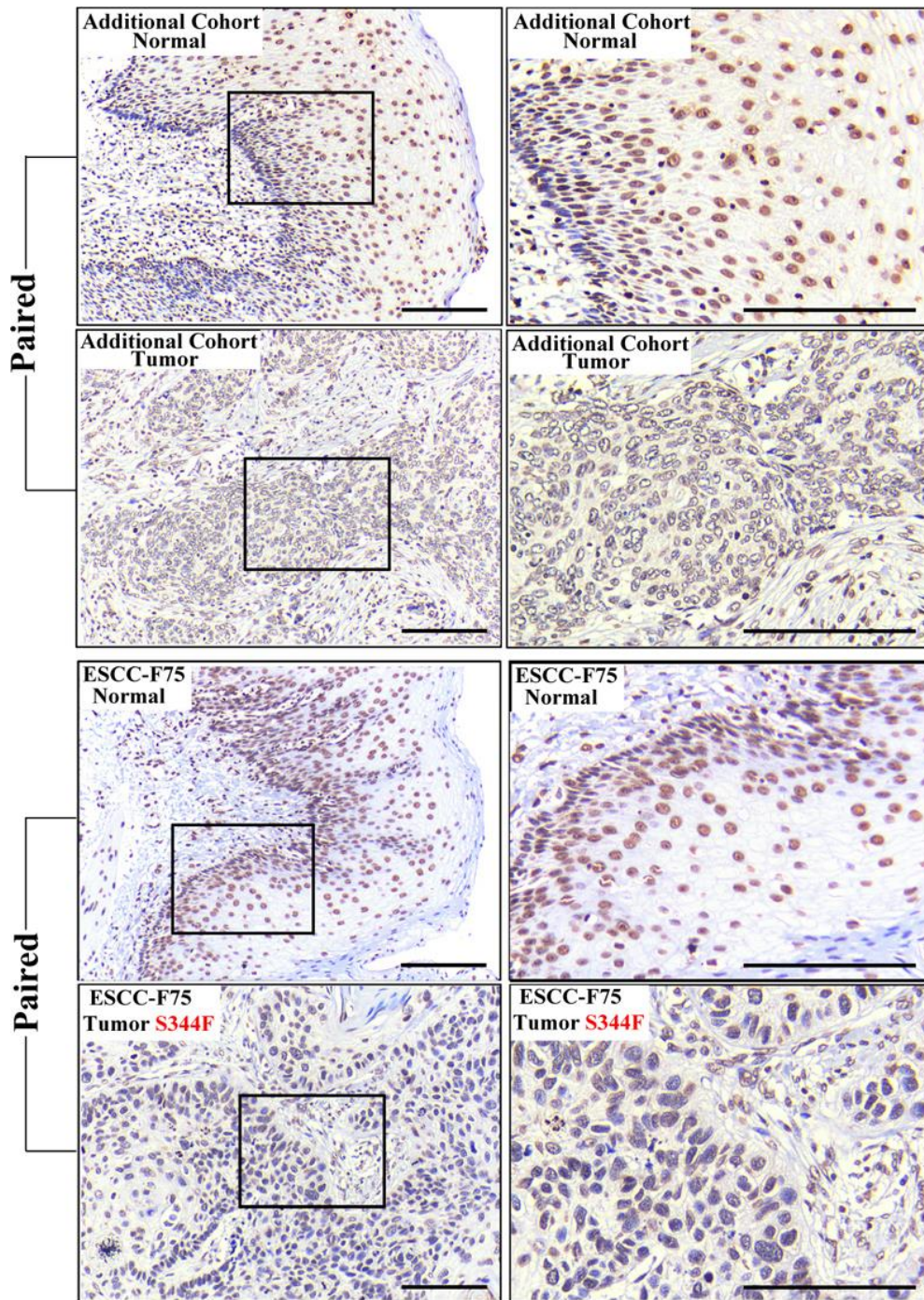
Supplementary Figure 5. *FAT* gene mutations and loss of heterozygosity.

(a) Summary of somatic mutations affecting *FAT1*, *FAT2* and *FAT3* across different tumor types from COSMIC. Number in the parentheses indicates the number of cases sequenced. (b) Inactivation of both alleles of *FAT1* in two ESCC cases. Upper panel, SNP-array data showing *FAT1* loss of heterozygosity in both tumors (ESCC-D10 and ESCC-D20, which were from Discovery Cohort). Blue line, total gene dosage; Green and red line, alleles-specific gene dosage. The number on the left indicates \log_2 tumor/reference ratio. Lower panel, Sanger sequencing signals confirmed the somatic mutations of *FAT1* in both cases. Arrows indicate the beginning of frameshift mutation bases in tumor DNA and the corresponding bases in germline DNA.



Supplementary Figure 6. The growth-suppressive properties of FAT1 in ESCC cells.

KYSE150 cells stably expressing either FAT1 protein (Flag-FAT1) or GFP (GFP-control) were subjected to (a) short-term cell proliferation assay or (b) soft-agar colony formation assay. (c) WB results showing FAT1 protein level. β -Actin was used as a loading control. Value represent mean \pm SD. N = 3. **, $P < 0.01$. *, $P < 0.05$.



Supplementary Figure 7. Down-regulation of FBXW7 protein expression in ESCC.

Representative FBXW7 IHC results of one ESCC case from Additional Cohort (Upper panel) and one ESCC case from Frequency Cohort with *FBXW7* mutation. Scale bars, 200 μ m.

Supplementary Tables

Supplementary Table 1a. Coverage analysis of whole exome sequencing of 20 ESCCs and matched adjacent normal tissues (Discovery cohort)

SAMPLE ID	SAMPLE TYPE	BAIT_SET	CAPTURED_REGION	MEAN_TARGET_COVERAGE	TARGET_COVERAGE >20X
ESCC-D1	Germline	SureSelect	Whole exome	56.706205	72.6%
ESCC-D1	Tumor	SureSelect	Whole exome	57.04133	71.0%
ESCC-D2	Germline	SureSelect	Whole exome	56.749937	72.2%
ESCC-D2	Tumor	SureSelect	Whole exome	57.154523	70.5%
ESCC-D3	Germline	SureSelect	Whole exome	57.238579	73.4%
ESCC-D3	Tumor	SureSelect	Whole exome	56.33882	72.3%
ESCC-D4	Germline	SureSelect	Whole exome	55.983933	73.3%
ESCC-D4	Tumor	SureSelect	Whole exome	55.99643	72.1%
ESCC-D5	Germline	SureSelect	Whole exome	42.24602684	66.7%
ESCC-D5	Tumor	SureSelect	Whole exome	137.3629609	85.9%
ESCC-D7	Germline	SureSelect	Whole exome	159.7336532	87.0%
ESCC-D7	Tumor	SureSelect	Whole exome	133.6128996	86.0%
ESCC-D8	Germline	SureSelect	Whole exome	97.97354477	82.7%
ESCC-D8	Tumor	SureSelect	Whole exome	108.584109	83.0%
ESCC-D9	Germline	SureSelect	Whole exome	111.3162738	84.1%
ESCC-D9	Tumor	SureSelect	Whole exome	47.94066962	69.1%
ESCC-D10	Germline	SureSelect	Whole exome	56.218775	73.1%
ESCC-D10	Tumor	SureSelect	Whole exome	56.8741	72.1%
ESCC-D11	Germline	SureSelect	Whole exome	56.097894	72.7%
ESCC-D11	Tumor	SureSelect	Whole exome	55.854903	71.8%
ESCC-D12	Germline	SureSelect	Whole exome	54.838446	71.4%
ESCC-D12	Tumor	SureSelect	Whole exome	54.762808	73.4%
ESCC-D13	Germline	SureSelect	Whole exome	75.745241	81.0%
ESCC-D13	Tumor	SureSelect	Whole exome	83.696737	81.9%
ESCC-D14	Germline	SureSelect	Whole exome	83.477825	82.1%
ESCC-D14	Tumor	SureSelect	Whole exome	86.419245	82.0%
ESCC-D15	Germline	SureSelect	Whole exome	74.567867	80.6%
ESCC-D15	Tumor	SureSelect	Whole exome	88.063568	83.2%
ESCC-D16	Germline	SureSelect	Whole exome	96.653092	84.4%
ESCC-D16	Tumor	SureSelect	Whole exome	85.651761	81.6%
ESCC-D17	Germline	SureSelect	Whole exome	63.75358	76.4%
ESCC-D17	Tumor	SureSelect	Whole exome	66.82655	78.3%
ESCC-D18	Germline	SureSelect	Whole exome	103.793577	85.2%
ESCC-D18	Tumor	SureSelect	Whole exome	75.509443	79.7%
ESCC-D19	Germline	SureSelect	Whole exome	75.059189	82.4%
ESCC-D19	Tumor	SureSelect	Whole exome	77.704159	81.0%
ESCC-D20	Germline	SureSelect	Whole exome	72.357726	81.8%
ESCC-D20	Tumor	SureSelect	Whole exome	86.315739	83.6%
ESCC-D21	Germline	SureSelect	Whole exome	106.822107	87.0%
ESCC-D21	Tumor	SureSelect	Whole exome	111.150234	86.9%
Overall Mean				78.50486152	78.4%

Supplementary Table 1b. Coverage analysis of targeted sequencing of 119 ESCC and matched adjacent normal tissues (Frequency Cohort)

SAMPLE ID	SAMPLE TYPE	BAIT_SET	CAPTURED_SIZE (bp)	MEAN_TARGET_COVERAGE	TARGET_COVERAGE >50X	TARGET_COVERAGE >30X
ESCC-1F	Germline	SureSelect customized beads	5309340	167.94097	86.0%	5.5%
ESCC-1F	Tumor	SureSelect customized beads	5309340	101.560193	75.8%	9.2%
ESCC-2F	Germline	SureSelect customized beads	5309340	97.240714	75.7%	9.5%
ESCC-2F	Tumor	SureSelect customized beads	5309340	106.850558	76.3%	8.7%
ESCC-3F	Germline	SureSelect customized beads	5309340	122.553999	80.7%	7.5%
ESCC-3F	Tumor	SureSelect customized beads	5309340	138.846148	81.6%	7.0%
ESCC-4F	Germline	SureSelect customized beads	5309340	94.129661	74.6%	9.4%
ESCC-4F	Tumor	SureSelect customized beads	5309340	107.127278	77.4%	8.8%
ESCC-5F	Germline	SureSelect customized beads	5309340	142.613228	83.5%	6.5%
ESCC-5F	Tumor	SureSelect customized beads	5309340	113.559782	77.4%	8.6%
ESCC-6F	Germline	SureSelect customized beads	5309340	123.153233	80.9%	7.5%
ESCC-6F	Tumor	SureSelect customized beads	5309340	111.149496	78.1%	8.1%
ESCC-7F	Germline	SureSelect customized beads	5309340	81.410522	71.6%	11.1%
ESCC-7F	Tumor	SureSelect customized beads	5309340	111.013682	77.8%	8.3%
ESCC-8F	Germline	SureSelect customized beads	5309340	131.546527	81.0%	7.2%
ESCC-8F	Tumor	SureSelect customized beads	5309340	104.934557	76.7%	8.9%
ESCC-9F	Germline	SureSelect customized beads	5309340	115.671711	78.0%	8.2%
ESCC-9F	Tumor	SureSelect customized beads	5309340	97.257734	75.5%	9.5%
ESCC-10F	Germline	SureSelect customized beads	5309340	118.272235	80.1%	7.8%
ESCC-10F	Tumor	SureSelect customized beads	5309340	122.957051	80.0%	7.6%
ESCC-11F	Germline	SureSelect customized beads	5309340	127.912724	81.5%	7.2%
ESCC-11F	Tumor	SureSelect customized beads	5309340	80.640921	68.2%	12.9%
ESCC-12F	Germline	SureSelect customized beads	5309340	132.105139	82.8%	6.9%
ESCC-12F	Tumor	SureSelect customized beads	5309340	94.261754	73.9%	9.9%
ESCC-13F	Germline	SureSelect customized beads	5309340	96.326951	75.0%	9.5%
ESCC-13F	Tumor	SureSelect customized beads	5309340	132.972628	80.7%	7.2%
ESCC-14F	Germline	SureSelect customized beads	5309340	107.744628	77.7%	8.2%
ESCC-14F	Tumor	SureSelect customized beads	5309340	108.122204	77.6%	8.6%
ESCC-15F	Germline	SureSelect customized beads	5309340	83.707004	72.2%	10.3%
ESCC-15F	Tumor	SureSelect customized beads	5309340	120.886596	80.3%	7.4%
ESCC-16F	Germline	SureSelect customized beads	5309340	93.027562	74.0%	9.5%
ESCC-16F	Tumor	SureSelect customized beads	5309340	130.468624	80.8%	7.5%
ESCC-17F	Germline	SureSelect customized beads	5309340	105.255465	77.3%	8.6%
ESCC-17F	Tumor	SureSelect customized beads	5309340	121.059958	76.4%	8.9%
ESCC-18F	Germline	SureSelect customized beads	5309340	114.083586	77.3%	7.8%
ESCC-18F	Tumor	SureSelect customized beads	5309340	114.612994	76.1%	9.3%
ESCC-19F	Germline	SureSelect customized beads	5309340	92.715752	74.9%	9.3%
ESCC-19F	Tumor	SureSelect customized beads	5309340	120.28216	75.7%	8.9%
ESCC-20F	Germline	SureSelect customized beads	5309340	81.846994	71.3%	10.5%
ESCC-20F	Tumor	SureSelect customized beads	5309340	114.751555	75.7%	9.4%
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ESCC-22F	Germline	SureSelect customized beads	5309340	76.281992	69.7%	11.3%
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ESCC-23F	Germline	SureSelect customized beads	5309340	72.807438	68.2%	11.8%
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ESCC-26F	Tumor	SureSelect customized beads	5309340	113.261606	76.9%	9.0%
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ESCC-32F	Tumor	SureSelect customized beads	5309340	142.636431	79.6%	7.8%
ESCC-33F	Germline	SureSelect customized beads	5309340	69.379866	65.9%	13.0%
ESCC-33F	Tumor	SureSelect customized beads	5309340	106.199146	75.7%	9.0%
ESCC-34F	Germline	SureSelect customized beads	5309340	94.177054	75.8%	9.1%
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ESCC-45F	Tumor	SureSelect customized beads	5309340	111.752468	76.5%	9.0%
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ESCC-48F	Germline	SureSelect customized beads	5309340	139.977073	82.3%	6.8%
ESCC-48F	Tumor	SureSelect customized beads	5309340	135.157049	81.5%	7.1%
ESCC-49F	Germline	SureSelect customized beads	5309340	116.415326	78.4%	7.9%
ESCC-49F	Tumor	SureSelect customized beads	5309340	122.827576	79.0%	7.6%
ESCC-50F	Germline	SureSelect customized beads	5309340	101.986263	76.0%	8.9%
ESCC-50F	Tumor	SureSelect customized beads	5309340	119.675703	78.9%	7.9%
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ESCC-52F	Germline	SureSelect customized beads	5309340	102.678004	76.7%	8.8%
ESCC-52F	Tumor	SureSelect customized beads	5309340	111.329844	77.4%	8.5%
ESCC-53F	Germline	SureSelect customized beads	5309340	85.519596	72.6%	9.9%
ESCC-53F	Tumor	SureSelect customized beads	5309340	129.720692	79.8%	7.6%
ESCC-54F	Germline	SureSelect customized beads	5309340	90.386995	73.3%	10.0%
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ESCC-56F	Tumor	SureSelect customized beads	5309340	122.280091	79.8%	7.7%
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ESCC-57F	Tumor	SureSelect customized beads	5309340	97.194811	75.1%	9.4%
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ESCC-59F	Germline	SureSelect customized beads	5309340	104.408209	77.6%	8.2%
ESCC-59F	Tumor	SureSelect customized beads	5309340	120.221963	79.1%	7.9%
ESCC-60F	Germline	SureSelect customized beads	5309340	131.601662	82.2%	6.9%
ESCC-60F	Tumor	SureSelect customized beads	5309340	88.309908	73.2%	10.3%
ESCC-61F	Germline	SureSelect customized beads	5309340	123.465359	79.8%	7.7%
ESCC-61F	Tumor	SureSelect customized beads	5309340	67.421835	61.1%	14.4%
ESCC-62F	Germline	SureSelect customized beads	5309340	118.423773	79.6%	7.8%
ESCC-62F	Tumor	SureSelect customized beads	5309340	82.080252	69.2%	12.1%
ESCC-63F	Germline	SureSelect customized beads	5309340	128.101383	81.8%	7.3%
ESCC-63F	Tumor	SureSelect customized beads	5309340	84.971902	69.9%	11.1%
ESCC-64F	Germline	SureSelect customized beads	5309340	106.751737	77.6%	8.7%
ESCC-64F	Tumor	SureSelect customized beads	5309340	91.07356	72.0%	10.5%
ESCC-66F	Germline	SureSelect customized beads	5309340	82.487875	72.3%	11.3%
ESCC-66F	Tumor	SureSelect customized beads	5309340	107.01157	76.0%	9.0%
ESCC-67F	Germline	SureSelect customized beads	5309340	83.531435	71.7%	11.1%
ESCC-67F	Tumor	SureSelect customized beads	5309340	82.304116	69.4%	12.9%
ESCC-68F	Germline	SureSelect customized beads	5309340	117.979142	79.4%	7.8%
ESCC-68F	Tumor	SureSelect customized beads	5309340	112.12291	76.2%	8.8%
ESCC-69F	Germline	SureSelect customized beads	5309340	102.663093	76.6%	8.9%
ESCC-69F	Tumor	SureSelect customized beads	5309340	126.606042	79.1%	7.8%
ESCC-70F	Germline	SureSelect customized beads	5309340	96.496652	75.5%	9.6%
ESCC-70F	Tumor	SureSelect customized beads	5309340	91.283867	72.7%	10.2%
ESCC-71F	Germline	SureSelect customized beads	5309340	95.325325	75.2%	9.6%
ESCC-71F	Tumor	SureSelect customized beads	5309340	101.49578	73.8%	9.6%
ESCC-72F	Germline	SureSelect customized beads	5309340	136.866394	83.0%	6.6%
ESCC-72F	Tumor	SureSelect customized beads	5309340	122.092994	79.2%	8.0%
ESCC-73F	Germline	SureSelect customized beads	5309340	99.377064	76.8%	9.1%
ESCC-73F	Tumor	SureSelect customized beads	5309340	147.394666	82.2%	6.7%
ESCC-74F	Germline	SureSelect customized beads	5309340	91.378706	73.5%	10.2%
ESCC-74F	Tumor	SureSelect customized beads	5309340	104.764632	74.0%	9.9%
ESCC-75F	Germline	SureSelect customized beads	5309340	88.325922	72.6%	10.5%
ESCC-75F	Tumor	SureSelect customized beads	5309340	109.810481	77.6%	8.9%
ESCC-76F	Germline	SureSelect customized beads	5309340	114.925583	79.7%	8.0%
ESCC-76F	Tumor	SureSelect customized beads	5309340	97.711636	74.5%	10.1%
ESCC-77F	Germline	SureSelect customized beads	5309340	91.97959	73.6%	10.2%
ESCC-77F	Tumor	SureSelect customized beads	5309340	105.245055	71.2%	9.8%
ESCC-78F	Germline	SureSelect customized beads	5309340	115.547991	78.9%	8.2%
ESCC-78F	Tumor	SureSelect customized beads	5309340	132.803996	80.7%	7.4%
ESCC-79F	Germline	SureSelect customized beads	5309340	117.601421	80.5%	7.9%
ESCC-79F	Tumor	SureSelect customized beads	5309340	119.674674	77.5%	8.9%
ESCC-80F	Germline	SureSelect customized beads	5309340	108.467174	79.2%	8.1%
ESCC-80F	Tumor	SureSelect customized beads	5309340	132.733652	80.7%	7.3%
ESCC-81F	Germline	SureSelect customized beads	5309340	146.331066	83.7%	6.5%
ESCC-81F	Tumor	SureSelect customized beads	5309340	111.177156	76.3%	8.8%
ESCC-82F	Germline	SureSelect customized beads	5309340	161.062252	85.0%	5.8%
ESCC-82F	Tumor	SureSelect customized beads	5309340	122.820644	80.9%	7.5%
ESCC-83F	Germline	SureSelect customized beads	5309340	135.609606	81.8%	6.8%
ESCC-83F	Tumor	SureSelect customized beads	5309340	89.250516	70.5%	11.2%
ESCC-84F	Germline	SureSelect customized beads	5309340	133.46619	81.3%	7.2%
ESCC-84F	Tumor	SureSelect customized beads	5309340	100.363858	74.9%	9.8%
ESCC-85F	Germline	SureSelect customized beads	5309340	106.176354	77.7%	8.8%
ESCC-85F	Tumor	SureSelect customized beads	5309340	120.147932	79.7%	7.9%
ESCC-86F	Germline	SureSelect customized beads	5309340	96.062193	73.8%	9.4%
ESCC-86F	Tumor	SureSelect customized beads	5309340	120.42735	80.0%	7.7%
ESCC-87F	Germline	SureSelect customized beads	5309340	116.003674	80.0%	8.1%
ESCC-87F	Tumor	SureSelect customized beads	5309340	109.529329	78.5%	8.9%

ESCC-88F	Germline	SureSelect customized beads	5309340	116.749701	78.2%	8.2%
ESCC-88F	Tumor	SureSelect customized beads	5309340	117.087478	79.4%	8.0%
ESCC-89F	Germline	SureSelect customized beads	5309340	108.594733	77.1%	8.8%
ESCC-89F	Tumor	SureSelect customized beads	5309340	159.534779	82.7%	6.4%
ESCC-90F	Germline	SureSelect customized beads	5309340	86.760165	71.7%	10.5%
ESCC-90F	Tumor	SureSelect customized beads	5309340	112.352144	79.1%	8.9%
ESCC-91F	Germline	SureSelect customized beads	5309340	86.643724	71.9%	10.3%
ESCC-91F	Tumor	SureSelect customized beads	5309340	111.585036	74.1%	8.7%
ESCC-92F	Germline	SureSelect customized beads	5309340	89.103173	72.8%	10.4%
ESCC-92F	Tumor	SureSelect customized beads	5309340	129.727676	82.1%	7.3%
ESCC-93F	Germline	SureSelect customized beads	5309340	103.342959	77.4%	9.0%
ESCC-93F	Tumor	SureSelect customized beads	5309340	122.056926	80.1%	7.9%
ESCC-94F	Germline	SureSelect customized beads	5309340	101.786876	76.9%	8.9%
ESCC-94F	Tumor	SureSelect customized beads	5309340	124.191094	77.7%	8.0%
ESCC-95F	Germline	SureSelect customized beads	5309340	92.399367	74.4%	9.9%
ESCC-95F	Tumor	SureSelect customized beads	5309340	116.263606	77.5%	8.4%
ESCC-96F	Germline	SureSelect customized beads	5309340	105.806922	77.1%	8.7%
ESCC-96F	Tumor	SureSelect customized beads	5309340	118.000643	79.8%	8.0%
ESCC-97F	Germline	SureSelect customized beads	5309340	116.542169	79.1%	8.1%
ESCC-97F	Tumor	SureSelect customized beads	5309340	107.650894	77.6%	9.2%
ESCC-98F	Germline	SureSelect customized beads	5309340	113.853063	79.5%	8.0%
ESCC-98F	Tumor	SureSelect customized beads	5309340	122.25274	80.1%	7.7%
ESCC-99F	Germline	SureSelect customized beads	5309340	127.529761	82.5%	7.0%
ESCC-99F	Tumor	SureSelect customized beads	5309340	133.698501	81.5%	7.2%
ESCC-100F	Germline	SureSelect customized beads	5309340	125.437867	81.0%	7.5%
ESCC-100F	Tumor	SureSelect customized beads	5309340	94.541856	74.0%	10.4%
ESCC-101F	Germline	SureSelect customized beads	5309340	111.777896	78.8%	8.5%
ESCC-101F	Tumor	SureSelect customized beads	5309340	106.810196	77.0%	8.9%
ESCC-102F	Germline	SureSelect customized beads	5309340	100.331849	76.8%	9.2%
ESCC-102F	Tumor	SureSelect customized beads	5309340	105.932283	78.2%	8.9%
ESCC-103F	Germline	SureSelect customized beads	5309340	108.858557	78.7%	8.3%
ESCC-103F	Tumor	SureSelect customized beads	5309340	117.938066	79.1%	8.2%
ESCC-104F	Germline	SureSelect customized beads	5309340	118.939161	81.0%	7.4%
ESCC-104F	Tumor	SureSelect customized beads	5309340	124.986827	80.1%	7.5%
ESCC-105F	Germline	SureSelect customized beads	5309340	123.435274	81.0%	7.3%
ESCC-105F	Tumor	SureSelect customized beads	5309340	114.49298	78.3%	8.6%
ESCC-106F	Germline	SureSelect customized beads	5309340	111.481644	78.3%	8.3%
ESCC-106F	Tumor	SureSelect customized beads	5309340	132.501275	81.2%	7.3%
ESCC-107F	Germline	SureSelect customized beads	5309340	92.39373	77.2%	12.5%
ESCC-107F	Tumor	SureSelect customized beads	5309340	86.204914	74.2%	10.2%
ESCC-108F	Germline	SureSelect customized beads	5309340	85.027477	74.7%	13.9%
ESCC-108F	Tumor	SureSelect customized beads	5309340	84.72873	73.6%	10.8%
ESCC-109F	Germline	SureSelect customized beads	5309340	83.481489	71.5%	16.3%
ESCC-109F	Tumor	SureSelect customized beads	5309340	69.519999	66.5%	14.2%
ESCC-110F	Germline	SureSelect customized beads	5309340	92.35733	78.9%	10.7%
ESCC-110F	Tumor	SureSelect customized beads	5309340	92.598041	75.5%	9.8%
ESCC-111F	Germline	SureSelect customized beads	5309340	104.358876	81.0%	10.0%
ESCC-111F	Tumor	SureSelect customized beads	5309340	96.796975	76.3%	9.6%
ESCC-112F	Germline	SureSelect customized beads	5309340	97.714842	79.9%	10.6%
ESCC-112F	Tumor	SureSelect customized beads	5309340	98.776529	77.6%	9.1%
ESCC-113F	Germline	SureSelect customized beads	5309340	99.172468	77.7%	12.6%
ESCC-113F	Tumor	SureSelect customized beads	5309340	117.191834	80.2%	7.9%
ESCC-114F	Germline	SureSelect customized beads	5309340	141.932835	88.8%	5.3%
ESCC-114F	Tumor	SureSelect customized beads	5309340	128.839733	82.6%	7.2%
ESCC-115F	Germline	SureSelect customized beads	5309340	124.463706	86.1%	7.0%
ESCC-115F	Tumor	SureSelect customized beads	5309340	201.330466	89.1%	4.4%
ESCC-116F	Germline	SureSelect customized beads	5309340	104.084617	83.0%	8.9%
ESCC-116F	Tumor	SureSelect customized beads	5309340	113.292167	80.6%	8.0%
ESCC-117F	Germline	SureSelect customized beads	5309340	100.339516	79.3%	11.2%

ESCC-117F	Tumor	SureSelect customized beads	5309340	111.371605	79.5%	8.3%
ESCC-118F	Germline	SureSelect customized beads	5309340	93.809784	72.7%	16.1%
ESCC-118F	Tumor	SureSelect customized beads	5309340	85.350061	73.6%	11.0%
ESCC-119F	Germline	SureSelect customized beads	5309340	92.348711	78.4%	10.7%
ESCC-119F	Tumor	SureSelect customized beads	5309340	183.050516	88.3%	4.9%
ESCC-120F	Germline	SureSelect customized beads	5309340	84.255192	73.9%	14.3%
ESCC-120F	Tumor	SureSelect customized beads	5309340	85.645182	72.9%	11.3%
EC109	Cell line	SureSelect customized beads	5309340	108.526315	77.4%	9.1%
YES2	Cell line	SureSelect customized beads	5309340	120.864663	78.2%	8.4%
KYSE30	Cell line	SureSelect customized beads	5309340	120.740092	76.8%	8.5%
KYSE50	Cell line	SureSelect customized beads	5309340	107.022203	76.5%	9.8%
KYSE70	Cell line	SureSelect customized beads	5309340	85.8199	71.6%	11.7%
KYSE110	Cell line	SureSelect customized beads	5309340	77.609006	67.5%	12.9%
KYSE150	Cell line	SureSelect customized beads	5309340	86.361148	69.2%	11.3%
KYSE180	Cell line	SureSelect customized beads	5309340	86.040281	67.6%	11.7%
KYSE450	Cell line	SureSelect customized beads	5309340	73.670885	64.1%	14.0%
KYSE510	Cell line	SureSelect customized beads	5309340	94.426648	72.7%	10.6%
Overall mean				110.7219112	77.2%	8.9%

Supplementary Table 2a. Clinical parameters of 20 ESCC cases analyzed with whole exome sequencing (Discovery Cohort)

Sample ID	Gender	Age	Pathological Type	Primary Tumor Size	Regional Lymph nodes	Tumor Differentiation
ESCC-D1	Male	68	Squamous cell carcinoma	T3	N0	Poor
ESCC-D2	Female	67	Squamous cell carcinoma	T3	N0	Well
ESCC-D3	Male	66	Squamous cell carcinoma	T2	N0	Middle
ESCC-D4	Female	61	Squamous cell carcinoma	T2	N0	Well
ESCC-D5	Male	49	Squamous cell carcinoma	T3	N0	Well
ESCC-D7	Female	N.D.	Squamous cell carcinoma	T2	N0	Middle
ESCC-D8	Male	66	Squamous cell carcinoma	T3	N1	Middle
ESCC-D9	Male	34	Squamous cell carcinoma	T3	N1	Middle
ESCC-D10	Male	62	Squamous cell carcinoma	T3	N1	Poor
ESCC-D11	Male	66	Squamous cell carcinoma	T3	N1	Poor
ESCC-D12	Male	57	Squamous cell carcinoma	T2	N1	Middle
ESCC-D13	Male	50	Squamous cell carcinoma	T3	N1	Middle
ESCC-D14	Male	58	Squamous cell carcinoma	T3	N0	Middle
ESCC-D15	Male	76	Squamous cell carcinoma	T3	N0	Well
ESCC-D16	Male	55	Squamous cell carcinoma	T3	N1	Middle
ESCC-D17	Male	44	Squamous cell carcinoma	T3	N0	Middle
ESCC-D18	Male	N.D.	Squamous cell carcinoma	T3	N1	Middle
ESCC-D19	Male	47	Squamous cell carcinoma	T3	N1	Middle
ESCC-D20	Male	70	Squamous cell carcinoma	T3	N0	Well
ESCC-D21	Female	77	Squamous cell carcinoma	T3	N1	Poor

N.D., No data available.

Supplementary Table 2b. Clinical parameters of 119 ESCC cases analyzed with targeted sequencing (Frequency Cohort)

Sample ID	Gender	Age	Pathological Type	Primary Tumor Size	Regional lymph nodes	Tumor Differentiation
ESCC-F1	Male	64	Squamous cell carcinoma	T3	N0	Middle
ESCC-F2	Male	69	Squamous cell carcinoma	T3	N0	Well
ESCC-F3	Male	56	Squamous cell carcinoma	T2	N0	Middle
ESCC-F4	Female	59	Squamous cell carcinoma	T3	N1	Middle
ESCC-F5	Male	40	Squamous cell carcinoma	T3	N1	Well
ESCC-F6	Male	62	Squamous cell carcinoma	T3	N1	Middle
ESCC-F7	Male	54	Squamous cell carcinoma	T3	N1	Middle
ESCC-F8	Male	62	Squamous cell carcinoma	T3	N1	Middle
ESCC-F9	Male	70	Squamous cell carcinoma	T3	N0	Middle
ESCC-F10	Male	58	Squamous cell carcinoma	T3	N0	Middle
ESCC-F11	Male	57	Squamous cell carcinoma	T3	N0	Poor
ESCC-F12	Male	80	Squamous cell carcinoma	T3	N0	Middle
ESCC-F13	Male	52	Squamous cell carcinoma	T3	N1	Middle
ESCC-F14	Female	65	Squamous cell carcinoma	T3	N1	Middle
ESCC-F15	Female	76	Squamous cell carcinoma	T3	N1	Well
ESCC-F16	Male	59	Squamous cell carcinoma	T3	N1	Poor
ESCC-F17	Male	65	Squamous cell carcinoma	T3	N1	Poor
ESCC-F18	Female	62	Squamous cell carcinoma	T3	N1	Poor
ESCC-F19	Female	68	Squamous cell carcinoma	T3	N1	Middle
ESCC-F20	Female	53	Squamous cell carcinoma	T3	N1	Middle
ESCC-F21	Male	59	Squamous cell carcinoma	T3	N1	Poor
ESCC-F22	Female	69	Squamous cell carcinoma	T3	N0	Well
ESCC-F23	Female	71	Squamous cell carcinoma	T3	N1	Poor
ESCC-F24	Male	61	Squamous cell carcinoma	T3	N1	Middle
ESCC-F25	Male	60	Squamous cell carcinoma	T3	N1	Poor
ESCC-F26	Female	57	Squamous cell carcinoma	T3	N0	Middle
ESCC-F27	Male	71	Squamous cell carcinoma	T3	N1	Poor
ESCC-F28	Male	48	Squamous cell carcinoma	T3	N0	Middle
ESCC-F29	Male	54	Squamous cell carcinoma	T3	N1	Middle
ESCC-F30	Male	71	Squamous cell carcinoma	T2	N0	Poor
ESCC-F31	Male	51	Squamous cell carcinoma	T3	N1	Middle
ESCC-F32	Male	65	Squamous cell carcinoma	T3	N1	Middle
ESCC-F33	Male	52	Squamous cell carcinoma	T3	N1	Middle
ESCC-F34	Female	62	Squamous cell carcinoma	T3	N0	Well
ESCC-F35	Female	63	Squamous cell carcinoma	T3	N1	Middle
ESCC-F36	Male	66	Squamous cell carcinoma	T3	N1	Middle
ESCC-F37	Male	61	Squamous cell carcinoma	T3	N0	Middle
ESCC-F38	Male	60	Squamous cell carcinoma	T2	N0	Poor
ESCC-F39	Male	44	Squamous cell carcinoma	T3	N0	Well
ESCC-F40	Female	70	Squamous cell carcinoma	T2	N1	Middle
ESCC-F41	Male	66	Squamous cell carcinoma	T3	N0	Middle
ESCC-F42	Female	51	Squamous cell carcinoma	T3	N1	Middle
ESCC-F43	Male	73	Squamous cell carcinoma	T3	N1	Poor
ESCC-F44	Female	54	Squamous cell carcinoma	T3	N0	Middle
ESCC-F45	Male	70	Squamous cell carcinoma	T3	N1	Middle
ESCC-F46	Female	73	Squamous cell carcinoma	T2	N1	Middle
ESCC-F47	Male	41	Squamous cell carcinoma	T3	N1	Middle
ESCC-F48	Male	66	Squamous cell carcinoma	T3	N1	Middle
ESCC-F49	Male	68	Squamous cell carcinoma	T2	N1	Middle
ESCC-F50	Male	57	Squamous cell carcinoma	T3	N1	Middle
ESCC-F51	Male	57	Squamous cell carcinoma	T3	N1	Middle
ESCC-F52	Male	67	Squamous cell carcinoma	T2	N0	Middle
ESCC-F53	Male	60	Squamous cell carcinoma	T3	N0	Poor
ESCC-F54	Male	70	Squamous cell carcinoma	T3	N0	Middle
ESCC-F55	Female	68	Squamous cell carcinoma	T3	N1	Poor

ESCC-F56	Female	57	Squamous cell carcinoma	T3	N1	Middle
ESCC-F57	Female	61	Squamous cell carcinoma	T1	N0	Middle
ESCC-F58	Male	73	Squamous cell carcinoma	T3	N1	Middle
ESCC-F59	Female	60	Squamous cell carcinoma	T3	N1	Middle
ESCC-F60	Male	61	Squamous cell carcinoma	T2	N1	Poor
ESCC-F61	Male	48	Squamous cell carcinoma	T2	N1	Middle
ESCC-F62	Male	49	Squamous cell carcinoma	T2	N0	Well
ESCC-F63	Male	59	Squamous cell carcinoma	T3	N1	Middle
ESCC-F64	Male	57	Squamous cell carcinoma	T3	N0	Middle
ESCC-F66	Male	52	Squamous cell carcinoma	T3	N1	Middle
ESCC-F67	Male	74	Squamous cell carcinoma	T3	N0	Poor
ESCC-F68	Male	71	Squamous cell carcinoma	T3	N1	Middle
ESCC-F69	Male	63	Squamous cell carcinoma	T2	N1	Poor
ESCC-F70	Male	54	Squamous cell carcinoma	T2	N1	Well
ESCC-F71	Male	59	Squamous cell carcinoma	T3	N1	Poor
ESCC-F72	Female	63	Squamous cell carcinoma	T3	N0	Well
ESCC-F73	Female	67	Squamous cell carcinoma	T3	N0	Poor
ESCC-F74	Male	62	Squamous cell carcinoma	T3	N0	Poor
ESCC-F75	Male	60	Squamous cell carcinoma	T3	N0	Well
ESCC-F76	Male	75	Squamous cell carcinoma	T3	N1	Poor
ESCC-F77	Male	65	Squamous cell carcinoma	T3	N1	Poor
ESCC-F78	Male	49	Squamous cell carcinoma	T3	N0	Middle
ESCC-F79	Male	49	Squamous cell carcinoma	T3	N0	Poor
ESCC-F80	Female	61	Squamous cell carcinoma	T3	N1	Middle
ESCC-F81	Male	75	Squamous cell carcinoma	T3	N0	Poor
ESCC-F82	Female	54	Squamous cell carcinoma	T3	N1	Middle
ESCC-F83	Male	60	Squamous cell carcinoma	T3	N1	Poor
ESCC-F84	Male	62	Squamous cell carcinoma	T3	N0	Well
ESCC-F85	Male	66	Squamous cell carcinoma	T3	N1	Middle
ESCC-F86	Female	65	Squamous cell carcinoma	T3	N1	Well
ESCC-F87	Male	54	Squamous cell carcinoma	T3	N0	Well
ESCC-F88	Male	62	Squamous cell carcinoma	T3	N1	Poor
ESCC-F89	Male	62	Squamous cell carcinoma	N.D.	N.D.	N.D.
ESCC-F90	Male	68	Squamous cell carcinoma	T3	N1	Poor
ESCC-F91	Female	66	Squamous cell carcinoma	T3	N1	Poor
ESCC-F92	Male	52	Squamous cell carcinoma	T3	N1	Middle
ESCC-F93	Male	58	Squamous cell carcinoma	T3	N1	Middle
ESCC-F94	Male	62	Squamous cell carcinoma	T3	N1	Poor
ESCC-F95	Male	75	Squamous cell carcinoma	T3	N0	Middle
ESCC-F96	Male	56	Squamous cell carcinoma	T3	N0	Well
ESCC-F97	Male	59	Squamous cell carcinoma	T3	N0	Well
ESCC-F98	Female	66	Squamous cell carcinoma	T3	N1	Middle
ESCC-F99	Female	74	Squamous cell carcinoma	T3	N0	Middle
ESCC-F100	Male	64	Squamous cell carcinoma	T3	N1	Middle
ESCC-F101	Male	57	Squamous cell carcinoma	T3	N1	Well
ESCC-F102	Male	58	Squamous cell carcinoma	T3	N1	Poor
ESCC-F103	Male	43	Squamous cell carcinoma	T2	N1	Well
ESCC-F104	Female	63	Squamous cell carcinoma	T3	N0	Middle
ESCC-F105	Male	62	Squamous cell carcinoma	T3	N1	Middle
ESCC-F106	Male	78	Squamous cell carcinoma	T3	N0	Middle
ESCC-F107	Female	48	Squamous cell carcinoma	T3	N0	Middle
ESCC-F108	Male	66	Squamous cell carcinoma	T2	N0	Middle
ESCC-F109	Male	63	Squamous cell carcinoma	T3	N1	Middle
ESCC-F110	Male	60	Squamous cell carcinoma	T3	N0	Middle
ESCC-F111	Male	64	Squamous cell carcinoma	T2	N0	Middle
ESCC-F112	Male	57	Squamous cell carcinoma	T3	N0	Poor
ESCC-F113	Male	65	Squamous cell carcinoma	T2	N0	Middle
ESCC-F114	Male	66	Squamous cell carcinoma	T3	N1	Poor
ESCC-F115	Male	74	Squamous cell carcinoma	T3	N1	Middle

ESCC-F116	Male	54	Squamous cell carcinoma	T3	N1	Middle
ESCC-F117	Male	61	Squamous cell carcinoma	T1	N0	Middle
ESCC-F118	Male	57	Squamous cell carcinoma	T3	N0	Poor
ESCC-F119	Male	68	Squamous cell carcinoma	T3	N1	Middle
ESCC-F120	Male	59	Squamous cell carcinoma	T3	N1	Middle

N.D., No data available.

Supplementary Table 2c. Clinical parameters of 172 ESCC cases analyzed with immunohistochemistry (Additional Cohort)

Sample ID	Gender	Age	Pathological Type	Tumor Differentiation	Primary Tumor Size	Regional lymph nodes
ESCC-AC-1	Female	65	Squamous cell carcinoma	Middle	T3	N0
ESCC-AC-2	Female	60	Squamous cell carcinoma	Middle	T3	N0
ESCC-AC-3	Female	64	Squamous cell carcinoma	Middle	T3	N0
ESCC-AC-4	Female	67	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-5	Female	63	Squamous cell carcinoma	Middle	T3	N0
ESCC-AC-6	Female	68	Squamous cell carcinoma	Middle	T2	N.D.
ESCC-AC-7	Female	56	Squamous cell carcinoma	Middle	T3	N1
ESCC-AC-8	Female	78	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-9	Female	61	Squamous cell carcinoma	Middle	T3	N1
ESCC-AC-10	Male	60	Squamous cell carcinoma	Middle	T3	N1
ESCC-AC-11	Male	53	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-12	Male	60	Squamous cell carcinoma	Middle	T3	N1
ESCC-AC-13	Male	75	Squamous cell carcinoma	Middle	T3	N1
ESCC-AC-14	Male	62	Squamous cell carcinoma	Middle	T3	N1
ESCC-AC-15	Male	38	Squamous cell carcinoma	Middle	T3	N0
ESCC-AC-16	Male	73	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-17	Male	63	Squamous cell carcinoma	Middle	T3	N1
ESCC-AC-18	Male	60	Squamous cell carcinoma	Middle	T1	N0
ESCC-AC-19	Male	74	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-20	Male	66	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-21	Male	74	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-22	Male	41	Squamous cell carcinoma	Middle	T3	N1
ESCC-AC-23	Male	57	Squamous cell carcinoma	Middle	T3	N0
ESCC-AC-24	Male	55	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-25	Male	43	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-26	Male	74	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-27	Female	62	Squamous cell carcinoma	Poor	T3	N1
ESCC-AC-28	Female	60	Squamous cell carcinoma	Poor	T2	N1
ESCC-AC-29	Male	67	Squamous cell carcinoma	Poor	T3	N1
ESCC-AC-30	Male	51	Squamous cell carcinoma	Poor	T2	N1
ESCC-AC-31	Male	62	Squamous cell carcinoma	Poor	T2	N1
ESCC-AC-32	Male	77	Squamous cell carcinoma	Poor	T3	N1
ESCC-AC-33	Male	56	Squamous cell carcinoma	Poor	T3	N.D.
ESCC-AC-34	Female	59	Squamous cell carcinoma	Well	T3	N0
ESCC-AC-35	Female	51	Squamous cell carcinoma	Well	T3	N0
ESCC-AC-36	Female	61	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-37	Female	57	Squamous cell carcinoma	Well	T3	N1
ESCC-AC-38	Female	60	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-39	Female	64	Squamous cell carcinoma	Well	T3	N.D.
ESCC-AC-40	Female	54	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-41	Female	67	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-42	Female	62	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-43	Male	63	Squamous cell carcinoma	Well	T3	N0
ESCC-AC-44	Male	70	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-45	Male	64	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-46	Male	64	Squamous cell carcinoma	Well	T3	N0
ESCC-AC-47	Male	50	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-48	Male	71	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-49	N.D.	N.D.	Squamous cell carcinoma	N.D.	N.D.	N.D.
ESCC-AC-50	Male	43	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-51	Male	62	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-52	Male	71	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-53	Male	50	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-54	Male	64	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-55	Male	65	Squamous cell carcinoma	Well	T2	N0

ESCC-AC-56	Male	60	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-57	Male	60	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-58	Male	66	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-59	Male	62	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-60	Male	70	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-61	Male	64	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-62	Male	85	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-63	Male	61	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-64	Male	56	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-65	Male	65	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-66	Male	59	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-67	Male	59	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-68	Male	52	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-69	Male	46	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-70	Male	64	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-71	Female	54	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-72	Female	57	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-73	Female	69	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-74	Female	61	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-75	Female	64	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-76	Female	55	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-77	Female	68	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-78	Female	68	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-79	Female	64	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-80	Female	60	Squamous cell carcinoma	Well	T2	N0
ESCC-AC-81	Female	48	Squamous cell carcinoma	Well	T1	N0
ESCC-AC-82	Male	51	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-83	Male	72	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-84	Male	38	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-85	Male	74	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-86	Male	72	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-87	Male	73	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-88	Male	71	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-89	Male	60	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-90	Male	62	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-91	Female	68	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-92	Female	77	Squamous cell carcinoma	Well	T2	N1
ESCC-AC-93	Male	46	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-94	Male	50	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-95	Male	58	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-96	Male	58	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-97	Male	50	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-98	Male	69	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-99	Male	49	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-100	Male	64	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-101	Male	39	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-102	Male	65	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-103	Male	57	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-104	Male	48	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-105	Male	58	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-106	Male	76	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-107	Male	60	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-108	Male	41	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-109	Male	57	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-110	Male	69	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-111	Male	56	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-112	Male	57	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-113	Male	53	Squamous cell carcinoma	Middle	T2	N0
ESCC-AC-114	Male	56	Squamous cell carcinoma	Middle	T2	N0

ESCC-AC-115	Male	70	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-116	Male	63	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-117	Male	58	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-118	Male	64	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-119	Male	62	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-120	Female	76	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-121	Female	43	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-122	Female	72	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-123	Female	45	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-124	Female	74	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-125	Female	73	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-126	Female	61	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-127	Female	63	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-128	Female	69	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-129	Female	52	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-130	Female	57	Squamous cell carcinoma	Middle	T2	NO
ESCC-AC-131	Male	77	Squamous cell carcinoma	Middle	T1	NO
ESCC-AC-132	Male	65	Squamous cell carcinoma	Middle	T1	NO
ESCC-AC-133	Female	60	Squamous cell carcinoma	Middle	T1	NO
ESCC-AC-134	Female	63	Squamous cell carcinoma	Middle	T1	NO
ESCC-AC-135	Female	66	Squamous cell carcinoma	Middle	T1	NO
ESCC-AC-136	Male	58	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-137	Male	68	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-138	Male	55	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-139	Male	46	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-140	Male	63	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-141	Male	50	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-142	Male	60	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-143	Male	58	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-144	Male	65	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-145	Male	54	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-146	Male	47	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-147	Male	64	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-148	Male	58	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-149	Male	71	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-150	Male	45	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-151	Female	63	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-152	Female	75	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-153	Female	60	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-154	Female	68	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-155	Female	55	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-156	Female	60	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-157	Female	68	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-158	Female	60	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-159	Female	71	Squamous cell carcinoma	Middle	T2	N1
ESCC-AC-160	Male	57	Squamous cell carcinoma	Middle	T1	N1
ESCC-AC-161	Male	58	Squamous cell carcinoma	Poor	T2	NO
ESCC-AC-162	Male	60	Squamous cell carcinoma	Poor	T2	NO
ESCC-AC-163	Male	58	Squamous cell carcinoma	Poor	T2	NO
ESCC-AC-164	Female	56	Squamous cell carcinoma	Poor	T2	NO
ESCC-AC-165	Female	61	Squamous cell carcinoma	Poor	T2	NO
ESCC-AC-166	Male	57	Squamous cell carcinoma	Poor	T1	NO
ESCC-AC-167	Male	79	Squamous cell carcinoma	Poor	T2	N1
ESCC-AC-168	Male	58	Squamous cell carcinoma	Poor	T2	N1
ESCC-AC-169	Male	58	Squamous cell carcinoma	Poor	T2	N1
ESCC-AC-170	Female	59	Squamous cell carcinoma	Poor	T2	N1
ESCC-AC-171	Female	64	Squamous cell carcinoma	Poor	T2	N1
ESCC-AC-172	Male	73	Squamous cell carcinoma	Poor	T1	N1

N.D., No data available.

Supplementary Table 3. Summary of somatic mutations in Discovery Cohort

Patient ID	Mutation location	Gene Name	Mutation type	Amino Acid Change	Cosmic V58 Match Position	Chr	Start position	End position	Germline allele	Tumor allele
ESCC-D1	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.G1795A:p.D599N		chr12	124281365	124281365	G	A
ESCC-D1	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.G1689C:p.K563N		chr12	124281259	124281259	G	C
ESCC-D1	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.G1669C:p.E557Q		chr12	124281239	124281239	G	C
ESCC-D1	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.G6060T:p.K2020N		chr12	124337875	124337875	G	T
ESCC-D1	exonic	<i>WDR87</i>	nonsynonymous SNV	NM_031951:c.T7672A:p.S2558T		chr19	38376522	38376522	A	T
ESCC-D1	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.G5714A:p.R1905Q		chr12	124333395	124333395	G	A
ESCC-D1	exonic	<i>TMEM232</i>	nonsynonymous SNV	NM_001039763:c.C761A:p.S254Y		chr5	109960975	109960975	G	T
ESCC-D1	exonic	<i>LRR1M3</i>	nonsynonymous SNV	NM_178011:c.T964C:p.S322P		chr10	68687638	68687638	T	C
ESCC-D1	exonic	<i>ZNF221</i>	nonsynonymous SNV	NM_013359:c.G653C:p.R218T		chr19	44470307	44470307	G	C
ESCC-D1	exonic	<i>GRAM3</i>	nonsynonymous SNV	NM_000840:c.A139G:p.I47V		chr7	86394600	86394600	A	G
ESCC-D1	splicing	<i>USH2A(NM_206933:exon49:c.9372-1G>T)</i>				chr1	215990538	215990538	C	A
ESCC-D1	exonic	<i>AMOTL1</i>	nonsynonymous SNV	NM_130847:c.C2387T:p.S796F		chr11	94599232	94599232	C	T
ESCC-D1	exonic	<i>SLC25A2</i>	nonsynonymous SNV	NM_031947:c.G514A:p.G172R		chr5	140682919	140682919	C	T
ESCC-D1	exonic	<i>BC19</i>	nonsynonymous SNV	NM_004326:c.C1412G:p.A471G		chr1	147091373	147091373	C	G
ESCC-D1	exonic	<i>PPP1R10</i>	nonsynonymous SNV	NM_002714:c.C34T:p.L12F		chr6	30577688	30577688	G	A
ESCC-D1	exonic;splicing	<i>POLQ;POLQ</i>	nonsynonymous SNV	NM_199420:c.G252T:p.S841I		chr3	121212325	121212325	C	A
ESCC-D1	exonic	<i>SLC05A1</i>	stopgain SNV	NM_001146008:c.C811T:p.Q271X		chr8	70744098	70744098	G	A
ESCC-D1	exonic	<i>ANKIB1</i>	nonsynonymous SNV	NM_019004:c.G3197C:p.G1066A		chr7	92028190	92028190	G	C
ESCC-D1	exonic	<i>NFIB</i>	nonsynonymous SNV	NM_001190737:c.C461T:p.S154F		chr9	14307089	14307089	G	A
ESCC-D1	exonic	<i>KIF13A</i>	nonsynonymous SNV	NM_001105566:c.C443T:p.S148F		chr6	17855719	17855719	G	A
ESCC-D1	exonic	<i>NABP2</i>	nonsynonymous SNV	NM_018177:c.A2882G:p.Q961R		chr4	40122613	40122613	A	G
ESCC-D1	exonic	<i>RASGRP3</i>	nonsynonymous SNV	NM_015376:c.C1646T:p.A549V		chr2	33783347	33783347	C	T
ESCC-D1	exonic	<i>MAFK11</i>	nonsynonymous SNV	NM_002751:c.G874C:p.D292H		chr22	50703891	50703891	C	G
ESCC-D1	exonic	<i>ZNF714</i>	nonsynonymous SNV	NM_182515:c.T304A:p.Y102N		chr19	21299774	21299774	T	A
ESCC-D1	exonic	<i>CLCN4</i>	nonsynonymous SNV	NM_001830:c.C77T:p.T26M		chrX	10153149	10153149	C	T
ESCC-D1	exonic	<i>LRRC4C</i>	nonsynonymous SNV	NM_020929:c.T635A:p.I212N		chr11	40137208	40137208	A	T
ESCC-D1	exonic	<i>CTLA4</i>	nonsynonymous SNV	NM_001037631:c.C151G:p.R51G		chr2	204735350	204735350	C	G
ESCC-D1	exonic	<i>ORSK3</i>	nonsynonymous SNV	NM_001005516:c.T394C:p.Y132H		chr3	98109903	98109903	T	C
ESCC-D1	exonic	<i>NBPF14</i>	nonsynonymous SNV	NM_015383:c.T1940C:p.V67A		chr1	148009367	148009367	A	G
ESCC-D1	exonic;splicing	<i>PCDH9;PCDH9</i>	nonsynonymous SNV	NM_020403:c.C3038T:p.S1013L		chr13	67205542	67205542	G	A
ESCC-D1	exonic	<i>JARID2</i>	nonsynonymous SNV	NM_004973:c.G2914A:p.G972S		chr6	15511594	15511594	G	A
ESCC-D1	exonic	<i>KANSL1L</i>	nonsynonymous SNV	NM_152519:c.G1120C:p.D374H		chr2	210993865	210993865	C	G
ESCC-D1	exonic	<i>ZNF480</i>	nonsynonymous SNV	NM_144684:c.T5G:p.L2R		chr2	210993865	210993865	C	T
ESCC-D1	exonic	<i>KRT33A</i>	nonsynonymous SNV	NM_004138:c.G689A:p.S230N		chr17	39503374	39503374	C	T
ESCC-D1	exonic	<i>MYBPC1</i>	nonsynonymous SNV	NM_002465:c.C158A:p.A53D		chr12	102021562	102021562	C	A
ESCC-D1	exonic	<i>EPAS1</i>	nonsynonymous SNV	NM_001430:c.C376A:p.L126I		chr2	46583869	46583869	C	A
ESCC-D1	exonic	<i>PKM2</i>	nonsynonymous SNV	NM_002654		chr15	72501131	72501131	C	T
ESCC-D1	splicing	<i>COL11A1</i>	splicing	NM_001854		chr1	103412403	103412403	A	T
ESCC-D2	exonic	<i>CRNKL1</i>	nonsynonymous SNV	NM_016652:c.G1973A:p.R658K		chr20	20020308	20020308	C	T
ESCC-D2	exonic	<i>DDX42</i>	nonsynonymous SNV	NM_203499:c.C1544T:p.A515V		chr17	61889437	61889437	C	T
ESCC-D2	exonic	<i>CMYA5</i>	nonsynonymous SNV	NM_153610:c.T9950C:p.V3317A		chr5	79034538	79034538	T	C
ESCC-D2	exonic	<i>BDP1</i>	stopgain SNV	NM_018429:c.G3826T:p.E1276X		chr5	70806745	70806745	G	T
ESCC-D2	exonic	<i>GOT1L1</i>	frameshift deletion	NM_152413:c.I243delA:p.T415fs		chr8	37791834	37791834	T	-
ESCC-D2	exonic	<i>TLR7</i>	nonsynonymous SNV	NM_016562:c.C3056T:p.P1019L		chrX	12906683	12906683	C	T
ESCC-D2	exonic	<i>ZMYM1</i>	nonsynonymous SNV	NM_024772:c.C2311T:p.L771F		chr1	35579742	35579742	C	T
ESCC-D2	exonic	<i>CNNM2</i>	nonsynonymous SNV	NM_017649:c.G500T:p.R167L		chr10	104678737	104678737	G	T
ESCC-D2	exonic	<i>C7</i>	nonsynonymous SNV	NM_000587:c.G1144A:p.A382T		chr5	40955539	40955539	G	A
ESCC-D2	exonic	<i>L3MBTL3</i>	nonsynonymous SNV	NM_001007102:c.G1889A:p.R630K		chr6	130442101	130442101	G	A
ESCC-D2	exonic	<i>DNAH5</i>	nonsynonymous SNV	NM_001369:c.G4025T:p.C1342F		chr5	13867911	13867911	C	A
ESCC-D2	exonic	<i>FAM5C</i>	nonsynonymous SNV	NM_199051:c.C416T:p.A139V		chr1	190250701	190250701	G	A

ESCC-D2	exonic	<i>SPAST</i>	nonsynonymous SNV	NM_199436:c.G928C:p.D310H		chr2	32341207	32341207	G	C
ESCC-D2	exonic	<i>ANKRD12</i>	nonsynonymous SNV	NM_001083625:c.C1177A:p.Q393K		chr18	9254511	9254511	C	A
ESCC-D2	exonic	<i>CNTN5</i>	nonsynonymous SNV	NM_175566:c.C2264G:p.S755C		chr11	100169994	100169994	C	G
ESCC-D2	exonic	<i>FEZ1</i>	nonsynonymous SNV	NM_005103:c.G202C:p.E68Q		chr11	125359472	125359472	C	G
ESCC-D2	exonic	<i>PIK3CG</i>	nonsynonymous SNV	NM_002649:c.A3097G:p.M1033V		chr7	106545620	106545620	A	G
ESCC-D2	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.T2641I:c.L8804S		chr19	9061035	9061035	A	G
ESCC-D2	exonic	<i>MRPL40</i>	nonframeshift insertion	NM_003776:c.232_233insCTA:p.A78delinsAT		chr22	19422353	19422353	-	CTA
ESCC-D2	exonic	<i>ABCB1</i>	nonsynonymous SNV	NM_000927:c.A955G:p.T319A		chr7	87183121	87183121	T	C
ESCC-D2	exonic	<i>TOX4</i>	nonsynonymous SNV	NM_014828:c.C1000G:p.P334A		chr14	21960775	21960775	C	G
ESCC-D2	exonic	<i>FAXC</i>	nonsynonymous SNV	NM_032511:c.C764T:p.S255F		chr6	99771379	99771379	G	A
ESCC-D2	exonic	<i>FAR2</i>	nonsynonymous SNV	NM_018099:c.C787T:p.R263W		chr12	29463979	29463979	C	T
ESCC-D2	exonic	<i>ARL13A</i>	nonsynonymous SNV	NM_001012990:c.C844G:p.Q282E		chrX	100243466	100243466	C	G
ESCC-D2	exonic	<i>MLPH</i>	nonsynonymous SNV	NM_001042467:c.C382T:p.R128C		chr2	238419681	238419681	C	T
ESCC-D2	exonic	<i>THSD7A</i>	nonsynonymous SNV	NM_015204:c.G1913T:p.S638I		chr7	11521519	11521519	C	A
ESCC-D2	exonic	<i>USP26</i>	nonsynonymous SNV	NM_031907:c.C554T:p.S185L		chrX	132161695	132161695	G	A
ESCC-D2	exonic	<i>FBXO28</i>	nonsynonymous SNV	NM_001136115:c.G527A:p.R176H		chr1	224345064	224345064	G	A
ESCC-D2	exonic	<i>LRRCL5</i>	nonsynonymous SNV	NM_130830:c.G1576A:p.D526N		chr3	194080197	194080197	C	T
ESCC-D2	exonic	<i>CEP350</i>	nonsynonymous SNV	NM_014810:c.C716T:p.S239P		chr1	179966008	179966008	C	T
ESCC-D2	exonic	<i>NBEA</i>	nonsynonymous SNV	NM_015678:c.G6031C:p.A2011P		chr13	35926312	35926312	G	C
ESCC-D2	exonic	<i>USP18</i>	nonsynonymous SNV	NM_017414:c.C188T:p.T63I		chr22	18642969	18642969	C	T
ESCC-D2	exonic	<i>APOA4</i>	nonsynonymous SNV	NM_000482:c.G553A:p.E185K		chr11	116692221	116692221	C	T
ESCC-D2	exonic	<i>DNAH8</i>	nonsynonymous SNV	NM_001206927:c.C337T:p.R113C		chr6	38690922	38690922	C	T
ESCC-D2	exonic	<i>FAM184A</i>	nonsynonymous SNV	NM_024581:c.A283G:p.L159E		chr6	119345855	119345855	T	C
ESCC-D2	exonic	<i>MC2R</i>	nonsynonymous SNV	NM_000529:c.C476T:p.T159M		chr18	13885042	13885042	G	A
ESCC-D2	exonic	<i>DHRS1</i>	nonsynonymous SNV	NM_001136050:c.A819T:p.Q273H		chr14	24760188	24760188	T	A
ESCC-D2	exonic	<i>KIF4A</i>	stopgain SNV	NM_012310:c.A1999T:p.K667X		chrX	69596025	69596025	A	T
ESCC-D2	exonic	<i>BPIFC</i>	nonsynonymous SNV	NM_174932:c.G313T:p.A105S		chr22	32843260	32843260	C	A
ESCC-D2	exonic	<i>SI</i>	nonsynonymous SNV	NM_001041:c.T884C:p.F295S		chr3	164781253	164781253	A	G
ESCC-D2	exonic	<i>CAP1</i>	stopgain SNV	NM_001105530:c.C326G:p.S109X		chr1	40529930	40529930	C	G
ESCC-D2	exonic	<i>ZNF560</i>	nonsynonymous SNV	NM_152476:c.A866G:p.D289G		chr19	9578757	9578757	T	C
ESCC-D2	exonic	<i>ACADL</i>	stopgain SNV	NM_001608:c.G754T:p.G252X		chr2	211070370	211070370	C	A
ESCC-D2	exonic	<i>MTMR4</i>	nonsynonymous SNV	NM_004687:c.C944T:p.T315M		chr17	56584151	56584151	G	A
ESCC-D2	exonic	<i>HELZ</i>	stopgain SNV	NM_014877:c.C3124T:p.Q1042X		chr17	65132144	65132144	G	A
ESCC-D2	exonic	<i>NSMCE2</i>	nonsynonymous SNV	NM_173685:c.C142G:p.L48V		chr8	126114714	126114714	C	G
ESCC-D2	exonic	<i>EFEMP1</i>	nonsynonymous SNV	NM_001039349:c.G886A:p.D296N		chr2	56102195	56102195	C	T
ESCC-D2	exonic	<i>PCDHA10</i>	nonsynonymous SNV	NM_018901:c.A1205G:p.N402S		chr5	140236838	140236838	A	G
ESCC-D2	exonic	<i>DPCR1</i>	stopgain SNV	NM_080870:c.G1168T:p.E390X		chr6	30917409	30917409	G	T
ESCC-D2	exonic	<i>KLHL1</i>	nonsynonymous SNV	NM_020866:c.G1994C:p.R665P		chr13	70293522	70293522	C	G
ESCC-D2	exonic	<i>MLL2</i>	stopgain SNV	NM_003482:c.G9289T:p.E3097X		chr12	49431850	49431850	C	A
ESCC-D2	exonic	<i>GRIN3A</i>	nonsynonymous SNV	NM_133445:c.T1131G:p.H377Q		chr9	104449051	104449051	A	C
ESCC-D2	exonic	<i>ZNF831</i>	nonsynonymous SNV	NM_178457:c.A3886G:p.N1296D		chr20	57781970	57781970	A	G
ESCC-D2	exonic	<i>FAM122B</i>	nonsynonymous SNV	NM_001166599:c.A429C:p.R143S		chrX	133921513	133921513	T	G
ESCC-D2	exonic	<i>RICTOR</i>	stopgain SNV	NM_152756:c.C553T:p.R185X		chr5	38991081	38991081	G	A
ESCC-D2	exonic	<i>ZNF34</i>	nonsynonymous SNV	NM_030580:c.A717T:p.K239N		chr8	145999617	145999617	T	A
ESCC-D2	exonic	<i>IL1F10</i>	nonsynonymous SNV	NM_032556:c.G333T:p.R111S		chr2	113832815	113832815	G	T
ESCC-D2	exonic	<i>OSCP1</i>	nonsynonymous SNV	NM_145047:c.C386T:p.S129F		chr1	36898072	36898072	G	A
ESCC-D2	exonic	<i>ERAL1</i>	nonframeshift deletion	NM_005702:c.914_916del:p.305_306del		chr17	27185796	27185798	TCT	-
ESCC-D2	exonic	<i>UNC93A</i>	nonsynonymous SNV	NM_001143947:c.C52G:p.L18V		chr6	167705029	167705029	C	G
ESCC-D2	exonic	<i>WDR26</i>	nonsynonymous SNV	NM_001115113:c.G1754A:p.R585H		chr1	224581688	224581688	C	T
ESCC-D2	exonic	<i>PAM</i>	nonsynonymous SNV	NM_138821:c.G1840C:p.E614Q		chr5	102343307	102343307	G	C
ESCC-D2	exonic	<i>SMG5</i>	nonsynonymous SNV	NM_015327:c.G1352A:p.R451H		chr1	156236075	156236075	C	T
ESCC-D2	exonic	<i>PHTF1</i>	stopgain SNV	NM_006608:c.C496T:p.R166X		chr1	114267508	114267508	G	A
ESCC-D2	exonic	<i>BPIL2</i>	nonsynonymous SNV	NM_174932		chr22	32843260	32843260	C	A
ESCC-D2	exonic	<i>NRAP</i>	nonsynonymous SNV	NM_006175		chr10	115409812	115409812	G	C

ESCC-D2	exonic	<i>TP53</i>	nonsynonymous SNV	NM_000546		chr17	7578406	7578406	C	T
ESCC-D2	exonic	<i>DIAPH3</i>	nonsynonymous SNV	NM_001042517		chr13	60566708	60566708	T	A
ESCC-D2	exonic	<i>VPS13D</i>	nonsynonymous SNV	NM_015378		chr1	12336375	12336375	C	G
ESCC-D2	exonic	<i>OR10J5</i>	nonsynonymous SNV	NM_001004469		chr1	159505272	159505272	A	C
ESCC-D2	exonic	<i>TNRC6C</i>	stopgain SNV	NM_001142640		chr17	76046401	76046401	C	T
ESCC-D2	exonic	<i>RALY</i>	nonsynonymous SNV	NM_007367		chr20	32660077	32660077	G	A
ESCC-D2	exonic	<i>THPO</i>	nonsynonymous SNV	NM_000460		chr3	184090515	184090515	G	A
ESCC-D3	exonic	<i>XIRP2</i>	nonsynonymous SNV	NM_001199144:c.G8332T;p.A2778S		chr2	168106900	168106900	G	T
ESCC-D3	exonic	<i>WDR64</i>	nonsynonymous SNV	NM_144625:c.C223T;p.R75C		chr1	241823909	241823909	C	T
ESCC-D3	splicing	<i>TP53(NM_001126117:exon5:c.523+1G>A,NM_001126112:exon9:c.919+1G>A,NM_001126116:exon5:c.523+1G>A)</i>			753566;905938;907276;90812	chr17	7577018	7577018	C	T
ESCC-D3	exonic	<i>NFATC3</i>	nonsynonymous SNV	NM_004555:c.G2954T;p.G985V		chr16	68225526	68225526	G	T
ESCC-D3	exonic	<i>THSD7A</i>	nonsynonymous SNV	NM_015204:c.G4471C;p.V1491L		chr7	11422184	11422184	C	G
ESCC-D3	exonic	<i>TAA8</i>	stopgain SNV	NM_053278:c.C453A;p.C151X		chr6	132874284	132874284	C	A
ESCC-D3	exonic	<i>SLC9A4</i>	nonsynonymous SNV	NM_001011552:c.A1713G;p.I571M		chr2	103130702	103130702	A	G
ESCC-D3	exonic	<i>NRM</i>	nonsynonymous SNV	NM_007243:c.G125A;p.G42D		chr6	30658627	30658627	C	T
ESCC-D3	exonic	<i>PRDM2</i>	nonsynonymous SNV	NM_001007257:c.A1414G;p.T472A		chr1	14106307	14106307	A	G
ESCC-D3	exonic	<i>OR6Q1</i>	nonsynonymous SNV	NM_001005186:c.G124A;p.V42M		chr11	57798548	57798548	G	A
ESCC-D3	exonic	<i>PGBD2</i>	nonsynonymous SNV	NM_001017434:c.C883T;p.R295C		chr1	249212419	249212419	C	T
ESCC-D3	exonic	<i>HNRNPUL1</i>	nonsynonymous SNV	NM_007040:c.C2155T;p.P719S		chr19	41810059	41810059	C	T
ESCC-D3	exonic	<i>ZNF540</i>	nonsynonymous SNV	NM_001172226:c.A770G;p.H257R		chr19	38103047	38103047	A	G
ESCC-D3	exonic	<i>FAM111B</i>	nonsynonymous SNV	NM_001142704:c.T158A;p.F53Y		chr11	58891818	58891818	T	A
ESCC-D3	exonic	<i>SMO</i>	nonsynonymous SNV	NM_005631:c.G1604T;p.W535L	913798;913799;913812;91383	chr7	128850341	128850341	G	T
ESCC-D3	exonic	<i>NFE2L2</i>	nonsynonymous SNV	NM_001145412:c.T62C;p.F21S		chr2	178098935	178098935	A	G
ESCC-D3	exonic	<i>MCM6</i>	nonsynonymous SNV	NM_005915:c.G2312C;p.R771T		chr2	136602152	136602152	C	G
ESCC-D3	exonic	<i>KDR</i>	nonsynonymous SNV	NM_002253:c.G1996T;p.A666S		chr4	55968667	55968667	C	A
ESCC-D3	exonic	<i>PDZD2</i>	nonsynonymous SNV	NM_178140:c.C3680G;p.T1227S		chr5	32077710	32077710	C	G
ESCC-D3	exonic	<i>C10orf118</i>	nonsynonymous SNV	NM_018017:c.A742G;p.M248V		chr10	115917330	115917330	T	C
ESCC-D3	exonic	<i>NAA35</i>	stopgain SNV	NM_024635:c.C574T;p.R192X		chr9	88589939	88589939	C	T
ESCC-D3	exonic	<i>TDRKH</i>	nonsynonymous SNV	NM_001083963:c.G115A;p.E39K		chr1	151755384	151755384	C	T
ESCC-D3	exonic	<i>FAM160A1</i>	nonsynonymous SNV	NM_001109977:c.G574A;p.A192T		chr4	152499070	152499070	G	A
ESCC-D3	splicing	<i>BAI3(NM_001704:exon11:c.1929+1G>A)</i>				chr6	69703855	69703855	G	A
ESCC-D3	exonic	<i>EGFR</i>	nonsynonymous SNV	NM_005228:c.A2560C;p.T854P	1162653;1206733	chr7	55259502	55259502	A	C
ESCC-D3	exonic	<i>ERBB4</i>	nonsynonymous SNV	NM_001042599:c.G2468C;p.W823S		chr2	212426647	212426647	C	G
ESCC-D3	exonic	<i>TRPC3</i>	nonsynonymous SNV	NM_003305:c.G1358T;p.C453F		chr4	122831524	122831524	C	A
ESCC-D3	exonic	<i>ACVR1B</i>	nonsynonymous SNV	NM_004302:c.A509T;p.E170V		chr12	52370288	52370288	A	T
ESCC-D3	exonic	<i>ANKRD28</i>	nonsynonymous SNV	NM_001195099:c.C61T;p.R21S		chr3	15776944	15776944	G	A
ESCC-D3	exonic	<i>RASSF2</i>	nonsynonymous SNV	NM_170774:c.A101G;p.Y34C		chr20	4778690	4778690	T	C
ESCC-D3	splicing	<i>LAMA2(NM_001079823:exon2:c.283+1G>A,NM_000426:exon2:c.283+1G>A)</i>				chr6	129371234	129371234	G	A
ESCC-D3	exonic	<i>DNAH5</i>	stopgain SNV	NM_001369:c.C11725T;p.R3909X		chr5	13735276	13735276	G	A
ESCC-D3	exonic	<i>ACDA</i>	nonsynonymous SNV	NM_020661:c.G232A;p.V78I		chr12	8758006	8758006	C	T
ESCC-D3	exonic	<i>C9orf78</i>	nonsynonymous SNV	NM_016520:c.G861T;p.R287S		chr9	132590449	132590449	C	A
ESCC-D3	exonic	<i>ZNF34</i>	nonsynonymous SNV	NM_030580:c.A717T;p.K239N		chr8	145999617	145999617	T	A
ESCC-D3	exonic	<i>PAXIP1</i>	nonsynonymous SNV	NM_007349:c.A2350G;p.R784G		chr7	154752687	154752687	T	C
ESCC-D4	exonic	<i>ELAC2</i>	nonsynonymous SNV	NM_001165962:c.C1730T;p.S577F		chr17	12898338	12898338	G	A
ESCC-D4	exonic;splicing	<i>TIN.TTN</i>	nonsynonymous SNV	NM_133378:c.G23875A;p.E7959K		chr2	179577042	179577042	C	T
ESCC-D4	exonic	<i>LRP2BP</i>	nonsynonymous SNV	NM_018409:c.G170A;p.G57E		chr4	186298109	186298109	C	T
ESCC-D4	exonic	<i>JQUB</i>	nonsynonymous SNV	NM_178827:c.T171A;p.Y571N		chr7	123104934	123104934	A	T
ESCC-D4	exonic	<i>ALG10</i>	nonsynonymous SNV	NM_032834:c.C998T;p.S333F		chr12	34179426	34179426	C	T
ESCC-D4	exonic	<i>HTR2C</i>	frameshift insertion	NM_000868:c.1263_1264insC;p.E421fs		chrX	114141864	114141864	-	C
ESCC-D4	exonic	<i>MAPK14</i>	nonsynonymous SNV	NM_001315:c.C554T;p.T185I		chr6	36043683	36043683	C	T
ESCC-D4	exonic	<i>HEPHLI</i>	nonsynonymous SNV	NM_001098672:c.G1273C;p.G425R		chr11	93806231	93806231	G	C
ESCC-D4	exonic	<i>CC2D2B</i>	nonsynonymous SNV	NM_001001732:c.A14G;p.K5R		chr10	97763998	97763998	A	G
ESCC-D4	exonic	<i>MAP3K13</i>	nonsynonymous SNV	NM_001242317:c.G691A;p.E231K		chr3	185181371	185181371	G	A
ESCC-D4	exonic	<i>GJA9</i>	nonsynonymous SNV	NM_030772:c.G814C;p.A272P		chr1	39340957	39340957	C	G

ESCC-D4	exonic	<i>CHEK2</i>	nonsynonymous SNV	NM_007194:c.A935C;p.K312T		chr22	29095899	29095899	T	G
ESCC-D4	exonic	<i>FAM48B2</i>	nonsynonymous SNV	NM_001136233:c.G591C;p.E197D		chrX	24330842	24330842	C	G
ESCC-D4	exonic	<i>CENPI</i>	nonsynonymous SNV	NM_006733:c.T872C;p.M291T		chrX	100382221	100382221	T	C
ESCC-D4	exonic	<i>LRRC2</i>	nonsynonymous SNV	NM_024512:c.C32G;p.S11C		chr3	46593050	46593050	G	C
ESCC-D4	exonic	<i>CTNND1</i>	stopgain SNV	NM_001085469:c.C2123G;p.S708X		chr11	57577589	57577589	C	G
ESCC-D4	exonic	<i>FAM5C</i>	nonsynonymous SNV	NM_199051:c.C151T;p.T504M		chr1	190067938	190067938	G	A
ESCC-D4	exonic	<i>ITFG3</i>	nonsynonymous SNV	NM_032039:c.C266A;p.A89D		chr16	304678	304678	C	A
ESCC-D4	exonic	<i>KLHL2</i>	nonsynonymous SNV	NM_001161522:c.G1271C;p.S424T		chr4	166235244	166235244	G	C
ESCC-D4	exonic	<i>RG521</i>	nonsynonymous SNV	NM_001039152:c.G393C;p.E131D		chr1	192335188	192335188	G	C
ESCC-D4	exonic	<i>MYCBP2</i>	nonsynonymous SNV	NM_015057:c.G11683A;p.E3895K		chr13	77651324	77651324	C	T
ESCC-D4	exonic	<i>CTDSP2</i>	nonsynonymous SNV	NM_016396:c.C352G;p.Q118E		chr15	44778775	44778775	C	G
ESCC-D4	exonic	<i>TBC1D4</i>	nonsynonymous SNV	NM_014832:c.C3269T;p.T1090I		chr13	75869037	75869037	G	A
ESCC-D4	exonic	<i>TTI1</i>	nonsynonymous SNV	NM_014657:c.G2596A;p.V866M		chr20	36631086	36631086	C	T
ESCC-D4	exonic	<i>ANKRD11</i>	nonsynonymous SNV	NM_001256183:c.G2198A;p.R733Q		chr16	89350752	89350752	C	T
ESCC-D4	splicing	<i>WNK3(NM_020922:exon22:c.4629-1G>-C.NM_001002838:exon22:c.4488-1G>-C)</i>				chrX	54259454	54259454	C	G
ESCC-D4	exonic	<i>LRAT</i>	nonsynonymous SNV	NM_004744:c.C492G;p.F164L		chr4	155665970	155665970	C	G
ESCC-D4	exonic	<i>RAPGEF5</i>	nonsynonymous SNV	NM_012294:c.C1615G;p.L539V		chr7	22184774	22184774	G	C
ESCC-D4	exonic	<i>F8</i>	nonsynonymous SNV	NM_000132:c.G1985C;p.G662A		chrX	154176101	154176101	C	G
ESCC-D4	exonic	<i>ZNF182</i>	nonsynonymous SNV	NM_001007088:c.A622G;p.I208V		chrX	47836807	47836807	T	C
ESCC-D4	exonic	<i>HIRIP3</i>	nonsynonymous SNV	NM_003609:c.G834C;p.Q278H		chr16	30005632	30005632	C	G
ESCC-D4	exonic	<i>SH3YL1</i>	nonsynonymous SNV	NM_001159597:c.G634A;p.E212K		chr2	231091	231091	C	T
ESCC-D4	exonic	<i>PTPRZ1</i>	nonsynonymous SNV	NM_001206838:c.C955G;p.Q319E		chr7	121636462	121636462	C	G
ESCC-D4	exonic	<i>SPHKAP</i>	nonsynonymous SNV	NM_001142644:c.G1937T;p.R646I		chr2	228883633	228883633	C	A
ESCC-D4	exonic	<i>DDX18</i>	nonsynonymous SNV	NM_006773:c.G1460A;p.R487K		chr2	118583114	118583114	G	A
ESCC-D4	exonic	<i>RNF213</i>	nonsynonymous SNV	NM_001256071:c.G13715A;p.R4572Q		chr17	78354705	78354705	G	A
ESCC-D4	exonic	<i>DNAH7</i>	nonsynonymous SNV	NM_018897:c.A6484G;p.Y2283C		chr2	196729531	196729531	T	C
ESCC-D4	exonic	<i>PDE11A</i>	nonsynonymous SNV	NM_001077358:c.G187A;p.E63K		chr2	178762826	178762826	C	T
ESCC-D4	exonic	<i>TEX13B</i>	nonsynonymous SNV	NM_031273:c.G896C;p.R299T		chrX	107224353	107224353	C	G
ESCC-D4	exonic	<i>ABI3</i>	nonsynonymous SNV	NM_001135186:c.G358A;p.A120T		chr17	47295191	47295191	G	A
ESCC-D4	exonic	<i>HRH2</i>	nonsynonymous SNV	NM_022304:c.G97A;p.V33I		chr5	175110333	175110333	G	A
ESCC-D4	exonic	<i>VPS13D</i>	nonsynonymous SNV	NM_015378:c.C6680T;p.S2227F		chr1	12371540	12371540	C	T
ESCC-D4	exonic	<i>SF3A1</i>	nonsynonymous SNV	NM_001005409:c.G526C;p.D176H		chr22	30738799	30738799	C	G
ESCC-D4	exonic	<i>SERPINA10</i>	nonsynonymous SNV	NM_001100607:c.G336C;p.L112F		chr14	94756595	94756595	C	G
ESCC-D4	exonic	<i>REBP</i>	stopgain SNV	NM_002910:c.G1103A;p.W368X		chrX	153201004	153201004	C	T
ESCC-D4	exonic	<i>LGR6</i>	nonsynonymous SNV	NM_001017404:c.C2095A;p.L699I		chr1	202287943	202287943	C	A
ESCC-D4	exonic	<i>METTL18</i>	nonsynonymous SNV	NM_033418:c.A548G;p.K183R		chr1	169762289	169762289	T	C
ESCC-D4	exonic	<i>DDX46</i>	nonsynonymous SNV	NM_014829:c.G2752A;p.E918K		chr5	134153327	134153327	G	A
ESCC-D4	exonic	<i>XRCC5</i>	nonsynonymous SNV	NM_021141:c.G1882A;p.E628K		chr2	217054995	217054995	G	A
ESCC-D4	exonic	<i>YSK4</i>	nonsynonymous SNV	NM_025052:c.G1325A;p.S442N		chr2	135745117	135745117	C	T
ESCC-D4	exonic	<i>FAM179B</i>	nonsynonymous SNV	NM_015091:c.C3209A;p.S1070Y		chr14	45481249	45481249	C	A
ESCC-D4	exonic	<i>OR2W5</i>	nonsynonymous SNV	NM_001004698:c.G907A;p.E303K		chr1	247655336	247655336	G	A
ESCC-D4	exonic	<i>CPNE4</i>	nonsynonymous SNV	NM_130808:c.C524G;p.S175C		chr3	131404786	131404786	G	C
ESCC-D4	exonic	<i>C6</i>	nonsynonymous SNV	NM_000065:c.G214A;p.E72K		chr5	41201746	41201746	C	T
ESCC-D4	exonic	<i>MYT1L</i>	nonsynonymous SNV	NM_015025:c.G1193A;p.S398N		chr2	1926348	1926348	C	T
ESCC-D4	exonic	<i>DROSHA</i>	nonsynonymous SNV	NM_013235:c.C835T;p.R279C		chr5	31526205	31526205	G	A
ESCC-D4	exonic	<i>ZCCHC5</i>	nonsynonymous SNV	NM_152694:c.T1102A;p.S368T		chrX	77912816	77912816	A	T
ESCC-D4	exonic	<i>LRP1</i>	nonsynonymous SNV	NM_002332:c.A4667G;p.N1556S		chr12	57572733	57572733	A	G
ESCC-D4	splicing	<i>MYO3A(NM_017433:exon30:c.3399-1G>T)</i>				chr10	26462591	26462591	G	T
ESCC-D4	exonic	<i>EIF3A</i>	stopgain SNV	NM_003750:c.C3785G;p.S1262X		chr10	120796765	120796765	G	C
ESCC-D4	exonic	<i>C18orf34</i>	frameshift deletion	NM_001105528:c.874delA;p.M292fs		chr18	30913143	30913143	T	-
ESCC-D4	exonic	<i>TP53BP1</i>	nonsynonymous SNV	NM_001141979:c.G380A;p.G127E		chr15	43773212	43773212	C	T
ESCC-D4	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.T304C;p.Y102H	905938;907050;907276;90926	chr17	7577581	7577581	A	G
ESCC-D4	exonic	<i>POLR3A</i>	nonsynonymous SNV	NM_007055:c.C3131T;p.P1044L		chr10	79745039	79745039	G	A
ESCC-D4	exonic	<i>NELL1</i>	nonsynonymous SNV	NM_201551:c.G2067T;p.E689D		chr11	21594781	21594781	G	T

ESCC-D4	exonic	<i>CDK5RAP2</i>	nonsynonymous SNV	NM_001011649:c.C1755G;p.N585K		chr9	123234129	123234129	G	C
ESCC-D4	exonic	<i>SLFN13</i>	nonsynonymous SNV	NM_144682:c.C2020T;p.R674C		chr17	33768288	33768288	G	A
ESCC-D4	splicing	<i>SORBS2(NM_003603:exon10:c.473-1G>A,NM_001145675:exon4:c.92-1G>A,NM_001145672:exon9:c.542-1G>A,NM_001145671:exon10:c.593-1G>A)</i>				chr4	186572983	186572983	C	T
ESCC-D4	exonic	<i>SORBS2</i>	nonsynonymous SNV	NM_001145675:c.G97A;p.D33N		chr4	186572977	186572977	C	T
ESCC-D4	exonic	<i>SULF2</i>	nonsynonymous SNV	NM_001161841:c.T2132C;p.L711P		chr20	46292292	46292292	A	G
ESCC-D4	exonic	<i>IMP3</i>	stopgain SNV	NM_018285:c.C373T;p.Q125X		chr15	75932137	75932137	G	A
ESCC-D4	exonic	<i>SORBS2</i>	nonsynonymous SNV	NM_001145674:c.G138C;p.K46N		chr4	186570764	186570764	C	G
ESCC-D4	exonic	<i>PRPF40B</i>	nonsynonymous SNV	NM_001031698:c.G1825A;p.E609K		chr12	50036024	50036024	G	A
ESCC-D4	exonic	<i>C9orf170</i>	nonsynonymous SNV	NM_001001709:c.G283A;p.D95N		chr9	89771602	89771602	G	A
ESCC-D4	exonic	<i>PML</i>	nonsynonymous SNV	NM_033249:c.C1750G;p.L584V		chr15	74335513	74335513	C	G
ESCC-D4	exonic	<i>SPECC1</i>	nonsynonymous SNV	NM_001033554:c.G447T;p.E149D		chr17	20108052	20108052	G	T
ESCC-D4	exonic	<i>RAI1</i>	nonsynonymous SNV	NM_030665:c.C3919T;p.R1307W		chr17	17700181	17700181	C	T
ESCC-D4	exonic	<i>ANGPTL6</i>	nonsynonymous SNV	NM_031917:c.A674G;p.E225G		chr19	10205523	10205523	T	C
ESCC-D4	exonic	<i>ARID2</i>	nonsynonymous SNV	NM_152641:c.C2390T;p.P797L		chr12	46244296	46244296	C	T
ESCC-D4	exonic	<i>MUC4</i>	stopgain SNV	NM_018406:c.C12599A;p.S4200X		chr3	195505852	195505852	G	T
ESCC-D4	exonic	<i>TRAK2</i>	nonsynonymous SNV	NM_015049:c.C2596G;p.Q866E		chr2	202245415	202245415	G	C
ESCC-D4	exonic	<i>SORBS2</i>	nonsynonymous SNV	NM_001145675:c.G94A;p.D32N		chr4	186572980	186572980	C	T
ESCC-D4	exonic	<i>ABCB4</i>	nonsynonymous SNV	NM_000443:c.C2144G;p.T715R		chr7	87053289	87053289	G	C
ESCC-D4	exonic	<i>ZNF391</i>	nonsynonymous SNV	NM_001076781:c.G552C;p.Q184H		chr6	27368701	27368701	G	C
ESCC-D4	exonic	<i>FGD2</i>	nonsynonymous SNV	NM_173558:c.G1691T;p.R564L	1473088	chr6	36995290	36995290	G	T
ESCC-D4	exonic	<i>CHIT1</i>	nonsynonymous SNV	NM_001256125:c.G554A;p.G185E		chr1	203192287	203192287	C	T
ESCC-D4	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821		chr16	70955042	70955042	C	G
ESCC-D4	exonic	<i>N4BP3</i>	nonsynonymous SNV	NM_015111		chr5	177546904	177546904	G	T
ESCC-D4	exonic	<i>EDARADD</i>	nonsynonymous SNV	NM_080738		chr1	236645718	236645718	G	C
ESCC-D4	splicing	<i>RPS6KA6</i>	splicing	NM_014496		chrX	83362734	83362734	C	A
ESCC-D4	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001		chr1	16259987	16259987	G	C
ESCC-D4	exonic	<i>SPECC1</i>	nonsynonymous SNV	NM_001033554:c.A446T;p.E149V		chr17	20108051	20108051	A	T
ESCC-D5	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.G10796A;p.G3599D		chr5	90041434	90041434	G	A
ESCC-D5	exonic	<i>ZNF167</i>	nonsynonymous SNV	NM_018651:c.A491G;p.E164G		chr3	44607046	44607046	A	G
ESCC-D5	exonic	<i>TG</i>	nonsynonymous SNV	NM_003235:c.T1373A;p.L458H		chr8	133898990	133898990	T	A
ESCC-D5	exonic	<i>NALCN</i>	nonsynonymous SNV	NM_052867:c.A1493C;p.K498T		chr13	101881877	101881877	T	G
ESCC-D5	exonic	<i>PTPRD</i>	stopgain SNV	NM_001040712:c.C82T;p.R28X		chr9	8636827	8636827	G	A
ESCC-D5	exonic	<i>ABCA8</i>	stopgain SNV	NM_007168:c.G1998A;p.W666X		chr17	66913522	66913522	C	T
ESCC-D5	exonic	<i>CSN1S1</i>	nonsynonymous SNV	NM_001025104:c.C76T;p.R26C		chr4	70799954	70799954	C	T
ESCC-D5	exonic	<i>RHBDD2</i>	nonsynonymous SNV	NM_001040456:c.G259A;p.A87T		chr7	75511227	75511227	G	A
ESCC-D5	exonic	<i>DNAH7</i>	nonsynonymous SNV	NM_018897:c.A7517G;p.E2506G		chr2	196726660	196726660	T	C
ESCC-D5	exonic	<i>HLA-DOA</i>	nonsynonymous SNV	NM_002119:c.T508A;p.L170M		chr6	32975193	32975193	A	T
ESCC-D5	exonic	<i>NFXL1</i>	nonsynonymous SNV	NM_152995:c.C1676G;p.T559S		chr4	47887663	47887663	G	C
ESCC-D5	exonic	<i>YME1L1</i>	nonsynonymous SNV	NM_001253866:c.A237T;p.E79D		chr10	27434451	27434451	T	A
ESCC-D5	splicing	<i>ARPP21(NM_016300:exon18:c.2032+1G>C)</i>				chr3	35785458	35785458	G	C
ESCC-D5	exonic	<i>TNRC6C</i>	nonsynonymous SNV	NM_001142640:c.G2083A;p.G695R		chr17	76047226	76047226	G	A
ESCC-D5	exonic	<i>MAP2</i>	nonsynonymous SNV	NM_002374:c.G825T;p.K275N		chr2	210557719	210557719	G	T
ESCC-D5	exonic	<i>SPAG9</i>	stopgain SNV	NM_001251971:c.C553T;p.Q185X		chr17	49097587	49097587	G	A
ESCC-D5	exonic	<i>ARMC1</i>	nonsynonymous SNV	NM_018120:c.G557T;p.R186L		chr8	66517682	66517682	C	A
ESCC-D5	exonic	<i>DDX4</i>	frameshift deletion	NM_001166534:c.1041_1042del;p.347_348del		chr5	55094272	55094273	AA	-
ESCC-D5	exonic	<i>RNF139</i>	nonsynonymous SNV	NM_007218:c.G1616A;p.R539H		chr8	125499506	125499506	G	A
ESCC-D5	exonic	<i>IKZF2</i>	nonsynonymous SNV	NM_016260:c.A122C;p.T408P		chr2	213872443	213872443	T	G
ESCC-D5	exonic	<i>TBL1Y</i>	nonsynonymous SNV	NM_134258:c.C71T;p.S24L		chrY	6911033	6911033	C	T
ESCC-D5	exonic	<i>ZNF629</i>	nonsynonymous SNV	NM_001080417:c.G420T;p.Q140H		chr16	30795229	30795229	C	A
ESCC-D5	exonic	<i>TEX2</i>	nonsynonymous SNV	NM_018469:c.G1880A;p.R627Q		chr17	62271215	62271215	C	T
ESCC-D5	exonic	<i>PCDH5</i>	nonsynonymous SNV	NM_015669:c.C1955T;p.S652L		chr5	140516971	140516971	C	T
ESCC-D5	exonic	<i>DIP2B</i>	nonsynonymous SNV	NM_173602:c.G3193A;p.G1065S		chr12	51117011	51117011	G	A
ESCC-D5	exonic	<i>CACNA1E</i>	nonsynonymous SNV	NM_001205294:c.C3715T;p.R1239W		chr1	181721319	181721319	C	T
ESCC-D5	exonic	<i>CD200R1</i>	nonsynonymous SNV	NM_138940:c.G359A;p.R120H		chr3	112648129	112648129	C	T

ESCC-D5	exonic	<i>GOLGB1</i>	nonsynonymous SNV	NM_001256486:c.C727T;p.L243F		chr3	121438537	121438537	G	A
ESCC-D5	exonic	<i>ZNF583</i>	nonsynonymous SNV	NM_001159860:c.C224T;p.P75L		chr19	56925801	56925801	C	T
ESCC-D5	exonic	<i>MYH6</i>	nonsynonymous SNV	NM_002471:c.C2716T;p.R906C		chr14	23863087	23863087	G	A
ESCC-D5	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.G428A;p.C143Y	687596;753566;905938;90687	chr17	7577114	7577114	C	T
ESCC-D5	exonic	<i>CEACAM18</i>	nonsynonymous SNV	NM_001080405:c.G836A;p.R279H		chr19	51984899	51984899	G	A
ESCC-D5	exonic	<i>HDAC9</i>	nonsynonymous SNV	NM_058176:c.A2110G;p.T704A		chr7	18801855	18801855	A	G
ESCC-D5	exonic	<i>CLIC5</i>	nonsynonymous SNV	NM_001114086:c.C1216T;p.R406C		chr6	45870842	45870842	G	A
ESCC-D5	exonic	<i>EXOC1</i>	nonsynonymous SNV	NM_001024924:c.C1033T;p.R345W		chr4	56738083	56738083	C	T
ESCC-D5	exonic	<i>ZFH4</i>	nonsynonymous SNV	NM_024721:c.C9527G;p.S3176C		chr8	77775477	77775477	C	G
ESCC-D5	exonic	<i>SEPT2</i>	nonsynonymous SNV	NM_004404:c.C114G;p.F38L		chr2	242265512	242265512	C	G
ESCC-D5	exonic	<i>SLC43A2</i>	nonsynonymous SNV	NM_152346:c.C1240T;p.R414W		chr17	1486608	1486608	G	A
ESCC-D5	exonic	<i>FLNC</i>	nonsynonymous SNV	NM_001127487:c.T1403G;p.V468G		chr7	128478849	128478849	T	G
ESCC-D5	exonic	<i>HIRA</i>	nonsynonymous SNV	NM_003325:c.G451A;p.V151M		chr22	19385557	19385557	C	T
ESCC-D5	exonic	<i>CBX4</i>	nonsynonymous SNV	NM_003655:c.A982T;p.R328W		chr17	77808459	77808459	T	A
ESCC-D5	exonic	<i>GPRIN3</i>	nonsynonymous SNV	NM_198281:c.C1676T;p.A559V		chr4	90169586	90169586	G	A
ESCC-D5	exonic	<i>A2M</i>	nonsynonymous SNV	NM_000014:c.C1282T;p.R428C		chr12	9254255	9254255	G	A
ESCC-D5	exonic	<i>STAM</i>	nonsynonymous SNV	NM_003473:c.A659G;p.D220G		chr10	17737171	17737171	A	G
ESCC-D5	exonic	<i>HCN2</i>	nonsynonymous SNV	NM_001194:c.A1099G;p.I367V		chr19	605103	605103	A	G
ESCC-D5	exonic	<i>TAF1L</i>	frameshift insertion	NM_153809:c.1995_1996insA;p.K665fs		chr9	32633583	32633583	-	T
ESCC-D5	exonic	<i>KIAA1804</i>	stopgain SNV	NM_032435:c.C2278T;p.R760X		chr1	233515030	233515030	C	T
ESCC-D5	exonic	<i>TMEM119</i>	nonsynonymous SNV	NM_181724:c.G700A;p.E234K		chr12	108985460	108985460	C	T
ESCC-D5	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G2122T;p.A708S		chr2	179650685	179650685	C	A
ESCC-D5	exonic	<i>CCDC33</i>	nonsynonymous SNV	NM_025055:c.A98C;p.K33T		chr15	74536402	74536402	A	C
ESCC-D5	exonic	<i>CCDC33</i>	nonsynonymous SNV	NM_025055:c.G99T;p.K33N		chr15	74536403	74536403	G	T
ESCC-D5	exonic	<i>ANKRD36</i>	nonsynonymous SNV	NM_001164315:c.C643A;p.L215I		chr2	97790246	97790246	C	A
ESCC-D5	exonic	<i>CDC20</i>	nonsynonymous SNV	NM_001255:c.A490C;p.T164P		chr1	43825702	43825702	A	C
ESCC-D5	exonic	<i>FTO</i>	nonsynonymous SNV	NM_001080432:c.C932T;p.A311V		chr16	53907734	53907734	C	T
ESCC-D5	exonic	<i>PCHDB15</i>	nonsynonymous SNV	NM_018935:c.A2009C;p.Y670S		chr5	140627155	140627155	A	C
ESCC-D7	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C51094T;p.P17032S		chr2	179432570	179432570	G	A
ESCC-D7	exonic	<i>TECTA</i>	nonsynonymous SNV	NM_005422:c.G1421A;p.R474H		chr11	120996228	120996228	G	A
ESCC-D7	exonic	<i>PPF1A2</i>	nonsynonymous SNV	NM_001220479:c.A669T;p.Q223H		chr12	81746924	81746924	T	A
ESCC-D7	exonic	<i>FAT3</i>	nonsynonymous SNV	NM_001008781:c.G1706T;p.G569V		chr11	92086984	92086984	G	T
ESCC-D7	exonic	<i>MRPL20</i>	nonsynonymous SNV	NM_017971:c.C142G;p.R48G		chr1	1342345	1342345	G	C
ESCC-D7	exonic	<i>SNIP2</i>	nonsynonymous SNV	NM_006750:c.T836C;p.I279T		chr16	69293994	69293994	T	C
ESCC-D7	exonic	<i>FSIP2</i>	nonsynonymous SNV	NM_173651:c.T6859A;p.C2287S		chr2	186658455	186658455	T	A
ESCC-D7	exonic	<i>MAP3K15</i>	nonsynonymous SNV	NM_001001671:c.C1625G;p.P542R		chrX	19431548	19431548	G	C
ESCC-D7	exonic	<i>MYO16</i>	nonsynonymous SNV	NM_001198950:c.T2867A;p.M956K		chr13	109699334	109699334	T	A
ESCC-D7	exonic	<i>PRRC2C</i>	nonsynonymous SNV	NM_015172:c.C7295T;p.P2432L		chr1	171548995	171548995	C	T
ESCC-D7	exonic	<i>CDH12</i>	nonsynonymous SNV	NM_004061:c.G1969A;p.V657I		chr5	21752262	21752262	C	T
ESCC-D7	exonic	<i>ZC3H6</i>	nonsynonymous SNV	NM_198581:c.G484A;p.E162K		chr2	113067609	113067609	G	A
ESCC-D7	exonic	<i>UFL1</i>	nonsynonymous SNV	NM_015323:c.C1919G;p.S640C		chr6	96999733	96999733	C	G
ESCC-D7	exonic	<i>SLCO1C1</i>	nonsynonymous SNV	NM_001145944:c.A1576T;p.S526C		chr12	20903740	20903740	A	T
ESCC-D7	exonic	<i>NOTCH1</i>	frameshift deletion	NM_017617:c.G161_161del;p.2054_2054del		chr9	139393369	139393370	TT	-
ESCC-D7	exonic	<i>GRIA2</i>	nonsynonymous SNV	NM_000826:c.G1744A;p.E582K		chr4	158257799	158257799	G	A
ESCC-D7	exonic	<i>NEK10</i>	stopgain SNV	NM_199347:c.C1093T;p.R365X		chr3	27343262	27343262	G	A
ESCC-D7	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C22000T;p.H7334Y		chr2	179478929	179478929	G	A
ESCC-D7	exonic	<i>ZNF429</i>	nonsynonymous SNV	NM_001001415:c.A1184C;p.E395A		chr19	21720039	21720039	A	C
ESCC-D7	exonic	<i>ZNF24</i>	nonsynonymous SNV	NM_006965:c.C137G;p.P46R		chr18	32920478	32920478	G	C
ESCC-D7	exonic	<i>LRRTM4</i>	nonsynonymous SNV	NM_001134745:c.C1426A;p.Q476K		chr2	77745569	77745569	G	T
ESCC-D7	exonic	<i>NAV1</i>	nonsynonymous SNV	NM_001167738:c.G2881A;p.E961K		chr1	201777855	201777855	G	A
ESCC-D7	exonic	<i>NUP210</i>	stopgain SNV	NM_024923:c.C3319T;p.Q1107X		chr3	13381506	13381506	G	A
ESCC-D7	exonic	<i>CLCN4</i>	nonsynonymous SNV	NM_001830:c.A2182T;p.T728S		chrX	10188907	10188907	A	T
ESCC-D7	exonic	<i>UBE2O</i>	nonsynonymous SNV	NM_022066:c.C2888T;p.A963V		chr17	74391864	74391864	G	A
ESCC-D7	exonic	<i>RLN1</i>	stopgain SNV	NM_006911:c.C484T;p.R162X		chr9	5335325	5335325	G	A

ESCC-D7	exonic	<i>CRLF3</i>	nonsynonymous SNV	NM_015986:c.C957A:p.F319L		chr17	29119460	29119460	G	T
ESCC-D7	exonic	<i>FN1</i>	nonsynonymous SNV	NM_002026:c.C1169T:p.S390L		chr2	216288916	216288916	G	A
ESCC-D7	exonic	<i>NPAS4</i>	nonsynonymous SNV	NM_178864:c.G484A:p.A162T		chr11	66190198	66190198	G	A
ESCC-D7	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.C241T:p.R141C	684062;687505;687562;68799	chr17	7577121	7577121	G	A
ESCC-D7	exonic	<i>TRIM60</i>	nonsynonymous SNV	NM_152620:c.G1342A:p.V448I		chr4	165962566	165962566	G	A
ESCC-D7	exonic;splicing	<i>SECISBP2L;SEC</i>	nonsynonymous SNV	NM_014701:c.T1115G:p.V372G		chr15	49309746	49309746	A	C
ESCC-D7	exonic	<i>GPHN</i>	nonsynonymous SNV	NM_001024218:c.A2074G:p.T692A		chr14	67646388	67646388	A	G
ESCC-D7	exonic	<i>COL22A1</i>	nonsynonymous SNV	NM_152888:c.G2284T:p.G762C		chr8	139734296	139734296	C	A
ESCC-D7	exonic	<i>ORM2</i>	nonsynonymous SNV	NM_001004688:c.A177T:p.Q6L	1474850	chr1	248343304	248343304	A	T
ESCC-D7	exonic	<i>RGNEF</i>	nonsynonymous SNV	NM_001244364:c.G1732T:p.D578Y		chr5	73168928	73168928	G	T
ESCC-D7	exonic	<i>ADD1</i>	nonsynonymous SNV	NM_001119:c.C562G:p.L188V		chr4	2895791	2895791	C	G
ESCC-D7	exonic	<i>TRIM37</i>	nonsynonymous SNV	NM_001005207:c.G1096A:p.D366N		chr17	57134339	57134339	C	T
ESCC-D7	exonic	<i>USP31</i>	nonsynonymous SNV	NM_020718:c.C2020T:p.H674Y		chr16	23091423	23091423	G	A
ESCC-D7	exonic	<i>ZNF835</i>	nonsynonymous SNV	NM_001005850:c.C1514A:p.P505Q		chr19	57175053	57175053	G	T
ESCC-D7	exonic	<i>PLA2G7</i>	frameshift insertion	NM_001168357:c.949_950insT;p.L317fs		chr6	46675819	46675819	-	A
ESCC-D7	exonic	<i>PROX1</i>	nonsynonymous SNV	NM_002763:c.G793A:p.D265N		chr1	214170671	214170671	G	A
ESCC-D7	exonic	<i>XIRP2</i>	nonsynonymous SNV	NM_001199144:c.G3610C:p.E1204Q		chr2	168102178	168102178	G	C
ESCC-D7	exonic	<i>PCDH11X</i>	nonsynonymous SNV	NM_001168360:c.G1417C:p.V473L		chrX	91132656	91132656	G	C
ESCC-D7	exonic	<i>ACOT12</i>	nonsynonymous SNV	NM_130767:c.C703T:p.R244C		chr5	80641747	80641747	G	A
ESCC-D7	exonic	<i>TSR1</i>	nonsynonymous SNV	NM_018128:c.C247T:p.H83Y		chr17	2238979	2238979	G	A
ESCC-D7	exonic	<i>TAX1BP1</i>	nonsynonymous SNV	NM_001206902:c.C478G:p.H160D		chr7	27827133	27827133	C	G
ESCC-D7	exonic	<i>TRIP10</i>	nonsynonymous SNV	NM_004240:c.C1306G:p.P436A		chr19	6750381	6750381	C	G
ESCC-D7	exonic	<i>PTPN22</i>	nonsynonymous SNV	NM_012411:c.G1051T:p.G351W		chr1	114380806	114380806	C	A
ESCC-D7	exonic	<i>OTOA</i>	nonsynonymous SNV	NM_001161683:c.A629G:p.N210S		chr16	21712234	21712234	A	G
ESCC-D7	exonic	<i>FAM75D4</i>	nonsynonymous SNV	NM_001145197:c.C2641T:p.H881Y		chr9	84547717	84547717	C	T
ESCC-D7	exonic	<i>TXNDC16</i>	nonsynonymous SNV	NM_001160047:c.G1087C:p.D363H		chr14	52955087	52955087	C	G
ESCC-D7	exonic	<i>NFAT5</i>	nonsynonymous SNV	NM_006599:c.C4204G:p.Q1402E		chr16	69727986	69727986	C	G
ESCC-D7	exonic	<i>MAST4</i>	stopgain SNV	NM_015183:c.C3641G:p.S1214X		chr5	66459215	66459215	C	G
ESCC-D7	exonic	<i>FAM47A</i>	nonsynonymous SNV	NM_203408:c.G1805T:p.R602I		chrX	34148591	34148591	C	A
ESCC-D7	exonic	<i>UF1C</i>	nonsynonymous SNV	NM_016406:c.G220A:p.D74N		chr1	161127072	161127072	G	A
ESCC-D7	exonic	<i>MLXIP</i>	nonsynonymous SNV	NM_014938:c.G1095C:p.E365D		chr12	122617897	122617897	G	C
ESCC-D7	exonic	<i>TNFRSF12A</i>	nonsynonymous SNV	NM_016639:c.G308A:p.R103Q		chr16	3071664	3071664	G	A
ESCC-D7	exonic	<i>IGSF10</i>	stopgain SNV	NM_178822:c.C3296A:p.S1099X		chr3	151164473	151164473	G	T
ESCC-D7	exonic	<i>ZNF98</i>	nonsynonymous SNV	NM_001098626:c.C1493T:p.A498V		chr19	22574544	22574544	G	A
ESCC-D7	exonic	<i>SHANK1</i>	nonsynonymous SNV	NM_016148:c.G61A:p.E21K		chr19	51220116	51220116	C	T
ESCC-D7	exonic	<i>COL4A4</i>	nonsynonymous SNV	NM_000092:c.C4363A:p.P1455T		chr2	227875188	227875188	G	T
ESCC-D7	exonic	<i>TTBK2</i>	nonsynonymous SNV	NM_173500:c.G3557A:p.G1186E		chr15	43038171	43038171	C	T
ESCC-D7	exonic	<i>ZNF98</i>	nonsynonymous SNV	NM_001098626:c.G1486T:p.G496C		chr19	22574551	22574551	C	A
ESCC-D7	exonic	<i>EMILIN2</i>	nonsynonymous SNV	NM_032048:c.T1727C:p.V576A		chr18	2891852	2891852	T	C
ESCC-D7	exonic	<i>HUWE1</i>	nonsynonymous SNV	NM_031407:c.G94A:p.E32K		chrX	53675205	53675205	C	T
ESCC-D7	exonic	<i>UBE2Q1</i>	nonsynonymous SNV	NM_017582:c.G764A:p.R255Q		chr1	154525262	154525262	C	T
ESCC-D8	exonic	<i>GARNL3</i>	nonsynonymous SNV	NM_032293:c.C1822T:p.R608W		chr9	130117638	130117638	C	T
ESCC-D8	exonic;splicing	<i>SLC22A23;SLC2</i>	nonsynonymous SNV	NM_015482:c.T757A:p.W253R		chr6	3415987	3415987	A	T
ESCC-D8	exonic	<i>ADAM2</i>	nonsynonymous SNV	NM_001464:c.G221T:p.S74I		chr8	39682384	39682384	C	A
ESCC-D8	exonic	<i>CNOT6L</i>	stopgain SNV	NM_144571:c.C538T:p.R180X		chr4	78669491	78669491	G	A
ESCC-D8	exonic	<i>SMO</i>	frameshift deletion	NM_005631:c.1217delC;p.A406fs		chr7	128846381	128846381	C	-
ESCC-D8	exonic	<i>EV2</i>	nonsynonymous SNV	NM_001166136:c.C116T:p.S39F		chr4	5696156	5696156	G	A
ESCC-D8	exonic	<i>SAMD9L</i>	nonsynonymous SNV	NM_152703:c.G1076A:p.R359Q		chr7	92764209	92764209	C	T
ESCC-D8	exonic	<i>SKA2</i>	nonsynonymous SNV	NM_182620:c.C203A:p.A68D		chr17	57196774	57196774	G	T
ESCC-D8	exonic	<i>INTS9</i>	frameshift deletion	NM_001145159:c.1859delA;p.E620fs		chr8	28625718	28625718	T	-
ESCC-D8	exonic	<i>TAF1L</i>	nonsynonymous SNV	NM_153809:c.A1387G:p.N463D		chr9	32634191	32634191	T	C
ESCC-D8	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C241T:p.R81X	687983;905938;905971;90700	chr17	7578212	7578212	G	A
ESCC-D8	exonic	<i>ZNF189</i>	nonsynonymous SNV	NM_003452:c.G913C:p.E305Q		chr9	104170963	104170963	G	C
ESCC-D8	exonic	<i>TNKS</i>	stopgain SNV	NM_003747:c.C1552T:p.Q518X		chr8	9565976	9565976	C	T

ESCC-D8	exonic	<i>PPFIA2</i>	nonsynonymous SNV	NM_001220478:c.G937C;p.E313Q		chr12	81768445	81768445	C	G
ESCC-D8	exonic	<i>TTC21B</i>	nonsynonymous SNV	NM_024753:c.C533G;p.T178S		chr2	166799748	166799748	G	C
ESCC-D8	exonic	<i>RSP1</i>	nonsynonymous SNV	NM_016578:c.G313A;p.E105K		chr11	77458140	77458140	C	T
ESCC-D8	exonic	<i>UZAF1</i>	nonsynonymous SNV	NM_001025203:c.C443T;p.T148M		chr21	44514804	44514804	G	A
ESCC-D8	exonic/splicing	<i>LRP1B-LRP1B</i>	nonsynonymous SNV	NM_018557:c.A593C;p.E198A		chr2	141987009	141987009	T	G
ESCC-D8	exonic	<i>APIB1</i>	nonsynonymous SNV	NM_001127:c.G108A;p.A362T		chr22	29747231	29747231	C	T
ESCC-D8	exonic	<i>PTCHD4</i>	nonsynonymous SNV	NM_001013732:c.C1076A;p.T359K		chr6	47847504	47847504	G	T
ESCC-D8	exonic	<i>ZNF99</i>	nonsynonymous SNV	NM_001080409:c.C823G;p.H275D		chr19	22941888	22941888	G	C
ESCC-D8	exonic	<i>DMXL1</i>	nonsynonymous SNV	NM_005509:c.A4536T;p.L1512F		chr5	118486058	118486058	A	T
ESCC-D8	exonic	<i>HHLI2</i>	nonsynonymous SNV	NM_024746:c.G1357C;p.V453L		chr1	222713445	222713445	C	G
ESCC-D8	exonic	<i>KIF14</i>	nonsynonymous SNV	NM_014875:c.C4870T;p.R1624C		chr1	200522593	200522593	G	A
ESCC-D8	exonic	<i>ABHD13</i>	nonsynonymous SNV	NM_032859:c.G572C;p.G191A		chr13	108882138	108882138	G	C
ESCC-D8	exonic	<i>WDR92</i>	nonsynonymous SNV	NM_138458:c.T1007G;p.L336R		chr2	68358437	68358437	A	C
ESCC-D8	exonic	<i>NCOA2</i>	nonsynonymous SNV	NM_006540:c.G2570C;p.G857A		chr8	71060543	71060543	C	G
ESCC-D8	exonic	<i>HIST1H2BG</i>	nonsynonymous SNV	NM_003518:c.G214C;p.E72Q		chr6	26216658	26216658	C	G
ESCC-D8	exonic	<i>DISCAM1</i>	nonsynonymous SNV	NM_020693:c.G3418A;p.E1140K		chr11	117335685	117335685	C	T
ESCC-D8	exonic	<i>BCAT1</i>	nonsynonymous SNV	NM_001178091:c.G60C;p.E20D		chr12	25054766	25054766	C	G
ESCC-D8	splicing	<i>BCL7B(NM_001707:exon5:c.436+1G>A)</i>				chr7	72954211	72954211	C	T
ESCC-D8	exonic	<i>OXR1</i>	nonsynonymous SNV	NM_181354:c.G493C;p.D165H		chr8	107696576	107696576	G	C
ESCC-D8	exonic	<i>MKI67</i>	nonsynonymous SNV	NM_001145966:c.C4357A;p.P1453T		chr10	129904667	129904667	G	T
ESCC-D8	exonic	<i>DCAF1</i>	nonsynonymous SNV	NM_001163484:c.A854G;p.N285S		chr14	24588773	24588773	A	G
ESCC-D8	exonic	<i>ADCY8</i>	nonsynonymous SNV	NM_001115:c.A1091C;p.E364A		chr8	132002658	132002658	T	G
ESCC-D8	exonic	<i>SPAG1</i>	nonsynonymous SNV	NM_003114:c.G2278A;p.E760K		chr8	101251630	101251630	G	A
ESCC-D8	exonic	<i>FNIP1</i>	nonsynonymous SNV	NM_001008738:c.G2491A;p.D831N		chr5	131007562	131007562	C	T
ESCC-D8	exonic	<i>CEP350</i>	nonsynonymous SNV	NM_014810:c.G5555A;p.R1852H		chr1	180034395	180034395	G	A
ESCC-D8	exonic	<i>COL12A1</i>	nonsynonymous SNV	NM_004370:c.G2148T;p.E716D		chr6	75890671	75890671	C	A
ESCC-D8	exonic	<i>MTHFR</i>	nonsynonymous SNV	NM_005957:c.G1034A;p.R345H		chr1	11854918	11854918	C	T
ESCC-D8	exonic	<i>WDR70</i>	nonsynonymous SNV	NM_018034:c.C434T;p.P145L		chr5	37396614	37396614	C	T
ESCC-D8	exonic	<i>ORC5</i>	nonsynonymous SNV	NM_002553:c.G1226C;p.C409S		chr7	103777264	103777264	C	G
ESCC-D8	exonic	<i>CASP8AP2</i>	nonsynonymous SNV	NM_001137667:c.C464G;p.T155R		chr6	90571892	90571892	C	G
ESCC-D8	exonic	<i>DSPP</i>	nonsynonymous SNV	NM_014208:c.A961C;p.K321Q		chr4	88534299	88534299	A	C
ESCC-D8	exonic	<i>LDOLIL</i>	nonsynonymous SNV	NM_032287:c.C709T;p.R237W		chr22	44892728	44892728	G	A
ESCC-D8	exonic	<i>AMIGO2</i>	stopgain SNV	NM_181847:c.C901T;p.Q301X		chr12	47471885	47471885	G	A
ESCC-D8	exonic	<i>SCN11A</i>	nonsynonymous SNV	NM_014139:c.C2178A;p.S726R		chr3	38938561	38938561	G	T
ESCC-D8	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133379:c.G15653A;p.R5218Q		chr2	179611474	179611474	C	T
ESCC-D8	exonic	<i>TNF</i>	nonsynonymous SNV	NM_000594:c.C85G;p.R29G		chr6	31543603	31543603	C	G
ESCC-D8	exonic	<i>HSPBAP1</i>	nonsynonymous SNV	NM_024610:c.G1432T;p.V478L		chr3	122459227	122459227	C	A
ESCC-D8	exonic	<i>SHAH3</i>	nonsynonymous SNV	NM_198849:c.C194T;p.P65L		chr13	46358134	46358134	G	A
ESCC-D8	exonic	<i>AKAP6</i>	nonsynonymous SNV	NM_004274:c.C4267T;p.P1423S		chr14	33291286	33291286	C	T
ESCC-D8	splicing	<i>SLCO1C1(NM_001145946:exon8:c.677-1G>A,NM_001145945:exon7:c.530-1G>A,NM_017435:exon7:c.677-1G>A,NM_001145944:exon5:c.323-1G>A)</i>				chr12	20870065	20870065	G	A
ESCC-D8	exonic	<i>PXN</i>	nonsynonymous SNV	NM_001243756:c.G1480A;p.A494T		chr12	120651716	120651716	C	T
ESCC-D8	exonic	<i>SPEF2</i>	frameshift deletion	NM_024867:c.2649delA;p.A883fs		chr5	35705894	35705894	A	-
ESCC-D8	exonic	<i>4-Mar</i>	stopgain SNV	NM_020814:c.C1201T;p.R401X		chr2	217124067	217124067	G	A
ESCC-D8	exonic	<i>C5ARI</i>	unknown	UNKNOWN		chr19	47823638	47823638	G	A
ESCC-D8	exonic	<i>ABCA7</i>	nonsynonymous SNV	NM_019112:c.G5323T;p.D1775Y		chr19	1058862	1058862	G	T
ESCC-D8	exonic	<i>SPTB</i>	nonsynonymous SNV	NM_000347:c.C733A;p.L245M		chr14	65268033	65268033	G	T
ESCC-D8	exonic	<i>GTF3C4</i>	nonsynonymous SNV	NM_012204:c.C478A;p.P160T		chr9	135553484	135553484	C	A
ESCC-D8	exonic	<i>FAM135B</i>	nonsynonymous SNV	NM_015912:c.A133T;p.S45C		chr8	139323108	139323108	T	A
ESCC-D8	exonic	<i>KCNQ2</i>	stopgain SNV	NM_004518:c.C1624T;p.Q542X		chr20	62044858	62044858	G	A
ESCC-D8	exonic	<i>KIAA1109</i>	nonsynonymous SNV	NM_015312:c.C11540T;p.A3847V		chr4	123254858	123254858	C	T
ESCC-D8	exonic	<i>HCLS1</i>	nonsynonymous SNV	NM_005335:c.G759T;p.E253D		chr3	121353198	121353198	C	A
ESCC-D8	splicing	<i>CAMSAP3(NM_001080429:exon16:c.3293+1G>C,NM_020902:exon14:c.3212+1G>C)</i>				chr19	7681509	7681509	G	C
ESCC-D8	exonic	<i>SYNJ1</i>	nonsynonymous SNV	NM_001160306:c.G2359A;p.D787N		chr21	34030113	34030113	C	T
ESCC-D8	exonic	<i>PTGIS</i>	nonsynonymous SNV	NM_000961:c.C1109A;p.A370E		chr20	48129714	48129714	G	T

ESCC-D8	exonic;splicing	<i>RALGDS;RALGD</i>	nonsynonymous SNV	NM_001042368:c.C1505T;p.T502M		chr9	135979651	135979651	G	A
ESCC-D8	exonic	<i>ZNF365</i>	nonsynonymous SNV	NM_199452:c.G398C;p.S133T		chr10	64416162	64416162	G	C
ESCC-D8	exonic	<i>NLRP1</i>	nonsynonymous SNV	NM_033007:c.G3762T;p.L1254F		chr17	5421139	5421139	C	A
ESCC-D8	exonic	<i>MCCC2</i>	nonsynonymous SNV	NM_022132:c.C730A;p.P244T		chr5	70922572	70922572	C	A
ESCC-D8	exonic	<i>TRAP1</i>	nonsynonymous SNV	NM_005879:c.A808C;p.K270Q		chr3	49877281	49877281	T	G
ESCC-D8	exonic	<i>KCND3</i>	nonsynonymous SNV	NM_004980:c.G10A;p.G4R		chr1	112525339	112525339	C	T
ESCC-D8	exonic	<i>SEC14L5</i>	nonsynonymous SNV	NM_014692:c.G1558A;p.G520R		chr16	5057473	5057473	G	A
ESCC-D8	exonic	<i>SLC35G5</i>	nonsynonymous SNV	NM_054028:c.C569T;p.T190I		chr8	11189184	11189184	C	T
ESCC-D8	exonic	<i>GPR88</i>	frameshift insertion	NM_022049:c.372_373insA;p.L124fs		chr1	101004894	101004894	-	A
ESCC-D8	exonic	<i>TOLLIP</i>	nonsynonymous SNV	NM_019009:c.G619A;p.A207T		chr11	1298475	1298475	C	T
ESCC-D8	exonic	<i>DDAH2</i>	nonsynonymous SNV	NM_013974:c.G305A;p.G102E		chr6	31696515	31696515	C	T
ESCC-D9	exonic	<i>RB1</i>	stopgain SNV	NM_000321:c.C751T;p.R251X	687562;808300;808452;90684	chr13	48936983	48936983	C	T
ESCC-D9	exonic	<i>CLTC</i>	nonsynonymous SNV	NM_004859:c.G1042C;p.A348P		chr17	57737824	57737824	G	C
ESCC-D9	exonic	<i>ZNF836</i>	nonsynonymous SNV	NM_001102657:c.A1320T;p.K440N		chr19	52659616	52659616	T	A
ESCC-D9	exonic	<i>DNAH6</i>	nonsynonymous SNV	NM_001370:c.C10981T;p.R3661C		chr2	85012761	85012761	C	T
ESCC-D9	exonic	<i>SLTM</i>	nonsynonymous SNV	NM_001013843:c.A1240G;p.M414V		chr15	59186715	59186715	T	C
ESCC-D9	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C520T;p.R174X	749714;749727;753566;90593	chr17	7577022	7577022	G	A
ESCC-D9	exonic	<i>C9orf103</i>	nonsynonymous SNV	NM_001190727:c.T173C;p.F58S		chr9	86256498	86256498	T	C
ESCC-D9	exonic;splicing	<i>CETP;CETP</i>	nonsynonymous SNV	NM_000078:c.T140A;p.D469E		chr16	57017323	57017323	T	A
ESCC-D9	exonic	<i>PHKB</i>	nonsynonymous SNV	NM_000293:c.A193T;p.S65C		chr16	47533693	47533693	A	T
ESCC-D9	exonic	<i>HIST2H2BF</i>	unknown	UNKNOWN		chr1	149399121	149399121	G	A
ESCC-D9	exonic	<i>ENPP1</i>	stopgain SNV	NM_006208:c.C396A;p.C132X		chr6	132171212	132171212	C	A
ESCC-D9	exonic	<i>HEG1</i>	nonsynonymous SNV	NM_020733:c.G1420A;p.A474T		chr3	124738274	124738274	C	T
ESCC-D9	exonic	<i>ENPP3</i>	nonsynonymous SNV	NM_005021:c.T1465C;p.F489L		chr6	132039864	132039864	T	C
ESCC-D9	exonic	<i>PRKD1</i>	nonsynonymous SNV	NM_002742:c.G286A;p.G96R		chr14	30194859	30194859	C	T
ESCC-D9	exonic	<i>MYOG</i>	nonsynonymous SNV	NM_002479:c.G222C;p.K74N		chr1	203054868	203054868	C	G
ESCC-D9	exonic	<i>RIMS2</i>	nonsynonymous SNV	NM_014677:c.G10A;p.E4K		chr8	104831745	104831745	G	A
ESCC-D9	exonic	<i>LGI1</i>	nonsynonymous SNV	NM_005097:c.C1187T;p.T396M		chr10	95557073	95557073	C	T
ESCC-D9	exonic	<i>SHANK2</i>	nonsynonymous SNV	NM_133266:c.G2383C;p.E795Q		chr11	70332251	70332251	C	G
ESCC-D9	exonic	<i>FBXL18</i>	nonsynonymous SNV	NM_024963:c.C2037G;p.I679M		chr7	5521526	5521526	G	C
ESCC-D9	exonic	<i>PLXDC1</i>	nonsynonymous SNV	NM_020405:c.G772C;p.D258H		chr17	37262146	37262146	C	G
ESCC-D9	exonic	<i>TNIK</i>	nonsynonymous SNV	NM_001161561:c.G1403A;p.R468K		chr3	170856098	170856098	C	T
ESCC-D9	exonic	<i>NAV3</i>	nonsynonymous SNV	NM_014903:c.C5531T;p.P1844L		chr12	78574730	78574730	C	T
ESCC-D9	exonic	<i>OBSCN</i>	nonsynonymous SNV	NM_001098623:c.T16820C;p.V5607A		chr1	228525664	228525664	T	C
ESCC-D9	exonic	<i>LAMB4</i>	nonsynonymous SNV	NM_007356:c.G1668T;p.E556D		chr7	107732104	107732104	C	A
ESCC-D9	exonic	<i>NCOR2</i>	nonsynonymous SNV	NM_001077261:c.C2236A;p.Q746K		chr12	124857085	124857085	G	T
ESCC-D9	exonic	<i>PTPN22</i>	nonsynonymous SNV	NM_012411:c.G1904A;p.R635H	948638	chr1	114372636	114372636	C	T
ESCC-D9	exonic	<i>COL11A1</i>	nonsynonymous SNV	NM_080630:c.G4870C;p.E1624Q		chr1	103345295	103345295	C	G
ESCC-D9	exonic	<i>FGT-TNNI3K.T</i>	stopgain SNV	NM_015978:c.C2475A;p.C825X		chr1	75009633	75009633	C	A
ESCC-D9	exonic	<i>TARSL2</i>	frameshift deletion	NM_152334:c.1838delC;p.P613fs		chr15	102211902	102211902	G	-
ESCC-D9	exonic	<i>FAM169A</i>	nonsynonymous SNV	NM_015566:c.G1447C;p.V483L		chr5	74078773	74078773	C	G
ESCC-D9	exonic	<i>GPR37L1</i>	nonsynonymous SNV	NM_004767:c.C16T;p.P6S		chr1	202092107	202092107	C	T
ESCC-D9	exonic	<i>MYO18B</i>	nonsynonymous SNV	NM_032608:c.A4655T;p.E1552V		chr22	26291234	26291234	A	T
ESCC-D9	exonic	<i>PCSK4</i>	nonsynonymous SNV	NM_017573:c.C1024T;p.L342F		chr19	1486896	1486896	G	A
ESCC-D9	exonic	<i>KCNJ12;KCNJ18</i>	nonsynonymous SNV	NM_001194958:c.G1208T;p.G403V		chr17	21319862	21319862	G	T
ESCC-D9	exonic	<i>FADS3</i>	nonframeshift deletion	NM_021727:c.969_971del;p.323_324del		chr11	61644350	61644352	AAG	-
ESCC-D9	exonic	<i>MCF2</i>	frameshift insertion	NM_001171877:c.664_665insA;p.L222fs		chrX	138701772	138701772	-	T
ESCC-D9	exonic	<i>ANKMY1</i>	nonsynonymous SNV	NM_017844:c.C1996T;p.R666C		chr2	241420465	241420465	G	A
ESCC-D9	exonic	<i>ANKMY1</i>	nonsynonymous SNV	NM_017844:c.T1994C;p.V665A		chr2	241420467	241420467	A	G
ESCC-D9	exonic	<i>SELO</i>	unknown	UNKNOWN		chr22	50646980	50646980	G	A
ESCC-D9	exonic	<i>MED1</i>	stopgain SNV	NM_004774:c.C3523T;p.Q1175X		chr17	37564951	37564951	G	A
ESCC-D9	exonic	<i>ZNF750</i>	nonsynonymous SNV	NM_024702:c.T163G;p.L55V		chr17	80790168	80790168	A	C
ESCC-D10	exonic	<i>OR2L3</i>	nonsynonymous SNV	NM_001004687:c.T86A;p.L29H		chr1	248224069	248224069	T	A
ESCC-D10	exonic	<i>FAT1</i>	frameshift deletion	NM_005245:c.9120delA;p.K3040fs		chr4	187535454	187535454	T	-

ESCC-D10	exonic	<i>CEP192</i>	nonsynonymous SNV	NM_032142:c.A7183G;p.N2395D		chr18	13114144	13114144	A	G
ESCC-D10	exonic	<i>ZNF750</i>	stopgain SNV	NM_024702:c.C906A;p.Y302X		chr17	80789425	80789425	G	T
ESCC-D10	exonic	<i>PPP1R12B</i>	nonsynonymous SNV	NM_001167857:c.G1111A;p.A371T		chr1	202400717	202400717	G	A
ESCC-D10	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.G2145T;p.Q715H		chr14	105419643	105419643	C	A
ESCC-D10	exonic	<i>ZNF761</i>	stopgain SNV	NM_001008401:c.C179G;p.S60X		chr19	53957940	53957940	C	G
ESCC-D10	exonic	<i>TPTE</i>	nonsynonymous SNV	NM_199260:c.T1150A;p.Y384N		chr21	10916382	10916382	A	T
ESCC-D10	exonic	<i>XPO5</i>	nonsynonymous SNV	NM_020750:c.C1099G;p.L367V		chr6	43528037	43528037	G	C
ESCC-D10	exonic	<i>PHF3</i>	nonsynonymous SNV	NM_015153:c.G2275A;p.E759K		chr6	64401712	64401712	G	A
ESCC-D10	exonic	<i>DHX32</i>	nonsynonymous SNV	NM_018180:c.G1004C;p.R335T		chr10	127542618	127542618	C	G
ESCC-D10	exonic	<i>PCDHB1</i>	nonsynonymous SNV	NM_013340:c.C1802T;p.S601F		chr5	140432857	140432857	C	T
ESCC-D10	exonic	<i>FAM190A</i>	stopgain SNV	NM_001145065:c.C22T;p.R8X		chr4	91229457	91229457	C	T
ESCC-D10	splicing	<i>NOTCH1(NM_017617:exon34:c.6180-1G>A)</i>				chr9	139393350	139393350	C	T
ESCC-D10	exonic	<i>IPO4</i>	nonsynonymous SNV	NM_024658:c.G1918A;p.D640N		chr14	24653056	24653056	C	T
ESCC-D10	exonic	<i>TIPARP</i>	nonsynonymous SNV	NM_001184717:c.C239G;p.T80R		chr3	156395725	156395725	C	G
ESCC-D10	exonic	<i>MYH4</i>	nonsynonymous SNV	NM_017533:c.G5575A;p.E1859K		chr17	10348013	10348013	C	T
ESCC-D10	exonic	<i>KNTC1</i>	nonsynonymous SNV	NM_014708:c.G5053C;p.E1685Q		chr12	123087742	123087742	G	C
ESCC-D10	exonic	<i>ABCC11</i>	nonsynonymous SNV	NM_033226:c.C734A;p.P245T		chr16	48173171	48173171	G	T
ESCC-D10	exonic	<i>ZNF211</i>	nonsynonymous SNV	NM_198855:c.G1247A;p.R416Q	1475033	chr19	58153101	58153101	G	A
ESCC-D10	exonic	<i>ATXN7</i>	nonsynonymous SNV	NM_001128149:c.C1168A;p.V390M		chr3	63976456	63976456	G	A
ESCC-D10	exonic	<i>CYP7B1</i>	nonsynonymous SNV	NM_004820:c.C1474G;p.Q492E		chr8	65509246	65509246	G	C
ESCC-D10	exonic	<i>NPHS2</i>	nonsynonymous SNV	NM_014625:c.C299T;p.A100V		chr1	179533904	179533904	G	A
ESCC-D10	exonic	<i>FZD6</i>	nonsynonymous SNV	NM_001164615:c.A1631G;p.Y544C		chr8	104341972	104341972	A	G
ESCC-D10	exonic	<i>BAI1</i>	nonsynonymous SNV	NM_001702:c.G1870A;p.A624T		chr8	143562656	143562656	G	A
ESCC-D10	exonic	<i>GULP1</i>	nonsynonymous SNV	NM_001252668:c.G85T;p.A29S		chr2	189348214	189348214	G	T
ESCC-D10	exonic	<i>KYNU</i>	nonframeshift deletion	NM_003937:c.945_947del;p.315_316del		chr2	143787238	143787240	GAT	-
ESCC-D10	exonic	<i>PRR5L</i>	nonsynonymous SNV	NM_001160169:c.G187A;p.V63I		chr11	36424870	36424870	G	A
ESCC-D10	exonic	<i>FAM47A</i>	nonsynonymous SNV	NM_203408:c.C1552T;p.R518C		chrX	34148844	34148844	G	A
ESCC-D10	exonic	<i>HERPUD2</i>	nonsynonymous SNV	NM_022373:c.A155G;p.K52R		chr7	35712881	35712881	T	C
ESCC-D10	exonic	<i>KL</i>	nonsynonymous SNV	NM_004795:c.C1300A;p.L434I		chr13	33628384	33628384	C	A
ESCC-D10	exonic	<i>JFT172</i>	nonsynonymous SNV	NM_015662:c.C406T;p.R136C		chr2	27706523	27706523	G	A
ESCC-D10	exonic	<i>PTPRK</i>	nonsynonymous SNV	NM_001135648:c.G1986A;p.M662I		chr6	128388835	128388835	C	T
ESCC-D10	exonic	<i>NFE2L2</i>	nonsynonymous SNV	NM_001145412:c.G168A;p.E63Q	1560557;1571464;1571465;15	chr2	178098810	178098810	C	G
ESCC-D10	exonic	<i>FMOD</i>	nonsynonymous SNV	NM_002023:c.C820T;p.R274W		chr1	203316579	203316579	G	A
ESCC-D10	exonic	<i>PPM1J</i>	nonsynonymous SNV	NM_005167:c.C509T;p.S170L		chr1	113255586	113255586	G	A
ESCC-D10	exonic	<i>NRG3</i>	nonsynonymous SNV	NM_001010848:c.A1281T;p.Q427H		chr10	84718828	84718828	A	T
ESCC-D10	exonic	<i>SI</i>	stopgain SNV	NM_001041:c.G4004A;p.W1335X		chr3	164730826	164730826	C	T
ESCC-D10	exonic	<i>ABCB5</i>	nonsynonymous SNV	NM_178559:c.C406T;p.H136Y		chr7	20721161	20721161	C	T
ESCC-D10	exonic	<i>DMD</i>	nonsynonymous SNV	NM_004014:c.A138T;p.L46F		chrX	31525463	31525463	T	A
ESCC-D10	exonic	<i>RANBP17</i>	nonsynonymous SNV	NM_022897:c.A745T;p.T249S		chr5	170338123	170338123	A	T
ESCC-D10	exonic	<i>MLL2</i>	nonsynonymous SNV	NM_003482:c.G15224A;p.G5075E		chr12	49420525	49420525	C	T
ESCC-D10	exonic	<i>SIGLEC10</i>	nonsynonymous SNV	NM_001171157:c.C578T;p.T193M		chr19	51920048	51920048	G	A
ESCC-D10	exonic	<i>ZNF337</i>	nonsynonymous SNV	NM_015655:c.G1480A;p.G494R		chr20	25656444	25656444	C	T
ESCC-D10	exonic	<i>LPPR4</i>	stopgain SNV	NM_001166252:c.A1387T;p.R463X		chr1	99771835	99771835	A	T
ESCC-D10	exonic	<i>EP300</i>	stopgain SNV	NM_001429:c.C3549A;p.C1183X		chr22	41554463	41554463	C	A
ESCC-D10	exonic	<i>MAGEC3</i>	nonsynonymous SNV	NM_177456:c.T679G;p.F227V		chrX	140985117	140985117	T	G
ESCC-D10	exonic	<i>DNAH5</i>	frameshift deletion	NM_001369:c.13458delT;p.F4486fs		chr5	13701426	13701426	A	-
ESCC-D10	exonic	<i>OCA2</i>	nonsynonymous SNV	NM_000275:c.C629T;p.S210L		chr15	28267664	28267664	G	A
ESCC-D10	exonic	<i>NMBR</i>	nonsynonymous SNV	NM_002511:c.G289A;p.V97I		chr6	142409507	142409507	C	T
ESCC-D10	exonic	<i>BCA9</i>	nonsynonymous SNV	NM_080283:c.G4447A;p.E1483K	1542864	chr17	66980249	66980249	C	T
ESCC-D10	exonic	<i>ZBTB22</i>	nonsynonymous SNV	NM_001145338:c.C581T;p.S194F		chr6	33284113	33284113	G	A
ESCC-D10	exonic	<i>SZT2</i>	nonsynonymous SNV	NM_015284:c.G6385T;p.D2129Y		chr1	43904417	43904417	G	T
ESCC-D10	exonic	<i>PLAG1</i>	nonsynonymous SNV	NM_001114635:c.C773T;p.S258L		chr8	57079286	57079286	G	A
ESCC-D10	exonic	<i>LRR1Q3</i>	frameshift insertion	NM_001105659:c.733_734insA;p.Q245fs		chr1	74575212	74575212	-	T
ESCC-D10	exonic	<i>TTC28</i>	nonsynonymous SNV	NM_001145418:c.G7309A;p.E2437K		chr22	28378346	28378346	C	T

ESCC-D10	exonic	<i>BAI3</i>	nonsynonymous SNV	NM_001704:c.T4333A:p.F1445I		chr6	70092780	70092780	T	A
ESCC-D10	exonic	<i>HSP4</i>	nonsynonymous SNV	NM_001040667:c.C1424T:p.T475I		chr16	67203633	67203633	C	T
ESCC-D10	exonic	<i>NNMT</i>	nonsynonymous SNV	NM_006169:c.C52T:p.R18W		chr11	114167330	114167330	C	T
ESCC-D10	exonic	<i>SEC14L3</i>	nonsynonymous SNV	NM_174975:c.C388T:p.R130C		chr22	30864530	30864530	G	A
ESCC-D10	exonic	<i>IMP2</i>	nonsynonymous SNV	NM_016247:c.G3399T:p.R1133S		chr3	100949824	100949824	C	A
ESCC-D10	exonic	<i>ADAM18</i>	nonsynonymous SNV	NM_014237:c.A1163C:p.Q388P		chr8	39505979	39505979	A	C
ESCC-D10	exonic	<i>VCAN</i>	nonsynonymous SNV	NM_001164097:c.C2924G:p.A975G		chr5	82834707	82834707	C	G
ESCC-D11	exonic	<i>NBEA</i>	nonsynonymous SNV	NM_015678:c.C4217T:p.A1406V		chr13	35738630	35738630	C	T
ESCC-D11	exonic	<i>ADAMTS17</i>	nonsynonymous SNV	NM_139057:c.A2228G:p.Y743C		chr15	100594169	100594169	T	C
ESCC-D11	exonic	<i>LILRB1</i>	nonsynonymous SNV	NM_001081637:c.G124T:p.G42W		chr19	55143004	55143004	G	T
ESCC-D11	exonic	<i>KIAA1429</i>	nonsynonymous SNV	NM_015496:c.G1293T:p.L431F		chr8	95539179	95539179	C	A
ESCC-D11	exonic	<i>HLF</i>	nonsynonymous SNV	NM_002126:c.C332T:p.P111L		chr17	53345328	53345328	C	T
ESCC-D11	exonic	<i>SLCIA2</i>	nonsynonymous SNV	NM_004171:c.G118A:p.R373H		chr11	35308472	35308472	C	T
ESCC-D11	exonic	<i>KIAA1429</i>	nonsynonymous SNV	NM_015496:c.G1294T:p.V432L		chr8	95539178	95539178	C	A
ESCC-D11	exonic	<i>EIF2C1</i>	nonsynonymous SNV	NM_012199:c.T1088C:p.I363T		chr1	36367142	36367142	T	C
ESCC-D11	exonic	<i>FZD3</i>	nonsynonymous SNV	NM_145866:c.G548C:p.R183P		chr8	28384825	28384825	G	C
ESCC-D11	exonic	<i>KCNT2</i>	nonsynonymous SNV	NM_198503:c.C187T:p.R63C		chr1	196459056	196459056	G	A
ESCC-D11	exonic	<i>RAB40A</i>	nonsynonymous SNV	NM_080879:c.T739C:p.S247P		chrX	102754946	102754946	A	G
ESCC-D11	exonic	<i>HIST2H2AC</i>	nonframeshift deletion	NM_003517:c.269_271del:p.90_91del		chr1	149858793	149858795	ACG	-
ESCC-D11	exonic:splicing	<i>REER;REER</i>	nonsynonymous SNV	NM_001042682:c.G2824A:p.G942S		chr1	8416160	8416160	C	T
ESCC-D11	exonic	<i>SLC05A1</i>	nonsynonymous SNV	NM_001146008:c.C1057A:p.L353I		chr8	70667860	70667860	G	T
ESCC-D11	exonic	<i>KDM6A</i>	nonsynonymous SNV	NM_021140:c.A3467C:p.N1156T	724870;749715;946354	chrX	44945143	44945143	A	C
ESCC-D11	exonic	<i>ZNF518A</i>	unknown	UNKNOWN		chr10	97918856	97918856	A	-
ESCC-D11	exonic	<i>HARS</i>	nonsynonymous SNV	NM_002109:c.C1084T:p.R362C		chr5	140056349	140056349	G	A
ESCC-D11	exonic	<i>ZBBX</i>	nonsynonymous SNV	NM_001199202:c.A1938T:p.E646D		chr3	167000138	167000138	T	A
ESCC-D11	exonic	<i>Cl6orf70</i>	nonsynonymous SNV	NM_025187:c.G875A:p.G292E		chr16	67174493	67174493	G	A
ESCC-D11	exonic	<i>WEE1</i>	nonsynonymous SNV	NM_001143976:c.G1274A:p.R425H		chr11	9610124	9610124	G	A
ESCC-D11	exonic	<i>ORS1F2</i>	nonsynonymous SNV	NM_001004753:c.G654C:p.L218F		chr11	4843269	4843269	G	C
ESCC-D11	exonic	<i>PLXNA4</i>	nonsynonymous SNV	NM_001105543:c.G733A:p.V245I		chr7	132192720	132192720	C	T
ESCC-D11	exonic	<i>PYROXD2</i>	nonsynonymous SNV	NM_032709:c.G822C:p.E274D		chr10	100152804	100152804	C	G
ESCC-D11	exonic	<i>DNAH5</i>	nonsynonymous SNV	NM_001369:c.G10195A:p.V3399I		chr5	13762917	13762917	C	T
ESCC-D11	exonic	<i>SIN3A</i>	nonsynonymous SNV	NM_001145357:c.G1298A:p.G433E		chr15	75702196	75702196	C	T
ESCC-D11	exonic	<i>PHF17</i>	nonsynonymous SNV	NM_199320:c.A2440T:p.S814C		chr4	129793328	129793328	A	T
ESCC-D11	exonic	<i>LAMA4</i>	nonsynonymous SNV	NM_001105206:c.C5344T:p.R1782C		chr6	112430768	112430768	G	A
ESCC-D11	exonic	<i>PRAMEF2</i>	nonsynonymous SNV	NM_023014:c.T83C:p.M28T		chr1	12918947	12918947	T	C
ESCC-D11	exonic	<i>ZNF626</i>	nonsynonymous SNV	NM_001076675:c.G1502A:p.R501K		chr19	20807181	20807181	C	T
ESCC-D11	exonic	<i>SLC26A7</i>	nonsynonymous SNV	NM_052832:c.C438G:p.H146Q		chr8	92307892	92307892	C	G
ESCC-D11	exonic	<i>CPLX3</i>	nonsynonymous SNV	NM_001030005:c.C301A:p.L101M		chr15	75122519	75122519	C	A
ESCC-D11	exonic	<i>TRAPPC8</i>	nonsynonymous SNV	NM_014939:c.T3697C:p.C1233R		chr18	29429567	29429567	A	G
ESCC-D12	exonic	<i>CEP78</i>	nonsynonymous SNV	NM_001098802:c.C1113A:p.H371Q		chr9	80866864	80866864	C	A
ESCC-D12	exonic	<i>OMA1</i>	nonsynonymous SNV	NM_145243:c.T623C:p.V208A		chr1	59002291	59002291	A	G
ESCC-D12	exonic	<i>PTCH1</i>	nonsynonymous SNV	NM_000264:c.C3155T:p.T1052M	1184183;1512985;1513021	chr9	98220308	98220308	G	A
ESCC-D12	exonic	<i>TET1</i>	nonsynonymous SNV	NM_030625:c.A4226G:p.N1409S		chr10	70406712	70406712	A	G
ESCC-D12	exonic	<i>MICA</i>	nonsynonymous SNV	NM_000247:c.G862A:p.G288R		chr6	31379972	31379972	G	A
ESCC-D12	exonic	<i>CD33</i>	nonsynonymous SNV	NM_001082618:c.A211G:p.I71V		chr19	51729232	51729232	A	G
ESCC-D12	exonic	<i>MAP3K9</i>	nonsynonymous SNV	NM_033141:c.A1456G:p.I486V		chr14	71209179	71209179	T	C
ESCC-D13	exonic	<i>GBP7</i>	stopgain SNV	NM_207398:c.C1772G:p.S591X		chr1	89597977	89597977	G	C
ESCC-D13	exonic	<i>UNC80</i>	nonsynonymous SNV	NM_032504:c.C1817T:p.P60L		chr2	210683840	210683840	C	T
ESCC-D13	exonic	<i>SLC9A3R1</i>	nonsynonymous SNV	NM_004252:c.G1050C:p.K350N		chr17	72764768	72764768	G	C
ESCC-D13	exonic	<i>ZFHX3</i>	nonsynonymous SNV	NM_001164766:c.C4085G:p.S1362C		chr16	72829754	72829754	G	C
ESCC-D13	exonic	<i>KCNG1</i>	nonsynonymous SNV	NM_002237:c.C294G:p.F98L		chr20	49626582	49626582	G	C
ESCC-D13	exonic	<i>FMN1</i>	nonsynonymous SNV	NM_001103184:c.G875C:p.G292A		chr15	33359211	33359211	C	G
ESCC-D13	exonic	<i>PASD1</i>	nonsynonymous SNV	NM_173493:c.G255C:p.E85D		chrX	150789449	150789449	G	C
ESCC-D13	exonic	<i>PCDH10</i>	nonsynonymous SNV	NM_020815:c.C395G:p.S132C		chr4	134071690	134071690	C	G

ESCC-D13	exonic	<i>CHST11</i>	nonsynonymous SNV	NM_001173982:c.C1016T;p.S339L	chr12	105151553	105151553	C	T
ESCC-D13	exonic	<i>NKX2-3</i>	nonsynonymous SNV	NM_145285:c.G61A;p.E21K	chr10	101292949	101292949	G	A
ESCC-D13	exonic	<i>TESK1</i>	nonsynonymous SNV	NM_006285:c.C1388T;p.S463L	chr9	35609246	35609246	C	T
ESCC-D13	exonic	<i>ERP44</i>	nonsynonymous SNV	NM_015051:c.G354A;p.M118I	chr9	102784441	102784441	C	T
ESCC-D13	exonic	<i>NEFM</i>	nonsynonymous SNV	NM_001105541:c.G19C;p.E7Q	chr8	24773184	24773184	G	C
ESCC-D13	exonic	<i>ERCC2</i>	stopgain SNV	NM_001130867:c.C149G;p.S50X	chr19	45872213	45872213	G	C
ESCC-D13	splicing	<i>TNN(NM_022093:exon5:c.1049-1G>A)</i>			chr1	175052885	175052885	G	A
ESCC-D13	exonic	<i>UBN1</i>	nonsynonymous SNV	NM_016936:c.G1552A;p.E518K	chr16	4920966	4920966	G	A
ESCC-D13	exonic	<i>PRSS46</i>	nonsynonymous SNV	NM_001205271:c.C416T;p.S139L	chr3	46775230	46775230	G	A
ESCC-D13	exonic	<i>PLOD1</i>	nonsynonymous SNV	NM_000302:c.A1351G;p.L451V	chr1	12024723	12024723	A	G
ESCC-D13	exonic	<i>GCFC2</i>	nonsynonymous SNV	NM_001201335:c.G301A;p.D101N	chr2	75933742	75933742	C	T
ESCC-D13	exonic	<i>C5orf44</i>	nonsynonymous SNV	NM_001093755:c.G439A;p.A147T	chr5	64946647	64946647	G	A
ESCC-D13	exonic	<i>SLC4A10</i>	nonsynonymous SNV	NM_022058:c.G1564A;p.G522R	chr2	162761322	162761322	G	A
ESCC-D13	exonic	<i>PUS3</i>	nonsynonymous SNV	NM_031307:c.C464T;p.A155V	chr11	125765599	125765599	G	A
ESCC-D13	exonic	<i>FBXL2</i>	nonsynonymous SNV	NM_001171713:c.G670A;p.D224N	chr3	33419619	33419619	G	A
ESCC-D13	exonic	<i>C1orf65</i>	nonsynonymous SNV	NM_152610:c.C1516G;p.L506V	chr1	223568333	223568333	C	G
ESCC-D13	exonic	<i>ADAMTS12</i>	nonsynonymous SNV	NM_030955:c.T3899G;p.L1300R	chr5	33576232	33576232	A	C
ESCC-D13	exonic	<i>CDH13</i>	nonsynonymous SNV	NM_001220491:c.T550A;p.C184S	chr16	83214541	83214541	T	A
ESCC-D13	exonic	<i>SLCSA4</i>	nonsynonymous SNV	NM_014227:c.G1520C;p.G507A	chr22	32620399	32620399	C	G
ESCC-D13	exonic	<i>LAMA3</i>	nonsynonymous SNV	NM_001127717:c.A485G;p.N162S	chr18	21327944	21327944	A	G
ESCC-D13	exonic	<i>MEF2C</i>	nonsynonymous SNV	NM_001193348:c.G1139T;p.R380L	chr5	88018536	88018536	C	A
ESCC-D13	exonic	<i>C17orf104</i>	nonsynonymous SNV	NM_001145080:c.G165C;p.L55F	chr17	42734590	42734590	G	C
ESCC-D13	exonic	<i>KBTD12</i>	nonsynonymous SNV	NM_207335:c.G640C;p.V214L	chr3	127642544	127642544	G	C
ESCC-D13	exonic	<i>TST</i>	nonsynonymous SNV	NM_003312:c.G517C;p.E173Q	chr22	37414257	37414257	C	G
ESCC-D13	exonic	<i>FAN1</i>	nonsynonymous SNV	NM_014967:c.G1796C;p.R599T	chr15	31206279	31206279	G	C
ESCC-D13	exonic	<i>BRF1</i>	stopgain SNV	NM_001242788:c.G523T;p.E175X	chr14	105707692	105707692	C	A
ESCC-D13	exonic	<i>PITPNM3</i>	nonsynonymous SNV	NM_001165966:c.C1798G;p.H600D	chr17	6368076	6368076	G	C
ESCC-D13	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.C6112G;p.H2038D	chr6	152734626	152734626	G	C
ESCC-D13	exonic	<i>HECTD1</i>	nonsynonymous SNV	NM_015382:c.G7351C;p.D2451H	chr14	31574637	31574637	C	G
ESCC-D13	exonic	<i>UTP15</i>	nonsynonymous SNV	NM_032175:c.C530T;p.P177L	chr5	72865483	72865483	C	T
ESCC-D13	exonic	<i>HERC6</i>	nonsynonymous SNV	NM_001165136:c.A518T;p.Q173L	chr4	89311885	89311885	A	T
ESCC-D13	exonic	<i>GOLM1</i>	nonsynonymous SNV	NM_016548:c.G1190A;p.R397Q	chr9	88642748	88642748	C	T
ESCC-D13	exonic	<i>DISP2</i>	nonsynonymous SNV	NM_033510:c.G3985C;p.E1329Q	chr15	40662298	40662298	G	C
ESCC-D13	exonic	<i>ATP10D</i>	nonsynonymous SNV	NM_020453:c.G1042A;p.E348K	chr4	47538480	47538480	G	A
ESCC-D13	exonic	<i>FAT3</i>	nonsynonymous SNV	NM_001008781:c.T893A;p.L298N	chr11	92086171	92086171	T	A
ESCC-D13	exonic	<i>LTBP3</i>	nonsynonymous SNV	NM_001130144:c.A3050G;p.Y1017C	chr11	65308013	65308013	T	C
ESCC-D13	exonic	<i>SUV39H2</i>	nonsynonymous SNV	NM_024670:c.G916C;p.E306Q	chr10	14943231	14943231	G	C
ESCC-D13	exonic	<i>DMXL2</i>	nonsynonymous SNV	NM_001174116:c.C2011T;p.H671Y	chr15	51828666	51828666	G	A
ESCC-D13	exonic	<i>ZFAT</i>	nonsynonymous SNV	NM_001174157:c.C1356A;p.D452E	chr8	135614420	135614420	G	T
ESCC-D13	exonic	<i>GC</i>	nonsynonymous SNV	NM_000583:c.G1135A;p.E379K	chr4	72620724	72620724	C	T
ESCC-D13	exonic	<i>APCDD1</i>	nonsynonymous SNV	NM_153000:c.C1294T;p.R432W	chr18	10487784	10487784	C	T
ESCC-D13	exonic	<i>AP2B1</i>	nonsynonymous SNV	NM_001030006:c.G1366A;p.A456T	chr17	33966708	33966708	G	A
ESCC-D13	exonic	<i>AHR</i>	nonsynonymous SNV	NM_001621:c.G1474C;p.E492Q	chr7	17378923	17378923	G	C
ESCC-D13	exonic	<i>LTBP3</i>	frameshift deletion	NM_001130144:c.3053_3054del;p.1018_1018del	chr11	65308009	65308010	CT	-
ESCC-D13	exonic	<i>SERPINB4</i>	nonsynonymous SNV	NM_002974:c.T1080A;p.N360K	chr18	61305046	61305046	A	T
ESCC-D13	exonic	<i>MERTK</i>	nonsynonymous SNV	NM_006343:c.A2459G;p.K820R	chr2	112779944	112779944	A	G
ESCC-D13	exonic	<i>SEMA3A</i>	nonsynonymous SNV	NM_006080:c.A1697G;p.H566R	chr7	83606468	83606468	T	C
ESCC-D13	exonic	<i>FOXC1</i>	nonsynonymous SNV	NM_001453:c.C771G;p.I257M	chr6	1611451	1611451	C	G
ESCC-D13	exonic	<i>SERPINB4</i>	nonsynonymous SNV	NM_002974:c.A1079C;p.N360T	chr18	61305047	61305047	T	G
ESCC-D13	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.C2275G;p.Q759E	chr14	64453297	64453297	C	G
ESCC-D13	exonic	<i>DNAI1</i>	nonsynonymous SNV	NM_012144:c.T1172C;p.I391T	chr9	34506733	34506733	T	C
ESCC-D13	exonic	<i>ZFH3</i>	nonsynonymous SNV	NM_001164766:c.C7165G;p.L2389V	chr16	72822268	72822268	G	C
ESCC-D13	exonic	<i>CDK11B</i>	nonsynonymous SNV	NM_033487:c.C1160G;p.T387S	chr1	1571833	1571833	G	C
ESCC-D13	exonic	<i>BAZ1B</i>	nonsynonymous SNV	NM_032408:c.C4015T;p.R1339W	chr7	72857134	72857134	G	A

ESCC-D13	exonic	<i>CWF19L2</i>	nonsynonymous SNV	NM_152434:c.G2243C:p.G748A		chr11	107207399	107207399	C	G
ESCC-D13	exonic	<i>PTK7</i>	frameshift deletion	NM_002821:c.18delA:p.G6fs		chr6	43044244	43044244	A	-
ESCC-D13	exonic	<i>MED13</i>	nonsynonymous SNV	NM_005121:c.G16T:p.V6L		chr17	60142551	60142551	C	A
ESCC-D13	exonic	<i>NAV3</i>	nonsynonymous SNV	NM_014903:c.G3904A:p.G1302S		chr12	78515874	78515874	G	A
ESCC-D14	exonic	<i>WIPF1</i>	nonsynonymous SNV	NM_001077269:c.C1031T:p.S344F		chr2	175436502	175436502	G	A
ESCC-D14	exonic	<i>Cl2orf12</i>	nonsynonymous SNV	NM_152638:c.G990C:p.E330D		chr12	91347530	91347530	C	G
ESCC-D14	exonic	<i>KRTAP15-1</i>	nonsynonymous SNV	NM_181623:c.C172A:p.P58T		chr21	31812817	31812817	C	A
ESCC-D14	exonic	<i>OR4D6</i>	nonsynonymous SNV	NM_001004708:c.G373A:p.A125T		chr11	59224806	59224806	G	A
ESCC-D14	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G21691T:p.D7231Y		chr2	179479355	179479355	C	A
ESCC-D14	exonic	<i>PTEEN</i>	nonsynonymous SNV	NM_000314:c.G256A:p.A86T	687563;713885;724838;75356	chr10	89692772	89692772	G	A
ESCC-D14	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.T21674C:p.I7225T		chr2	179479372	179479372	A	G
ESCC-D14	exonic	<i>PRDM9</i>	nonsynonymous SNV	NM_020227:c.G5T:p.S2I		chr5	23509147	23509147	G	T
ESCC-D14	exonic	<i>KIF5B</i>	nonsynonymous SNV	NM_004521:c.C511T:p.R171C		chr10	32326523	32326523	G	A
ESCC-D14	exonic	<i>OR4F15</i>	nonsynonymous SNV	NM_001001674:c.G12C:p.M4I		chr15	102358401	102358401	G	C
ESCC-D14	exonic	<i>POLD2</i>	nonsynonymous SNV	NM_001127218:c.A1060T:p.T354S		chr7	44155452	44155452	G	A
ESCC-D14	exonic	<i>TAF1L</i>	nonsynonymous SNV	NM_153809:c.G1113A:p.M371I		chr9	32634465	32634465	C	T
ESCC-D14	exonic	<i>CBBL</i>	nonsynonymous SNV	NM_170662:c.C1760T:p.P587L		chr3	105421137	105421137	G	A
ESCC-D14	exonic	<i>C9orf43</i>	nonsynonymous SNV	NM_152786:c.G335A:p.R112K		chr9	116181435	116181435	G	A
ESCC-D14	exonic	<i>PLCH2</i>	nonsynonymous SNV	NM_014638:c.C3706T:p.P1236S		chr1	2436107	2436107	C	T
ESCC-D14	exonic	<i>NCKIPSD</i>	nonsynonymous SNV	NM_016453:c.G1801T:p.V601L		chr3	48716161	48716161	C	A
ESCC-D14	exonic	<i>Cl7orf57</i>	frameshift insertion	NM_001195192:c.1060_1061insA:p.E354fs		chr17	45452308	45452308	-	A
ESCC-D14	exonic	<i>TATDN1</i>	nonsynonymous SNV	NM_001146160:c.A140T:p.K47M		chr8	125528193	125528193	T	A
ESCC-D14	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.G73T:p.V25F	713878;724834;749721;75358	chr17	7578461	7578461	C	A
ESCC-D14	exonic	<i>IKBIP</i>	nonsynonymous SNV	NM_153687:c.C457G:p.Q153E		chr12	99020385	99020385	G	C
ESCC-D14	exonic	<i>EPHA7</i>	nonsynonymous SNV	NM_004440:c.G744C:p.M248I		chr6	94120307	94120307	C	G
ESCC-D14	exonic	<i>FMN2</i>	nonsynonymous SNV	NM_020066:c.G2881A:p.G961R		chr1	240370993	240370993	G	A
ESCC-D14	exonic	<i>MLL4</i>	nonsynonymous SNV	NM_001207008:c.G2518A:p.D840N		chr6	168317790	168317790	G	A
ESCC-D14	exonic	<i>MAB21L2</i>	stopgain SNV	NM_006439:c.C750A:p.C250X		chr4	151504931	151504931	C	A
ESCC-D14	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C67523A:p.A22508D		chr2	179411437	179411437	G	T
ESCC-D14	exonic	<i>ZNF134</i>	nonsynonymous SNV	NM_003435:c.G1189C:p.E397Q		chr19	58132676	58132676	G	C
ESCC-D14	splicing	<i>PABPC3</i>				chr13	25670277	25670277	C	T
ESCC-D14	exonic	<i>ITGA7</i>	nonsynonymous SNV	NM_001144996:c.C3262T:p.P1088S		chr12	56079006	56079006	G	A
ESCC-D14	exonic	<i>LTN1</i>	nonsynonymous SNV	NM_015565:c.G631A:p.A211T		chr21	30357096	30357096	C	T
ESCC-D14	exonic	<i>ERBB4</i>	nonsynonymous SNV	NM_001042599:c.C3206A:p.T1069N		chr2	212251805	212251805	G	T
ESCC-D14	exonic	<i>PCDHGB1</i>	nonsynonymous SNV	NM_018922:c.G1549A:p.D517N		chr5	140731376	140731376	G	A
ESCC-D14	exonic	<i>RBL2</i>	nonsynonymous SNV	NM_005611:c.G1618A:p.V540I		chr16	53498195	53498195	G	A
ESCC-D14	exonic	<i>KIAA0754</i>	nonsynonymous SNV	NM_015038:c.T383A:p.V128D		chr1	39876320	39876320	T	A
ESCC-D14	exonic	<i>GDPD4</i>	nonsynonymous SNV	NM_182833:c.C896T:p.S299L		chr11	76956516	76956516	G	A
ESCC-D14	exonic	<i>GCCL</i>	nonsynonymous SNV	NM_001197115:c.T414G:p.N138K		chr6	53385608	53385608	A	C
ESCC-D14	exonic	<i>CUBN</i>	nonsynonymous SNV	NM_001081:c.C5522T:p.T1841M		chr10	16982057	16982057	G	A
ESCC-D14	exonic	<i>KLHL24</i>	nonsynonymous SNV	NM_017644:c.G179A:p.R60H		chr3	183368323	183368323	G	A
ESCC-D14	exonic	<i>ZC3H7B</i>	nonsynonymous SNV	NM_017590:c.G1325A:p.R442H		chr22	41739446	41739446	G	A
ESCC-D14	exonic	<i>HIST1H4A</i>	nonsynonymous SNV	NM_003538:c.G205C:p.D69H		chr6	26022111	26022111	G	C
ESCC-D14	exonic	<i>TRIO</i>	nonsynonymous SNV	NM_007118:c.G3221T:p.C1074F		chr5	14374342	14374342	G	T
ESCC-D14	exonic	<i>NEU4</i>	nonsynonymous SNV	NM_001167599:c.G931T:p.V311L		chr2	242757811	242757811	G	T
ESCC-D14	exonic	<i>ZNF835</i>	stopgain SNV	NM_001005850:c.C540A:p.Y180X		chr19	57176027	57176027	G	T
ESCC-D14	exonic	<i>XIRP2</i>	nonsynonymous SNV	NM_001199144:c.C1432A:p.H478N		chr2	168100000	168100000	C	A
ESCC-D14	exonic	<i>PCDHA4</i>	nonsynonymous SNV	NM_018907:c.C2075T:p.A692V		chr5	140188847	140188847	C	T
ESCC-D14	exonic	<i>SCN7A</i>	nonsynonymous SNV	NM_002976:c.T575A:p.V192D		chr2	167327214	167327214	A	T
ESCC-D14	exonic	<i>PLEC</i>	nonsynonymous SNV	NM_201378:c.G10319A:p.G3440D		chr8	144993628	144993628	C	T
ESCC-D14	exonic	<i>MLX</i>	nonsynonymous SNV	NM_170607:c.G170T:p.C57F		chr17	40719312	40719312	G	T
ESCC-D14	exonic	<i>LCT</i>	nonsynonymous SNV	NM_002299:c.G3853T:p.D1285Y		chr2	136566064	136566064	C	A
ESCC-D14	exonic	<i>LRP2</i>	nonsynonymous SNV	NM_004525:c.G12062T:p.C4021F		chr2	170012873	170012873	C	A
ESCC-D14	exonic	<i>RASL10B</i>	nonsynonymous SNV	NM_033315:c.G466A:p.V156M		chr17	34068178	34068178	G	A

ESCC-D14	exonic	<i>CTSO</i>	nonsynonymous SNV	NM_001334:c.C191G;p.T64S		chr4	156864361	156864361	G	C
ESCC-D14	exonic	<i>SPANXN2</i>	nonsynonymous SNV	NM_001009615:c.C421A;p.L141M		chrX	142795257	142795257	G	T
ESCC-D14	exonic	<i>RUNDC3B</i>	nonsynonymous SNV	NM_001134405:c.G305A;p.R102Q		chr7	87329803	87329803	G	A
ESCC-D14	splicing	<i>LRRK2(NM_198578:exon25:c.3348-1G>C)</i>				chr12	40692910	40692910	G	C
ESCC-D14	exonic	<i>A2M</i>	nonsynonymous SNV	NM_000014:c.C2340G;p.I780M		chr12	9243926	9243926	G	C
ESCC-D14	exonic	<i>ANG</i>	nonsynonymous SNV	NM_001097577:c.C169T;p.R57W		chr14	21161892	21161892	C	T
ESCC-D14	exonic	<i>ANKRD33</i>	nonsynonymous SNV	NM_182608:c.G292T;p.A98S		chr12	52282498	52282498	G	T
ESCC-D14	exonic	<i>ERMN</i>	stopgain SNV	NM_020711:c.C487T;p.R163X		chr2	158178151	158178151	G	A
ESCC-D14	exonic	<i>OR4L1</i>	nonsynonymous SNV	NM_001004717:c.T248C;p.I83T	1560560	chr14	20528451	20528451	T	C
ESCC-D14	exonic	<i>TDRD3</i>	nonsynonymous SNV	NM_001146070:c.A1219G;p.N407D		chr13	61102578	61102578	A	G
ESCC-D14	exonic	<i>PLEKHD1</i>	nonsynonymous SNV	NM_001161498:c.C1450T;p.R484W		chr14	69995065	69995065	C	T
ESCC-D14	exonic	<i>RALGAPB</i>	nonframeshift deletion	NM_020336:c.2066_2068del;p.689_690del		chr20	37159825	37159827	TTG	-
ESCC-D14	exonic	<i>HEG1</i>	stopgain SNV	NM_020733:c.C3911G;p.S1304X		chr3	124692660	124692660	G	C
ESCC-D14	exonic	<i>ANGPTL1</i>	nonsynonymous SNV	NM_004673:c.T733A;p.Y245N		chr1	178834179	178834179	A	T
ESCC-D14	exonic	<i>VASH1</i>	nonsynonymous SNV	NM_014909:c.G746A;p.R249H		chr14	77242450	77242450	G	A
ESCC-D14	exonic	<i>RHAG</i>	nonsynonymous SNV	NM_000324:c.G3A;p.M1I		chr6	49604523	49604523	C	T
ESCC-D14	exonic	<i>TDRD3</i>	nonsynonymous SNV	NM_001146070:c.T1218A;p.D406E		chr13	61102577	61102577	T	A
ESCC-D14	exonic	<i>OAF</i>	nonsynonymous SNV	NM_178507:c.C109T;p.R37W		chr11	120082096	120082096	C	T
ESCC-D14	exonic	<i>DSP</i>	nonsynonymous SNV	NM_004415:c.C5125G;p.L1709V		chr6	7581548	7581548	C	G
ESCC-D14	exonic	<i>LIN7B</i>	nonsynonymous SNV	NM_022165:c.C524T;p.P175L		chr19	49621197	49621197	C	T
ESCC-D14	exonic	<i>MAP2D1</i>	stopgain SNV	NM_018067:c.C1129T;p.R377X		chr1	36642078	36642078	C	T
ESCC-D14	exonic	<i>CYP2J2</i>	nonsynonymous SNV	NM_000775:c.C255A;p.D85E		chr1	60381728	60381728	G	T
ESCC-D14	exonic	<i>GA7</i>	nonsynonymous SNV	NM_001014435:c.G142A;p.D48N		chr16	66884515	66884515	G	A
ESCC-D14	exonic	<i>NACA</i>	nonsynonymous SNV	NM_001113203:c.C2066T;p.P689L		chr12	57109789	57109789	G	A
ESCC-D14	exonic	<i>OR4L1</i>	nonsynonymous SNV	NM_001004717:c.G250A;p.D84N		chr14	20528453	20528453	G	A
ESCC-D14	exonic	<i>RAI1</i>	nonsynonymous SNV	NM_030665:c.G840C;p.Q280H		chr17	17697102	17697102	G	C
ESCC-D14	exonic	<i>ABCA3</i>	nonsynonymous SNV	NM_001089:c.G4571A;p.S1524N		chr16	2328436	2328436	C	T
ESCC-D14	exonic	<i>OR4L1</i>	frameshift insertion	NM_001004717:c.247_248insCp.I83fs		chr14	20528450	20528450	-	C
ESCC-D14	exonic	<i>PLIN1</i>	nonsynonymous SNV	NM_001145311:c.G1348A;p.A450T		chr15	90209035	90209035	C	T
ESCC-D14	exonic	<i>UNC13D</i>	nonsynonymous SNV	NM_199242:c.G3194A;p.R1065Q		chr17	73824125	73824125	C	T
ESCC-D15	exonic	<i>TMEM106A</i>	nonsynonymous SNV	NM_145041:c.A532T;p.N178Y		chr17	41368570	41368570	A	T
ESCC-D15	exonic	<i>FBN1</i>	nonsynonymous SNV	NM_000138:c.A169G;p.N57D		chr15	48905285	48905285	T	C
ESCC-D15	exonic	<i>TEX2</i>	nonsynonymous SNV	NM_018469:c.A2138T;p.E713V		chr17	62270957	62270957	T	A
ESCC-D15	exonic	<i>TEX2</i>	stopgain SNV	NM_018469:c.G2137T;p.E713X		chr17	62270958	62270958	C	A
ESCC-D15	exonic	<i>MC1R</i>	nonsynonymous SNV	NM_002386:c.G556A;p.V186M		chr16	89986222	89986222	G	A
ESCC-D15	exonic	<i>SCN11A</i>	nonsynonymous SNV	NM_014139:c.G4959C;p.L1653F		chr3	38888602	38888602	C	G
ESCC-D15	exonic	<i>TTI1</i>	nonsynonymous SNV	NM_014657:c.G2530T;p.D844Y		chr20	36631152	36631152	C	A
ESCC-D15	exonic	<i>ANKHD1,ANKH1</i>	nonsynonymous SNV	NM_017747:c.C6028G;p.Q2010E		chr5	139908559	139908559	C	G
ESCC-D15	exonic	<i>KIAA1432</i>	nonsynonymous SNV	NM_001135920:c.C1489T;p.R497W		chr9	5753236	5753236	C	T
ESCC-D15	exonic	<i>OR2A12</i>	nonsynonymous SNV	NM_001004135:c.G905C;p.R302T		chr7	143793105	143793105	G	C
ESCC-D15	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.G547C;p.D183H		chr7	100675244	100675244	G	C
ESCC-D15	exonic	<i>ADRA2A</i>	nonsynonymous SNV	NM_000681:c.C745T;p.R249W		chr10	112838499	112838499	C	T
ESCC-D15	exonic	<i>MICAL2</i>	nonsynonymous SNV	NM_014632:c.G2561A;p.R854K		chr11	12264222	12264222	G	A
ESCC-D15	exonic	<i>MYRIP</i>	nonsynonymous SNV	NM_015460:c.A227C;p.N76T		chr3	40085657	40085657	A	C
ESCC-D15	exonic	<i>CXorf66</i>	nonsynonymous SNV	NM_001013403:c.T307C;p.S103P		chrX	139038834	139038834	A	G
ESCC-D15	exonic	<i>COL22A1</i>	nonsynonymous SNV	NM_152888:c.G1525A;p.A509T		chr8	139815147	139815147	C	T
ESCC-D15	exonic	<i>MAB2L1L1</i>	stopgain SNV	NM_005584:c.C934T;p.Q312X		chr13	36049342	36049342	G	A
ESCC-D15	exonic	<i>ZC3H6</i>	nonsynonymous SNV	NM_198581:c.G2830A;p.E944K		chr2	113089325	113089325	G	A
ESCC-D15	exonic	<i>MYH15</i>	nonsynonymous SNV	NM_014981:c.G2869A;p.D957N		chr3	108159954	108159954	C	T
ESCC-D15	exonic	<i>MUC5B</i>	stopgain SNV	NM_002458:c.G3790T;p.E1264X		chr11	1261425	1261425	G	T
ESCC-D15	exonic	<i>LRP1B</i>	nonsynonymous SNV	NM_018557:c.G10539C;p.Q3513H		chr2	141135848	141135848	C	G
ESCC-D15	exonic	<i>PDHA2</i>	nonsynonymous SNV	NM_005390:c.G286A;p.E96K		chr4	96761587	96761587	G	A
ESCC-D15	exonic	<i>CSK</i>	nonsynonymous SNV	NM_004383:c.G340A;p.G114R		chr15	75091710	75091710	G	A
ESCC-D15	exonic	<i>ZNF207</i>	nonsynonymous SNV	NM_001032293:c.C944T;p.A315V		chr17	30694906	30694906	C	T

ESCC-D15	exonic	<i>C3</i>	nonsynonymous SNV	NM_000064:c.C262T;p.A876V	chr19	6697524	6697524	G	A
ESCC-D15	exonic	<i>TRIM33</i>	nonsynonymous SNV	NM_015906:c.G2738T;p.C913F	chr1	114948062	114948062	C	A
ESCC-D15	exonic	<i>CLEC4F</i>	nonsynonymous SNV	NM_173535:c.G1562A;p.S521N	chr2	71036967	71036967	C	T
ESCC-D15	exonic	<i>EAPP</i>	frameshift insertion	NM_018453:c.375_376insA;p.K125fs	chr14	34998659	34998659	-	T
ESCC-D15	exonic	<i>GPR37</i>	nonsynonymous SNV	NM_005302:c.G1225T;p.G409W	chr7	124387196	124387196	C	A
ESCC-D15	exonic	<i>MKI67</i>	nonsynonymous SNV	NM_001145966:c.T7960A;p.C2654S	chr10	129901064	129901064	A	T
ESCC-D15	exonic	<i>HIST1H1C</i>	nonsynonymous SNV	NM_005319:c.G220C;p.E74Q	chr6	26056437	26056437	C	G
ESCC-D15	exonic	<i>TATDN2</i>	frameshift insertion	NM_014760:c.1604_1605insT;p.S535fs	chr3	10312470	10312470	-	T
ESCC-D15	exonic	<i>NF1</i>	nonsynonymous SNV	NM_000267:c.C7144G;p.P2382A	chr17	29676155	29676155	C	G
ESCC-D15	exonic	<i>SIPA1L2</i>	nonsynonymous SNV	NM_020808:c.G1861C;p.E621Q	chr1	232619658	232619658	C	G
ESCC-D15	exonic	<i>DPCK1</i>	nonsynonymous SNV	NM_080870:c.A2909T;p.N970I	chr6	30919150	30919150	A	T
ESCC-D15	exonic	<i>KIAA1009</i>	nonsynonymous SNV	NM_014895:c.G1585C;p.E529Q	chr6	84894983	84894983	C	G
ESCC-D15	exonic	<i>DNAH6</i>	nonsynonymous SNV	NM_001370:c.G529A;p.E177K	chr2	84756157	84756157	G	A
ESCC-D15	exonic	<i>OR10W1</i>	nonsynonymous SNV	NM_207374:c.G878A;p.G293E	chr11	58034453	58034453	C	T
ESCC-D15	exonic	<i>KLHD7A</i>	nonsynonymous SNV	NM_152375:c.C1672T;p.R558C	chr1	18809147	18809147	C	T
ESCC-D15	exonic	<i>COLEC12</i>	nonsynonymous SNV	NM_130386:c.G2114A;p.G705E	chr18	321757	321757	C	T
ESCC-D15	exonic	<i>HMCN1</i>	nonsynonymous SNV	NM_031935:c.C10394A;p.P3465H	chr1	186064474	186064474	C	A
ESCC-D15	exonic	<i>FTCHD3</i>	nonsynonymous SNV	NM_001034842:c.A1691C;p.K564I	chr10	27687836	27687836	T	G
ESCC-D15	exonic	<i>ACAN</i>	nonsynonymous SNV	NM_001135:c.G6428A;p.R2143K	chr15	89402244	89402244	G	A
ESCC-D15	exonic	<i>FBXO46</i>	nonsynonymous SNV	NM_001080469:c.C276G;p.I92M	chr19	46216478	46216478	G	C
ESCC-D15	exonic	<i>TRIM34,TRIM6-5</i>	nonsynonymous SNV	NM_001003827:c.C1241G;p.S414C	chr11	5664713	5664713	C	G
ESCC-D15	exonic	<i>NPR1</i>	nonsynonymous SNV	NM_000906:c.G2588A;p.R863H	chr1	153661687	153661687	G	A
ESCC-D15	exonic	<i>PPP4R1</i>	nonsynonymous SNV	NM_001042388:c.G806A;p.R269Q	chr18	9583227	9583227	C	T
ESCC-D15	exonic	<i>TRPM6</i>	nonsynonymous SNV	NM_001177310:c.G2374T;p.V792L	chr9	77411659	77411659	C	A
ESCC-D15	exonic	<i>ZNF643</i>	nonsynonymous SNV	NM_023070:c.C298T;p.R100W	chr1	40922701	40922701	C	T
ESCC-D15	exonic	<i>NEURL4</i>	nonsynonymous SNV	NM_001005408:c.A2877T;p.E959D	chr17	7225095	7225095	T	A
ESCC-D15	exonic	<i>CGN</i>	nonsynonymous SNV	NM_020770:c.A3091G;p.K101E	chr1	151508268	151508268	A	G
ESCC-D15	exonic	<i>NOTCH1</i>	stopgain SNV	NM_017617:c.C5287T;p.Q1763X	chr9	139396821	139396821	G	A
ESCC-D15	exonic	<i>KRTAP10-1</i>	nonsynonymous SNV	NM_198691:c.G788T;p.C263F	chr21	45959246	45959246	C	A
ESCC-D15	exonic	<i>HIST1H2AG</i>	stopgain SNV	NM_021064:c.C337T;p.Q113X	chr6	27101187	27101187	C	T
ESCC-D15	exonic	<i>PPP1R7</i>	nonsynonymous SNV	NM_002712:c.G55C;p.D19H	chr2	242092893	242092893	G	C
ESCC-D15	exonic	<i>CACNA2D1</i>	nonsynonymous SNV	NM_000722:c.A401G;p.E134G	chr7	81746485	81746485	T	C
ESCC-D15	exonic	<i>C14orf43</i>	nonsynonymous SNV	NM_001043318:c.T2488G;p.S830A	chr14	74192061	74192061	A	C
ESCC-D15	splicing	<i>MUC2(NM_002457:exon21:c.2775+1G>T)</i>			chr11	1085855	1085855	G	T
ESCC-D15	exonic	<i>CHD2</i>	nonsynonymous SNV	NM_001042572:c.A11G;p.N4S	chr15	93444478	93444478	A	G
ESCC-D16	exonic	<i>USP24</i>	nonsynonymous SNV	NM_015306:c.G3688C;p.E1230Q	chr1	55591379	55591379	C	G
ESCC-D16	exonic	<i>ZNF750</i>	stopgain SNV	NM_024702:c.906delC;p.Y302X	chr17	80789425	80789425	G	-
ESCC-D16	exonic	<i>IPO9</i>	nonsynonymous SNV	NM_018085:c.A2120G;p.N707S	chr1	201838833	201838833	A	G
ESCC-D16	exonic	<i>FILP1L</i>	nonsynonymous SNV	NM_014890:c.A1531T;p.N511Y	chr3	99568269	99568269	T	A
ESCC-D16	splicing	<i>SHCBP1(NM_024745:exon5:c.596+2T>A)</i>			chr16	46649856	46649856	A	T
ESCC-D16	exonic	<i>TFAP2B</i>	nonsynonymous SNV	NM_003221:c.G1237A;p.A413T	chr6	50810959	50810959	G	A
ESCC-D16	exonic	<i>ZFP42</i>	stopgain SNV	NM_174900:c.C574T;p.Q192X	chr4	188924535	188924535	C	T
ESCC-D16	exonic	<i>MRC2</i>	nonsynonymous SNV	NM_006039:c.C26A;p.A9E	chr17	60705189	60705189	C	A
ESCC-D16	exonic	<i>BAZ1A</i>	nonsynonymous SNV	NM_182648:c.G3491A;p.R1164Q	chr14	35234102	35234102	C	T
ESCC-D16	exonic	<i>ZFP82</i>	nonsynonymous SNV	NM_133466:c.C544T;p.R182C	chr19	36884698	36884698	G	A
ESCC-D16	exonic	<i>ANK1</i>	nonsynonymous SNV	NM_000037:c.G5245C;p.E1749Q	chr8	41525934	41525934	C	G
ESCC-D16	exonic	<i>USP29</i>	nonsynonymous SNV	NM_020903:c.G1891A;p.E631K	chr19	57641934	57641934	G	A
ESCC-D16	exonic	<i>ATRNL1</i>	nonsynonymous SNV	NM_207303:c.C4096T;p.R1366W	chr10	117704246	117704246	C	T
ESCC-D16	exonic	<i>TSPAN10</i>	unknown	UNKNOWN	chr17	79615057	79615057	G	A
ESCC-D16	exonic	<i>PDE11A</i>	nonsynonymous SNV	NM_001077196:c.G43C;p.E15Q	chr2	178705103	178705103	C	G
ESCC-D16	exonic	<i>ZNF185</i>	nonsynonymous SNV	NM_001178115:c.G28C;p.G10R	chrX	152110280	152110280	G	C
ESCC-D16	exonic	<i>C11orf48</i>	nonsynonymous SNV	NM_024099:c.G271C;p.E91Q	chr11	62437155	62437155	C	G
ESCC-D16	exonic	<i>RBM25</i>	nonsynonymous SNV	NM_021239:c.G1792A;p.E598K	chr14	73577638	73577638	G	A
ESCC-D16	exonic	<i>ATP11B</i>	nonsynonymous SNV	NM_014616:c.G3171C;p.Q1057H	chr3	182616413	182616413	G	C

ESCC-D16	exonic	<i>GPR39</i>	nonsynonymous SNV	NM_001508:c.C962T;p.A321V		chr2	133402779	133402779	C	T
ESCC-D16	exonic	<i>RQCD1</i>	stopgain SNV	NM_005444:c.C273A;p.C91X		chr2	219447762	219447762	C	A
ESCC-D16	exonic	<i>COBL</i>	stopgain SNV	NM_015198:c.C283T;p.Q95X		chr7	51261249	51261249	G	A
ESCC-D16	exonic	<i>PLA2G7</i>	nonsynonymous SNV	NM_001168357:c.C697T;p.L233F		chr6	46678362	46678362	G	A
ESCC-D16	exonic;splicing	<i>MGAM;MGAM</i>	nonsynonymous SNV	NM_004668:c.A3950C;p.D1317A		chr7	141759657	141759657	A	C
ESCC-D16	exonic	<i>SEMA3A</i>	nonsynonymous SNV	NM_006080:c.G787T;p.A260S		chr7	83643557	83643557	C	A
ESCC-D16	exonic	<i>DLA</i>	nonsynonymous SNV	NM_019074:c.G1337A;p.R446H		chr15	41228522	41228522	G	A
ESCC-D16	exonic	<i>RG52</i>	nonsynonymous SNV	NM_002923:c.C210G;p.I70M		chr1	192779395	192779395	C	G
ESCC-D16	exonic	<i>C8orf45</i>	stopgain SNV	NM_001136160:c.C220T;p.Q74X		chr8	67786686	67786686	C	T
ESCC-D16	exonic	<i>NEDD4</i>	nonsynonymous SNV	NM_006154:c.C241T;p.H81Y		chr15	56216894	56216894	G	A
ESCC-D16	exonic	<i>TACR2</i>	nonsynonymous SNV	NM_001057:c.C294G;p.I98M		chr10	71175786	71175786	G	C
ESCC-D16	exonic	<i>SLCO1A2</i>	nonsynonymous SNV	NM_021094:c.T482C;p.V161A		chr12	21457468	21457468	A	G
ESCC-D16	exonic	<i>FAM196B</i>	nonsynonymous SNV	NM_001129891:c.G1217A;p.R406Q		chr5	169309686	169309686	C	T
ESCC-D16	exonic	<i>CACNA1E</i>	nonsynonymous SNV	NM_000721:c.G94T;p.A32S		chr1	181452974	181452974	G	T
ESCC-D16	exonic	<i>TRIM10</i>	nonsynonymous SNV	NM_006778:c.G1349C;p.R450P		chr6	30121843	30121843	C	G
ESCC-D16	exonic	<i>RG521</i>	nonsynonymous SNV	NM_001039152:c.G190A;p.D64N		chr1	192321278	192321278	G	A
ESCC-D16	exonic	<i>APLN</i>	nonsynonymous SNV	NM_005161:c.G442A;p.V148M		chr11	57004037	57004037	C	T
ESCC-D16	exonic	<i>CDH10</i>	nonsynonymous SNV	NM_006727:c.G1822A;p.G608S		chr5	24491739	24491739	C	T
ESCC-D16	exonic	<i>PRIMA1</i>	nonsynonymous SNV	NM_178013:c.C74T;p.P25L		chr14	94253991	94253991	G	A
ESCC-D16	exonic	<i>DDX1</i>	nonsynonymous SNV	NM_004939:c.G1798A;p.E600K		chr2	15768800	15768800	G	A
ESCC-D16	exonic	<i>BANF1</i>	nonsynonymous SNV	NM_001143985:c.G211A;p.A71T		chr11	65771184	65771184	G	A
ESCC-D16	exonic;splicing	<i>C8orf45;C8orf45</i>	frameshift deletion	NM_001136160:c.223_224del;p.75_75del		chr8	67786689	67786690	TC	-
ESCC-D16	exonic	<i>C1orf106</i>	nonsynonymous SNV	NM_001142569:c.G649C;p.E217Q		chr1	200877932	200877932	G	C
ESCC-D16	exonic	<i>SHROOM3</i>	nonsynonymous SNV	NM_020859:c.G3007A;p.A1003T		chr4	77662333	77662333	G	A
ESCC-D16	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.C2662T;p.H888Y		chr3	75786112	75786112	G	A
ESCC-D16	exonic	<i>RP1</i>	nonsynonymous SNV	NM_006269:c.T1211C;p.L404S		chr8	55537653	55537653	T	C
ESCC-D16	exonic	<i>KPNA1</i>	nonsynonymous SNV	NM_002264:c.T1075G;p.C359G		chr3	122156064	122156064	A	C
ESCC-D16	exonic	<i>CDH10</i>	nonsynonymous SNV	NM_006727:c.C220A;p.T735N		chr5	24487935	24487935	G	T
ESCC-D16	exonic	<i>CEP164</i>	nonsynonymous SNV	NM_014956:c.C445G;p.P149A		chr11	117232602	117232602	C	G
ESCC-D16	exonic	<i>C16orf62</i>	nonsynonymous SNV	NM_020314:c.A418G;p.K140E		chr16	19580779	19580779	A	G
ESCC-D16	exonic	<i>MTOR</i>	nonsynonymous SNV	NM_004958:c.G375T;p.M125I		chr1	11317119	11317119	C	A
ESCC-D16	exonic	<i>SYNM</i>	unknown	UNKNOWN		chr15	99673140	99673140	G	A
ESCC-D16	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4679T;p.T1560M		chr11	1092860	1092860	C	T
ESCC-D16	exonic	<i>SLC4A3</i>	nonsynonymous SNV	NM_005070:c.T3332G;p.F1111C		chr2	220505206	220505206	T	G
ESCC-D16	exonic	<i>EIF3H</i>	nonsynonymous SNV	NM_003756:c.G595C;p.E199Q		chr8	117668207	117668207	C	G
ESCC-D16	exonic	<i>GLEC6A</i>	nonsynonymous SNV	NM_001007033:c.G590C;p.R197T		chr12	8630020	8630020	G	C
ESCC-D16	splicing	<i>CDRT4(NM_001204477:exon4:c.28+2T>A);FAM18B2-CDRT4(NM_001204478:exon7:c.537+2T>A)</i>				chr17	15343523	15343523	A	T
ESCC-D16	splicing	<i>CREB3L1(NM_052854:exon11:c.1523+2T>G)</i>				chr11	46342081	46342081	T	G
ESCC-D16	exonic	<i>ORS11</i>	nonsynonymous SNV	NM_001005245:c.C158G;p.S53C		chr1	11317119	11317119	C	A
ESCC-D16	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C5912T;p.P1971L		chr11	1016889	1016889	G	A
ESCC-D16	exonic	<i>RCN2</i>	nonsynonymous SNV	NM_002902:c.C597A;p.D199E		chr15	77239797	77239797	C	A
ESCC-D17	exonic	<i>BIRC3</i>	nonsynonymous SNV	NM_001165:c.T2A;p.M1K		chr11	102195242	102195242	T	A
ESCC-D17	exonic	<i>OR4D11</i>	nonsynonymous SNV	NM_001004706:c.C184A;p.L62M		chr11	59271232	59271232	C	A
ESCC-D17	exonic	<i>CTNNA3</i>	stopgain SNV	NM_001127384:c.C889T;p.R297X	1474872	chr10	68940233	68940233	G	A
ESCC-D17	exonic	<i>CACNA1B</i>	nonsynonymous SNV	NM_000718:c.C6473T;p.P2158L		chr9	141015317	141015317	C	T
ESCC-D17	exonic	<i>LINS</i>	nonsynonymous SNV	NM_001040616:c.A1655T;p.Y552F		chr15	101110062	101110062	T	A
ESCC-D17	exonic	<i>ASTN2</i>	nonsynonymous SNV	NM_014010:c.C910T;p.R304W		chr9	119976742	119976742	G	A
ESCC-D17	exonic	<i>MYO9A</i>	frameshift insertion	NM_006901:c.4783_4784insA;p.P1595fs		chr15	72190061	72190061	-	T
ESCC-D17	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C628T;p.R210X	753614;905938;905984;90727	chr17	7574003	7574003	G	A
ESCC-D17	exonic	<i>DGKB</i>	nonsynonymous SNV	NM_004080:c.G1685C;p.W562S		chr7	14613925	14613925	C	G
ESCC-D17	exonic	<i>BCORL1</i>	frameshift insertion	NM_021946:c.4673_4674insT;p.D1558fs		chrX	129184746	129184746	-	T
ESCC-D17	exonic	<i>MED13</i>	nonsynonymous SNV	NM_005121:c.A3689G;p.N1230S	1560555	chr17	60059675	60059675	T	C
ESCC-D17	exonic	<i>WHAMM</i>	nonsynonymous SNV	NM_001080435:c.C1883T;p.T628I		chr15	83499592	83499592	C	T
ESCC-D17	exonic	<i>DMRT2</i>	nonsynonymous SNV	NM_181872:c.G1609A;p.V537M		chr9	1057196	1057196	G	A

ESCC-D17	exonic	<i>HTRA1</i>	nonframeshift deletion	NM_002775:c.1135_1137del;p.379_379del		chr10	124269626	124269628	AAG	-
ESCC-D17	exonic	<i>MCOLN1</i>	nonsynonymous SNV	NM_020533:c.C89T;p.P30L		chr19	7589904	7589904	C	T
ESCC-D17	exonic	<i>FASTKD1</i>	nonsynonymous SNV	NM_024622:c.G953C;p.G318A		chr2	170416915	170416915	C	G
ESCC-D17	exonic	<i>DMD</i>	nonsynonymous SNV	NM_004011:c.A227G;p.D759V		chrX	32235172	32235172	T	A
ESCC-D17	exonic	<i>ZNF180</i>	nonsynonymous SNV	NM_013256:c.G1829T;p.C610F		chr19	44980869	44980869	C	A
ESCC-D17	exonic	<i>DMD</i>	nonsynonymous SNV	NM_004011:c.T227A;p.F758L		chrX	32235174	32235174	A	T
ESCC-D17	exonic	<i>AGMAT</i>	nonsynonymous SNV	NM_024758:c.T1016C;p.L339P		chr1	15900189	15900189	A	G
ESCC-D17	exonic	<i>TMEM39B</i>	nonsynonymous SNV	NM_018056:c.C258G;p.F86L		chr1	32541330	32541330	C	G
ESCC-D17	exonic	<i>EPHB1</i>	nonsynonymous SNV	NM_004441:c.C2336A;p.T779N		chr3	134920521	134920521	C	A
ESCC-D17	exonic	<i>CHD1L</i>	nonframeshift deletion	NM_001256338:c.581_583del;p.194_195del		chr1	146743865	146743867	GAG	-
ESCC-D17	exonic;splicing	<i>NSFL1C;NSFL1C</i>	nonsynonymous SNV	NM_016143:c.C446T;p.P149L		chr20	1434949	1434949	G	A
ESCC-D17	exonic	<i>FASTKD1</i>	nonsynonymous SNV	NM_024622:c.G2509C;p.E837Q		chr2	170386370	170386370	C	G
ESCC-D17	exonic	<i>RBI</i>	nonsynonymous SNV	NM_000321:c.A1664C;p.H555P	687562:906844:907072:90812	chr13	48955548	48955548	A	C
ESCC-D17	splicing	<i>WFDC10B</i>				chr20	44314694	44314694	G	C
ESCC-D17	exonic	<i>ANK2</i>	nonsynonymous SNV	NM_001148:c.G1411T;p.A471S		chr4	114186077	114186077	G	T
ESCC-D17	exonic	<i>SNX31</i>	nonsynonymous SNV	NM_152628:c.G59A;p.R20H		chr8	101661684	101661684	C	T
ESCC-D17	exonic	<i>RTKN</i>	nonsynonymous SNV	NM_001015055:c.G777T;p.L259F		chr2	74656048	74656048	C	A
ESCC-D17	exonic	<i>SEMA4C</i>	nonsynonymous SNV	NM_017789:c.C1631T;p.S544L		chr2	97527357	97527357	G	A
ESCC-D17	exonic	<i>NISCH</i>	nonsynonymous SNV	NM_007184:c.G3089A;p.G1030D		chr3	52522597	52522597	G	A
ESCC-D17	exonic	<i>PLXNA4</i>	nonsynonymous SNV	NM_020911:c.G1587T;p.W529C		chr7	131925842	131925842	C	A
ESCC-D17	exonic	<i>PDZRN3</i>	nonsynonymous SNV	NM_015009:c.T244A;p.C82S		chr3	73673733	73673733	A	T
ESCC-D17	exonic	<i>ADRBK2</i>	nonsynonymous SNV	NM_005160:c.T1895C;p.L632S		chr22	26117354	26117354	T	C
ESCC-D17	exonic	<i>FAM208B</i>	nonsynonymous SNV	NM_017782:c.T4588C;p.S1530P		chr10	5789972	5789972	T	C
ESCC-D17	exonic	<i>BICD2</i>	nonsynonymous SNV	NM_001003800:c.C50A;p.A17E		chr9	95526977	95526977	G	T
ESCC-D17	exonic	<i>KIF11</i>	frameshift deletion	NM_004523:c.1762_1763del;p.588_588del		chr10	94393439	94393440	TC	-
ESCC-D17	exonic	<i>ALG10B</i>	nonsynonymous SNV	NM_001013620:c.C1042A;p.L348I		chr12	38714635	38714635	C	A
ESCC-D17	exonic	<i>ZFYVE26</i>	nonsynonymous SNV	NM_015346:c.G4504A;p.A1502T		chr14	68248115	68248115	C	T
ESCC-D17	exonic	<i>APBA1</i>	nonsynonymous SNV	NM_001163:c.G1679A;p.R560H		chr9	72071272	72071272	C	T
ESCC-D17	exonic	<i>SNX8</i>	nonsynonymous SNV	NM_013321:c.C839T;p.T280M		chr7	2302941	2302941	G	A
ESCC-D18	exonic	<i>DQX1</i>	nonsynonymous SNV	NM_133637:c.T1700G;p.L567R		chr2	74746789	74746789	A	C
ESCC-D18	exonic	<i>OBSCN</i>	nonsynonymous SNV	NM_001098623:c.G20072T;p.S6691I		chr1	228557747	228557747	G	T
ESCC-D18	exonic	<i>SALL3</i>	nonsynonymous SNV	NM_171999:c.C1484T;p.S495L		chr18	76753475	76753475	C	T
ESCC-D18	splicing	<i>FAM194A(NM_152394:exon10:c.1041-1G>T)</i>				chr3	150398326	150398326	C	A
ESCC-D18	exonic	<i>CCR2</i>	nonsynonymous SNV	NM_001123041:c.G730A;p.V244I		chr3	46399748	46399748	G	A
ESCC-D18	exonic	<i>CYP27C1</i>	nonsynonymous SNV	NM_001001665:c.G623A;p.R208Q		chr2	127953007	127953007	C	T
ESCC-D18	exonic	<i>VANGL2</i>	nonsynonymous SNV	NM_020335:c.A1192T;p.M398L		chr1	160393960	160393960	A	T
ESCC-D18	exonic	<i>MCM3AP</i>	nonsynonymous SNV	NM_003906:c.G5798C;p.R1933T		chr21	47655327	47655327	C	G
ESCC-D18	exonic	<i>CDHR1</i>	nonsynonymous SNV	NM_033100:c.T2512G;p.S838A		chr10	85974309	85974309	T	G
ESCC-D18	exonic	<i>ARHGAP29</i>	nonsynonymous SNV	NM_004815:c.T2782G;p.F928V		chr1	94643422	94643422	A	C
ESCC-D18	exonic	<i>LRR61</i>	nonsynonymous SNV	NM_023942:c.C403T;p.R135W		chr7	150034353	150034353	C	T
ESCC-D18	exonic	<i>DKK2</i>	nonsynonymous SNV	NM_014421:c.A526G;p.K176E		chr4	107845705	107845705	T	C
ESCC-D18	splicing	<i>TMED8(NM_213601:exon4:c.198-1G>A)</i>				chr14	77812822	77812822	C	T
ESCC-D18	exonic	<i>ASTN1</i>	nonsynonymous SNV	NM_004319:c.C3394T;p.R1132W		chr1	176845742	176845742	G	A
ESCC-D18	exonic	<i>TFEC</i>	nonsynonymous SNV	NM_001244583:c.G443A;p.R148Q		chr7	115581966	115581966	C	T
ESCC-D18	exonic	<i>GATAD2B</i>	nonsynonymous SNV	NM_020699:c.C28T;p.R10C		chr1	153800796	153800796	G	A
ESCC-D18	exonic	<i>PPM1N</i>	nonsynonymous SNV	NM_001080401:c.C127G;p.R43G		chr19	46001857	46001857	C	G
ESCC-D18	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.G214T;p.E72X		chr17	7578239	7578239	C	A
ESCC-D18	exonic	<i>FSIP2</i>	nonsynonymous SNV	NM_173651:c.C143T;p.A48V		chr2	186603497	186603497	C	T
ESCC-D18	exonic	<i>MKRN3</i>	nonsynonymous SNV	NM_005664:c.C403T;p.P135S		chr15	23811332	23811332	C	T
ESCC-D18	exonic	<i>CYL2</i>	nonsynonymous SNV	NM_001340:c.A65G;p.E22G		chr9	105765430	105765430	A	G
ESCC-D18	exonic	<i>CLCN6</i>	nonsynonymous SNV	NM_001286:c.A2351G;p.D784G		chr1	11898447	11898447	A	G
ESCC-D18	exonic	<i>ATF6</i>	nonsynonymous SNV	NM_007348:c.G1211A;p.R404K		chr1	161816262	161816262	G	A
ESCC-D18	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.G7834C;p.D2612H		chr7	82582435	82582435	C	G
ESCC-D18	exonic	<i>DNAH6</i>	nonsynonymous SNV	NM_001370:c.C6529A;p.Q2177K		chr2	84899525	84899525	C	A

ESCC-D18	exonic	<i>MATN4</i>	nonsynonymous SNV	NM_030592:c.T1120G;p.F374V	chr20	43926870	43926870	A	C
ESCC-D18	exonic	<i>WDR66</i>	nonsynonymous SNV	NM_144668:c.C3248G;p.T1083R	chr12	122439415	122439415	C	G
ESCC-D18	exonic	<i>CKAR</i>	nonsynonymous SNV	NM_000730:c.C1033T;p.R345C	chr4	26483514	26483514	G	A
ESCC-D18	exonic	<i>DCAF4L2</i>	nonsynonymous SNV	NM_152418:c.C197T;p.P66L	chr8	88886003	88886003	G	A
ESCC-D18	exonic	<i>EPPK1</i>	nonsynonymous SNV	NM_031308:c.G6716A;p.R2239H	chr8	144940706	144940706	C	T
ESCC-D18	exonic	<i>BCAT1</i>	nonsynonymous SNV	NM_001178092:c.C281T;p.S94L	chr12	25031510	25031510	G	A
ESCC-D18	exonic	<i>ASPH</i>	nonsynonymous SNV	NM_001164754:c.G805T;p.V269L	chr8	62550533	62550533	C	A
ESCC-D18	exonic	<i>ATP8B3</i>	nonsynonymous SNV	NM_001178002:c.C3634T;p.R1212C	chr19	1783185	1783185	G	A
ESCC-D18	exonic	<i>CEACAM18</i>	nonframeshift deletion	NM_001080405:c.1077_1079del;p.359_360del	chr19	51986491	51986493	GGA	-
ESCC-D18	splicing	<i>ROBO2(NM_002942:exon8:c.1060-1G>A;NM_001128929:exon7:c.1001-1G>A)</i>			chr3	77599968	77599968	G	A
ESCC-D18	exonic	<i>FBN2</i>	nonsynonymous SNV	NM_001999:c.G4552C;p.D1518H	chr5	127654613	127654613	C	G
ESCC-D18	exonic	<i>C22orf25</i>	nonsynonymous SNV	NM_152906:c.G156A;p.M52I	chr22	20039998	20039998	G	A
ESCC-D18	exonic	<i>C5orf42</i>	stopgain SNV	NM_023073:c.C5839T;p.Q1947X	chr5	37177784	37177784	G	A
ESCC-D18	exonic	<i>MAPI5</i>	nonsynonymous SNV	NM_018174:c.C2096T;p.S699L	chr19	17838289	17838289	C	T
ESCC-D18	exonic	<i>RP1L1</i>	nonsynonymous SNV	NM_178857:c.G3935A;p.G1312E	chr8	10467673	10467673	C	T
ESCC-D18	exonic	<i>ATG7</i>	nonsynonymous SNV	NM_001144912:c.G695C;p.R232P	chr3	11374490	11374490	G	C
ESCC-D18	exonic	<i>KPNB1</i>	nonsynonymous SNV	NM_002265:c.G2333C;p.G778A	chr17	45755759	45755759	G	C
ESCC-D18	exonic	<i>ZNF107</i>	nonsynonymous SNV	NM_001013746:c.G1579A;p.E527K	chr7	64168261	64168261	G	A
ESCC-D18	exonic	<i>UHRF1</i>	unknown	UNKNOWN	chr19	4960731	4960731	G	T
ESCC-D18	exonic	<i>MRPL28</i>	nonsynonymous SNV	NM_006428:c.G244A;p.G82S	chr16	419975	419975	C	T
ESCC-D18	exonic	<i>SCD5</i>	nonsynonymous SNV	NM_001037582:c.G955A;p.E319K	chr4	83552518	83552518	C	T
ESCC-D18	exonic	<i>HOXB2</i>	nonsynonymous SNV	NM_002145:c.A170G;p.Q57R	chr17	46622104	46622104	T	C
ESCC-D18	exonic	<i>GPR112</i>	nonsynonymous SNV	NM_153834:c.G8521T;p.V2841F	chrX	135482221	135482221	G	T
ESCC-D18	exonic	<i>FND1</i>	nonsynonymous SNV	NM_032532:c.A4429G;p.T1477A	chr6	159660797	159660797	A	G
ESCC-D18	exonic	<i>SLC2A7</i>	nonsynonymous SNV	NM_207420:c.C143G;p.P48R	chr1	9085042	9085042	G	C
ESCC-D18	exonic	<i>SEC22B</i>	unknown	UNKNOWN	chr1	145115815	145115815	A	C
ESCC-D18	exonic	<i>TMEM184A</i>	nonsynonymous SNV	NM_001097620:c.C1166G;p.P389R	chr7	1586664	1586664	G	C
ESCC-D18	exonic	<i>NDOR1</i>	nonsynonymous SNV	NM_001144026:c.G236A;p.R79Q	chr9	140106976	140106976	G	A
ESCC-D18	exonic	<i>TP53</i>	frameshift deletion	NM_001126115:c.290delG;p.C97fs	chr17	7577595	7577595	C	-
ESCC-D18	exonic	<i>ZNF717</i>	stopgain SNV	NM_001128223:c.A2518T;p.K840X	chr3	75786256	75786256	T	A
ESCC-D18	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.T289A;p.C97S	chr17	7577596	7577596	A	T
ESCC-D18	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.A6219C;p.Q2073H	chr11	1016582	1016582	A	G
ESCC-D18	exonic	<i>GSTM1</i>	nonsynonymous SNV	NM_000561:c.C4A;p.P2T	chr1	110230499	110230499	C	A
ESCC-D18	exonic	<i>ABCD1</i>	nonsynonymous SNV	NM_000033:c.G254A;p.R85Q	chrX	152990975	152990975	G	A
ESCC-D18	exonic	<i>OR6X1</i>	stopgain SNV	NM_001005188:c.T191A;p.L64X	chr11	123625036	123625036	A	T
ESCC-D18	exonic	<i>HAND2</i>	nonsynonymous SNV	NM_021973:c.G50A;p.G17D	chr4	174450391	174450391	C	T
ESCC-D18	exonic	<i>C8orf45</i>	stopgain SNV	NM_001136160:c.C1368A;p.C456X	chr8	67808493	67808493	C	A
ESCC-D18	exonic	<i>THSD4</i>	nonsynonymous SNV	NM_024817:c.C2829A;p.D943E	chr15	72063462	72063462	C	A
ESCC-D18	exonic	<i>RRM2</i>	nonsynonymous SNV	NM_001034:c.A227C;p.N76T	chr2	10263566	10263566	A	C
ESCC-D18	exonic	<i>CCDC137</i>	stopgain SNV	NM_199287:c.C674A;p.S225X	chr17	79639538	79639538	C	A
ESCC-D18	exonic	<i>BCO2</i>	nonsynonymous SNV	NM_001256400:c.C5T;p.A2V	chr11	112064223	112064223	C	T
ESCC-D18	exonic	<i>ASPN</i>	nonsynonymous SNV	NM_001193335:c.T117A;p.D39E	chr9	95237063	95237063	A	T
ESCC-D18	splicing	<i>COL24A1(NM_152890:exon4:c.1491+1G>A)</i>			chr1	86590527	86590527	C	T
ESCC-D18	exonic	<i>XPO1</i>	nonsynonymous SNV	NM_003400:c.A1871G;p.D624G	chr2	61719186	61719186	T	C
ESCC-D19	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.G17693T;p.R5898L	chr5	90151656	90151656	G	T
ESCC-D19	exonic	<i>SNTG2</i>	stopgain SNV	NM_018968:c.A487T;p.K163X	chr2	1161309	1161309	A	T
ESCC-D19	exonic	<i>AFF2</i>	nonsynonymous SNV	NM_001170628:c.A2735G;p.K912R	chrX	148069085	148069085	A	G
ESCC-D19	exonic	<i>BTRC</i>	nonsynonymous SNV	NM_003939:c.G770C;p.R257T	chr10	103292089	103292089	T	C
ESCC-D19	exonic	<i>NUDT2</i>	nonsynonymous SNV	NM_001244390:c.T293G;p.V98G	chr9	34343287	34343287	T	G
ESCC-D20	exonic	<i>SON</i>	nonsynonymous SNV	NM_032195:c.G3159C;p.M1053I	chr21	34924696	34924696	G	C
ESCC-D20	exonic	<i>KIF13A</i>	nonsynonymous SNV	NM_001105566:c.G1315C;p.G439R	chr6	17831418	17831418	C	G
ESCC-D20	exonic	<i>FAM205A</i>	nonsynonymous SNV	NM_001141917:c.C509T;p.P170L	chr9	34726728	34726728	G	A
ESCC-D20	exonic	<i>CTSK</i>	nonsynonymous SNV	NM_000396:c.G77T;p.W26L	chr1	150779205	150779205	C	A
ESCC-D20	exonic	<i>DNAH9</i>	nonsynonymous SNV	NM_001372:c.G10630A;p.E3544K	chr17	11784554	11784554	G	A

ESCC-D20	exonic	LAMA3	stopgain SNV	NM_001127717:c.C315A;p.C105X	chr18	21293904	21293904	C	A
ESCC-D20	exonic	PIPSK1B	nonsynonymous SNV	NM_003558:c.C323T;p.S108F	chr9	71503901	71503901	C	T
ESCC-D20	exonic	FNIP1	nonsynonymous SNV	NM_001008738:c.G788A;p.R263H	chr5	131042146	131042146	C	T
ESCC-D20	exonic	TIN	nonsynonymous SNV	NM_003319:c.G7906A;p.E26336K	chr2	179395141	179395141	C	T
ESCC-D20	exonic	MFP3K15	nonsynonymous SNV	NM_001001671:c.G1295C;p.S432T	chrX	19443793	19443793	C	G
ESCC-D20	exonic	SLCO1C1	nonsynonymous SNV	NM_001145944:c.C219G;p.F73L	chr12	20868116	20868116	C	G
ESCC-D20	exonic	IL19	nonsynonymous SNV	NM_153758:c.G417C;p.L139F	chr1	207013287	207013287	G	C
ESCC-D20	exonic	PTP22	nonsynonymous SNV	NM_012411:c.C1576T;p.H526Y	chr1	114380281	114380281	G	A
ESCC-D20	exonic	CCT8L2	nonsynonymous SNV	NM_014406:c.A899T;p.D300V	chr22	17072542	17072542	T	A
ESCC-D20	exonic	LPIN2	nonsynonymous SNV	NM_014646:c.G470A;p.R157Q	chr18	2951173	2951173	C	T
ESCC-D20	exonic	BBS12	stopgain SNV	NM_152618:c.G214T;p.E72X	chr4	123663261	123663261	G	T
ESCC-D20	exonic	PNMAL1	nonsynonymous SNV	NM_001103149:c.C998G;p.S333C	chr19	46973295	46973295	G	C
ESCC-D20	exonic	CWC27	nonsynonymous SNV	NM_005869:c.C244A;p.P82T	chr5	64077852	64077852	C	A
ESCC-D20	exonic	FAT1	frameshift deletion	NM_005245:c.1052_1053del;p.251_351del	chr4	187629929	187629930	TT	-
ESCC-D20	exonic	CEP95	nonsynonymous SNV	NM_138363:c.G1911C;p.K637N	chr17	62529303	62529303	G	C
ESCC-D20	exonic	ZC3H11A	nonsynonymous SNV	NM_014827:c.G669C;p.K223N	chr1	203799300	203799300	G	C
ESCC-D20	splicing	SELENBP1(NM_003944:exon6:c.481+2T>C)			chr1	151340673	151340673	A	G
ESCC-D20	exonic	PLSCR2	nonsynonymous SNV	NM_001199979:c.C743G;p.S248C	chr3	146167102	146167102	G	C
ESCC-D20	exonic	PIK3CA	nonsynonymous SNV	NM_002645:c.C3523G;p.L1175V	chr11	17132000	17132000	G	C
ESCC-D20	exonic	ZNF749	nonsynonymous SNV	NM_001023561:c.C2267A;p.S756Y	chr19	57956783	57956783	C	A
ESCC-D20	exonic	PCDH20	nonsynonymous SNV	NM_022843:c.C2205G;p.I732M	chr13	61986027	61986027	G	C
ESCC-D20	exonic	TBC1D1	nonsynonymous SNV	NM_001253912:c.G64C;p.G22R	chr4	37903780	37903780	G	C
ESCC-D20	exonic	STR3	nonsynonymous SNV	NM_001083893:c.G795A;p.M265I	chr14	31405752	31405752	C	T
ESCC-D20	exonic	ABCA13	nonsynonymous SNV	NM_152701:c.G3907C;p.D1303H	chr7	48313170	48313170	G	C
ESCC-D20	exonic	LYZ	nonsynonymous SNV	NM_000239:c.C355A;p.R119S	chr12	69746053	69746053	C	A
ESCC-D20	exonic	MYH8	nonsynonymous SNV	NM_002472:c.C2585G;p.T862S	chr17	10307750	10307750	G	C
ESCC-D20	exonic	EPT1	unknown	UNKNOWN	chr2	26611969	26611971	TAA	-
ESCC-D20	exonic	C18orf63	nonsynonymous SNV	NM_001174123:c.C1199T;p.S400F	chr18	72020701	72020701	C	T
ESCC-D20	exonic	COPS2	nonsynonymous SNV	NM_001143887:c.C1032G;p.I344M	chr15	49422950	49422950	G	C
ESCC-D20	exonic	NMD3	frameshift insertion	NM_015938:c.1475_1476insT;p.D492fs	chr3	160968661	160968661	-	T
ESCC-D20	exonic	PCSK5	nonsynonymous SNV	NM_001190482:c.G5413C;p.D1805H	chr9	78973668	78973668	G	C
ESCC-D20	exonic	PLXNA1	nonframeshift deletion	NM_032242:c.828_830del;p.276_277del	chr3	126708264	126708266	CTT	-
ESCC-D20	exonic	GRHL1	stopgain SNV	NM_198182:c.C1606T;p.R536X	chr2	10136458	10136458	C	T
ESCC-D20	exonic	FLT1	nonsynonymous SNV	NM_001160030:c.C2071G;p.Q691E	chr13	28959067	28959067	G	C
ESCC-D20	exonic	TTC18	nonsynonymous SNV	NM_145170:c.C2990G;p.S997C	chr10	75034246	75034246	G	C
ESCC-D20	exonic	GPR98	nonsynonymous SNV	NM_032119:c.G790A;p.E2664K	chr5	89992798	89992798	G	A
ESCC-D20	exonic	ZNF554	nonsynonymous SNV	NM_001102651:c.C1052G;p.P351R	chr19	2834285	2834285	C	G
ESCC-D20	exonic	PAPLN	nonsynonymous SNV	NM_173462:c.A623G;p.N208S	chr14	73718405	73718405	A	G
ESCC-D20	exonic	PTPN13	nonsynonymous SNV	NM_006264:c.C3041G;p.S1014C	chr4	87672013	87672013	C	G
ESCC-D20	exonic	TMEM2	nonsynonymous SNV	NM_001135820:c.C1534A;p.H512N	chr9	74345671	74345671	G	T
ESCC-D20	exonic	CREBZF	nonsynonymous SNV	NM_001039618:c.C966G;p.D322E	chr11	85374954	85374954	G	C
ESCC-D20	exonic	MUC5B	nonsynonymous SNV	NM_002458:c.G13033A;p.V4345M	chr11	1271143	1271143	G	A
ESCC-D20	exonic	MAGEC1	nonsynonymous SNV	NM_005462:c.C2165T;p.S722F	chrX	140995355	140995355	C	T
ESCC-D20	exonic	IQGAP1	nonsynonymous SNV	NM_003870:c.A3119G;p.Q1040R	chr15	91020911	91020911	A	G
ESCC-D20	exonic	DNMT1	nonframeshift deletion	NM_001379:c.2999_3001del;p.1000_1001del	chr19	10254509	10254511	AGA	-
ESCC-D20	exonic	OR8B8	nonsynonymous SNV	NM_012378:c.T304C;p.F102L	chr11	124310678	124310678	A	G
ESCC-D20	exonic	OR52E2	nonsynonymous SNV	NM_001005164:c.A953T;p.E318V	chr11	5079905	5079905	T	A
ESCC-D20	exonic	FAM91A1	nonsynonymous SNV	NM_144963:c.G94A;p.E32K	chr8	124786341	124786341	G	A
ESCC-D20	exonic	TIN	frameshift deletion	NM_003319:c.58420_58421del;p.19474_19474del	chr2	179425243	179425244	CT	-
ESCC-D20	exonic	SCN5A	nonsynonymous SNV	NM_000335:c.G1492T;p.D498Y	chr3	38646246	38646246	C	A
ESCC-D20	exonic:splicing	PAX3:PAX3	nonsynonymous SNV	NM_181460:c.C1204T;p.L402F	chr2	223066131	223066131	G	A
ESCC-D20	exonic	MYT1L	nonsynonymous SNV	NM_015025:c.C2399T;p.A800V	chr2	1893128	1893128	G	A
ESCC-D20	exonic	SCN5A	nonsynonymous SNV	NM_000335:c.A1493T;p.D498V	chr3	38646245	38646245	T	A
ESCC-D20	exonic	PDE6C	nonsynonymous SNV	NM_006204:c.G205T;p.V69L	chr10	95372687	95372687	G	T

ESCC-D20	exonic	<i>CSTF2T</i>	nonframeshift deletion	NM_015235:c.292_294del:p.98_98del		chr10	53459016	53459018	CTT	-
ESCC-D20	exonic	<i>KLHL20</i>	nonframeshift deletion	NM_014458:c.1374_1376del:p.458_459del		chr1	173743522	173743524	AGG	-
ESCC-D20	exonic	<i>ZNF160</i>	nonsynonymous SNV	NM_033288:c.A848G:p.K283R		chr19	53572939	53572939	T	C
ESCC-D20	exonic	<i>ENOX2</i>	nonsynonymous SNV	NM_006375:c.G1178A:p.R393H		chrX	129771336	129771336	C	T
ESCC-D20	exonic	<i>ADCY10</i>	nonsynonymous SNV	NM_001167749:c.T524G:p.F175C		chr1	167852712	167852712	A	C
ESCC-D20	exonic	<i>UNC79</i>	nonsynonymous SNV	NM_020818:c.C1267G:p.L423V		chr14	94038282	94038282	C	G
ESCC-D20	splicing	<i>FRG1(NM_004477:exon5:c.432+1G>C)</i>				chr4	190876307	190876307	G	C
ESCC-D20	exonic	<i>CCDC93</i>	nonsynonymous SNV	NM_019044:c.G1758A:p.M586I		chr2	118688697	118688697	C	T
ESCC-D20	exonic	<i>ZBBX</i>	nonframeshift deletion	NM_001199201:c.453_455del:p.151_152del		chr3	167068281	167068283	TCT	-
ESCC-D20	exonic	<i>PPFIA1</i>	nonsynonymous SNV	NM_003626:c.A1066G:p.M356V		chr11	70176414	70176414	A	G
ESCC-D20	exonic	<i>AKAP9</i>	nonsynonymous SNV	NM_005751:c.G1031T:p.G3438V		chr7	91726586	91726586	G	T
ESCC-D20	exonic	<i>IFLTD1</i>	nonsynonymous SNV	NM_001145727:c.G647A:p.R216Q		chr12	25672909	25672909	C	T
ESCC-D20	exonic	<i>ZNF165</i>	nonsynonymous SNV	NM_003447:c.G607C:p.E203Q		chr6	28056397	28056397	G	C
ESCC-D20	exonic	<i>PIGK</i>	stopgain SNV	NM_005482:c.T276A:p.C92X		chr1	77635044	77635044	A	T
ESCC-D20	exonic	<i>RNF216</i>	frameshift deletion	NM_207111:c.1820_1821del:p.607_607del		chr7	5754696	5754697	AA	-
ESCC-D20	exonic	<i>C2orf55</i>	nonsynonymous SNV	NM_207362:c.G35A:p.R12Q		chr2	99463229	99463229	C	T
ESCC-D20	exonic;splicing	<i>EMR3;EMR3</i>	stopgain SNV	NM_032571:c.C1483T:p.R495X		chr19	14748918	14748918	G	A
ESCC-D20	exonic	<i>PITRM1</i>	nonsynonymous SNV	NM_001242309:c.G928A:p.E310K		chr10	3201218	3201218	C	T
ESCC-D20	exonic	<i>SLCA1</i>	stopgain SNV	NM_001112801:c.G2755T:p.E919X		chr2	40342521	40342521	C	A
ESCC-D20	exonic	<i>TMEM104</i>	nonsynonymous SNV	NM_017728:c.C1481G:p.T494S		chr17	72832816	72832816	C	G
ESCC-D20	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_052900:c.G9706A:p.E3236K		chr8	113259258	113259258	C	T
ESCC-D20	exonic	<i>OR4D6</i>	nonsynonymous SNV	NM_001004708:c.C850A:p.P284T		chr11	59225283	59225283	C	A
ESCC-D20	exonic	<i>SENP3</i>	nonsynonymous SNV	NM_015670:c.C1508T:p.A503V		chr17	7474027	7474027	C	T
ESCC-D20	exonic	<i>FTSJ3</i>	nonsynonymous SNV	NM_017647:c.C90G:p.F30L		chr17	61904010	61904010	G	C
ESCC-D20	exonic	<i>PDE3B</i>	nonframeshift deletion	NM_000922:c.1992_1994del:p.664_665del		chr11	14853221	14853223	AGA	-
ESCC-D20	exonic	<i>MARCH5</i>	frameshift deletion	NM_017824:c.403_404del:p.135_135del		chr10	94109139	94109140	GA	-
ESCC-D20	exonic	<i>ORF1</i>	nonsynonymous SNV	NM_012360:c.C93A:p.F31L		chr16	3254339	3254339	C	A
ESCC-D20	exonic	<i>CCNB1IP1</i>	nonsynonymous SNV	NM_182849:c.G688C:p.D230H		chr14	20779855	20779855	C	G
ESCC-D20	exonic	<i>C10orf71</i>	nonsynonymous SNV	NM_001135196:c.C3128A:p.P1043H		chr10	50533718	50533718	C	A
ESCC-D20	exonic	<i>GNAO1</i>	nonsynonymous SNV	NM_020988:c.G694C:p.D232H		chr16	56370743	56370743	G	C
ESCC-D20	exonic	<i>RNF175</i>	nonsynonymous SNV	NM_173662:c.G521C:p.R174T		chr4	154641445	154641445	C	G
ESCC-D20	exonic	<i>NLGN1</i>	nonsynonymous SNV	NM_014932:c.C242G:p.L81R		chr3	173322630	173322630	T	G
ESCC-D20	exonic	<i>ADH4</i>	nonsynonymous SNV	NM_000670:c.G226A:p.E76K		chr4	100062728	100062728	C	T
ESCC-D20	exonic	<i>TMEM177</i>	nonsynonymous SNV	NM_001105198:c.C667G:p.L223V		chr2	120439096	120439096	C	G
ESCC-D20	exonic	<i>SMTNL2</i>	nonsynonymous SNV	NM_001114974:c.T357C:p.V186A		chr17	4496293	4496293	T	C
ESCC-D20	exonic	<i>PCDHA2</i>	nonsynonymous SNV	NM_018905:c.G199T:p.A67S		chr5	140174748	140174748	C	T
ESCC-D20	exonic	<i>SMARCA1</i>	nonframeshift deletion	NM_003069:c.169_171del:p.57_57del		chrX	128657177	128657179	CTT	-
ESCC-D20	exonic	<i>CDH23</i>	nonsynonymous SNV	NM_001171933:c.G2617C:p.D873H		chr10	73571729	73571729	G	C
ESCC-D20	exonic	<i>DDX5</i>	frameshift deletion	NM_004396:c.440_441del:p.147_147del		chr17	62500099	62500102	ACAG	-
ESCC-D20	exonic	<i>IL16</i>	nonsynonymous SNV	NM_004513:c.C683G:p.P228R		chr15	81592453	81592453	C	G
ESCC-D20	exonic	<i>DDX42</i>	frameshift deletion	NM_203499:c.641_642del:p.214_214del		chr17	61882450	61882451	AA	-
ESCC-D20	exonic	<i>OR2B2</i>	nonsynonymous SNV	NM_033057:c.C768G:p.I256M		chr6	27879330	27879330	G	C
ESCC-D20	exonic	<i>PLEC</i>	nonsynonymous SNV	NM_201378:c.C391G:p.Q131E		chr8	145011149	145011149	G	C
ESCC-D20	exonic	<i>RNF213</i>	nonsynonymous SNV	NM_001256071:c.A1382T:p.E461V		chr17	78265537	78265537	A	T
ESCC-D20	exonic	<i>KLHL3</i>	nonsynonymous SNV	NM_017415:c.C1733T:p.A578V		chr5	136961444	136961444	G	A
ESCC-D20	exonic	<i>HIFOO</i>	nonsynonymous SNV	NM_153833:c.G961T:p.A321S		chr3	129270103	129270103	G	T
ESCC-D20	exonic	<i>ARHGAP31</i>	nonsynonymous SNV	NM_020754:c.C3964T:p.L1322F		chr3	119134740	119134740	C	T
ESCC-D20	exonic	<i>HHAT</i>	nonsynonymous SNV	NM_001170564:c.G768C:p.W256C		chr1	210761377	210761377	G	C
ESCC-D20	exonic	<i>CRB1</i>	nonsynonymous SNV	NM_001193640:c.C3681G:p.D1227E		chr1	197446805	197446805	C	G
ESCC-D20	exonic	<i>TRHDE</i>	nonsynonymous SNV	NM_013381:c.T598C:p.F200L		chr12	72667156	72667156	T	C
ESCC-D20	exonic	<i>HUWE1</i>	nonsynonymous SNV	NM_031407:c.G9144T:p.Q3048H		chrX	53578103	53578103	C	A
ESCC-D20	exonic	<i>SLCA8</i>	nonsynonymous SNV	NM_001039960:c.A653G:p.K218R		chr12	51851213	51851213	A	G
ESCC-D20	exonic	<i>PJA1</i>	stopgain SNV	NM_001032396:c.G1014A:p.W338X		chrX	68381903	68381903	C	T
ESCC-D20	exonic	<i>JPP</i>	nonsynonymous SNV	NM_001145349:c.G250A:p.E84K		chr1	46211834	46211834	C	T

ESCC-D20	exonic	<i>ENTPD4</i>	nonsynonymous SNV	NM_001128930:c.G1382T;p.R461L		chr8	23292959	23292959	C	A
ESCC-D20	exonic	<i>STK38</i>	nonframeshift deletion	NM_007271:c.655_657del;p.219_219del		chr6	36483127	36483129	AAG	-
ESCC-D20	exonic	<i>VSIG8</i>	nonsynonymous SNV	NM_001013661:c.A679C;p.K227Q		chr1	159826407	159826407	T	G
ESCC-D20	exonic	<i>SLC26A8</i>	nonsynonymous SNV	NM_138718:c.T1835A;p.L612Q		chr6	35923011	35923011	A	T
ESCC-D20	exonic	<i>DDX1</i>	frameshift deletion	NM_004939:c.834_837del;p.278_279del		chr2	15747315	15747318	ACAA	-
ESCC-D20	exonic	<i>PWIL3</i>	nonsynonymous SNV	NM_001008496:c.A65G;p.E22G		chr22	25158402	25158402	T	C
ESCC-D20	exonic	<i>GIMAP4</i>	nonsynonymous SNV	NM_018326:c.T362C;p.V121A		chr7	150269520	150269520	T	C
ESCC-D20	exonic	<i>THOC1</i>	nonsynonymous SNV	NM_005131:c.G99T;p.L33F		chr18	265486	265486	C	A
ESCC-D20	exonic	<i>ZNF229</i>	nonsynonymous SNV	NM_014518:c.C880G;p.Q294E		chr19	44934076	44934076	G	C
ESCC-D20	exonic	<i>RARGAP1L</i>	stopgain SNV	NM_014857:c.C1821A;p.C607X		chr1	174606623	174606623	C	A
ESCC-D20	exonic	<i>NCKAP1</i>	nonsynonymous SNV	NM_013436:c.T3095C;p.L1032S		chr2	183792930	183792930	A	G
ESCC-D20	exonic	<i>ZNF500</i>	nonsynonymous SNV	NM_021646:c.C701T;p.S234F		chr16	4810552	4810552	G	A
ESCC-D20	exonic	<i>ARHGFE17</i>	frameshift deletion	NM_014786:c.1844delC;p.A615fs		chr11	73021527	73021527	C	-
ESCC-D20	exonic	<i>RPLP0</i>	frameshift deletion	NM_001002:c.244_245del;p.82_82del		chr12	120636994	120636995	AT	-
ESCC-D20	exonic	<i>ARHGAP31</i>	frameshift insertion	NM_020754:c.3961_3962insT;p.L1321fs		chr3	119134737	119134737	-	T
ESCC-D20	exonic	<i>URB1</i>	nonsynonymous SNV	NM_014825:c.G5814C;p.Q1938H		chr21	33690207	33690207	C	G
ESCC-D20	exonic	<i>NUFIP2</i>	frameshift deletion	NM_020772:c.1925_1926del;p.642_642del		chr17	27613086	27613087	TC	-
ESCC-D20	exonic	<i>PGM2L1</i>	nonsynonymous SNV	NM_173582:c.G1099C;p.D367H		chr11	74056633	74056633	C	G
ESCC-D20	exonic	<i>ZFP62</i>	stopgain SNV	NM_001172638:c.G2260T;p.E754X		chr5	180276235	180276235	C	A
ESCC-D20	exonic	<i>LAMB2</i>	nonsynonymous SNV	NM_002292:c.C1992G;p.I664M		chr3	49165917	49165917	G	C
ESCC-D20	exonic	<i>RAP1B</i>	nonsynonymous SNV	NM_001010942:c.G5T;p.R2L		chr12	69042509	69042509	G	T
ESCC-D20	exonic	<i>EPHB6</i>	nonsynonymous SNV	NM_004445:c.G1193C;p.R398P		chr7	142563805	142563805	G	C
ESCC-D20	exonic	<i>B3GAT2</i>	nonsynonymous SNV	NM_080742:c.C935A;p.P312Q		chr6	71571403	71571403	G	T
ESCC-D20	exonic	<i>HAPLN1</i>	nonframeshift deletion	NM_001884:c.18_20del;p.6_7del		chr5	82969323	82969325	AGA	-
ESCC-D20	exonic	<i>NFE2L3</i>	nonsynonymous SNV	NM_004289:c.C780G;p.F260L		chr7	26223350	26223350	C	G
ESCC-D20	exonic	<i>KDM6A</i>	nonframeshift insertion	NM_021140:c.3726_3727insCCA;p.G1242delinsGP		chrX	44949165	44949165	-	CCA
ESCC-D20	exonic	<i>ME3</i>	nonsynonymous SNV	NM_001014811:c.G421A;p.V141M		chr11	86267641	86267641	C	T
ESCC-D20	exonic	<i>PCDH10</i>	nonframeshift deletion	NM_020815:c.2228_2230del;p.743_744del		chr4	134073523	134073525	AGA	-
ESCC-D20	exonic	<i>MTERFD1</i>	frameshift deletion	NM_015942:c.466_467del;p.156_156del		chr8	97269210	97269211	AG	-
ESCC-D20	exonic	<i>TEK4</i>	nonsynonymous SNV	NM_144705:c.A1226G;p.N409S		chr2	95542432	95542432	A	G
ESCC-D20	exonic	<i>PLEKHA3</i>	nonsynonymous SNV	NM_019099:c.T466G;p.S156A		chr2	179360238	179360238	T	G
ESCC-D20	exonic	<i>ALPK3</i>	nonsynonymous SNV	NM_020778:c.C558T;p.L1863F		chr15	85411550	85411550	C	T
ESCC-D20	exonic	<i>SSFA2</i>	nonsynonymous SNV	NM_001130445:c.G1504T;p.A502S		chr2	182778589	182778589	G	T
ESCC-D20	exonic	<i>VRK3</i>	nonsynonymous SNV	NM_001025778:c.C231G;p.S77R		chr19	50510992	50510992	G	C
ESCC-D20	exonic	<i>TBRG1</i>	nonframeshift deletion	NM_032811:c.216_218del;p.72_73del		chr11	124494892	124494894	AAG	-
ESCC-D21	exonic	<i>JAGN1</i>	stopgain SNV	NM_032492:c.C217T;p.Q73X		chr3	9934726	9934726	C	T
ESCC-D21	exonic	<i>RCOR3</i>	nonsynonymous SNV	NM_018254:c.C1469T;p.S490L		chr1	211487091	211487091	C	T
ESCC-D21	exonic	<i>PKN3</i>	nonsynonymous SNV	NM_013355:c.G2486A;p.R829H		chr9	131482701	131482701	G	A
ESCC-D21	exonic	<i>C9orf84</i>	stopgain SNV	NM_001080551:c.C2068T;p.Q690X		chr9	114476763	114476763	G	A
ESCC-D21	exonic	<i>RBM12B</i>	nonsynonymous SNV	NM_203390:c.A149T;p.D50V		chr8	94748490	94748490	T	A
ESCC-D21	exonic	<i>ADCY8</i>	nonsynonymous SNV	NM_001115:c.G2128A;p.E710K		chr8	131880174	131880174	C	T
ESCC-D21	exonic	<i>KLHDC7A</i>	nonsynonymous SNV	NM_152375:c.C272G;p.A91G		chr1	18807747	18807747	C	G
ESCC-D21	exonic	<i>CLN8</i>	nonsynonymous SNV	NM_018941:c.G349A;p.E117K		chr8	1719569	1719569	G	A
ESCC-D21	exonic	<i>NBEA</i>	nonsynonymous SNV	NM_001204197:c.C1073T;p.S358F		chr13	36220472	36220472	C	T
ESCC-D21	exonic	<i>GPBAR1</i>	nonsynonymous SNV	NM_001077191:c.C373T;p.R125W		chr2	219127820	219127820	C	T
ESCC-D21	exonic	<i>LOC643802</i>	nonsynonymous SNV	NM_001207030:c.G19C;p.E7Q		chr16	53404883	53404883	C	G
ESCC-D21	exonic	<i>SEC62</i>	nonsynonymous SNV	NM_003262:c.C830T;p.S277F		chr3	169710481	169710481	C	T
ESCC-D21	exonic	<i>LBX1</i>	nonsynonymous SNV	NM_006562:c.G532A;p.A178T		chr10	102987341	102987341	C	T
ESCC-D21	exonic	<i>GPR124</i>	nonsynonymous SNV	NM_032777:c.A2074G;p.T692A		chr8	37695272	37695272	A	G
ESCC-D21	exonic	<i>MAGEC1</i>	nonsynonymous SNV	NM_005462:c.G3283A;p.V1095I		chrX	140996473	140996473	G	A
ESCC-D21	exonic	<i>ANKRD50</i>	nonsynonymous SNV	NM_001167882:c.C2647G;p.Q883E		chr4	125591248	125591248	G	C
ESCC-D21	exonic	<i>HPS5</i>	nonsynonymous SNV	NM_007216:c.C2008T;p.L670F		chr11	18313079	18313079	G	A
ESCC-D21	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C97T;p.Q33X	724855;905938;907276;90970	chr17	7578437	7578437	G	A
ESCC-D21	exonic	<i>SLC39A13</i>	nonsynonymous SNV	NM_001128225:c.C931T;p.P311S		chr11	47436601	47436601	C	T

ESCC-D21	exonic	<i>MLLT10</i>	stopgain SNV	NM_001195626:c.1969T:p.Q657X		chr10	22015263	22015263	C	T
ESCC-D21	exonic	<i>TIPARP</i>	nonsynonymous SNV	NM_001184717:c.G1622A:p.G541E		chr3	156422568	156422568	G	A
ESCC-D21	exonic:splicing	<i>OBSCN;OBSCN</i>	nonsynonymous SNV	NM_001098623:c.C18937T:p.R6313W		chr1	228552777	228552777	C	T
ESCC-D21	exonic	<i>GK2</i>	nonsynonymous SNV	NM_033214:c.C761G:p.S254C		chr4	80328594	80328594	G	C
ESCC-D21	exonic	<i>TIPARP</i>	nonsynonymous SNV	NM_001184717:c.G1597A:p.G533R		chr3	156422543	156422543	G	A
ESCC-D21	exonic	<i>TIPARP</i>	nonsynonymous SNV	NM_001184717:c.G1598A:p.G533E		chr3	156422544	156422544	G	A
ESCC-D21	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.G22213A:p.E7405K		chr6	152534815	152534815	C	T
ESCC-D21	exonic	<i>NLRCA</i>	nonsynonymous SNV	NM_001199138:c.G723C:p.Q241H	1280820	chr2	32476210	32476210	C	G
ESCC-D21	exonic	<i>VCFIP1</i>	nonsynonymous SNV	NM_025054:c.G692C:p.R231P		chr8	67578502	67578502	C	G
ESCC-D21	exonic	<i>ZC3H14</i>	nonsynonymous SNV	NM_001160103:c.C724T:p.H242Y		chr14	89039214	89039214	C	T
ESCC-D21	exonic	<i>GABRG2</i>	nonsynonymous SNV	NM_000816:c.T656C:p.V219A	1604868	chr5	161530919	161530919	T	C
ESCC-D21	exonic	<i>FAT2</i>	nonsynonymous SNV	NM_001447:c.C8066A:p.P2689Q		chr5	150922622	150922622	G	T
ESCC-D21	exonic	<i>ADAMTSL4</i>	nonsynonymous SNV	NM_019032:c.G1957A:p.A653T		chr1	150529721	150529721	G	A
ESCC-D21	exonic	<i>MGAT9C</i>	nonsynonymous SNV	NM_013244:c.C1260A:p.S420R		chr12	86373244	86373244	G	T
ESCC-D21	exonic	<i>KIAA0947</i>	nonsynonymous SNV	NM_015325:c.G4671C:p.K1557N		chr5	5464118	5464118	G	C
ESCC-D21	exonic	<i>PAMR1</i>	nonsynonymous SNV	NM_001001991:c.T358A:p.W120R		chr11	35513614	35513614	A	T
ESCC-D21	exonic	<i>VPS13B</i>	stopgain SNV	NM_015243:c.C1550G:p.S517X		chr8	100147948	100147948	C	G
ESCC-D21	exonic	<i>PAN2</i>	stopgain SNV	NM_001127460:c.G3547T:p.E1183X		chr12	56712048	56712048	C	A
ESCC-D21	exonic	<i>PTGER1</i>	nonsynonymous SNV	NM_000955:c.C825G:p.F275L		chr19	14584308	14584308	G	C
ESCC-D21	exonic	<i>APOA5</i>	nonsynonymous SNV	NM_001166598:c.C697T:p.R233W		chr11	116661248	116661248	G	A
ESCC-D21	exonic	<i>SCG2</i>	nonsynonymous SNV	NM_003469:c.C1641G:p.I547M		chr2	224462360	224462360	G	C
ESCC-D21	exonic	<i>TEAD4</i>	stopgain SNV	NM_201443:c.C157T:p.Q53X		chr12	3128297	3128297	C	T
ESCC-D21	exonic	<i>GRAM1</i>	nonsynonymous SNV	NM_000838:c.G2384A:p.C795Y		chr6	146720559	146720559	G	A
ESCC-D21	exonic	<i>JTGAL</i>	stopgain SNV	NM_001114380:c.C1027T:p.R343X		chr16	30505595	30505595	C	T
ESCC-D21	exonic	<i>ZNF799</i>	frameshift deletion	NM_001080821:c.1094_1095del:p.365_365del		chr19	12502117	12502118	AT	-
ESCC-D21	exonic	<i>FSIP2</i>	stopgain SNV	NM_173651:c.C15239G:p.S5080X		chr2	186669005	186669005	C	G
ESCC-D21	exonic	<i>ANAPC5</i>	nonsynonymous SNV	NM_001137559:c.C1345T:p.H449Y		chr12	121756368	121756368	G	A
ESCC-D21	exonic	<i>OR7A10</i>	nonsynonymous SNV	NM_001005190:c.G142T:p.A48S		chr19	14952548	14952548	C	A
ESCC-D21	exonic	<i>GBX2</i>	nonsynonymous SNV	NM_001485:c.G893A:p.R298Q		chr2	237074711	237074711	C	T
ESCC-D21	exonic	<i>ATAD2</i>	nonsynonymous SNV	NM_014109:c.A3414T:p.R1138S		chr8	124346182	124346182	T	A
ESCC-D21	exonic	<i>TPR</i>	nonsynonymous SNV	NM_003292:c.G5620A:p.E1874K		chr1	186300698	186300698	C	T
ESCC-D21	exonic	<i>LRRN2</i>	nonsynonymous SNV	NM_201630:c.G326A:p.R109Q		chr1	204588795	204588795	C	T
ESCC-D21	exonic	<i>TLL12</i>	nonsynonymous SNV	NM_015140:c.G525C:p.Q175H		chr22	43576769	43576769	C	G
ESCC-D21	exonic	<i>GRIK2</i>	nonsynonymous SNV	NM_001166247:c.C2305A:p.P769T		chr6	102483435	102483435	C	A
ESCC-D21	exonic	<i>MGAT5</i>	nonsynonymous SNV	NM_002410:c.T1107G:p.H369Q		chr2	135102630	135102630	T	G
ESCC-D21	exonic	<i>FCHSD2</i>	stopgain SNV	NM_014824:c.C4T:p.Q2X		chr11	72852919	72852919	G	A
ESCC-D21	exonic	<i>ZDHHC22</i>	nonsynonymous SNV	NM_174976:c.C703G:p.Q235E		chr14	77600115	77600115	G	C
ESCC-D21	exonic	<i>EFEMP2</i>	nonsynonymous SNV	NM_016938:c.G1228C:p.E410Q		chr11	65634493	65634493	C	G
ESCC-D21	exonic	<i>ZSCAN18</i>	nonsynonymous SNV	NM_001145544:c.C624G:p.D208E		chr19	58596553	58596553	G	C
ESCC-D21	exonic	<i>SNX32</i>	nonsynonymous SNV	NM_152760:c.C1039T:p.R347C		chr11	65620227	65620227	C	T
ESCC-D21	exonic	<i>HTR1B</i>	nonsynonymous SNV	NM_000863:c.C626T:p.T209M		chr6	78172495	78172495	G	A
ESCC-D21	exonic	<i>FAM55A</i>	nonsynonymous SNV	NM_152315:c.G451A:p.D151N		chr11	114398580	114398580	C	T
ESCC-D21	exonic	<i>CTC1</i>	nonsynonymous SNV	NM_025099:c.G1187A:p.R396Q		chr17	8139168	8139168	C	T
ESCC-D21	exonic	<i>WWC3</i>	nonsynonymous SNV	NM_015691:c.G2118C:p.Q706H		chrX	10096039	10096039	G	C
ESCC-D21	exonic	<i>ZNF215</i>	stopgain SNV	NM_013250:c.C740A:p.S247X		chr11	6976948	6976948	C	A
ESCC-D21	splicing	<i>BAP1(NM_004656:exon15:c.1730-1G>A)</i>				chr3	52437315	52437315	C	T
ESCC-D21	exonic	<i>SPTLC2</i>	nonsynonymous SNV	NM_004863:c.G661C:p.E221Q		chr14	78036822	78036822	C	G
ESCC-D21	exonic	<i>CXCR1</i>	nonsynonymous SNV	NM_000634:c.G352A:p.E118K		chr2	219029583	219029583	C	T
ESCC-D21	exonic	<i>QRS1</i>	nonsynonymous SNV	NM_018292:c.G253A:p.E85K		chr6	107088766	107088766	G	A
ESCC-D21	exonic	<i>SRCAP</i>	nonsynonymous SNV	NM_006662:c.C9248A:p.G3083E		chr16	30750609	30750609	G	A
ESCC-D21	exonic	<i>PRRC2A</i>	stopgain SNV	NM_004638:c.C5566T:p.Q1856X		chr6	31603768	31603768	C	T
ESCC-D21	exonic	<i>RPS6KA6</i>	nonsynonymous SNV	NM_014496:c.C1831A:p.L611I		chrX	83352802	83352802	G	T
ESCC-D21	exonic:splicing	<i>VWC2L;VWC2L</i>	nonsynonymous SNV	NM_001080500:c.G521A:p.G174D		chr2	215440396	215440396	G	A
ESCC-D21	exonic	<i>RG520</i>	nonsynonymous SNV	NM_003702:c.G586C:p.E196Q		chr8	54870878	54870878	G	C

ESCC-D21	exonic	<i>RECQL</i>	stopgain SNV	NM_002907:c.C286T;p.Q96X		chr12	21643241	21643241	G	A
ESCC-D21	exonic	<i>CCDC50</i>	nonsynonymous SNV	NM_178335:c.A764G;p.E255G		chr3	191093166	191093166	A	G
ESCC-D21	exonic	<i>MCC</i>	nonsynonymous SNV	NM_002387:c.G773A;p.R258Q		chr5	112437491	112437491	C	T
ESCC-D21	exonic	<i>FZD10</i>	nonsynonymous SNV	NM_007197:c.G1634A;p.R545K		chr12	130649121	130649121	G	A
ESCC-D21	exonic	<i>TACC2</i>	nonsynonymous SNV	NM_206862:c.G3745C;p.E1249Q		chr10	123845760	123845760	G	C
ESCC-D21	exonic	<i>KCNH4</i>	nonsynonymous SNV	NM_012285:c.G355C;p.E119Q		chr17	40330451	40330451	C	G
ESCC-D21	exonic	<i>EPHA4</i>	nonsynonymous SNV	NM_004438:c.G180A;p.M60I		chr2	222429094	222429094	C	T
ESCC-D21	exonic	<i>MMRN1</i>	nonsynonymous SNV	NM_007351:c.A3349C;p.I1117L		chr4	90874231	90874231	A	C
ESCC-D21	exonic	<i>CA2</i>	nonsynonymous SNV	NM_000067:c.G709A;p.E237K		chr8	86392944	86392944	G	A
ESCC-D21	exonic	<i>UNC80</i>	nonsynonymous SNV	NM_032504:c.G4591T;p.D1531Y		chr2	210777290	210777290	G	T
ESCC-D21	exonic	<i>KDM2B</i>	nonsynonymous SNV	NM_001005366:c.T3019C;p.Y1007H		chr12	121880018	121880018	A	G
ESCC-D21	exonic	<i>SMYD4</i>	nonsynonymous SNV	NM_052928:c.G2054A;p.R685H		chr17	1686737	1686737	C	T
ESCC-D21	exonic	<i>OTOGL</i>	nonsynonymous SNV	NM_173591:c.G5110C;p.E1704Q		chr12	80735814	80735814	G	C
ESCC-D21	exonic	<i>SBK2</i>	nonsynonymous SNV	NM_001101401:c.G706A;p.E236K		chr19	56041441	56041441	C	T
ESCC-D21	exonic	<i>XRN2</i>	nonsynonymous SNV	NM_012255:c.G2284A;p.E762K		chr20	21346087	21346087	G	A
ESCC-D21	exonic	<i>SRD5A2</i>	unknown	UNKNOWN		chr2	31805880	31805880	A	G
ESCC-D21	exonic	<i>MLL2</i>	frameshift deletion	NM_003482:c.5485delA;p.I1829fs		chr12	49437194	49437194	T	-
ESCC-D21	exonic	<i>DHX33</i>	nonsynonymous SNV	NM_020162:c.C316G;p.Q106E		chr17	5366983	5366983	G	C
ESCC-D21	exonic	<i>TIPARP</i>	stoploss SNV	NM_001184717:c.G1973C;p.X658S		chr3	156422919	156422919	G	C
ESCC-D21	exonic	<i>MED13L</i>	nonsynonymous SNV	NM_015335:c.G4211C;p.W1404S		chr12	116424198	116424198	C	G

Color types	Number
Validated as a true call by Sanger sequencing	337
Germline SNP	7
Validated as a false call by Sanger sequencing	18
Total Sanger events	362
True positive rate	93.1%
PCR failure due to: high GC content; difficulty in designing primers; poor signal of Sanger sequencing	82

Supplementary Table 4. FKPM value determined by RNA-seq of all the mutated genes in 4 ESCCs from Discovery cohort

Patient ID	Gene	FKPM value	Detectable transcripts
ESCC-D1	NFIB	47	Yes
ESCC-D1	ANKIB1	24	Yes
ESCC-D1	CTLA4	23	Yes
ESCC-D1	AMOTL1	20	Yes
ESCC-D1	NBPF14	18	Yes
ESCC-D1	MLL3	14	Yes
ESCC-D1	FRG1	10	Yes
ESCC-D1	KIF13A	8	Yes
ESCC-D1	N4BP2	8	Yes
ESCC-D1	EPAS1	6	Yes
ESCC-D1	BCL9	5	Yes
ESCC-D1	PPP1R10	5	Yes
ESCC-D1	POLQ	4	Yes
ESCC-D1	ZNF480	4	Yes
ESCC-D1	JARID2	4	Yes
ESCC-D1	CEP89	3	Yes
ESCC-D1	MYBPC1	3	Yes
ESCC-D1	ZNF714	2	Yes
ESCC-D1	RASGRP3	1	Yes
ESCC-D1	MAPK11	1	Yes
ESCC-D1	ZNF221	1	Yes
ESCC-D1	DNAH10	0	No
ESCC-D1	SLCO5A1	0	No
ESCC-D1	TMEM232	0	No
ESCC-D1	CLCN4	0	No
ESCC-D1	GRM3	0	No
ESCC-D1	USH2A	0	No
ESCC-D1	SLC25A2	0	No
ESCC-D1	PCDH9	0	No
ESCC-D1	LRRC4C	0	No
ESCC-D1	WDR87	0	No
ESCC-D1	OR5K3	0	No
ESCC-D1	KANSL1L	0	No
ESCC-D1	LRRTM3	NA	No
ESCC-D1	KRT33A	NA	No
ESCC-D2	CAP1	86	Yes
ESCC-D2	MRPL40	56	Yes
ESCC-D2	DDX42	39	Yes
ESCC-D2	WDR26	27	Yes
ESCC-D2	PAM	26	Yes
ESCC-D2	FAM122B	26	Yes
ESCC-D2	DHRS1	24	Yes
ESCC-D2	ANKRD12	20	Yes
ESCC-D2	TOX4	18	Yes
ESCC-D2	CRNKL1	18	Yes
ESCC-D2	ERAL1	16	Yes
ESCC-D2	NSMCE2	16	Yes
ESCC-D2	RICTOR	14	Yes
ESCC-D2	EFEMP1	14	Yes
ESCC-D2	SPAST	12	Yes
ESCC-D2	FBXO28	12	Yes
ESCC-D2	FEZ1	10	Yes
ESCC-D2	MTMR4	9	Yes
ESCC-D2	ZMYM1	9	Yes
ESCC-D2	BDP1	9	Yes
ESCC-D2	KIF4A	8	Yes
ESCC-D2	USP18	8	Yes
ESCC-D2	HELZ	7	Yes
ESCC-D2	CEP350	7	Yes
ESCC-D2	SMG5	7	Yes
ESCC-D2	MLL2	3	Yes
ESCC-D2	OSCP1	3	Yes
ESCC-D2	L3MBTL3	2	Yes
ESCC-D2	PHTF1	2	Yes
ESCC-D2	LRRC15	2	Yes
ESCC-D2	ZNF34	2	Yes

ESCC-D2	ILIF10	2	Yes
ESCC-D2	MUC16	1	Yes
ESCC-D2	CNNM2	1	Yes
ESCC-D2	DNAH5	0	No
ESCC-D2	FAM5C	0	No
ESCC-D2	FAR2	0	No
ESCC-D2	ABCB1	0	No
ESCC-D2	NBEA	0	No
ESCC-D2	PIK3CG	0	No
ESCC-D2	TLR7	0	No
ESCC-D2	FAM184A	0	No
ESCC-D2	UNC93A	0	No
ESCC-D2	CMYA5	0	No
ESCC-D2	ARL13A	0	No
ESCC-D2	THSD7A	0	No
ESCC-D2	DPCR1	0	No
ESCC-D2	SI	0	No
ESCC-D2	MLPH	0	No
ESCC-D2	GRIN3A	0	No
ESCC-D2	DNAH8	0	No
ESCC-D2	CNTN5	0	No
ESCC-D2	ZNF831	0	No
ESCC-D2	PCDHA10	0	No
ESCC-D2	C7	0	No
ESCC-D2	FAXC	0	No
ESCC-D2	APOA4	0	No
ESCC-D2	BPIFC	0	No
ESCC-D2	KLHL1	0	No
ESCC-D2	GOT1L1	0	No
ESCC-D2	USP26	0	No
ESCC-D2	MC2R	0	No
ESCC-D2	ZNF560	0	No
ESCC-D2	ACADL	0	No
ESCC-D3	NFE2L2	231	Yes
ESCC-D3	PRDM2	20	Yes
ESCC-D3	HNRNPUL1	18	Yes
ESCC-D3	C10orf118	16	Yes
ESCC-D3	EGFR	16	Yes
ESCC-D3	C9orf78	15	Yes
ESCC-D3	ANKRD28	12	Yes
ESCC-D3	NAA35	11	Yes
ESCC-D3	TP53	11	Yes
ESCC-D3	NFATC3	11	Yes
ESCC-D3	PDZD2	10	Yes
ESCC-D3	MCM6	8	Yes
ESCC-D3	ACVR1B	7	Yes
ESCC-D3	FAM160A1	6	Yes
ESCC-D3	RASSF2	5	Yes
ESCC-D3	PAXIP1	5	Yes
ESCC-D3	PGBD2	4	Yes
ESCC-D3	ZNF540	3	Yes
ESCC-D3	KDR	3	Yes
ESCC-D3	SMO	3	Yes
ESCC-D3	FAM111B	3	Yes
ESCC-D3	LAMA2	3	Yes
ESCC-D3	NRM	2	Yes
ESCC-D3	ZNF34	2	Yes
ESCC-D3	TDRKH	2	Yes
ESCC-D3	SLC9A4	1	Yes
ESCC-D3	THSD7A	1	Yes
ESCC-D3	BAI3	0	No
ESCC-D3	DNAH5	0	No
ESCC-D3	TRPC3	0	No
ESCC-D3	WDR64	0	No
ESCC-D3	ERBB4	0	No
ESCC-D3	AICDA	0	No
ESCC-D3	XIRP2	0	No
ESCC-D3	TAAR8	0	No
ESCC-D3	OR6Q1	0	No
ESCC-D4	HEPHL1	139	Yes
ESCC-D4	CTNND1	102	Yes

ESCC-D4	XRCC5	58	Yes
ESCC-D4	EIF3A	46	Yes
ESCC-D4	PTPRZ1	32	Yes
ESCC-D4	MAPK14	32	Yes
ESCC-D4	MAP3K13	31	Yes
ESCC-D4	DDX18	28	Yes
ESCC-D4	KLHL2	28	Yes
ESCC-D4	SH3YL1	27	Yes
ESCC-D4	RNF213	22	Yes
ESCC-D4	FRG1	22	Yes
ESCC-D4	IMP3	20	Yes
ESCC-D4	MUC4	14	Yes
ESCC-D4	DDX46	13	Yes
ESCC-D4	CTDSPL2	10	Yes
ESCC-D4	RAPGEF5	10	Yes
ESCC-D4	SORBS2	10	Yes
ESCC-D4	TRAK2	10	Yes
ESCC-D4	PML	9	Yes
ESCC-D4	MYCBP2	9	Yes
ESCC-D4	SF3A1	9	Yes
ESCC-D4	TP53BP1	9	Yes
ESCC-D4	TBC1D4	8	Yes
ESCC-D4	VPS13D	8	Yes
ESCC-D4	CHEK2	7	Yes
ESCC-D4	ARID2	7	Yes
ESCC-D4	TP53	7	Yes
ESCC-D4	ANKRD11	7	Yes
ESCC-D4	SULF2	6	Yes
ESCC-D4	ELAC2	6	Yes
ESCC-D4	DROSHA	5	Yes
ESCC-D4	POLR3A	5	Yes
ESCC-D4	PRPF40B	5	Yes
ESCC-D4	METTL18	5	Yes
ESCC-D4	FAM179B	4	Yes
ESCC-D4	TTI1	4	Yes
ESCC-D4	LRP1	4	Yes
ESCC-D4	ITFG3	4	Yes
ESCC-D4	CDK5RAP2	4	Yes
ESCC-D4	SPECC1	4	Yes
ESCC-D4	ANGPTL6	3	Yes
ESCC-D4	SLFN13	3	Yes
ESCC-D4	CHIT1	3	Yes
ESCC-D4	ABI3	3	Yes
ESCC-D4	ZNF182	3	Yes
ESCC-D4	HIRIP3	3	Yes
ESCC-D4	ALG10	2	Yes
ESCC-D4	FGD2	2	Yes
ESCC-D4	GJA9	1	Yes
ESCC-D4	CENPI	1	Yes
ESCC-D4	RAI1	1	Yes
ESCC-D4	F8	1	Yes
ESCC-D4	ZNF391	1	Yes
ESCC-D4	HTR2C	0	No
ESCC-D4	CC2D2B	0	No
ESCC-D4	RENBP	0	No
ESCC-D4	LRP2BP	0	No
ESCC-D4	YSK4	0	No
ESCC-D4	TEX13B	0	No
ESCC-D4	LGR6	0	No
ESCC-D4	ABCB4	0	No
ESCC-D4	TTN	0	No
ESCC-D4	IQUB	0	No
ESCC-D4	MYO3A	0	No
ESCC-D4	DNAH7	0	No
ESCC-D4	LRRC2	0	No
ESCC-D4	WNK3	0	No
ESCC-D4	C18orf34	0	No
ESCC-D4	HRH2	0	No
ESCC-D4	FAM5C	0	No
ESCC-D4	SERPINA10	0	No
ESCC-D4	SPHKAP	0	No

ESCC-D4	OR2W5	0	No
ESCC-D4	FAM48B2	0	No
ESCC-D4	RG821	0	No
ESCC-D4	LRAT	0	No
ESCC-D4	PDE11A	0	No
ESCC-D4	CPNE4	0	No
ESCC-D4	C6	0	No
ESCC-D4	MYT1L	0	No
ESCC-D4	ZCCHC5	0	No
ESCC-D4	NELL1	0	No
ESCC-D4	C9orf170	0	No

Expression data of each gene was converted by using "FKPM (fragments per kilobase of exon model per million mapped reads)".

Supplementary Table 5. Genes for targeted capture in Frequency Cohort study

Gene symbol	Discovery Cohort	COSMIC	Agrawal et al. ⁶
ALK		yes	yes
ABCA9	yes		yes
ABCC12	yes		yes
ADAMTS12	yes		yes
ALPK3	yes		yes
ANK2	yes		yes
ATP10D	yes		yes
BAI3	yes		yes
BDP1	yes		yes
CACNA1B	yes		yes
CEP350	yes		yes
CEP78	yes		yes
COL12A1	yes		yes
CREBZF	yes		yes
CSMD3	yes		yes
DCAF4L2	yes		yes
DNAH7	yes		yes
DROSHA	yes		yes
ELAC2	yes		yes
EPHB1	yes		yes
FAM135B	yes		yes
FAM196B	yes		yes
FAT1	yes		yes
FAT2	yes		yes
FLT1	yes		yes
FMN2	yes		yes
GOLGB1	yes		yes
GPR37	yes		yes
GPR39	yes		yes
GPR98	yes		yes
GPR98	yes		yes
GRIN3A	yes		yes
IGSF10	yes		yes
IMP2	yes		yes
KDMA6A	yes		yes
KIAA0947	yes		yes
KIF14	yes		yes
LPIN2	yes		yes
LRP1	yes		yes
LRR1Q3	yes		yes
LRRK2	yes		yes
MAB21L1	yes		yes
MCF2	yes		yes
MICA	yes		yes
MLL2	yes		yes
MUC16	yes		yes
MUC2	yes		yes
MUC5B	yes		yes
MYCBP2	yes		yes
MYH8	yes		yes
NCOR2	yes		yes
NFE2L2	yes		yes
NOTCH1	yes		yes
NRG3	yes		yes
NRXN1	yes		yes
OAF	yes		yes
OBSCN	yes		yes
PAPLN	yes		yes
PCDH9	yes		yes
PCDHB5	yes		yes
PCLO	yes		yes
PLXNA1	yes		yes
PPM1N	yes		yes
PRDM9	yes		yes
PRRC2A	yes		yes
PTPRD	yes		yes
RICTOR	yes		yes
RIMS2	yes		yes
SCD5	yes		yes
SECISBP2L	yes		yes
SELENBP1	yes		yes
SHANK1	yes		yes
SLC25A2	yes		yes
SLTM	yes		yes
SPAG9	yes		yes
SPTB	yes		yes
SRCAP	yes		yes
TACC2	yes		yes
TAF1L	yes		yes
TBC1D1	yes		yes
TEI1	yes		yes
THSD7A	yes		yes
TMEM106A	yes		yes

Gene symbol	Discovery Cohort	COSMIC	Agrawal et al. ⁶
GC	yes		no
GCFC2	yes		no
GCLC	yes		no
GDDP4	yes		no
Gene	yes		no
GIMAP4	yes		no
GJA9	yes		no
GK2	yes		no
GNAO1	yes		no
GOLM1	yes		no
GOT1L1	yes		no
GPBAR1	yes		no
GPHN	yes		no
GPR112	yes		no
GPR124	yes		no
GPR37L1	yes		no
GPR88	yes		no
GPRIN3	yes		no
GRHL1	yes		no
GRIA2	yes		no
GRIK2	yes		no
GRM1	yes		no
GRM3	yes		no
GSTM1	yes		no
GTF3C4	yes		no
GULP1	yes		no
H1FOO	yes		no
HAND2	yes		no
HAPLN1	yes		no
HARS	yes		no
HCL51	yes		no
HCN2	yes		no
HDAC9	yes		no
HECTD1	yes		no
HEG1	yes		no
HELZ	yes		no
HEPHL1	yes		no
HERC6	yes		no
HERPUD2	yes		no
HHAT	yes		no
HHPL2	yes		no
HIRA	yes		no
HIRIP3	yes		no
HIST1H1C	yes		no
HIST1H2AG	yes		no
HIST1H2BG	yes		no
HIST1H4A	yes		no
HIST2H2AC	yes		no
HIST2H2BF	yes		no
HLA-DOA	yes		no
HLF	yes		no
HMCN1	yes		no
HNRNPUL1	yes		no
HOXB2	yes		no
HPS5	yes		no
HRH2	yes		no
HSF4	yes		no
HSPBAP1	yes		no
HTR1B	yes		no
HTR2C	yes		no
HTRA1	yes		no
HUWE1	yes		no
HYDIN	yes		no
IFLTD1	yes		no
IFT172	yes		no
IKBIP	yes		no
IKZF2	yes		no
IL16	yes		no
IL19	yes		no
IL1F10	yes		no
IMP3	yes		no
INTS9	yes		no
IPO4	yes		no
IPO9	yes		no
IPP	yes		no
IQGAP1	yes		no
IQUB	yes		no
ITFG3	yes		no
ITGA7	yes		no
ITGAL	yes		no
JAGN1	yes		no
JARID2	yes		no
KANSL1L	yes		no

Gene symbol	Discovery Cohort	COSMIC	Agrawal et al. ⁶
SCN7A	yes		no
SEC14L3	yes		no
SEC14L5	yes		no
SEC22B	yes		no
SEC62	yes		no
SELO	yes		no
SEMA3A	yes		no
SEMA4C	yes		no
SENP3	yes		no
SEPT2	yes		no
SERPINA10	yes		no
SERPINB4	yes		no
SF3A1	yes		no
SH3YL1	yes		no
SHANK2	yes		no
SHCBP1	yes		no
SHROOM3	yes		no
SI	yes		no
SIAH3	yes		no
SIGLEC10	yes		no
SIN3A	yes		no
SIPALL2	yes		no
SKA2	yes		no
SLC1A2	yes		no
SLC22A23	yes		no
SLC26A7	yes		no
SLC26A8	yes		no
SLC2A7	yes		no
SLC39A13	yes		no
SLC43A2	yes		no
SLC4A10	yes		no
SLC4A3	yes		no
SLC4A8	yes		no
SLC5A4	yes		no
SLC8A1	yes		no
SLC9A3R1	yes		no
SLC9A4	yes		no
SLCO1A2	yes		no
SLCO1C1	yes		no
SLCO5A1	yes		no
SLFN13	yes		no
SMARCA1	yes		no
SMG5	yes		no
SMO	yes		no
SMTNL2	yes		no
SMYD4	yes		no
SNTB2	yes		no
SNX31	yes		no
SNX32	yes		no
SON	yes		no
SORBS2	yes		no
SPAG1	yes		no
SPANXN2	yes		no
SPAST	yes		no
SPECC1	yes		no
SPEF2	yes		no
SPEN	yes		no
SPHKAP	yes		no
SPTLC2	yes		no
SRD5A2	yes		no
SSFA2	yes		no
STAM	yes		no
STK38	yes		no
STRN3	yes		no
SULF2	yes		no
SUV39H2	yes		no
SYNE1	yes		no
SYNE2	yes		no
SYN11	yes		no
SYNM	yes		no
SZT2	yes		no
TAAR8	yes		no
TACR2	yes		no
TARSL2	yes		no
TATDN1	yes		no
TATDN2	yes		no
TAX1BP1	yes		no
TBC1D4	yes		no
TBL1Y	yes		no
TBRG1	yes		no
TDRD3	yes		no
TDRKH	yes		no
TEAD4	yes		no

TMEM184A	yes		yes
TNN3K	yes		yes
TOLLIP	yes		yes
TP53	yes		yes
TTC18	yes		yes
TIN	yes		yes
VPS13B	yes		yes
WDR87	yes		yes
XIRP2	yes		yes
ZFAT	yes		yes
ZFP42	yes		yes
ZFP62	yes		yes
ZNF107	yes		yes
ZNF211	yes		yes
ZNF717	yes		yes
ZNF750	yes		yes
A2M	yes		no
ABCA13	yes		no
ABCA3	yes		no
ABCA7	yes		no
ABCA8	yes		no
ABCB1	yes		no
ABCB4	yes		no
ABCB5	yes		no
ABCD1	yes		no
ABHD13	yes		no
ABI3	yes		no
ACADL	yes		no
ACOT12	yes		no
ACVR1B	yes		no
ADAM18	yes		no
ADAM2	yes		no
ADAMTS17	yes		no
ADAMTSL4	yes		no
ADCY10	yes		no
ADCY8	yes		no
ADD1	yes		no
ADH4	yes		no
ADRA2A	yes		no
ADRBK2	yes		no
AGMAT	yes		no
AHNAK2	yes		no
AHR	yes		no
AICDA	yes		no
AKAP6	yes		no
AKAP9	yes		no
ALG10	yes		no
AMIGO2	yes		no
AMOTL1	yes		no
ANAPC5	yes		no
ANG	yes		no
ANGPTL1	yes		no
ANGPTL6	yes		no
ANK1	yes		no
ANKHD1	yes		no
ANKIB1	yes		no
ANKMY1	yes		no
ANKRD11	yes		no
ANKRD12	yes		no
ANKRD28	yes		no
ANKRD33	yes		no
ANKRD50	yes		no
AP1B1	yes		no
AP2B1	yes		no
APCDD1	yes		no
APLNR	yes		no
APOA4	yes		no
APOA5	yes		no
ARHGAP29	yes		no
ARHGAP31	yes		no
ARHGEF17	yes		no
ARID2	yes		no
ARL13A	yes		no
ARMC1	yes		no
ARPP21	yes		no
ASPH	yes		no
ASPN	yes		no
ASTN1	yes		no
ASTN2	yes		no
ATAD2	yes		no
ATF6	yes		no
ATG7	yes		no
ATP11B	yes		no
ATP8B3	yes		no
ATRNL1	yes		no
ATXN7	yes		no
B3GAT2	yes		no

KBTBD12	yes		no
KCND3	yes		no
KCNG1	yes		no
KCNH4	yes		no
KCNJ12	yes		no
KCNQ2	yes		no
KCNT2	yes		no
KDM2B	yes		no
KDR	yes		no
KIAA0754	yes		no
KIAA1009	yes		no
KIAA1109	yes		no
KIAA1429	yes		no
KIAA1432	yes		no
KIAA1804	yes		no
KIF11	yes		no
KIF13A	yes		no
KIF4A	yes		no
KIF5B	yes		no
KL	yes		no
KLHDC7A	yes		no
KLHL1	yes		no
KLHL2	yes		no
KLHL20	yes		no
KLHL24	yes		no
KLHL3	yes		no
KNTC1	yes		no
KPNA1	yes		no
KPNB1	yes		no
KRT33A	yes		no
KRTAP10-1	yes		no
KRTAP15-1	yes		no
KYNU	yes		no
L3MBTL3	yes		no
LAMA2	yes		no
LAMA3	yes		no
LAMA4	yes		no
LAMB2	yes		no
LAMB4	yes		no
LBX1	yes		no
LCT	yes		no
LDOC1L	yes		no
LGII	yes		no
LGR6	yes		no
LILRB1	yes		no
LIN7B	yes		no
LINS	yes		no
LOC643802	yes		no
LPPR4	yes		no
LRAT	yes		no
LRP1B	yes		no
LRP2	yes		no
LRP2BP	yes		no
LRRC15	yes		no
LRRC2	yes		no
LRRC4C	yes		no
LRRC61	yes		no
LRRN2	yes		no
LRRTM3	yes		no
LRRTM4	yes		no
LTBP3	yes		no
LTN1	yes		no
LYZ	yes		no
MAB21L2	yes		no
MAGEC1	yes		no
MAGEC3	yes		no
MAP1S	yes		no
MAP2	yes		no
MAP3K13	yes		no
MAP3K15	yes		no
MAP7D1	yes		no
MAPK11	yes		no
MAPK14	yes		no
MARCH4	yes		no
MARCH5	yes		no
MAST4	yes		no
MATN4	yes		no
MC1R	yes		no
MC2R	yes		no
MCC	yes		no
MCCC2	yes		no
MCM3AP	yes		no
MCM6	yes		no
MCOLN1	yes		no
ME3	yes		no
MED1	yes		no
MED13	yes		no

TECTA	yes		no
TEKT4	yes		no
TESK1	yes		no
TEX13B	yes		no
TEX2	yes		no
TFAP2B	yes		no
TFEC	yes		no
TG	yes		no
THOC1	yes		no
THPO	yes		no
THSD4	yes		no
TIPARP	yes		no
TLR7	yes		no
TMED8	yes		no
TMEM104	yes		no
TMEM119	yes		no
TMEM177	yes		no
TMEM2	yes		no
TMEM232	yes		no
TMEM39B	yes		no
TNF	yes		no
TNFRSF12A	yes		no
TNIK	yes		no
TNKS	yes		no
TNN	yes		no
TNRC6C	yes		no
TOX4	yes		no
TP53BP1	yes		no
TPR	yes		no
TPT	yes		no
TRAIP	yes		no
TRAK2	yes		no
TRAPPC8	yes		no
TRHDE	yes		no
TRIM10	yes		no
TRIM33	yes		no
TRIM34	yes		no
TRIM37	yes		no
TRIM60	yes		no
TRIO	yes		no
TRIP10	yes		no
TRPC3	yes		no
TRPM6	yes		no
TSPAN10	yes		no
TSRI	yes		no
TS1	yes		no
TTBK2	yes		no
TTC21B	yes		no
TTC28	yes		no
TTI1	yes		no
TTLL12	yes		no
U2AF1	yes		no
UBE2O	yes		no
UBE2Q1	yes		no
UBN1	yes		no
UFC1	yes		no
UFL1	yes		no
UHRF1	yes		no
UNC13D	yes		no
UNC79	yes		no
UNC80	yes		no
UNC93A	yes		no
URB1	yes		no
USH2A	yes		no
USP18	yes		no
USP24	yes		no
USP26	yes		no
USP29	yes		no
USP31	yes		no
UTP15	yes		no
VANGL2	yes		no
VASH1	yes		no
VCAN	yes		no
VCFIP1	yes		no
VPS13D	yes		no
VRK3	yes		no
VSIG8	yes		no
VWC2L	yes		no
WDR26	yes		no
WDR64	yes		no
WDR66	yes		no
WDR70	yes		no
WDR92	yes		no
WEE1	yes		no
WFDC10B	yes		no
WHAMM	yes		no
WIPF1	yes		no

BAI1	yes		no
BANF1	yes		no
BAP1	yes		no
BAZ1A	yes		no
BBS12	yes		no
BCAT1	yes		no
BCL7B	yes		no
BCL9	yes		no
BCO2	yes		no
BCORL1	yes		no
BICD2	yes		no
BIRC3	yes		no
BP1FC	yes		no
BPIL2	yes		no
BRF1	yes		no
C10orf118	yes		no
C10orf71	yes		no
C11orf48	yes		no
C12orf12	yes		no
C14orf43	yes		no
C16orf62	yes		no
C16orf70	yes		no
C17orf104	yes		no
C17orf57	yes		no
C18orf34	yes		no
C18orf63	yes		no
C1orf106	yes		no
C1orf65	yes		no
C22orf25	yes		no
C2orf55	yes		no
C3	yes		no
C5AR1	yes		no
C5orf42	yes		no
C5orf44	yes		no
C6	yes		no
C7	yes		no
C8orf45	yes		no
C9orf103	yes		no
C9orf170	yes		no
C9orf43	yes		no
C9orf78	yes		no
C9orf84	yes		no
CA2	yes		no
CA7	yes		no
CACNA1E	yes		no
CACNA2D1	yes		no
CAMSPAP3	yes		no
CAP1	yes		no
CASP8AP2	yes		no
CBLB	yes		no
CBX4	yes		no
CC2D2B	yes		no
CCDC137	yes		no
CCDC33	yes		no
CCDC50	yes		no
CCDC93	yes		no
CCKAR	yes		no
CCNB1IP1	yes		no
CCR2	yes		no
CCT8L2	yes		no
CD200R1	yes		no
CDH10	yes		no
CDH12	yes		no
CDH13	yes		no
CDH23	yes		no
CDHR1	yes		no
CDK11B	yes		no
CDK5RAP2	yes		no
CDRT4	yes		no
CEACAM18	yes		no
CENPI	yes		no
CEP164	yes		no
CEP192	yes		no
CEP95	yes		no
CETP	yes		no
CGN	yes		no
CHD1L	yes		no
CHD2	yes		no
CHEK2	yes		no
CHIT1	yes		no
CHST11	yes		no
CLCN4	yes		no
CLCN6	yes		no
CLEC4F	yes		no
CLEC6A	yes		no
CLIC5	yes		no
CLN8	yes		no

MED13L	yes		no
MEF2C	yes		no
MERTK	yes		no
METTL18	yes		no
MGAM	yes		no
MGAT4C	yes		no
MGAT5	yes		no
MICAL2	yes		no
MKI67	yes		no
MKRN3	yes		no
MLLT10	yes		no
MLLT4	yes		no
MLPH	yes		no
MLX	yes		no
MLXIP	yes		no
MMRN1	yes		no
MRC2	yes		no
MRPL20	yes		no
MRPL28	yes		no
MRPL40	yes		no
MTERFD1	yes		no
MTHFR	yes		no
MTMR4	yes		no
MTOR	yes		no
MUC17	yes		no
MUC4	yes		no
MUC6	yes		no
MYBPC1	yes		no
MYH15	yes		no
MYH4	yes		no
MYH6	yes		no
MYO16	yes		no
MYO18B	yes		no
MYO3A	yes		no
MYO9A	yes		no
MYOG	yes		no
MYRIP	yes		no
MYT1L	yes		no
N4BP2	yes		no
N4BP3	yes		no
NAA35	yes		no
NACA	yes		no
NALCN	yes		no
NAV1	yes		no
NAV3	yes		no
NBEA	yes		no
NBPF14	yes		no
NCKAP1	yes		no
NCKIPSD	yes		no
NCOA2	yes		no
NDOR1	yes		no
NEDD4	yes		no
NEFM	yes		no
NEK10	yes		no
NELL1	yes		no
NEU4	yes		no
NEURL4	yes		no
NF1	yes		no
NFAT5	yes		no
NFATC3	yes		no
NFE2L3	yes		no
NFIB	yes		no
NFXL1	yes		no
NISCH	yes		no
NKX2-3	yes		no
NLGN1	yes		no
NLRCA	yes		no
NLRP1	yes		no
NMBR	yes		no
NMD3	yes		no
NNMT	yes		no
NPAS4	yes		no
NPHS2	yes		no
NPR1	yes		no
NRAP	yes		no
NRM	yes		no
NSFL1C	yes		no
NSMCE2	yes		no
NUFIP2	yes		no
NUP210	yes		no
OCA2	yes		no
OR10J5	yes		no
OR1F1	yes		no
OR2A12	yes		no
OR2B2	yes		no
OR2L3	yes		no
OR2M2	yes		no

WNK3	yes		no
WWC3	yes		no
XPO1	yes		no
XPO5	yes		no
XRCC5	yes		no
XRN2	yes		no
YME1L1	yes		no
YSK4	yes		no
ZBBX	yes		no
ZBTB22	yes		no
ZC3H11A	yes		no
ZC3H14	yes		no
ZC3H6	yes		no
ZC3H7B	yes		no
ZCCHC5	yes		no
ZDHHC22	yes		no
ZFHX3	yes		no
ZFHX4	yes		no
ZFP82	yes		no
ZMYM1	yes		no
ZNF134	yes		no
ZNF160	yes		no
ZNF165	yes		no
ZNF167	yes		no
ZNF180	yes		no
ZNF182	yes		no
ZNF185	yes		no
ZNF189	yes		no
ZNF207	yes		no
ZNF215	yes		no
ZNF221	yes		no
ZNF229	yes		no
ZNF24	yes		no
ZNF337	yes		no
ZNF34	yes		no
ZNF365	yes		no
ZNF391	yes		no
ZNF429	yes		no
ZNF518A	yes		no
ZNF540	yes		no
ZNF554	yes		no
ZNF560	yes		no
ZNF583	yes		no
ZNF626	yes		no
ZNF629	yes		no
ZNF643	yes		no
ZNF714	yes		no
ZNF749	yes		no
ZNF761	yes		no
ZNF799	yes		no
ZNF831	yes		no
ZNF835	yes		no
ZNF836	yes		no
ZNF98	yes		no
ZNF99	yes		no
ZSCAN18	yes		no
MAP3K4	yes		no
ATAD2	yes		no
ATAD2	yes		no
MAP3K4	yes		no
OMA1	yes		no
PTCH1	yes		no
CD33	yes		no
MAP3K9	yes		no
SNTG2	yes		no
AFF2	yes		no
BTRC	yes		no
NUDT2	yes		no
BRCA1	no	yes	yes
BRCA2	no	yes	yes
CREBBP	no	yes	yes
DNM2	no	yes	yes
FBXW7	no	yes	yes
FGFR3	no	yes	yes
GNAS	no	yes	yes
GOPC	no	yes	yes
MLL3	no	yes	yes
ABL1	no	yes	no
AKT1	no	yes	no
AKT2	no	yes	no
APC	no	yes	no
ARID1A	no	yes	no
ASXL1	no	yes	no
ATM	no	yes	no
ATRX	no	yes	no
BCL6	no	yes	no
BHD	no	yes	no

CLTC	yes		no
CMYA5	yes		no
CNNM2	yes		no
CNOT6L	yes		no
CNTN5	yes		no
COBL	yes		no
COL11A1	yes		no
COL22A1	yes		no
COL24A1	yes		no
COL4A4	yes		no
COLEC12	yes		no
COPS2	yes		no
CPLX3	yes		no
CPNE4	yes		no
CRB1	yes		no
CRLF3	yes		no
CRNKL1	yes		no
CSK	yes		no
CSN1S1	yes		no
CSTF2T	yes		no
CTC1	yes		no
CTDSPL2	yes		no
CTLA4	yes		no
CTNNA3	yes		no
CTNND1	yes		no
CTSK	yes		no
CTSO	yes		no
CUBN	yes		no
CWC27	yes		no
CWF19L2	yes		no
CXCR1	yes		no
CXorf66	yes		no
CYL2	yes		no
CYP27C1	yes		no
CYP2J2	yes		no
CYP7B1	yes		no
DCAF11	yes		no
DDAH2	yes		no
DDX1	yes		no
DDX18	yes		no
DDX4	yes		no
DDX42	yes		no
DDX46	yes		no
DDX5	yes		no
DGKB	yes		no
DHR51	yes		no
DHX32	yes		no
DHX33	yes		no
DIAPH3	yes		no
DIP2B	yes		no
DISP2	yes		no
DKK2	yes		no
DLA	yes		no
DMD	yes		no
DMRT2	yes		no
DMXL1	yes		no
DMXL2	yes		no
DNAH10	yes		no
DNAH5	yes		no
DNAH6	yes		no
DNAH8	yes		no
DNAH9	yes		no
DNAI1	yes		no
DNMT1	yes		no
DPCR1	yes		no
DQX1	yes		no
DSCAML1	yes		no
DSP	yes		no
DSPP	yes		no
EAPP	yes		no
EDARADD	yes		no
EFEMP1	yes		no
EFEMP2	yes		no
EGFR	yes		no
EIF2C1	yes		no
EIF3A	yes		no
EIF3H	yes		no
EMILIN2	yes		no
EMR3	yes		no
ENOX2	yes		no
ENPP1	yes		no
ENPP3	yes		no
ENTPD4	yes		no
EP300	yes		no
EPAS1	yes		no
EPHA4	yes		no
EPHA7	yes		no

OR2W5	yes		no
OR4D11	yes		no
OR4D6	yes		no
OR4F15	yes		no
OR4L1	yes		no
OR51F2	yes		no
OR52E2	yes		no
OR5K3	yes		no
OR6Q1	yes		no
OR6X1	yes		no
OR7A10	yes		no
OR8B8	yes		no
ORC5	yes		no
OSCP1	yes		no
OTOA	yes		no
OTOGL	yes		no
OXR1	yes		no
PABPC3	yes		no
PAM	yes		no
PAMR1	yes		no
PAN2	yes		no
PASD1	yes		no
PCDH10	yes		no
PCDH11X	yes		no
PCDH20	yes		no
PCDHA10	yes		no
PCDHA2	yes		no
PCDHA4	yes		no
PCDHB1	yes		no
PCDHGB1	yes		no
PCSK4	yes		no
PCSK5	yes		no
PDE11A	yes		no
PDE3B	yes		no
PDE6C	yes		no
PDHA2	yes		no
PDZD2	yes		no
PDZRN3	yes		no
PGBD2	yes		no
PGM2L1	yes		no
PHF17	yes		no
PHF3	yes		no
PHKB	yes		no
PHTF1	yes		no
PIGK	yes		no
PIK3C2A	yes		no
PIK3CG	yes		no
PIP5K1B	yes		no
PITPNM3	yes		no
PITRM1	yes		no
PIWIL3	yes		no
PJA1	yes		no
PKM2	yes		no
PKN3	yes		no
PLA2G7	yes		no
PLAG1	yes		no
PLCH2	yes		no
PLEC	yes		no
PLEKHD1	yes		no
PLIN1	yes		no
PLOD1	yes		no
PLSCR2	yes		no
PLXDC1	yes		no
PLXNA4	yes		no
PML	yes		no
PNMAL1	yes		no
POLD2	yes		no
POLQ	yes		no
POLR3A	yes		no
PPFIA1	yes		no
PPFIA2	yes		no
PPMIJ	yes		no
PPP1R10	yes		no
PPP1R12B	yes		no
PPP1R7	yes		no
PPP4R1	yes		no
PRAMEF2	yes		no
PRDM2	yes		no
PRIMA1	yes		no
PRKD1	yes		no
PROX1	yes		no
PRPF40B	yes		no
PRR5L	yes		no
PRRC2C	yes		no
PRSS46	yes		no
PTCHD4	yes		no
PTEN	yes		no

BLM	no	yes	no
BMPRIA	no	yes	no
BRAF	no	yes	no
BRIP1	no	yes	no
BUB1B	no	yes	no
CARD11	no	yes	no
CBL	no	yes	no
CBLC	no	yes	no
CCNE1	no	yes	no
CD79A	no	yes	no
CD79B	no	yes	no
CDH1	no	yes	no
CDK12	no	yes	no
CDK4	no	yes	no
CDKN2A	no	yes	no
CDKN2a(p14)	no	yes	no
CDKN2C	no	yes	no
CEBPA	no	yes	no
CIC	no	yes	no
COPEB	no	yes	no
CRLF2	no	yes	no
CTNNB1	no	yes	no
CYLD	no	yes	no
DAXX	no	yes	no
DDB2	no	yes	no
DICER1	no	yes	no
DNMT3A	no	yes	no
ECT2L	no	yes	no
ERBB2	no	yes	no
ERCC3	no	yes	no
ERCC4	no	yes	no
ERCC5	no	yes	no
EXT1	no	yes	no
EXT2	no	yes	no
EZH2	no	yes	no
FAM46C	no	yes	no
FANCA	no	yes	no
FANCC	no	yes	no
FANCD2	no	yes	no
FANCE	no	yes	no
FANCF	no	yes	no
FANCG	no	yes	no
FBXO1	no	yes	no
FGFR2	no	yes	no
FH	no	yes	no
FLT3	no	yes	no
FOXO2	no	yes	no
FUBP1	no	yes	no
GATA1	no	yes	no
GATA2	no	yes	no
GATA3	no	yes	no
GNAI1	no	yes	no
GNAQ	no	yes	no
GPC3	no	yes	no
GRAF	no	yes	no
H3F3A	no	yes	no
HRAS	no	yes	no
HRPT2	no	yes	no
IDH1	no	yes	no
IDH2	no	yes	no
IKZF1	no	yes	no
IL6ST	no	yes	no
IL7R	no	yes	no
JAK1	no	yes	no
JAK2	no	yes	no
JAK3	no	yes	no
JUN	no	yes	no
KDM5C	no	yes	no
KIAA1549	no	yes	no
KIT	no	yes	no
KRAS	no	yes	no
LMO1	no	yes	no
MADH4	no	yes	no
MAP2K4	no	yes	no
MDM2	no	yes	no
MDM4	no	yes	no
MED12	no	yes	no
MEN1	no	yes	no
MET	no	yes	no
MITF	no	yes	no
MLH1	no	yes	no
MLL	no	yes	no
MPL	no	yes	no
MSH2	no	yes	no
MSH6	no	yes	no
MUTYH	no	yes	no
MYC	no	yes	no

<i>EPHB6</i>	yes		no
<i>EPPK1</i>	yes		no
<i>EP71</i>	yes		no
<i>ERAL1</i>	yes		no
<i>ERBB4</i>	yes		no
<i>ERCC2</i>	yes		no
<i>ERMN</i>	yes		no
<i>ERP44</i>	yes		no
<i>EVC2</i>	yes		no
<i>EXOC1</i>	yes		no
<i>F8</i>	yes		no
<i>FADS3</i>	yes		no
<i>FAM111B</i>	yes		no
<i>FAM122B</i>	yes		no
<i>FAM160A1</i>	yes		no
<i>FAM169A</i>	yes		no
<i>FAM179B</i>	yes		no
<i>FAM184A</i>	yes		no
<i>FAM194A</i>	yes		no
<i>FAM205A</i>	yes		no
<i>FAM208B</i>	yes		no
<i>FAM47A</i>	yes		no
<i>FAM48B2</i>	yes		no
<i>FAM55A</i>	yes		no
<i>FAM5C</i>	yes		no
<i>FAM75D4</i>	yes		no
<i>FAM91A1</i>	yes		no
<i>FANI</i>	yes		no
<i>FAR2</i>	yes		no
<i>FASTKD1</i>	yes		no
<i>FAT3</i>	yes		no
<i>FAXC</i>	yes		no
<i>FBN1</i>	yes		no
<i>FBN2</i>	yes		no
<i>FBXL18</i>	yes		no
<i>FBXL2</i>	yes		no
<i>FBXO28</i>	yes		no
<i>FBXO46</i>	yes		no
<i>FCHSD2</i>	yes		no
<i>FEZ1</i>	yes		no
<i>FGD2</i>	yes		no
<i>FILIP1L</i>	yes		no
<i>FLNC</i>	yes		no
<i>FMN1</i>	yes		no
<i>FMOD</i>	yes		no
<i>FN1</i>	yes		no
<i>FNDL1</i>	yes		no
<i>FNIP1</i>	yes		no
<i>FOXC1</i>	yes		no
<i>FSIP2</i>	yes		no
<i>FTS3</i>	yes		no
<i>FZD10</i>	yes		no
<i>FZD3</i>	yes		no
<i>FZD6</i>	yes		no
<i>GABRG2</i>	yes		no
<i>GARNL3</i>	yes		no
<i>GATAD2B</i>	yes		no
<i>GBP7</i>	yes		no
<i>GBX2</i>	yes		no

<i>PTGER1</i>	yes		no
<i>PTGIS</i>	yes		no
<i>PTK7</i>	yes		no
<i>PTPN13</i>	yes		no
<i>PTPN22</i>	yes		no
<i>PTPRK</i>	yes		no
<i>PTPRZ1</i>	yes		no
<i>PUS3</i>	yes		no
<i>PXN</i>	yes		no
<i>PYROXD2</i>	yes		no
<i>QSL1</i>	yes		no
<i>RAB40A</i>	yes		no
<i>RABGAP1L</i>	yes		no
<i>RAI1</i>	yes		no
<i>RALGAPB</i>	yes		no
<i>RALGDS</i>	yes		no
<i>RALY</i>	yes		no
<i>RANBP17</i>	yes		no
<i>RAP1B</i>	yes		no
<i>RAPGEF5</i>	yes		no
<i>RASGRP3</i>	yes		no
<i>RASL10B</i>	yes		no
<i>RASSF2</i>	yes		no
<i>RB1</i>	yes		no
<i>RBL2</i>	yes		no
<i>RBM12B</i>	yes		no
<i>RBM25</i>	yes		no
<i>RCOR3</i>	yes		no
<i>RECQL</i>	yes		no
<i>RENPB</i>	yes		no
<i>RERE</i>	yes		no
<i>RGNEF</i>	yes		no
<i>RGS2</i>	yes		no
<i>RGS20</i>	yes		no
<i>RGS21</i>	yes		no
<i>RHAG</i>	yes		no
<i>RHBDD2</i>	yes		no
<i>RLN1</i>	yes		no
<i>RNF139</i>	yes		no
<i>RNF175</i>	yes		no
<i>RNF213</i>	yes		no
<i>RNF216</i>	yes		no
<i>ROBO2</i>	yes		no
<i>RP1</i>	yes		no
<i>RP1L1</i>	yes		no
<i>RPLP0</i>	yes		no
<i>RPS6KA6</i>	yes		no
<i>RQCD1</i>	yes		no
<i>RKM2</i>	yes		no
<i>RSF1</i>	yes		no
<i>RTKN</i>	yes		no
<i>RUNDC3B</i>	yes		no
<i>SALL3</i>	yes		no
<i>SAMD9L</i>	yes		no
<i>SBK2</i>	yes		no
<i>SCG2</i>	yes		no
<i>SCN11A</i>	yes		no
<i>SCN5A</i>	yes		no

<i>MYCL1</i>	no	yes	no
<i>MYCN</i>	no	yes	no
<i>MYD88</i>	no	yes	no
<i>NBS1</i>	no	yes	no
<i>NF2</i>	no	yes	no
<i>NKX2-1</i>	no	yes	no
<i>NOTCH2</i>	no	yes	no
<i>NPM1</i>	no	yes	no
<i>NRAS</i>	no	yes	no
<i>PALB2</i>	no	yes	no
<i>PAX5</i>	no	yes	no
<i>PBRM1</i>	no	yes	no
<i>PDGFRA</i>	no	yes	no
<i>PHF6</i>	no	yes	no
<i>PHOX2B</i>	no	yes	no
<i>PIK3CA</i>	no	yes	no
<i>PIK3R1</i>	no	yes	no
<i>PMS1</i>	no	yes	no
<i>PMS2</i>	no	yes	no
<i>PPP2R1A</i>	no	yes	no
<i>PRDM1</i>	no	yes	no
<i>PRF1</i>	no	yes	no
<i>PRKARIA</i>	no	yes	no
<i>PTCH</i>	no	yes	no
<i>PTPN11</i>	no	yes	no
<i>RECQL4</i>	no	yes	no
<i>REL</i>	no	yes	no
<i>RET</i>	no	yes	no
<i>SBDS</i>	no	yes	no
<i>SDH5</i>	no	yes	no
<i>SDHB</i>	no	yes	no
<i>SDHC</i>	no	yes	no
<i>SDHD</i>	no	yes	no
<i>SETD2</i>	no	yes	no
<i>SF3B1</i>	no	yes	no
<i>SMARCA4</i>	no	yes	no
<i>SMARCB1</i>	no	yes	no
<i>SOCS1</i>	no	yes	no
<i>SOX2</i>	no	yes	no
<i>SRSF2</i>	no	yes	no
<i>STK11</i>	no	yes	no
<i>SUFU</i>	no	yes	no
<i>TCF1</i>	no	yes	no
<i>TET2</i>	no	yes	no
<i>TNFAIP3</i>	no	yes	no
<i>TNFRSF14</i>	no	yes	no
<i>TNFRSF6</i>	no	yes	no
<i>TSC1</i>	no	yes	no
<i>TSC2</i>	no	yes	no
<i>TSHR</i>	no	yes	no
<i>VHL</i>	no	yes	no
<i>WAS</i>	no	yes	no
<i>WRN</i>	no	yes	no
<i>WT1</i>	no	yes	no
<i>WTX</i>	no	yes	no
<i>XPA</i>	no	yes	no
<i>XPC</i>	no	yes	no
<i>ZRSR2</i>	no	yes	no
<i>BCOR</i>	no	yes	yes

Supplementary Table 6. Summary of somatic mutations in Frequency Cohort

Patient ID	Mutation location	Gene Name	Mutation type	Amino Acid Change	Cosmic V58 Match Position	Chr	Start position	End position	Germline allele	Tumor allele
ESCC-F1	exonic	<i>RERE</i>	nonsynonymous SNV	NM_001042682:c.C438A;p.D146E		chr1	8421467	8421467	G	T
ESCC-F1	exonic	<i>KLHDC7A</i>	stopgain SNV	NL_152375:c.G1309T;p.E437X		chr1	18808784	18808784	G	T
ESCC-F1	exonic	<i>HMCN1</i>	nonsynonymous SNV	NM_031935:c.G15283A;p.G5095R		chr1	186134269	186134269	G	A
ESCC-F1	exonic	<i>HPS5</i>	nonsynonymous SNV	NM_007216:c.C2545G;p.L849V		chr11	18306957	18306957	G	C
ESCC-F1	exonic	<i>FAT3</i>	nonsynonymous SNV	NM_001008781:c.A6613G;p.I2205V		chr11	92532792	92532792	A	G
ESCC-F1	exonic	<i>MLL2</i>	nonsynonymous SNV	NM_003482:c.G8992C;p.D2998H		chr12	49432147	49432147	C	G
ESCC-F1	exonic	<i>TRHDE</i>	nonsynonymous SNV	NM_013381:c.C2203G;p.Q735E		chr12	73012687	73012687	C	G
ESCC-F1	exonic	<i>AKAP6</i>	nonsynonymous SNV	NM_004274:c.A2932T;p.M978L		chr14	33165248	33165248	A	T
ESCC-F1	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.G12130T;p.V4044L		chr16	70891770	70891770	C	A
ESCC-F1	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.C346T;p.R116W	687804;724870;749715;753533;75	chr17	7577539	7577539	G	A
ESCC-F1	exonic	<i>MYH2</i>	nonsynonymous SNV	NM_001100112:c.G61A;p.E21K		chr17	10451177	10451177	C	T
ESCC-F1	exonic	<i>KCNJ12,KCNJ18</i>	nonsynonymous SNV	NM_001194958:c.C926A;p.T309N		chr17	21319580	21319580	C	A
ESCC-F1	exonic	<i>ZNF560</i>	nonsynonymous SNV	NM_152476:c.C1334G;p.P445R		chr19	9578289	9578289	G	C
ESCC-F1	exonic	<i>SMARCA4</i>	stopgain SNV	NM_001128845:c.C2272T;p.Q758X	722045	chr19	11121205	11121205	C	T
ESCC-F1	exonic	<i>ZNF836</i>	nonsynonymous SNV	NM_001102657:c.G2186C;p.R729T		chr19	52658750	52658750	C	G
ESCC-F1	exonic	<i>ZNF347</i>	nonsynonymous SNV	NM_001172674:c.G986T;p.R329L		chr19	53645098	53645098	C	A
ESCC-F1	exonic	<i>SLC8A1</i>	nonsynonymous SNV	NM_001112800:c.G23A;p.S8N		chr2	40657398	40657398	C	T
ESCC-F1	exonic	<i>CYP27C1</i>	nonsynonymous SNV	NM_001001665:c.T767A;p.L256Q		chr2	127951396	127951396	A	T
ESCC-F1	exonic	<i>DNAH7</i>	nonsynonymous SNV	NM_018897:c.C7801G;p.Q260E		chr2	196723464	196723464	G	C
ESCC-F1	exonic	<i>ERBB4</i>	nonsynonymous SNV	NM_001042599:c.C346G;p.P1154A		chr2	212248759	212248759	C	A
ESCC-F1	splicing	<i>CHEK2(NM_007194:exon4:c.320-2A>T,NM_145862:exon4:c.320-2A>T,NM_001005735:exon5:c.449-2A>T)</i>				chr22	29121357	29121357	T	A
ESCC-F1	exonic	<i>ATXN7</i>	nonsynonymous SNV	NM_001177387:c.G430A;p.D144N		chr3	63938090	63938090	G	A
ESCC-F1	exonic	<i>GK2</i>	nonsynonymous SNV	NM_033214:c.T1080G;p.F360L		chr4	80328275	80328275	A	C
ESCC-F1	exonic	<i>VCAN</i>	nonsynonymous SNV	NM_001164097:c.C5884T;p.P1962S		chr5	82837667	82837667	C	T
ESCC-F1	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.T6962C;p.V232A		chr5	89988432	89988432	T	C
ESCC-F1	exonic	<i>FAT2</i>	nonsynonymous SNV	NM_001447:c.G2439T;p.W813C		chr5	150946054	150946054	C	A
ESCC-F1	exonic	<i>BAI3</i>	nonsynonymous SNV	NM_001704:c.G967C;p.G323R		chr6	69646509	69646509	G	C
ESCC-F1	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.C2978T;p.T993M		chr7	100677675	100677675	C	T
ESCC-F1	exonic	<i>RP1L1</i>	nonsynonymous SNV	NM_178857:c.G6323T;p.G2108V		chr8	10465285	10465285	C	A
ESCC-F1	exonic	<i>PIP5K1B</i>	nonsynonymous SNV	NM_003558:c.C1532A;p.T511N		chr9	71606085	71606085	C	A
ESCC-F1	exonic	<i>FAM75D1</i>	nonsynonymous SNV	NM_001001670:c.G2332C;p.E778Q		chr9	84607717	84607717	G	C
ESCC-F1	exonic	<i>ENOX2</i>	nonsynonymous SNV	NM_006375:c.G1688A;p.G563E		chrX	129759346	129759346	C	T
ESCC-F1	exonic	<i>ENOX2</i>	nonsynonymous SNV	NM_006375:c.G569A;p.R190H		chrX	129804064	129804064	C	T
ESCC-F1	exonic	<i>MAGEC3</i>	nonsynonymous SNV	NM_177456:c.G490A;p.E164K		chrX	140984928	140984928	G	A
ESCC-F2	splicing	<i>CUBN(NM_001081:exon10:c.884-2A>T)</i>				chr10	17153051	17153051	T	A
ESCC-F2	exonic	<i>MK167</i>	nonsynonymous SNV	NM_001145966:c.C2579G;p.A860G		chr10	129906445	129906445	G	C
ESCC-F2	exonic	<i>KLHL1</i>	nonsynonymous SNV	NM_020866:c.G1966C;p.D656H		chr13	70293550	70293550	C	G
ESCC-F2	exonic	<i>PALB2</i>	nonsynonymous SNV	NM_024675:c.C1403T;p.T468I		chr16	23646464	23646464	G	A
ESCC-F2	exonic	<i>NLRP1</i>	nonsynonymous SNV	NM_001033053:c.G2215A;p.E739K		chr17	5461801	5461801	C	T
ESCC-F2	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.G131T;p.C44F	722046;905938;907276;909707;90	chr17	7578403	7578403	C	A
ESCC-F2	exonic	<i>DNAH9</i>	stopgain SNV	NM_001372:c.C3169T;p.Q1057X		chr17	11572927	11572927	C	T
ESCC-F2	exonic	<i>ZNF207</i>	nonsynonymous SNV	NM_001032293:c.C1117T;p.R373W		chr17	30696359	30696359	C	T
ESCC-F2	exonic	<i>PHOX2B</i>	nonsynonymous SNV	NM_003924:c.G352A;p.A118T		chr4	41749443	41749443	C	T
ESCC-F2	exonic	<i>GRIA2</i>	nonsynonymous SNV	NM_000826:c.C1858A;p.R620S		chr4	158262429	158262429	C	A
ESCC-F2	exonic	<i>KIAA0947</i>	nonsynonymous SNV	NM_015325:c.C3318G;p.D1106E		chr5	5462765	5462765	C	G
ESCC-F2	exonic	<i>DNAH5</i>	nonsynonymous SNV	NM_001369:c.C10760A;p.S3587Y		chr5	13753454	13753454	G	T
ESCC-F2	exonic	<i>TRIO</i>	nonsynonymous SNV	NM_007118:c.G5567C;p.G1856A		chr5	14462934	14462934	G	C
ESCC-F2	exonic	<i>ZNF391</i>	nonsynonymous SNV	NM_001076781:c.G880C;p.E294Q		chr6	27369029	27369029	G	C
ESCC-F2	exonic	<i>CLIC5</i>	nonsynonymous SNV	NM_001114086:c.C659A;p.A220D		chr6	45917110	45917110	G	T
ESCC-F2	exonic	<i>ABCA13</i>	frameshift deletion	NM_152701:c.1591delC;p.L531fs		chr7	48285559	48285559	C	-
ESCC-F2	exonic	<i>PAX5</i>	nonsynonymous SNV	NM_016734:c.C310T;p.R104C		chr9	37015094	37015094	G	A
ESCC-F3	exonic	<i>OR2W5</i>	nonsynonymous SNV	NM_001004698:c.G104C;p.C35S		chr1	24765433	24765433	G	C
ESCC-F3	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.G1107A;p.E3673K		chr14	64542813	64542813	G	A
ESCC-F3	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.A3144T;p.T10483S		chr19	9050184	9050184	T	A
ESCC-F3	exonic	<i>LTN1</i>	nonsynonymous SNV	NM_015565:c.G335T;p.R112L		chr21	30359101	30359101	C	A
ESCC-F3	exonic	<i>BDP1</i>	nonsynonymous SNV	NM_018429:c.G6371C;p.S2124T		chr5	70838051	70838051	G	C
ESCC-F3	exonic	<i>DMXL1</i>	nonsynonymous SNV	NM_005509:c.A859G;p.T287A		chr5	118454625	118454625	A	G
ESCC-F3	exonic	<i>DMXL1</i>	nonsynonymous SNV	NM_005509:c.C860A;p.T287N		chr5	118454626	118454626	C	A
ESCC-F3	exonic	<i>ABC11</i>	nonsynonymous SNV	NM_000927:c.T2330G;p.F777C		chr7	87168651	87168651	A	C
ESCC-F3	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.C10727G;p.S3576C		chr7	100685424	100685424	C	G
ESCC-F3	exonic	<i>ZFX4</i>	nonsynonymous SNV	NM_024721:c.C10574T;p.S3525F		chr8	77776524	77776524	C	T
ESCC-F4	exonic	<i>PGM2L1</i>	nonsynonymous SNV	NM_173582:c.C526T;p.H176Y		chr11	74079566	74079566	G	A
ESCC-F4	exonic	<i>RB1</i>	stopgain SNV	NM_000321:c.C1363T;p.R455X	687562;808442;808520;808536;80	chr13	48953760	48953760	C	T
ESCC-F4	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.G2546T;p.M8487I		chr19	9061985	9061985	C	A
ESCC-F4	exonic	<i>ANKIB1</i>	nonsynonymous SNV	NM_019004:c.C2172G;p.F724L		chr7	92020599	92020599	C	G
ESCC-F4	exonic	<i>ABCB4</i>	frameshift insertion	NM_000443:c.101_102insA;p.T34fs		chr7	87101971	87101971	-	T
ESCC-F4	exonic	<i>TFEC</i>	nonsynonymous SNV	NM_001018058:c.A166G;p.N56D		chr7	115624330	115624330	T	C

ESCC-F4	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_052900:c.A6572C:p.Y2191S		chr8	113349016	113349016	T	G
ESCC-F4	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_198123:c.C1267A:p.Q423K		chr8	113988141	113988141	G	T
ESCC-F5	splicing	<i>AKAP6</i>				chr14	33294020	33294020	A	T
ESCC-F5	exonic	<i>ZNF750</i>	stopgain SNV	NM_024702:c.C777A:p.Y259X		chr17	80789554	80789554	G	T
ESCC-F5	exonic	<i>DDX1</i>	nonsynonymous SNV	NM_004939:c.T442A:p.W148R		chr2	15743366	15743366	G	A
ESCC-F5	exonic	<i>EFEMP1</i>	nonsynonymous SNV	NM_001039349:c.C542T:p.T181M		chr2	56108845	56108845	G	A
ESCC-F5	exonic	<i>TFN</i>	nonsynonymous SNV	NM_003319:c.C22245A:p.S7415R		chr2	179478570	179478570	G	T
ESCC-F5	exonic	<i>SF3B1</i>	nonsynonymous SNV	NM_012433:c.A2822G:p.N941S		chr2	198265055	198265055	T	C
ESCC-F5	exonic	<i>TIPARP</i>	nonsynonymous SNV	NM_001184717:c.A177G:p.I59M		chr3	156395663	156395663	A	G
ESCC-F5	exonic	<i>FAT1</i>	nonsynonymous SNV	NM_005245:c.A1030T:p.N3434I		chr4	187527273	187527273	T	A
ESCC-F5	exonic	<i>FBN2</i>	nonsynonymous SNV	NM_001999:c.C764A:p.P255Q		chr5	127800479	127800479	G	T
ESCC-F5	exonic	<i>KIF4B</i>	nonsynonymous SNV	NM_001099293:c.C1211A:p.P374H		chr5	154394540	154394540	C	A
ESCC-F5	exonic	<i>IAMA4</i>	nonsynonymous SNV	NM_001105206:c.A2825G:p.H942R		chr6	112462113	112462113	T	C
ESCC-F5	exonic	<i>ZNF716</i>	stopgain SNV	NM_001159279:c.T987A:p.C329X		chr7	57529154	57529154	T	A
ESCC-F6	exonic	<i>BRP1</i>	nonsynonymous SNV	NM_032043:c.A3515C:p.E1172A		chr17	59760892	59760892	T	G
ESCC-F6	exonic	<i>IFT172</i>	nonsynonymous SNV	NM_015662:c.G3124A:p.E1042K		chr2	27680610	27680610	C	T
ESCC-F6	exonic	<i>MARCKL1</i>	frameshift deletion	NM_020814:c.794delG:p.R265fs		chr2	217142466	217142466	-	-
ESCC-F6	exonic	<i>MCM3AP</i>	nonsynonymous SNV	NM_003906:c.C80G:p.S27C		chr21	47705121	47705121	G	C
ESCC-F6	exonic	<i>FANCD2</i>	nonsynonymous SNV	NM_001018115:c.C1876G:p.Q626E		chr3	10105524	10105524	C	G
ESCC-F6	exonic	<i>GRIK2</i>	nonsynonymous SNV	NM_001166247:c.A1583C:p.D528A		chr6	102337573	102337573	A	C
ESCC-F6	exonic	<i>ATRX</i>	nonsynonymous SNV	NM_000489:c.C55T:p.H19Y		chrX	76972686	76972686	G	A
ESCC-F6	exonic	<i>BCORL1</i>	nonsynonymous SNV	NM_021946:c.C613G:p.P205A		chrX	129147361	129147361	C	G
ESCC-F7	exonic	<i>DIAPH3</i>	nonsynonymous SNV	NM_030932:c.A1902G:p.I634M		chr13	60435587	60435587	T	C
ESCC-F7	exonic	<i>BUB1B</i>	nonsynonymous SNV	NM_001211:c.C2713G:p.Q905E		chr15	40509731	40509731	C	G
ESCC-F7	exonic	<i>TP53</i>	frameshift insertion	NM_001126118:c.254_255insT:p.C85fs	905938:907276:909707:946371:13	chr17	7579316	7579316	A	A
ESCC-F7	exonic	<i>ADD1</i>	nonsynonymous SNV	NM_001119:c.A664T:p.T222S		chr4	2896381	2896381	A	T
ESCC-F7	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.C2837G:p.T946S		chr5	89940625	89940625	C	G
ESCC-F7	exonic	<i>ZNF107</i>	nonsynonymous SNV	NM_001013746:c.G1327A:p.E443K		chr7	64168009	64168009	G	A
ESCC-F7	exonic	<i>PTCH1</i>	frameshift insertion	NM_000264:c.1895_1896insG:p.D632fs		chr9	98231388	98231388	-	C
ESCC-F8	exonic	<i>COL11A1</i>	nonsynonymous SNV	NM_001190709:c.G439T:p.A147S		chr1	103544263	103544263	C	A
ESCC-F8	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.A19207C:p.K6403Q		chr2	179484742	179484742	T	G
ESCC-F8	exonic	<i>KIAA1109</i>	nonsynonymous SNV	NM_015312:c.C4723T:p.L1575F		chr4	123164204	123164204	C	T
ESCC-F8	exonic	<i>CMYA5</i>	nonsynonymous SNV	NM_153610:c.A3263T:p.E1088V		chr5	79027851	79027851	A	T
ESCC-F8	exonic	<i>FANCF</i>	nonsynonymous SNV	NM_021922:c.A1540G:p.M514V		chr6	35434051	35434051	A	G
ESCC-F9	exonic	<i>PRDM2</i>	nonsynonymous SNV	NM_001007257:c.A3272G:p.N1091S		chr1	14108165	14108165	A	G
ESCC-F9	splicing	<i>NOTCH2(NM_024408:exon29;c.5003-1G>T)</i>				chr1	120465070	120465070	C	A
ESCC-F9	exonic	<i>ZNF215</i>	nonsynonymous SNV	NM_013250:c.C1259A:p.T420K		chr11	6977467	6977467	C	A
ESCC-F9	exonic	<i>MLL2</i>	frameshift deletion	NM_003482:c.I651delG:p.E5506fs		chr12	49415831	49415831	-	-
ESCC-F9	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.C59T:p.P20L	905938:906867:907055:907276:90	chr17	7578475	7578475	G	A
ESCC-F9	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C16325A:p.A5442D		chr19	9071121	9071121	G	T
ESCC-F9	exonic	<i>GRM3</i>	nonsynonymous SNV	NM_000840:c.G1563A:p.M521I		chr7	86468393	86468393	G	A
ESCC-F10	exonic	<i>LRR1Q3</i>	nonsynonymous SNV	NM_001105659:c.T1756A:p.F586I		chr1	74492616	74492616	A	T
ESCC-F10	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_206933:c.G1031T:p.K3437N		chr1	215960088	215960088	C	A
ESCC-F10	exonic	<i>NRAP</i>	nonsynonymous SNV	NM_006175:c.G1444C:p.E482Q		chr10	115392926	115392926	C	G
ESCC-F10	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.G8986A:p.V2996I		chr12	124382376	124382376	G	A
ESCC-F10	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.G463T:p.E155X	753566:905938:907276:909707:91	chr17	7577079	7577079	C	A
ESCC-F10	exonic	<i>C18orf34</i>	nonsynonymous SNV	NM_001105528:c.T1827A:p.N609K		chr18	30803175	30803175	A	T
ESCC-F10	exonic	<i>ZNF729</i>	nonsynonymous SNV	NM_001242680:c.A2779C:p.K927Q		chr19	22498998	22498998	A	C
ESCC-F10	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C1115T:p.T372I		chr2	179659779	179659779	G	A
ESCC-F10	exonic	<i>DNAH7</i>	nonsynonymous SNV	NM_018897:c.C8396A:p.A2799E		chr2	196722119	196722119	G	T
ESCC-F10	exonic	<i>U2AF1</i>	nonsynonymous SNV	NM_001025203:c.G626A:p.R209H		chr21	44513309	44513309	C	T
ESCC-F10	exonic	<i>PIK3CA</i>	nonsynonymous SNV	NM_006218:c.A3127G:p.M1043V	904439:1018677:1046072:1097410	chr3	178952072	178952072	A	G
ESCC-F10	exonic;splicing	<i>CTSO;CTSO</i>	nonsynonymous SNV	NM_001334:c.G931A:p.G311S		chr4	156849488	156849488	C	T
ESCC-F10	exonic	<i>SPEF2</i>	nonsynonymous SNV	NM_024867:c.G136A:p.D46N		chr5	35628639	35628639	G	A
ESCC-F10	exonic	<i>FBN2</i>	nonsynonymous SNV	NM_001999:c.A5050G:p.S1684G		chr5	127647016	127647016	T	C
ESCC-F10	exonic	<i>FAT2</i>	nonsynonymous SNV	NM_001447:c.C8008G:p.H2670D		chr5	150922680	150922680	G	C
ESCC-F10	exonic	<i>HIST1HE2AJ</i>	nonsynonymous SNV	NM_021066:c.G378C:p.K126N		chr6	27782141	27782141	C	G
ESCC-F10	exonic	<i>GCLC</i>	nonsynonymous SNV	NM_001197115:c.C75G:p.H25Q		chr6	53409369	53409369	G	C
ESCC-F10	exonic	<i>ABCA13</i>	stopgain SNV	NM_152701:c.C8771G:p.S2924X		chr7	48320984	48320984	C	G
ESCC-F10	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.G12437A:p.R4146H		chr7	100691298	100691298	G	A
ESCC-F10	exonic	<i>HUWE1</i>	nonsynonymous SNV	NM_031407:c.G11317C:p.D3773H		chrX	53570864	53570864	C	G
ESCC-F11	exonic	<i>PTEN</i>	nonsynonymous SNV	NM_000314:c.C424G:p.R142G	687563:713885:724838:753565:75	chr10	89692940	89692940	C	G
ESCC-F11	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C1559T:p.S520F		chr11	1081541	1081541	C	T
ESCC-F11	exonic	<i>MLL2</i>	stopgain SNV	NM_003482:c.C1196T:p.Q3988X	1636674	chr12	49426526	49426526	G	A
ESCC-F11	exonic	<i>MLL2</i>	nonsynonymous SNV	NM_003482:c.C10305G:p.I3435M	1636677	chr12	49428645	49428645	G	C
ESCC-F11	exonic	<i>NAV3</i>	nonsynonymous SNV	NM_014903:c.G6193T:p.A2065S		chr12	78583967	78583967	G	T
ESCC-F11	exonic	<i>BAZ1A</i>	nonsynonymous SNV	NM_182648:c.C2471T:p.S824F		chr14	35245391	35245391	G	A
ESCC-F11	exonic	<i>SYNE2</i>	nonframeshift deletion	NM_015180:c.14961_14963del:p.4987_4988del		chr14	64606776	64606776	-	CAT
ESCC-F11	exonic	<i>YSK4</i>	stopgain SNV	NM_025052:c.C1069T:p.R357X		chr2	135745373	135745373	G	A
ESCC-F11	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.C14736A:p.F4912L		chr2	179594512	179594512	G	T
ESCC-F11	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.C11488T:p.P3830S		chr2	179599331	179599331	G	A

ESCC-F11	exonic	<i>SMARCB1</i>	nonsynonymous SNV	NM_001007468:c.G685A:p.A229T	802126;1197636;1475169;1475190	chr22	24159040	24159040	G	A
ESCC-F11	exonic	<i>SI</i>	nonsynonymous SNV	NM_001041:c.C5431A:p.L181M		chr3	164697203	164697203	G	T
ESCC-F11	exonic	<i>BRAF</i>	stopgain SNV	NM_004333:c.C1525T:p.R509X		chr7	140476881	140476881	G	A
ESCC-F11	exonic	<i>ADCY8</i>	nonsynonymous SNV	NM_001115:c.T1148C:p.V383A		chr8	131964207	131964207	A	G
ESCC-F11	exonic	<i>NOTCH1</i>	stopgain SNV	NM_017617:c.C1986G:p.Y62X		chr9	139409770	139409770	G	C
ESCC-F12	exonic	<i>FGFR2</i>	nonsynonymous SNV	NM_001144914:c.C1438G:p.R480G		chr10	123256135	123256135	G	C
ESCC-F12	exonic	<i>NPAS4</i>	nonsynonymous SNV	NM_178864:c.C1775T:p.A592V		chr11	66192136	66192136	C	T
ESCC-F12	exonic	<i>LRP1</i>	nonsynonymous SNV	NM_002332:c.C3771A:p.D1257E		chr12	57569466	57569466	C	A
ESCC-F12	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.A349T:p.R117W	905938;907276;909707;909711;91	chr17	7577536	7577536	T	A
ESCC-F12	exonic	<i>NFE2L2</i>	nonsynonymous SNV	NM_001145412:c.C52G:p.R18K	1571458;1579693;1604883	chr2	178098945	178098945	G	C
ESCC-F12	exonic	<i>TNF</i>	nonsynonymous SNV	NM_003319:c.G5311A:p.E1771G		chr2	179641142	179641142	C	T
ESCC-F12	exonic	<i>CHEK2</i>	nonsynonymous SNV	NM_007194:c.G808A:p.V270I		chr22	29106032	29106032	C	T
ESCC-F12	exonic	<i>TRPC3</i>	nonsynonymous SNV	NM_003305:c.T877A:p.S293T		chr4	122846253	122846253	A	T
ESCC-F12	exonic;splicing	<i>ECT2L;ECT2L</i>	nonsynonymous SNV	NM_001195037:c.G1198A:p.E400K		chr6	139175291	139175291	G	A
ESCC-F12	exonic	<i>MGAM</i>	nonsynonymous SNV	NM_004668:c.C2443T:p.L815F		chr7	141740591	141740591	C	T
ESCC-F12	exonic	<i>FZD6</i>	nonsynonymous SNV	NM_001164615:c.G313C:p.D105H		chr8	104330953	104330953	G	C
ESCC-F12	exonic	<i>CSMD3</i>	stopgain SNV	NM_052900:c.C5219A:p.S1740X		chr8	113420621	113420621	G	T
ESCC-F12	exonic	<i>FAM135B</i>	nonsynonymous SNV	NM_015912:c.A3247T:p.T1083S		chr8	139163471	139163471	T	A
ESCC-F13	exonic	<i>JAK1</i>	nonsynonymous SNV	NM_002227:c.T1087C:p.W363R		chr1	65330559	65330559	A	G
ESCC-F13	exonic;splicing	<i>HMCN1;HMCN1</i>	stopgain SNV	NM_031935:c.A11275T:p.R3759X		chr1	186083254	186083254	A	T
ESCC-F13	exonic	<i>POLR3A</i>	stopgain SNV	NM_007055:c.C1852T:p.R618X		chr10	79769352	79769352	G	A
ESCC-F13	exonic	<i>TP53</i>	frameshift deletion	NM_001126115:c.S09_512del;p.L170_171del	753566;905938;907276;909707;91	chr17	7577030	7577030	CTCC	-
ESCC-F13	exonic	<i>SH3YL1</i>	nonsynonymous SNV	NM_001159597:c.G91A:p.G31R		chr2	253026	253026	C	T
ESCC-F13	exonic	<i>LRP1B</i>	nonsynonymous SNV	NM_018577:c.G12431A:p.G4144D		chr2	141081545	141081545	C	T
ESCC-F13	exonic	<i>SHROOM3</i>	nonsynonymous SNV	NM_020859:c.G827T:p.G276V		chr4	77660153	77660153	G	T
ESCC-F13	exonic	<i>PTPN13</i>	stopgain SNV	NM_080684:c.C6871T:p.Q2291X		chr4	87735690	87735690	C	T
ESCC-F13	exonic	<i>ANKRD50</i>	nonsynonymous SNV	NM_001167882:c.G2713T:p.V905F		chr4	125591182	125591182	C	A
ESCC-F13	exonic	<i>ABCA13</i>	nonsynonymous SNV	NM_152701:c.C4544G:p.S1515C		chr7	48313807	48313807	C	G
ESCC-F13	exonic	<i>SOX3</i>	nonsynonymous SNV	NM_005634:c.C473G:p.A158G		chrX	139586753	139586753	G	C
ESCC-F14	exonic	<i>MLL2</i>	stopgain SNV	NM_003482:c.C11737T:p.Q3913X		chr12	49426751	49426751	G	A
ESCC-F14	exonic	<i>LRP1</i>	nonsynonymous SNV	NM_002332:c.A2783T:p.N928I		chr12	57559978	57559978	A	T
ESCC-F14	exonic	<i>LRP1</i>	nonsynonymous SNV	NM_002332:c.A11744G:p.Y3915C		chr12	57600409	57600409	A	G
ESCC-F14	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.G12256C:p.E4086G		chr12	124414304	124414304	G	C
ESCC-F14	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.A13234T:p.I4412F		chr12	124419278	124419278	A	T
ESCC-F14	exonic	<i>CHD2</i>	stopgain SNV	NM_001271:c.C4313G:p.S1438X		chr15	93547881	93547881	C	G
ESCC-F14	exonic	<i>CRLF3</i>	nonsynonymous SNV	NM_015986:c.G43A:p.E15K		chr17	29151627	29151627	C	T
ESCC-F14	exonic	<i>TP53</i>	frameshift insertion	NM_001126118:c.101_102msCG;p.V34fs	905938;907276;909707;946371;13	chr17	7579469	7579469	-	CG
ESCC-F14	exonic	<i>CIC</i>	nonsynonymous SNV	NM_015125:c.A625T:p.L209F		chr19	42791739	42791739	A	T
ESCC-F14	exonic	<i>TIN</i>	nonsynonymous SNV	NM_133378:c.A18658C:p.N6220H		chr2	179587124	179587124	T	G
ESCC-F14	exonic	<i>XIRP2</i>	frameshift insertion	NM_001199144:c.c.6723_6724insA;p.Q2241fs		chr2	168105291	168105291	-	A
ESCC-F14	exonic	<i>GOLGB1</i>	nonsynonymous SNV	NM_001256488:c.C1538T:p.A513V		chr3	121417592	121417592	G	A
ESCC-F14	exonic	<i>PLXNA1</i>	nonsynonymous SNV	NM_032242:c.G3451A:p.V1151I		chr3	126736442	126736442	G	A
ESCC-F14	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C7226G:p.A2409G		chr3	195511225	195511225	G	C
ESCC-F14	exonic	<i>TRPC3</i>	stopgain SNV	NM_003305:c.C2234G:p.S745X		chr4	122824017	122824017	G	C
ESCC-F14	exonic	<i>ADAMTS12</i>	nonsynonymous SNV	NM_030955:c.A2612G:p.N871S		chr5	33596081	33596081	T	C
ESCC-F14	exonic	<i>SPEF2</i>	nonsynonymous SNV	NM_024867:c.C4414G:p.L1472V		chr5	35779415	35779415	C	G
ESCC-F14	exonic	<i>C5orf42</i>	nonsynonymous SNV	NM_023073:c.C6529T:p.P2177S		chr5	37169597	37169597	G	A
ESCC-F14	exonic	<i>DSP</i>	nonsynonymous SNV	NM_001008844:c.C6707G:p.S2236C		chr6	7585999	7585999	C	G
ESCC-F14	exonic	<i>DPCR1</i>	stopgain SNV	NM_080870:c.G2776T:p.E926X		chr6	30919017	30919017	G	T
ESCC-F14	exonic	<i>ABCB5</i>	stopgain SNV	NM_178559:c.C1507T:p.R503X		chr7	20768053	20768053	C	T
ESCC-F14	exonic	<i>RENBP</i>	nonsynonymous SNV	NM_002910:c.G836C:p.R279P		chrX	153207040	153207040	G	G
ESCC-F15	splicing	<i>TP53(NM_001126117;exon2:c.163+1G>A;NM_001126112;exon6:c.559+1G>A;NM_001126116;exon2:c.163+1G>A;NM_000546;exon6:c.559+1G>A)</i>			905938;907276;907319;909707;90	chr17	7578370	7578370	C	T
ESCC-F15	exonic	<i>CCDC93</i>	nonsynonymous SNV	NM_019044:c.G1255C:p.E419Q		chr2	118704428	118704428	C	G
ESCC-F15	exonic	<i>TIN</i>	nonsynonymous SNV	NM_003319:c.C1390G:p.Q464E		chr2	179659134	179659134	G	C
ESCC-F15	exonic	<i>HIRA</i>	nonsynonymous SNV	NM_003325:c.T1382C:p.I461T		chr22	19371176	19371176	A	G
ESCC-F15	exonic	<i>EP300</i>	nonsynonymous SNV	NM_001429:c.G4195A:p.D1399N	1523832;1560558	chr22	41565529	41565529	G	A
ESCC-F15	exonic	<i>FAT2</i>	stopgain SNV	NM_001447:c.C8155T:p.Q2719X		chr5	150922533	150922533	G	A
ESCC-F15	exonic	<i>THSD7A</i>	nonsynonymous SNV	NM_015204:c.G2222A:p.R741Q		chr7	11513991	11513991	C	T
ESCC-F15	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.G3745C:p.E1249Q		chr7	151904481	151904481	C	G
ESCC-F15	exonic	<i>TRPM6</i>	nonsynonymous SNV	NM_001177310:c.G5362C:p.D1788H		chr9	77354749	77354749	C	G
ESCC-F15	exonic	<i>DMD</i>	nonsynonymous SNV	NM_004011:c.G557A:p.R186H		chrX	32404521	32404521	C	A
ESCC-F16	exonic	<i>MAB21L1</i>	nonsynonymous SNV	NM_005584:c.C238T:p.L80F		chr13	36050038	36050038	G	A
ESCC-F16	exonic	<i>MYCBP2</i>	stopgain SNV	NM_015057:c.C2572T:p.R858X		chr13	77817251	77817251	G	A
ESCC-F16	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.C5371A:p.L1791I		chr14	64488593	64488593	C	A
ESCC-F16	exonic	<i>APCDD1</i>	nonsynonymous SNV	NM_153000:c.C1092G:p.F364L		chr18	10485776	10485776	C	G
ESCC-F16	exonic	<i>SPHKAP</i>	nonsynonymous SNV	NM_001142644:c.C1256A:p.A419E		chr2	228884314	228884314	G	T
ESCC-F16	exonic	<i>SLCSA4</i>	nonsynonymous SNV	NM_014227:c.C970T:p.P324S		chr22	32628937	32628937	G	A
ESCC-F16	splicing	<i>PLXNA4(NM_020911;exon19:c.3253+1G>A)</i>				chr7	131866380	131866380	C	T
ESCC-F16	exonic	<i>KDM6A</i>	stopgain SNV	NM_021140:c.C360G:p.Y120X	724870;749715;753568;753614;90	chrX	44833936	44833936	C	G
ESCC-F17	exonic	<i>LGR6</i>	nonsynonymous SNV	NM_001017404:c.T389A:p.I130N		chr1	20226997	20226997	T	A
ESCC-F17	exonic	<i>LRRC4C</i>	nonsynonymous SNV	NM_020929:c.C518T:p.S173F		chr11	40137325	40137325	G	A

ESCC-F17	exonic	<i>ABHD13</i>	nonsynonymous SNV	NM_032859:c.C538A:p.P180T		chr13	108882104	108882104	C	A
ESCC-F17	exonic	<i>SECISBP2L</i>	nonsynonymous SNV	NM_014701:c.G1746A:p.M582I		chr15	49301559	49301559	C	T
ESCC-F17	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.T38C:p.L13P	905938:905954:907276:909707:94	chr17	7578496	7578496	A	G
ESCC-F17	exonic	<i>C5orf42</i>	nonsynonymous SNV	NM_023073:c.C8291T:p.S2764F		chr5	37148291	37148291	G	A
ESCC-F17	exonic	<i>APC</i>	nonsynonymous SNV	NM_001127511:c.C2054T:p.A685V	1109799	chr5	112173399	112173399	C	T
ESCC-F17	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.C9652T:p.R3218C		chr7	82580252	82580252	G	A
ESCC-F17	exonic	<i>OXRI</i>	nonsynonymous SNV	NM_181354:c.G1480C:p.E494Q		chr8	107719250	107719250	G	C
ESCC-F17	exonic	<i>EPPK1</i>	nonsynonymous SNV	NM_031308:c.G6775T:p.A2259S		chr8	144940647	144940647	C	A
ESCC-F18	exonic	<i>ARID1A</i>	nonsynonymous SNV	NM_006015:c.G3496T:p.A1166S		chr1	27099080	27099080	G	T
ESCC-F18	exonic	<i>ATRNL1</i>	nonsynonymous SNV	NM_207303:c.C2475A:p.D825E		chr10	117059603	117059603	C	A
ESCC-F18	exonic	<i>MUC5B</i>	nonsynonymous SNV	NM_002458:c.C5228T:p.T17438C		chr11	1263338	1263338	C	T
ESCC-F18	exonic	<i>MLL2</i>	frameshift deletion	NM_003482:c.3156delC:p.P1052fs		chr12	49444215	49444215	G	-
ESCC-F18	exonic	<i>FLT1</i>	stopgain SNV	NM_001159920:c.G1972T:p.E658X		chr13	28963930	28963930	C	A
ESCC-F18	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.A218G:p.Y73C	905938:907276:908446:909707:94	chr17	7578235	7578235	T	C
ESCC-F18	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.T130A:p.C44S	905938:907276:909707:909769:90	chr17	7578404	7578404	A	T
ESCC-F18	exonic	<i>MYH13</i>	nonsynonymous SNV	NM_003802:c.G4157A:p.R1386H		chr17	10216499	10216499	C	T
ESCC-F18	exonic	<i>SPAT</i>	frameshift deletion	NM_199436:c.1087_1088del:p.363_363del		chr2	32353486	32353487	GT	-
ESCC-F18	exonic	<i>MATN4</i>	nonsynonymous SNV	NM_000383:c.C277T:p.R93C		chr20	43933234	43933234	G	A
ESCC-F18	exonic	<i>FBXW7</i>	nonsynonymous SNV	NM_001013415:c.C1159T:p.R387C	753548:906763:907272:907391:90	chr4	153247289	153247289	G	A
ESCC-F18	exonic	<i>DSP</i>	nonsynonymous SNV	NM_001008844:c.G5168T:p.G1723V		chr6	7584460	7584460	G	T
ESCC-F18	exonic	<i>PTPRK</i>	nonsynonymous SNV	NM_001135648:c.G2233A:p.A745T		chr6	128330375	128330375	C	T
ESCC-F18	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.C17567T:p.P5856L		chr6	152615165	152615165	G	A
ESCC-F18	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.G14078A:p.R4693Q		chr6	152651529	152651529	C	T
ESCC-F18	exonic	<i>SYNE1</i>	frameshift deletion	NM_033071:c.12431delA:p.N4144fs		chr6	152655293	152655293	T	-
ESCC-F18	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.C800T:p.T267I		chr7	82785157	82785157	G	A
ESCC-F18	exonic	<i>WWC3</i>	stopgain SNV	NM_015691:c.C2836T:p.R946X		chrX	10104745	10104745	C	T
ESCC-F19	exonic	<i>CUBN</i>	nonsynonymous SNV	NM_001081:c.G4315C:p.E1439Q		chr10	17032368	17032368	C	G
ESCC-F19	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.T12142A:p.F4048I		chr12	124414011	124414011	T	A
ESCC-F19	exonic	<i>RB1</i>	nonsynonymous SNV	NM_000321:c.C784T:p.R262W	687562:906844:907072:908123:90	chr13	48937016	48937016	C	T
ESCC-F19	exonic	<i>DNAH9</i>	nonsynonymous SNV	NM_001372:c.T8860C:p.C2954R		chr17	11725764	11725764	T	C
ESCC-F19	exonic	<i>SH3YL1</i>	nonsynonymous SNV	NM_001159597:c.T923A:p.L308H		chr2	218860	218860	A	T
ESCC-F19	exonic	<i>SLC8A1</i>	nonsynonymous SNV	NM_001112800:c.T1596G:p.F532L		chr2	40655825	40655825	A	C
ESCC-F19	exonic	<i>LRP2</i>	stopgain SNV	NM_004525:c.C12193T:p.R4065X		chr2	170011072	170011072	G	A
ESCC-F19	exonic	<i>FASTKD1</i>	nonsynonymous SNV	NM_024622:c.G1037T:p.G346V		chr2	170413742	170413742	C	A
ESCC-F19	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.T68627C:p.L22876T		chr2	179409134	179409134	A	G
ESCC-F19	exonic	<i>SCN11A</i>	nonsynonymous SNV	NM_014139:c.G3177T:p.E1059D		chr3	38924766	38924766	C	A
ESCC-F19	exonic	<i>ATP10D</i>	nonsynonymous SNV	NM_020453:c.C122G:p.S41C		chr4	47514679	47514679	C	G
ESCC-F19	exonic	<i>HAND2</i>	nonsynonymous SNV	NM_021973:c.G480C:p.Q160H		chr4	174449961	174449961	C	G
ESCC-F19	exonic	<i>LAMA4</i>	nonsynonymous SNV	NM_001105206:c.G3033C:p.L1011F		chr6	112461031	112461031	C	G
ESCC-F19	exonic	<i>LAMA2</i>	nonsynonymous SNV	NM_000426:c.C4973G:p.T1658R		chr6	129704280	129704280	C	G
ESCC-F19	exonic	<i>CACNA1B</i>	nonsynonymous SNV	NM_000718:c.C5641T:p.L1881F		chr9	141008934	141008934	C	T
ESCC-F20	exonic	<i>DIAPH3</i>	nonsynonymous SNV	NM_030932:c.G1444C:p.D482H		chr13	60490321	60490321	C	G
ESCC-F20	exonic	<i>UNC79</i>	nonsynonymous SNV	NM_020818:c.A5531T:p.E1844V		chr14	94109944	94109944	A	T
ESCC-F20	exonic	<i>NFAT5</i>	nonsynonymous SNV	NM_006599:c.G303T:p.K101N		chr16	69681034	69681034	G	T
ESCC-F20	exonic	<i>KCNJ12,KCNJ18</i>	nonsynonymous SNV	NM_001194958:c.C1061T:p.T354M		chr17	21319715	21319715	C	T
ESCC-F20	exonic	<i>ABCA8</i>	nonsynonymous SNV	NM_007168:c.A3467G:p.D1156G		chr17	66880500	66880500	T	C
ESCC-F20	exonic	<i>COL4A4</i>	nonsynonymous SNV	NM_000092:c.C5020G:p.Q1674E		chr2	227872094	227872094	G	C
ESCC-F20	exonic	<i>FBXW7</i>	stopgain SNV	NM_001013415:c.C866A:p.S289X	906763	chr4	153250840	153250840	G	T
ESCC-F20	exonic	<i>FAT1</i>	nonsynonymous SNV	NM_005245:c.T4130A:p.I1377N		chr4	187557232	187557232	A	T
ESCC-F20	exonic	<i>FBN2</i>	nonsynonymous SNV	NM_001999:c.G860A:p.C287Y		chr5	127782266	127782266	C	T
ESCC-F20	exonic	<i>PCDHB15</i>	nonsynonymous SNV	NM_018935:c.C2267T:p.T756M		chr5	140627413	140627413	C	T
ESCC-F20	exonic	<i>ABCA13</i>	nonsynonymous SNV	NM_152701:c.T7475A:p.L2492Q		chr7	48318266	48318266	T	A
ESCC-F20	exonic	<i>MGAM</i>	nonsynonymous SNV	NM_004668:c.C3910T:p.R1304C		chr7	141759362	141759362	C	T
ESCC-F20	exonic	<i>RP1</i>	nonsynonymous SNV	NM_006269:c.A5278C:p.N1760H		chr8	55541720	55541720	A	C
ESCC-F20	exonic	<i>DCAF4L2</i>	nonsynonymous SNV	NM_152418:c.G434A:p.C145Y		chr8	88885766	88885766	C	T
ESCC-F20	exonic	<i>TSC1</i>	nonsynonymous SNV	NM_001162427:c.C863G:p.T288S	906827	chr9	135786853	135786853	G	C
ESCC-F21	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_206933:c.A11975G:p.N3992S		chr1	215901463	215901463	T	C
ESCC-F21	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C5111T:p.T1704I		chr11	1093292	1093292	C	T
ESCC-F21	exonic	<i>SNX32</i>	nonsynonymous SNV	NM_152760:c.G522C:p.R174S		chr11	65618245	65618245	G	C
ESCC-F21	exonic	<i>ARHGEF17</i>	nonsynonymous SNV	NM_014786:c.G3408C:p.Q1136H		chr11	73064012	73064012	G	C
ESCC-F21	exonic	<i>MLL2</i>	frameshift insertion	NM_003482:c.7522_7523insT:p.A2508fs		chr12	49434031	49434031	-	A
ESCC-F21	exonic	<i>TP53</i>	stopgain SNV	NM_000546:c.C112T:p.Q38X	905938:907276:909707:946371:13	chr17	7579575	7579575	G	A
ESCC-F21	exonic	<i>DNMT1</i>	nonsynonymous SNV	NM_001379:c.C652A:p.P218T		chr19	10283834	10283834	G	T
ESCC-F21	exonic	<i>DNAH6</i>	stopgain SNV	NM_001370:c.G8173T:p.E2725X		chr2	84930630	84930630	G	T
ESCC-F21	exonic	<i>XIRP2</i>	nonsynonymous SNV	NM_001199144:c.A5171C:p.K1724T		chr2	168103739	168103739	A	C
ESCC-F21	exonic	<i>SF3A1</i>	nonsynonymous SNV	NM_001005409:c.G796A:p.E266K		chr22	30737761	30737761	C	T
ESCC-F21	splicing	<i>EP300(NM_001429:exon22:c.3806+1G>A)</i>				chr22	41560135	41560135	G	A
ESCC-F21	exonic	<i>POLQ</i>	nonsynonymous SNV	NM_199420:c.A4964G:p.N1655S		chr3	121206814	121206814	T	C
ESCC-F21	exonic	<i>TRIO</i>	nonsynonymous SNV	NM_007118:c.G2779C:p.E927Q		chr5	14366993	14366993	G	C
ESCC-F21	exonic	<i>GRIK2</i>	nonsynonymous SNV	NM_001166247:c.A1986T:p.E662D		chr6	102376408	102376408	A	T
ESCC-F21	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.A4339G:p.T1447A		chr6	152755073	152755073	T	C

ESCC-F21	exonic	<i>MET</i>	nonsynonymous SNV	NM_000245:c.G2728C:p.E910Q		chr7	116409843	116409843	G	C
ESCC-F21	exonic	<i>PLXNA4</i>	stopgain SNV	NM_181775:c.C1483T:p.Q495X		chr7	132169661	132169661	G	A
ESCC-F21	exonic	<i>SLCO5A1</i>	nonsynonymous SNV	NM_001146009:c.T2107C:p.Y703H		chr8	70585379	70585379	A	G
ESCC-F22	exonic	<i>FPGT-TNNI3K,TNNI3</i>	nonsynonymous SNV	NM_015978:c.C323A:p.A108E		chr1	74716443	74716443	C	A
ESCC-F22	exonic	<i>PTEN</i>	nonsynonymous SNV	NM_000314:c.G407A:p.C136Y	687563;706236;713885;724838;73	chr10	89692923	89692923	G	A
ESCC-F22	exonic	<i>FAR2</i>	nonsynonymous SNV	NM_018099:c.C461T:p.A154V		chr12	29450049	29450049	C	T
ESCC-F22	exonic	<i>MLL2</i>	stopgain SNV	NM_003482:c.C793T:p.R2645X		chr12	49433620	49433620	G	A
ESCC-F22	exonic	<i>EPHA7</i>	nonsynonymous SNV	NM_004440:c.G2179T:p.D727Y		chr6	93965749	93965749	C	A
ESCC-F22	exonic	<i>FAM48B2</i>	nonsynonymous SNV	NM_001136233:c.C1903T:p.P635S		chrX	24329530	24329530	G	A
ESCC-F22	exonic	<i>WNK3</i>	nonsynonymous SNV	NM_001002838:c.C3764T:p.S1255L		chrX	54264884	54264884	G	A
ESCC-F23	exonic	<i>NAV1</i>	nonsynonymous SNV	NM_020443:c.G1174A:p.D392N		chr1	201687831	201687831	G	A
ESCC-F23	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C5111T:p.T1704I		chr11	1093292	1093292	C	T
ESCC-F23	exonic	<i>CRBBP</i>	nonsynonymous SNV	NM_001079846:c.G6343A:p.G2115S		chr16	3778591	3778591	C	T
ESCC-F23	exonic	<i>MC2R</i>	nonsynonymous SNV	NM_000529:c.G514A:p.V172M		chr18	13885004	13885004	C	T
ESCC-F23	exonic	<i>FAT1</i>	stopgain SNV	NM_005245:c.C8176T:p.R2726X		chr4	187539564	187539564	G	A
ESCC-F23	exonic	<i>FAM169A</i>	nonsynonymous SNV	NM_015566:c.C1088T:p.T363I		chr5	74096720	74096720	G	A
ESCC-F23	exonic	<i>WRN</i>	nonsynonymous SNV	NM_000553:c.C1475T:p.S492F		chr8	30945335	30945335	C	T
ESCC-F24	exonic	<i>A2M</i>	nonsynonymous SNV	NM_000014:c.A2875T:p.M959L		chr12	9232391	9232391	T	A
ESCC-F24	exonic	<i>ARID2</i>	nonsynonymous SNV	NM_152641:c.G3928C:p.G1310R		chr12	46245834	46245834	G	C
ESCC-F24	exonic	<i>TP53:TP53</i>	frameshift insertion	NM_001126115:c.522-523insCG:p.R174fs	753566;905938;907276;909707;91	chr17	7577020	7577020	-	CG
ESCC-F24	exonic	<i>LRP2</i>	nonsynonymous SNV	NM_004525:c.G13421A:p.G4474E		chr2	169995184	169995184	C	T
ESCC-F24	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.T25792A:p.Y8598N		chr2	179569981	179569981	A	T
ESCC-F24	exonic	<i>NF2</i>	nonframeshift deletion	NM_181830:c.176-178del:p.59-60del	907041;924108;1035318;103519	chr22	30038252	30038254	CTT	-
ESCC-F24	exonic	<i>OR2B2</i>	stopgain SNV	NM_033057:c.G9A:p.W3X		chr6	27880089	27880089	C	T
ESCC-F25	exonic	<i>NOTCH2</i>	nonsynonymous SNV	NM_001200001:c.T1079G:p.F360C		chr1	120512163	120512163	A	C
ESCC-F25	exonic	<i>KLHL20</i>	nonsynonymous SNV	NM_014458:c.G405C:p.E135D		chr1	173703233	173703233	G	C
ESCC-F25	exonic	<i>MLL2</i>	nonsynonymous SNV	NM_003482:c.C14166A:p.F4722L		chr12	49422929	49422929	G	T
ESCC-F25	exonic	<i>TRHDE</i>	nonsynonymous SNV	NM_013381:c.A979T:p.M327L		chr12	72680660	72680660	A	T
ESCC-F25	exonic	<i>NBEA</i>	nonsynonymous SNV	NM_015678:c.G5869C:p.G1957R		chr13	35883695	35883695	G	C
ESCC-F25	exonic	<i>RB1</i>	stopgain SNV	NM_000321:c.A1285T:p.K429X	687562;906844;907072;908123;90	chr13	48951123	48951123	A	T
ESCC-F25	splicing	<i>TP53(NM_001126117:exon3:c.276+2T>C;NM_001126112:exon7:c.672+2T>C;NM_001126116:exon3:c.276+2T>C;NM_000546:exon7:c.672+2T>C)</i>			905938;906826;907276;909707;94	chr17	7578175	7578175	A	G
ESCC-F25	exonic	<i>NF1</i>	nonsynonymous SNV	NM_000267:c.C5425T:p.R1809C	688087;724879;908135;908450;11	chr17	29654736	29654736	C	T
ESCC-F25	exonic	<i>MSH6</i>	nonsynonymous SNV	NM_000179:c.T1744C:p.F582L	753548	chr2	48026866	48026866	T	C
ESCC-F25	exonic	<i>REL</i>	nonsynonymous SNV	NM_002908:c.A1630G:p.M544V		chr2	61149440	61149440	A	G
ESCC-F25	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.A50938C:p.I16980L		chr2	179432726	179432726	T	G
ESCC-F25	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C24014A:p.P8005H		chr2	179475044	179475044	G	T
ESCC-F25	exonic	<i>SSFA2</i>	nonsynonymous SNV	NM_001130445:c.C2003T:p.S668F		chr2	182780370	182780370	C	T
ESCC-F25	exonic	<i>PWIL3</i>	nonsynonymous SNV	NM_001008496:c.G2080A:p.V694M		chr22	25121439	25121439	C	T
ESCC-F25	exonic	<i>EP300</i>	nonsynonymous SNV	NM_001429:c.A758G:p.Y253C		chr22	41521896	41521896	A	G
ESCC-F25	exonic	<i>CDH12</i>	stopgain SNV	NM_004061:c.C76T:p.Q26X		chr5	22078710	22078710	G	A
ESCC-F25	exonic	<i>FAM184A</i>	nonsynonymous SNV	NM_001100411:c.G2179T:p.A727S		chr6	119297126	119297126	C	A
ESCC-F25	exonic	<i>LAMA2</i>	nonsynonymous SNV	NM_000426:c.G5202C:p.E1734D		chr6	129712766	129712766	G	C
ESCC-F25	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.G24622T:p.D8208Y		chr6	152469321	152469321	C	A
ESCC-F25	exonic	<i>ADCY8</i>	nonsynonymous SNV	NM_001115:c.A2606G:p.Y869C		chr8	131848592	131848592	T	C
ESCC-F25	exonic	<i>UTY</i>	frameshift insertion	NM_007125:c.906-907insT.p.1302fs		chrY	15472369	15472369	-	A
ESCC-F26	exonic	<i>MEITL18</i>	nonsynonymous SNV	NM_033418:c.G124A:p.E42K		chr1	169762713	169762713	C	T
ESCC-F26	exonic	<i>PCDH20</i>	nonsynonymous SNV	NM_022843:c.A640G:p.L214V		chr13	61987592	61987592	T	C
ESCC-F26	exonic	<i>ZNF443</i>	nonsynonymous SNV	NM_005815:c.A516T:p.K172N		chr19	12542470	12542470	T	A
ESCC-F26	splicing	<i>FSIP2(NM_173651:exon19:c.20593-1G>T)</i>				chr2	186680097	186680097	G	T
ESCC-F26	exonic	<i>HSPBAP1</i>	nonsynonymous SNV	NM_024610:c.T188C:p.L63P		chr3	122496630	122496630	A	G
ESCC-F26	exonic	<i>SI</i>	nonsynonymous SNV	NM_001041:c.G1076A:p.R359H		chr3	164777760	164777760	C	T
ESCC-F26	exonic	<i>CASP8AP2</i>	nonsynonymous SNV	NM_001137667:c.G3870C:p.E1290D		chr6	90576879	90576879	G	C
ESCC-F26	exonic	<i>SYNE1</i>	stopgain SNV	NM_033071:c.C8663A:p.S2888X		chr6	152706819	152706819	G	T
ESCC-F26	exonic	<i>ABC5</i>	nonsynonymous SNV	NM_001163942:c.G265A:p.A89T		chr7	20698192	20698192	G	A
ESCC-F27	exonic	<i>VPS13D</i>	nonsynonymous SNV	NM_015378:c.G15600C:p.M520I		chr1	12322103	12322103	G	C
ESCC-F27	exonic	<i>PRDM2</i>	nonsynonymous SNV	NM_001007257:c.G2740C:p.E914Q		chr1	14107633	14107633	G	C
ESCC-F27	exonic	<i>JAK1</i>	nonsynonymous SNV	NM_002227:c.G3367C:p.E1123Q		chr1	65301081	65301081	C	G
ESCC-F27	exonic	<i>ARHGAP29</i>	nonsynonymous SNV	NM_004815:c.G3A:p.M1I		chr1	94697165	94697165	C	T
ESCC-F27	exonic	<i>CRB1</i>	nonsynonymous SNV	NM_201253:c.C772T:p.H258Y		chr1	197313530	197313530	C	T
ESCC-F27	exonic	<i>HEPHL1</i>	nonsynonymous SNV	NM_001098672:c.G2285C:p.R762T		chr11	93822125	93822125	G	C
ESCC-F27	exonic	<i>AMOTL1</i>	nonsynonymous SNV	NM_130847:c.A2146G:p.I716V		chr11	94597910	94597910	A	G
ESCC-F27	exonic	<i>ANAPC5</i>	stopgain SNV	NM_001137559:c.C908G:p.S303X		chr12	121766179	121766179	G	C
ESCC-F27	exonic	<i>OCA2</i>	nonsynonymous SNV	NM_000275:c.T1148A:p.L383N		chr15	28234781	28234781	A	T
ESCC-F27	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.G42A:p.W14X	687592;905938;907276;908443;90	chr17	7578492	7578492	C	T
ESCC-F27	exonic	<i>PLXDC1</i>	nonsynonymous SNV	NM_020405:c.G643C:p.D215H		chr17	37263728	37263728	C	G
ESCC-F27	exonic	<i>MED13</i>	nonsynonymous SNV	NM_005121:c.G6513C:p.M2171I		chr17	60023841	60023841	C	G
ESCC-F27	exonic	<i>LILRB1</i>	nonsynonymous SNV	NM_001081637:c.G1294A:p.G432S		chr19	55145121	55145121	G	A
ESCC-F27	exonic	<i>ZC3H6</i>	nonsynonymous SNV	NM_198581:c.A2215T:p.T739S		chr2	113088710	113088710	A	T
ESCC-F27	exonic	<i>EP300</i>	nonsynonymous SNV	NM_001429:c.G4527C:p.W1509C		chr22	41568577	41568577	G	C
ESCC-F27	exonic	<i>PLXNA1</i>	nonsynonymous SNV	NM_032242:c.G3952A:p.G1318S		chr3	126739101	126739101	G	A
ESCC-F27	exonic	<i>PIK3CA</i>	nonsynonymous SNV	NM_006218:c.G1624A:p.E542K	762670;762672;762683;762684;76	chr3	178936082	178936082	G	A

ESCC-F27	exonic	<i>TRIM10</i>	nonsynonymous SNV	NM_052828:c.G1174A:p.E392K		chr6	30121479	30121479	C	T
ESCC-F27	exonic	<i>MLLT4</i>	nonsynonymous SNV	NM_001040000:c.G358C:p.D120H		chr6	168271122	168271122	G	C
ESCC-F27	exonic	<i>VCP1P1</i>	nonsynonymous SNV	NM_025054:c.A1436T:p.H479L		chr8	67577758	67577758	T	A
ESCC-F27	exonic	<i>CDK5RAP2</i>	nonsynonymous SNV	NM_001011649:c.C1488G:p.F496L		chr9	123249710	123249710	G	C
ESCC-F28	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4739A:p.T1580N		chr11	1092920	1092920	C	A
ESCC-F28	exonic	<i>MGAT4C</i>	nonsynonymous SNV	NM_013244:c.G446A:p.R149H		chr12	86374058	86374058	C	T
ESCC-F28	exonic	<i>MYH4</i>	nonsynonymous SNV	NM_017533:c.G5134C:p.D1712H		chr17	10350365	10350365	C	G
ESCC-F28	exonic	<i>TP53</i>	frameshift deletion	NM_00126115:c.384delC;p.S128fs	905938;907276;907321;909707;94	chr17	7577501	7577501	G	-
ESCC-F28	exonic	<i>SLC4A10</i>	nonsynonymous SNV	NM_022058:c.C1111A:p.H571N		chr2	162751195	162751195	C	A
ESCC-F28	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.A3328G:p.T1110A		chr3	195515123	195515123	T	C
ESCC-F28	exonic	<i>THSD7A</i>	nonsynonymous SNV	NM_015204:c.C2357T:p.S786L		chr7	11509517	11509517	G	A
ESCC-F29	exonic	<i>NBPF1</i>	unknown	UNKNOWN		chr1	16890599	16890599	A	G
ESCC-F29	exonic	<i>MGAT4C</i>	nonsynonymous SNV	NM_013244:c.G991C:p.E331Q		chr12	86373513	86373513	C	G
ESCC-F29	exonic	<i>CEP192</i>	nonsynonymous SNV	NM_032142:c.A4292T:p.K1431M		chr18	13059115	13059115	A	T
ESCC-F29	exonic	<i>FAM135B</i>	nonsynonymous SNV	NM_015912:c.T395G:p.M132R		chr8	139263231	139263231	A	C
ESCC-F29	exonic	<i>MCF2</i>	nonsynonymous SNV	NM_001171877:c.G2451T;p.M817I		chrX	138664617	138664617	C	A
ESCC-F30	exonic	<i>PRRC2C</i>	nonsynonymous SNV	NM_015172:c.G4843A:p.G1615S		chr1	171514703	171514703	G	A
ESCC-F30	exonic	<i>CEP350</i>	nonsynonymous SNV	NM_014810:c.G8014A:p.D2627N		chr1	180063254	180063254	G	A
ESCC-F30	exonic	<i>CTNNA3</i>	nonsynonymous SNV	NM_001127384:c.G34A:p.D12N		chr10	69407238	69407238	C	T
ESCC-F30	exonic	<i>NEURLA</i>	nonsynonymous SNV	NM_001005408:c.A3083G:p.E1028G		chr17	7224889	7224889	T	C
ESCC-F30	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C241T;p.R81X	687983;905938;905971;907000;90	chr17	7578212	7578212	G	A
ESCC-F30	exonic	<i>EMILIN2</i>	nonsynonymous SNV	NM_032048:c.G934A:p.E312K		chr18	2891059	2891059	G	A
ESCC-F30	exonic	<i>PDHA2</i>	stopgain SNV	NM_005390:c.C276A:p.C92X		chr4	96761577	96761577	C	A
ESCC-F30	exonic	<i>SLC22A23</i>	nonsynonymous SNV	NM_015482:c.A793G:p.L265V		chr6	3410542	3410542	T	C
ESCC-F30	splicing	<i>THSD7A(NM_015204:exon20:c.3916+1G>T)</i>				chr7	11446932	11446932	C	A
ESCC-F31	exonic:splicing	<i>DIAPH3:DIAPH3</i>	nonsynonymous SNV	NM_030932:c.G572A:p.R191K		chr13	60565292	60565292	C	T
ESCC-F31	exonic	<i>TIN</i>	nonsynonymous SNV	NM_133378:c.A32439T;p.E10813D		chr2	179514967	179514967	T	A
ESCC-F31	exonic	<i>MAP2</i>	nonsynonymous SNV	NM_031847:c.A1019G:p.N340S		chr2	210588332	210588332	A	G
ESCC-F31	exonic	<i>SPHKAP</i>	nonsynonymous SNV	NM_001142644:c.G83C:p.R28T		chr2	228996751	228996751	C	G
ESCC-F31	exonic	<i>PCHDA12</i>	nonsynonymous SNV	NM_018903:c.G133A:p.V45M		chr5	140255190	140255190	G	A
ESCC-F31	exonic	<i>ARHGAP26</i>	nonsynonymous SNV	NM_001135608:c.G1831A:p.E611K		chr5	142513664	142513664	G	A
ESCC-F31	exonic	<i>NOTCH1</i>	nonsynonymous SNV	NM_017617:c.G1393A:p.A465T		chr9	139412252	139412252	C	T
ESCC-F31	exonic	<i>TLR7</i>	nonsynonymous SNV	NM_016562:c.C2971T;p.L991F		chrX	12906598	12906598	C	T
ESCC-F32	exonic	<i>CDK11B</i>	nonsynonymous SNV	NM_033487:c.C977T;p.T326I		chr1	1572314	1572314	G	A
ESCC-F32	exonic	<i>USP24</i>	nonsynonymous SNV	NM_015306:c.T2189A:p.R730H		chr1	55612663	55612663	C	T
ESCC-F32	exonic	<i>ADCY10</i>	nonsynonymous SNV	NM_001167749:c.G2523C:p.K841N		chr1	167814826	167814826	C	G
ESCC-F32	exonic	<i>ASTN1</i>	nonsynonymous SNV	NM_004319:c.G1805A:p.R602H		chr1	176926896	176926896	C	T
ESCC-F32	exonic	<i>CACNA1E</i>	nonsynonymous SNV	NM_001205294:c.G3409C:p.E1137Q		chr1	181706704	181706704	G	C
ESCC-F32	exonic	<i>SHANK2</i>	nonsynonymous SNV	NM_133266:c.G3778C:p.D1260H		chr11	70318982	70318982	C	G
ESCC-F32	exonic	<i>HECTD1</i>	nonsynonymous SNV	NM_015382:c.C790T;p.P264S		chr14	31642826	31642826	G	A
ESCC-F32	exonic	<i>DICER1</i>	nonsynonymous SNV	NM_001195573:c.A2485G:p.I829V		chr14	95574382	95574382	T	C
ESCC-F32	exonic	<i>MYO9A</i>	nonsynonymous SNV	NM_006901:c.C6826T;p.R2276C		chr15	72141197	72141197	G	A
ESCC-F32	exonic	<i>RAI1</i>	frameshift insertion	NM_030665:c.3096_3097insC;p.G1032fs		chr17	17699358	17699358	-	C
ESCC-F32	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.G23858A:p.G7953D		chr19	9063588	9063588	C	T
ESCC-F32	exonic	<i>ZNF560</i>	nonsynonymous SNV	NM_152476:c.G372T;p.W124C		chr19	9581144	9581144	C	A
ESCC-F32	exonic	<i>ALK</i>	nonsynonymous SNV	NM_004304:c.C4675T;p.P1559S		chr2	29416278	29416278	G	A
ESCC-F32	exonic	<i>C2orf55</i>	nonsynonymous SNV	NM_207362:c.A2393G:p.K798R		chr2	99438343	99438343	T	C
ESCC-F32	exonic	<i>TIN</i>	nonsynonymous SNV	NM_003319:c.A66809G:p.D22270G		chr2	179412349	179412349	T	C
ESCC-F32	exonic	<i>TIN</i>	nonsynonymous SNV	NM_003319:c.G14401A:p.V4801I		chr2	179500702	179500702	C	T
ESCC-F32	exonic	<i>TIN</i>	nonsynonymous SNV	NM_003319:c.G14329C:p.A4777P		chr2	179500774	179500774	C	G
ESCC-F32	exonic	<i>ERBB4</i>	nonsynonymous SNV	NM_001042599:c.C1708A:p.H570N		chr2	212537897	212537897	G	T
ESCC-F32	exonic	<i>SPHKAP</i>	nonsynonymous SNV	NM_001142644:c.G4369C;p.E1457Q		chr2	228881201	228881201	C	G
ESCC-F32	exonic	<i>WFDC10A</i>	nonsynonymous SNV	NM_080753:c.C203A:p.S68Y		chr20	44259620	44259620	C	A
ESCC-F32	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8581G:p.H2861D		chr3	195509870	195509870	G	C
ESCC-F32	exonic	<i>PRDM9</i>	nonsynonymous SNV	NM_020227:c.G2333C:p.C778S		chr5	23527530	23527530	G	C
ESCC-F32	exonic	<i>PDZD2</i>	nonsynonymous SNV	NM_178140:c.G5920C:p.V1974L		chr5	32089474	32089474	G	C
ESCC-F32	exonic	<i>DMXL1</i>	nonsynonymous SNV	NM_005509:c.G2042A:p.C681Y		chr5	118469661	118469661	G	A
ESCC-F32	exonic	<i>SLC26A7</i>	nonsynonymous SNV	NM_052832:c.G313A:p.A105T		chr8	92307767	92307767	G	A
ESCC-F32	splicing	<i>ERP44(NM_015051:exon5:c.286+1G>A)</i>				chr9	102814698	102814698	C	T
ESCC-F32	exonic	<i>TSC1</i>	nonsynonymous SNV	NM_001162427:c.A2519G:p.N840S	906827	chr9	135772951	135772951	T	C
ESCC-F33	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.G248T;p.S83I	687829;905938;907276;908134;90	chr17	7578205	7578205	C	A
ESCC-F34	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.C9561A:p.H3187Q		chr1	16262296	16262296	C	A
ESCC-F34	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_206933:c.T13436C;p.L4479P		chr1	215847817	215847817	A	G
ESCC-F34	exonic	<i>CHST11</i>	nonsynonymous SNV	NM_001173982:c.C142T;p.R43W		chr12	104995722	104995722	C	T
ESCC-F34	exonic	<i>TPTE2</i>	nonsynonymous SNV	NM_130785:c.C520T;p.R174W		chr13	20025356	20025356	G	A
ESCC-F34	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.C6997T;p.L2333F		chr14	105414791	105414791	G	A
ESCC-F34	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.G3217C;p.E1073Q		chr14	105418571	105418571	C	G
ESCC-F34	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.G12508A:p.V4170M		chr16	70884491	70884491	C	T
ESCC-F34	exonic	<i>CTC1</i>	nonsynonymous SNV	NM_025099:c.C2411T;p.S804L		chr17	8135108	8135108	G	A
ESCC-F34	exonic	<i>ANKRD12</i>	stopgain SNV	NM_001083625:c.T3762A:p.Y1254X		chr18	9257096	9257096	T	A
ESCC-F34	exonic	<i>ZNF230</i>	nonsynonymous SNV	NM_006300:c.G87C:p.Q29H		chr19	44513013	44513013	G	C

ESCC-F34	exonic	ZNF665	stopgain SNV	NM_024733:c.C1038A:p.Y346X		chr19	53668705	53668705	G	T
ESCC-F34	exonic	ZNF749	stopgain SNV	NM_001023561:c.C865T:p.Q289X		chr19	57955381	57955381	C	T
ESCC-F34	exonic	XIRP2	nonsynonymous SNV	NM_001199144:c.G4549A:p.E1517K		chr2	168103117	168103117	G	A
ESCC-F34	exonic	MICMSAP	nonsynonymous SNV	NM_003906:c.G3457A:p.E1153K		chr21	47681204	47681204	C	T
ESCC-F34	exonic	EP300	nonframeshift deletion	NM_001429:c.3778_3780del:p.L260_1260del		chr22	41560106	41560108	CTT	-
ESCC-F34	exonic	SI	nonsynonymous SNV	NM_001041:c.C1042G:p.P348A		chr3	164777794	164777794	G	C
ESCC-F34	exonic	FBXW7	nonsynonymous SNV	NM_001013415:c.G1084A:p.D362N	906763:1423749	chr4	153247364	153247364	C	T
ESCC-F34	exonic	AKAP9	nonsynonymous SNV	NM_005751:c.G9200C:p.R3067T		chr7	91715717	91715717	G	C
ESCC-F34	exonic	RP1	nonsynonymous SNV	NM_006269:c.G5930C:p.R1977T		chr8	55542372	55542372	G	C
ESCC-F34	exonic	ATRX	nonsynonymous SNV	NM_138270:c.C4327T:p.R1443W		chrX	76907720	76907720	G	A
ESCC-F35	exonic	HMCN1	stopgain SNV	NM_031935:c.C337T:p.Q113X		chr1	185815226	185815226	C	T
ESCC-F35	exonic	OR2W5	nonsynonymous SNV	NM_001004698:c.C829T:p.L277F		chr1	247655258	247655258	C	T
ESCC-F35	exonic	APLNLR	nonsynonymous SNV	NM_005161:c.G185A:p.R62H		chr11	57004294	57004294	C	T
ESCC-F35	exonic	SYNE2	nonsynonymous SNV	NM_015180:c.T10190C:p.L3397S		chr14	64529591	64529591	T	C
ESCC-F35	exonic	TP53	nonsynonymous SNV	NM_001126115:c.A92G:p.Y31C	688022:724855:749709:753534:90	chr17	7578442	7578442	T	C
ESCC-F35	exonic	FTSJ3	frameshift insertion	NM_017647:c.2530_2531insA:p.H844fs		chr17	61897176	61897176	-	T
ESCC-F35	exonic	ZNF816-ZNF321P	nonsynonymous SNV	NM_001202473:c.T293A:p.P98N	1474863	chr19	53432565	53432565	A	T
ESCC-F35	exonic	TIN	nonsynonymous SNV	NM_003319:c.G65341A:p.V21781M		chr2	179413817	179413817	C	T
ESCC-F35	exonic	COLAA4	nonsynonymous SNV	NM_000092:c.C1852A:p.L618M		chr2	227942745	227942745	G	T
ESCC-F35	exonic	MYO18B	nonsynonymous SNV	NM_032608:c.C6509T:p.S2170T		chr22	26422449	26422449	C	T
ESCC-F35	exonic	SI	nonsynonymous SNV	NM_001041:c.G357T:p.M119I		chr3	164786882	164786882	C	A
ESCC-F35	exonic	OR2B2	nonsynonymous SNV	NM_033057:c.C808T:p.R270W		chr6	27879290	27879290	G	A
ESCC-F35	exonic	PCLO	nonsynonymous SNV	NM_014510:c.G802A:p.D268N		chr7	82785155	82785155	C	T
ESCC-F35	exonic	ABCBI	nonsynonymous SNV	NM_000927:c.T3728G:p.I1243R		chr7	87133674	87133674	A	C
ESCC-F35	exonic	PTPRZ1	nonsynonymous SNV	NM_002851:c.G4244A:p.G1415D		chr7	121653344	121653344	G	A
ESCC-F35	exonic	VPS13B	nonsynonymous SNV	NM_017890:c.G10573C:p.E3525Q		chr8	100866115	100866115	G	C
ESCC-F35	exonic	CSMD3	nonsynonymous SNV	NM_052900:c.G465T:p.L155F		chr8	114290870	114290870	C	A
ESCC-F35	exonic	ASTN2	nonsynonymous SNV	NM_014010:c.C1102T:p.R368C		chr9	119858344	119858344	G	A
ESCC-F36	exonic	LGR6	nonsynonymous SNV	NM_001017404:c.C1370T:p.P457L		chr1	202287218	202287218	C	T
ESCC-F36	exonic	FMN2	stopgain SNV	NM_020066:c.C4522T:p.R1508X		chr1	240493987	240493987	C	T
ESCC-F36	exonic	WDR64	nonsynonymous SNV	NM_144625:c.G934C:p.E312Q		chr1	241850887	241850887	G	C
ESCC-F36	exonic	ZNF669	nonsynonymous SNV	NM_001142572:c.G55A:p.A19T		chr1	247265364	247265364	C	T
ESCC-F36	exonic	MYO3A	nonsynonymous SNV	NM_017433:c.G2497A:p.A833T		chr10	26434455	26434455	G	A
ESCC-F36	exonic	TP53	nonsynonymous SNV	NM_001126115:c.G401C:p.G134A	753566:905938:905975:905988:90	chr17	7577141	7577141	C	T
ESCC-F36	exonic	TP53	nonsynonymous SNV	NM_001126115:c.G400A:p.G134R	753566:905938:907276:909707:91	chr17	7577142	7577142	C	T
ESCC-F36	exonic	CDK12	nonsynonymous SNV	NM_015083:c.G2705T:p.R902L		chr17	37667820	37667820	G	T
ESCC-F36	exonic	MAP2	nonsynonymous SNV	NM_002374:c.G2266T:p.A756S		chr2	210559160	210559160	G	T
ESCC-F36	exonic	UNC80	nonsynonymous SNV	NM_032504:c.C497G:p.S166C		chr2	210642180	210642180	C	G
ESCC-F36	exonic	SPHKAP	nonsynonymous SNV	NM_001142644:c.C1496T:p.A499V		chr2	228884074	228884074	G	A
ESCC-F36	exonic	ZBBX	nonsynonymous SNV	NM_001199201:c.C1165A:p.P389T		chr3	167034822	167034822	G	T
ESCC-F36	exonic	TIN1	nonsynonymous SNV	NM_001161560:c.G1316A:p.R439H		chr3	170858204	170858204	C	T
ESCC-F36	splicing	ANK2(NM_001127493:exon10:c.730-1G>-T,NM_020977:exon9:c.793-1G>-T,NM_001148:exon9:c.793-1G>-T)				chr4	114163266	114163266	G	T
ESCC-F36	exonic	GPR98	nonsynonymous SNV	NM_032119:c.C1405A:p.L469I		chr5	89924545	89924545	C	A
ESCC-F36	exonic	GRM3	nonsynonymous SNV	NM_000840:c.G2432T:p.G811V		chr7	86479726	86479726	G	T
ESCC-F36	exonic	CSMD3	nonsynonymous SNV	NM_052900:c.C3341T:p.S1114L		chr8	113649108	113649108	G	A
ESCC-F37	exonic	RB1	nonframeshift deletion	NM_000321:c.2012_2014del:p.671_672del	687459:724873:753548:906812:90	chr13	49033875	49033877	CTG	-
ESCC-F37	exonic	TP53	nonsynonymous SNV	NM_001126115:c.G250T:p.V58L	753586:905938:906849:907063:90	chr17	7578203	7578203	C	A
ESCC-F37	exonic	MUC16	nonsynonymous SNV	NM_024690:c.G2473T:p.G825W		chr19	9089342	9089342	C	A
ESCC-F37	exonic	SCN7A	nonsynonymous SNV	NM_002976:c.G4537C:p.D1513H		chr2	167262602	167262602	C	G
ESCC-F37	exonic	NFE2L2	nonsynonymous SNV	NM_001145412:c.G37A:p.D13N	1560530:1560573:1571456:15795S	chr2	178098960	178098960	C	T
ESCC-F37	exonic	BDP1	nonsynonymous SNV	NM_018429:c.C4459G:p.P1482A		chr5	70809223	70809223	C	G
ESCC-F37	exonic	DMXL1	nonsynonymous SNV	NM_005509:c.G4384A:p.D1462N		chr5	118485906	118485906	G	A
ESCC-F37	exonic	MLL3	stopgain SNV	NM_170606:c.A11539T:p.K3847X		chr7	151856079	151856079	T	A
ESCC-F38	exonic	KIAA1804	nonsynonymous SNV	NM_032435:c.T812C:p.L271P		chr1	233482194	233482194	T	C
ESCC-F38	exonic	WDR64	nonsynonymous SNV	NM_144625:c.A41G:p.Q14R		chr1	241815827	241815827	A	G
ESCC-F38	exonic	C10orf71	nonsynonymous SNV	NM_001135196:c.G1486A:p.A496T		chr10	50532076	50532076	G	A
ESCC-F38	exonic	RNF213	nonsynonymous SNV	NM_001256071:c.G3887A:p.G1296E		chr17	78306175	78306175	G	A
ESCC-F38	exonic	ZNF257	nonsynonymous SNV	NM_033468:c.C1067G:p.S356C		chr19	22271619	22271619	C	G
ESCC-F38	exonic	ALK	nonsynonymous SNV	NM_004304:c.G1969C:p.E657Q		chr2	29498037	29498037	C	G
ESCC-F38	exonic	TIN	nonsynonymous SNV	NM_003319:c.A1643C:p.K548T		chr2	179656818	179656818	T	G
ESCC-F38	exonic	SPHKAP	nonsynonymous SNV	NM_001142644:c.C2009A:p.T670N		chr2	228883561	228883561	G	T
ESCC-F38	exonic	IGSF10	nonsynonymous SNV	NM_178822:c.C2989A:p.P997T		chr3	151164780	151164780	G	T
ESCC-F38	exonic	PHF3	nonsynonymous SNV	NM_015153:c.A5813T:p.E1938V		chr6	64423297	64423297	A	T
ESCC-F38	exonic	ENPP1	nonsynonymous SNV	NM_006208:c.A2333T:p.D778V		chr6	132206092	132206092	A	T
ESCC-F38	exonic	HDAC9	nonsynonymous SNV	NM_001204147:c.C839T:p.T280M		chr7	18687451	18687451	C	T
ESCC-F38	exonic	IKZF1	nonsynonymous SNV	NM_001220772:c.T679C:p.Y227H		chr7	50468254	50468254	T	C
ESCC-F38	exonic	ABCBI	stopgain SNV	NM_000927:c.G421T:p.G141X		chr7	87196210	87196210	C	A
ESCC-F38	exonic	PLAG1	stopgain SNV	NM_001114635:c.G793T:p.E265X		chr8	57079266	57079266	C	G
ESCC-F38	exonic	GPR112	nonsynonymous SNV	NM_153834:c.C1634G:p.S545C		chrX	135427499	135427499	C	G
ESCC-F38	exonic	GPR112	nonsynonymous SNV	NM_153834:c.C1661G:p.S554C		chrX	135427526	135427526	C	G
ESCC-F39	exonic	KIAA0754	nonsynonymous SNV	NM_015038:c.T1527G:p.H509Q		chr1	39877464	39877464	T	G

ESCC-F39	exonic	PGBD2	nonsynonymous SNV	NM_170725:c.T671A:p.L224N		chr1	249211454	249211454	T	A
ESCC-F39	exonic	PGBD2	nonsynonymous SNV	NM_170725:c.C672G:p.L224M		chr1	249211455	249211455	C	G
ESCC-F39	exonic	FSIP2	nonsynonymous SNV	NM_173651:c.T14951C:p.I4984T		chr2	186668717	186668717	T	C
ESCC-F39	exonic	MMRN1	nonsynonymous SNV	NM_007351:c.G1921A:p.D641N		chr4	90856752	90856752	G	A
ESCC-F39	exonic	KIAA0947	nonsynonymous SNV	NM_015325:c.T5964G:p.N1988K		chr5	5466518	5466518	T	G
ESCC-F39	exonic	CMYA5	nonsynonymous SNV	NM_153610:c.T10546C:p.C3516R		chr5	79035134	79035134	T	C
ESCC-F39	exonic	DNAH8	nonsynonymous SNV	NM_001206927:c.G7270C:p.V2424L		chr6	38840714	38840714	G	C
ESCC-F39	exonic	XPO5	frameshift insertion	NM_020750:c.3057_3058insTp.M1019fs		chr6	43493586	43493586		A
ESCC-F39	exonic	LAMA2	nonsynonymous SNV	NM_000426:c.A4829G:p.Y1610C		chr6	129687475	129687475	A	G
ESCC-F39	exonic	SYNE1	nonsynonymous SNV	NM_033071:c.C22883A:p.S7628Y		chr6	152523008	152523008	G	T
ESCC-F39	exonic	PIK3CG	nonsynonymous SNV	NM_002649:c.T2005C:p.F669L		chr7	106512991	106512991	T	C
ESCC-F40	exonic	OR2L2	nonsynonymous SNV	NM_001004686:c.T355G:p.Y119D		chr1	248201924	248201924	T	G
ESCC-F40	exonic	MYO3A	nonsynonymous SNV	NM_017433:c.G1241T:p.G414V		chr10	26359110	26359110	G	T
ESCC-F40	exonic	FAT3	nonsynonymous SNV	NM_001008781:c.C3626T:p.S1209L		chr11	92430568	92430568	C	T
ESCC-F40	exonic	ATM	nonsynonymous SNV	NM_000051:c.G6814A:p.E2272K		chr11	108196791	108196791	G	A
ESCC-F40	exonic	SLCO1A2	nonsynonymous SNV	NM_021094:c.G35C:p.R12T		chr12	21487547	21487547	C	G
ESCC-F40	exonic	IKBP1	nonsynonymous SNV	NM_201612:c.C887A:p.P296Q		chr12	99007529	99007529	G	T
ESCC-F40	exonic	FANI	nonsynonymous SNV	NM_001146094:c.C1483G:p.Q495E		chr15	31202924	31202924	C	G
ESCC-F40	exonic	TP53	nonsynonymous SNV	NM_001126115:c.G248T:p.S83I	687829;905938;907276;908134;90	chr17	7578205	7578205	C	A
ESCC-F40	exonic	MYH8	nonsynonymous SNV	NM_002472:c.G5482C:p.E1828Q		chr17	10295945	10295945	C	G
ESCC-F40	exonic	ZNF845	nonsynonymous SNV	NM_138374:c.G632C:p.R211T		chr19	53854560	53854560	G	C
ESCC-F40	exonic	ZNF776	stopgain SNV	NM_173632:c.C1015T:p.Q339R		chr19	58265513	58265513	C	T
ESCC-F40	exonic	XIRP2	nonsynonymous SNV	NM_001199145:c.C708G:p.F236L		chr2	168114430	168114430	C	G
ESCC-F40	exonic	ITN	nonsynonymous SNV	NM_003319:c.G68086A:p.E2269GK		chr2	179410682	179410682	C	T
ESCC-F40	exonic	TTN	nonsynonymous SNV	NM_003319:c.T34358C:p.V11453A		chr2	179454899	179454899	A	G
ESCC-F40	exonic	FN1	nonsynonymous SNV	NM_002026:c.A4066C:p.T1356P		chr2	216252938	216252938	T	G
ESCC-F40	exonic	PBRM1	stopgain SNV	NM_018131:c.G3253T:p.E1085X		chr3	52620500	52620500	C	A
ESCC-F40	exonic	MYH15	nonsynonymous SNV	NM_014981:c.G172A:p.D58N		chr3	108224653	108224653	C	T
ESCC-F40	splicing	EVC2(NM_147127:exon14:c.1887-2A>G,NM_001166136:exon14:c.1647-2A>G)				chr4	5627637	5627637	T	C
ESCC-F40	exonic	KIAA0947	nonsynonymous SNV	NM_015325:c.C5402T:p.S1801I		chr5	5464849	5464849	C	T
ESCC-F40	exonic	KIAA0947	nonsynonymous SNV	NM_015325:c.G6664C:p.D2222H		chr5	5489306	5489306	G	C
ESCC-F40	exonic	DNAH5	nonsynonymous SNV	NM_001369:c.G5047A:p.E1683K		chr5	13850828	13850828	C	T
ESCC-F40	exonic	PRDM9	nonsynonymous SNV	NM_020227:c.G1372C:p.E458Q		chr5	23526569	23526569	G	C
ESCC-F40	exonic	MAST4	nonsynonymous SNV	NM_015183:c.G1640T:p.R547I		chr5	66429455	66429455	G	T
ESCC-F40	exonic	RANBP17	stopgain SNV	NM_022897:c.G2277A:p.W759X		chr5	170640680	170640680	G	A
ESCC-F40	exonic	TAX1BP1	nonsynonymous SNV	NM_001206902:c.C1522T:p.P508S		chr7	27867390	27867390	C	T
ESCC-F40	exonic	PLXNA4	nonsynonymous SNV	NM_001105543:c.T2132A:p.I71M		chr7	132193240	132193240	A	C
ESCC-F40	exonic	KIAA1549	nonsynonymous SNV	NM_001164665:c.G857A:p.R286Q		chr7	138603515	138603515	C	T
ESCC-F40	exonic	CSMD3	nonsynonymous SNV	NM_052900:c.G6928C:p.E2310Q		chr8	113332136	113332136	C	G
ESCC-F40	exonic	FAM135B	nonsynonymous SNV	NM_015912:c.G3213T:p.L1071F		chr8	139163505	139163505	C	A
ESCC-F40	exonic	KDM6A	nonsynonymous SNV	NM_021140:c.C775A:p.L259M	724870;749715;908148;909771;94	chrX	44913100	44913100	C	A
ESCC-F40	exonic	ATRX	nonsynonymous SNV	NM_138270:c.G3361C:p.E1121Q		chrX	76937273	76937273	C	G
ESCC-F41	exonic	CACNA1E	nonsynonymous SNV	NM_001205294:c.C6061T:p.R2021W		chr1	181765842	181765842	C	T
ESCC-F41	exonic	HMCN1	nonsynonymous SNV	NM_031935:c.G8521A:p.E2841K		chr1	186047274	186047274	G	A
ESCC-F41	exonic	RGS21	nonsynonymous SNV	NM_001039152:c.A64G:p.M22V		chr1	192316495	192316495	A	G
ESCC-F41	exonic	LRRTM3	nonsynonymous SNV	NM_178011:c.C325T:p.R109C		chr10	68686999	68686999	C	T
ESCC-F41	exonic	KLHL1	nonsynonymous SNV	NM_020866:c.G2199C:p.L733F		chr13	70275882	70275882	C	G
ESCC-F41	exonic	WHAMM	nonsynonymous SNV	NM_001080435:c.C1999G:p.Q667E		chr15	83499708	83499708	C	G
ESCC-F41	exonic	TP53	nonsynonymous SNV	NM_001126115:c.T32A:p.V11E	905938;907276;908138;909707;94	chr17	7578502	7578502	A	T
ESCC-F41	exonic	BRIP1	nonsynonymous SNV	NM_032043:c.A1528G:p.K510E		chr17	59861731	59861731	T	C
ESCC-F41	exonic	RNF213	nonsynonymous SNV	NM_001256071:c.G8725C:p.E2909Q		chr17	78320860	78320860	G	C
ESCC-F41	exonic	MUC16	nonsynonymous SNV	NM_024690:c.C10003G:p.L3335V		chr19	9077443	9077443	G	C
ESCC-F41	exonic	ZNF761	stopgain SNV	NM_001008401:c.G591A:p.W197X	1604872	chr19	53958352	53958352	G	A
ESCC-F41	exonic	DNAH6	nonsynonymous SNV	NM_001370:c.G9706A:p.E3236K		chr2	84945422	84945422	G	A
ESCC-F41	exonic	MERTK	nonsynonymous SNV	NM_006343:c.G451A:p.D151N		chr2	112687086	112687086	G	A
ESCC-F41	exonic	KANSL1L	nonsynonymous SNV	NM_152519:c.G1630C:p.D544H		chr2	210940401	210940401	C	G
ESCC-F41	exonic	MYH15	nonsynonymous SNV	NM_014981:c.G5767A:p.E1923K		chr3	108102501	108102501	C	T
ESCC-F41	exonic	SHROOM3	nonsynonymous SNV	NM_020859:c.C656T:p.S219F		chr4	77659982	77659982	C	T
ESCC-F41	exonic	MMRN1	nonsynonymous SNV	NM_007351:c.C134A:p.P45H		chr4	90816256	90816256	C	A
ESCC-F41	exonic	PITCHD4	nonsynonymous SNV	NM_001013732:c.G1847T:p.R616I		chr6	47846733	47846733	C	A
ESCC-F41	exonic	CASP8AP2	nonframeshift deletion	NM_001137667:c.5674_5676del;p.1892_1892del		chr6	90578683	90578685	TCA	-
ESCC-F41	exonic	PCLO	nonsynonymous SNV	NM_033026:c.G15337T:p.G5113C		chr7	82387983	82387983	C	A
ESCC-F41	exonic	IQB	nonsynonymous SNV	NM_178827:c.C625G:p.L209V		chr7	123143325	123143325	G	C
ESCC-F41	exonic	CDKN2A	stopgain SNV	NM_000077:c.G329A:p.W110X	684052;687455;687457;687563;68	chr9	21971029	21971029	C	T
ESCC-F41	exonic	DMD	nonsynonymous SNV	NM_004007:c.A1034G:p.E345G		chrX	32632499	32632499	T	C
ESCC-F42	exonic	MLL2	nonsynonymous SNV	NM_003482:c.G4421T:p.C1474F		chr12	49440205	49440205	C	A
ESCC-F42	exonic	TP53	nonsynonymous SNV	NM_001126115:c.A263G:p.Y88C	687819;905938;906693;907045;90	chr17	7578190	7578190	T	C
ESCC-F42	exonic	ZNF91	frameshift insertion	NM_003430:c.1012_1013insTp.A338fs		chr19	23544769	23544769	-	A
ESCC-F42	exonic	COL4A4	nonsynonymous SNV	NM_000092:c.C190T:p.R64W		chr2	228004879	228004879	G	A
ESCC-F42	exonic	EP300	stopgain SNV	NM_001429:c.A1465T:p.K489X		chr22	41527574	41527574	A	T
ESCC-F42	exonic	EP300	nonsynonymous SNV	NM_001429:c.C2377G:p.Q793E		chr22	41545177	41545177	C	G

ESCC-F42	exonic	TET2	stopgain SNV	NM_001127208:c.C2461T;p.Q821X		chr4	106157560	106157560	C	T
ESCC-F42	exonic	FAT1	nonsynonymous SNV	NM_005245:c.G6199A;p.V2067M		chr4	187541541	187541541	C	T
ESCC-F42	exonic	ABCA13	nonsynonymous SNV	NM_152701:c.G11152A;p.A3718T		chr7	48413962	48413962	G	A
ESCC-F42	exonic	MUC17	nonsynonymous SNV	NM_001040105:c.A3942T;p.E1314D		chr7	100678639	100678639	A	T
ESCC-F42	splicing	PTPRZ1(NM_001206839:exon27:c.3928-2A>T,NM_002851:exon28:c.6529-2A>T,NM_001206838:exon28:c.3949-2A>T)				chr7	121698852	121698852	A	T
ESCC-F42	exonic	ASTN2	nonsynonymous SNV	NM_014010:c.G1201T;p.G401C		chr9	119802167	119802167	C	A
ESCC-F42	exonic	TLR7	nonsynonymous SNV	NM_016562:c.C282G;p.194M		chrX	12903909	12903909	C	G
ESCC-F42	exonic	DMD	nonsynonymous SNV	NM_004011:c.T2573A;p.L858Q		chrX	31986474	31986474	A	T
ESCC-F42	exonic	KIF4A	nonsynonymous SNV	NM_012310:c.A283T;p.T95S		chrX	69516895	69516895	A	T
ESCC-F42	exonic	CENPI	nonsynonymous SNV	NM_006733:c.G1495C;p.E499Q		chrX	100395679	100395679	G	C
ESCC-F42	exonic	PASD1	nonsynonymous SNV	NM_173493:c.G1554C;p.K518N		chrX	150840771	150840771	G	C
ESCC-F43	exonic	LRR1Q3	nonsynonymous SNV	NM_001105659:c.C1168G;p.P390A		chr1	74507447	74507447	G	C
ESCC-F43	exonic	TRHDE	nonsynonymous SNV	NM_013381:c.G2602A;p.V868I		chr12	73046163	73046163	G	A
ESCC-F43	exonic	DMXL2	nonsynonymous SNV	NM_001174116:c.C2270G;p.S757C		chr15	51828407	51828407	G	C
ESCC-F43	exonic	TP53	nonsynonymous SNV	NM_001126115:c.C437A;p.P146H	753566;753588;753611;905938;90	chr17	7577105	7577105	G	T
ESCC-F43	exonic	CRLF3	nonsynonymous SNV	NM_015986:c.A1216G;p.L406V		chr17	29111318	29111318	T	C
ESCC-F43	exonic	MUC16	nonsynonymous SNV	NM_024690:c.C20285A;p.A6762E		chr19	9067161	9067161	G	T
ESCC-F43	exonic	ANK2	nonsynonymous SNV	NM_001148:c.C6490G;p.L2164V		chr4	114276264	114276264	C	G
ESCC-F43	exonic	ANK2	nonsynonymous SNV	NM_001148:c.C6571G;p.L2191V		chr4	114276345	114276345	C	G
ESCC-F43	exonic	ABCA13	nonsynonymous SNV	NM_152701:c.G4075C;p.E1359V		chr7	48313338	48313338	G	C
ESCC-F44	exonic	BCO2	nonsynonymous SNV	NM_001256400:c.G160A;p.E54K		chr11	112064378	112064378	G	A
ESCC-F44	exonic	FAR2	nonsynonymous SNV	NM_018099:c.G264C;p.Q88H		chr12	29446307	29446307	G	C
ESCC-F44	exonic	TP53	nonsynonymous SNV	NM_001126115:c.G428T;p.C143F	687596;753566;905938;906871;90	chr17	7577114	7577114	C	A
ESCC-F44	exonic	ZNF750	nonsynonymous SNV	NM_024702:c.C938G;p.S313C		chr17	80789393	80789393	G	C
ESCC-F44	exonic	ZNF750	stopgain SNV	NM_024702:c.C668G;p.S223X		chr17	80789663	80789663	G	C
ESCC-F44	exonic	XIRP2	nonsynonymous SNV	NM_001079810:c.G434T;p.C145F		chr2	167992444	167992444	G	T
ESCC-F44	exonic	PTPRK	nonsynonymous SNV	NM_002844:c.G3314C;p.R1105T		chr6	128304460	128304460	C	G
ESCC-F44	exonic	GPR112	nonsynonymous SNV	NM_153834:c.G5228C;p.R1743T		chrX	135431093	135431093	G	C
ESCC-F45	exonic	CACNA1E	nonsynonymous SNV	NM_001205294:c.C6043T;p.R2015C		chr1	181765824	181765824	C	T
ESCC-F45	exonic	HMCN1	nonsynonymous SNV	NM_031935:c.G13158T;p.K4386N		chr1	186099757	186099757	G	T
ESCC-F45	exonic	FMN2	nonsynonymous SNV	NM_020066:c.G4702T;p.A1568S		chr1	240497466	240497466	G	T
ESCC-F45	exonic	PPF1A1	nonsynonymous SNV	NM_003626:c.G1324A;p.E442K		chr11	70181696	70181696	G	A
ESCC-F45	exonic	ARID2	nonsynonymous SNV	NM_152641:c.T947C;p.L316P		chr12	46230698	46230698	T	C
ESCC-F45	splicing	TP53(NM_001126117:exon3:c.276+1G>T,NM_001126112:exon7:c.672+1G>T,NM_001126116:exon3:c.276+1G>T,NM_000546:exon7:c.672+1G>T)			724868;753566;905938;907276;90	chr17	7578176	7578176	C	A
ESCC-F45	splicing	BRP1(NM_032043:exon10:c.1141-1G>C)				chr17	59876661	59876661	C	G
ESCC-F45	exonic	ZNF708	nonsynonymous SNV	NM_021269:c.G175A;p.G59R		chr19	21492099	21492099	C	T
ESCC-F45	exonic	NFE2L2	nonsynonymous SNV	NM_001145412:c.A182G;p.D61G	1571463;1571731;1579543;15809	chr2	178098815	178098815	T	C
ESCC-F45	exonic	TIN	nonsynonymous SNV	NM_003319:c.G42063T;p.L4021F		chr2	179441804	179441804	C	A
ESCC-F45	exonic	FN1	nonsynonymous SNV	NM_002026:c.G2063C;p.G688A		chr2	216274716	216274716	C	T
ESCC-F45	exonic	SPHKAP	nonsynonymous SNV	NM_001142644:c.C1111A;p.H371N		chr2	228884459	228884459	G	T
ESCC-F45	exonic	SON	nonframeshift deletion	NM_032195:c.6397_6399del;p.2133_2133del		chr21	34931611	34931613	GAA	-
ESCC-F45	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C10357G;p.H3453D		chr3	195508094	195508094	G	C
ESCC-F45	exonic	ANK2	nonsynonymous SNV	NM_001148:c.G8011A;p.A2671T		chr4	114277785	114277785	G	A
ESCC-F45	exonic	VCAN	nonsynonymous SNV	NM_001164098:c.G1435A;p.E479K		chr5	82815560	82815560	G	A
ESCC-F45	exonic	OR2B6	nonsynonymous SNV	NM_012367:c.C434A;p.A145E		chr6	27925452	27925452	C	A
ESCC-F45	exonic	NMBR	nonsynonymous SNV	NM_002511:c.C305T;p.S102L	1474876	chr6	142409491	142409491	G	A
ESCC-F45	exonic	MUC17	nonsynonymous SNV	NM_001040105:c.C6569T;p.T2190I		chr7	100681266	100681266	C	T
ESCC-F45	exonic	BRAF	nonsynonymous SNV	NM_004333:c.G469A;p.V157I		chr7	140534444	140534444	C	T
ESCC-F46	exonic	CACNA1E	nonsynonymous SNV	NM_001205294:c.G6671A;p.R2224Q		chr1	181767885	181767885	G	A
ESCC-F46	exonic;splicing	FAT3;FAT3	nonsynonymous SNV	NM_001008781:c.G3293A;p.G1098E		chr11	92257800	92257800	G	A
ESCC-F46	exonic	ARID2	nonsynonymous SNV	NM_152641:c.C3340A;p.Q1114K		chr12	46245246	46245246	C	A
ESCC-F46	exonic	ABCC12	nonsynonymous SNV	NM_033226:c.A3253T;p.T1085S		chr16	48125063	48125063	T	A
ESCC-F46	exonic	TP53	nonsynonymous SNV	NM_001126115:c.G404C;p.R135P	687794;753566;905938;907276;90	chr17	7577138	7577138	G	C
ESCC-F46	exonic	MUC16	nonsynonymous SNV	NM_024690:c.G17371A;p.E5791K		chr19	9070075	9070075	C	T
ESCC-F46	exonic	MSH6	nonsynonymous SNV	NM_000179:c.G1870A;p.G624S	753548;1482074	chr2	48026992	48026992	G	A
ESCC-F46	exonic	TRIO	nonsynonymous SNV	NM_007118:c.G6545A;p.R2182H		chr5	14482770	14482770	G	A
ESCC-F46	exonic	GPR98	nonsynonymous SNV	NM_032119:c.C9816G;p.F3272L		chr5	90020716	90020716	C	G
ESCC-F46	exonic	HIST1HC	frameshift deletion	NM_005319:c.89delG;p.G30fs		chr6	26056568	26056568	C	-
ESCC-F46	exonic	MLL3	stopgain SNV	NM_170606:c.C4439G;p.S1480X		chr7	151891593	151891593	G	C
ESCC-F46	exonic	VPS13B	nonsynonymous SNV	NM_017890:c.G5381C;p.S1794T		chr8	100654124	100654124	G	C
ESCC-F46	exonic	CSMD3	nonsynonymous SNV	NM_052900:c.C2542A;p.H848N		chr8	113668533	113668533	G	T
ESCC-F47	exonic	SIPA1L2	frameshift deletion	NM_020808:c.4116_4117del;p.1372_1373del		chr1	232568132	232568133	GAA	-
ESCC-F47	exonic	CUBN	nonsynonymous SNV	NM_001081:c.C5395A;p.R1799S		chr10	16982184	16982184	G	T
ESCC-F47	exonic	TP53	nonsynonymous SNV	NM_001126118:c.T221C;p.F74S	724838;905938;906803;907276;90	chr17	7579349	7579349	A	G
ESCC-F47	exonic	SPECC1	nonsynonymous SNV	NM_001033555:c.C2186A;p.S729Y		chr17	20149316	20149316	C	A
ESCC-F47	exonic	DNAH9	frameshift deletion	NM_001372:c.6324delC;p.D2108fs		chr17	11648326	11648326	C	-
ESCC-F47	exonic	ZC3H6	nonsynonymous SNV	NM_198581:c.T637G;p.F213V		chr2	113069404	113069404	T	G
ESCC-F47	exonic	FN1	nonsynonymous SNV	NM_002026:c.C4867A;p.P1623T		chr2	216246959	216246959	G	T
ESCC-F47	exonic	ADD1	nonsynonymous SNV	NM_001119:c.A905G;p.H302R		chr4	2900179	2900179	A	G
ESCC-F47	exonic	CNOT6L	nonsynonymous SNV	NM_144571:c.C1660T;p.R554W		chr4	78641593	78641593	G	A
ESCC-F47	exonic	BCOR	nonsynonymous SNV	NM_001123383:c.C2983G;p.Q995E		chrX	39931616	39931616	G	C

ESCC-F48	exonic	<i>FAM46C</i>	nonsynonymous SNV	NM_017709:c.G565T;p.D189Y		chr1	118166055	118166055	G	T
ESCC-F48	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.A182T;p.H61L	753573;905938;906851;907059;90	chr17	7578271	7578271	T	A
ESCC-F48	exonic	<i>ZNF676</i>	nonsynonymous SNV	NM_001001411:c.C698A;p.A233D		chr19	22363821	22363821	G	T
ESCC-F48	exonic	<i>IFT172</i>	nonsynonymous SNV	NM_015662:c.G3936T;p.E1312D		chr2	27676266	27676266	C	A
ESCC-F48	exonic	<i>NFE2L2</i>	nonsynonymous SNV	NM_001145412:c.C52G;p.R18G	1571458;1579693;1604883	chr2	178098945	178098945	G	C
ESCC-F48	exonic	<i>MATN4</i>	nonsynonymous SNV	NM_030592:c.G1088A;p.R363H		chr20	43926902	43926902	C	T
ESCC-F48	exonic	<i>LAMB2</i>	nonsynonymous SNV	NM_002292:c.C4846T;p.R1616W		chr3	49159454	49159454	G	A
ESCC-F48	exonic	<i>MYH15</i>	nonsynonymous SNV	NM_014981:c.G2144A;p.R715K		chr3	108175667	108175667	C	T
ESCC-F48	exonic	<i>DSPP</i>	nonsynonymous SNV	NM_014208:c.G2737A;p.D913N		chr4	88536551	88536551	G	A
ESCC-F48	exonic	<i>PCDH9</i>	unknown	UNKNOWN		chr5	140569145	140569145	G	A
ESCC-F48	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_052900:c.G1804A;p.E602K		chr8	113702136	113702136	C	T
ESCC-F48	exonic;splicing	<i>OXR1;OXR1</i>	frameshift insertion	NM_181354:c.200_201insCp.D67fs		chr8	107691438	107691438	-	C
ESCC-F49	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.T141G;p.H47Q	684059;905938;906869;907276;90	chr17	7578393	7578393	A	C
ESCC-F49	exonic	<i>TRAP</i>	nonsynonymous SNV	NM_005879:c.G1359T;p.K453N		chr3	49866587	49866587	C	A
ESCC-F49	exonic	<i>FK3CA</i>	frameshift insertion	NM_006218:c.3201_3202insA;p.L1067fs		chr3	178952146	178952146	-	A
ESCC-F50	exonic	<i>ZNF643</i>	nonsynonymous SNV	NM_023070:c.G838C;p.E280Q		chr1	40928494	40928494	G	C
ESCC-F50	exonic	<i>KIAA1804</i>	nonsynonymous SNV	NM_032435:c.C1033T;p.R345W		chr1	233489599	233489599	C	T
ESCC-F50	exonic	<i>MLL2</i>	stopgain SNV	NM_003482:c.C11938T;p.Q3980X		chr12	49426550	49426550	G	A
ESCC-F50	exonic	<i>MYO16</i>	nonsynonymous SNV	NM_001198950:c.G1885A;p.E629K		chr13	109562458	109562458	G	A
ESCC-F50	exonic	<i>SLFN1</i>	nonsynonymous SNV	NM_152270:c.C2397G;p.F799L		chr17	33679684	33679684	G	C
ESCC-F50	exonic	<i>MED13</i>	nonsynonymous SNV	NM_005121:c.G1213A;p.A405T		chr17	60106972	60106972	C	T
ESCC-F50	exonic	<i>TP53</i>	frameshift deletion	NM_000546:c.112delC;p.Q38fs	905938;907276;909707;946371;13	chr17	7579575	7579575	-	C
ESCC-F50	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C39724T;p.R13242C		chr19	9005682	9005682	G	A
ESCC-F50	exonic	<i>FBXO11</i>	stopgain SNV	NM_001190274:c.2740_2741insTp.D914_S915delinsX	753548	chr2	48035301	48035301	-	A
ESCC-F50	exonic	<i>PMS1</i>	nonsynonymous SNV	NM_001128143:c.G2191C;p.E731Q		chr2	190728920	190728920	G	C
ESCC-F50	exonic	<i>GOLGB1</i>	nonsynonymous SNV	NM_001256488:c.G4819T;p.A1607S		chr3	121414311	121414311	C	A
ESCC-F50	exonic	<i>IGSF10</i>	stopgain SNV	NM_178822:c.C818G;p.S273X		chr3	151166951	151166951	G	C
ESCC-F50	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.G12460A;p.A4154T		chr5	90072326	90072326	G	A
ESCC-F50	exonic	<i>FAT2</i>	frameshift insertion	NM_001447:c.6750_6751insTp.L2250fs		chr5	150923938	150923938	-	A
ESCC-F50	exonic	<i>LAMA2</i>	nonsynonymous SNV	NM_001079823:c.G8369C;p.R2790T		chr6	129824259	129824259	G	C
ESCC-F50	exonic	<i>RIMS2</i>	nonsynonymous SNV	NM_014677:c.G430A;p.D144N		chr8	104897833	104897833	G	A
ESCC-F50	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_052900:c.C4003G;p.L1335V		chr8	113564869	113564869	G	C
ESCC-F50	exonic	<i>ADCY8</i>	nonsynonymous SNV	NM_001115:c.T2083A;p.F695I		chr8	131896836	131896836	A	T
ESCC-F51	exonic	<i>NOTCH2</i>	nonsynonymous SNV	NM_001200001:c.T391C;p.C131R		chr1	120547976	120547976	A	G
ESCC-F51	exonic	<i>WDR64</i>	nonsynonymous SNV	NM_144625:c.G577A;p.A193T		chr1	241842880	241842880	G	A
ESCC-F51	splicing	<i>ITLTD1(NM_001145727:exon2:c.58+IG>T)</i>				chr12	25801427	25801427	C	A
ESCC-F51	exonic	<i>TRHDE</i>	nonsynonymous SNV	NM_013381:c.C2331G;p.F777L		chr12	73012815	73012815	C	G
ESCC-F51	exonic	<i>KLHL1</i>	nonsynonymous SNV	NM_020866:c.G869A;p.C290Y		chr13	70514317	70514317	C	T
ESCC-F51	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.T10159C;p.S3387P		chr14	64529560	64529560	T	C
ESCC-F51	exonic	<i>ABCA9</i>	nonsynonymous SNV	NM_080283:c.G2170C;p.E724Q		chr17	67020466	67020466	C	G
ESCC-F51	exonic	<i>ZNF750</i>	stopgain SNV	NM_024702:c.C668G;p.S223X		chr17	80789663	80789663	G	C
ESCC-F51	exonic	<i>SLC8A1</i>	nonsynonymous SNV	NM_001112801:c.G2417T;p.G806V		chr2	40366630	40366630	C	A
ESCC-F51	exonic	<i>SLC8A1</i>	nonsynonymous SNV	NM_001112801:c.G2347C;p.E783Q		chr2	40366700	40366700	G	C
ESCC-F51	exonic	<i>XIRP2</i>	nonsynonymous SNV	NM_001199144:c.G3961C;p.E1321Q		chr2	168102529	168102529	G	C
ESCC-F51	exonic	<i>CDH10</i>	nonsynonymous SNV	NM_006727:c.T58C;p.C20R		chr5	24593542	24593542	A	G
ESCC-F51	exonic	<i>C5orf42</i>	nonsynonymous SNV	NM_023073:c.C7157G;p.P2386R		chr5	37168969	37168969	G	C
ESCC-F51	exonic	<i>VCAN</i>	stopgain SNV	NM_001164097:c.C2542T;p.Q848X		chr5	82834325	82834325	C	T
ESCC-F51	exonic	<i>VCAN</i>	nonsynonymous SNV	NM_001164097:c.G5347C;p.E1783Q		chr5	82837130	82837130	G	C
ESCC-F51	exonic	<i>APC</i>	nonsynonymous SNV	NM_001127511:c.G4324A;p.A1442T	994673;1109799;1136382	chr5	112175669	112175669	G	A
ESCC-F51	splicing	<i>BAI3(NM_001704:exon25:c.3189-2A>G)</i>				chr6	70048806	70048806	A	G
ESCC-F51	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.G24778A;p.E8260K		chr6	152466676	152466676	C	T
ESCC-F51	exonic	<i>SYNE1</i>	stopgain SNV	NM_033071:c.C6659G;p.S2220X		chr6	152728234	152728234	G	C
ESCC-F51	exonic	<i>RAPGEF5</i>	nonsynonymous SNV	NM_012294:c.C743T;p.T248I		chr7	22232987	22232987	G	A
ESCC-F51	exonic	<i>TMEM2</i>	nonsynonymous SNV	NM_001135820:c.G1711A;p.D571N		chr9	74345043	74345043	C	T
ESCC-F51	exonic	<i>FANCC</i>	nonsynonymous SNV	NM_000136:c.C786G;p.I262M		chr9	97897685	97897685	G	C
ESCC-F51	exonic	<i>FAM47C</i>	nonsynonymous SNV	NM_001013736:c.G1402A;p.E468K		chrX	37027885	37027885	G	A
ESCC-F51	exonic	<i>KDM6A</i>	nonsynonymous SNV	NM_021140:c.G3724C;p.G1242R	724870;749715;946354	chrX	44949163	44949163	G	C
ESCC-F51	exonic	<i>HUWE1</i>	nonsynonymous SNV	NM_031407:c.C4066A;p.P1356T		chrX	53617989	53617989	G	T
ESCC-F52	splicing	<i>VPS13D(NM_018156:exon68:c.12720-1G>A;NM_015378:exon69:c.12795-1G>A)</i>				chr1	12566906	12566906	G	A
ESCC-F52	exonic	<i>CRB1</i>	nonsynonymous SNV	NM_001193640:c.G2641C;p.E881Q		chr1	197403970	197403970	G	C
ESCC-F52	exonic	<i>C1orf65</i>	nonsynonymous SNV	NM_152610:c.G1831C;p.E611Q		chr1	223568648	223568648	C	C
ESCC-F52	exonic	<i>CDH23</i>	nonsynonymous SNV	NM_001171930:c.G3439A;p.G1147S		chr10	73485137	73485137	G	A
ESCC-F52	exonic	<i>LRP1</i>	nonsynonymous SNV	NM_002332:c.C4895G;p.S1632C		chr12	57573268	57573268	C	G
ESCC-F52	splicing	<i>PPP1A2(NM_001220473:exon28:c.3213-2A>-;NM_003625:exon29:c.3213-2A>-;NM_001220475:exon27:c.3150-2A>-;NM_001220474:exon28:c.3168-2A>-;NM_001220480:exon18:c.3168-2A>-)</i>				chr12	81671195	81671195	T	C
ESCC-F52	exonic	<i>AKAP6</i>	nonsynonymous SNV	NM_004274:c.A6458C;p.E2153A		chr14	33293477	33293477	A	C
ESCC-F52	exonic	<i>SLTM</i>	nonsynonymous SNV	NM_001013843:c.G1999A;p.E667K		chr15	59182506	59182506	C	T
ESCC-F52	exonic	<i>SLC43A2</i>	nonsynonymous SNV	NM_152346:c.C557T;p.S186F		chr17	1496518	1496518	G	A
ESCC-F52	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.G265T;p.E89X	905938;907276;909707;946371;13	chr17	7578188	7578188	C	T
ESCC-F52	exonic	<i>LRP1B</i>	nonsynonymous SNV	NM_018557:c.G4947C;p.Q1649H		chr2	141598654	141598654	C	G
ESCC-F52	exonic	<i>TIN</i>	nonsynonymous SNV	NM_133378:c.C23693T;p.S7898L		chr2	179577224	179577224	G	A
ESCC-F52	exonic	<i>MAP2</i>	nonsynonymous SNV	NM_002574:c.G2779A;p.D927N		chr2	210559673	210559673	G	A

ESCC-F52	exonic	<i>PBRM1</i>	nonsynonymous SNV	NM_018313:c.T1738C:p.Y580H		chr3	52651358	52651358	A	G
ESCC-F52	exonic	<i>DNAH5</i>	stopgain SNV	NM_001369:c.G7771T:p.E2591X		chr5	13807816	13807816	C	A
ESCC-F52	exonic	<i>MLL3</i>	stopgain SNV	NM_170606:c.C5668T:p.R1890X		chr7	151879277	151879277	G	A
ESCC-F52	exonic	<i>MAGEC1</i>	frameshift insertion	NM_005462:c.1457_1458insA:p.S486fs		chrX	140994647	140994647	-	A
ESCC-F53	exonic	<i>LRN2</i>	nonsynonymous SNV	NM_201630:c.G160A:p.D54N		chr1	204588961	204588961	C	T
ESCC-F53	exonic	<i>CUBN</i>	nonsynonymous SNV	NM_001081:c.C6182T:p.P2061L		chr10	16970245	16970245	G	A
ESCC-F53	exonic	<i>KLHL1</i>	nonsynonymous SNV	NM_020866:c.G1820A:p.G607D		chr13	70293696	70293696	C	T
ESCC-F53	exonic	<i>RB1</i>	frameshift insertion	NM_000321:c.282_283insA:p.K94fs	905951:906844:907072:908123:90	chr13	48916752	48916752	-	A
ESCC-F53	exonic	<i>TRIO</i>	nonsynonymous SNV	NM_007118:c.G5215A:p.V1739I		chr5	14461139	14461139	G	A
ESCC-F53	exonic	<i>MCC</i>	stopgain SNV	NM_002387:c.C298T:p.Q100X		chr5	112478931	112478931	G	A
ESCC-F53	exonic	<i>ZNF92</i>	nonsynonymous SNV	NM_007139:c.A56C:p.E19A		chr7	64863290	64863290	A	C
ESCC-F53	exonic	<i>NOTCH1</i>	nonsynonymous SNV	NM_017617:c.G1367A:p.C456Y		chr9	139412278	139412278	C	T
ESCC-F53	exonic	<i>GRIA3</i>	nonsynonymous SNV	NM_000828:c.G2416A:p.G806S		chrX	122599616	122599616	G	A
ESCC-F54	exonic	<i>MYO3A</i>	nonsynonymous SNV	NM_017433:c.C2780T:p.A927V		chr10	26443739	26443739	C	T
ESCC-F54	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.A3965G:p.D1322G		chr11	1092146	1092146	A	G
ESCC-F54	exonic	<i>PPFIA2</i>	stopgain SNV	NM_001220479:c.C457T:p.R153X		chr12	81751878	81751878	G	A
ESCC-F54	exonic	<i>NACA</i>	frameshift insertion	NM_001113203:c.897_898insC:p.P299fs		chr12	57114417	57114417	-	G
ESCC-F54	exonic	<i>MYH6</i>	nonsynonymous SNV	NM_002471:c.C2540T:p.T847M		chr14	23863422	23863422	G	A
ESCC-F54	exonic	<i>LRP2</i>	nonsynonymous SNV	NM_004525:c.G5645A:p.R1882H		chr2	170076967	170076967	C	T
ESCC-F54	exonic	<i>ZNF831</i>	nonsynonymous SNV	NM_178457:c.C2957G:p.T986S		chr20	57769031	57769031	C	G
ESCC-F54	exonic	<i>SORBS2</i>	nonsynonymous SNV	NM_001145674:c.G749A:p.R250Q		chr4	186545534	186545534	C	T
ESCC-F54	exonic	<i>DGKB</i>	nonsynonymous SNV	NM_004080:c.G1866T:p.E622D		chr7	14384989	14384989	C	A
ESCC-F54	exonic	<i>FAM135B</i>	nonsynonymous SNV	NM_015912:c.G145A:p.A49T		chr8	139323096	139323096	C	T
ESCC-F54	exonic	<i>COL22A1</i>	stopgain SNV	NM_152888:c.A1783T:p.K595X		chr8	139788229	139788229	T	A
ESCC-F54	exonic	<i>PLEC</i>	nonsynonymous SNV	NM_201378:c.C13216T:p.R4406C		chr8	144990731	144990731	G	A
ESCC-F54	exonic	<i>PLEC</i>	nonsynonymous SNV	NM_201378:c.C12554T:p.S4185F		chr8	144991393	144991393	G	A
ESCC-F54	splicing	<i>CDKN2A(NM_058195:exon3:c.194-1G>-A,NM_058197:exon3:c.425-1G>-A,NM_001195132:exon3:c.151-1G>-A,NM_000077:exon3:c.151-1G>-A)</i>			684052:687455:687457:687563:68	chr9	21971208	21971208	C	T
ESCC-F55	exonic	<i>CHD1L</i>	nonsynonymous SNV	NM_001256338:c.G577A:p.V193M		chr1	146743861	146743861	G	A
ESCC-F55	exonic	<i>KLHL20</i>	nonsynonymous SNV	NM_014458:c.G1053C:p.M351I		chr1	173726200	173726200	G	C
ESCC-F55	exonic	<i>ATRN1</i>	nonsynonymous SNV	NM_207303:c.G2341A:p.G781R		chr10	117045833	117045833	G	A
ESCC-F55	splicing	<i>SLC1A2(NM_004171:exon9:c.1286+1G>-T,NM_001252652:exon10:c.1259+1G>-T,NM_001195728:exon10:c.1259+1G>-T)</i>				chr11	35308303	35308303	C	A
ESCC-F55	exonic	<i>ARID2</i>	nonsynonymous SNV	NM_152641:c.G2644T:p.G882C		chr12	46244550	46244550	G	T
ESCC-F55	exonic	<i>UBN1</i>	nonsynonymous SNV	NM_016936:c.C2263A:p.P755T		chr16	4924674	4924674	C	A
ESCC-F55	exonic	<i>SPECC1</i>	nonsynonymous SNV	NM_001033555:c.G2956A:p.E986K		chr17	20217370	20217370	G	A
ESCC-F55	exonic	<i>ABCA9</i>	nonsynonymous SNV	NM_080283:c.G1964C:p.R655P		chr17	67023203	67023203	C	G
ESCC-F55	splicing	<i>TP53(NM_001126112:exon5:c.375+1G>-NM_000546:exon5:c.375+1G>-NM_001126113:exon5:c.375+1G>-NM_001126118:exon4:c.258+1G>-NM_000598:907276:909707:946371:13)</i>			905938:907276:909707:946371:13	chr17	7579311	7579311	C	T
ESCC-F55	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C28121A:p.S9374Y		chr19	9059325	9059325	G	T
ESCC-F55	exonic	<i>DNAH6</i>	nonsynonymous SNV	NM_001370:c.G58A:p.E20K		chr2	84745008	84745008	G	A
ESCC-F55	exonic	<i>SLC4A10</i>	nonsynonymous SNV	NM_001178015:c.G574T:p.A192S		chr2	162711637	162711637	G	T
ESCC-F55	exonic	<i>LRP2</i>	nonsynonymous SNV	NM_004525:c.C6523T:p.R2175W		chr2	170063707	170063707	G	A
ESCC-F55	exonic	<i>MAP2</i>	nonsynonymous SNV	NM_031845:c.C731G:p.A244G		chr2	210574704	210574704	C	G
ESCC-F55	splicing	<i>MCC(NM_001085377:exon15:c.2030-2A>-T,NM_002387:exon13:c.1460-2A>-T)</i>				chr5	112399866	112399866	T	A
ESCC-F55	exonic	<i>FNIP1</i>	nonsynonymous SNV	NM_001008738:c.C2368T:p.P790S		chr5	131007685	131007685	G	A
ESCC-F55	exonic	<i>PCDHB1</i>	nonsynonymous SNV	NM_013340:c.A2066C:p.K689T		chr5	140433121	140433121	A	C
ESCC-F55	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.G11587A:p.E3863K		chr7	82545715	82545715	C	T
ESCC-F55	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.G610C:p.E204Q		chr7	82785347	82785347	C	G
ESCC-F56	exonic	<i>RB1</i>	stopgain SNV	NM_000321:c.C526T:p.Q176X	905951:906844:907072:908123:90	chr13	48921986	48921986	C	T
ESCC-F56	exonic	<i>MYO16</i>	nonsynonymous SNV	NM_001198950:c.A3169G:p.T1057A		chr13	109707777	109707777	A	G
ESCC-F56	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C241T:p.R81X	687983:905938:905971:907000:90	chr17	7578212	7578212	G	A
ESCC-F56	exonic	<i>TIN</i>	nonsynonymous SNV	NM_133379:c.C15847A:p.P5283T		chr2	179611280	179611280	G	T
ESCC-F56	exonic	<i>ADRBK2</i>	nonsynonymous SNV	NM_005160:c.G1316A:p.C439Y		chr22	26100164	26100164	G	A
ESCC-F56	exonic	<i>KIT</i>	nonsynonymous SNV	NM_000222:c.C839T:p.A280V		chr4	55569972	55569972	C	T
ESCC-F56	exonic	<i>FAT1</i>	frameshift deletion	NM_005245:c.2128_2129del:p.710_710del		chr4	187628853	187628854	TT	-
ESCC-F56	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.T2146C:p.F716L		chr5	89933671	89933671	T	C
ESCC-F56	exonic	<i>DGKB</i>	nonsynonymous SNV	NM_004080:c.C677T:p.T226M		chr7	14733734	14733734	G	A
ESCC-F56	exonic	<i>NCOA2</i>	nonsynonymous SNV	NM_006540:c.A280G:p.194V		chr8	71087074	71087074	T	C
ESCC-F57	exonic	<i>TECTA</i>	nonsynonymous SNV	NM_005422:c.G2507A:p.R836Q		chr11	121000486	121000486	G	A
ESCC-F57	exonic	<i>ML2</i>	nonsynonymous SNV	NM_003482:c.C1075T:p.R359C		chr12	49446735	49446735	G	A
ESCC-F57	exonic	<i>MED13L</i>	nonsynonymous SNV	NM_015335:c.C2917T:p.R973W		chr12	116434360	116434360	G	A
ESCC-F57	exonic	<i>UBN1</i>	nonsynonymous SNV	NM_016936:c.A503C:p.Q168P		chr16	4909096	4909096	A	C
ESCC-F57	exonic	<i>PHKB</i>	nonsynonymous SNV	NM_000293:c.T1814C:p.1605T		chr16	47684471	47684471	T	C
ESCC-F57	splicing	<i>TP53(NM_001126112:exon3:c.164-1G>-A,NM_001126112:exon7:c.560-1G>-A,NM_001126116:exon3:c.164-1G>-A,NM_000546:exon7:c.560-1G>-A)</i>			905938:907276:909707:946371:13	chr17	7578290	7578290	C	T
ESCC-F57	splicing	<i>NFI</i>			724879:753620:906873:908135:90	chr17	29541604	29541607	GTA	A
ESCC-F57	exonic	<i>NRXN1</i>	nonsynonymous SNV	NM_004801:c.C2566T:p.R856W		chr2	50724784	50724784	G	A
ESCC-F57	exonic	<i>SEMA4C</i>	nonsynonymous SNV	NM_017789:c.C1087T:p.P363S		chr2	97529995	97529995	G	A
ESCC-F57	exonic	<i>FSIP2</i>	nonsynonymous SNV	NM_173651:c.G15054T:p.L5018F		chr2	186668820	186668820	G	T
ESCC-F57	exonic	<i>UNC80</i>	nonsynonymous SNV	NM_032504:c.C1463T:p.T488M		chr2	210681760	210681760	C	T
ESCC-F57	exonic	<i>PDZRN3</i>	nonsynonymous SNV	NM_015009:c.C3149T:p.S1050F		chr3	73432568	73432568	G	A
ESCC-F57	exonic	<i>CMYA5</i>	nonsynonymous SNV	NM_153610:c.C9382A:p.P3128T		chr5	79033970	79033970	C	A
ESCC-F57	exonic	<i>FBN2</i>	nonsynonymous SNV	NM_001999:c.G8530A:p.V2844I		chr5	127595356	127595356	C	T
ESCC-F57	splicing	<i>FBN2(NM_001999:exon23:c.2813-1G>-A)</i>				chr5	127685698	127685698	C	T

ESCC-F57	exonic	<i>FBN2</i>	nonsynonymous SNV	NM_001999:c.G2738T;p.G913V		chr5	127686634	127686634	C	A
ESCC-F57	exonic	<i>PTCHD4</i>	nonsynonymous SNV	NM_001013732:c.G2474A;p.R825Q		chr6	47846106	47846106	C	T
ESCC-F57	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.G8082T;p.K2694N		chr6	152711531	152711531	C	A
ESCC-F57	exonic	<i>ABCB1</i>	nonsynonymous SNV	NM_000927:c.C3697T;p.R1233C		chr7	87133705	87133705	G	A
ESCC-F57	exonic	<i>ZFX4</i>	nonsynonymous SNV	NM_024721:c.G9060T;p.L3020F		chr8	77768217	77768217	G	T
ESCC-F57	exonic	<i>KIF4A</i>	nonsynonymous SNV	NM_012310:c.G2138A;p.R713H		chrX	69607053	69607053	G	A
ESCC-F58	exonic	<i>OBSCN</i>	nonsynonymous SNV	NM_001098623:c.G12838A;p.E4280K		chr1	228496898	228496898	G	A
ESCC-F58	exonic	<i>KIF5B</i>	nonsynonymous SNV	NM_004521:c.G2464A;p.E816K		chr10	32307078	32307078	C	T
ESCC-F58	exonic	<i>APLNR</i>	nonsynonymous SNV	NM_005161:c.G850A;p.D284N		chr11	57003629	57003629	C	T
ESCC-F58	exonic	<i>SRCAP</i>	nonsynonymous SNV	NM_006662:c.A2336G;p.Q779R		chr16	30724875	30724875	A	G
ESCC-F58	exonic	<i>ZNF676</i>	nonsynonymous SNV	NM_001001411:c.C1317A;p.H439Q		chr19	22363202	22363202	G	T
ESCC-F58	exonic	<i>PNMAL1</i>	nonsynonymous SNV	NM_001103149:c.C511T;p.R171W		chr19	46973782	46973782	G	A
ESCC-F58	exonic	<i>NRXN1</i>	nonsynonymous SNV	NM_138735:c.G248C;p.R83P		chr2	50573840	50573840	C	G
ESCC-F58	exonic	<i>TEKT4</i>	nonsynonymous SNV	NM_144705:c.G1240A;p.D414N		chr2	95542446	95542446	G	A
ESCC-F58	exonic	<i>TIN</i>	nonsynonymous SNV	NM_003319:c.G32275C;p.D10759H		chr2	179457262	179457262	C	G
ESCC-F58	exonic	<i>SI</i>	nonsynonymous SNV	NM_001041:c.A1726G;p.K576E		chr3	164764790	164764790	T	C
ESCC-F58	exonic	<i>ZBBX</i>	nonsynonymous SNV	NM_001199202:c.G2253C;p.E751D		chr3	166958644	166958644	C	G
ESCC-F58	exonic	<i>ATP11B</i>	nonsynonymous SNV	NM_014616:c.G1606C;p.E536Q		chr3	182584218	182584218	G	C
ESCC-F58	exonic	<i>KIAA109</i>	stopgain SNV	NM_015312:c.G5776T;p.E1926X		chr4	123171582	123171582	G	T
ESCC-F58	exonic	<i>PCDH10</i>	stopgain SNV	NM_020815:c.C1624T;p.Q542X		chr4	134072919	134072919	C	T
ESCC-F58	exonic	<i>GRIA2</i>	nonsynonymous SNV	NM_000826:c.G2087A;p.R696Q		chr4	158281091	158281091	G	A
ESCC-F58	exonic	<i>FAT1</i>	nonsynonymous SNV	NM_005245:c.A7976G;p.E2659G		chr4	187539764	187539764	T	C
ESCC-F58	exonic	<i>MAST4</i>	nonsynonymous SNV	NM_015183:c.G1852A;p.E618K		chr5	66432417	66432417	G	A
ESCC-F58	exonic	<i>PHF3</i>	nonsynonymous SNV	NM_015153:c.C5453T;p.P1818L		chr6	64422937	64422937	C	T
ESCC-F58	exonic	<i>BA13</i>	nonsynonymous SNV	NM_001704:c.G994C;p.E332Q		chr6	69646536	69646536	G	C
ESCC-F58	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.G22963C;p.D7655H		chr6	152510512	152510512	C	G
ESCC-F58	exonic	<i>RAPGEF5</i>	nonsynonymous SNV	NM_012294:c.C898G;p.L300V		chr7	22202086	22202086	C	C
ESCC-F58	exonic	<i>NFE2L3</i>	nonsynonymous SNV	NM_004289:c.C1274T;p.S425L		chr7	26224592	26224592	C	T
ESCC-F58	exonic	<i>TAX1BP1</i>	nonsynonymous SNV	NM_001079864:c.G290A;p.G97E		chr7	27805477	27805477	G	A
ESCC-F58	exonic	<i>PCL0</i>	frameshift insertion	NM_014510:c.3699_3700insA;p.K1233fs		chr7	82595405	82595405	T	A
ESCC-F58	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_052900:c.G10186A;p.A3396T		chr8	113246641	113246641	C	T
ESCC-F58	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_052900:c.G4681A;p.E1561K		chr8	113516109	113516109	C	T
ESCC-F58	exonic	<i>EIF3H</i>	nonsynonymous SNV	NM_003756:c.C832G;p.Q278E		chr8	117658839	117658839	G	C
ESCC-F58	exonic	<i>FAM135B</i>	nonsynonymous SNV	NM_015912:c.G300A;p.M100I		chr8	139269000	139269000	C	T
ESCC-F58	exonic	<i>PLEC</i>	frameshift deletion	NM_201378:c.G244delG;p.L308fs		chr8	145008878	145008878	C	-
ESCC-F58	exonic	<i>FAM75D1</i>	nonsynonymous SNV	NM_001001670:c.C129G;p.F43L		chr9	84603862	84603862	C	G
ESCC-F58	exonic	<i>DMD</i>	nonsynonymous SNV	NM_004011:c.G3202C;p.E1068Q		chrX	31838176	31838176	C	G
ESCC-F58	exonic	<i>PCDH1X</i>	nonsynonymous SNV	NM_001168362:c.C3178T;p.R1060C		chrX	91642878	91642878	C	T
ESCC-F59	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.G6128A;p.R2043H		chr1	16258863	16258863	G	A
ESCC-F59	exonic	<i>CUBN</i>	nonsynonymous SNV	NM_001081:c.C8277G;p.I2759M		chr10	16942757	16942757	G	C
ESCC-F59	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C4232T;p.T1411M		chr11	1018569	1018569	G	A
ESCC-F59	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.T5051G;p.V1684G		chr11	1093232	1093232	T	G
ESCC-F59	exonic	<i>FAT3</i>	stopgain SNV	NM_001008781:c.C7651T;p.Q2551X		chr11	92533830	92533830	C	T
ESCC-F59	exonic	<i>ANAPC5</i>	nonsynonymous SNV	NM_016237:c.A157G;p.S53G		chr12	121789987	121789987	T	C
ESCC-F59	exonic	<i>SPTB</i>	nonsynonymous SNV	NM_000347:c.G2397A;p.M799I		chr14	65259984	65259984	C	T
ESCC-F59	exonic	<i>MYO9A</i>	nonsynonymous SNV	NM_006901:c.T1337C;p.I446T		chr15	72300210	72300210	A	G
ESCC-F59	exonic	<i>TP53</i>	stopgain SNV	NM_001126118:c.C193T;p.Q65X	905938:905961:907041:907276:90	chr17	7579377	7579377	G	A
ESCC-F59	exonic	<i>NFE2L2</i>	nonsynonymous SNV	NM_001145412:c.C40T;p.L14F	1571843;1580991;1581066	chr2	178098957	178098957	G	A
ESCC-F59	exonic	<i>KRTAP15-1</i>	nonsynonymous SNV	NM_181623:c.G407C;p.C136S		chr21	31813052	31813052	G	C
ESCC-F59	exonic	<i>ARPP21</i>	nonsynonymous SNV	NM_016300:c.A475T;p.N159Y		chr3	35730867	35730867	A	T
ESCC-F59	exonic	<i>SCN5A</i>	nonsynonymous SNV	NM_001099405:c.T4511A;p.F1504Y		chr3	38596018	38596018	A	T
ESCC-F59	exonic	<i>MYH15</i>	nonsynonymous SNV	NM_014981:c.G2789C;p.R930T		chr3	108160034	108160034	C	G
ESCC-F59	exonic	<i>SI</i>	nonsynonymous SNV	NM_001041:c.G952A;p.G318S		chr3	164780227	164780227	C	T
ESCC-F59	exonic	<i>CDH10</i>	nonsynonymous SNV	NM_006727:c.G1271C;p.R424P		chr5	24505343	24505343	C	G
ESCC-F59	exonic	<i>LSMBL3</i>	nonsynonymous SNV	NM_001007102:c.G2195A;p.G732D	1474880	chr6	130460825	130460825	G	A
ESCC-F59	exonic	<i>TSC1</i>	nonsynonymous SNV	NM_001162427:c.G2204A;p.R735Q	906827	chr9	135778026	135778026	C	T
ESCC-F60	exonic	<i>VPS13D</i>	nonsynonymous SNV	NM_018156:c.G11315A;p.R3772Q		chr1	12445338	12445338	G	A
ESCC-F60	exonic	<i>PRRC2C</i>	nonsynonymous SNV	NM_015172:c.A1175T;p.K392I		chr1	171494085	171494085	A	T
ESCC-F60	exonic	<i>OR4D9</i>	nonsynonymous SNV	NM_001004711:c.C800T;p.T267I		chr11	59283185	59283185	C	T
ESCC-F60	exonic	<i>FAR2</i>	nonsynonymous SNV	NM_018099:c.G496A;p.V166I		chr12	29450084	29450084	G	A
ESCC-F60	exonic	<i>TMEM119</i>	nonsynonymous SNV	NM_181724:c.A1G;p.M1V		chr12	108986159	108986159	T	C
ESCC-F60	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.A247T;p.S83C	905938:906836:907276:908134:90	chr17	7578206	7578206	T	A
ESCC-F60	exonic	<i>TP53</i>	frameshift deletion	NM_001126115:c.247_248del;p.R83_83del	905938:907276:908134:909707:94	chr17	7578205	7578205	CT	-
ESCC-F60	exonic	<i>OR7A17</i>	nonsynonymous SNV	NM_030901:c.G597T;p.M199I		chr19	14991571	14991571	C	A
ESCC-F60	exonic	<i>ZNF99</i>	nonsynonymous SNV	NM_001080409:c.A47G;p.E16G		chr19	22952083	22952083	T	C
ESCC-F60	exonic	<i>GCF2C</i>	nonsynonymous SNV	NM_001201335:c.G371C;p.G124A		chr2	75933672	75933672	C	G
ESCC-F60	exonic	<i>GITF</i>	nonsynonymous SNV	NM_000248:c.G1195A;p.G399R		chr3	70014334	70014334	G	A
ESCC-F60	exonic	<i>MAP3K13</i>	nonsynonymous SNV	NM_001242317:c.G1151A;p.R384H		chr3	185190891	185190891	G	A
ESCC-F60	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G10093A;p.G3365S		chr3	195508358	195508358	C	T
ESCC-F60	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G10087C;p.V3363L		chr3	195508364	195508364	C	G
ESCC-F60	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8734A;p.P2912T		chr3	195509717	195509717	G	T

ESCC-F60	exonic	<i>PCDH10</i>	nonsynonymous SNV	NM_020815:c.G2650T:p.D884Y		chr4	134073945	134073945	G	T
ESCC-F60	exonic	<i>TRIO</i>	nonsynonymous SNV	NM_007118:c.G5806T:p.D1936Y		chr5	14471469	14471469	G	T
ESCC-F60	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.C14756T:p.S4919L		chr5	90101195	90101195	C	T
ESCC-F60	exonic	<i>HIST1H2AG</i>	nonsynonymous SNV	NM_021064:c.C362G:p.T121S		chr6	27101212	27101212	C	G
ESCC-F60	exonic	<i>KIAI1549</i>	nonsynonymous SNV	NM_001164665:c.T412C:p.F138L		chr7	138603960	138603960	A	G
ESCC-F60	exonic	<i>TG</i>	nonsynonymous SNV	NM_003235:c.G2056A:p.A686T		chr8	133899673	133899673	G	A
ESCC-F60	exonic	<i>ZFAT</i>	nonsynonymous SNV	NM_001174157:c.G2099A:p.R700H		chr8	135612869	135612869	C	T
ESCC-F60	exonic	<i>KDM6A</i>	frameshift deletion	NM_021140:c.T125delC:p.Q709fs	724870;749715;946354	chrX	44929025	44929025	C	-
ESCC-F61	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.A13781G:p.D4594G		chr2	179595879	179595879	T	C
ESCC-F62	exonic	<i>COL11A1</i>	nonsynonymous SNV	NM_080630:c.T3185C:p.M1062T		chr1	103400072	103400072	A	G
ESCC-F62	exonic:splicing	<i>SYNE2;SYNE2</i>	nonsynonymous SNV	NM_015180:c.A4888G:p.L1630V		chr14	64484313	64484313	A	G
ESCC-F62	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.A107G:p.H36R	905938;907276;909707;946371;13	chr17	7578427	7578427	T	C
ESCC-F62	exonic	<i>SPHKAP</i>	nonsynonymous SNV	NM_001142644:c.C1955T:p.S652L		chr2	228883615	228883615	G	A
ESCC-F62	exonic	<i>FLNC</i>	nonsynonymous SNV	NM_001127487:c.C1088T:p.P363L		chr7	128478361	128478361	C	T
ESCC-F62	exonic	<i>FZD3</i>	nonsynonymous SNV	NM_145866:c.G1060A:p.G354S		chr8	28385337	28385337	G	A
ESCC-F62	exonic	<i>ZFX4</i>	nonsynonymous SNV	NM_024721:c.C6266A:p.P2089H		chr8	77765423	77765423	C	A
ESCC-F62	exonic	<i>SLC26A7</i>	nonsynonymous SNV	NM_052832:c.C1201A:p.L401I		chr8	92364098	92364098	C	A
ESCC-F63	exonic	<i>USP24</i>	nonsynonymous SNV	NM_015306:c.A7262G:p.Y242I		chr1	55544263	55544263	T	C
ESCC-F63	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C511T:p.T1704I		chr11	1093292	1093292	C	T
ESCC-F63	exonic	<i>SDHAF2</i>	nonsynonymous SNV	NM_017841:c.G461A:p.R154H		chr11	61213503	61213503	G	A
ESCC-F63	exonic	<i>LRKK2</i>	nonsynonymous SNV	NM_198578:c.A1003C:p.N335H		chr12	40645078	40645078	A	C
ESCC-F63	exonic	<i>NAV3</i>	nonsynonymous SNV	NM_014903:c.A311C:p.Q104P		chr12	78334166	78334166	A	C
ESCC-F63	exonic	<i>ZNF676</i>	nonsynonymous SNV	NM_001001411:c.T1216C:p.S406P		chr19	22363303	22363303	A	G
ESCC-F63	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.G12100A:p.A4034T		chr2	179598188	179598188	C	T
ESCC-F63	exonic	<i>MYO18B</i>	stopgain SNV	NM_032608:c.G4146A:p.W1382X		chr22	26272221	26272221	G	A
ESCC-F63	exonic	<i>FILIP1L</i>	nonsynonymous SNV	NM_001042459:c.T419C:p.M140T		chr3	99648707	99648707	A	G
ESCC-F63	exonic	<i>JGSF10</i>	nonsynonymous SNV	NM_178822:c.C3256G:p.P1086A		chr3	151164513	151164513	G	C
ESCC-F63	exonic	<i>JGSF10</i>	nonsynonymous SNV	NM_178822:c.C490G:p.Q164E		chr3	151171397	151171397	G	C
ESCC-F63	exonic	<i>CYP7B1</i>	nonsynonymous SNV	NM_004820:c.G640C:p.D214H		chr8	65528458	65528458	C	G
ESCC-F64	exonic	<i>EIF2C1</i>	nonsynonymous SNV	NM_012199:c.A995G:p.Q332R		chr1	36360845	36360845	A	G
ESCC-F64	exonic	<i>NELL1</i>	nonsynonymous SNV	NM_006157:c.T537G:p.D179E		chr11	20907020	20907020	T	G
ESCC-F64	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.G445A:p.D149N	753566;905938;907276;909707;90	chr17	7577097	7577097	C	T
ESCC-F64	exonic	<i>LRP1B</i>	nonsynonymous SNV	NM_018557:c.C976T:p.H326Y		chr2	141946027	141946027	G	A
ESCC-F64	exonic	<i>NFE2L2</i>	nonsynonymous SNV	NM_001145412:c.T183A:p.D61E		chr2	178098814	178098814	A	T
ESCC-F64	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.T7630G:p.S2544P		chr3	195510821	195510821	A	G
ESCC-F64	exonic	<i>CMYA5</i>	nonsynonymous SNV	NM_153610:c.G5200A:p.E1734K		chr5	79029788	79029788	G	A
ESCC-F64	splicing	<i>SYNE1(NM_033071:exon139:c.24975+1G>A;NM_182961:exon139:c.25119+1G>A)</i>				chr6	152464757	152464757	C	T
ESCC-F66	exonic	<i>HIST2H2BF</i>	unknown	UNKNOWN		chr1	149398986	149398986	G	C
ESCC-F66	exonic	<i>CEP350</i>	nonsynonymous SNV	NM_014810:c.C5960G:p.S1987C		chr1	180047790	180047790	C	G
ESCC-F66	exonic	<i>CRB1</i>	nonsynonymous SNV	NM_001193640:c.G2836A:p.E946K		chr1	197404165	197404165	G	A
ESCC-F66	exonic	<i>MUC5B</i>	nonsynonymous SNV	NM_002458:c.G16831T:p.D5611Y		chr11	1281223	1281223	G	T
ESCC-F66	exonic	<i>FCHSD2</i>	nonsynonymous SNV	NM_014824:c.C1039T:p.R347W		chr11	72600876	72600876	G	A
ESCC-F66	exonic	<i>TECTA</i>	nonsynonymous SNV	NM_005422:c.T2398C:p.F800L		chr11	121000377	121000377	T	C
ESCC-F66	exonic	<i>MGAT4C</i>	nonsynonymous SNV	NM_013244:c.G714C:p.K238N		chr12	86373790	86373790	C	G
ESCC-F66	exonic	<i>PABPC3</i>	stopgain SNV	NM_030979:c.G772T:p.G258X	1604869	chr13	25671108	25671108	G	T
ESCC-F66	exonic	<i>STRN3</i>	nonsynonymous SNV	NM_014574:c.A1000G:p.T334A		chr14	31382852	31382852	T	C
ESCC-F66	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.G5750A:p.R1917K		chr16	70998666	70998666	C	T
ESCC-F66	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.A3716G:p.E1239G		chr16	71026042	71026042	T	C
ESCC-F66	splicing	<i>TP53(NM_001126117:exon8:c.658-2A>C;NM_001126112:exon11:c.994-2A>C;NM_001126116:exon8:c.731-2A>C;NM_000546:exon11:c.994-2A>C)</i>			905938;907276;909707;910566;94	chr17	7574035	7574035	T	G
ESCC-F66	exonic	<i>MSH6</i>	nonsynonymous SNV	NM_000179:c.T3016C:p.Y1006H	753548	chr2	48028138	48028138	T	C
ESCC-F66	exonic	<i>GCFC2</i>	nonsynonymous SNV	NM_001201334:c.A1399C:p.T467P		chr2	75899126	75899126	T	G
ESCC-F66	exonic	<i>TTN</i>	stopgain SNV	NM_133378:c.T22178A:p.L7393X		chr2	179580231	179580231	A	T
ESCC-F66	exonic	<i>PIK3CA</i>	nonsynonymous SNV	NM_006218:c.A3140G:p.H1047R	687995;749709;753541;753562;75	chr3	178952085	178952085	A	G
ESCC-F66	exonic	<i>FAT1</i>	nonsynonymous SNV	NM_005245:c.A2384G:p.Y795C		chr4	187628598	187628598	T	C
ESCC-F66	exonic	<i>DPCCR1</i>	nonsynonymous SNV	NM_080870:c.G1918C:p.G640R		chr6	30918159	30918159	G	C
ESCC-F66	exonic	<i>RP1</i>	nonsynonymous SNV	NM_006269:c.T4676C:p.M1559T		chr8	55541118	55541118	T	C
ESCC-F66	exonic	<i>VCPIP1</i>	nonsynonymous SNV	NM_025054:c.A2002G:p.L668V		chr8	67577192	67577192	T	C
ESCC-F66	exonic	<i>CA2</i>	nonsynonymous SNV	NM_000067:c.C461T:p.P154L		chr8	86388043	86388043	C	T
ESCC-F66	exonic	<i>NBN</i>	frameshift deletion	NM_002485:c.1651delA:p.R551fs		chr8	90965666	90965666	T	-
ESCC-F66	exonic	<i>DMD</i>	nonsynonymous SNV	NM_004007:c.G309C:p.R103N		chrX	32717382	32717382	C	G
ESCC-F67	exonic	<i>KIAA0754</i>	nonsynonymous SNV	NM_015038:c.G2312C:p.R771T		chr1	39878249	39878249	G	C
ESCC-F67	exonic	<i>MYO3A</i>	nonsynonymous SNV	NM_017433:c.A2772C:p.Q924H		chr10	26443731	26443731	A	C
ESCC-F67	exonic	<i>C10orf71</i>	nonsynonymous SNV	NM_001135196:c.T2661G:p.S887R		chr10	50533251	50533251	T	G
ESCC-F67	exonic	<i>LRP1</i>	nonsynonymous SNV	NM_002332:c.G8668A:p.E2890K		chr12	57589753	57589753	G	A
ESCC-F67	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.G12301T:p.A4101S		chr16	70889170	70889170	C	A
ESCC-F67	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.T1717G:p.Y73D	905938;907276;909707;946371;13	chr17	7578236	7578236	A	C
ESCC-F67	exonic	<i>NACA2</i>	nonsynonymous SNV	NM_199290:c.C446T:p.A149V		chr17	59668096	59668096	G	A
ESCC-F67	exonic	<i>DNAH7</i>	nonsynonymous SNV	NM_018897:c.C5735A:p.T1912K		chr2	196749337	196749337	G	T
ESCC-F67	exonic	<i>MYO18B</i>	nonsynonymous SNV	NM_032608:c.G7327A:p.D2443N		chr22	26423267	26423267	G	A
ESCC-F67	exonic	<i>ARPP21</i>	frameshift insertion	NM_016300:c.1976_1977msG:p.P659fs		chr3	35785401	35785401	-	G
ESCC-F67	exonic	<i>PIK3CA</i>	nonsynonymous SNV	NM_006218:c.G1633A:p.E545K	687459;687514;735784;762667;76	chr3	178936091	178936091	G	A

ESCC-F67	exonic	<i>GPR98</i>	stopgain SNV	NM_032119:c.T10154G:p.L3385X		chr5	90021466	90021466	T	G
ESCC-F67	exonic	<i>PLXNA4</i>	nonsynonymous SNV	NM_020911:c.G2197T:p.G733W		chr7	131895803	131895803	C	A
ESCC-F68	exonic	<i>CREBBP</i>	frameshift insertion	NM_001079846:c.1074_1075insAG:p.L358fs		chr16	3843529	3843529	CT	
ESCC-F68	exonic	<i>MYH4</i>	nonsynonymous SNV	NM_017533:c.A1999T:p.R667W		chr17	10359188	10359188	T	A
ESCC-F68	exonic	<i>DNAH6</i>	nonsynonymous SNV	NM_001370:c.G9406A:p.E3136D		chr2	84940246	84940246	G	A
ESCC-F68	exonic	<i>SLC4A10</i>	nonsynonymous SNV	NM_001178015:c.A918C:p.E306K		chr2	162730485	162730485	A	C
ESCC-F68	exonic	<i>EP300</i>	nonsynonymous SNV	NM_001429:c.G4195T:p.D1399Y	1523832;1560558	chr22	41565529	41565529	G	T
ESCC-F68	exonic	<i>GRIA2</i>	nonsynonymous SNV	NM_000826:c.T580C:p.S194P		chr4	158233941	158233941	T	C
ESCC-F68	exonic:splicing	<i>ADAMTS12:ADAMTS1</i>	nonsynonymous SNV	NM_030955:c.G1717A:p.E573K		chr5	33641916	33641916	C	T
ESCC-F68	exonic	<i>FAT2</i>	nonsynonymous SNV	NM_001447:c.G4132A:p.G1378R		chr5	150932762	150932762	C	T
ESCC-F68	exonic	<i>SLC5A1</i>	nonsynonymous SNV	NM_001146008:c.C809T:p.A270V		chr8	70744100	70744100	G	A
ESCC-F68	exonic	<i>FAM47B</i>	nonsynonymous SNV	NM_152631:c.C340T:p.R114W		chrX	34961288	34961288	C	T
ESCC-F68	exonic	<i>RAB40AL</i>	nonsynonymous SNV	NM_001031834:c.G601A:p.V201M		chrX	102192847	102192847	G	A
ESCC-F69	exonic	<i>SEC22B</i>	unknown	UNKNOWN		chr1	145109618	145109618	G	C
ESCC-F69	exonic	<i>LRRTM3</i>	nonsynonymous SNV	NM_178011:c.A695G:p.Q232R		chr10	68687369	68687369	A	G
ESCC-F69	exonic	<i>PRKD1</i>	nonsynonymous SNV	NM_002742:c.T148G:p.S50A		chr14	30396571	30396571	A	C
ESCC-F69	splicing	<i>TP53(NM_001126117:exon5:c.387-1G>T;NM_001126112:exon9:c.783-1G>T;NM_001126116:exon5:c.387-1G>T;NM_000546:exon9:c.783-1G>T)</i>			688006;753566;905938;907276;90	chr17	7577156	7577156	C	A
ESCC-F69	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126118:c.T221G:p.F74C	724838;905938;906803;907276;90	chr17	7579349	7579349	C	A
ESCC-F69	exonic	<i>RNF213</i>	stopgain SNV	NM_001256071:c.C10843T:p.Q3615X		chr17	78328357	78328357	C	T
ESCC-F69	exonic	<i>CBLC</i>	nonsynonymous SNV	NM_001130852:c.G393T:p.M131I		chr19	45284201	45284201	G	T
ESCC-F69	exonic	<i>ERBB4</i>	nonsynonymous SNV	NM_001042599:c.T3146G:p.V1049G		chr2	212251865	212251865	A	C
ESCC-F69	exonic	<i>TRIO</i>	stoploss SNV	NM_007118:c.G9293C:p.X3098S		chr5	14508530	14508530	G	C
ESCC-F69	exonic	<i>RANBP17</i>	nonsynonymous SNV	NM_022897:c.G2984T:p.C995F		chr5	170720927	170720927	G	T
ESCC-F69	exonic	<i>TFA2A</i>	nonframeshift deletion	NM_001032280:c.903_905del:p.301_302del		chr6	10400783	10400783	CAC	-
ESCC-F69	splicing	<i>KDM6A(NM_021140:exon28:c.4176+1G>A)</i>			724870;749715;946354	chrX	44969495	44969495	G	A
ESCC-F69	exonic	<i>PCDH11Y</i>	nonsynonymous SNV	NM_032973:c.C3496A:p.H1166N		chrY	5605456	5605456	C	A
ESCC-F70	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.T262A:p.Y88N	688011;905938;907276;909707;94	chr17	7578191	7578191	A	T
ESCC-F70	exonic	<i>XIRP2</i>	stopgain SNV	NM_001199144:c.C9283T:p.R3095X		chr2	168107851	168107851	C	T
ESCC-F70	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C4249T:p.S14166F		chr2	179441279	179441279	G	A
ESCC-F70	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.C17234A:p.T5745N		chr2	179589136	179589136	G	T
ESCC-F70	exonic	<i>EPHA4</i>	nonsynonymous SNV	NM_004438:c.G1070T:p.R357L		chr2	222347320	222347320	C	A
ESCC-F70	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_018406:c.G5065T:p.A1689S		chr3	195513386	195513386	C	A
ESCC-F70	exonic	<i>HERC6</i>	nonsynonymous SNV	NM_001165136:c.G2014A:p.E672K		chr4	89352329	89352329	G	A
ESCC-F70	exonic	<i>CSN1S1</i>	frameshift deletion	NM_001025104:c.18_19del:p.6_7del		chr4	70798291	70798292	CA	-
ESCC-F70	exonic	<i>HIST1H2BG</i>	nonsynonymous SNV	NM_003518:c.G28T:p.A10S		chr6	26216844	26216844	C	A
ESCC-F71	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.C4025G:p.S1342C		chr1	16256760	16256760	C	G
ESCC-F71	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.C4918T:p.P1640S		chr1	16257653	16257653	C	T
ESCC-F71	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.G5773A:p.E1925K		chr1	16258508	16258508	G	A
ESCC-F71	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.C6421G:p.P2141A		chr1	16259156	16259156	C	A
ESCC-F71	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.G6796A:p.D2266N		chr1	16259531	16259531	G	A
ESCC-F71	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.C6809G:p.S2270C		chr1	16259544	16259544	C	G
ESCC-F71	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.C7186G:p.Q2396E		chr1	16259921	16259921	C	G
ESCC-F71	exonic	<i>SMG5</i>	nonsynonymous SNV	NM_015327:c.G1288C:p.E430Q		chr1	156236139	156236139	C	G
ESCC-F71	exonic	<i>C10orf71</i>	nonsynonymous SNV	NM_001135196:c.G1195C:p.E399Q		chr10	50531785	50531785	C	C
ESCC-F71	exonic	<i>C10orf71</i>	nonsynonymous SNV	NM_001135196:c.G1220A:p.R407K		chr10	50531810	50531810	G	A
ESCC-F71	exonic	<i>MUC5B</i>	nonsynonymous SNV	NM_002458:c.C15007T:p.P5003S		chr11	1273716	1273716	C	T
ESCC-F71	exonic	<i>FAT3</i>	nonsynonymous SNV	NM_001008781:c.G4127C:p.R1376T		chr11	92498187	92498187	G	C
ESCC-F71	exonic	<i>LRK2</i>	stopgain SNV	NM_198578:c.G7555T:p.E2519X		chr12	40761538	40761538	G	T
ESCC-F71	exonic	<i>TRHDE</i>	stopgain SNV	NM_013381:c.C1897T:p.Q633X		chr12	72956810	72956810	C	T
ESCC-F71	exonic	<i>NAV3</i>	nonsynonymous SNV	NM_014903:c.G6656A:p.R2219Q		chr12	78594259	78594259	G	A
ESCC-F71	exonic	<i>PABPC3</i>	nonsynonymous SNV	NM_030979:c.C121G:p.R41G		chr13	25670457	25670457	C	G
ESCC-F71	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.G3217A:p.E1073K		chr14	105418571	105418571	C	T
ESCC-F71	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.G457A:p.E153K	724866;753566;905938;905964;90	chr17	7577085	7577085	C	T
ESCC-F71	exonic	<i>FBXO11</i>	nonsynonymous SNV	NM_001190274:c.C1204A:p.H402N	753548	chr2	48059767	48059767	G	T
ESCC-F71	exonic	<i>DNAH6</i>	nonsynonymous SNV	NM_001370:c.C12239T:p.A4080V		chr2	85043073	85043073	C	T
ESCC-F71	exonic	<i>CYP27C1</i>	nonsynonymous SNV	NM_001001665:c.G40T:p.D14Y		chr2	127961086	127961086	C	A
ESCC-F71	exonic	<i>FSIP2</i>	nonsynonymous SNV	NM_173651:c.C7594G:p.L2532V		chr2	186659190	186659190	C	G
ESCC-F71	exonic	<i>UNC80</i>	nonframeshift deletion	NM_182587:c.9231_9233del:p.3077_3078del		chr2	210858143	210858145	GCC	-
ESCC-F71	exonic	<i>LTN1</i>	nonsynonymous SNV	NM_015565:c.G2365A:p.E789K		chr21	30332965	30332965	C	T
ESCC-F71	splicing	<i>EP300(NM_001429:exon23:c.3807-1G>C)</i>				chr22	41562602	41562602	G	C
ESCC-F71	exonic	<i>EP300</i>	nonsynonymous SNV	NM_001429:c.C6877A:p.H2293N		chr22	41574592	41574592	C	A
ESCC-F71	exonic	<i>TLL12</i>	nonsynonymous SNV	NM_015140:c.C907G:p.H303D		chr22	43572336	43572336	G	C
ESCC-F71	exonic	<i>SCN5A</i>	nonsynonymous SNV	NM_001099405:c.G4604C:p.S1535T		chr3	38595925	38595925	C	G
ESCC-F71	exonic	<i>PRDM9</i>	nonsynonymous SNV	NM_020227:c.G1661A:p.C554Y		chr5	23526858	23526858	G	A
ESCC-F71	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.G8662A:p.V2888I		chr7	82581607	82581607	C	T
ESCC-F71	exonic	<i>PCLO</i>	stopgain SNV	NM_014510:c.C7205G:p.S2402X		chr7	82583064	82583064	C	C
ESCC-F71	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.C98T:p.S33F		chr7	82791811	82791811	G	A
ESCC-F71	exonic	<i>PIK3CG</i>	nonsynonymous SNV	NM_002649:c.G163A:p.E55K		chr7	106508169	106508169	G	A
ESCC-F71	exonic	<i>VPS13B</i>	nonsynonymous SNV	NM_017890:c.G5048A:p.R1683K		chr8	100587909	100587909	G	A
ESCC-F71	exonic	<i>RECQL4</i>	nonsynonymous SNV	NM_004260:c.G2953A:p.V985M		chr8	145737877	145737877	C	T
ESCC-F71	exonic	<i>PKN3</i>	nonsynonymous SNV	NM_013355:c.G2654C:p.R885P		chr9	131482869	131482869	G	C

ESCC-F72	exonic	<i>BCL9</i>	nonsynonymous SNV	NM_004326:c.G385T;p.D129Y		chr1	147086240	147086240	G	T
ESCC-F72	splicing	<i>HMCN1(NM_031935:exon19:c.2935+2T>G)</i>				chr1	185953447	185953447	T	G
ESCC-F72	exonic	<i>FAM5C</i>	stopgain SNV	NM_199051:c.G1924T;p.E642X		chr1	190067525	190067525	C	A
ESCC-F72	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_206933:c.T8489C;p.I2830T		chr1	216052175	216052175	A	G
ESCC-F72	exonic	<i>SIPA1L2</i>	nonsynonymous SNV	NM_020808:c.G3488A;p.C1163Y		chr1	232577564	232577564	C	T
ESCC-F72	exonic	<i>SIPA1L2</i>	nonsynonymous SNV	NM_020808:c.C3311T;p.R1111W		chr1	232581297	232581297	G	A
ESCC-F72	exonic	<i>MYO3A</i>	nonsynonymous SNV	NM_017433:c.G1386C;p.K462N		chr10	26377158	26377158	G	C
ESCC-F72	exonic	<i>MLL2</i>	nonsynonymous SNV	NM_003482:c.G10745A;p.R3582Q		chr12	49427743	49427743	C	T
ESCC-F72	exonic	<i>PALB2</i>	nonsynonymous SNV	NM_024675:c.T2482G;p.C828G		chr16	23640993	23640993	A	C
ESCC-F72	exonic	<i>SKA2</i>	nonsynonymous SNV	NM_001100595:c.A71T;p.E24V		chr17	57232374	57232374	T	A
ESCC-F72	exonic	<i>TP53</i>	frameshift deletion	NM_001126118:c.178delT;p.S60fs	905938;907276;909707;946371;13	chr17	7579392	7579392	A	-
ESCC-F72	exonic	<i>SLC4A10</i>	nonsynonymous SNV	NM_001178015:c.G77C;p.R26T		chr2	162627511	162627511	G	C
ESCC-F72	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G24511A;p.A8171T		chr2	179474444	179474444	C	T
ESCC-F72	exonic	<i>PCL0</i>	nonsynonymous SNV	NM_014510:c.G12242C;p.R4081P		chr7	82545060	82545060	C	G
ESCC-F72	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.C5722A;p.P1908T		chr7	100680419	100680419	C	A
ESCC-F72	exonic	<i>SLC5A1</i>	nonsynonymous SNV	NM_001146009:c.G2292T;p.Q764H		chr8	70585194	70585194	C	A
ESCC-F72	exonic	<i>PLEC</i>	nonsynonymous SNV	NM_201378:c.G1158C;p.K386N		chr8	145008229	145008229	C	G
ESCC-F72	exonic	<i>NOTCH1</i>	nonsynonymous SNV	NM_017617:c.G2842A;p.E948K	1542900	chr9	139404312	139404312	C	T
ESCC-F73	splicing	<i>ATRNL1(NM_207303:exon25:c.3716+2T>G)</i>				chr10	117278836	117278836	T	G
ESCC-F73	exonic	<i>WEE1</i>	nonsynonymous SNV	NM_001143976:c.G570T;p.K190N		chr11	9603149	9603149	G	T
ESCC-F73	exonic	<i>CNTN5</i>	stopgain SNV	NM_175566:c.C1234T;p.Q412X		chr11	99944902	99944902	C	T
ESCC-F73	exonic	<i>C14orf43</i>	nonsynonymous SNV	NM_001043318:c.C1639A;p.L547I		chr14	74203811	74203811	G	T
ESCC-F73	exonic	<i>CHD2</i>	nonsynonymous SNV	NM_001271:c.C3214G;p.R1072G		chr15	93527707	93527707	C	G
ESCC-F73	exonic	<i>CDK12</i>	stopgain SNV	NM_015083:c.C2703A;p.Y901X		chr17	37667818	37667818	C	A
ESCC-F73	exonic	<i>ZNF347</i>	nonsynonymous SNV	NM_001172674:c.G1363A;p.E455K		chr19	53644721	53644721	C	T
ESCC-F73	exonic	<i>ZNF547</i>	nonsynonymous SNV	NM_173631:c.G706A;p.G236R		chr19	57889050	57889050	G	A
ESCC-F73	exonic	<i>PDE11A</i>	nonsynonymous SNV	NM_001077358:c.C59G;p.A20G		chr2	178769853	178769853	G	C
ESCC-F73	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G8440A;p.D2814N		chr2	179634850	179634850	C	T
ESCC-F73	exonic	<i>PIK3CA</i>	nonsynonymous SNV	NM_006218:c.A3127G;p.M1043V	904439;1018677;1046072;109741	chr3	178952072	178952072	A	G
ESCC-F73	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C7373G;p.S2458C		chr3	195511078	195511078	G	C
ESCC-F73	exonic	<i>DROSHA</i>	nonsynonymous SNV	NM_001100412:c.C1906T;p.P636S		chr5	31483715	31483715	G	A
ESCC-F73	exonic	<i>COL12A1</i>	nonsynonymous SNV	NM_080645:c.T1021G;p.L341V		chr6	75855865	75855865	A	C
ESCC-F73	exonic	<i>FND1</i>	nonsynonymous SNV	NM_032532:c.C1475T;p.S492F		chr6	159653019	159653019	C	T
ESCC-F74	exonic	<i>GSTM5</i>	nonsynonymous SNV	NM_000851:c.G207T;p.K69N		chr1	110256135	110256135	G	T
ESCC-F74	exonic	<i>HMCN1</i>	nonsynonymous SNV	NM_031935:c.G8083C;p.E2695Q		chr1	186039833	186039833	G	C
ESCC-F74	exonic	<i>KIF14</i>	nonsynonymous SNV	NM_014875:c.G3751T;p.D1251Y		chr1	200534708	200534708	C	A
ESCC-F74	exonic	<i>PCDH9</i>	nonsynonymous SNV	NM_020403:c.A3205G;p.T1069A		chr13	67205375	67205375	T	C
ESCC-F74	exonic	<i>AKAP6</i>	nonsynonymous SNV	NM_004274:c.C5093G;p.S1698C		chr14	33292112	33292112	C	G
ESCC-F74	exonic	<i>FBN1</i>	stopgain SNV	NM_000138:c.C3563A;p.S1188X		chr15	48779298	48779298	G	T
ESCC-F74	exonic	<i>SNTB2</i>	nonsynonymous SNV	NM_006750:c.G1190T;p.G397V		chr16	69317992	69317992	G	T
ESCC-F74	exonic	<i>NF1</i>	nonsynonymous SNV	NM_000267:c.G7471C;p.G2491R	688087;724879;908135;908450;11	chr17	29679351	29679351	G	C
ESCC-F74	exonic	<i>TP53</i>	nonframeshift insertion	NM_001126115:c.358_359insATC;p.L120delinsIL	905938;907276;907321;909707;94	chr17	7577527	7577527	T	GAT
ESCC-F74	splicing	<i>PPP4R1(NM_005134:exon11:c.868-1G>C;NM_001042388:exon11:c.919-1G>C)</i>				chr18	9577190	9577190	C	G
ESCC-F74	exonic	<i>MYT1L</i>	nonsynonymous SNV	NM_015025:c.A476T;p.E159V		chr2	1946783	1946783	T	A
ESCC-F74	exonic	<i>SCN7A</i>	nonsynonymous SNV	NM_002976:c.C4087T;p.P1363S		chr2	167263052	167263052	G	A
ESCC-F74	exonic	<i>SCN7A</i>	nonsynonymous SNV	NM_002976:c.C3116G;p.S1039C		chr2	167277719	167277719	G	C
ESCC-F74	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G39355A;p.G13119S		chr2	179446445	179446445	C	T
ESCC-F74	exonic	<i>FSIP2</i>	nonsynonymous SNV	NM_173651:c.A16249G;p.I5417V		chr2	186670015	186670015	A	G
ESCC-F74	exonic	<i>KIAA1009</i>	nonsynonymous SNV	NM_014895:c.A10061T;p.N336Y		chr6	84904623	84904623	T	A
ESCC-F74	exonic	<i>C5MD3</i>	nonsynonymous SNV	NM_052900:c.T8726C;p.V2909A		chr8	113299391	113299391	A	G
ESCC-F74	exonic	<i>PLEC</i>	nonsynonymous SNV	NM_201378:c.G13053C;p.K4351N		chr8	144990894	144990894	C	G
ESCC-F75	splicing	<i>GBP4(NM_052941:exon5:c.364-1G>C)</i>				chr1	89659096	89659096	C	G
ESCC-F75	exonic	<i>HMCN1</i>	nonsynonymous SNV	NM_031935:c.A13580T;p.Q4527L		chr1	186106067	186106067	A	T
ESCC-F75	exonic	<i>LRN2</i>	nonsynonymous SNV	NM_201630:c.G1280A;p.R427Q		chr1	204587841	204587841	C	T
ESCC-F75	exonic	<i>FMN2</i>	nonsynonymous SNV	NM_020066:c.A4192C;p.T1398P		chr1	240458160	240458160	A	C
ESCC-F75	exonic	<i>FMN2</i>	nonsynonymous SNV	NM_020066:c.C4195A;p.L1399I		chr1	240458163	240458163	C	A
ESCC-F75	exonic	<i>ATM</i>	nonsynonymous SNV	NM_000051:c.G6248C;p.G2083A		chr11	108188149	108188149	G	C
ESCC-F75	exonic	<i>FAM55A</i>	nonsynonymous SNV	NM_152315:c.C928T;p.R310C		chr11	114392980	114392980	G	A
ESCC-F75	exonic	<i>ARID2</i>	nonsynonymous SNV	NM_152641:c.G580C;p.E194Q		chr12	46211614	46211614	G	C
ESCC-F75	exonic	<i>MLL2</i>	nonsynonymous SNV	NM_003482:c.C15142T;p.R5048C		chr12	49420607	49420607	G	A
ESCC-F75	exonic	<i>DCAF11</i>	nonsynonymous SNV	NM_001163484:c.G65A;p.R22Q		chr14	24584868	24584868	G	A
ESCC-F75	exonic	<i>UNC79</i>	nonsynonymous SNV	NM_020818:c.C4448G;p.S1483C		chr14	94088558	94088558	C	G
ESCC-F75	exonic	<i>DLLA</i>	nonsynonymous SNV	NM_019074:c.G1259T;p.R420L		chr15	41228444	41228444	G	T
ESCC-F75	exonic	<i>DLLA</i>	nonsynonymous SNV	NM_019074:c.G1903A;p.D635N		chr15	41229088	41229088	G	A
ESCC-F75	exonic	<i>DLLA</i>	frameshift deletion	NM_019074:c.1866delG;p.L622fs		chr15	41229051	41229051	G	-
ESCC-F75	exonic	<i>C16orf62</i>	nonsynonymous SNV	NM_020314:c.G1702A;p.E568K		chr16	19640010	19640010	G	A
ESCC-F75	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.C3454G;p.Q1152E	1331067	chr16	71052222	71052222	G	C
ESCC-F75	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C520T;p.R174X	749714;749727;753566;905938;90	chr17	7577022	7577022	G	A
ESCC-F75	exonic	<i>MYH8</i>	nonsynonymous SNV	NM_002472:c.A1121G;p.E374G		chr17	10317245	10317245	T	C
ESCC-F75	exonic	<i>ZNF429</i>	nonsynonymous SNV	NM_001001415:c.A742G;p.K248E		chr19	21719597	21719597	A	G
ESCC-F75	exonic	<i>LILRA3</i>	nonsynonymous SNV	NM_001172654:c.A191C;p.K64T		chr19	54803633	54803633	T	G

ESCC-F75	exonic	<i>ZNF304</i>	nonsynonymous SNV	NM_020657:c.C1452G:p.F484L		chr19	57868689	57868689	C	G
ESCC-F75	exonic	<i>ZNF547</i>	nonsynonymous SNV	NM_173631:c.C704G:p.S235C		chr19	57889048	57889048	C	T
ESCC-F75	exonic	<i>NRXN1</i>	nonsynonymous SNV	NM_004801:c.G3241A:p.E1081K		chr2	50699439	50699439	C	G
ESCC-F75	exonic	<i>LRP2</i>	nonsynonymous SNV	NM_004525:c.G6924T:p.E2308D		chr2	170063306	170063306	C	A
ESCC-F75	exonic	<i>LRP2</i>	nonsynonymous SNV	NM_004525:c.C5887A:p.P1963T		chr2	170070320	170070320	G	T
ESCC-F75	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G39994C:p.E13332Q		chr2	179444825	179444825	C	G
ESCC-F75	exonic	<i>ERBB4</i>	nonsynonymous SNV	NM_001042599:c.C716T:p.S239L		chr2	212589826	212589826	G	A
ESCC-F75	exonic	<i>LTN1</i>	nonsynonymous SNV	NM_015565:c.A1453C:p.L485L		chr21	30339498	30339498	T	G
ESCC-F75	exonic	<i>ATXN7</i>	nonsynonymous SNV	NM_001128149:c.C329T:p.S110F		chr3	63967873	63967873	C	T
ESCC-F75	exonic:splicing	<i>MYH15:MYH15</i>	nonsynonymous SNV	NM_014981:c.G1293T:p.Q431H		chr3	108195244	108195244	C	A
ESCC-F75	exonic	<i>HEG1</i>	nonsynonymous SNV	NM_020733:c.C484G:p.L162V		chr3	124748165	124748165	G	C
ESCC-F75	exonic	<i>CCDC50</i>	nonsynonymous SNV	NM_178335:c.G868T:p.V290F		chr3	191093270	191093270	G	T
ESCC-F75	exonic	<i>ANK2</i>	nonsynonymous SNV	NM_001148:c.G1442C:p.R481P		chr4	114186108	114186108	G	C
ESCC-F75	exonic	<i>FBXW7</i>	nonsynonymous SNV	NM_001013415:c.C1031T:p.S344F	906763	chr4	153249393	153249393	G	A
ESCC-F75	exonic	<i>CDH12</i>	stopgain SNV	NM_004061:c.C610T:p.Q204X		chr5	21854816	21854816	G	A
ESCC-F75	exonic	<i>PRDM9</i>	nonsynonymous SNV	NM_020227:c.C860G:p.A287G		chr5	23522972	23522972	C	G
ESCC-F75	exonic	<i>SPEF2</i>	nonsynonymous SNV	NM_024867:c.A1755G:p.L585M		chr5	35692682	35692682	A	G
ESCC-F75	exonic	<i>VCAN</i>	nonsynonymous SNV	NM_001126336:c.G337A:p.A113T		chr5	82786183	82786183	G	A
ESCC-F75	exonic	<i>KIF13A</i>	nonsynonymous SNV	NM_001105566:c.A1780T:p.S594C		chr6	17826005	17826005	T	A
ESCC-F75	exonic	<i>HIST1H2BI</i>	nonsynonymous SNV	NM_003525:c.G229A:p.E77K		chr6	26273432	26273432	G	A
ESCC-F75	exonic	<i>GRK2</i>	nonsynonymous SNV	NM_001166247:c.C1396G:p.L466V		chr6	102307240	102307240	C	G
ESCC-F75	exonic	<i>GRM3</i>	nonsynonymous SNV	NM_000840:c.C1942A:p.L648M		chr7	86468772	86468772	C	A
ESCC-F75	exonic	<i>ORC5</i>	nonsynonymous SNV	NM_002553:c.C778G:p.H260I		chr7	103824437	103824437	G	C
ESCC-F75	exonic	<i>FLNC</i>	nonsynonymous SNV	NM_001127487:c.G3080A:p.R1027H		chr7	128484208	128484208	G	C
ESCC-F75	exonic	<i>MAGEC3</i>	nonsynonymous SNV	NM_138702:c.G62T:p.W21L		chrX	140926163	140926163	G	T
ESCC-F76	exonic	<i>ADAMTSL4</i>	nonsynonymous SNV	NM_019032:c.C560T:p.S187F		chr1	150526027	150526027	C	T
ESCC-F76	exonic	<i>CRB1</i>	nonsynonymous SNV	NM_001193640:c.G415A:p.G139R		chr1	197297896	197297896	G	A
ESCC-F76	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_206933:c.G1151C:p.L3717F		chr1	215933082	215933082	C	G
ESCC-F76	exonic	<i>CUBN</i>	nonsynonymous SNV	NM_001081:c.C10439T:p.S3480F		chr10	16873340	16873340	G	A
ESCC-F76	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C6403G:p.P2135A		chr11	1016398	1016398	G	C
ESCC-F76	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C5099G:p.S1700C		chr11	1017702	1017702	G	C
ESCC-F76	exonic	<i>ARID2</i>	nonsynonymous SNV	NM_152641:c.C3806T:p.P1269L		chr12	46245712	46245712	C	T
ESCC-F76	exonic	<i>PCDH9</i>	nonsynonymous SNV	NM_020403:c.G1556A:p.R519Q		chr13	67801017	67801017	C	T
ESCC-F76	exonic	<i>NALCN</i>	nonsynonymous SNV	NM_052867:c.G1528T:p.V510F		chr13	101881842	101881842	C	A
ESCC-F76	exonic	<i>BUB1B</i>	nonsynonymous SNV	NM_001211:c.C1990T:p.L664F		chr15	40498640	40498640	C	T
ESCC-F76	exonic	<i>C13orf34</i>	nonsynonymous SNV	NM_001105528:c.G1130C:p.R377T		chr18	30873169	30873169	C	G
ESCC-F76	exonic	<i>UHRF1</i>	unknown	UNKNOWN		chr19	4941570	4941570	C	T
ESCC-F76	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.G21704A:p.R7235K		chr19	9065742	9065742	C	T
ESCC-F76	exonic	<i>ZNF208</i>	nonsynonymous SNV	NM_007153:c.G325C:p.E109Q		chr19	22157511	22157511	C	G
ESCC-F76	exonic	<i>GPR39</i>	nonsynonymous SNV	NM_001508:c.C1133T:p.A378V		chr2	133402950	133402950	C	T
ESCC-F76	exonic	<i>LRP2</i>	nonsynonymous SNV	NM_004525:c.G5677A:p.D1893N		chr2	170072912	170072912	C	T
ESCC-F76	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G33037C:p.V11013L		chr2	179456220	179456220	C	G
ESCC-F76	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G5284A:p.E1762K		chr2	179641169	179641169	C	T
ESCC-F76	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G4216C:p.E1406Q		chr2	179642557	179642557	C	G
ESCC-F76	exonic	<i>ANK2</i>	nonsynonymous SNV	NM_001148:c.C7801G:p.L2601V		chr4	114277575	114277575	C	G
ESCC-F76	exonic	<i>CDH10</i>	stopgain SNV	NM_006727:c.C572G:p.S191X		chr5	24535886	24535886	C	C
ESCC-F76	exonic	<i>MAST4</i>	frameshift deletion	NM_015183:c.2570_2571del:p.857_857del		chr5	66445259	66445260	GC	-
ESCC-F76	exonic	<i>DMXL1</i>	nonsynonymous SNV	NM_005509:c.G3884T:p.G1295V		chr5	118485406	118485406	G	T
ESCC-F76	exonic	<i>DMXL1</i>	stopgain SNV	NM_005509:c.G5272T:p.E1758X		chr5	118503433	118503433	G	T
ESCC-F76	exonic	<i>DGKB</i>	nonsynonymous SNV	NM_004080:c.G1601A:p.R534Q		chr7	14620498	14620498	C	T
ESCC-F76	exonic	<i>TMEM2</i>	nonsynonymous SNV	NM_001135820:c.C405G:p.I135M		chr9	74361184	74361184	G	C
ESCC-F77	exonic	<i>NRG3</i>	nonsynonymous SNV	NM_001165973:c.G933C:p.R311S		chr10	84744551	84744551	G	C
ESCC-F77	exonic	<i>CDH1</i>	nonsynonymous SNV	NM_004360:c.G1273A:p.V425I	910704:997932:1001724	chr16	68847351	68847351	G	A
ESCC-F77	exonic	<i>MYH2</i>	nonsynonymous SNV	NM_001100112:c.C5695G:p.L1899V		chr17	10424728	10424728	G	C
ESCC-F77	exonic	<i>ORTA10</i>	nonsynonymous SNV	NM_001005190:c.C415G:p.Q139E		chr19	14952275	14952275	G	C
ESCC-F77	exonic	<i>ZNF676</i>	nonsynonymous SNV	NM_001001411:c.C1301T:p.S434L		chr19	22363218	22363218	G	A
ESCC-F77	exonic	<i>TMEM177</i>	nonsynonymous SNV	NM_001105198:c.G335A:p.G112E		chr2	120438764	120438764	G	A
ESCC-F77	exonic	<i>TTC21B</i>	nonsynonymous SNV	NM_024753:c.G1648C:p.E550Q		chr2	166775812	166775812	C	G
ESCC-F77	exonic	<i>FSIP2</i>	nonsynonymous SNV	NM_173651:c.G20340C:p.K6780N		chr2	186678517	186678517	G	C
ESCC-F77	exonic	<i>PDHA2</i>	nonsynonymous SNV	NM_005390:c.C232G:p.Q78E		chr4	96761533	96761533	C	G
ESCC-F77	exonic	<i>ANKHD1:ANKHD1-EL</i>	nonsynonymous SNV	NM_001197030:c.G1594A:p.E532K		chr5	139838862	139838862	G	A
ESCC-F77	exonic	<i>FAT2</i>	nonsynonymous SNV	NM_001447:c.C10800G:p.F3600L		chr5	150901354	150901354	G	C
ESCC-F77	exonic	<i>FAT2</i>	nonsynonymous SNV	NM_001447:c.G3814C:p.D1272H		chr5	150934054	150934054	C	G
ESCC-F78	exonic	<i>VPS13D</i>	nonsynonymous SNV	NM_018156:c.T12818C:p.I4237T		chr1	12567005	12567005	T	C
ESCC-F78	exonic	<i>CEP350</i>	nonsynonymous SNV	NM_014810:c.G6922A:p.E2308K		chr1	180062162	180062162	G	A
ESCC-F78	exonic	<i>PDE3B</i>	nonsynonymous SNV	NM_000922:c.C1543A:p.P515T		chr11	14839749	14839749	C	A
ESCC-F78	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.G14155A:p.D4719N		chr14	105407633	105407633	C	T
ESCC-F78	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.C5469A:p.F1823L		chr14	105416319	105416319	G	T
ESCC-F78	exonic	<i>ZNF85</i>	nonsynonymous SNV	NM_001256173:c.A979T:p.I327F		chr19	21132491	21132491	A	T
ESCC-F78	exonic	<i>MUC16</i>	frameshift insertion	NM_024690:c.4468_4469insT:p.P1490fs		chr19	9087347	9087347	-	A
ESCC-F78	exonic	<i>SLC8A1</i>	nonsynonymous SNV	NM_001112800:c.G1714A:p.V572I		chr2	40655707	40655707	C	T

ESCC-F78	exonic	<i>LRP1B</i>	stopgain SNV	NM_018557:c.G10710A:p.W3570X		chr2	141130635	141130635	C	T
ESCC-F78	exonic	<i>PRDM9</i>	nonsynonymous SNV	NM_020227:c.G63T:p.K21N		chr5	23509205	23509205	G	T
ESCC-F78	exonic	<i>BAI3</i>	nonsynonymous SNV	NM_001704:c.G1334C:p.R445T		chr6	69666054	69666054	G	C
ESCC-F78	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.G6160C:p.E2054Q		chr7	82584109	82584109	C	G
ESCC-F78	exonic	<i>ZFX4</i>	stopgain SNV	NM_024721:c.G439T:p.E147X		chr8	77616762	77616762	G	T
ESCC-F78	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_052900:c.A9635C:p.K3212T		chr8	113259329	113259329	T	G
ESCC-F78	exonic	<i>FAM135B</i>	nonsynonymous SNV	NM_015912:c.T3830C:p.L1277P		chr8	139151300	139151300	A	G
ESCC-F79	exonic	<i>TPT2</i>	nonsynonymous SNV	NM_130785:c.C203A:p.P68H		chr13	20048132	20048132	G	T
ESCC-F79	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.G11828A:p.R3943Q		chr16	70894751	70894751	C	T
ESCC-F79	exonic	<i>ZNF729</i>	nonsynonymous SNV	NM_001242680:c.A421G:p.K141E		chr19	22496640	22496640	A	G
ESCC-F79	exonic	<i>TIN</i>	stopgain SNV	NM_003319:c.G44689T:p.E14897X		chr2	179438975	179438975	C	A
ESCC-F79	exonic	<i>UNC80</i>	nonsynonymous SNV	NM_182587:c.A9443G:p.E3148G		chr2	210860057	210860057	A	G
ESCC-F79	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.G232A:p.A78T		chr3	75790472	75790472	C	T
ESCC-F79	exonic	<i>TRIO</i>	nonsynonymous SNV	NM_007118:c.G7979A:p.R2660Q		chr5	14497086	14497086	G	A
ESCC-F79	exonic	<i>PCDHA1</i>	nonsynonymous SNV	NM_018900:c.G1375A:p.E459K		chr5	140167250	140167250	G	A
ESCC-F79	exonic	<i>LAMB4</i>	nonsynonymous SNV	NM_007356:c.G529A:p.G177R		chr7	107748138	107748138	C	T
ESCC-F79	exonic	<i>CDKN2A</i>	frameshift deletion	NM_000077:c.178delG:p.A60fs	684052;687455;687457;687563;68	chr9	21971180	21971180	C	-
ESCC-F79	exonic	<i>NOTCH1</i>	frameshift insertion	NM_017617:c.4542_4543insGCTG:p.C1514fs		chr9	139399806	139399806	-	CAGC
ESCC-F80	exonic	<i>RGS21</i>	nonsynonymous SNV	NM_001039152:c.G241A:p.D81N		chr1	192321329	192321329	G	A
ESCC-F80	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_007123:c.T3659C:p.V1220A		chr1	216373121	216373121	A	G
ESCC-F80	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_007123:c.G2942A:p.R981H		chr1	216405346	216405346	C	T
ESCC-F80	exonic	<i>FAT3</i>	nonsynonymous SNV	NM_001008781:c.C2731T:p.H2411Y		chr11	92533410	92533410	C	T
ESCC-F80	exonic	<i>MLL2</i>	frameshift deletion	NM_003482:c.15268delA:p.T5090fs		chr12	49420481	49420481	T	-
ESCC-F80	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.G6746A:p.R2249Q		chr14	64496644	64496644	G	A
ESCC-F80	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.C14952G:p.I4984M		chr14	64606767	64606767	C	G
ESCC-F80	exonic	<i>TSC2</i>	nonsynonymous SNV	NM_001077183:c.G4816A:p.V1606I		chr16	2137891	2137891	G	A
ESCC-F80	exonic	<i>ABCA3</i>	nonsynonymous SNV	NM_001089:c.G1327A:p.V433M		chr16	2354110	2354110	C	T
ESCC-F80	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.G400C:p.G134R	753566;905938;907276;909707;91	chr17	7577142	7577142	C	G
ESCC-F80	exonic	<i>MYH8</i>	nonsynonymous SNV	NM_002472:c.G5361C:p.K1787N		chr17	10296250	10296250	C	G
ESCC-F80	exonic	<i>HELZ</i>	nonsynonymous SNV	NM_014877:c.C4463T:p.S1488L		chr17	65105258	65105258	G	A
ESCC-F80	exonic	<i>TTC21B</i>	nonsynonymous SNV	NM_024753:c.G520A:p.D174N		chr2	166799761	166799761	C	T
ESCC-F80	exonic	<i>UNC80</i>	nonsynonymous SNV	NM_032504:c.G4306A:p.E1436K		chr2	210761060	210761060	G	A
ESCC-F80	exonic	<i>CHEK2</i>	nonsynonymous SNV	NM_145862:c.G1135C:p.V379L		chr22	29091735	29091735	C	G
ESCC-F80	exonic	<i>SCN11A</i>	nonsynonymous SNV	NM_014139:c.G1816C:p.E606Q		chr3	38945382	38945382	C	G
ESCC-F80	exonic	<i>MYH15</i>	nonsynonymous SNV	NM_014981:c.G1819C:p.E607Q		chr3	108182063	108182063	C	G
ESCC-F80	exonic	<i>PCDHGB1</i>	nonsynonymous SNV	NM_018922:c.G6C:p.Q2H		chr5	140729833	140729833	G	C
ESCC-F80	exonic	<i>DNAH8</i>	nonsynonymous SNV	NM_001206927:c.A976G:p.T326A		chr6	38705608	38705608	A	G
ESCC-F80	exonic	<i>CDKN2A</i>	frameshift deletion	NM_000077:c.233_234del:p.78del	684052;687455;687457;687563;68	chr9	21971124	21971125	GA	-
ESCC-F80	exonic	<i>ASPEN</i>	stopgain SNV	NM_001193335:c.C266G:p.S89X	1331067	chr9	95236914	95236914	G	C
ESCC-F81	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.C9910G:p.Q3304E		chr1	16262645	16262645	C	G
ESCC-F81	exonic	<i>CYP2J2</i>	nonsynonymous SNV	NM_000775:c.G184C:p.E62Q		chr1	60392235	60392235	C	G
ESCC-F81	exonic	<i>LRRIQ3</i>	nonsynonymous SNV	NM_001105659:c.A1294C:p.K432Q		chr1	74507321	74507321	T	G
ESCC-F81	exonic	<i>RCOR3</i>	nonsynonymous SNV	NM_018254:c.G118C:p.D40H		chr1	211444642	211444642	G	C
ESCC-F81	exonic	<i>FAM208B</i>	nonsynonymous SNV	NM_017782:c.C1618G:p.L540V		chr10	5781751	5781751	C	G
ESCC-F81	exonic:splicing	<i>CUBN;CUBN</i>	nonsynonymous SNV	NM_001081:c.G2302A:p.V768I		chr10	17113970	17113970	C	T
ESCC-F81	exonic	<i>MYO3A</i>	nonsynonymous SNV	NM_017433:c.G1315A:p.E439K		chr10	26359286	26359286	G	A
ESCC-F81	exonic	<i>NRAP</i>	nonsynonymous SNV	NM_006175:c.C1780T:p.H594Y		chr10	115389502	115389502	G	A
ESCC-F81	exonic	<i>RB1</i>	nonsynonymous SNV	NM_000321:c.G764A:p.R255Q	687562;906844;907072;908123;90	chr13	48936996	48936996	G	A
ESCC-F81	exonic	<i>RB1</i>	stopgain SNV	NM_000321:c.C1190G:p.S397X	687562;906844;907072;908123;90	chr13	48947603	48947603	C	G
ESCC-F81	exonic	<i>DIAPH3</i>	nonsynonymous SNV	NM_030932:c.G1537C:p.E513Q		chr13	60485910	60485910	C	G
ESCC-F81	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.C8911G:p.Q2971E		chr14	64519542	64519542	C	G
ESCC-F81	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.G13451T:p.S4484I		chr14	64591825	64591825	G	T
ESCC-F81	exonic	<i>SPTLC2</i>	nonsynonymous SNV	NM_004863:c.G661C:p.E221Q		chr14	78036822	78036822	C	G
ESCC-F81	exonic	<i>PML</i>	nonsynonymous SNV	NM_033247:c.C1303T:p.H435Y		chr15	74328396	74328396	C	T
ESCC-F81	exonic	<i>C16orf62</i>	nonsynonymous SNV	NM_020314:c.C2525T:p.P842L		chr16	19680518	19680518	C	T
ESCC-F81	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C520T:p.R174X	749714;749727;753566;905938;90	chr17	7577022	7577022	G	A
ESCC-F81	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.G73T:p.V25F	713878;724834;749721;753589;90	chr17	7578461	7578461	C	A
ESCC-F81	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C2339T:p.T7780I		chr19	9064107	9064107	G	A
ESCC-F81	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.G3325C:p.D1109H		chr19	9088490	9088490	C	G
ESCC-F81	exonic	<i>TPT2</i>	nonsynonymous SNV	NM_199260:c.G685T:p.V229F		chr21	10934994	10934994	C	A
ESCC-F81	exonic	<i>PBRM1</i>	nonsynonymous SNV	NM_018313:c.G1619C:p.R540T		chr3	52651477	52651477	C	G
ESCC-F81	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G1404C:p.R468S		chr3	195517047	195517047	C	G
ESCC-F81	exonic	<i>MUC4</i>	stopgain SNV	NM_018406:c.G247T:p.E83X		chr3	195518204	195518204	C	A
ESCC-F81	exonic	<i>NABP2</i>	nonsynonymous SNV	NM_018177:c.A1813T:p.S605C		chr4	40119637	40119637	A	T
ESCC-F81	exonic	<i>C6</i>	nonsynonymous SNV	NM_000065:c.T1298G:p.F433C		chr5	41161955	41161955	A	C
ESCC-F81	exonic	<i>TMEM232</i>	nonsynonymous SNV	NM_001039763:c.A1691C:p.H564P		chr5	109864301	109864301	T	G
ESCC-F81	exonic	<i>ANKHD1;ANKHD1-EL</i>	nonsynonymous SNV	NM_017747:c.G3398C:p.G1133A		chr5	139885444	139885444	G	C
ESCC-F81	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.G7002C:p.L2334F		chr6	152722321	152722321	C	G
ESCC-F81	exonic	<i>ABC1</i>	nonsynonymous SNV	NM_000927:c.G1254C:p.Q418H		chr7	87179583	87179583	C	G
ESCC-F81	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.G10538C:p.G3513A	1475041	chr7	100685235	100685235	G	C
ESCC-F81	exonic	<i>MGAM</i>	nonsynonymous SNV	NM_004668:c.G3374A:p.R1125H		chr7	141755417	141755417	G	A

ESCC-F85	exonic	<i>WNK3</i>	nonsynonymous SNV	NM_001002838:c.G2057C;p.G686A		chrX	54285752	54285752	C	G
ESCC-F86	exonic	<i>GSTM5</i>	nonsynonymous SNV	NM_000851:c.G511C;p.E171Q		chr1	110257806	110257806	G	C
ESCC-F86	exonic	<i>HMCN1</i>	nonsynonymous SNV	NM_031935:c.G13114A;p.E4372K		chr1	186099713	186099713	G	A
ESCC-F86	exonic	<i>PROX1</i>	nonsynonymous SNV	NM_002763:c.T1775C;p.F592S		chr1	214178557	214178557	T	C
ESCC-F86	exonic	<i>MK67</i>	nonsynonymous SNV	NM_001145966:c.G8067C;p.K2689N		chr10	129900957	129900957	C	G
ESCC-F86	exonic	<i>MUC5B</i>	nonsynonymous SNV	NM_002458:c.C5610G;p.F1870L		chr11	1263720	1263720	C	G
ESCC-F86	splicing	<i>A2M(NM_000014:exon19:c.2126-1G>A)</i>				chr12	9246176	9246176	C	T
ESCC-F86	exonic	<i>ML2</i>	stopgain SNV	NM_003482:c.G6031T;p.E2011X		chr12	49435950	49435950	C	A
ESCC-F86	exonic	<i>PXN</i>	nonsynonymous SNV	NM_001080855:c.C476T;p.P159L		chr12	120660683	120660683	G	A
ESCC-F86	exonic	<i>BRCA2</i>	nonsynonymous SNV	NM_000059:c.C9168G;p.H3056Q		chr13	32954194	32954194	C	G
ESCC-F86	exonic	<i>KLHL1</i>	nonsynonymous SNV	NM_020866:c.T582A;p.H194Q		chr13	70549850	70549850	A	T
ESCC-F86	exonic	<i>HECTD1</i>	nonsynonymous SNV	NM_015382:c.C5326T;p.P1776S		chr14	31588985	31588985	G	A
ESCC-F86	exonic	<i>CHD2</i>	stopgain SNV	NM_001271:c.G2767T;p.E923X		chr15	93522404	93522404	G	T
ESCC-F86	exonic	<i>ZNF629</i>	nonsynonymous SNV	NM_001080417:c.G40C;p.G14R		chr16	30795764	30795764	C	G
ESCC-F86	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.G317T;p.C106F	905938:907276:907799:909707:90	chr17	7577568	7577568	C	A
ESCC-F86	exonic	<i>TP53</i>	stopgain SNV	NM_001126118:c.G41A;p.W14X	905938:907276:909707:946371:13	chr17	7579529	7579529	C	T
ESCC-F86	exonic	<i>CLTC</i>	nonsynonymous SNV	NM_004859:c.C101T;p.S34F		chr17	57721695	57721695	C	T
ESCC-F86	exonic	<i>CEP95</i>	nonsynonymous SNV	NM_138363:c.G1582C;p.E528Q		chr17	62528050	62528050	G	C
ESCC-F86	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C16082T;p.S5361F		chr19	9071364	9071364	G	A
ESCC-F86	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.T20410A;p.S6804T		chr2	179482207	179482207	A	T
ESCC-F86	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.G23287A;p.D7763N		chr2	179577842	179577842	C	T
ESCC-F86	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G9361C;p.E3121Q		chr2	179631312	179631312	C	G
ESCC-F86	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G7519A;p.E2507K		chr2	179638034	179638034	C	T
ESCC-F86	exonic	<i>SEC14L3</i>	nonsynonymous SNV	NM_174975:c.C169T;p.R57C		chr22	30866204	30866204	G	A
ESCC-F86	exonic	<i>PBRM1</i>	nonsynonymous SNV	NM_018313:c.G1747A;p.E583K		chr3	52651349	52651349	C	T
ESCC-F86	exonic	<i>ARHGAP31</i>	nonsynonymous SNV	NM_020754:c.C542G;p.S181C		chr3	119101933	119101933	C	G
ESCC-F86	exonic	<i>HIST1H2AC</i>	nonsynonymous SNV	NM_003512:c.C244T;p.R82C		chr6	26124704	26124704	C	T
ESCC-F86	exonic	<i>CASP8AP2</i>	nonsynonymous SNV	NM_001137667:c.C5536T;p.H1846Y		chr6	90578545	90578545	C	T
ESCC-F86	exonic	<i>LAMA4</i>	nonsynonymous SNV	NM_001105206:c.G3490A;p.E1164K		chr6	112455736	112455736	C	T
ESCC-F86	exonic	<i>LAMA2</i>	nonsynonymous SNV	NM_000426:c.C143G;p.S48C		chr6	129371093	129371093	C	G
ESCC-F86	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.G5758A;p.E1920K		chr7	82584511	82584511	C	T
ESCC-F86	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.G3587T;p.R1196I		chr7	151917733	151917733	C	A
ESCC-F86	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.G3345C;p.Q1115H		chr7	151919746	151919746	C	G
ESCC-F86	exonic	<i>ASPH</i>	nonsynonymous SNV	NM_001164750:c.G298A;p.E100K		chr8	62566157	62566157	C	T
ESCC-F86	exonic	<i>KIAA1429</i>	nonsynonymous SNV	NM_015496:c.C4060T;p.L1354F		chr8	95518765	95518765	G	A
ESCC-F86	exonic	<i>FAM135B</i>	nonsynonymous SNV	NM_015912:c.C662A;p.S221Y		chr8	139255192	139255192	G	T
ESCC-F86	exonic	<i>RLN1</i>	nonsynonymous SNV	NM_006911:c.C434T;p.P145L		chr9	5335375	5335375	G	A
ESCC-F86	exonic	<i>PTCH1</i>	nonsynonymous SNV	NM_000264:c.C154T;p.R52W		chr9	98270490	98270490	G	A
ESCC-F86	exonic	<i>MAP3K15</i>	nonsynonymous SNV	NM_001001671:c.G1792A;p.D598N		chrX	19425358	19425358	C	T
ESCC-F86	exonic	<i>GPC3</i>	nonsynonymous SNV	NM_001164619:c.G928C;p.E310Q		chrX	132833999	132833999	C	G
ESCC-F86	exonic	<i>MAGEC1</i>	nonsynonymous SNV	NM_005462:c.G1263C;p.L421F		chrX	140994453	140994453	G	C
ESCC-F87	exonic	<i>C1orf65</i>	nonsynonymous SNV	NM_152610:c.C1798T;p.P600S		chr1	223568615	223568615	C	T
ESCC-F87	exonic	<i>OBSN</i>	nonsynonymous SNV	NM_001098623:c.G12952T;p.A4318S		chr1	228497200	228497200	G	T
ESCC-F87	exonic	<i>HTRA1</i>	nonframeshift deletion	NM_002775:c.1135_1137del;p.379_379del		chr10	124269626	124269628	AAG	-
ESCC-F87	exonic	<i>MK67</i>	nonsynonymous SNV	NM_001145966:c.G7837C;p.D2613H		chr10	129901187	129901187	C	G
ESCC-F87	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C6022A;p.H2008N		chr11	1016779	1016779	G	T
ESCC-F87	exonic	<i>NPAS4</i>	nonsynonymous SNV	NM_178864:c.G1162A;p.E388K		chr11	66191523	66191523	G	A
ESCC-F87	exonic	<i>NPAS4</i>	nonsynonymous SNV	NM_178864:c.G2209A;p.G737R		chr11	66192570	66192570	G	A
ESCC-F87	exonic	<i>GDPD4</i>	nonsynonymous SNV	NM_182833:c.C1135G;p.P379A		chr11	76954845	76954845	G	C
ESCC-F87	exonic	<i>IFLTD1</i>	nonsynonymous SNV	NM_152590:c.G7A;p.E3K		chr12	25706022	25706022	C	T
ESCC-F87	exonic	<i>BRCA2</i>	nonsynonymous SNV	NM_000059:c.C7060G;p.Q2354E		chr13	32929050	32929050	C	G
ESCC-F87	exonic	<i>KLHL1</i>	stopgain SNV	NM_020866:c.C877T;p.Q293X		chr13	70514309	70514309	G	A
ESCC-F87	exonic	<i>FAN1</i>	nonsynonymous SNV	NM_001146094:c.G1027A;p.D343N		chr15	31197893	31197893	G	A
ESCC-F87	exonic	<i>ZFPX3</i>	stopgain SNV	NM_001164766:c.C1390T;p.Q464X		chr16	72832449	72832449	G	A
ESCC-F87	exonic	<i>NF1</i>	nonsynonymous SNV	NM_000267:c.C825G;p.L275M	753620:906833:908135:908450:94	chr17	29509620	29509620	C	G
ESCC-F87	exonic	<i>ZNF750</i>	stopgain SNV	NM_024702:c.C768G;p.Y256X		chr17	80789563	80789563	G	C
ESCC-F87	exonic	<i>TP53</i>	frameshift deletion	NM_000546:c.93delT;p.V31fs	905938:907276:909707:946371:13	chr17	7579703	7579703	A	-
ESCC-F87	exonic	<i>ZNF813</i>	nonsynonymous SNV	NM_001004301:c.C433T;p.H145Y		chr19	53993919	53993919	C	T
ESCC-F87	exonic	<i>CYP27C1</i>	nonsynonymous SNV	NM_001001665:c.G695C;p.R232T		chr2	127952935	127952935	C	G
ESCC-F87	exonic	<i>PMS1</i>	nonsynonymous SNV	NM_000534:c.G247C;p.D83H		chr2	190660609	190660609	G	C
ESCC-F87	exonic	<i>MAP2</i>	nonsynonymous SNV	NM_002374:c.G1198C;p.E400Q		chr2	210558092	210558092	G	C
ESCC-F87	exonic	<i>PBRM1</i>	stopgain SNV	NM_018313:c.C1148G;p.S383X		chr3	52668771	52668771	G	C
ESCC-F87	exonic	<i>ANKRD50</i>	nonsynonymous SNV	NM_001167882:c.C3401T;p.S1134F		chr4	125590494	125590494	G	A
ESCC-F87	exonic	<i>FBN2</i>	nonsynonymous SNV	NM_001999:c.C2977G;p.R993G		chr5	127685051	127685051	G	C
ESCC-F87	exonic	<i>PCDHA2</i>	nonsynonymous SNV	NM_018905:c.C1203G;p.F401L		chr5	140175752	140175752	C	G
ESCC-F87	exonic	<i>TFAP2B</i>	nonsynonymous SNV	NM_003221:c.C766T;p.R256W		chr6	50803938	50803938	C	T
ESCC-F87	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.C22288G;p.Q7430E		chr6	152532717	152532717	G	C
ESCC-F87	exonic	<i>THSD7A</i>	nonsynonymous SNV	NM_015204:c.C1424T;p.S475L		chr7	11630116	11630116	G	A
ESCC-F87	exonic	<i>SAMD9L</i>	nonsynonymous SNV	NM_152703:c.G2743C;p.D915H		chr7	92762542	92762542	C	G
ESCC-F87	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.G4734C;p.L1578F		chr7	100679431	100679431	G	C
ESCC-F87	exonic	<i>KIAA1549</i>	nonsynonymous SNV	NM_001164665:c.C4163T;p.S1388L		chr7	138566200	138566200	G	A

ESCC-F87	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.G13945C:p.E4649Q		chr7	151843770	151843770	C	G
ESCC-F87	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_052900:c.C3314T:p.S1105F		chr8	113649135	113649135	G	A
ESCC-F87	exonic	<i>COL22A1</i>	nonsynonymous SNV	NM_152888:c.C2875A:p.E959K		chr8	139697543	139697543	C	T
ESCC-F87	exonic	<i>PTPRD</i>	nonsynonymous SNV	NM_001171025:c.G3472A:p.V1158I		chr9	8341947	8341947	C	T
ESCC-F87	exonic	<i>TESK1</i>	stopgain SNV	NM_006285:c.C757T:p.R253X		chr9	35607970	35607970	C	T
ESCC-F87	exonic	<i>HUWE1</i>	nonsynonymous SNV	NM_031407:c.C12321G:p.F14107L		chrX	53563445	53563445	G	C
ESCC-F87	exonic	<i>GPR112</i>	nonsynonymous SNV	NM_153834:c.G2336C:p.R779T		chrX	135428201	135428201	G	C
ESCC-F87	exonic	<i>MAGEC1</i>	nonsynonymous SNV	NM_005462:c.G445A:p.E149K		chrX	140993635	140993635	G	A
ESCC-F89	exonic	<i>RSP1</i>	nonsynonymous SNV	NM_016578:c.T1172A:p.L391Q		chr11	77413102	77413102	A	T
ESCC-F89	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.C8624T:p.T2875M		chr16	70937857	70937857	G	A
ESCC-F89	exonic	<i>ZNF816</i>	stopgain SNV	NM_001202456:c.C421T:p.R141X		chr19	53454607	53454607	G	A
ESCC-F89	exonic	<i>MAP2</i>	nonsynonymous SNV	NM_001039538:c.G602T:p.R201M		chr2	210569259	210569259	G	T
ESCC-F89	exonic	<i>ADD1</i>	nonframeshift deletion	NM_001119:c.2152_2154del:p.718_718del		chr4	2930188	2930190	AAG	-
ESCC-F89	exonic	<i>C7</i>	nonsynonymous SNV	NM_000587:c.G1504T:p.G502C		chr5	40959565	40959565	G	T
ESCC-F90	exonic	<i>MYO3A</i>	nonsynonymous SNV	NM_017433:c.C1924T:p.R642W		chr10	26414347	26414347	C	T
ESCC-F90	exonic	<i>MLXIP</i>	stopgain SNV	NM_014938:c.C2056T:p.Q686X		chr12	122622039	122622039	C	T
ESCC-F90	exonic	<i>NUFIP2</i>	nonsynonymous SNV	NM_020772:c.G1860C:p.E620D		chr17	27613152	27613152	C	G
ESCC-F90	exonic	<i>TRIM37</i>	nonsynonymous SNV	NM_001005207:c.G2483A:p.R828Q		chr17	57093064	57093064	C	T
ESCC-F90	exonic	<i>ZNF418</i>	stopgain SNV	NM_133460:c.C1804T:p.R602X		chr19	58437745	58437745	G	A
ESCC-F90	exonic	<i>NRXN1</i>	nonsynonymous SNV	NM_004801:c.C1396A:p.H466N		chr2	50780088	50780088	G	T
ESCC-F90	exonic	<i>LRP1B</i>	nonsynonymous SNV	NM_018557:c.G8377C:p.E2793Q		chr2	141267518	141267518	C	G
ESCC-F90	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C43408T:p.P14470S		chr2	179440256	179440256	G	A
ESCC-F90	exonic	<i>PBRM1</i>	nonsynonymous SNV	NM_018313:c.A2114G:p.D705G		chr3	52643782	52643782	T	C
ESCC-F90	exonic	<i>COL12A1</i>	nonsynonymous SNV	NM_080645:c.C5497G:p.R1833G		chr6	75798843	75798843	G	C
ESCC-F90	exonic	<i>SYNE1</i>	frameshift deletion	NM_033071:c.26162_26163del:p.8721_8721del		chr6	152443658	152443659	CT	-
ESCC-F90	exonic	<i>FAM75D1</i>	nonsynonymous SNV	NM_001001670:c.T650A:p.L217Q		chr9	84606035	84606035	T	A
ESCC-F90	exonic	<i>F8</i>	nonsynonymous SNV	NM_019863:c.G604T:p.A202S		chrX	154065919	154065919	C	A
ESCC-F91	exonic	<i>BCL9</i>	nonsynonymous SNV	NM_004326:c.C2989T:p.P997S		chr1	147094158	147094158	C	T
ESCC-F91	exonic	<i>NPR1</i>	nonsynonymous SNV	NM_000906:c.C1348G:p.P450A		chr1	153655936	153655936	C	G
ESCC-F91	exonic	<i>CEP350</i>	nonsynonymous SNV	NM_014810:c.G4744T:p.D1582Y		chr1	180017792	180017792	G	T
ESCC-F91	exonic	<i>FAM5C</i>	nonsynonymous SNV	NM_199051:c.G2186A:p.R729H		chr1	190067263	190067263	C	T
ESCC-F91	exonic	<i>CBUN</i>	nonsynonymous SNV	NM_001081:c.C2741T:p.S914F		chr10	17110654	17110654	G	A
ESCC-F91	exonic	<i>SDHD</i>	nonsynonymous SNV	NM_003002:c.G436C:p.D146H		chr11	111965650	111965650	G	C
ESCC-F91	exonic	<i>AP0A4</i>	nonsynonymous SNV	NM_000482:c.G136T:p.V46L		chr11	116693415	116693415	C	A
ESCC-F91	exonic	<i>PRPF40B</i>	nonsynonymous SNV	NM_001031698:c.G1765C:p.D589H		chr12	50035754	50035754	G	C
ESCC-F91	exonic	<i>KL</i>	nonsynonymous SNV	NM_004795:c.C1478T:p.S493L		chr13	33629331	33629331	C	T
ESCC-F91	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.T9428G:p.F3143C		chr14	105412360	105412360	A	C
ESCC-F91	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.G136A:p.E46K		chr14	105423824	105423824	C	T
ESCC-F91	exonic	<i>MTMR4</i>	nonsynonymous SNV	NM_004687:c.G739A:p.D247N		chr17	56584607	56584607	C	T
ESCC-F91	splicing	<i>MTMR4(NM_004687:exon9:c.552-1G>A)</i>				chr17	56585636	56585636	C	T
ESCC-F91	exonic	<i>PPP2R1A</i>	nonsynonymous SNV	NM_014225:c.G1309A:p.E437K		chr19	52723448	52723448	G	A
ESCC-F91	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G70069A:p.E23357K		chr2	179407219	179407219	C	T
ESCC-F91	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G6110C:p.R2037T		chr2	179640343	179640343	C	G
ESCC-F91	exonic	<i>IMP2</i>	nonsynonymous SNV	NM_016247:c.G355A:p.E119K		chr3	101023136	101023136	C	T
ESCC-F91	exonic	<i>ZBBX</i>	nonsynonymous SNV	NM_001199201:c.C643G:p.Q215E		chr3	167051659	167051659	G	C
ESCC-F91	exonic	<i>ANK2</i>	nonsynonymous SNV	NM_020977:c.G5284A:p.V1762I		chr4	114290890	114290890	G	A
ESCC-F91	exonic	<i>DNAH5</i>	nonsynonymous SNV	NM_001369:c.C10711G:p.P3571A		chr5	13753503	13753503	G	C
ESCC-F91	exonic	<i>PDZD2</i>	nonsynonymous SNV	NM_178140:c.G1018C:p.E340Q		chr5	31995721	31995721	G	C
ESCC-F91	exonic	<i>CMYA5</i>	nonsynonymous SNV	NM_153610:c.C7989A:p.S2663R		chr5	79032577	79032577	C	A
ESCC-F91	exonic	<i>FAM184A</i>	nonsynonymous SNV	NM_001100411:c.G1264A:p.E422K		chr6	119332503	119332503	C	T
ESCC-F91	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.A885T:p.K295N		chr7	82785072	82785072	T	A
ESCC-F91	exonic	<i>TNKS</i>	nonsynonymous SNV	NM_003747:c.G3595A:p.E1199K		chr8	9623790	9623790	G	A
ESCC-F91	exonic	<i>F8</i>	nonsynonymous SNV	NM_019863:c.G585C:p.Q195H		chrX	154065938	154065938	C	G
ESCC-F92	exonic	<i>FLI1</i>	nonsynonymous SNV	NM_002019:c.C3374T:p.S1125F		chr13	28891647	28891647	G	A
ESCC-F92	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.G12314A:p.R4105K		chr14	64565472	64565472	G	A
ESCC-F92	exonic	<i>CREBBP</i>	nonsynonymous SNV	NM_001079846:c.C3300G:p.I1100M		chr16	3808005	3808005	G	C
ESCC-F92	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.A92G:p.Y31C	688022:724855:749709:753534:90	chr17	7578442	7578442	T	C
ESCC-F92	exonic	<i>SKA2</i>	nonsynonymous SNV	NM_182620:c.G118A:p.E40K		chr17	57208644	57208644	C	T
ESCC-F92	exonic	<i>ZNF831</i>	nonsynonymous SNV	NM_178457:c.C3864G:p.I1288M		chr20	57771049	57771049	C	G
ESCC-F92	exonic:splicing	<i>INTS9:INTS9</i>	nonsynonymous SNV	NM_001145159:c.C200T:p.T67M		chr8	28695292	28695292	G	A
ESCC-F92	exonic	<i>NOTCH1</i>	nonsynonymous SNV	NM_017617:c.G3793A:p.E1265K		chr9	139401276	139401276	C	T
ESCC-F93	exonic	<i>LPPR4</i>	nonsynonymous SNV	NM_001166252:c.G1102C:p.E368Q		chr1	99771550	99771550	G	C
ESCC-F93	exonic	<i>CACNA1E</i>	nonsynonymous SNV	NM_001205294:c.G3303T:p.K1101N		chr1	181705508	181705508	G	T
ESCC-F93	exonic	<i>ZC3H11A</i>	nonsynonymous SNV	NM_014827:c.C800T:p.S267F		chr1	203800888	203800888	C	T
ESCC-F93	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_206933:c.C6344A:p.P2115H		chr1	216173886	216173886	G	T
ESCC-F93	exonic	<i>OBSCN</i>	nonsynonymous SNV	NM_001098623:c.C9791T:p.S3264F		chr1	228475641	228475641	C	T
ESCC-F93	exonic	<i>MLLT10</i>	stopgain SNV	NM_001195626:c.C86A:p.S29X		chr10	21823659	21823659	C	A
ESCC-F93	exonic	<i>PDE3B</i>	nonsynonymous SNV	NM_000922:c.G2122T:p.G708C		chr11	14854295	14854295	G	T
ESCC-F93	splicing	<i>DIP2B(NM_173602:exon4:c.302-1G>A)</i>				chr12	51053976	51053976	G	A
ESCC-F93	exonic	<i>LRP1</i>	nonsynonymous SNV	NM_002332:c.G10213A:p.E3405K		chr12	57594586	57594586	G	A
ESCC-F93	exonic	<i>NCOR2</i>	nonsynonymous SNV	NM_001077261:c.A4016T:p.H1339L		chr12	124832397	124832397	T	A

ESCC-F93	exonic	<i>PCDH9</i>	nonsynonymous SNV	NM_020403:c.C1396G:p.P466A		chr13	67801177	67801177	G	C
ESCC-F93	exonic	<i>NBEA</i>	frameshift insertion	NM_015678:c.3354_3355insA:p.L1118fs		chr13	35733662	35733662		A
ESCC-F93	exonic	<i>BRCA2</i>	frameshift deletion	NM_000059:c.3194delT:p.L1065fs		chr13	32911686	32911686	T	-
ESCC-F93	exonic	<i>C14orf43</i>	nonsynonymous SNV	NM_001043318:c.G2336T:p.S779I		chr14	74193380	74193380	C	A
ESCC-F93	exonic	<i>DMXL2</i>	nonsynonymous SNV	NM_001174117:c.G4186A:p.D1396N		chr15	51773209	51773209	C	T
ESCC-F93	exonic	<i>MYO9A</i>	nonsynonymous SNV	NM_006901:c.C3982G:p.Q1338E		chr15	72190862	72190862	G	C
ESCC-F93	exonic	<i>GPCRLTM7</i>	nonsynonymous SNV	NM_001195021:c.T190C:p.F64L		chr15	102389155	102389155	T	C
ESCC-F93	exonic	<i>PHKB</i>	nonsynonymous SNV	NM_000293:c.A1997C:p.E666A		chr16	47694442	47694442	A	C
ESCC-F93	exonic	<i>NFAT5</i>	nonsynonymous SNV	NM_006599:c.A1102G:p.I368V		chr16	69689662	69689662	A	G
ESCC-F93	exonic	<i>ZFXH3</i>	nonsynonymous SNV	NM_001164766:c.G1886T:p.R629L		chr16	72831953	72831953	C	A
ESCC-F93	exonic	<i>DNAH9</i>	nonsynonymous SNV	NM_004662:c.C2189T:p.A730E		chr17	11872636	11872636	C	T
ESCC-F93	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C3300A:p.L11003I		chr19	9048624	9048624	G	T
ESCC-F93	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C29250G:p.S9750R		chr19	9058196	9058196	G	C
ESCC-F93	exonic	<i>MUC16</i>	stopgain SNV	NM_024690:c.C11669G:p.S3890X		chr19	9075777	9075777	G	C
ESCC-F93	exonic	<i>HNRNPUL1</i>	nonsynonymous SNV	NM_007040:c.G1907A:p.G636E		chr19	41808789	41808789	G	A
ESCC-F93	exonic	<i>LRP1B</i>	stopgain SNV	NM_018557:c.C8681G:p.S2894X		chr2	141259425	141259425	G	C
ESCC-F93	exonic	<i>LRP2</i>	stopgain SNV	NM_004525:c.C709T:p.Q237X		chr2	170148823	170148823	G	A
ESCC-F93	exonic	<i>PDE11A</i>	nonsynonymous SNV	NM_016953:c.G50C:p.R17T		chr2	178937115	178937115	C	G
ESCC-F93	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G6396T:p.Q2132H		chr2	179639904	179639904	C	A
ESCC-F93	exonic	<i>TTN</i>	stopgain SNV	NM_003319:c.C1909T:p.Q637X		chr2	179654116	179654116	G	A
ESCC-F93	exonic	<i>BP1FC</i>	nonsynonymous SNV	NM_174932:c.C1480G:p.L494V		chr22	32810334	32810334	G	C
ESCC-F93	exonic	<i>PBRM1</i>	nonsynonymous SNV	NM_018313:c.G2129C:p.R710P		chr3	52643767	52643767	C	G
ESCC-F93	exonic	<i>PBRM1</i>	nonsynonymous SNV	NM_018313:c.T1672C:p.Y558H		chr3	52651424	52651424	A	G
ESCC-F93	exonic	<i>ZBBX</i>	nonsynonymous SNV	NM_001199201:c.A480C:p.K160N		chr3	167068256	167068256	T	G
ESCC-F93	exonic	<i>PIK3CA</i>	nonsynonymous SNV	NM_006218:c.G1633A:p.E345K	687459;687514;735784;762667;76	chr3	178936091	178936091	G	A
ESCC-F93	exonic	<i>PRDM9</i>	nonsynonymous SNV	NM_020227:c.C32A:p.P11Q		chr5	23509174	23509174	C	A
ESCC-F93	exonic	<i>C5orf42</i>	nonsynonymous SNV	NM_023073:c.G5473A:p.E1825K		chr5	37181056	37181056	C	T
ESCC-F93	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.G5132C:p.G171A		chr5	89971081	89971081	G	C
ESCC-F93	exonic	<i>APC</i>	nonsynonymous SNV	NM_001127511:c.T4952C:p.L1651S	1109799;1136382	chr5	112176297	112176297	T	C
ESCC-F93	exonic	<i>HIST1H2BH</i>	nonframeshift deletion	NM_003524:c.68_70del:p.23_24del		chr6	26251946	26251948	AGA	-
ESCC-F93	exonic	<i>RAPGEF5</i>	nonsynonymous SNV	NM_012294:c.C1533G:p.F511L		chr7	22186530	22186530	G	C
ESCC-F93	exonic	<i>ABCA13</i>	nonsynonymous SNV	NM_152701:c.G5198C:p.R1733P		chr7	48314461	48314461	G	C
ESCC-F93	exonic	<i>COBL</i>	nonsynonymous SNV	NM_015198:c.C1575G:p.C525W		chr7	51097218	51097218	G	C
ESCC-F93	exonic	<i>PIK3CG</i>	nonsynonymous SNV	NM_002649:c.G2859C:p.M953I		chr7	106524698	106524698	G	C
ESCC-F93	exonic	<i>RP1</i>	nonsynonymous SNV	NM_006269:c.C2294T:p.T765I		chr8	55538736	55538736	C	T
ESCC-F93	exonic	<i>ZFX4</i>	nonsynonymous SNV	NM_024721:c.G6845A:p.R282Q		chr8	77766002	77766002	G	A
ESCC-F93	exonic	<i>SPAG1</i>	nonsynonymous SNV	NM_003114:c.G355C:p.E119Q		chr8	101190098	101190098	G	C
ESCC-F93	exonic	<i>FAM135B</i>	nonsynonymous SNV	NM_015912:c.A1738T:p.S580C		chr8	139164980	139164980	T	A
ESCC-F93	exonic	<i>PTPRD</i>	nonsynonymous SNV	NM_001171025:c.G2317A:p.A773T		chr9	8465600	8465600	C	T
ESCC-F93	exonic	<i>TMEM2</i>	nonsynonymous SNV	NM_001135820:c.C1724T:p.S575F		chr9	74345030	74345030	G	A
ESCC-F93	exonic	<i>ZNF189</i>	nonsynonymous SNV	NM_003452:c.G1042A:p.E348K		chr9	104171092	104171092	G	A
ESCC-F93	exonic	<i>ZNF189</i>	nonsynonymous SNV	NM_003452:c.C1846G:p.Q616E		chr9	104171896	104171896	C	G
ESCC-F93	exonic	<i>GRIN3A</i>	nonsynonymous SNV	NM_133445:c.C1376T:p.S459L		chr9	104433318	104433318	G	A
ESCC-F94	splicing	<i>VPS13D(NM_018156:exon36:c.8197+1G>A,NM_015378:exon36:c.8197+1G>A)</i>				chr1	12387912	12387912	G	C
ESCC-F94	exonic	<i>FAM5C</i>	nonsynonymous SNV	NM_199051:c.A1678G:p.T560A		chr1	190067771	190067771	T	C
ESCC-F94	exonic	<i>BIVM-ERCC5,ERCC5</i>	nonsynonymous SNV	NM_000123:c.A1612G:p.T538A		chr13	103515111	103515111	A	G
ESCC-F94	exonic	<i>DCAF11</i>	nonsynonymous SNV	NM_001163484:c.G419A:p.R140Q		chr14	24586884	24586884	G	A
ESCC-F94	exonic	<i>STRN3</i>	nonsynonymous SNV	NM_014574:c.C1756G:p.L586V		chr14	31374645	31374645	G	C
ESCC-F94	exonic	<i>DICER1</i>	nonsynonymous SNV	NM_001195573:c.T998A:p.I333N		chr14	95590911	95590911	A	T
ESCC-F94	exonic	<i>TP53</i>	frameshift insertion	NM_001126115:c.493_494insAC:p.H165fs	753566;905938;907276;909707;91	chr17	7577049	7577049	-	GT
ESCC-F94	exonic	<i>LRP1B</i>	nonsynonymous SNV	NM_018557:c.A3673G:p.S1225G		chr2	141660582	141660582	T	C
ESCC-F94	exonic	<i>XIRP2</i>	nonsynonymous SNV	NM_001199144:c.A8618G:p.H2873R		chr2	168107186	168107186	A	G
ESCC-F94	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G3271A:p.G1091S		chr2	179645962	179645962	C	T
ESCC-F94	exonic	<i>MAP3K13</i>	nonsynonymous SNV	NM_001242317:c.A221G:p.K74R		chr3	185161415	185161415	A	G
ESCC-F94	exonic	<i>PDZD2</i>	frameshift deletion	NM_178140:c.2025delC:p.S675fs		chr5	32058034	32058034	C	-
ESCC-F94	exonic	<i>CYLC2</i>	nonsynonymous SNV	NM_001340:c.C173G:p.T58R		chr9	105765538	105765538	C	G
ESCC-F94	exonic	<i>TAI1</i>	nonsynonymous SNV	NM_004606:c.G5330T:p.G1777V		chrX	70680524	70680524	G	T
ESCC-F95	exonic	<i>MUTYH</i>	nonsynonymous SNV	NM_001048171:c.G232A:p.E78K		chr1	45799159	45799159	C	T
ESCC-F95	exonic	<i>NRAP</i>	nonsynonymous SNV	NM_006175:c.G54T:p.K18N		chr10	115423588	115423588	C	A
ESCC-F95	exonic	<i>CTNND1</i>	nonsynonymous SNV	NM_001085462:c.C121G:p.L41V		chr11	57559071	57559071	C	G
ESCC-F95	exonic	<i>OTOGL</i>	nonsynonymous SNV	NM_173591:c.C3998A:p.A1333E		chr12	80714424	80714424	C	A
ESCC-F95	exonic	<i>FAM179B</i>	nonsynonymous SNV	NM_015091:c.A2516G:p.K839R		chr14	45473441	45473441	A	G
ESCC-F95	splicing	<i>FBN1(NM_000138:exon4:c.165-1G>C)</i>				chr15	48905290	48905290	C	G
ESCC-F95	exonic	<i>XIRP2</i>	nonsynonymous SNV	NM_001199144:c.T9311G:p.V3104G		chr2	168107879	168107879	T	G
ESCC-F95	exonic	<i>C6</i>	nonsynonymous SNV	NM_000065:c.G2766C:p.R922S		chr5	41142966	41142966	C	G
ESCC-F95	exonic	<i>THSD7A</i>	nonsynonymous SNV	NM_015204:c.C1355T:p.T452M		chr7	11630185	11630185	G	A
ESCC-F95	exonic	<i>KDM6A</i>	stopgain SNV	NM_021140:c.C1555T:p.R519X	724870;749715;909771;946354	chrX	44922694	44922694	C	T
ESCC-F96	exonic	<i>SHANK2</i>	nonsynonymous SNV	NM_133266:c.G988A:p.G330R		chr11	70333646	70333646	C	T
ESCC-F96	exonic	<i>ML2</i>	stopgain SNV	NM_003482:c.C10841G:p.S3614X		chr12	49427647	49427647	G	C
ESCC-F96	exonic	<i>PCDH9</i>	nonsynonymous SNV	NM_020403:c.C3060A:p.D1020E		chr13	67477714	67477714	G	T
ESCC-F96	exonic	<i>CREBBP</i>	nonsynonymous SNV	NM_001079846:c.T573A:p.S191R		chr16	3900523	3900523	A	T

ESCC-F96	exonic	<i>NLRP1</i>	nonsynonymous SNV	NM_001033053:c.C1648T;p.L550F		chr17	5462368	5462368	G	A
ESCC-F96	exonic	<i>LRP1B</i>	stopgain SNV	NM_018557:c.G9765A;p.W3255X		chr2	141215081	141215081	C	T
ESCC-F96	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G17176C;p.D5726H		chr2	179494081	179494081	C	G
ESCC-F96	exonic	<i>DNAH7</i>	nonsynonymous SNV	NM_018897:c.G2814A;p.M938I		chr2	196825061	196825061	C	T
ESCC-F96	exonic	<i>MAB21L2</i>	nonsynonymous SNV	NM_006439:c.G494A;p.R165H		chr4	151504675	151504675	G	A
ESCC-F96	exonic	<i>PHF3</i>	nonsynonymous SNV	NM_015153:c.A3358G;p.I1120V		chr6	64413552	64413552	A	G
ESCC-F96	exonic	<i>ABCA13</i>	nonsynonymous SNV	NM_152701:c.A4736T;p.N1579I		chr7	48313999	48313999	A	T
ESCC-F97	exonic	<i>GBP7</i>	nonsynonymous SNV	NM_207398:c.C712T;p.R238W		chr1	89616172	89616172	G	A
ESCC-F97	exonic	<i>COL11A1</i>	nonsynonymous SNV	NM_080630:c.G2533A;p.G845S		chr1	103431078	103431078	C	T
ESCC-F97	exonic	<i>PROX1</i>	nonsynonymous SNV	NM_002763:c.G1243A;p.V415I		chr1	214171121	214171121	G	A
ESCC-F97	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_206933:c.C12357A;p.F4119L		chr1	215848896	215848896	G	T
ESCC-F97	exonic	<i>HPS5</i>	nonsynonymous SNV	NM_007216:c.C2667A;p.F889L		chr11	18305391	18305391	G	T
ESCC-F97	splicing	<i>STRN3(NM_014574:exon15:c.1885+1G>A,NM_001083893:exon17:c.2137+1G>A)</i>				chr14	31371741	31371741	C	T
ESCC-F97	exonic	<i>ABCA9</i>	nonsynonymous SNV	NM_080283:c.C1518G;p.D506E		chr17	67024773	67024773	G	C
ESCC-F97	exonic;splicing	<i>TP53:TP53</i>	frameshift deletion	NM_000546:c.97delT;p.S33fs	905938;907276;909707;946371;13	chr17	7579590	7579590	A	-
ESCC-F97	exonic	<i>TRAPPC8</i>	nonsynonymous SNV	NM_014939:c.G2130T;p.W710C		chr18	29451016	29451016	C	A
ESCC-F97	exonic	<i>TRIP10</i>	nonsynonymous SNV	NM_004240:c.G1498A;p.E500K		chr19	6751082	6751082	G	A
ESCC-F97	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.G18363C;p.M6121I		chr19	9069083	9069083	C	G
ESCC-F97	exonic	<i>EPAS1</i>	nonsynonymous SNV	NM_001430:c.A482G;p.D161G		chr2	46587804	46587804	A	G
ESCC-F97	exonic	<i>FSIP2</i>	stopgain SNV	NM_173651:c.C13220G;p.S4407X		chr2	18666696	18666696	C	G
ESCC-F97	exonic	<i>URB1</i>	nonsynonymous SNV	NM_014825:c.T3289G;p.S1097A		chr21	33719844	33719844	A	C
ESCC-F97	exonic	<i>BPHFC</i>	nonsynonymous SNV	NM_174932:c.G1384C;p.D462H		chr22	32811919	32811919	C	G
ESCC-F97	exonic	<i>DMD</i>	nonsynonymous SNV	NM_004017:c.C1033A;p.P345T		chrX	31191708	31191708	G	T
ESCC-F98	exonic	<i>SZT2</i>	frameshift insertion	NM_015284:c.2169_2170insC;p.S723fs		chr1	43888901	43888901	-	C
ESCC-F98	exonic	<i>OR4D11</i>	nonsynonymous SNV	NM_001004706:c.C671T;p.T224M		chr11	59271719	59271719	C	T
ESCC-F98	exonic	<i>FAT3</i>	nonsynonymous SNV	NM_001008781:c.G4981A;p.V1661I		chr11	92531160	92531160	G	A
ESCC-F98	exonic	<i>TRHDE</i>	nonsynonymous SNV	NM_013381:c.G948T;p.W316C		chr12	72680629	72680629	G	T
ESCC-F98	exonic	<i>LPIN2</i>	nonsynonymous SNV	NM_014646:c.C1616T;p.P539L		chr18	2928593	2928593	G	A
ESCC-F98	exonic	<i>CEP192</i>	nonsynonymous SNV	NM_032142:c.C6718T;p.R2240C		chr18	13100358	13100358	C	T
ESCC-F98	exonic	<i>ASXL1</i>	frameshift deletion	NM_015338:c.1927delG;p.G643fs	1470020;1522428;1522440;15224	chr20	31022442	31022442	G	-
ESCC-F98	exonic	<i>PIWIL3</i>	nonsynonymous SNV	NM_001008496:c.G1985C;p.R662P		chr22	25123968	25123968	C	G
ESCC-F98	exonic	<i>FAT2</i>	nonsynonymous SNV	NM_001447:c.G10816A;p.D3606N		chr5	150901338	150901338	C	T
ESCC-F98	exonic	<i>ABCA13</i>	nonsynonymous SNV	NM_152701:c.G13948C;p.E4650Q		chr7	48559787	48559787	G	C
ESCC-F99	exonic	<i>KLHL1</i>	nonsynonymous SNV	NM_020866:c.A836T;p.E279V		chr13	70514350	70514350	T	A
ESCC-F99	exonic	<i>GPHN</i>	nonsynonymous SNV	NM_001024218:c.C1063T;p.L355F		chr14	67555717	67555717	C	T
ESCC-F99	exonic	<i>TP53</i>	frameshift deletion	NM_001126118:c.178delT;p.S60fs	905938;907276;909707;946371;13	chr17	7579392	7579392	A	-
ESCC-F99	exonic	<i>ZNF253</i>	nonsynonymous SNV	NM_021047:c.C707T;p.A236V		chr19	20002763	20002763	C	T
ESCC-F99	exonic	<i>TPTE</i>	stopgain SNV	NM_199260:c.C868T;p.Q290X		chr21	10933897	10933897	G	A
ESCC-F99	exonic	<i>ABCA13</i>	nonsynonymous SNV	NM_152701:c.G12375T;p.L4125F		chr7	48452096	48452096	G	T
ESCC-F99	exonic	<i>VPS13B</i>	nonsynonymous SNV	NM_015243:c.C766A;p.H256N		chr8	100127931	100127931	C	A
ESCC-F100	exonic	<i>USH2A</i>	stopgain SNV	NM_206933:c.G4933T;p.G1645X		chr1	216260115	216260115	C	A
ESCC-F100	exonic	<i>A2M</i>	nonsynonymous SNV	NM_000014:c.G3959C;p.G1320A		chr12	9225265	9225265	C	G
ESCC-F100	exonic	<i>TP53BP1</i>	nonsynonymous SNV	NM_001141979:c.G4547A;p.G1516E		chr15	43712637	43712637	C	T
ESCC-F100	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C312A;p.Y104X	905938;907276;909707;946371;13	chr17	7577573	7577573	G	T
ESCC-F100	exonic;splicing	<i>ABCA8:ABCA8</i>	nonsynonymous SNV	NM_007168:c.C4252A;p.Q1418K		chr17	66871873	66871873	G	T
ESCC-F100	exonic	<i>ZNF708</i>	nonsynonymous SNV	NM_021269:c.A580C;p.K194Q		chr19	21477188	21477188	T	G
ESCC-F100	exonic	<i>NRXN1</i>	nonsynonymous SNV	NM_004801:c.G1867A;p.A623T	1474963	chr2	50765667	50765667	C	T
ESCC-F100	exonic	<i>DNAH6</i>	nonsynonymous SNV	NM_001370:c.G7915A;p.V2639M		chr2	84928317	84928317	G	A
ESCC-F100	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.C8888A;p.P2963N		chr7	82581381	82581381	G	T
ESCC-F100	splicing	<i>LAMB4(NM_007356:exon12:c.1360+1G>A)</i>				chr7	107738847	107738847	C	T
ESCC-F100	exonic	<i>PLAG1</i>	nonsynonymous SNV	NM_001114634:c.T53C;p.V18A		chr8	57080776	57080776	A	G
ESCC-F100	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_052900:c.A9728T;p.K3243I		chr8	113256790	113256790	T	A
ESCC-F100	splicing	<i>CSMD3(NM_198123:exon65:c.10222+1G>A,NM_198124:exon66:c.10102+1G>A,NM_052900:exon63:c.9715+1G>A)</i>				chr8	113259248	113259248	C	T
ESCC-F101	exonic	<i>CDK11A,CDK11B</i>	nonsynonymous SNV	NM_024011:c.G304A;p.D102N		chr1	1650818	1650818	C	T
ESCC-F101	exonic	<i>PTEN</i>	stopgain SNV	NM_000314:c.C655T;p.Q219X	687563;713885;724838;749712;75	chr10	89717630	89717630	C	T
ESCC-F101	exonic	<i>PRPF40B</i>	nonsynonymous SNV	NM_001031698:c.T2600C;p.L867P		chr12	50037959	50037959	T	C
ESCC-F101	exonic	<i>SYNM</i>	unknown	UNKNOWN		chr15	99670212	99670212	G	A
ESCC-F101	exonic	<i>ABCA9</i>	nonsynonymous SNV	NM_080283:c.G458C;p.R153T		chr17	67041324	67041324	C	G
ESCC-F101	exonic	<i>LAMA3</i>	nonsynonymous SNV	NM_001127718:c.G2446A;p.E816K		chr18	21494485	21494485	G	A
ESCC-F101	exonic	<i>SLC9A4</i>	stopgain SNV	NM_001011552:c.G1474T;p.E492X		chr2	103125378	103125378	G	T
ESCC-F101	exonic	<i>LRP1B</i>	nonsynonymous SNV	NM_018557:c.A815T;p.D272V		chr2	141986787	141986787	T	A
ESCC-F101	exonic	<i>XIRP2</i>	nonsynonymous SNV	NM_001079810:c.C632T;p.S211L		chr2	168067314	168067314	C	T
ESCC-F101	exonic	<i>XIRP2</i>	nonsynonymous SNV	NM_001199144:c.G3106A;p.D1036N		chr2	168101674	168101674	G	A
ESCC-F101	exonic	<i>DSPP</i>	nonsynonymous SNV	NM_014208:c.C1475A;p.S492Y		chr4	88535289	88535289	C	A
ESCC-F101	exonic	<i>GPR98</i>	stopgain SNV	NM_032119:c.G7948T;p.E2650X		chr5	89992756	89992756	G	T
ESCC-F101	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.C2410G;p.L804V		chr7	151945109	151945109	C	A
ESCC-F101	exonic	<i>ADCY8</i>	nonsynonymous SNV	NM_001115:c.G3049A;p.D1017N		chr8	131812683	131812683	C	T
ESCC-F101	exonic	<i>PTPRD</i>	nonsynonymous SNV	NM_001171025:c.A1082T;p.D361V		chr9	8518279	8518279	T	A
ESCC-F101	exonic	<i>HMCN1</i>	nonsynonymous SNV	NM_031935:c.G13454A;p.R4485Q		chr1	186105941	186105941	G	A
ESCC-F102	exonic	<i>PTEN</i>	frameshift insertion	NM_000314:c.962_963insA;p.T321fs	687563;713885;724838;749712;75	chr10	89720811	89720811	-	A
ESCC-F102	exonic	<i>ZNF215</i>	nonsynonymous SNV	NM_013250:c.G211A;p.E71K		chr11	6953714	6953714	G	A

ESCC-F102	exonic	<i>APLNLR</i>	nonsynonymous SNV	NM_005161:c.G779A:p.C260Y		chr11	57003700	57003700	C	T
ESCC-F102	exonic	<i>APLNLR</i>	nonsynonymous SNV	NM_005161:c.G40C:p.D14H		chr11	57004439	57004439	C	G
ESCC-F102	exonic	<i>NALCN</i>	nonsynonymous SNV	NM_052867:c.T2450C:p.M817T		chr13	101760055	101760055	A	G
ESCC-F102	exonic	<i>FLCN</i>	nonsynonymous SNV	NM_144997:c.C905G:p.S302C		chr17	17122490	17122490	G	C
ESCC-F102	exonic	<i>CYP27C1</i>	nonsynonymous SNV	NM_001001665:c.A248G:p.E83G		chr2	127958838	127958838	T	C
ESCC-F102	exonic	<i>XIRP2</i>	nonsynonymous SNV	NM_001199144:c.G5695T:p.V1899F		chr2	168104263	168104263	G	T
ESCC-F102	exonic	<i>CC78L2</i>	frameshift deletion	NM_014406:c.731_732del:p.244_244del		chr22	17072709	17072710	AA	-
ESCC-F102	exonic	<i>MMRN1</i>	nonsynonymous SNV	NM_007351:c.G2126A:p.R709H		chr4	90856957	90856957	G	A
ESCC-F102	exonic	<i>FAM123B</i>	nonsynonymous SNV	NM_152424:c.C407A:p.A136D	906825;910689;1105443;1105444;	chrX	63412760	63412760	G	T
ESCC-F103	exonic	<i>CHD1L</i>	nonsynonymous SNV	NM_001256338:c.A1472T:p.E491V		chr1	146758040	146758040	A	T
ESCC-F103	exonic	<i>CTNNA3</i>	nonsynonymous SNV	NM_001127384:c.C411G:p.I137M		chr10	69299309	69299309	G	C
ESCC-F103	exonic	<i>EIF3A</i>	nonsynonymous SNV	NM_003750:c.A766G:p.I256V		chr10	120829142	120829142	T	C
ESCC-F103	exonic	<i>MGAT4C</i>	nonsynonymous SNV	NM_013244:c.G854C:p.C285S		chr12	86373650	86373650	C	G
ESCC-F103	exonic	<i>NALCN</i>	nonsynonymous SNV	NM_052867:c.A1558G:p.M520V		chr13	101881812	101881812	T	C
ESCC-F103	exonic	<i>PRKD1</i>	nonsynonymous SNV	NM_002742:c.G1075A:p.D359N		chr14	30105611	30105611	C	T
ESCC-F103	exonic	<i>MYH4</i>	nonsynonymous SNV	NM_017533:c.G1536C:p.E512D		chr17	10362619	10362619	C	G
ESCC-F103	exonic	<i>MYH1</i>	nonsynonymous SNV	NM_005963:c.G2628T:p.E876D		chr17	10408190	10408190	C	A
ESCC-F103	exonic	<i>ZNF750</i>	nonsynonymous SNV	NM_024702:c.G80C:p.C27S		chr17	80790251	80790251	C	G
ESCC-F103	exonic	<i>TP53</i>	frameshift insertion	NM_001126115:c.G34_635insAG;p.L212fs	905938;907276;909707;910566;94	chr17	7573997	7573997		CT
ESCC-F103	exonic	<i>ZNF100</i>	nonsynonymous SNV	NM_173531:c.C1355T:p.T452I		chr19	21909759	21909759	G	A
ESCC-F103	exonic	<i>ZNF836</i>	nonsynonymous SNV	NM_001102657:c.T1472G:p.I491S		chr19	52659464	52659464	A	C
ESCC-F103	exonic	<i>ZNF548</i>	nonsynonymous SNV	NM_152909:c.A980C:p.H327P		chr19	57910635	57910635	A	C
ESCC-F103	exonic	<i>EP300</i>	nonsynonymous SNV	NM_001429:c.G3604C:p.E1202Q	1523956	chr22	41556659	41556659	G	C
ESCC-F103	exonic	<i>ORS5K3</i>	nonsynonymous SNV	NM_001005516:c.T905A:p.I302N		chr3	98110414	98110414	T	A
ESCC-F103	exonic	<i>PIK3CA</i>	nonsynonymous SNV	NM_006218:c.G1633A:p.E345K	687459;687514;735784;762667;76	chr3	178936091	178936091	G	A
ESCC-F103	exonic	<i>CCDC50</i>	nonsynonymous SNV	NM_178335:c.C787G:p.R263G		chr3	191093189	191093189	C	G
ESCC-F103	exonic	<i>GRIA2</i>	nonsynonymous SNV	NM_000826:c.C2557A:p.Q853K		chr4	158284101	158284101	C	A
ESCC-F103	exonic	<i>DNAH5</i>	nonsynonymous SNV	NM_001369:c.C1271A:p.D4257E		chr5	13716734	13716734	G	T
ESCC-F103	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.C4110G:p.F1370L		chr5	89949501	89949501	C	G
ESCC-F103	exonic	<i>HIST1H2AG</i>	nonsynonymous SNV	NM_021064:c.G360C:p.K120N		chr6	27101210	27101210	G	C
ESCC-F103	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.G8182A:p.E2728K		chr7	100682879	100682879	G	A
ESCC-F103	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.A8416G:p.S2806G		chr7	100683113	100683113	A	G
ESCC-F103	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.A8775T:p.E2925D		chr7	100683472	100683472	A	T
ESCC-F103	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.T8777G:p.V2926D		chr7	100683474	100683474	T	G
ESCC-F103	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.G9488T:p.S3163I		chr7	100684185	100684185	G	T
ESCC-F103	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.T9489G:p.S3163R		chr7	100684186	100684186	T	G
ESCC-F103	exonic	<i>LAMB4</i>	nonsynonymous SNV	NM_007356:c.C1697T:p.P566L		chr7	107732075	107732075	G	A
ESCC-F103	exonic	<i>LAMB4</i>	nonsynonymous SNV	NM_007356:c.A1478C:p.Y493S		chr7	107732854	107732854	T	G
ESCC-F103	exonic	<i>ZNF189</i>	nonsynonymous SNV	NM_003452:c.C775T:p.P259S		chr9	104170825	104170825	C	T
ESCC-F104	exonic	<i>PLCH2</i>	nonsynonymous SNV	NM_014638:c.G3419A:p.R1140Q		chr1	2435820	2435820	G	A
ESCC-F104	exonic	<i>PTPN22</i>	nonsynonymous SNV	NM_001193431:c.G148C:p.E50Q		chr1	114402022	114402022	C	G
ESCC-F104	exonic	<i>PLXNA2</i>	nonsynonymous SNV	NM_025179:c.G4438A:p.E1480K		chr1	208213028	208213028	C	T
ESCC-F104	exonic	<i>MLL2</i>	frameshift insertion	NM_003482:c.10395_10396insGG;p.G3465fs		chr12	49428410	49428410		C
ESCC-F104	exonic	<i>RPLP0</i>	nonsynonymous SNV	NM_001002:c.C124G:p.Q42E		chr12	120637219	120637219	G	C
ESCC-F104	exonic	<i>BRCA2</i>	nonsynonymous SNV	NM_000059:c.C1207G:p.L403V		chr13	32906822	32906822	C	G
ESCC-F104	exonic	<i>SYNM</i>	unknown	UNKNOWN		chr15	99672489	99672489	C	G
ESCC-F104	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.C10616T:p.A3539V		chr16	70908761	70908761	G	A
ESCC-F104	exonic	<i>MYH4</i>	nonsynonymous SNV	NM_017533:c.G4228A:p.A1410T		chr17	10352318	10352318	C	T
ESCC-F104	exonic	<i>NUFIP2</i>	nonsynonymous SNV	NM_020772:c.C1427T:p.S476L		chr17	27613585	27613585	G	A
ESCC-F104	exonic	<i>HELZ</i>	stopgain SNV	NM_014877:c.C2338T:p.Q780X		chr17	65147180	65147180	G	A
ESCC-F104	exonic	<i>ZNF431</i>	nonsynonymous SNV	NM_133473:c.G1231A:p.E411K		chr19	21366337	21366337	G	A
ESCC-F104	exonic	<i>ZNF160</i>	stopgain SNV	NM_033288:c.G571T:p.E191X		chr19	53573216	53573216	C	A
ESCC-F104	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G76693C:p.E25565Q		chr2	179397454	179397454	C	G
ESCC-F104	exonic	<i>TPTE</i>	nonsynonymous SNV	NM_199260:c.C697G:p.L233V		chr21	10934982	10934982	G	C
ESCC-F104	exonic	<i>FAM194A</i>	nonsynonymous SNV	NM_152394:c.G1281T:p.E427D		chr3	150391805	150391805	C	A
ESCC-F104	exonic	<i>TRIO</i>	nonsynonymous SNV	NM_007118:c.G4132C:p.D1378H		chr5	14391013	14391013	G	C
ESCC-F104	exonic	<i>TRIO</i>	nonsynonymous SNV	NM_007118:c.G4174C:p.D1392H		chr5	14391055	14391055	G	C
ESCC-F104	exonic	<i>PCDHA3</i>	nonsynonymous SNV	NM_018906:c.G1244A:p.R415H		chr5	140182026	140182026	G	A
ESCC-F104	exonic	<i>FAT2</i>	nonsynonymous SNV	NM_001447:c.G3700T:p.D1234Y		chr5	150934168	150934168	C	A
ESCC-F104	exonic	<i>RANBP17</i>	nonsynonymous SNV	NM_022897:c.G3154A:p.V1052I		chr5	170723002	170723002	G	A
ESCC-F104	exonic	<i>XPO5</i>	nonsynonymous SNV	NM_020750:c.T2092C:p.Y698H		chr6	43515413	43515413	A	G
ESCC-F104	exonic	<i>PHF3</i>	stopgain SNV	NM_015153:c.C5416T:p.Q1806X		chr6	64422900	64422900	C	T
ESCC-F104	exonic	<i>FAM184A</i>	nonsynonymous SNV	NM_001100411:c.C931G:p.L311V		chr6	119341184	119341184	G	C
ESCC-F104	exonic	<i>RUNDC3B</i>	nonsynonymous SNV	NM_001134405:c.C314T:p.S105L		chr7	87329812	87329812	C	T
ESCC-F104	exonic	<i>WRN</i>	nonsynonymous SNV	NM_000553:c.C3715G:p.Q1239E		chr8	31012167	31012167	C	G
ESCC-F104	exonic	<i>TG</i>	nonsynonymous SNV	NM_003235:c.C6599G:p.S2200C		chr8	134030059	134030059	C	G
ESCC-F104	exonic	<i>EPFK1</i>	nonsynonymous SNV	NM_031308:c.G3078A:p.M1026I		chr8	144944344	144944344	C	T
ESCC-F104	exonic	<i>PLEC</i>	nonsynonymous SNV	NM_201378:c.C9635T:p.S3212L		chr8	144994312	144994312	G	A
ESCC-F104	exonic	<i>DDM</i>	nonsynonymous SNV	NM_004011:c.G316A:p.A106T		chrX	32408193	32408193	C	T
ESCC-F104	exonic	<i>RPS6KA6</i>	nonsynonymous SNV	NM_014496:c.C1220A:p.A407E		chrX	83361940	83361940	G	T
ESCC-F104	exonic	<i>F8</i>	nonsynonymous SNV	NM_000132:c.C1834T:p.R612C		chrX	154182236	154182236	G	A

ESCC-F105	exonic	<i>C10orf71</i>	nonsynonymous SNV	NM_001135196:c.G2290C;p.D764H		chr10	50532880	50532880	G	C
ESCC-F105	exonic	<i>MGAT4C</i>	frameshift insertion	NM_013244:c.1175_1176insA;p.L392fs		chr12	86373329	86373329		T
ESCC-F105	splicing	<i>TP53(NM_001126117:exon6:c.597+1G>A;NM_001126112:exon10:c.993+1G>A;NM_001126116:exon6:c.597+1G>A;NM_000546:exon10:c.993+1G>A)</i>			687802;905938;907276;909707;91	chr17	7576852	7576852	C	T
ESCC-F105	exonic	<i>ZNF750</i>	nonsynonymous SNV	NM_024702:c.C37A;p.H13N		chr17	80790294	80790294	G	T
ESCC-F105	exonic	<i>ZNF17</i>	nonsynonymous SNV	NM_006959:c.C944G;p.A315G		chr19	57931804	57931804	C	G
ESCC-F105	exonic	<i>CASP8AP2</i>	nonsynonymous SNV	NM_001137667:c.C5656T;p.P1886S		chr6	90578665	90578665	C	T
ESCC-F106	exonic	<i>FUBP1</i>	nonsynonymous SNV	NM_003902:c.C272T;p.P91L		chr1	78433329	78433329	G	A
ESCC-F106	exonic	<i>FAM55B</i>	nonsynonymous SNV	NM_182495:c.A497C;p.K166T		chr11	114569131	114569131	A	C
ESCC-F106	exonic	<i>SRCAP</i>	frameshift insertion	NM_006662:c.7847_7848insC;p.L2616fs		chr16	30749208	30749208		C
ESCC-F106	exonic	<i>ABCA8</i>	nonsynonymous SNV	NM_007168:c.C4459A;p.P1487T		chr17	66871453	66871453	G	T
ESCC-F106	exonic	<i>LRP1B</i>	nonsynonymous SNV	NM_018557:c.G7436A;p.C2479Y		chr2	141298619	141298619	C	T
ESCC-F106	exonic	<i>SLCA10</i>	nonsynonymous SNV	NM_001178015:c.G380A;p.R127H	1473060	chr2	162696401	162696401	G	A
ESCC-F106	exonic	<i>UNC80</i>	nonsynonymous SNV	NM_032504:c.G4787T;p.W1596L		chr2	210778620	210778620	G	T
ESCC-F106	exonic	<i>PRDM9</i>	nonsynonymous SNV	NM_020227:c.G1469T;p.G490V		chr5	23526666	23526666	G	T
ESCC-F106	exonic	<i>FAT2</i>	frameshift deletion	NM_001447:c.3096delT;p.F1032fs		chr5	150945397	150945397	A	-
ESCC-F106	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.G8542A;p.D2848N		chr6	152706940	152706940	C	T
ESCC-F106	exonic	<i>FLNC</i>	nonsynonymous SNV	NM_001127487:c.G7393A;p.E2465K		chr7	128496906	128496906	G	A
ESCC-F106	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.T1901C;p.V634A		chr7	151945618	151945618	A	G
ESCC-F107	exonic	<i>KCNT2</i>	nonsynonymous SNV	NM_198503:c.G786A;p.M262I		chr1	196398740	196398740	C	T
ESCC-F107	exonic	<i>NAV3</i>	nonsynonymous SNV	NM_014903:c.C5735A;p.S1912Y		chr12	78582038	78582038	C	A
ESCC-F107	exonic	<i>PABPC3</i>	nonsynonymous SNV	NM_030979:c.G835A;p.R278H		chr13	25671169	25671169	G	A
ESCC-F107	exonic	<i>ERCC4</i>	nonsynonymous SNV	NM_005236:c.G1774A;p.E592K		chr16	14029563	14029563	G	A
ESCC-F107	exonic	<i>SI</i>	nonsynonymous SNV	NM_001041:c.C4450A;p.R1484S		chr3	164716418	164716418	G	T
ESCC-F107	exonic	<i>FAT1</i>	frameshift insertion	NM_005245:c.8845_8846insA;p.E2949fs		chr4	187538895	187538895		T
ESCC-F108	exonic	<i>ARHGAP29</i>	nonsynonymous SNV	NM_004815:c.C3386T;p.A1129V		chr1	94639825	94639825	G	A
ESCC-F108	exonic	<i>MICAL2</i>	nonsynonymous SNV	NM_014632:c.C2843T;p.P948L		chr11	12270789	12270789	C	T
ESCC-F108	splicing	<i>TP53(NM_001126117:exon3:c.276+1G>A;NM_001126112:exon7:c.672+1G>A;NM_001126116:exon3:c.276+1G>A;NM_000546:exon7:c.672+1G>A)</i>			724868;753562;905938;907276;90	chr17	7578176	7578176	C	T
ESCC-F108	exonic	<i>ZNF85</i>	nonsynonymous SNV	NM_001256173:c.G1277A;p.G426D		chr19	21132789	21132789	G	A
ESCC-F108	splicing	<i>LRP2(NM_004525:exon48:c.8830+1G>A)</i>				chr2	170050270	170050270	C	T
ESCC-F108	exonic	<i>HOXA2</i>	nonsynonymous SNV	NM_006735:c.C50T;p.S17L		chr7	27142070	27142070	G	A
ESCC-F108	exonic	<i>ADCY8</i>	nonsynonymous SNV	NM_001115:c.T3344C;p.V1115A		chr8	131793048	131793048	A	G
ESCC-F108	exonic	<i>TLR7</i>	nonsynonymous SNV	NM_016562:c.C975A;p.F325L	1456090	chrX	12904602	12904602	C	A
ESCC-F108	exonic	<i>DMD</i>	nonsynonymous SNV	NM_004007:c.G1934A;p.R645Q		chrX	32519949	32519949	C	T
ESCC-F109	exonic	<i>COL11A1</i>	nonsynonymous SNV	NM_001190709:c.C342A;p.F114L		chr1	103544360	103544360	G	T
ESCC-F109	exonic	<i>FMN2</i>	nonsynonymous SNV	NM_020066:c.G5020C;p.D1674H		chr1	240601470	240601470	G	C
ESCC-F109	exonic	<i>TTC18</i>	nonsynonymous SNV	NM_145170:c.C167A;p.A56E		chr10	75113397	75113397	G	T
ESCC-F109	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C628T;p.R210X	753614;905938;905984;907276;90	chr17	7574003	7574003	G	A
ESCC-F109	exonic	<i>MYH4</i>	stopgain SNV	NM_017533:c.A3667T;p.K1223X		chr17	10355329	10355329	T	A
ESCC-F109	exonic	<i>MYH2</i>	nonsynonymous SNV	NM_001100112:c.G431A;p.R144Q		chr17	10448737	10448737	C	T
ESCC-F109	exonic	<i>DNAH9</i>	nonsynonymous SNV	NM_001372:c.C9671T;p.S3224L		chr17	11757483	11757483	C	T
ESCC-F109	exonic	<i>MYT1L</i>	nonsynonymous SNV	NM_015025:c.C3104T;p.A1035V		chr2	1812910	1812910	G	A
ESCC-F109	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C13625G;p.P4542R		chr2	179504482	179504482	G	C
ESCC-F109	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.C24014T;p.T8005M		chr2	179576811	179576811	G	A
ESCC-F109	exonic	<i>ANKMY1</i>	nonsynonymous SNV	NM_016552:c.C739T;p.R247C		chr2	241465810	241465810	G	A
ESCC-F109	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_138297:c.G1417A;p.D473N		chr3	195489792	195489792	C	T
ESCC-F109	exonic	<i>FAT1</i>	stopgain SNV	NM_005245:c.C6098G;p.S2033X		chr4	187541642	187541642		C
ESCC-F109	exonic	<i>C5orf42</i>	nonsynonymous SNV	NM_023073:c.C4939A;p.L1647I		chr5	37183344	37183344	G	T
ESCC-F109	exonic	<i>PCDHA6</i>	nonsynonymous SNV	NM_018909:c.C389T;p.P130L		chr5	140208065	140208065	C	T
ESCC-F109	exonic	<i>DSP</i>	nonsynonymous SNV	NM_001008844:c.G3998A;p.R1333H		chr6	7583290	7583290	G	A
ESCC-F109	exonic	<i>CASP8AP2</i>	nonsynonymous SNV	NM_001137667:c.C4480T;p.H1494Y		chr6	90577489	90577489	C	T
ESCC-F109	exonic	<i>SLC5A1</i>	nonsynonymous SNV	NM_001146009:c.G2207A;p.R736Q		chr8	70585279	70585279	C	T
ESCC-F110	exonic	<i>PTEN</i>	stopgain SNV	NM_000314:c.C1003T;p.R335X	687563;713885;724838;749712;75	chr10	89720852	89720852	C	T
ESCC-F110	exonic	<i>MLL2</i>	stopgain SNV	NM_003482:c.G5248T;p.E1750X		chr12	49437722	49437722	C	A
ESCC-F110	exonic	<i>PPFIA2</i>	nonsynonymous SNV	NM_001220477:c.A301C;p.K101Q		chr12	81839382	81839382	T	G
ESCC-F110	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.A182G;p.H61R	753573;905938;906851;907059;90	chr17	7578271	7578271	T	C
ESCC-F110	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.G15072T;p.Q5024H		chr19	9072374	9072374	C	A
ESCC-F110	exonic	<i>LRP1B</i>	stopgain SNV	NM_018557:c.C5003G;p.S1668X		chr2	141598598	141598598	G	C
ESCC-F110	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.T61778C;p.L20593T		chr2	179418865	179418865	A	G
ESCC-F111	exonic	<i>PPFIA2</i>	nonsynonymous SNV	NM_001220479:c.T611A;p.L204H		chr12	81746982	81746982	A	T
ESCC-F111	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.C353T;p.P118L	905938;907066;907276;909707;94	chr17	7577532	7577532	G	A
ESCC-F111	exonic	<i>MYH13</i>	nonsynonymous SNV	NM_003802:c.G2575A;p.D859N		chr17	10231299	10231299	C	T
ESCC-F111	exonic	<i>MYT1L</i>	stopgain SNV	NM_015025:c.G1159T;p.E387X		chr2	1926382	1926382	C	A
ESCC-F111	exonic	<i>RASGRP3</i>	nonsynonymous SNV	NM_015376:c.C1178T;p.T393M		chr2	33764180	33764180	C	T
ESCC-F111	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C71716T;p.R23906C		chr2	179403751	179403751	G	A
ESCC-F111	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G37046A;p.R12349H		chr2	179451387	179451387	C	T
ESCC-F111	exonic	<i>PKR3CA</i>	nonsynonymous SNV	NM_006218:c.A3140T;p.H1047L	687995;749709;753541;753562;75	chr3	178952085	178952085	A	T
ESCC-F111	exonic	<i>DIRK</i>	nonsynonymous SNV	NM_002253:c.C2621A;p.A874E		chr4	55962503	55962503	G	T
ESCC-F111	exonic	<i>DNAH5</i>	nonsynonymous SNV	NM_001369:c.T13217A;p.L4406H		chr5	13708353	13708353	A	T
ESCC-F111	exonic	<i>RHAG</i>	nonsynonymous SNV	NM_000324:c.G760A;p.A254T		chr6	49582447	49582447	C	T
ESCC-F111	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.G8097C;p.L2699F		chr6	152711516	152711516	C	G
ESCC-F111	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.G13652C;p.G4551A		chr7	151845360	151845360	C	G

ESCC-F111	exonic	<i>RP1</i>	nonsynonymous SNV	NM_006269:c.G1252A:p.E418K		chr8	55537694	55537694	G	A
ESCC-F111	exonic	<i>SLC05A1</i>	nonsynonymous SNV	NM_001146009:c.A1755T:p.K585N		chr8	70591717	70591717	T	A
ESCC-F111	exonic	<i>RIMS2</i>	stopgain SNV	NM_014677:c.G1243T:p.G415X		chr8	104927729	104927729	G	T
ESCC-F111	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_198123:c.G1142T:p.S381I		chr8	113988266	113988266	C	A
ESCC-F113	exonic	<i>OSCP1</i>	nonsynonymous SNV	NM_206837:c.G520A:p.E174K		chr1	36894073	36894073	C	T
ESCC-F113	exonic	<i>CEP350</i>	nonsynonymous SNV	NM_014810:c.G4699A:p.E1567K		chr1	180017747	180017747	G	A
ESCC-F113	exonic	<i>CEP350</i>	nonsynonymous SNV	NM_014810:c.G4744T:p.D1582Y		chr1	180017792	180017792	G	T
ESCC-F113	exonic	<i>SUV39H2</i>	nonsynonymous SNV	NM_024670:c.G638C:p.R213T		chr10	14939485	14939485	G	C
ESCC-F113	exonic	<i>C10orf71</i>	nonsynonymous SNV	NM_001135196:c.C2323T:p.R775W		chr10	50532913	50532913	C	T
ESCC-F113	exonic	<i>PTEN</i>	nonsynonymous SNV	NM_000314:c.G394A:p.G132S	687563;713885;724838;753565;75	chr10	89692910	89692910	G	A
ESCC-F113	exonic	<i>NRAP</i>	nonsynonymous SNV	NM_006175:c.C3245G:p.P1082R		chr10	115372141	115372141	G	C
ESCC-F113	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4787G:p.P1596R		chr11	1092968	1092968	G	G
ESCC-F113	exonic	<i>MLL2</i>	nonsynonymous SNV	NM_003482:c.G16384C:p.D5462H		chr12	49416091	49416091	C	G
ESCC-F113	exonic	<i>PTPN11</i>	nonsynonymous SNV	NM_002834:c.C1471T:p.P491S		909291 chr12	112926851	112926851	C	T
ESCC-F113	exonic	<i>FLT3</i>	nonsynonymous SNV	NM_004119:c.G286C:p.D96H		chr13	28636086	28636086	C	G
ESCC-F113	exonic	<i>RB1</i>	stopgain SNV	NM_000321:c.C1190G:p.S397X	687562;906844;907072;908123;90	chr13	48947603	48947603	C	G
ESCC-F113	exonic	<i>FAM179B</i>	nonsynonymous SNV	NM_015091:c.A410C:p.Y137S		chr14	45432034	45432034	A	C
ESCC-F113	exonic	<i>PTB</i>	nonsynonymous SNV	NM_000347:c.G1543A:p.E515K		chr14	65262156	65262156	C	T
ESCC-F113	exonic	<i>ITGAL</i>	nonsynonymous SNV	NM_001114380:c.A1394T:p.Q465L		chr16	30507557	30507557	A	T
ESCC-F113	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C190T:p.R64X	724859;905938;907043;907276;90	chr17	7578263	7578263	G	A
ESCC-F113	exonic	<i>ZNF792</i>	nonsynonymous SNV	NM_175872:c.C805G:p.L269V		chr19	35449954	35449954	G	C
ESCC-F113	exonic	<i>ZNF221</i>	nonsynonymous SNV	NM_013359:c.C709G:p.Q237E		chr19	44470363	44470363	C	G
ESCC-F113	exonic	<i>DNAH6</i>	nonsynonymous SNV	NM_001370:c.G8962C:p.E2988Q		chr2	84934754	84934754	G	C
ESCC-F113	exonic	<i>ITN</i>	nonsynonymous SNV	NM_133378:c.C14529G:p.S4843R		chr2	179594866	179594866	G	C
ESCC-F113	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.A1626C:p.E542D		chr2	179656835	179656835	T	G
ESCC-F113	exonic	<i>PDZRN3</i>	nonsynonymous SNV	NM_015009:c.G3154A:p.D1052N		chr3	73432563	73432563	C	T
ESCC-F113	exonic	<i>C6</i>	nonsynonymous SNV	NM_000065:c.C1774A:p.P592T		chr5	41159266	41159266	G	T
ESCC-F113	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.G14053C:p.E4685Q		chr7	151842359	151842359	C	G
ESCC-F114	exonic	<i>TPR</i>	nonsynonymous SNV	NM_003292:c.G7048A:p.A2350T		chr1	186283147	186283147	C	T
ESCC-F114	splicing	<i>FAM111B</i>				chr11	58877012	58877012	G	C
ESCC-F114	exonic	<i>FLT1</i>	nonsynonymous SNV	NM_001159920:c.C1166T:p.S389L		chr13	29001999	29001999	G	A
ESCC-F114	exonic	<i>RB1</i>	frameshift insertion	NM_000321:c.210_211insAG:p.V70fs	808521;906844;906849;907043;90	chr13	48881488	48881488	-	AG
ESCC-F114	exonic	<i>C16orf70</i>	nonsynonymous SNV	NM_025187:c.C1118T:p.S373F		chr16	67180189	67180189	C	T
ESCC-F114	exonic	<i>CYLD</i>	frameshift insertion	NM_001042355:c.2289_2290insA:p.F763fs		chr16	50826564	50826564	-	A
ESCC-F114	exonic	<i>TP53</i>	nonframeshift deletion	NM_001126115:c.450_452del:p.150_151del	753566;905938;907276;909707;90	chr17	7577090	7577090	CGC	-
ESCC-F114	exonic	<i>ZNF823</i>	nonsynonymous SNV	NM_001080493:c.C896A:p.T299K		chr19	11833453	11833453	G	T
ESCC-F114	exonic	<i>LRP1B</i>	nonsynonymous SNV	NM_018557:c.C11120T:p.P3707L		chr2	141122241	141122241	G	A
ESCC-F114	splicing	<i>TTN(NM_001256850:exon90:c.25250-IG>T;NM_133378:exon89:c.22469-IG>T)</i>				chr2	179579301	179579301	C	A
ESCC-F114	exonic	<i>SLC4A3</i>	nonsynonymous SNV	NM_005070:c.C3310T:p.R1104W		chr2	220505184	220505184	C	T
ESCC-F114	exonic	<i>MLH1</i>	nonsynonymous SNV	NM_000249:c.T464C:p.L155P	905959	chr3	37050315	37050315	T	C
ESCC-F114	exonic	<i>FILIP1L</i>	nonsynonymous SNV	NM_014890:c.C212A:p.A71E		chr3	99569588	99569588	G	T
ESCC-F114	exonic	<i>FBXW7</i>	nonsynonymous SNV	NM_001013415:c.C1039T:p.R347C	905952;906763;907000;908138;91	chr4	153249385	153249385	G	A
ESCC-F114	exonic	<i>FAT1</i>	frameshift deletion	NM_005245:c.1080delC:p.F360fs		chr4	187629902	187629902	G	-
ESCC-F114	exonic	<i>NOTCH1</i>	frameshift deletion	NM_017617:c.451_452del:p.151_151del		chr9	139417592	139417593	TT	-
ESCC-F115	exonic	<i>FANCA</i>	nonframeshift deletion	NM_000135:c.3788_3790del:p.L263_1264del		chr16	89807250	89807252	AG	-
ESCC-F115	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.G329T:p.C110F	753622;905938;906833;907276;90	chr17	7577556	7577556	C	A
ESCC-F115	exonic	<i>AP2B1</i>	nonsynonymous SNV	NM_001282:c.G2711A:p.R904H	1475133	chr17	34044340	34044340	G	A
ESCC-F115	exonic	<i>RGNEF</i>	nonsynonymous SNV	NM_001080479:c.A323G:p.N108S		chr5	73048875	73048875	A	G
ESCC-F115	exonic	<i>ZFX4</i>	nonsynonymous SNV	NM_024721:c.G4099A:p.D1367N		chr8	77763256	77763256	G	A
ESCC-F116	exonic	<i>BRCA2</i>	nonsynonymous SNV	NM_000059:c.A4787T:p.N1596I		chr13	32913279	32913279	A	T
ESCC-F116	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G56703T:p.E1890I		chr2	179426961	179426961	C	A
ESCC-F116	exonic	<i>PIK3CA</i>	nonsynonymous SNV	NM_006218:c.A3140G:p.H1047R	687995;749709;753541;753562;75	chr3	178952085	178952085	A	G
ESCC-F116	exonic	<i>FAT1</i>	nonsynonymous SNV	NM_005245:c.C11284A:p.H3762N		chr4	187524396	187524396	G	T
ESCC-F117	splicing	<i>ARID1A(NM_006015:exon8:c.2732+2T>C;NM_139135:exon8:c.2732+2T>C)</i>				chr1	27089778	27089778	T	C
ESCC-F117	splicing	<i>E1F2C1(NM_012199:exon18:c.2266-IG>A)</i>				chr1	36384655	36384655	G	A
ESCC-F117	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.C373G:p.L125V	905938;907276;907321;909707;94	chr17	7577512	7577512	C	C
ESCC-F117	splicing	<i>ZNF207(NM_003457:exon1:c.41+IG>C;NM_001098507:exon1:c.41+IG>C)</i>				chr17	30677346	30677346	G	C
ESCC-F117	exonic	<i>ANKRD12</i>	nonsynonymous SNV	NM_001083625:c.C2862G:p.H954Q		chr18	9256196	9256196	G	G
ESCC-F117	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C4344T:p.R1448I		chr19	8959691	8959691	G	A
ESCC-F117	exonic;splicing	<i>LRP1B;LRP1B</i>	nonsynonymous SNV	NM_018557:c.A10415T:p.D3472V		chr2	141143578	141143578	T	A
ESCC-F117	exonic	<i>LRP2</i>	nonsynonymous SNV	NM_004525:c.A7223G:p.H2408R		chr2	170063007	170063007	T	C
ESCC-F117	exonic	<i>TAAR8</i>	nonsynonymous SNV	NM_053278:c.C944T:p.P315L		chr6	132874775	132874775	C	T
ESCC-F117	exonic	<i>ZNF716</i>	nonsynonymous SNV	NM_001159279:c.A242T:p.E81V		chr7	57522854	57522854	A	T
ESCC-F118	exonic	<i>CTNNA3</i>	nonsynonymous SNV	NM_001127384:c.G1220A:p.R407Q		chr10	68526083	68526083	C	T
ESCC-F118	exonic	<i>LRKK2</i>	nonsynonymous SNV	NM_198578:c.G1517A:p.R506Q		chr12	40653380	40653380	G	A
ESCC-F118	exonic	<i>NBEA</i>	nonsynonymous SNV	NM_015678:c.G1688C:p.R563T		chr13	35683434	35683434	G	C
ESCC-F118	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C306A:p.Y102X	905938;907050;907276;909707;94	chr17	7577579	7577579	G	T
ESCC-F118	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.G40261T:p.G13421C		chr19	9002555	9002555	C	A
ESCC-F118	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.G28416A:p.M9472I		chr19	9059030	9059030	C	T
ESCC-F118	exonic	<i>ZNF442</i>	nonsynonymous SNV	NM_030824:c.C1099T:p.H367Y		chr19	12461300	12461300	G	A
ESCC-F118	exonic	<i>ALK</i>	nonsynonymous SNV	NM_004304:c.G1645C:p.E549Q		chr2	29541172	29541172	C	G

ESCC-F118	exonic	<i>PDE11A</i>	nonsynonymous SNV	NM_001077196:c.G892A:p.V298M		chr2	178565869	178565869	C	T
ESCC-F118	exonic	<i>PRRC2A</i>	nonsynonymous SNV	NM_004638:c.G6209C:p.G2070A		chr6	31604880	31604880	G	C
ESCC-F118	exonic	<i>SLC26A8</i>	nonsynonymous SNV	NM_138718:c.G1565A:p.R522Q		chr6	35923281	35923281	C	T
ESCC-F118	exonic	<i>LAMA4</i>	nonsynonymous SNV	NM_001105206:c.G4169A:p.R1390Q		chr6	112450242	112450242	C	T
ESCC-F118	exonic	<i>ABCB5</i>	nonsynonymous SNV	NM_001163941:c.C689T:p.S230L		chr7	20685389	20685389	C	T
ESCC-F118	exonic	<i>BCOR</i>	nonsynonymous SNV	NM_001123384:c.G4450T:p.D1484Y		chrX	39914756	39914756	C	A
ESCC-F119	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.A6179C:p.H2060P		chr14	105415609	105415609	T	G
ESCC-F119	exonic	<i>MYH4</i>	nonsynonymous SNV	NM_017533:c.G4762A:p.D1588N		chr17	10351338	10351338	C	T
ESCC-F119	exonic	<i>GNAS</i>	nonsynonymous SNV	NM_001077490:c.C1559T:p.T520M		chr20	57430066	57430066	C	T
ESCC-F119	exonic	<i>SCN5A</i>	nonsynonymous SNV	NM_001099405:c.G5185A:p.V1729M		chr3	38592624	38592624	C	T
ESCC-F119	exonic	<i>BAP1</i>	nonsynonymous SNV	NM_004656:c.A304G:p.N102D		chr3	52442045	52442045	T	C
ESCC-F119	exonic	<i>NOTCH1</i>	stopgain SNV	NM_017617:c.G3442T:p.E1148X		chr9	139402475	139402475	C	A
ESCC-F120	splicing	<i>USP24(NM_015306:exon56:c.6555-1G>A)</i>				chr1	55555414	55555414	C	T
ESCC-F120	exonic	<i>COL11A1</i>	frameshift deletion	NM_080630:c.1287delG:p.G429fs		chr1	103474067	103474067	C	T
ESCC-F120	exonic	<i>PPM1J</i>	nonsynonymous SNV	NM_005167:c.C517A:p.L173M		chr1	113255578	113255578	G	T
ESCC-F120	exonic	<i>CACNA1E</i>	nonsynonymous SNV	NM_001205294:c.G2489A:p.R830H		chr1	181701768	181701768	G	A
ESCC-F120	exonic	<i>PHF11</i>	frameshift deletion	NM_006608:c.2074_2075del:p.692_692del		chr1	114242393	114242394	TT	-
ESCC-F120	exonic	<i>CEP350</i>	frameshift deletion	NM_014810:c.3362delA:p.E1121fs		chr1	179991959	179991959	A	-
ESCC-F120	exonic	<i>PPP1R12B</i>	frameshift deletion	NM_001167857:c.1496delT:p.V499fs		chr1	202407190	202407190	T	-
ESCC-F120	exonic	<i>ADRA2A</i>	nonsynonymous SNV	NM_000681:c.C233T:p.A78V		chr10	112837987	112837987	C	T
ESCC-F120	exonic;splicing	<i>TTC18;TTC18</i>	frameshift deletion	NM_145170:c.348delA:p.E116fs		chr10	75108182	75108182	T	-
ESCC-F120	exonic	<i>ZNF518A</i>	unknown	UNKNOWN		chr10	97918856	97918856	A	-
ESCC-F120	exonic	<i>PDE3B</i>	nonsynonymous SNV	NM_000922:c.A2681T:p.D894V		chr11	14880749	14880749	A	T
ESCC-F120	exonic	<i>HEPH1</i>	nonsynonymous SNV	NM_001098672:c.A2044G:p.M682V		chr11	93819319	93819319	A	G
ESCC-F120	exonic	<i>TBRG1</i>	nonsynonymous SNV	NM_032811:c.A571G:p.T191A		chr11	124496485	124496485	A	G
ESCC-F120	exonic	<i>MLL2</i>	stopgain SNV	NM_003482:c.C10841G:p.S3614X		chr12	49427647	49427647	G	C
ESCC-F120	exonic	<i>NAV3</i>	nonsynonymous SNV	NM_014903:c.A5612G:p.E1871G		chr12	78574811	78574811	A	G
ESCC-F120	exonic	<i>PPF1A2</i>	nonsynonymous SNV	NM_001220478:c.G394A:p.A132T		chr12	81799637	81799637	C	T
ESCC-F120	exonic	<i>MLL2</i>	stopgain SNV	NM_003482:c.6991delC:p.L2331X		chr12	49434562	49434562	G	-
ESCC-F120	exonic	<i>MYO16</i>	frameshift deletion	NM_001198950:c.2584delT:p.F862fs		chr13	109661386	109661386	T	-
ESCC-F120	exonic	<i>ITGAL</i>	nonsynonymous SNV	NM_001114380:c.G1402A:p.V468M		chr16	30507565	30507565	G	A
ESCC-F120	exonic	<i>CDH1</i>	nonsynonymous SNV	NM_004360:c.G1759C:p.D587H		chr16	68855951	68855951	G	C
ESCC-F120	exonic	<i>HYDIN</i>	frameshift deletion	NM_001198542:c.2622delA:p.K874fs		chr16	71065809	71065809	T	-
ESCC-F120	exonic	<i>ZFH3</i>	nonframeshift deletion	NM_001164766:c.2479_2481del:p.827_827del		chr16	72831358	72831360	TTG	-
ESCC-F120	exonic	<i>ANKRD11</i>	nonsynonymous SNV	NM_001256183:c.C4196T:p.A1399V		chr16	89348754	89348754	G	A
ESCC-F120	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.T14A:p.L5Q	905938;907276;909707;946371;13	chr17	7578520	7578520	A	T
ESCC-F120	exonic	<i>MYH1</i>	nonsynonymous SNV	NM_005963:c.G946A:p.V316I		chr17	10416060	10416060	C	T
ESCC-F120	exonic	<i>MYH2</i>	nonsynonymous SNV	NM_001100112:c.C1067T:p.T356M		chr17	10443325	10443325	G	A
ESCC-F120	exonic	<i>SLC9A3R1</i>	frameshift deletion	NM_004252:c.906delC:p.S302fs		chr17	72764624	72764624	C	-
ESCC-F120	exonic	<i>THOC1</i>	frameshift insertion	NM_005131:c.1108_1109insC:p.D370fs		chr18	225118	225118	-	G
ESCC-F120	exonic	<i>STK11</i>	frameshift deletion	NM_000455:c.837delC:p.G279fs	687814;753585;906825;907319;91	chr19	1221314	1221314	C	-
ESCC-F120	exonic	<i>MYT1L</i>	nonsynonymous SNV	NM_015025:c.G2683A:p.A895T		chr2	1890333	1890333	C	T
ESCC-F120	exonic	<i>DNMT3A</i>	nonsynonymous SNV	NM_153759:c.G386A:p.R129Q		chr2	25470521	25470521	C	T
ESCC-F120	exonic	<i>MYT1L</i>	frameshift insertion	NM_015025:c.102_103insC:p.P34fs		chr2	1982987	1982987	-	G
ESCC-F120	exonic	<i>SPAST</i>	nonframeshift deletion	NM_014946:c.635_637del:p.212_213del		chr2	32323913	32323915	ATA	-
ESCC-F120	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G39764A:p.R13255H		chr2	179445147	179445147	C	T
ESCC-F120	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.C24236T:p.A8079V		chr2	179575995	179575995	G	A
ESCC-F120	exonic	<i>MAP2</i>	nonsynonymous SNV	NM_031845:c.C1243T:p.R415C		chr2	210594948	210594948	C	T
ESCC-F120	exonic	<i>FSIP2</i>	frameshift deletion	NM_173651:c.10507delA:p.K3503fs		chr2	186662103	186662103	A	-
ESCC-F120	splicing	<i>SEPT2(NM_006155:exon7:c.477-1G>C;NM_001008491:exon8:c.477-1G>C;NM_004404:exon7:c.477-1G>C;NM_001008492:exon8:c.477-1G>C)</i>				chr2	242277087	242277087	G	C
ESCC-F120	exonic	<i>ZC3H7B</i>	nonsynonymous SNV	NM_017590:c.T476A:p.L159Q		chr22	41726058	41726058	T	A
ESCC-F120	exonic	<i>EP300</i>	frameshift deletion	NM_001429:c.3702delA:p.R1234fs	1523956	chr22	41558757	41558757	A	-
ESCC-F120	exonic	<i>ARPP21</i>	nonsynonymous SNV	NM_016300:c.C2011T:p.P671S		chr3	35785436	35785436	C	T
ESCC-F120	exonic	<i>GOLGB1</i>	nonsynonymous SNV	NM_001256488:c.C3334T:p.R1112C		chr3	121415796	121415796	G	A
ESCC-F120	exonic	<i>JGSF10</i>	nonsynonymous SNV	NM_178822:c.T1141C:p.Y381H		chr3	151166628	151166628	A	G
ESCC-F120	exonic	<i>BCL6</i>	nonsynonymous SNV	NM_001134738:c.G1301A:p.S434N		chr3	187446892	187446892	C	T
ESCC-F120	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C1037T:p.P346L		chr3	195517414	195517414	G	A
ESCC-F120	exonic	<i>CNOT6L</i>	nonsynonymous SNV	NM_144571:c.G1559A:p.C520Y		chr4	78641694	78641694	C	T
ESCC-F120	exonic	<i>TRPC3</i>	nonsynonymous SNV	NM_003305:c.C500T:p.A167V		chr4	122853694	122853694	G	A
ESCC-F120	exonic	<i>FAT2</i>	nonsynonymous SNV	NM_005245:c.G12304A:p.G4102R		chr4	187518900	187518900	C	T
ESCC-F120	exonic	<i>DNAH5</i>	nonsynonymous SNV	NM_001369:c.T7000C:p.W2334R		chr5	13814944	13814944	A	G
ESCC-F120	exonic	<i>DROSHA</i>	nonsynonymous SNV	NM_001100412:c.G3926A:p.R1309Q		chr5	31401627	31401627	C	T
ESCC-F120	exonic	<i>FAM169A</i>	nonsynonymous SNV	NM_015566:c.G1888A:p.E630K		chr5	74077410	74077410	C	T
ESCC-F120	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.A11955G:p.L3985M		chr5	90055240	90055240	A	G
ESCC-F120	exonic	<i>C6</i>	frameshift insertion	NM_000065:c.1630_1631insGT:p.Q544fs		chr5	41160298	41160298	-	AC
ESCC-F120	exonic	<i>CWC27</i>	frameshift deletion	NM_005869:c.995delA:p.Q332fs		chr5	64181326	64181326	A	-
ESCC-F120	exonic	<i>FAT2</i>	nonsynonymous SNV	NM_001447:c.C1611A:p.D537A		chr5	150946882	150946882	G	T
ESCC-F120	exonic	<i>NPML</i>	nonsynonymous SNV	NM_001037738:c.C557T:p.A186V		chr5	170827189	170827189	C	T
ESCC-F120	exonic	<i>GRK2</i>	nonsynonymous SNV	NM_001166247:c.G1988A:p.R665H		chr6	102376410	102376410	G	A
ESCC-F120	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.T3539C:p.L1180P		chr7	82595565	82595565	A	G
ESCC-F120	exonic	<i>PCLO</i>	frameshift deletion	NM_014510:c.3635delA:p.R1212fs		chr7	82595469	82595469	T	-

ESCC-F120	exonic	<i>MLL3</i>	frameshift deletion	NM_170606:c.13488delT:p.F4496fs	1433829	chr7	151845524	151845524	A	-
ESCC-F120	exonic	<i>ATAD2</i>	nonsynonymous SNV	NM_014109:c.C463T:p.R155C		chr8	124383983	124383983	G	A
ESCC-F120	exonic	<i>ATAD2</i>	frameshift insertion	NM_014109:c.355_356insA:p.E119fs		chr8	124384892	124384892	-	T
ESCC-F120	exonic	<i>KIAA1429</i>	stopgain SNV	NM_015496:c.1562delT:p.L521X		chr8	95538910	95538910	A	-
ESCC-F120	exonic	<i>HUWE1</i>	frameshift deletion	NM_031407:c.8105_8106del:p.2702_2702del		chrX	53585670	53585671	TG	-

Color types	Number
Validated as a true call by Sanger sequencing	100
Germline SNP	2
Validated as a false call by Sanger sequencing	2
Total events	104
True positive rate	96.2%
PCR failure: high GC content; difficulty in designing primers; poor signal from Sanger sequencing	15

Supplementary Table 7. Focal recurrent SCNVs summarized from different studies of ESCC genome

Genomic Alterations	Cytoband	Studies of ESCC genomic changes (Number of Cases)					Overall Frequency (n = 184)	Driver Genes in peak
		In-house SNP-array (n = 22)	In-house array-CGH (n = 59)	TumorScape ⁷ SNP-array (n=44)	Hu <i>et al.</i> ⁸ SNP-array (n = 30)	Bass <i>et al.</i> ⁹ SNP-array (n = 29)		
	8p11.23	3	3	5	2	2	11.0%	<i>FGFR1</i> *
	8q24.21	1	4	7	4	0	8.7%	<i>MYC</i>
	7p11.2	2	3	10	1	4	10.9%	<i>EGFR</i>
High Level Amplification	11q13.2-13.3	10	27	20	14	14	46.2%	<i>CCND1, FGF3/4/19, CTTN, CPT1A</i>
	12p12.1	2	1	4	2	1	5.4%	<i>KRAS</i>
	12q15	1	5	1	0	0	3.8%	<i>MDM2</i>
	3q26	1	1	10	0	0	6.5%	<i>P63</i>
	3q26.32-33	0	2	13	1	2	9.8%	<i>SOX2,PIK3CA</i>
	14q13.3	0	3	8	1	1	7.1%	<i>NKX2-1</i>
Homozygous Deletion	2q22.1-22.2	0	0	8	0	3	6.0%	<i>LRP1B</i>
	9p21.3	2	11	24	9	15	33.2%	<i>CDKN2A/B</i>
	5q12.1	0	1	4	0	1	3.3%	<i>PDE4D</i>
	9p24.1	0	1	3	0	2	3.3%	<i>PTPRD</i>
	3p14.2	0	0	7	1	0	4.3%	<i>FHIT</i>

*, We also validated *FGFR1* amplification by FISH in 53 additional ESCC tumors, and found that *FGFR1* was amplified in 11 samples.

Supplementary Table 8a. Correlation of FGFR1 protein expression and ESCC clinic-pathological parameters (68 analyzable cases, Additional Cohort)

Variables	FGFR1		Total
	Unchanged	Over-expressed	
Age			
≤60 years	26	6	32
>60 years	30	6	36
<i>P</i> = 0.822			
Gender			
Male	38	8	46
Female	18	4	22
<i>P</i> = 0.936			
Primary tumor			
T1	3	1	4
T2	53	11	64
<i>P</i> = 0.691			
Regional lymph nodes			
N0	35	8	43
N1	21	4	25
<i>P</i> = 0.786			
Grade			
G1	20	3	23
G2	32	8	40
G3	4	1	5
<i>P</i> = 0.776			

Supplementary Table 8b. Correlation of FBWX7 protein expression and ESCC clinic-pathological parameters (39 analyzable cases, Additional Cohort)

Variables	FBWX7		Total
	Down-regulated	Unchanged	
Age			
≤60 years	2	11	13
>60 years	10	16	26
<i>P</i> = 0.141			
Gender			
Male	7	10	17
Female	5	17	22
<i>P</i> = 0.216			
Primary tumor			
T2	6	13	19
T3	6	14	20
<i>P</i> = 0.915			
Regional lymph nodes			
N0	5	15	20
N1	5	11	16
<i>P</i> = 0.677			
Grade			
G1	6	8	14
G2	4	14	18
G3	2	5	7
<i>P</i> = 0.451			

Supplementary Table 8c. Correlation of ZNF750 protein expression and ESCC clinic-pathological parameters (48 analyzable cases, Additional Cohort)

Variables	ZNF750		Total
	Down-regulated	Unchanged	
Age			
≤60 years	12	2	14
>60 years	24	10	34
	<i>P</i> = 0.271		
Gender			
Male	16	4	20
Female	20	8	28
	<i>P</i> = 0.499		
Primary tumor			
T2	16	8	24
T3	20	4	24
	<i>P</i> = 0.302		
Regional lymph nodes			
N0	19	6	25
N1	15	5	20
	<i>P</i> = 0.938		
Grade			
G1	10	5	15
G2	19	7	26
G3	7	0	7
	<i>P</i> = 0.230		

Supplementary Table 8d. Correlation of XPO1 protein expression and ESCC clinic-pathological parameters (92 analyzable cases, Additional Cohort)

Variables	XPO1			Total
	Unchanged	Over-expressed		
	-	+	++	
Age				
≤60 years	20	6	5	31
>60 years	28	26	7	61
	<i>P</i> = 0.081			
Gender				
Male	32	14	7	53
Female	16	18	5	39
	<i>P</i> = 0.127			
Primary tumor				
T1	3	0	1	4
T2	40	24	5	69
T3	5	8	6	19
	<i>P</i> = 0.016			
Regional lymph nodes				
N0	31	18	8	57
N1	17	13	3	33
	<i>P</i> = 0.663			
Grade				
G1	19	11	4	34
G2	21	19	7	47
G3	8	2	1	11
	<i>P</i> = 0.534			

P value is calculated with Pearson Chi-Square analysis

Supplementary Table 8e. Down-regulation of FAT1 protein expression in ESCC tumors

FAT1 protein	Down-regulated	Total paired	Frequency
cases	6	18	33%

Supplementary Table 9a. KEGG Pathway Enrichment Analysis

Pathway	Number of genes observed	Entrez ID (Seperated by space)	Genome Hits	Observed Hits	Expected Hits	Enrichment Fold	P-value	Genome Background	Enrichment in GeneSet
Gap junction	6	2778 2911 3358 2767 114 1956	90	6	2.27	2.64	0.0266	0.21%	0.55%
Hematopoietic cell lineage	6	7124 3575 3815 2322 7066 945	88	6	2.22	2.7	0.0241	0.20%	0.55%
Apoptosis	6	7124 472 330 5294 7157 5290	87	6	2.2	2.73	0.023	0.20%	0.55%
Chemokine signaling pathway	10	5829 1445 114 729230 5908 5290 3717 3577 5294 157	189	10	4.77	2.1	0.0224	0.44%	0.92%
Vitamin digestion and absorption	3	8029 337 9227	24	3	0.61	4.95	0.0219	0.06%	0.28%
Nicotinate and nicotinamide metabolism	3	5167 4837 5169	24	3	0.61	4.95	0.0219	0.06%	0.28%
Olfactory transduction	17	219986 390892 81697 391192 391194 119694 346525 157 127385 4992 390649 122742 119678 3902	388	17	9.8	1.74	0.0209	0.90%	1.56%
Hepatitis C	8	7124 5600 3716 1432 5294 1956 7157 5290	134	8	3.38	2.36	0.0208	0.31%	0.73%
Pyruvate metabolism	4	5161 5315 134526 10873	40	4	1.01	3.96	0.018	0.09%	0.37%
Cytokine-cytokine receptor interaction	13	7124 3575 91 3791 2321 729230 51330 29949 4233 2322 3815 3577 1956	265	13	6.69	1.94	0.018	0.61%	1.19%
Ribosome biogenesis in eukaryotes	6	22803 7514 29102 55272 51068 84135	80	6	2.02	2.97	0.0158	0.19%	0.55%
Fc epsilon RI signaling pathway	6	7124 5600 1432 6416 5294 5290	79	6	1.99	3.01	0.0149	0.18%	0.55%
GnRH signaling pathway	7	2778 5600 1432 6416 2767 114 1956	101	7	2.55	2.74	0.0142	0.23%	0.64%
Starch and sucrose metabolism	5	283209 8972 5167 5169 6476	54	5	1.36	3.67	0.0116	0.12%	0.46%
Gastric acid secretion	6	2778 115111 760 114 3274 389015	74	6	1.87	3.21	0.0111	0.17%	0.55%
Bile secretion	6	2778 6579 5244 760 114 5243	71	6	1.79	3.35	0.0091	0.16%	0.55%
Metabolic pathways	42	33 127 4837 1788 10873 1573 6476 586 2131 8867 84920 1607 4249 1786 64087 5169 85465 7941 1	1130	42	28.53	1.47	0.009	2.62%	3.86%
Insulin signaling pathway	9	23624 7248 2475 9322 868 5257 5290 5140 5294	138	9	3.48	2.58	0.0086	0.32%	0.83%
Complement and coagulation cascades	6	718 728 2157 729 730 2	69	6	1.74	3.44	0.0079	0.16%	0.55%
Pantothenate and CoA biosynthesis	3	586 5167 5169	16	3	0.4	7.43	0.007	0.04%	0.28%
Citrate cycle (TCA cycle)	4	5161 3417 6392 2271	30	4	0.76	5.28	0.0066	0.07%	0.37%
Osteoclast differentiation	9	7124 3716 4286 5290 10859 5600 1513 1432 5294	128	9	3.23	2.78	0.0053	0.30%	0.83%
Neurotrophin signaling pathway	9	1445 7157 5781 5908 5290 5600 1432 5294 27330	127	9	3.21	2.81	0.0051	0.29%	0.83%
Carbohydrate digestion and absorption	5	8972 3938 5294 6476 5290	44	5	1.11	4.5	0.0049	0.10%	0.46%
Colorectal cancer	6	5900 324 5294 2956 7157 5290	62	6	1.57	3.83	0.0047	0.14%	0.55%
Shigellosis	6	5600 3059 1432 1445 7307 8945	61	6	1.54	3.9	0.0044	0.14%	0.55%
Bladder cancer	5	5925 999 1019 1956 7157	42	5	1.06	4.71	0.004	0.10%	0.46%
Phosphatidylinositol signaling system	7	1607 5728 8867 5294 5286 8395 5290	78	7	1.97	3.55	0.0036	0.18%	0.64%
NOD-like receptor signaling pathway	6	7124 5600 330 22861 1432 58484	58	6	1.46	4.1	0.0034	0.13%	0.55%
Acute myeloid leukemia	6	2475 3815 2322 5294 5371 5290	57	6	1.44	4.17	0.0031	0.13%	0.55%
Inositol phosphate metabolism	6	5728 8867 5294 5286 8395 5290	57	6	1.44	4.17	0.0031	0.13%	0.55%
Arrhythmogenic right ventricular cardiomyopathy (ARVC)	7	3908 29119 1756 1832 3679 781 6546	74	7	1.87	3.75	0.0027	0.17%	0.64%
Non-small cell lung cancer	6	5925 1019 5294 1956 7157 5290	54	6	1.36	4.4	0.0024	0.12%	0.55%
Leishmaniasis	7	7124 718 3717 5600 3716 3111 1432	72	7	1.82	3.85	0.0023	0.17%	0.64%
mTOR signaling pathway	6	7248 253260 2475 5294 27330 5290	52	6	1.31	4.57	0.0019	0.12%	0.55%
Long-term potentiation	7	2911 2033 1387 2891 114 27330 5908	70	7	1.77	3.96	0.0019	0.16%	0.64%
p53 signaling pathway	7	6241 472 575 11200 5728 1019 7157	68	7	1.72	4.08	0.0016	0.16%	0.64%
RNA transport	11	7175 5042 23225 7514 9984 57510 60528 51068 3837 8667 8661	151	11	3.81	2.88	0.0016	0.35%	1.01%
Spliceosome	10	25766 58517 9879 9984 7307 23451 51340 1655 11325 10291	127	10	3.21	3.12	0.0015	0.29%	0.92%
Progesterone-mediated oocyte maturation	8	51433 114 5290 5600 5140 1432 5294 27330	86	8	2.17	3.68	0.0015	0.20%	0.73%
Hypertrophic cardiomyopathy (HCM)	8	7124 7273 1756 3679 4624 3908 6546 781	83	8	2.1	3.82	0.0012	0.19%	0.73%
Notch signaling pathway	6	2033 1387 4851 9612 54567 4853	47	6	1.19	5.06	0.0011	0.11%	0.55%
Regulation of actin cytoskeleton	14	3683 5829 2335 2263 1445 3679 8826 5290 324 10787 81624 5294 1956 8395	213	14	5.38	2.6	0.0011	0.49%	1.29%
Toll-like receptor signaling pathway	9	7124 51284 5290 5600 1513 1432 54472 5294 6416	102	9	2.58	3.49	0.0011	0.24%	0.83%
Systemic lupus erythematosus	11	7124 718 8339 729 8359 3020 8338 3111 8969 730 440689	136	11	3.43	3.2	0.0007	0.31%	1.01%
VEGF signaling pathway	8	4775 5829 3791 5290 5600 1432 5294 10725	76	8	1.92	4.17	0.0007	0.18%	0.73%
Jak-STAT signaling pathway	12	2033 23624 1387 3716 3575 868 5781 5290 3717 29949 5294 8027	155	12	3.91	3.07	0.0006	0.36%	1.10%

Basal cell carcinoma	7	5727 324 8323 11211 7976 6608 7157	55	7	1.39	5.04	0.0005	0.13%	0.64%
MAPK signaling pathway	17	7124 2318 9175 4763 777 7157 5908 25780 1432 1956 2263 5600 774 6416 781 4208 27330	268	17	6.77	2.51	0.0005	0.62%	1.56%
Chronic myeloid leukemia	8	23624 5925 1019 7157 868 5781 5290 5294	73	8	1.84	4.34	0.0005	0.17%	0.73%
Tight junction	11	4301 4622 57530 154810 3059 29119 5728 1019 4626 22989 4624	132	11	3.33	3.3	0.0005	0.31%	1.01%
Amyotrophic lateral sclerosis (ALS)	7	7124 4741 5600 2891 1432 7157 6506	53	7	1.34	5.23	0.0004	0.12%	0.64%
Viral myocarditis	8	4622 3683 1756 4626 22989 4624 3908 3111	70	8	1.77	4.53	0.0004	0.16%	0.73%
ErbB signaling pathway	9	23624 10718 2475 2066 6416 5294 1956 868 5290	87	9	2.2	4.1	0.0004	0.20%	0.83%
Chagas disease (American trypanosomiasis)	10	7124 2778 718 2775 5290 5600 1432 2767 5294 6416	104	10	2.63	3.81	0.0003	0.24%	0.92%
Dorso-ventral axis formation	5	4851 440822 4853 1956 56776	24	5	0.61	8.25	0.0003	0.06%	0.46%
Glioma	8	5925 2475 5728 1019 7157 5290 5294 1956	65	8	1.64	4.87	0.0002	0.15%	0.73%
Type II diabetes mellitus	7	7124 774 5315 2475 777 5294 5290	48	7	1.21	5.78	0.0002	0.11%	0.64%
Leukocyte transendothelial migration	11	4301 3683 5829 29119 5781 5908 5290 1500 5600 1432 5294	116	11	2.93	3.76	0.0002	0.27%	1.01%
Ubiquitin mediated proteolysis	12	23624 51433 330 10075 868 5371 55585 55294 4591 63893 4734 8945	135	12	3.41	3.52	0.0002	0.31%	1.10%
Epithelial cell signaling in Helicobacter pylori infection	9	1445 5803 5781 5600 4233 1432 3577 6416 1956	68	9	1.72	5.24	5.23E-05	0.16%	0.83%
Dilated cardiomyopathy	10	7124 2778 7273 1756 3679 114 4624 3908 781 6546	90	10	2.27	4.4	9.32E-05	0.21%	0.92%
Neuroactive ligand-receptor interaction	19	3351 3358 2898 4829 2566 728 116443 2913 2891 3274 2911 6865 4157 4158 83551 886 187 5731 1	272	19	6.87	2.77	7.31E-05	0.63%	1.74%
Purine metabolism	14	5146 5167 9583 114 6241 4881 5315 318 5140 55811 11128 5425 5169 50940	162	14	4.09	3.42	6.85E-05	0.38%	1.29%
Wnt signaling pathway	13	2033 27123 1387 4775 11211 7976 90665 7157 324 57216 10725 8323 8945	150	13	3.79	3.43	0.0001	0.35%	1.19%
Calcium signaling pathway	15	2778 2911 6865 3358 777 114 5257 774 886 2767 2066 1956 3274 6546 5731	177	15	4.47	3.36	4.79E-05	0.41%	1.38%
Axon guidance	12	4775 57689 54910 6092 2043 5361 2051 4233 2047 10371 2045 10725	129	12	3.26	3.68	0.0001	0.30%	1.10%
Renal cell carcinoma	9	2033 1387 2034 5781 5908 2271 5290 4233 5294	70	9	1.77	5.09	6.60E-05	0.16%	0.83%
Adherens junction	9	4301 2033 1387 29119 999 8826 1500 4233 1956	73	9	1.84	4.88	9.22E-05	0.17%	0.83%
Endometrial cancer	8	29119 999 5728 7157 5290 324 5294 1956	52	8	1.31	6.09	4.53E-05	0.12%	0.73%
Melanogenesis	11	2778 2033 1387 4157 2775 114 11211 4286 7976 3815 8323	101	11	2.55	4.31	5.07E-05	0.23%	1.01%
ECM-receptor interaction	10	3910 3909 2335 3679 1286 3913 63923 3908 1301 22798	85	10	2.15	4.66	5.71E-05	0.20%	0.92%
T cell receptor signaling pathway	11	7124 23624 1493 4775 1019 868 5290 5600 1432 5294 10725	108	11	2.73	4.03	9.38E-05	0.25%	1.01%
Pancreatic cancer	9	5925 675 3716 1019 7157 5290 5900 5294 1956	70	9	1.77	5.09	6.60E-05	0.16%	0.83%
Endocytosis	17	3791 868 157 2066 8027 1956 4734 23624 2263 1213 2321 5371 163 4233 3815 3577 8395	201	17	5.08	3.35	1.58E-05	0.47%	1.56%
Cell cycle	13	2033 1387 5925 51433 7465 4175 1019 5001 7157 472 701 11200 5934	124	13	3.13	4.15	1.63E-05	0.29%	1.19%
Prostate cancer	11	2033 1387 5925 2475 2263 5728 7157 5290 6716 5294 1956	89	11	2.25	4.89	1.53E-05	0.21%	1.01%
Melanoma	10	5925 999 5728 1019 4286 7157 5290 4233 5294 1956	71	10	1.79	5.58	1.16E-05	0.16%	0.92%
Bacterial invasion of epithelial cells	11	23624 5829 2335 3059 29119 999 1213 868 5290 4233 5294	70	11	1.77	6.22	1.40E-06	0.16%	1.01%
Toxoplasmosis	15	7124 3910 3909 330 3716 2775 5290 3913 3717 5600 3908 3111 1432 5294 22798	132	15	3.33	4.5	1.35E-06	0.31%	1.38%
ABC transporters	10	94160 21 340273 5243 215 5244 154664 10347 10350 10351	44	10	1.11	9	1.15E-07	0.10%	0.92%
Amoebiasis	15	7124 2778 3910 3909 2335 1286 5290 3913 4583 1301 3908 6318 2767 5294 22798	106	15	2.68	5.6	7.49E-08	0.25%	1.38%
Focal adhesion	21	2318 3910 5829 330 2335 1286 3791 5908 1301 3908 1956 22798 3909 5728 3679 2321 5290 3913 6	200	21	5.05	4.16	4.48E-08	0.46%	1.93%
Small cell lung cancer	14	3910 5925 3909 330 2335 5728 1019 1286 7157 5290 3913 3908 5294 22798	85	14	2.15	6.52	2.83E-08	0.20%	1.29%
Pathways in cancer	41	2033 2335 2034 29119 2475 11211 7157 5900 324 2322 8323 1387 5925 3909 999 5728 4286 6608 5	326	41	8.23	4.98	3.71E-17	0.76%	3.76%

Supplementary Table 9b. GO Pathway Enrichment Analysis

Biological process----chromatin modification----GO:0016568			
C=428;O=49;E=25.51;R=1.92;rawP=8.22e-06;adjP=0.0013			
Gene symbol	Entrez ID	Ensembl Gene Stable ID	Gene description
<i>EP300</i>	2033	ENSG00000100393	E1A binding protein p300
<i>DNMT3A</i>	1788	ENSG00000119772	DNA (cytosine-5-)-methyltransferase 3 alpha
<i>KDM6A</i>	7403	ENSG00000147050	lysine (K)-specific demethylase 6A
<i>UBN1</i>	29855	ENSG00000118900	ubiquitin 1
<i>ARID2</i>	196528	ENSG00000189079	AT rich interactive domain 2 (ARID, RFX-like)
<i>CENPI</i>	2491	ENSG00000102384	centromere protein 1
<i>CHD1L</i>	9557	ENSG00000131778	chromodomain helicase DNA binding protein 1-like
<i>TP53</i>	7157	ENSG00000141510	tumor protein p53
<i>NPM1</i>	4869	ENSG00000181163	nucleophosmin (nucleolar phosphoprotein B23, numatrin)
<i>RSF1</i>	51773	ENSG00000048649	remodeling and spacing factor 1
<i>KDM2B</i>	84678	ENSG00000089094	lysine (K)-specific demethylase 2B
<i>RBL2</i>	5934	ENSG00000103479	retinoblastoma-like 2 (p130)
<i>HIRA</i>	7290	ENSG00000100084	HIR histone cell cycle regulation defective homolog A (S. cerevisiae)
<i>HDAC9</i>	9734	ENSG00000048052	histone deacetylase 9
<i>SMARCB1</i>	6598	ENSG00000099956	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily b, member 1
<i>CREBBP</i>	1387	ENSG00000005339	CREB binding protein
<i>RB1</i>	5925	ENSG00000139687	retinoblastoma 1
<i>SUV39H2</i>	79723	ENSG00000152455	suppressor of variegation 3-9 homolog 2 (Drosophila)
<i>BCORL1</i>	63035	ENSG00000085185	BCL6 corepressor-like 1
<i>HUWE1</i>	10075	ENSG00000086758	HECT, UBA and WWE domain containing 1, E3 ubiquitin protein ligase
<i>JAK2</i>	3717	ENSG00000096968	Janus kinase 2
<i>MLL</i>	4297	ENSG00000118058	myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, Drosophila)
<i>AICDA</i>	57379	ENSG00000111732	activation-induced cytidine deaminase
<i>UHRF1</i>	29128	ENSG00000034063	ubiquitin-like with PHD and ring finger domains 1
<i>DNMT1</i>	1786	ENSG00000130816	DNA (cytosine-5-)-methyltransferase 1
<i>PAX5</i>	5079	ENSG00000196092	paired box 5
<i>TAF1L</i>	138474	ENSG00000122728	TAF1 RNA polymerase II, TATA box binding protein (TBP)-associated factor, 210kDa-like
<i>MLL2</i>	8085	ENSG00000167548	myeloid/lymphoid or mixed-lineage leukemia 2
<i>WDR92</i>	116143	ENSG00000243667	WD repeat domain 92
<i>TDIRD3</i>	81550	ENSG00000083544	tudor domain containing 3
<i>SMARCA1</i>	6594	ENSG00000102038	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 1
<i>PBRM1</i>	55193	ENSG00000163939	polybromo 1
<i>ARID1A</i>	8289	ENSG00000117713	AT rich interactive domain 1A (SWI-like)
<i>MLL3</i>	58508	ENSG00000055609	myeloid/lymphoid or mixed-lineage leukemia 3
<i>BAP1</i>	8314	ENSG00000163930	BRCA1 associated protein-1 (ubiquitin carboxy-terminal hydrolase)
<i>RERE</i>	473	ENSG00000142599	arginine-glutamic acid dipeptide (RE) repeats
<i>PHF17</i>	79960	ENSG00000077684	PHD finger protein 17
<i>HSF4</i>	3299	ENSG00000102878	heat shock transcription factor 4
<i>BAZ1A</i>	11177	ENSG00000198604	bromodomain adjacent to zinc finger domain, 1A

<i>SRCAP</i>	10847	ENSG00000080603	Snf2-related CREBBP activator protein
<i>TET1</i>	80312	ENSG00000138336	tet methylcytosine dioxygenase 1
<i>ATXN7</i>	6314	ENSG00000163635	ataxin 7
<i>BRCA2</i>	675	ENSG00000139618	breast cancer 2, early onset
<i>L3MBTL3</i>	84456	ENSG00000198945	l(3)mbt-like 3 (Drosophila)
<i>PML</i>	5371	ENSG00000140464	promyelocytic leukemia
<i>GTF3C4</i>	9329	ENSG00000125484	general transcription factor IIIC, polypeptide 4, 90kDa
<i>IKZF1</i>	10320	ENSG00000185811	IKAROS family zinc finger 1 (Ikaros)
<i>CBX4</i>	8535	ENSG00000141582	chromobox homolog 4
<i>JARID2</i>	3720	ENSG00000080883	jumonji, AT rich interactive domain 2

Due to the limitation of space, only GO:0016568 category was shown here. The first row lists its sub-root (biological process, molecular function, or cellular component), category name, and corresponding GO ID. The second row lists number of reference genes in the category (C), number of genes in the gene set and also in the category (O), expected number in the category (E), Ratio of enrichment (R), p value from hypergeometric test (rawP), and p value adjusted by the multiple test adjustment (adjP). Finally, genes in the category are listed. For each gene, the table lists the user uploaded ID and value (optional), Entrez ID, Ensembl Gene Stable ID, Gene symbol, and description. Ensembl Gene Stable ID and Entrez Gene ID are linked to the Ensembl and Entrez Gene databases, respectively.

Supplementary Table 10. Potentially Actionable Targets in ESCC

Biology Class	Actionable Gene	SCNV	Somatic Mutation		mRNA	Protein	Targeting molecules
		Primary n = 184 (%)	Primary n = 139 (%)	Cell lines n = 24 (%)	Primary n = 70 (%)	Primary Altered/Total	
ERBB family	EGFR	10.9	0.7	8.3	10	27/40 ¹⁰	Cetuximab, Erlotinib, Gefitinib [22]
	HER-2	1.1				68/185 ¹¹	Trastuzumab, Lapatinib, Neratinib, [12]
	ERBB4		4.3	8.3			Pelitinib, BMS-599626
Other RTKs	ALK	0.5	2.1	12.5			Crizotinib, LDK378, ASP3026
	KIT		0.7	8.3			Sorafenib, Sunitinib, Pazopanib [14]
	FGFR1	11.0				14/81	Dovitinib, BGJ398, AZD4547 [6]
	MET	1.1	0.7	12.5	11.4		ARQ197, MetMab [15]
	HGF	1.6		12.5			Rilotumumab, Ficlatazumab
	IL7R	6.0					CP-690550, INCB018424, CYT387
JAK-Stat3 pathway	JAK1		1.3				Ruxolitinib, AZD1480
	p-Stat3					48/130 ¹²	
PI3K pathway	PIK3CA	9.8	7.2	12.5	21.4	33/66 ¹³	BEZ235, BKM120, XL147 [8]
	PIK3C2A		0.7				
	PIK3CG	1.6	2.9	4.2			
	PIK3C2G			37.5			
MTOR pathway	RPS6KA1	0.5			18.6		Oncothyreon, Px-866
	MTOR	1.6		8.3		26/105 ¹⁴	Temsirolimus, Everolimus, Ridaforolimus [5]
HDAC family	HDAC3			4.2			Vorinostat, Entinostat, Romidepsin [13]
	HDAC6	0.5		8.3			
	HDAC9	3.3	1.4				
Nuclear Exportin	XPO1		0.7		32.9	45/93	Leptomycin B, KPT-SINE, KOS-2464 [9]
Homologous Recombination	BRCA1*			4.2			Iniparib, BSI-201, Olaparib [6]
	BRCA2*		3.9	0.7	16.7		
Apoptosis	BIRC3	5.5					LCL-161, GDC-0917, AT-406 [5]
Others	MAGEC1		2.9	0.7			MAGE Vaccines
	MAGEC3		2.2				
	TP53		33.8	25.9	50	33.3	Ad-p53, Ad-p53-dendritic cells, CDB3, [17]
	CTSK	0.5	0.7			48.6	Balicatib, Odanacatib
	FN1		2.9		12.5	52.9	1311-L19SIP

Amplification **Missense/In-Frame** **Truncating** **Overexpression**

Due to the limitation of space, the total number of targeting molecules currently available for each gene was shown in brackets. Somatic mutations in cancer cell lines were summarized using both in-house data (Supplementary Table 11) and CCLE data (see URL). mRNA changes were calculated from both GSE23400 (n = 53) and GSE20347 (n = 17) datasets, and only identical changes in both studies are shown (p < 0.01, fold change > 2, see also Supplementary Table 12). See <http://clinicaltrials.gov/> and these studies^{15,16} for detailed information regarding targeting molecules. *, synthetic lethal with PARP inhibitors.

Supplementary Table 11. Summary of probable somatic mutations in ESCC cell lines

Cell line	Mutation location	Gene Name	Mutation type	Amino Acid Change	Cosmic V58 Match Position	Chr	Start position	End position	Refrence base	Observed base	Variant allele frequency (VAF)	strand ratio	Total depth	Variant depth
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C8282T;p.A2761V		chr3	195510169	195510169	G	A	0.080808081	0.95	495	40
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C8800T;p.L2934F		chr3	195509651	195509651	G	A	0.081174439	0.72	579	47
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C3317A;p.P1106H		chr3	195515134	195515134	G	T	0.083950617	0.53	405	34
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C8734A;p.P2912T		chr3	195509717	195509717	G	T	0.085427136	0.43	597	51
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.G4936A;p.A1646T	1645683	chr3	195513515	195513515	C	T	0.088315217	0.86	736	65
YES2	exonic	MUC2	nonsynonymous SNV	NM_002457:c.T4747A;p.S1583T		chr11	1092928	1092928	T	A	0.088888889	0.64	315	28
YES2	exonic	DSPP	nonsynonymous SNV	NM_014208:c.C2657G;p.N886S		chr4	88536471	88536471	A	G	0.090909091	0.86	77	7
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C3399G;p.H1133Q		chr3	195515052	195515052	G	C	0.094117647	0.13	170	16
YES2	exonic	EPPK1	nonsynonymous SNV	NM_031308:c.G7105A;p.D2369N		chr8	144940317	144940317	C	T	0.097484277	0.68	318	31
YES2	exonic	MUC2	nonsynonymous SNV	NM_002457:c.C4679T;p.T1560M		chr11	1092860	1092860	C	T	0.102040816	0.94	343	35
YES2	exonic	GPR112	nonsynonymous SNV	NM_153834:c.G3529A;p.V1177I		chrX	135429394	135429394	G	A	0.106382979	0.20	94	10
YES2	exonic	EPPK1	nonsynonymous SNV	NM_031308:c.G7144A;p.D2382N		chr8	144940278	144940278	C	T	0.109803922	0.86	255	28
YES2	exonic	MUC6	nonsynonymous SNV	NM_005961:c.C4889T;p.T1630I		chr11	1017912	1017912	G	A	0.118705036	0.42	278	33
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C11258T;p.A3753V		chr3	195507193	195507193	G	A	0.11965812	0.33	351	42
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.G8775C;p.Q2925H	1645684	chr3	195509676	195509676	C	G	0.120147874	0.65	541	65
YES2	exonic	PASD1	nonsynonymous SNV	NM_173493:c.C449T;p.S150F		chrX	150791439	150791439	C	T	0.120481928	0.90	83	10
YES2	exonic	ZNF717	nonsynonymous SNV	NM_001128223:c.A1952T;p.E651V	1558609	chr3	75786822	75786822	T	A	0.12195122	0.70	82	10
YES2	exonic	OTOA	stopgain SNV	NM_170664:c.G1387T;p.E463X		chr16	21747639	21747639	G	T	0.129032258	0.95	155	20
YES2	exonic	ZNF717	nonsynonymous SNV	NM_001128223:c.T2530A;p.C844S		chr3	75786244	75786244	A	T	0.13015873	0.46	315	41
YES2	exonic	TNIK	nonsynonymous SNV	NM_001161561:c.A1595C;p.D532A		chr3	170846594	170846594	T	G	0.132947977	0.30	173	23
YES2	exonic	CUBN	nonsynonymous SNV	NM_001081:c.A2870G;p.N957S		chr10	17112021	17112021	T	C	0.138728324	0.67	173	24
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.A11464G;p.T3822A		chr3	195506987	195506987	T	C	0.150684932	0.91	73	11
YES2	exonic	CMYA5	nonframeshift deletion	NM_153610:c.1662_1694del;p.554_565del		chr5	79026250	79026282	AGAAGAAC	-	0.170454545	0.37	176	30
YES2	exonic	MUC2	nonsynonymous SNV	NM_002457:c.A4678C;p.T1560P		chr11	1092859	1092859	A	C	0.180379747	0.79	316	57
YES2	exonic	FILIPIL	nonsynonymous SNV	NM_014890:c.T1256C;p.L419P		chr3	99568544	99568544	A	G	0.18597561	0.61	328	61
YES2	exonic	DSPP	nonframeshift insertion	NM_014208:c.2643_2644insAGTAGTGAC;p.D881delinsDSS	1474924	chr4	88536457	88536457	-	GTAGTGA	0.203703704	0.50	108	22
YES2	exonic	EXT1	nonsynonymous SNV	NM_000127:c.C1003A;p.L335M		chr8	118849400	118849400	G	T	0.204633205	0.43	259	53
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.G11461C;p.D3821H		chr3	195506990	195506990	C	G	0.208333333	0.95	96	20
YES2	splicing	SLC5A4				chr22	32651317	32651317	G	A	0.216666667	0.23	60	13
YES2	exonic	DSPP	nonsynonymous SNV	NM_014208:c.C3429A;p.D1143E	1645685	chr4	88537243	88537243	C	A	0.219512195	0.78	41	9
YES2	exonic	FAM208B	nonsynonymous SNV	NM_017782:c.C5819T;p.T1940I		chr10	5791203	5791203	C	T	0.224137931	0.62	58	13
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.A3037G;p.S1013G	581;1645683;16	chr3	195515414	195515414	T	C	0.241758242	0.39	273	66
YES2	exonic	COL12A1	nonsynonymous SNV	NM_080645:c.A3470G;p.K1157R		chr6	75831142	75831142	T	C	0.267759563	0.57	183	49
YES2	exonic	LRRTM4	nonsynonymous SNV	NM_001134745:c.G1254T;p.E418D		chr2	77745741	77745741	C	A	0.270114943	0.47	174	47
YES2	exonic	LRRTM4	nonsynonymous SNV	NM_001134745:c.C1255T;p.H419Y		chr2	77745740	77745740	G	A	0.274853801	0.47	171	47
YES2	exonic	PCLO	nonsynonymous SNV	NM_014510:c.C13801A;p.H4601N		chr7	82475913	82475913	G	T	0.295081967	0.53	122	36
YES2	exonic	TNRC6C	nonsynonymous SNV	NM_001142640:c.G3526A;p.G1176R		chr17	76082641	76082641	G	A	0.316205534	0.51	253	80
YES2	exonic	IGSF10	nonsynonymous SNV	NM_178822:c.T2194G;p.S732A		chr3	151165575	151165575	A	C	0.317073171	0.58	164	52
YES2	exonic	ZNF134	nonsynonymous SNV	NM_003435:c.T974A;p.F325Y		chr19	58132461	58132461	T	A	0.330357143	0.47	224	74
YES2	exonic	SDHD	nonsynonymous SNV	NM_003002:c.C269A;p.A90E		chr11	111959690	111959690	C	A	0.367088608	0.48	158	58
YES2	exonic	HNRNPUL1	frameshift deletion	NM_007040:c.1216_1219del;p.406_407del		chr19	41798366	41798369	AGTG	-	0.371428571	0.42	70	26
YES2	exonic	SYNE1	nonsynonymous SNV	NM_033071:c.T7532A;p.L2511H		chr6	152717955	152717955	A	T	0.401408451	0.54	142	57
YES2	exonic	ZNF34	nonsynonymous SNV	NM_030580:c.A717T;p.K239N		chr8	145999617	145999617	T	A	0.411764706	0.86	17	7
YES2	exonic	HEPHL1	stopgain SNV	NM_001098672:c.C364T;p.R122X		chr11	93779032	93779032	C	T	0.41509434	0.44	159	66
YES2	exonic	JAK1	frameshift deletion	NM_002227:c.2745delA;p.G915fs		chr1	65305383	65305383	T	-	0.43220339	0.51	118	51
YES2	exonic	EP300	nonsynonymous SNV	NM_001429:c.G4154T;p.C1385F	542874;156055	chr22	41564853	41564853	G	T	0.449152542	0.49	118	53
YES2	exonic	GPR112	frameshift deletion	NM_153834:c.3529_3530del;p.1177_1177del		chrX	135429394	135429395	GT	-	0.476744186	0.48	172	82
YES2	exonic	CRB1	stopgain SNV	NM_001193640:c.G2137T;p.E713X		chr1	197396928	197396928	G	T	0.552795031	0.55	161	89
YES2	exonic	MUC2	nonsynonymous SNV	NM_002457:c.G4534A;p.A1512T		chr11	1092715	1092715	G	A	0.581818182	0.56	55	32
YES2	exonic	SEC14L3	nonsynonymous SNV	NM_174975:c.C352G;p.Q118E		chr22	30864566	30864566	G	C	0.606060606	0.60	33	20
YES2	exonic	MUC2	nonsynonymous SNV	NM_002457:c.C358T;p.P120S		chr11	1077608	1077608	C	T	0.612903226	0.79	31	19
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C11468T;p.T3823I		chr3	195506983	195506983	G	A	0.78125	0.44	64	50
YES2	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C11511G;p.H3837Q		chr3	195506940	195506940	G	C	0.961538462	0.72	26	25

YES2	exonic	ADAM2	nonsynonymous SNV	NM_001464:c.G119T;p.G40V		chr8	39694668	39694668	C	A	1	0.63	104	104
YES2	exonic	LAMB2	nonsynonymous SNV	NM_002292:c.C444T;p.R1482W		chr3	49160266	49160266	G	A	1	0.30	27	27
YES2	exonic	MAF3K15	stopgain SNV	NM_001001671:c.A2365T;p.K789X		chrX	19410186	19410186	T	A	1	0.48	63	63
YES2	exonic	NEFM	nonsynonymous SNV	NM_005382:c.C895A;p.L2991		chr8	24772201	24772201	C	A	1	0.26	34	34
YES2	exonic	PCSK5	nonsynonymous SNV	NM_001190482:c.G5273T;p.G1758V		chr9	78973528	78973528	G	T	1	0.29	92	92
YES2	exonic	SUFU	stopgain SNV	NM_001178133:c.C436T;p.R146X		chr10	104309845	104309845	C	T	1	0.13	16	16
YES2	exonic	TP53	stopgain SNV	NM_001126115:c.G265T;p.E89X	9672;1363365;	chr17	7578188	7578188	C	A	1	0.71	34	34
YES2	exonic	TTN	nonsynonymous SNV	NM_133378:c.A13193G;p.E4398G		chr2	179596677	179596677	T	C	1	0.46	89	89
YES2	exonic	UNC79	nonsynonymous SNV	NM_020818:c.G2260A;p.V754M		chr14	94048678	94048678	G	A	1	0.32	28	28
EC109	exonic	SI	stopgain SNV	NM_001041:c.G2885A;p.W962X		chr3	164748507	164748507	C	T	0.080291971	0.36	137	11
EC109	exonic	ATAD2	nonsynonymous SNV	NM_014109:c.T837A;p.D279E		chr8	124382155	124382155	A	T	0.081632653	0.88	98	8
EC109	exonic	ZNF717	nonsynonymous SNV	NM_001128223:c.C1853T;p.P618L		chr3	75786921	75786921	G	A	0.081841432	0.34	391	32
EC109	exonic	ADAM18	nonsynonymous SNV	NM_014237:c.G1086A;p.M362I		chr8	39505902	39505902	G	A	0.08411215	0.33	107	9
EC109	exonic	MUC6	nonsynonymous SNV	NM_005961:c.C4889T;p.T1630I		chr11	1017912	1017912	G	A	0.089285714	0.50	224	20
EC109	exonic	MUC6	nonsynonymous SNV	NM_005961:c.C5912T;p.P1971L		chr11	1016889	1016889	G	A	0.091269841	0.30	252	23
EC109	exonic	GTF3C4	nonsynonymous SNV	NM_012204:c.G1498T;p.G500C		chr9	135554504	135554504	G	T	0.091428571	0.50	175	16
EC109	exonic	GRM3	frameshift insertion	NM_000840:c.2367_2368insA;p.F789fs		chr7	86469197	86469197	-	A	0.100840336	0.42	119	12
EC109	exonic	MUC2	nonsynonymous SNV	NM_002457:c.C4703T;p.T1568M		chr11	1092884	1092884	C	T	0.101754386	0.59	285	29
EC109	exonic	ATAD2	nonsynonymous SNV	NM_014109:c.A834T;p.E278D		chr8	124382158	124382158	T	A	0.104166667	0.80	96	10
EC109	exonic	MUC2	nonsynonymous SNV	NM_002457:c.C5114T;p.T1705I		chr11	1093295	1093295	C	T	0.104477612	0.50	134	14
EC109	exonic	MUC2	nonsynonymous SNV	NM_002457:c.C4634T;p.T1545M		chr11	1092815	1092815	C	T	0.109375	0.86	64	7
EC109	exonic	ZNF717	nonsynonymous SNV	NM_001128223:c.G544A;p.V182I		chr3	75788230	75788230	C	T	0.110701107	0.33	271	30
EC109	exonic	ZNF717	nonsynonymous SNV	NM_001128223:c.A629T;p.Q210L		chr3	75788145	75788145	T	A	0.119856887	0.37	559	67
EC109	exonic	SEC22B	unknown	UNKNOWN		chr1	145115815	145115815	A	C	0.123966942	0.55	605	75
EC109	exonic	MUC2	nonsynonymous SNV	NM_002457:c.C4679T;p.T1560M		chr11	1092860	1092860	C	T	0.125	0.87	240	30
EC109	exonic	MED1	frameshift deletion	NM_004774:c.596_605del;p.199_202del		chr17	37587412	37587421	TATCCAAG	-	0.136363636	0.38	154	21
EC109	exonic	MUC2	nonsynonymous SNV	NM_002457:c.T474A;p.S1583T		chr11	1092928	1092928	T	A	0.137362637	0.56	182	25
EC109	exonic	HYDIN	nonsynonymous SNV	NM_032821:c.G10831A;p.D3611N		chr16	70908322	70908322	C	T	0.138513514	0.56	296	41
EC109	exonic	OR6Q1	nonsynonymous SNV	NM_001005186:c.C685A;p.L229M		chr11	57799109	57799109	C	A	0.146341463	0.83	41	6
EC109	exonic	IPO9	nonsynonymous SNV	NM_018085:c.G2581C;p.V861L		chr1	201841960	201841960	G	C	0.149122807	0.59	114	17
EC109	exonic	HYDIN	nonsynonymous SNV	NM_032821:c.C9943T;p.L3315F		chr16	70917856	70917856	G	A	0.155339806	0.63	206	32
EC109	splicing	CDH23				chr10	73537660	73537660	T	C	0.155555556	0.43	90	14
EC109	exonic	SYNE1	nonsynonymous SNV	NM_033071:c.G10579T;p.V3527F		chr6	152679558	152679558	C	A	0.164556962	0.54	158	26
EC109	exonic	ABCA13	frameshift deletion	NM_152701:c.3743_3744del;p.1248_1248del		chr7	48313006	48313007	TT	-	0.176100629	0.50	159	28
EC109	exonic	MED1	nonsynonymous SNV	NM_004774:c.C595G;p.P199A		chr17	37587422	37587422	G	C	0.185185185	0.32	135	25
EC109	splicing	KIAA1804				chr1	233490759	233490759	T	C	0.18852459	0.35	122	23
EC109	exonic	ZNF717	frameshift insertion	NM_001128223:c.2739_2740insT;p.F913fs		chr3	75786035	75786035	-	A	0.203007519	0.81	133	27
EC109	exonic	ANKRD11	nonsynonymous SNV	NM_001256183:c.A1312G;p.K438E		chr16	89351638	89351638	T	C	0.203883495	0.67	103	21
EC109	exonic	HHAT	nonsynonymous SNV	NM_001170564:c.A734G;p.Y245C		chr1	210761343	210761343	A	G	0.220588235	0.07	68	15
EC109	exonic	SI	nonsynonymous SNV	NM_001041:c.C169T;p.P57S		chr3	164792405	164792405	G	A	0.221428571	0.52	140	31
EC109	exonic	C16orf62	stopgain SNV	NM_020314:c.G2698T;p.E900X		chr16	19693616	19693616	G	T	0.224637681	0.48	138	31
EC109	exonic	EPHB6	nonsynonymous SNV	NM_004445:c.C155T;p.P52L		chr7	142561443	142561443	C	T	0.224806202	0.55	129	29
EC109	exonic	USP26	nonsynonymous SNV	NM_031907:c.A946G;p.I316V		chrX	132161303	132161303	T	C	0.225352113	0.38	71	16
EC109	exonic	RSF1	nonsynonymous SNV	NM_016578:c.G751A;p.E251K		chr11	77413523	77413523	C	T	0.238410596	0.25	151	36
EC109	exonic	PCLO	nonsynonymous SNV	NM_014510:c.C10559T;p.T3520M		chr7	82579345	82579345	G	A	0.245614035	0.55	171	42
EC109	exonic	RIMS2	nonsynonymous SNV	NM_014677:c.G25T;p.V9F		chr8	104831760	104831760	G	T	0.245901639	0.63	122	30
EC109	exonic	C16orf62	nonsynonymous SNV	NM_020314:c.A2699G;p.E900G		chr16	19693617	19693617	A	G	0.25	0.51	140	35
EC109	exonic	IMP2	nonsynonymous SNV	NM_016247:c.A91T;p.T31S		chr3	101038671	101038671	T	A	0.262773723	0.42	137	36
EC109	exonic	TTBK2	nonsynonymous SNV	NM_173500:c.G2155T;p.G719C		chr15	43045289	43045289	C	A	0.265060241	0.52	166	44
EC109	exonic	CLCN4	nonsynonymous SNV	NM_001830:c.G117T;p.K39N		chrX	10153189	10153189	G	T	0.269565217	0.42	115	31
EC109	exonic	PPM1J	nonsynonymous SNV	NM_005167:c.G986A;p.R329K		chr1	113253948	113253948	C	T	0.274509804	0.57	153	42
EC109	exonic	OTOGL	nonsynonymous SNV	NM_173591:c.G6646C;p.G2216R		chr12	80764407	80764407	G	C	0.278106509	0.45	169	47
EC109	exonic	KCNT2	nonsynonymous SNV	NM_198503:c.G849T;p.E283D		chr1	196397370	196397370	C	A	0.278846154	0.40	208	58
EC109	exonic	SIPA1L2	nonsynonymous SNV	NM_020808:c.G4267A;p.E1423K		chr1	232564300	232564300	C	T	0.281481481	0.45	135	38
EC109	exonic	MYCBP2	nonsynonymous SNV	NM_015057:c.G2242C;p.D748H		chr13	77825425	77825425	G	G	0.282258065	0.57	124	35
EC109	exonic	FMN1	nonsynonymous SNV	NM_001103184:c.G769C;p.E257Q		chr15	33359317	33359317	C	G	0.290909091	0.44	110	32
EC109	exonic	PAN2	nonsynonymous SNV	NM_001127460:c.C752T;p.A251V		chr12	56721315	56721315	G	A	0.301369863	0.32	73	22
EC109	exonic	ZNF554	nonsynonymous SNV	NM_001102651:c.G1073C;p.G358A		chr19	2834306	2834306	G	C	0.307692308	0.42	39	12

EC109	exonic	SUFU	nonsynonymous SNV	NM_001178133:c.G941A:p.R314K		chr10	104359220	104359220	G	A	0.314285714	0.68	70	22
EC109	exonic	HYDIN	nonsynonymous SNV	NM_032821:c.G4757A:p.R1586H		chr16	71009051	71009051	C	T	0.316	0.66	250	79
EC109	exonic	TACR2	nonsynonymous SNV	NM_001057:c.C37A:p.P113T		chr10	71175743	71175743	G	T	0.317647059	0.33	85	27
EC109	exonic	URB1	nonsynonymous SNV	NM_014825:c.C737A:p.T246K		chr21	33747720	33747720	G	T	0.319727891	0.66	147	47
EC109	exonic	MYO3A	nonsynonymous SNV	NM_017433:c.C3463A:p.P1155T		chr10	26462656	26462656	C	A	0.323529412	0.70	136	44
EC109	exonic	NOTCH2	nonsynonymous SNV	NM_024408:c.C4660T:p.P1554S		chr1	120466459	120466459	G	A	0.342105263	0.65	76	26
EC109	exonic	PLXNA4	nonsynonymous SNV	NM_020911:c.G2050T:p.D684Y		chr7	131908333	131908333	C	A	0.353846154	0.54	130	46
EC109	exonic	MUC2	nonsynonymous SNV	NM_002457:c.C5270T:p.P1757L		chr11	1093451	1093451	C	T	0.355704698	0.51	149	53
EC109	exonic	DSPP	nonframeshift insertion	NM_014208:c.2643_2644insAGTAGTGAC;p.D881delinsDSS	1474924	chr4	88536457	88536457	-	GTAGTGA	0.37037037	0.45	54	20
EC109	exonic	RIMS2	nonsynonymous SNV	NM_014677:c.C3467A:p.T1156N		chr8	105264023	105264023	C	A	0.370786517	0.24	89	33
EC109	exonic	OBSCN	nonsynonymous SNV	NM_001098623:c.G21838A:p.V7280M		chr1	228560317	228560317	G	A	0.377777778	0.94	45	17
EC109	exonic	IFT172	nonsynonymous SNV	NM_015662:c.G3676T:p.A1226S		chr2	27676884	27676884	C	A	0.380952381	0.38	21	8
EC109	exonic	PRRC2C	nonsynonymous SNV	NM_015172:c.A5677T:p.I1893F		chr1	171526934	171526934	A	T	0.388888889	0.36	72	28
EC109	exonic	ANK2	nonsynonymous SNV	NM_001148:c.G880T:p.A294S		chr4	114163354	114163354	G	T	0.395348837	0.26	86	34
EC109	exonic	DIP2B	nonsynonymous SNV	NM_173602:c.T2800G:p.C934G		chr12	51108328	51108328	T	G	0.421052632	0.49	209	88
EC109	exonic	TTN	nonsynonymous SNV	NM_003319:c.A45332T:p.E15111V		chr2	179438332	179438332	T	A	0.421052632	0.63	133	56
EC109	exonic;splicing	CCDC93	nonsynonymous SNV	NM_019044:c.A1004G:p.E335G		chr2	118715942	118715942	T	C	0.427272727	0.74	110	47
EC109	exonic	TTN	nonsynonymous SNV	NM_003319:c.A7218C:p.K2406N		chr2	179638427	179638427	T	G	0.428571429	0.53	84	36
EC109	exonic	CSMD3	nonsynonymous SNV	NM_198123:c.G1310T:p.R437I		chr8	113988098	113988098	C	A	0.433333333	0.92	30	13
EC109	exonic	LAMA3	nonsynonymous SNV	NM_001127718:c.G3904A:p.V1302M		chr18	21519223	21519223	G	A	0.441558442	0.50	77	34
EC109	exonic	MGAT5	nonsynonymous SNV	NM_002410:c.G1102A:p.V368I		chr2	135102625	135102625	G	A	0.445544554	0.42	101	45
EC109	exonic	DMD	nonsynonymous SNV	NM_004014:c.A382T:p.T128S		chrX	31497199	31497199	T	A	0.448051948	0.49	154	69
EC109	splicing	CARD11				chr7	2977667	2977667	C	T	0.4921875	0.44	128	63
EC109	exonic	USH2A	nonsynonymous SNV	NM_007123:c.C416T:p.P139L		chr1	216595263	216595263	G	A	0.550724638	0.42	207	114
EC109	exonic;splicing	LAMA3	nonsynonymous SNV	NM_001127717:c.C565T:p.H189Y		chr18	21328024	21328024	C	T	0.552380952	0.28	105	58
EC109	exonic	ZNF836	nonsynonymous SNV	NM_001102657:c.G965T:p.R322I		chr19	52659971	52659971	C	A	0.563380282	0.55	71	40
EC109	exonic	MUC4	nonsynonymous SNV	NM_138297:c.C311T:p.P104L		chr3	195498593	195498593	G	A	0.593406593	0.70	91	54
EC109	exonic	ZNF167	nonsynonymous SNV	NM_018651:c.C1065A:p.D355E		chr3	44611667	44611667	C	A	0.594202899	0.68	138	82
EC109	exonic	MUC4	nonsynonymous SNV	NM_138297:c.C310T:p.P104S		chr3	195498594	195498594	G	A	0.597826087	0.69	92	55
EC109	exonic	MUC2	nonsynonymous SNV	NM_002457:c.G4534A:p.A1512T		chr11	1092715	1092715	G	A	0.604166667	0.62	48	29
EC109	exonic	OBSCN	nonsynonymous SNV	NM_001098623:c.C21050T:p.A7017V		chr1	228559529	228559529	C	T	0.606557377	0.41	61	37
EC109	exonic	TARSL2	nonsynonymous SNV	NM_152334:c.A1639G:p.T547A		chr15	102224289	102224289	T	C	0.611940299	0.76	67	41
EC109	exonic	ARPP21	nonsynonymous SNV	NM_016300:c.C1282T:p.P428S		chr3	35770851	35770851	C	T	0.625	0.65	32	20
EC109	exonic	NOTCH1	nonsynonymous SNV	NM_017617:c.G383A:p.R128H		chr9	139418189	139418189	C	T	0.636363636	0.71	22	14
EC109	exonic	PLEC	nonsynonymous SNV	NM_201378:c.G11759C:p.C3920S		chr8	144992188	144992188	C	G	0.681818182	0.33	22	15
EC109	exonic	PRDM9	frameshift deletion	NM_020227:c.219delC:p.F73fs		chr5	23510054	23510054	C	-	0.76171875	0.68	256	195
EC109	exonic	ZNF185	nonsynonymous SNV	NM_001178113:c.A86T:p.E29V		chrX	152087586	152087586	A	T	0.818181818	0.33	11	9
EC109	exonic	FSIP2	nonsynonymous SNV	NM_173651:c.A1484C:p.N495T		chr2	186626721	186626721	A	C	0.987179487	0.38	78	77
EC109	exonic	GRIK2	nonsynonymous SNV	NM_001166247:c.C1469T:p.A490V		chr6	102307313	102307313	C	T	1	0.45	135	135
EC109	exonic	MCOLN1	nonsynonymous SNV	NM_020533:c.G1150A:p.D384N		chr19	7594002	7594002	G	A	1	0.69	58	58
EC109	exonic	MMRN1	stopgain SNV	NM_007351:c.C1490G:p.S497Y		chr4	90856321	90856321	C	G	1	0.50	117	117
EC109	exonic	MUC2	nonsynonymous SNV	NM_002457:c.G2365A:p.A789T		chr11	1083833	1083833	G	A	1	0.29	14	14
EC109	exonic	MUC5B	nonsynonymous SNV	NM_002458:c.G7883A:p.R2628H		chr11	1265993	1265993	G	A	1	0.47	92	92
EC109	exonic	MUC5B	nonsynonymous SNV	NM_002458:c.A11038G:p.T3680A		chr11	1269148	1269148	A	G	1	0.59	74	74
EC109	exonic	SELO	unknown	UNKNOWN		chr22	50649274	50649274	G	A	1	0.35	20	20
EC109	exonic	TTN	nonsynonymous SNV	NM_003319:c.A26731G:p.I8911V		chr2	179469978	179469978	T	C	1	0.16	25	25
EC109	exonic	TTN	nonsynonymous SNV	NM_133378:c.C28025A:p.P9342Q		chr2	179556748	179556748	G	T	1	0.70	103	103
EC109	exonic	YSK4	nonsynonymous SNV	NM_001018046:c.A29C:p.H10P		chr2	135779394	135779394	T	C	1	0.29	75	75
KYSE30	exonic	MLL3	nonsynonymous SNV	NM_170606:c.T3340C:p.C1114R		chr7	151919751	151919751	A	G	0.08	0.40	125	10
KYSE30	exonic	MUC16	nonsynonymous SNV	NM_024690:c.A40729G:p.S13577G		chr19	8999446	8999446	T	C	0.083333333	0.27	132	11
KYSE30	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C8800T:p.L2934F		chr3	195509651	195509651	G	A	0.084432718	0.75	379	32
KYSE30	exonic	MUC4	nonsynonymous SNV	NM_018406:c.G4936A:p.A1646T	1645683	chr3	195513515	195513515	C	T	0.088172043	0.78	465	41
KYSE30	exonic	MYH8	nonsynonymous SNV	NM_002472:c.A3634T:p.N1212Y		chr17	10303808	10303808	T	A	0.088235294	0.19	238	21
KYSE30	exonic	MUC2	nonsynonymous SNV	NM_002457:c.C4679T:p.T1560M		chr11	1092860	1092860	C	T	0.090909091	0.95	220	20
KYSE30	exonic	MUC4	nonsynonymous SNV	NM_018406:c.A11128G:p.T3710A		chr3	195507323	195507323	T	C	0.090909091	0.51	451	41
KYSE30	exonic	MUC6	nonsynonymous SNV	NM_005961:c.C5912T:p.P1971L		chr11	1016889	1016889	G	A	0.092936803	0.44	269	25
KYSE30	exonic	ZNF717	nonsynonymous SNV	NM_001128223:c.C2510A:p.T837K		chr3	75786264	75786264	G	T	0.096320275	0.52	218	21
KYSE30	exonic	MUC6	nonsynonymous SNV	NM_005961:c.C4889T:p.T1630I		chr11	1017912	1017912	G	A	0.096774194	0.28	186	18

KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.T8572C:p.S2858P		chr3	195509879	195509879	A	G	0.098039216	0.72	255	25
KYSE30	exonic	<i>ZNF717</i>	stopgain SNV	NM_001128223:c.1730_1731insAAGTCAT:p.F577_L578delinsX		chr3	75787044	75787044	-	ATGACTT	0.098181818	0.15	275	27
KYSE30	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C5494T:p.P1832S		chr11	1017307	1017307	G	A	0.100628931	0.44	159	16
KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11258T:p.A3753V		chr3	195507193	195507193	G	A	0.100746269	0.33	268	27
KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8734A:p.P2912T		chr3	195509717	195509717	G	T	0.104519774	0.41	354	37
KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11231T:p.P3744L		chr3	195507220	195507220	G	A	0.107033639	0.60	327	35
KYSE30	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.A973G:p.S325G		chr3	75787801	75787801	T	C	0.110091743	0.81	327	36
KYSE30	exonic	<i>GPR98</i>	frameshift deletion	NM_032119:c.16119_16129del:p.5373_5377del		chr5	90111476	90111486	CCCAGAG	-	0.112426036	0.68	169	19
KYSE30	exonic	<i>MYH8</i>	nonsynonymous SNV	NM_002472:c.G793A:p.D265N		chr17	10318445	10318445	C	T	0.123893805	0.62	339	42
KYSE30	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.G40687A:p.D13563N		chr19	8999488	8999488	C	T	0.125	0.18	88	11
KYSE30	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.C503T:p.P168L		chr3	75788271	75788271	G	A	0.125	0.48	264	33
KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G8775C:p.Q2925H	1645684	chr3	195509676	195509676	C	G	0.131964809	0.62	341	45
KYSE30	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C5114T:p.T1705I		chr11	1093295	1093295	C	T	0.138461538	0.61	130	18
KYSE30	exonic	<i>SHANK2</i>	nonsynonymous SNV	NM_133266:c.G2305A:p.G769S		chr11	70332329	70332329	C	T	0.142276423	0.51	246	35
KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C3076T:p.P1026S	645681;164568	chr3	195515375	195515375	G	A	0.146520147	0.33	273	40
KYSE30	exonic	<i>EPPK1</i>	nonsynonymous SNV	NM_031308:c.G7132C:p.D2378H		chr8	144940290	144940290	C	G	0.148275862	0.74	290	43
KYSE30	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.G16130T:p.G5377V		chr5	90111487	90111487	G	T	0.15	0.54	160	24
KYSE30	splicing	<i>KIAA1429</i>				chr8	95508121	95508121	T	C	0.155251142	0.29	219	34
KYSE30	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G66634A:p.D22212N		chr2	179412524	179412524	C	T	0.157232704	0.48	318	50
KYSE30	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.A4678C:p.T1560P		chr11	1092859	1092859	A	C	0.160550459	0.77	218	35
KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.A3037G:p.S1013G	581;1645683;16	chr3	195515414	195515414	T	C	0.1625	0.15	160	26
KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C4997A:p.P1666H		chr3	195513454	195513454	G	T	0.164759725	0.57	437	72
KYSE30	exonic	<i>KLHL1</i>	nonsynonymous SNV	NM_020866:c.G1676A:p.G559E		chr13	70314652	70314652	C	T	0.172248804	0.44	209	36
KYSE30	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.A49162G:p.T16388A		chr2	179434502	179434502	T	C	0.173469388	0.68	196	34
KYSE30	exonic	<i>TG</i>	nonsynonymous SNV	NM_003235:c.G5560A:p.E1854K		chr8	133978816	133978816	G	A	0.18503937	0.55	254	47
KYSE30	exonic	<i>ASXL1</i>	nonsynonymous SNV	NM_015338:c.C2126T:p.A709V		chr20	31022641	31022641	C	T	0.189873418	0.57	158	30
KYSE30	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.G31385A:p.R10462Q		chr2	179535837	179535837	C	T	0.205020921	0.63	239	49
KYSE30	exonic	<i>COL24A1</i>	nonsynonymous SNV	NM_152890:c.G4150T:p.G1384C		chr1	86249959	86249959	C	A	0.2125	0.68	160	34
KYSE30	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C23534A:p.T10845N		chr2	179456902	179456902	G	T	0.21319797	0.43	197	42
KYSE30	exonic	<i>ADAMTS12</i>	nonsynonymous SNV	NM_030955:c.G613A:p.E205K		chr5	33751530	33751530	C	T	0.218579235	0.68	183	40
KYSE30	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.C17924T:p.S5975F		chr2	179588171	179588171	G	A	0.224334601	0.54	263	59
KYSE30	exonic	<i>CACNA1B</i>	nonsynonymous SNV	NM_000718:c.C6687A:p.S2229R		chr9	141016118	141016118	C	A	0.227272727	0.60	44	10
KYSE30	exonic	<i>APC</i>	nonsynonymous SNV	NM_00112751:c.G6540T:p.L2180F	1109799	chr5	112177885	112177885	G	T	0.230215827	0.56	139	32
KYSE30	exonic	<i>PRDM2</i>	nonsynonymous SNV	NM_001007257:c.C847T:p.P283S		chr1	14105740	14105740	C	T	0.231343284	0.45	134	31
KYSE30	exonic	<i>RP1</i>	nonsynonymous SNV	NM_006269:c.G242A:p.R81K		chr8	55533768	55533768	G	A	0.23255814	0.40	43	10
KYSE30	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.G14072A:p.G4691E		chr14	105407716	105407716	C	T	0.233009709	0.33	103	24
KYSE30	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.G580A:p.E194K	0946;946371;1	chr17	7576870	7576870	C	T	0.242424242	0.67	99	24
KYSE30	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.A18046G:p.R6016G		chr6	152603064	152603064	T	C	0.25	0.41	88	22
KYSE30	exonic	<i>ZNF836</i>	nonsynonymous SNV	NM_001102657:c.T2054C:p.L685P		chr19	52658882	52658882	A	G	0.25095057	0.38	263	66
KYSE30	exonic	<i>PCDH20</i>	nonsynonymous SNV	NM_022843:c.G718T:p.G240C		chr13	61987514	61987514	C	A	0.252525253	0.44	99	25
KYSE30	exonic	<i>SECISBP2L</i>	nonsynonymous SNV	NM_014701:c.C2786T:p.S929F		chr15	49284826	49284826	G	A	0.263157895	0.24	95	25
KYSE30	exonic	<i>FBN2</i>	nonsynonymous SNV	NM_001999:c.G4919T:p.R1640I		chr5	127647606	127647606	C	A	0.271604938	0.43	162	44
KYSE30	exonic	<i>C9orf170</i>	nonsynonymous SNV	NM_001001709:c.G279C:p.L93F		chr9	89771598	89771598	G	C	0.273809524	0.48	168	46
KYSE30	splicing	<i>CWF19L2</i>				chr11	107207441	107207441	-	A	0.274509804	0.50	51	14
KYSE30	exonic	<i>CTC1</i>	nonsynonymous SNV	NM_025099:c.A194C:p.Y65S		chr17	8146306	8146306	T	G	0.275	0.91	40	11
KYSE30	exonic	<i>NBEA</i>	nonsynonymous SNV	NM_015678:c.C5186A:p.A1729E		chr13	35770259	35770259	C	A	0.28	0.64	150	42
KYSE30	exonic	<i>DSPP</i>	nonframeshift insertion	NM_014208:c.2643_2644insAGTAGTGAC:p.D881delinsDSS	1474924	chr4	88536457	88536457	-	GTAGTGA	0.28125	0.61	64	18
KYSE30	exonic	<i>ABCA13</i>	frameshift deletion	NM_152701:c.14616delG:p.V4872fs		chr7	48626860	48626860	G	-	0.284313725	0.31	102	29
KYSE30	exonic	<i>HSPBAP1</i>	nonsynonymous SNV	NM_024610:c.C500T:p.S167F		chr3	122478140	122478140	G	A	0.29	0.79	100	29
KYSE30	exonic	<i>PPPIA2</i>	nonsynonymous SNV	NM_001220478:c.G2647C:p.V983L		chr12	81678064	81678064	C	G	0.290322581	0.37	93	27
KYSE30	exonic	<i>IMPG2</i>	nonsynonymous SNV	NM_016247:c.A3188T:p.N1063I		chr3	100951670	100951670	T	A	0.293413174	0.61	167	49
KYSE30	exonic	<i>PRKD1</i>	nonsynonymous SNV	NM_002742:c.C436T:p.P146S		chr14	30135382	30135382	G	A	0.298013245	0.42	151	45
KYSE30	exonic	<i>SEC14L5</i>	nonsynonymous SNV	NM_014692:c.C1171T:p.R391W		chr16	5053443	5053443	C	T	0.303030303	0.50	33	10
KYSE30	exonic	<i>COL12A1</i>	nonsynonymous SNV	NM_080645:c.C5075T:p.P1692L		chr6	75806979	75806979	G	A	0.305084746	0.31	118	36
KYSE30	exonic;splicing	<i>GRM1</i>	nonsynonymous SNV	NM_000838:c.G701A:p.G234E		chr6	146480484	146480484	G	A	0.305555556	0.52	108	33
KYSE30	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.C3726G:p.F1242L		chr14	105418062	105418062	G	C	0.307692308	0.39	91	28
KYSE30	exonic	<i>CYLD</i>	nonsynonymous SNV	NM_001042355:c.C1318A:p.Q440K		chr16	50813764	50813764	C	A	0.317307692	0.61	104	33
KYSE30	exonic	<i>MYO18B</i>	nonsynonymous SNV	NM_032608:c.G2833A:p.D945N		chr22	26224789	26224789	G	A	0.31884058	0.36	69	22

KYSE30	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.G24978A:p.M8326I		chr6	152462462	152462462	C	T	0.326315789	0.39	95	31
KYSE30	exonic	<i>VCAN</i>	nonsynonymous SNV	NM_001164097:c.C4692A:p.D1564E		chr5	82836475	82836475	C	A	0.329411765	0.50	170	56
KYSE30	exonic	<i>DNAH7</i>	nonsynonymous SNV	NM_018897:c.C6964A:p.H2322N		chr2	196729415	196729415	G	T	0.333333333	0.47	330	110
KYSE30	exonic	<i>LINS</i>	nonsynonymous SNV	NM_001040616:c.A144T:p.E48D		chr15	101120904	101120904	T	A	0.333333333	0.46	78	26
KYSE30	exonic	<i>PRRC2C</i>	nonsynonymous SNV	NM_015172:c.C5168G:p.S1723C		chr1	171526425	171526425	C	G	0.333333333	0.60	105	35
KYSE30	exonic	<i>GOLGB1</i>	nonsynonymous SNV	NM_001256488:c.C2195G:p.S732C		chr3	121416935	121416935	G	C	0.33557047	0.36	149	50
KYSE30	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.G5351T:p.R1784I		chr5	89971934	89971934	G	T	0.339181287	0.57	171	58
KYSE30	exonic	<i>SLC4A10</i>	nonsynonymous SNV	NM_022058:c.C2096G:p.S699C		chr2	162804158	162804158	C	G	0.356725146	0.61	171	61
KYSE30	exonic	<i>ZNF107</i>	nonsynonymous SNV	NM_001013746:c.G412A:p.G138R		chr7	64167094	64167094	G	A	0.359223301	0.35	103	37
KYSE30	exonic	<i>UBN1</i>	nonsynonymous SNV	NM_016936:c.G2256C:p.E752D		chr16	4924667	4924667	G	C	0.365217391	0.31	115	42
KYSE30	exonic	<i>CCT8L2</i>	nonsynonymous SNV	NM_014406:c.G1623C:p.K541N		chr22	17071818	17071818	C	G	0.37398374	0.54	123	46
KYSE30	exonic	<i>FAM208B</i>	nonframeshift deletion	NM_017782:c.3698_3700del:p.L233_1234del		chr10	5789082	5789084	ACT	-	0.374301676	0.39	179	67
KYSE30	exonic	<i>CCDC93</i>	nonsynonymous SNV	NM_019044:c.C352T:p.P118S		chr2	118758408	118758408	G	A	0.37804878	0.77	82	31
KYSE30	exonic	<i>C1orf34</i>	nonsynonymous SNV	NM_001105528:c.A2105G:p.K702R		chr18	30791993	30791993	T	C	0.380434783	0.43	92	35
KYSE30	exonic	<i>PRRC2A</i>	nonsynonymous SNV	NM_004638:c.G1953C:p.Q651H		chr6	31597108	31597108	G	C	0.383561644	0.36	73	28
KYSE30	exonic	<i>MATN4</i>	nonsynonymous SNV	NM_030592:c.C1295T:p.T432M		chr20	43926596	43926596	G	A	0.388888889	0.29	18	7
KYSE30	splicing	<i>CSN1S1</i>				chr4	70802173	70802173	G	A	0.407079646	0.54	113	46
KYSE30	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C48835T:p.R16279W		chr2	179434829	179434829	G	A	0.440233236	0.48	343	151
KYSE30	exonic	<i>WDR66</i>	nonsynonymous SNV	NM_001178003:c.A1475T:p.K492M		chr12	122392180	122392180	A	T	0.447058824	0.24	85	38
KYSE30	exonic	<i>MYT1L</i>	nonsynonymous SNV	NM_015025:c.T2486C:p.I829T		chr2	1893041	1893041	A	G	0.447916667	0.47	96	43
KYSE30	exonic	<i>FAM75D4</i>	stopgain SNV	NM_001145197:c.C2611T:p.R871X		chr9	84547687	84547687	C	T	0.571428571	0.75	14	8
KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C9783G:p.D3261E		chr3	195508668	195508668	G	C	0.571428571	0.08	21	12
KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G9781C:p.D3261H		chr3	195508670	195508670	C	G	0.571428571	0.08	21	12
KYSE30	exonic	<i>SON</i>	nonsynonymous SNV	NM_032195:c.T2338A:p.S780T		chr21	34923875	34923875	T	A	0.586956522	0.15	46	27
KYSE30	splicing	<i>PXN</i>				chr12	120653362	120653362	C	G	0.6	0.93	25	15
KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_138297:c.G2315A:p.G772D		chr3	195481236	195481236	C	T	0.607142857	0.35	56	34
KYSE30	exonic	<i>BCORL1</i>	nonsynonymous SNV	NM_021946:c.C1088T:p.S363F		chrX	129147836	129147836	C	T	0.608695652	0.29	23	14
KYSE30	splicing	<i>TP53</i>		687800:687997;688013;749713:905938;905972		chr17	7577610	7577610	T	C	0.666666667	0.09	33	22
KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11468T:p.T3823I		chr3	195506983	195506983	G	A	0.706896552	0.41	58	41
KYSE30	exonic	<i>NAA35</i>	nonsynonymous SNV	NM_024635:c.A1022T:p.E341V		chr9	88611458	88611458	A	T	0.715151515	0.49	165	118
KYSE30	exonic	<i>HMCN1</i>	nonsynonymous SNV	NM_031935:c.C10849A:p.H3617N		chr1	186076094	186076094	C	A	0.719178082	0.26	146	105
KYSE30	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.G4534A:p.A1512T		chr11	1092715	1092715	G	A	0.733333333	0.64	30	22
KYSE30	exonic	<i>HIST2H2AC</i>	nonsynonymous SNV	NM_003517:c.G274A:p.E92K		chr1	149858798	149858798	G	A	0.743589744	0.69	39	29
KYSE30	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11511G:p.H3837Q		chr3	195506940	195506940	G	C	0.857142857	0.58	14	12
KYSE30	exonic	<i>SON</i>	nonsynonymous SNV	NM_032195:c.T2308A:p.S770T		chr21	34923845	34923845	T	A	0.985714286	0.72	70	69
KYSE30	exonic	<i>LG11</i>	nonsynonymous SNV	NM_005097:c.G626A:p.R209H		chr10	95552622	95552622	G	A	0.989690722	0.38	97	96
KYSE30	exonic	<i>MAP3K15</i>	nonsynonymous SNV	NM_001001671:c.G1833C:p.E611D		chrX	19425317	19425317	C	G	1	0.61	28	28
KYSE30	exonic	<i>RASGRP3</i>	nonsynonymous SNV	NM_015376:c.T44C:p.L15P		chr2	33740247	33740247	T	C	1	0.43	212	212
KYSE50	exonic	<i>ITGAL</i>	nonsynonymous SNV	NM_002209:c.G437A:p.G146D		chr16	30490521	30490521	G	A	0.082802548	0.54	157	13
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G10045A:p.D3349N		chr3	195508406	195508406	C	T	0.083116883	0.09	385	32
KYSE50	exonic	<i>ZNF34</i>	nonsynonymous SNV	NM_030580:c.A717T:p.K239N		chr8	14599617	14599617	T	A	0.083333333	0.89	108	9
KYSE50	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.C12305T:p.S4102L		chr6	152657986	152657986	G	A	0.084507042	0.67	71	6
KYSE50	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.G4918A:p.A1640T		chr11	1017883	1017883	C	T	0.085526316	0.38	152	13
KYSE50	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.G392A:p.G131E		chr3	75788382	75788382	C	T	0.087912088	0.88	91	8
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8282T:p.A2761V		chr3	195510169	195510169	G	A	0.089285714	0.96	280	25
KYSE50	exonic	<i>CMYA5</i>	nonsynonymous SNV	NM_153610:c.G4243A:p.E1415K		chr5	79028831	79028831	G	A	0.08974359	0.43	78	7
KYSE50	exonic	<i>BRAF</i>	nonsynonymous SNV	NM_004333:c.G1045T:p.A349S		chr7	140494203	140494203	C	A	0.090163934	0.64	122	11
KYSE50	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4703T:p.T1568M		chr11	1092884	1092884	C	T	0.091397849	0.65	372	34
KYSE50	exonic	<i>SI</i>	nonsynonymous SNV	NM_001041:c.G1836A:p.M612I		chr3	164764680	164764680	C	T	0.093103448	0.41	290	27
KYSE50	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C4889T:p.T1630I		chr11	1017912	1017912	G	A	0.094674556	0.44	169	16
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G2992A:p.A998T		chr3	195515459	195515459	C	T	0.097345133	0.45	113	11
KYSE50	exonic	<i>RNF216</i>	nonsynonymous SNV	NM_207111:c.C1565T:p.S522F		chr7	5760743	5760743	G	A	0.102719033	0.35	331	34
KYSE50	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C5114T:p.T1705I		chr11	1093295	1093295	C	T	0.102857143	0.67	175	18
KYSE50	exonic	<i>SEC22B</i>	unknown	UNKNOWN		chr1	145115815	145115815	A	C	0.107305936	0.45	438	47
KYSE50	exonic	<i>EPAS1</i>	nonsynonymous SNV	NM_001430:c.G1610A:p.G537E		chr2	46607421	46607421	G	A	0.107526882	0.30	93	10
KYSE50	exonic	<i>THSD7A</i>	nonsynonymous SNV	NM_015204:c.C3001A:p.Q1001K		chr7	11485751	11485751	G	T	0.107569721	0.48	251	27
KYSE50	exonic	<i>PIK3CA</i>	nonsynonymous SNV	NM_006218:c.G485A:p.R162K		chr3	178917610	178917610	G	A	0.108870968	0.44	248	27
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C7181A:p.S2394Y		chr3	195511270	195511270	G	T	0.109819121	0.42	774	85

KYSE50	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.G943T;p.G315C		chr7	151970859	151970859	C	A	0.111940299	0.49	402	45
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C3317A;p.P1106H		chr3	195515134	195515134	G	T	0.112820513	0.50	195	22
KYSE50	exonic	<i>C17orf57</i>	nonsynonymous SNV	NM_001195192:c.G157A;p.E53K		chr17	45412688	45412688	G	A	0.120967742	0.27	124	15
KYSE50	exonic	<i>FNDC1</i>	nonsynonymous SNV	NM_032532:c.G4058A;p.G1353E		chr6	159657337	159657337	G	A	0.13	0.38	100	13
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C3399G;p.H1133Q		chr3	195515052	195515052	G	C	0.131313131	0.23	99	13
KYSE50	exonic:splicing	<i>LRP2</i>	nonsynonymous SNV	NM_004525:c.G6470A;p.G2157E		chr2	170063760	170063760	C	T	0.133333333	0.13	60	8
KYSE50	exonic	<i>SHANK2</i>	nonsynonymous SNV	NM_133266:c.G2302A;p.E768K		chr11	70323332	70323332	C	T	0.1375	0.27	80	11
KYSE50	exonic	<i>MITF</i>	nonsynonymous SNV	NM_006722:c.C149T;p.S50F		chr3	69928332	69928332	C	T	0.145833333	0.43	48	7
KYSE50	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C70787A;p.T23596N		chr2	179404911	179404911	G	T	0.152866242	0.38	157	24
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8734A;p.P2912T		chr3	195509717	195509717	G	T	0.159375	0.33	320	51
KYSE50	exonic	<i>WDR87</i>	nonsynonymous SNV	NM_031951:c.G6101A;p.G2034E		chr19	38378093	38378093	C	T	0.160714286	0.56	168	27
KYSE50	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.A4678C;p.T1560P		chr11	1092859	1092859	A	C	0.162068966	0.81	290	47
KYSE50	exonic	<i>ERCC3</i>	nonsynonymous SNV	NM_000122:c.G440C;p.G147A		chr2	128050217	128050217	C	G	0.162790698	0.86	86	14
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8800T;p.L2934F		chr3	195509651	195509651	G	A	0.162857143	0.72	350	57
KYSE50	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G26138A;p.R8713K		chr2	179471996	179471996	C	T	0.163090129	0.53	233	38
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.A3037G;p.S1013G	581:1645683;16	chr3	195515414	195515414	T	C	0.172661871	0.29	139	24
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11258T;p.A3753V		chr3	195507193	195507193	G	A	0.173267327	0.37	202	35
KYSE50	exonic	<i>GPR112</i>	frameshift insertion	NM_153834:c.7477_7478insTT;p.L2493fs		chrX	135453567	135453567	-	TT	0.185185185	0.60	81	15
KYSE50	exonic	<i>SIPAIL2</i>	nonsynonymous SNV	NM_020808:c.C991T;p.H331Y		chr1	232650095	232650095	G	A	0.187878788	0.71	165	31
KYSE50	exonic	<i>ABHD13</i>	nonsynonymous SNV	NM_032859:c.C590A;p.A197E		chr13	108882156	108882156	C	A	0.190140845	0.52	142	27
KYSE50	exonic	<i>NALCN</i>	nonsynonymous SNV	NM_052867:c.G165T;p.M55I		chr13	102047660	102047660	C	A	0.190789474	0.55	152	29
KYSE50	exonic	<i>MED12</i>	nonsynonymous SNV	NM_005120:c.G908A;p.R303Q		chrX	70341473	70341473	G	A	0.2	0.50	50	10
KYSE50	exonic	<i>AKAP6</i>	nonsynonymous SNV	NM_004274:c.C593T;p.P1979S		chr14	33292954	33292954	C	T	0.204379562	0.43	137	28
KYSE50	exonic	<i>RECQL4</i>	nonsynonymous SNV	NM_004260:c.C1321T;p.P441S		chr8	145740779	145740779	G	A	0.204545455	0.50	88	18
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G10201A;p.V3401I		chr3	195508250	195508250	C	T	0.208955224	0.49	536	112
KYSE50	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G20318A;p.R6773Q		chr2	179482565	179482565	C	T	0.211055276	0.52	199	42
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G8775C;p.Q2925H	1645684	chr3	195509676	195509676	C	G	0.222560976	0.60	328	73
KYSE50	exonic	<i>TTN</i>	stopgain SNV	NM_003319:c.G71256A;p.W23752X		chr2	179404341	179404341	C	T	0.223776224	0.38	143	32
KYSE50	exonic	<i>DNAH6</i>	nonsynonymous SNV	NM_001370:c.C4474A;p.Q1492K		chr2	84852146	84852146	C	A	0.235294118	0.42	102	24
KYSE50	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4850T;p.P1617L		chr11	1093031	1093031	C	T	0.24260355	0.61	169	41
KYSE50	splicing	<i>PDE3B</i>				chr11	14852393	14852393	G	A	0.242718447	0.40	103	25
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C12622T;p.P4208S		chr3	195505829	195505829	G	A	0.24742268	0.96	97	24
KYSE50	exonic	<i>KCNT2</i>	nonsynonymous SNV	NM_198503:c.T2620A;p.L874M		chr1	196254864	196254864	A	T	0.261437908	0.43	153	40
KYSE50	exonic	<i>PCDH20</i>	frameshift deletion	NM_022843:c.1065_1066del;p.355_356del		chr13	61987166	61987166	TA	-	0.265306122	0.62	49	13
KYSE50	exonic	<i>BRC1A</i>	nonsynonymous SNV	NM_007297:c.A1669G;p.K557E		chr17	41245738	41245738	T	C	0.269767442	0.55	215	58
KYSE50	exonic	<i>ZC3H14</i>	stopgain SNV	NM_207662:c.T506A;p.L169X		chr14	89073632	89073632	T	A	0.29787234	0.50	94	28
KYSE50	exonic	<i>C6</i>	nonsynonymous SNV	NM_000065:c.C1219G;p.R407G		chr5	41172399	41172399	G	C	0.300518135	0.48	193	58
KYSE50	exonic	<i>ZFAT</i>	stopgain SNV	NM_001167583:c.C143G;p.S48X	1560536	chr8	135669821	135669821	G	C	0.308943089	0.63	123	38
KYSE50	exonic	<i>LRRTM4</i>	nonsynonymous SNV	NM_001134745:c.G1668C;p.E556D		chr2	76975926	76975926	C	G	0.352941176	0.50	51	18
KYSE50	exonic	<i>TTC18</i>	nonsynonymous SNV	NM_145170:c.C1511G;p.T504R		chr10	75059379	75059379	G	C	0.380597015	0.51	134	51
KYSE50	exonic	<i>USP24</i>	nonsynonymous SNV	NM_015306:c.A4855G;p.I1619V		chr1	55571844	55571844	T	C	0.407407407	0.64	162	66
KYSE50	exonic	<i>CTNNA3</i>	nonsynonymous SNV	NM_001127384:c.A1462G;p.N488D		chr10	68280444	68280444	T	C	0.408602151	0.50	93	38
KYSE50	exonic:splicing	<i>ABC4</i>	nonsynonymous SNV	NM_000443:c.T835C;p.Y279H		chr7	87076520	87076520	A	G	0.413793103	0.36	203	84
KYSE50	exonic	<i>KIF14</i>	nonsynonymous SNV	NM_014875:c.A1672G;p.T558A		chr1	200574485	200574485	T	C	0.413953488	0.38	215	89
KYSE50	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C26512T;p.R8838C		chr2	179470315	179470315	G	A	0.416216216	0.61	185	77
KYSE50	exonic	<i>TTC18</i>	nonsynonymous SNV	NM_145170:c.C595T;p.P199S		chr10	75104837	75104837	G	A	0.44047619	0.69	168	74
KYSE50	exonic	<i>PASD1</i>	nonframeshift deletion	NM_173493:c.1470_1490del;p.490_497del		chrX	150840687	150840707	3CAGCGGC	-	0.5	0.83	12	6
KYSE50	exonic	<i>MTERFD1</i>	stoploss SNV	NM_015942:c.T1252C;p.X418Q		chr8	97251721	97251721	A	G	0.553030303	0.66	132	73
KYSE50	exonic	<i>C10orf71</i>	nonsynonymous SNV	NM_001135196:c.A1334G;p.K445R		chr10	50531924	50531924	A	G	0.587837838	0.44	148	87
KYSE50	exonic	<i>LRRC15</i>	nonsynonymous SNV	NM_130830:c.C305T;p.S102L		chr3	194081468	194081468	G	A	0.591836735	0.36	98	58
KYSE50	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.G4534A;p.A1512T		chr11	1092715	1092715	G	A	0.6	0.57	50	30
KYSE50	exonic	<i>OXR1</i>	nonsynonymous SNV	NM_181354:c.G104A;p.R35H		chr8	107670318	107670318	G	A	0.666666667	0.64	21	14
KYSE50	exonic	<i>BAP1</i>	frameshift deletion	NM_004656:c.1120_1126del;p.374_376del		chr3	52438593	52438599	CTTCTC	-	0.692307692	0.66	26	18
KYSE50	exonic	<i>ZFH3</i>	nonsynonymous SNV	NM_006885:c.G359A;p.G120E		chr16	72993686	72993686	C	T	0.695652174	0.44	23	16
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11511G;p.H3837Q		chr3	195506940	195506940	G	C	0.722222222	0.62	18	13
KYSE50	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11468T;p.T3823I		chr3	195506983	195506983	G	A	0.732142857	0.39	56	41
KYSE50	exonic	<i>MED12</i>	nonsynonymous SNV	NM_005120:c.C4574A;p.P1525Q		chrX	70353019	70353019	C	A	1	0.50	102	102
KYSE50	exonic	<i>RP1</i>	nonsynonymous SNV	NM_006269:c.C6036A;p.F2012L		chr8	55542478	55542478	C	A	1	0.63	119	119

KYSE50	exonic	<i>SEN3</i>	nonsynonymous SNV	NM_015670:c.A1277G:p.N426S		chr17	7470257	7470257	A	G	1	0.59	88	88
KYSE50	exonic	<i>TP53</i>	stopgain SNV	NM_001126118:c.A184T:p.K62X	9672;1365415;	chr17	7579386	7579386	T	A	1	0.33	49	49
KYSE50	exonic	<i>USP26</i>	nonsynonymous SNV	NM_031907:c.A269C:p.D90A		chrX	132161980	132161980	T	G	1	0.62	65	65
KYSE70	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C5912T:p.P1971L		chr11	1016889	1016889	G	A	0.088757396	0.33	338	30
KYSE70	exonic	<i>FAT2</i>	nonsynonymous SNV	NM_001447:c.T5291G:p.V1764G		chr5	150925397	150925397	A	C	0.094017094	0.45	117	11
KYSE70	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4703T:p.T1568M		chr11	1092884	1092884	C	T	0.099706745	0.65	341	34
KYSE70	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G8775C:p.Q2925H	1645684	chr3	195509676	195509676	C	G	0.107954545	0.63	176	19
KYSE70	exonic	<i>PDE6C</i>	nonsynonymous SNV	NM_006204:c.G1522A:p.E508K		chr10	95399866	95399866	G	A	0.111111111	0.56	162	18
KYSE70	exonic	<i>YME1L1</i>	nonsynonymous SNV	NM_001253866:c.C43T:p.P15S		chr10	27437960	27437960	G	A	0.111607143	0.16	224	25
KYSE70	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.G2703C:p.E901D		chr3	75786071	75786071	C	G	0.113636364	0.90	88	10
KYSE70	exonic	<i>YSK4</i>	nonsynonymous SNV	NM_025052:c.G697C:p.E233Q		chr2	135745745	135745745	C	G	0.120300752	0.75	133	16
KYSE70	exonic	<i>ATM</i>	nonsynonymous SNV	NM_000051:c.C6166T:p.P2056S		chr11	108186808	108186808	C	T	0.126436782	0.36	174	22
KYSE70	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.T2614G:p.C872G		chr3	75786160	75786160	A	C	0.129213483	0.57	178	23
KYSE70	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.A4678C:p.T1560P		chr11	1092859	1092859	A	C	0.129277567	0.76	263	34
KYSE70	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C4846T:p.P1616S		chr3	195513605	195513605	G	A	0.135338346	0.50	266	36
KYSE70	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.A1952T:p.E651V	1558609	chr3	75786822	75786822	T	A	0.136363636	0.50	44	6
KYSE70	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8282T:p.A2761V		chr3	195510169	195510169	G	A	0.138888889	0.80	108	15
KYSE70	exonic	<i>SLCO1C1</i>	nonsynonymous SNV	NM_001149544:c.C569G:p.S190C		chr12	20874885	20874885	C	G	0.141732283	0.39	127	18
KYSE70	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C4889T:p.T1630I		chr11	1017912	1017912	G	A	0.151020408	0.46	245	37
KYSE70	exonic	<i>PRDM9</i>	nonsynonymous SNV	NM_020227:c.T2379A:p.S793R		chr5	23527576	23527576	T	A	0.151515152	0.70	132	20
KYSE70	exonic	<i>FSIP2</i>	nonsynonymous SNV	NM_173651:c.A5475C:p.K1825N		chr2	186657071	186657071	A	C	0.166666667	0.33	72	12
KYSE70	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11468T:p.T3823I		chr3	195506983	195506983	G	A	0.185185185	0.40	54	10
KYSE70	splicing	<i>RICTOR</i>				chr5	38981968	38981968	C	T	0.197916667	0.74	96	19
KYSE70	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C14816T:p.S4939F		chr19	9072630	9072630	G	A	0.202898551	0.43	138	28
KYSE70	exonic	<i>PDZRN3</i>	nonsynonymous SNV	NM_015009:c.A3147T:p.K1049N		chr3	73432570	73432570	T	A	0.217948718	0.35	156	34
KYSE70	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.G5963A:p.P1988E		chr7	82584306	82584306	C	T	0.223529412	0.50	170	38
KYSE70	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C37758A:p.N12586K		chr19	9018180	9018180	G	T	0.229007634	0.40	131	30
KYSE70	exonic	<i>BP1FC</i>	nonsynonymous SNV	NM_174932:c.T284G:p.L95W		chr22	32843289	32843289	A	C	0.233766234	0.36	154	36
KYSE70	exonic	<i>OTOGL</i>	nonsynonymous SNV	NM_173591:c.A6245G:p.E2082G		chr12	80760358	80760358	A	G	0.244444444	0.77	90	22
KYSE70	exonic	<i>UNC79</i>	nonsynonymous SNV	NM_020818:c.G3175A:p.E1059K		chr14	94069716	94069716	G	A	0.248	0.55	125	31
KYSE70	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.T8057G:p.V2686G		chr6	152711556	152711556	A	C	0.25	0.57	56	14
KYSE70	exonic;splicing	<i>TP53BP1</i>	nonsynonymous SNV	NM_001141979:c.G4681A:p.G1561R		chr15	43712503	43712503	C	T	0.253333333	0.68	75	19
KYSE70	exonic	<i>EGFR</i>	nonsynonymous SNV	NM_201284:c.C2015G:p.P672R		chr7	55238134	55238134	C	G	0.25974026	0.40	77	20
KYSE70	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.C7174T:p.P2392S		chr7	82583095	82583095	G	A	0.263157895	0.90	38	10
KYSE70	exonic	<i>PHF17</i>	nonsynonymous SNV	NM_199320:c.A2192G:p.N731S		chr4	129793080	129793080	A	G	0.274509804	0.64	51	14
KYSE70	exonic	<i>LRRK2</i>	nonsynonymous SNV	NM_198578:c.C3848T:p.S1283F		chr12	40699657	40699657	C	T	0.278688525	0.50	122	34
KYSE70	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.G10408A:p.D3470N		chr14	105411380	105411380	C	T	0.284552846	0.57	123	35
KYSE70	exonic	<i>MED13</i>	stopgain SNV	NM_005121:c.G2829A:p.W943X		chr17	60061591	60061591	C	T	0.286956522	0.61	115	33
KYSE70	exonic	<i>UNC79</i>	nonsynonymous SNV	NM_020818:c.G3704A:p.R1235Q		chr14	94084548	94084548	G	A	0.307017544	0.60	114	35
KYSE70	exonic;splicing	<i>TRHDE</i>	nonsynonymous SNV	NM_013381:c.A2333G:p.N778S		chr12	73012817	73012817	A	G	0.307692308	0.50	26	8
KYSE70	exonic	<i>PLSCR2</i>	nonsynonymous SNV	NM_001199979:c.C220G:p.P74A		chr3	146177679	146177679	G	C	0.321428571	0.61	56	18
KYSE70	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C38147G:p.P12716R		chr2	179448567	179448567	G	C	0.328125	0.57	64	21
KYSE70	exonic	<i>CACNA1B</i>	nonsynonymous SNV	NM_000718:c.G5147:p.V172L		chr9	140777319	140777319	G	T	0.329411765	0.43	85	28
KYSE70	splicing	<i>LAMA2</i>				chr6	129641682	129641682	G	A	0.342105263	0.85	76	26
KYSE70	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G1934A:p.G645E		chr2	179654091	179654091	C	T	0.349056604	0.51	106	37
KYSE70	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126118:c.G243T:p.K81N	9707;946371;1	chr17	7579327	7579327	C	A	0.355555556	0.59	90	32
KYSE70	exonic	<i>CWF19L2</i>	nonsynonymous SNV	NM_152434:c.G1654A:p.D552N		chr11	107263585	107263585	C	T	0.355932203	0.38	236	84
KYSE70	exonic	<i>FH</i>	nonsynonymous SNV	NM_000143:c.C574T:p.P192S		chr1	241672067	241672067	G	A	0.358208955	0.42	67	24
KYSE70	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_206933:c.A6584G:p.N2195S		chr1	216172302	216172302	T	C	0.358974359	0.71	117	42
KYSE70	exonic	<i>DSPP</i>	nonframeshift insertion	NM_014208:c.2643_2644insAGTAGTGAC;p.D881delinsDSS	1474924	chr4	88536457	88536457	-	GTAGTGA	0.363636364	0.50	66	24
KYSE70	exonic	<i>EGFR</i>	frameshift deletion	NM_005228:c.203delC;p.T68fs		chr7	55210093	55210093	C	-	0.36809816	0.43	163	60
KYSE70	exonic	<i>IQUB</i>	stopgain SNV	NM_178827:c.T1082G:p.L361X		chr7	123136902	123136902	A	C	0.369863014	0.52	146	54
KYSE70	exonic	<i>RICTOR</i>	nonsynonymous SNV	NM_152756:c.T4562C:p.L1521P		chr5	38945664	38945664	A	G	0.371584699	0.54	183	68
KYSE70	exonic	<i>NALCN</i>	stopgain SNV	NM_052867:c.C3541T:p.R1181X		chr13	101736104	101736104	G	A	0.379746835	0.47	79	30
KYSE70	exonic	<i>MGAT5</i>	nonsynonymous SNV	NM_002410:c.G1828A:p.E610K		chr2	135185969	135185969	G	A	0.386554622	0.57	119	46
KYSE70	exonic	<i>EPHA4</i>	nonsynonymous SNV	NM_004438:c.C872A:p.A291D		chr2	222365844	222365844	G	T	0.419354839	0.46	31	13
KYSE70	exonic	<i>EPHA7</i>	nonsynonymous SNV	NM_004440:c.G350A:p.G117E		chr6	94120701	94120701	C	T	0.420560748	0.67	107	45
KYSE70	exonic	<i>KIT</i>	nonsynonymous SNV	NM_000222:c.G2335T:p.G779C		chr4	55598138	55598138	G	T	0.421875	0.41	64	27

KYSE70	exonic	<i>LRP1</i>	nonsynonymous SNV	NM_002332:c.C11701T;p.R3901C		chr12	57600366	57600366	C	T	0.43055556	0.35	72	31
KYSE70	exonic	<i>DNAH5</i>	nonsynonymous SNV	NM_001369:c.G4139A;p.R1380Q		chr5	13865993	13865993	C	T	0.430769231	0.32	65	28
KYSE70	exonic	<i>ZNF98</i>	nonsynonymous SNV	NM_001098626:c.A1331G;p.N444S		chr19	22574706	22574706	T	C	0.434782609	0.40	23	10
KYSE70	exonic	<i>VPS13B</i>	nonsynonymous SNV	NM_015243:c.C2336A;p.T779N		chr8	100205106	100205106	C	A	0.440860215	0.73	93	41
KYSE70	exonic	<i>TP53</i>	frameshift insertion	NM_001126115:c.356_357insA;p.I119fs	9756;946371;1	chr17	7577529	7577529	-	T	0.46875	0.67	32	15
KYSE70	exonic	<i>RP1</i>	frameshift deletion	NM_006269:c.403delG;p.A135fs		chr8	55533929	55533929	G	-	0.538461538	0.43	13	7
KYSE70	exonic	<i>PCDH11X</i>	nonsynonymous SNV	NM_001168360:c.A2108C;p.N703T		chrX	91133347	91133347	A	C	0.586206897	0.12	29	17
KYSE70	exonic	<i>MYH8</i>	nonsynonymous SNV	NM_002472:c.A3145G;p.M1049V		chr17	10304472	10304472	T	C	0.590163934	0.36	122	72
KYSE70	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.T11882C;p.V3961A		chr3	195506569	195506569	A	G	0.59375	0.42	32	19
KYSE70	exonic	<i>CC2D2B</i>	nonsynonymous SNV	NM_001001732:c.G194A;p.R65Q		chr10	97772362	97772362	G	A	0.621621622	0.52	148	92
KYSE70	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.C6121G;p.P2041A		chr14	105415667	105415667	G	C	0.629213483	0.63	89	56
KYSE70	exonic	<i>RP1</i>	nonsynonymous SNV	NM_006269:c.C404T;p.A135V	1473090	chr8	55533930	55533930	C	T	0.636363636	0.43	11	7
KYSE70	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.A3044G;p.K1015R		chr14	105418744	105418744	T	C	0.648648649	0.50	111	72
KYSE70	exonic	<i>MGAM</i>	nonsynonymous SNV	NM_004668:c.A1040T;p.D347V		chr7	141726972	141726972	A	T	0.681818182	0.50	198	135
KYSE70	exonic	<i>MYO3A</i>	nonsynonymous SNV	NM_017433:c.C541A;p.R181S		chr10	26305781	26305781	C	A	0.733333333	0.55	420	308
KYSE70	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.G4534A;p.A1512T		chr11	1092715	1092715	G	A	0.75	0.64	44	33
KYSE70	exonic	<i>MAP1S</i>	nonsynonymous SNV	NM_018174:c.G1618A;p.E540K		chr19	17837811	17837811	G	A	0.76	0.37	25	19
KYSE70	exonic	<i>CGN</i>	nonsynonymous SNV	NM_020770:c.C2488T;p.R830W		chr1	151503139	151503139	C	T	0.785714286	0.36	14	11
KYSE70	exonic	<i>ZSCAN18</i>	nonsynonymous SNV	NM_001145542:c.G56C;p.W19S		chr19	58601747	58601747	C	G	0.785714286	0.45	14	11
KYSE70	exonic	<i>OBSCN</i>	nonsynonymous SNV	NM_001098623:c.C2270T;p.S757L		chr1	228404296	228404296	C	T	0.8	0.67	15	12
KYSE70	exonic	<i>OBSCN</i>	stopgain SNV	NM_001098623:c.C1791T;p.Q5973X		chr1	228529198	228529198	C	T	0.826086957	0.32	23	19
KYSE70	exonic	<i>PIK3CA</i>	stoploss SNV	NM_006218:c.A3207G;p.X1069W	73758;1493699	chr3	178952152	178952152	A	G	0.832518337	0.41	818	681
KYSE70	exonic	<i>LAMA2</i>	stopgain SNV	NM_000426:c.T389G;p.L130X		chr6	129381034	129381034	T	G	0.986486486	0.18	74	73
KYSE70	exonic	<i>DPCR1</i>	nonsynonymous SNV	NM_080870:c.G3025A;p.A1009T		chr6	30919266	30919266	G	A	0.988235294	0.50	85	84
KYSE70	exonic	<i>TIN</i>	nonsynonymous SNV	NM_133378:c.C15731G;p.T5244S		chr2	179593088	179593088	G	C	0.990740741	0.50	108	107
KYSE70	exonic	<i>ARID1A</i>	stopgain SNV	NM_006015:c.C5965T;p.R1989X	450048;158208	chr1	27106354	27106354	C	T	1	0.44	39	39
KYSE70	exonic	<i>DMD</i>	nonsynonymous SNV	NM_004007:c.A3203G;p.D1068G		chrX	32472810	32472810	T	C	1	0.69	61	61
KYSE70	exonic	<i>NFE2L2</i>	nonsynonymous SNV	NM_001145412:c.G24T;p.W8C	571905;158098	chr2	178098973	178098973	C	A	1	0.55	80	80
KYSE70	exonic	<i>PLEC</i>	nonsynonymous SNV	NM_201378:c.A12571G;p.I4191V		chr8	144991376	144991376	T	C	1	0.58	19	19
KYSE70	exonic	<i>UNC80</i>	nonsynonymous SNV	NM_032504:c.A3434G;p.E1145G		chr2	210707144	210707144	A	G	1	0.34	74	74
KYSE110	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4679T;p.T1560M		chr11	1092860	1092860	C	T	0.082901554	0.81	193	16
KYSE110	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.T4747A;p.S1583T		chr11	1092928	1092928	T	A	0.084337349	0.71	166	14
KYSE110	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C5114T;p.T1705I		chr11	1093295	1093295	C	T	0.099009901	0.80	101	10
KYSE110	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.T8572C;p.S2858P		chr3	195509879	195509879	A	G	0.103448276	0.83	174	18
KYSE110	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G8775C;p.Q2925H	1645684	chr3	195509676	195509676	C	G	0.104294479	0.71	163	17
KYSE110	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4703T;p.T1568M		chr11	1092884	1092884	C	T	0.10483871	0.62	248	26
KYSE110	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G4936A;p.A1646T	1645683	chr3	195513515	195513515	C	T	0.105263158	0.91	209	22
KYSE110	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.T332A;p.M111K		chr3	195518119	195518119	A	T	0.105263158	0.64	133	14
KYSE110	exonic	<i>FAM184A</i>	nonsynonymous SNV	NM_024581:c.A269G;p.K90R		chr6	119345869	119345869	T	C	0.106382979	0.40	94	10
KYSE110	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.A1948G;p.N650D	1558609	chr3	75786826	75786826	T	C	0.107142857	0.33	56	6
KYSE110	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.A1952T;p.E651V	1558609	chr3	75786822	75786822	T	A	0.109090909	0.67	55	6
KYSE110	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11258T;p.A3753V		chr3	195507193	195507193	G	A	0.109589041	0.50	146	16
KYSE110	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G2992A;p.A998T		chr3	195515459	195515459	C	T	0.112359551	0.50	89	10
KYSE110	splicing	<i>ZSCAN18</i>				chr19	58597539	58597539	A	T	0.112676056	0.88	71	8
KYSE110	exonic	<i>RALGAPB</i>	nonsynonymous SNV	NM_020336:c.C1702T;p.P568S		chr20	37153503	37153503	C	T	0.114942529	0.40	87	10
KYSE110	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.A973G;p.S325G		chr3	75787801	75787801	T	C	0.132420091	0.90	219	29
KYSE110	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_007123:c.G399T;p.K133N		chr1	216595280	216595280	C	A	0.13253012	0.27	83	11
KYSE110	exonic	<i>WDR64</i>	nonsynonymous SNV	NM_144625:c.G1786T;p.D596Y		chr1	241920630	241920630	G	T	0.142857143	0.36	98	14
KYSE110	exonic	<i>TACC2</i>	nonsynonymous SNV	NM_006997:c.C1190T;p.P397L		chr10	123970896	123970896	C	T	0.146341463	0.58	82	12
KYSE110	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.A3037G;p.S1013G	581;1645683;16	chr3	195515414	195515414	T	C	0.150442478	0.47	113	17
KYSE110	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.G2703C;p.E901D		chr3	75786071	75786071	C	G	0.152542373	0.83	118	18
KYSE110	exonic	<i>DNAH6</i>	nonsynonymous SNV	NM_001370:c.A1916G;p.Q639R		chr2	84800703	84800703	A	G	0.152777778	0.61	216	33
KYSE110	exonic	<i>ZNF717</i>	stopgain SNV	NM_001128223:c.1730_1731insAAGTCAT;p.F577_L578delinsX		chr3	75787044	75787044	-	ATGACTT	0.153409091	0.30	176	27
KYSE110	exonic	<i>DNAH8</i>	nonsynonymous SNV	NM_001206927:c.G9473A;p.R3158K		chr6	38875856	38875856	G	A	0.155172414	0.11	116	18
KYSE110	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C5494T;p.P1832S		chr11	1017307	1017307	G	A	0.156626506	0.69	83	13
KYSE110	exonic	<i>EP300</i>	nonsynonymous SNV	NM_001429:c.C4858T;p.P1620S		chr22	41572329	41572329	C	T	0.161538462	0.29	130	21
KYSE110	exonic	<i>EPPK1</i>	nonsynonymous SNV	NM_031308:c.G7132C;p.D2378H		chr8	144940290	144940290	C	G	0.180124224	0.59	161	29
KYSE110	exonic	<i>LRRK2</i>	nonsynonymous SNV	NM_198578:c.T6555A;p.N2185K		chr12	40745514	40745514	T	A	0.189189189	0.14	111	21

KYSE110	exonic	<i>ANAPC5</i>	nonsynonymous SNV	NM_001137559:c.A1202C:p.K401T	chr12	121757599	121757599	T	G	0.190140845	0.48	142	27
KYSE110	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C5132A:p.T1711N	chr11	1017669	1017669	G	T	0.192	0.25	125	24
KYSE110	exonic	<i>MLLT10</i>	nonsynonymous SNV	NM_001195626:c.A584C:p.K195T	chr10	21903834	21903834	A	C	0.198630137	0.34	146	29
KYSE110	exonic	<i>ORSK3</i>	nonsynonymous SNV	NM_001005516:c.A269T:p.K901	chr3	98109778	98109778	A	T	0.202970297	0.49	202	41
KYSE110	exonic	<i>DNAH8</i>	nonsynonymous SNV	NM_001206927:c.G6242A:p.G2081E	chr6	38830166	38830166	G	A	0.205673759	0.55	141	29
KYSE110	exonic	<i>ANK2</i>	nonsynonymous SNV	NM_001148:c.C9821T:p.P3274L	chr4	114279595	114279595	C	T	0.212962963	0.35	108	23
KYSE110	exonic	<i>MC2R</i>	nonsynonymous SNV	NM_000529:c.T886C:p.Y296H	chr18	13884632	13884632	A	G	0.218181818	0.58	55	12
KYSE110	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G73787A:p.R24596K	chr2	179400360	179400360	C	T	0.223684211	0.59	76	17
KYSE110	exonic	<i>FN1</i>	nonsynonymous SNV	NM_054034:c.C1955T:p.P652L	chr2	216279546	216279546	G	A	0.228915663	0.68	83	19
KYSE110	exonic	<i>HPS5</i>	frameshift deletion	NM_007216:c.280delT:p.W94fs	chr11	18327884	18327884	A	-	0.235294118	0.08	51	12
KYSE110	exonic	<i>SAMD9L</i>	nonsynonymous SNV	NM_152703:c.G4309C:p.E1437Q	chr7	92760976	92760976	C	G	0.237373737	0.47	198	47
KYSE110	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.A38591G:p.K12864R	chr2	179447744	179447744	T	C	0.240740741	0.46	108	26
KYSE110	exonic	<i>TG</i>	nonsynonymous SNV	NM_003235:c.G904A:p.E302K	chr8	133895073	133895073	G	A	0.244897959	0.50	49	12
KYSE110	exonic	<i>MKRN3</i>	nonsynonymous SNV	NM_005664:c.C899G:p.S300W	chr15	23811828	23811828	C	G	0.25	0.56	64	16
KYSE110	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G46204A:p.G15402R	chr2	179437460	179437460	C	T	0.252873563	0.59	87	22
KYSE110	splicing	<i>RNF213</i>			chr17	78286810	78286810	A	G	0.260869565	0.72	69	18
KYSE110	exonic	<i>ERBB2</i>	nonsynonymous SNV	NM_004448:c.G2260A:p.V754M	chr17	37880216	37880216	G	A	0.262626263	0.46	99	26
KYSE110	exonic	<i>ZFP42</i>	nonsynonymous SNV	NM_174900:c.C419T:p.S140L	chr4	188924380	188924380	C	T	0.265486726	0.50	113	30
KYSE110	exonic	<i>VSIG8</i>	nonsynonymous SNV	NM_001013661:c.A331G:p.I111V	chr1	159827979	159827979	T	C	0.266666667	0.38	60	16
KYSE110	exonic	<i>UNC79</i>	nonsynonymous SNV	NM_020818:c.G4709A:p.R1570Q	chr14	94088819	94088819	G	A	0.269230769	0.57	52	14
KYSE110	exonic	<i>VCP11</i>	nonsynonymous SNV	NM_025054:c.G2506A:p.E836K	chr8	67576688	67576688	C	T	0.274336283	0.55	113	31
KYSE110	exonic	<i>THPO</i>	nonsynonymous SNV	NM_000460:c.G844A:p.G282S	chr3	184090519	184090519	C	T	0.274509804	0.57	51	14
KYSE110	exonic	<i>OSCP1</i>	nonsynonymous SNV	NM_145047:c.C386T:p.S129F	chr1	36898072	36898072	G	A	0.279569892	0.62	93	26
KYSE110	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G10590T:p.M3530I	chr2	179606281	179606281	C	A	0.281879195	0.60	149	42
KYSE110	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_052900:c.T9239G:p.F3080C	chr8	113275984	113275984	A	C	0.284313725	0.48	102	29
KYSE110	splicing	<i>OTOGL</i>			chr12	80735727	80735727	G	A	0.287234043	0.78	94	27
KYSE110	exonic	<i>ZNF761</i>	nonsynonymous SNV	NM_001008401:c.C446T:p.P149L	chr19	53958207	53958207	C	T	0.293103448	0.47	116	34
KYSE110	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.A17919T:p.Q5973H	chr2	179588176	179588176	T	A	0.297297297	0.45	111	33
KYSE110	exonic	<i>BCL9</i>	nonsynonymous SNV	NM_004326:c.A2467C:p.N823H	chr1	147092428	147092428	A	C	0.29787234	0.79	47	14
KYSE110	exonic	<i>PALB2</i>	nonsynonymous SNV	NM_024675:c.G265C:p.D89H	chr16	23647602	23647602	C	G	0.315789474	0.17	38	12
KYSE110	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.C4980A:p.D1660E	chr1	16257715	16257715	C	A	0.320754717	0.47	53	17
KYSE110	exonic	<i>CRB1</i>	nonsynonymous SNV	NM_001193640:c.A563G:p.D188G	chr1	197298044	197298044	A	G	0.333333333	0.48	87	29
KYSE110	exonic	<i>DMXL2</i>	nonsynonymous SNV	NM_001174116:c.C3011T:p.S1004L	chr15	51792410	51792410	G	A	0.339805825	0.26	103	35
KYSE110	exonic	<i>KBTBD12</i>	nonsynonymous SNV	NM_207335:c.T1232C:p.V411A	chr3	127646768	127646768	T	C	0.342281879	0.45	149	51
KYSE110	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.C3649A:p.P1217T	chr5	89949040	89949040	C	A	0.343137255	0.74	102	35
KYSE110	exonic	<i>GTF3C4</i>	nonsynonymous SNV	NM_012204:c.G1155C:p.K385N	chr9	135554161	135554161	G	C	0.348214286	0.38	112	39
KYSE110	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C49771T:p.H16591Y	chr2	179433893	179433893	G	A	0.35	0.49	140	49
KYSE110	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G24794C:p.G8265A	chr2	179474048	179474048	C	G	0.352272727	0.48	88	31
KYSE110	exonic	<i>CYP7B1</i>	nonsynonymous SNV	NM_004820:c.T1220C:p.F407S	chr8	65517252	65517252	A	G	0.354166667	0.76	96	34
KYSE110	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G15315C:p.M5105I	chr2	179498716	179498716	C	G	0.358974359	0.54	156	56
KYSE110	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.G8890C:p.G2964R	chr19	9082925	9082925	C	G	0.361111111	0.50	72	26
KYSE110	exonic	<i>RP1</i>	nonsynonymous SNV	NM_006269:c.A2612C:p.K871T	chr8	55539054	55539054	A	C	0.362204724	0.50	127	46
KYSE110	exonic	<i>ARID1A</i>	frameshift deletion	NM_006015:c.5689delC:p.P1897fs	chr1	27106078	27106078	C	-	0.372093023	0.56	43	16
KYSE110	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.G7402C:p.D2468H	chr14	105414386	105414386	C	G	0.375	0.44	48	18
KYSE110	exonic	<i>BRAF</i>	nonsynonymous SNV	NM_004333:c.A2096C:p.K699T	chr7	140439643	140439643	T	G	0.375	0.60	192	72
KYSE110	exonic	<i>PRDM2</i>	nonsynonymous SNV	NM_001007257:c.C53T:p.S18L	chr1	14104946	14104946	C	T	0.377777778	0.35	45	17
KYSE110	exonic	<i>FAT1</i>	nonsynonymous SNV	NM_005245:c.A7465C:p.S2489R	chr4	187540275	187540275	T	G	0.382978723	0.56	94	36
KYSE110	exonic	<i>MYCBP2</i>	nonsynonymous SNV	NM_015057:c.G2860C:p.V954L	chr13	77798665	77798665	C	G	0.385964912	0.32	57	22
KYSE110	exonic	<i>TEX2</i>	nonsynonymous SNV	NM_018469:c.C614A:p.P205Q	chr17	62290964	62290964	G	T	0.387096774	0.50	93	36
KYSE110	exonic	<i>PHF3</i>	nonsynonymous SNV	NM_015153:c.C2776A:p.Q926K	chr6	64408208	64408208	C	A	0.392156863	0.35	102	40
KYSE110	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G3829T:p.A1277S	chr2	179643842	179643842	C	A	0.397058824	0.52	68	27
KYSE110	exonic	<i>USP31</i>	nonsynonymous SNV	NM_020718:c.T2755C:p.S919P	chr16	23080671	23080671	A	G	0.397435897	0.45	78	31
KYSE110	exonic	<i>TBC1D4</i>	nonsynonymous SNV	NM_014832:c.T2653C:p.C885R	chr13	75880548	75880548	A	G	0.397590361	0.42	83	33
KYSE110	exonic	<i>MYH6</i>	nonsynonymous SNV	NM_002471:c.G2044A:p.A682T	chr14	23866385	23866385	C	T	0.406779661	0.71	59	24
KYSE110	exonic	<i>RP1</i>	nonsynonymous SNV	NM_006269:c.C1175T:p.S392L	chr8	55537617	55537617	C	T	0.40776699	0.57	103	42
KYSE110	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G1576C:p.A526P	chr3	195516875	195516875	C	G	0.419354839	0.67	124	52
KYSE110	exonic	<i>FAM135B</i>	nonsynonymous SNV	NM_015912:c.A1684G:p.N562D	chr8	139165034	139165034	T	C	0.421052632	0.38	95	40
KYSE110	exonic	<i>ATRNL1</i>	nonsynonymous SNV	NM_207303:c.G2000T:p.C667F	chr10	117027821	117027821	G	T	0.428571429	0.70	63	27

KYSE110	exonic	<i>PCDH9</i>	nonsynonymous SNV	NM_020403:c.G3257A:p.R1086Q		chr13	66879142	66879142	C	T	0.428571429	0.33	49	21
KYSE110	splicing	<i>NRAP</i>				chr10	115413885	115413885	C	T	0.524752475	0.25	101	53
KYSE110	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.G4534A:p.A1512T		chr11	1092715	1092715	G	A	0.578947368	0.91	19	11
KYSE110	exonic	<i>FAM46C</i>	nonsynonymous SNV	NM_017709:c.T355G:p.F119V		chr1	118165845	118165845	T	G	0.583333333	0.48	72	42
KYSE110	exonic	<i>IL16</i>	nonsynonymous SNV	NM_004513:c.C1496T:p.P499L		chr15	81598427	81598427	C	T	0.604651163	0.50	43	26
KYSE110	exonic	<i>SALL3</i>	nonsynonymous SNV	NM_171999:c.C3605T:p.A1202V		chr18	76757024	76757024	C	T	0.625	0.67	24	15
KYSE110	exonic	<i>GPRIN3</i>	nonsynonymous SNV	NM_198281:c.G201T:p.Q67H		chr4	90171061	90171061	C	A	0.62962963	0.53	27	17
KYSE110	exonic	<i>TAF1L</i>	nonsynonymous SNV	NM_153809:c.G4768A:p.D1590N		chr9	32630810	32630810	C	T	0.638095238	0.48	105	67
KYSE110	exonic	<i>LCT</i>	nonsynonymous SNV	NM_002299:c.G97A:p.G33S		chr2	136594643	136594643	C	T	0.648648649	0.71	37	24
KYSE110	exonic	<i>NFE2L2</i>	nonsynonymous SNV	NM_001145412:c.A198T:p.E66D	571800:158107	chr2	178098799	178098799	T	A	0.65060241	0.43	83	54
KYSE110	exonic	<i>RGS20</i>	nonsynonymous SNV	NM_003702:c.G554A:p.R185Q		chr8	54870846	54870846	G	A	0.659574468	0.71	47	31
KYSE110	exonic	<i>DMD</i>	nonsynonymous SNV	NM_004007:c.G3559A:p.E1187K		chrX	32456501	32456501	C	T	0.75	0.21	44	33
KYSE110	exonic	<i>TG</i>	nonsynonymous SNV	NM_003235:c.G4112A:p.R1371Q		chr8	133923731	133923731	G	A	0.777777778	0.38	72	56
KYSE110	exonic	<i>NOTCH2</i>	nonsynonymous SNV	NM_024408:c.C6889T:p.P2297S		chr1	120458456	120458456	G	A	0.8	0.58	15	12
KYSE110	exonic	<i>EP300</i>	nonsynonymous SNV	NM_001429:c.G4199A:p.S1400N		chr22	41565533	41565533	G	A	0.80952381	0.76	63	51
KYSE110	exonic	<i>FAM196B</i>	nonsynonymous SNV	NM_001129891:c.A1442T:p.Q481L		chr5	169291443	169291443	T	A	0.896551724	0.42	29	26
KYSE110	exonic	<i>CUBN</i>	nonsynonymous SNV	NM_001081:c.G10576A:p.G3526S		chr10	16870992	16870992	C	T	0.957446809	0.44	47	45
KYSE110	exonic	<i>DMD</i>	nonsynonymous SNV	NM_004014:c.G349A:p.D117N		chrX	31514916	31514916	C	T	1	0.76	25	25
KYSE110	exonic	<i>DNAH5</i>	nonsynonymous SNV	NM_001369:c.A3524G:p.Y1175C	1645677	chr5	13871747	13871747	T	C	1	0.39	119	119
KYSE110	exonic	<i>KDM6A</i>	nonsynonymous SNV	NM_021140:c.C2450T:p.S817F	870:749715:94	chrX	44929350	44929350	C	T	1	0.49	41	41
KYSE110	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11468T:p.T3823I		chr3	195506983	195506983	G	A	1	0.38	16	16
KYSE110	exonic	<i>SHANK2</i>	unknown	UNKNOWN		chr11	70858246	70858246	T	A	1	0.50	12	12
KYSE110	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.C628T:p.R210X	907282:908482	chr17	7574003	7574003	G	A	1	0.47	57	57
KYSE150	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.A4678C:p.T1560P		chr11	1092859	1092859	A	C	0.080168776	0.89	237	19
KYSE150	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.A40729G:p.S13577G		chr19	8999446	8999446	T	C	0.085714286	0.33	105	9
KYSE150	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8800T:p.L2934F		chr3	195509651	195509651	G	A	0.086092715	0.62	151	13
KYSE150	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.A11128G:p.T3710A		chr3	195507323	195507323	T	C	0.087248322	0.54	149	13
KYSE150	exonic	<i>THSD7A</i>	nonsynonymous SNV	NM_015204:c.A4900G:p.K1634E		chr7	11415495	11415495	T	C	0.089473684	0.59	190	17
KYSE150	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G4936A:p.A1646T	1645683	chr3	195513515	195513515	C	T	0.089820359	0.73	167	15
KYSE150	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11258T:p.A3753V		chr3	195507193	195507193	G	A	0.09009009	0.50	111	10
KYSE150	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.A331C:p.M111L		chr3	195518120	195518120	T	G	0.090225564	0.67	133	12
KYSE150	exonic	<i>IKZF1</i>	nonsynonymous SNV	NM_001220765:c.G132T:p.Q44H		chr7	50367325	50367325	G	T	0.090909091	0.33	66	6
KYSE150	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_206933:c.G14138T:p.W4713L		chr1	215824139	215824139	C	A	0.09375	0.33	64	6
KYSE150	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4679T:p.T1560M		chr11	1092860	1092860	C	T	0.105882353	0.78	255	27
KYSE150	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8282T:p.A2761V		chr3	195510169	195510169	G	A	0.107843137	0.91	102	11
KYSE150	exonic	<i>ZFH4</i>	nonsynonymous SNV	NM_024721:c.C9517T:p.P3173S		chr8	77775467	77775467	C	T	0.109375	0.86	64	7
KYSE150	exonic	<i>EPHK1</i>	nonsynonymous SNV	NM_031308:c.G7132C:p.D2378H		chr8	144940290	144940290	C	G	0.111111111	0.67	108	12
KYSE150	exonic	<i>PHF3</i>	nonsynonymous SNV	NM_015153:c.C4163A:p.T1388K		chr6	64421647	64421647	C	A	0.114503817	0.47	131	15
KYSE150	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G8775C:p.Q2925H	1645684	chr3	195509676	195509676	C	G	0.115384615	0.60	130	15
KYSE150	exonic	<i>FAT3</i>	nonsynonymous SNV	NM_001008781:c.G9713A:p.R3238K		chr11	92565019	92565019	G	A	0.11627907	0.60	86	10
KYSE150	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.G392A:p.G131E		chr3	75788382	75788382	C	T	0.118811881	0.83	303	36
KYSE150	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.T332A:p.M111K		chr3	195518119	195518119	A	T	0.124087591	0.47	137	17
KYSE150	exonic	<i>ABC1</i>	nonsynonymous SNV	NM_000927:c.G805C:p.G269R		chr7	87190601	87190601	C	G	0.124260355	0.67	169	21
KYSE150	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.T6293A:p.V2098E		chr16	70989298	70989298	A	T	0.125984252	0.69	127	16
KYSE150	exonic	<i>RP1L1</i>	nonsynonymous SNV	NM_178857:c.G3935A:p.G1312E		chr8	10467673	10467673	C	T	0.12962963	0.21	108	14
KYSE150	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.C2656T:p.R886C		chr7	151933015	151933015	G	A	0.131313131	0.08	99	13
KYSE150	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4709T:p.T1570I		chr11	1092890	1092890	C	T	0.132867133	0.63	286	38
KYSE150	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C4889T:p.T1630I		chr11	1017912	1017912	G	A	0.133858268	0.35	127	17
KYSE150	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.T2530A:p.C844S		chr3	75786244	75786244	A	T	0.139917695	0.44	243	34
KYSE150	exonic	<i>SLC9A4</i>	stopgain SNV	NM_001011552:c.G1021T:p.E341X		chr2	103121753	103121753	G	T	0.141176471	0.67	85	12
KYSE150	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.A3037G:p.S1013G	881:1645683:16	chr3	195515414	195515414	T	C	0.141509434	0.27	106	15
KYSE150	exonic	<i>NDOR1</i>	nonsynonymous SNV	NM_001144026:c.T166C:p.F56L		chr9	140100714	140100714	T	C	0.142857143	0.44	112	16
KYSE150	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_206933:c.C5222T:p.S1741F		chr1	216256874	216256874	G	A	0.169082126	0.47	414	70
KYSE150	exonic	<i>KCNG1</i>	nonsynonymous SNV	NM_002237:c.G405T:p.K135N		chr20	49626471	49626471	C	A	0.173913043	0.25	46	8
KYSE150	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C5114T:p.T1705I		chr11	1093295	1093295	C	T	0.179104478	0.83	134	24
KYSE150	exonic	<i>THSD7A</i>	nonsynonymous SNV	NM_015204:c.C954A:p.D318E		chr7	11675825	11675825	G	T	0.194594595	0.31	185	36
KYSE150	exonic	<i>USH2A</i>	nonsynonymous SNV	NM_206933:c.T5626A:p.L1876M		chr1	216246589	216246589	A	T	0.196774194	0.51	310	61
KYSE150	exonic	<i>FBN2</i>	nonsynonymous SNV	NM_001999:c.C3704A:p.P1235Q		chr5	127671700	127671700	G	T	0.196969697	0.62	132	26

KYSE150	exonic	<i>MKRN3</i>	nonsynonymous SNV	NM_005664:c.C428T;p.P143L			chr15	23811357	23811357	C	T	0.2	0.44	80	16
KYSE150	exonic	<i>COBL</i>	stopgain SNV	NM_015198:c.C2938T;p.Q980X			chr7	51095855	51095855	G	A	0.21212121	0.57	66	14
KYSE150	exonic	<i>OR6Q1</i>	nonsynonymous SNV	NM_001005186:c.G946A;p.G316R			chr11	57799370	57799370	G	A	0.22222222	0.20	90	20
KYSE150	exonic	<i>MERTK</i>	nonsynonymous SNV	NM_006343:c.A1282G;p.S428G	1482079		chr2	112740556	112740556	A	G	0.223684211	0.35	76	17
KYSE150	exonic	<i>GPR98</i>	stopgain SNV	NM_032119:c.C8356T;p.Q2786X			chr5	90000275	90000275	C	T	0.224489796	0.21	147	33
KYSE150	exonic	<i>NF1</i>	nonsynonymous SNV	NM_000267:c.G4346A;p.S1449N	8450:949171:1		chr17	29586126	29586126	G	A	0.224489796	0.18	49	11
KYSE150	exonic	<i>SMARCA4</i>	nonsynonymous SNV	NM_001128845:c.C2832G;p.N944K	722045		chr19	11132616	11132616	C	G	0.230769231	0.33	26	6
KYSE150	exonic	<i>INTS9</i>	nonsynonymous SNV	NM_001145159:c.A632C;p.E211A			chr8	28669893	28669893	T	G	0.231707317	0.47	82	19
KYSE150	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.A8770T;p.I2924L			chr7	82581499	82581499	T	A	0.234285714	0.78	175	41
KYSE150	exonic	<i>TMEM2</i>	nonsynonymous SNV	NM_001135820:c.G259C;p.A87P			chr9	74365031	74365031	C	G	0.238636364	0.52	88	21
KYSE150	exonic	<i>TG</i>	nonsynonymous SNV	NM_003235:c.C7724T;p.S2575F			chr8	134125817	134125817	C	T	0.243243243	0.33	37	9
KYSE150	exonic	<i>CSMD3</i>	nonsynonymous SNV	NM_052900:c.C7591T;p.P2531S			chr8	113318404	113318404	G	A	0.245901639	0.43	122	30
KYSE150	exonic:splicing	<i>ARHGAP31</i>	nonsynonymous SNV	NM_020754:c.A538T;p.R180W			chr3	119101245	119101245	A	T	0.256097561	0.24	82	21
KYSE150	exonic	<i>ARPP21</i>	nonsynonymous SNV	NM_016300:c.G1997A;p.R666K			chr3	35785422	35785422	G	A	0.257425743	0.42	101	26
KYSE150	exonic	<i>OR8B8</i>	nonsynonymous SNV	NM_012378:c.C410A;p.S137Y			chr11	124310572	124310572	G	T	0.263157895	0.50	76	20
KYSE150	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.C13699G;p.Q4567E			chr2	179596062	179596062	G	C	0.267175573	0.60	131	35
KYSE150	exonic	<i>MYH4</i>	nonsynonymous SNV	NM_017533:c.C4156T;p.R1386C			chr17	10353795	10353795	G	A	0.268817204	0.60	93	25
KYSE150	exonic	<i>CNTN5</i>	stopgain SNV	NM_175566:c.G15A;p.W5X			chr11	99426960	99426960	G	A	0.272727273	0.50	66	18
KYSE150	exonic	<i>XIRP2</i>	nonsynonymous SNV	NM_001199144:c.G7354A;p.E2452K			chr2	168105922	168105922	G	A	0.276595745	0.62	94	26
KYSE150	exonic	<i>MCOLN1</i>	nonsynonymous SNV	NM_020533:c.C935A;p.S312Y			chr19	7593540	7593540	C	A	0.282051282	0.73	39	11
KYSE150	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G29253T;p.K9751N			chr2	179464072	179464072	C	A	0.283333333	0.50	120	34
KYSE150	exonic	<i>NBEA</i>	nonsynonymous SNV	NM_015678:c.G2211T;p.M7371			chr13	35692579	35692579	G	T	0.283464567	0.36	127	36
KYSE150	exonic	<i>LRP1B</i>	nonsynonymous SNV	NM_018557:c.C2412T;p.A3141S			chr2	141242916	141242916	C	A	0.287878788	0.79	66	19
KYSE150	exonic	<i>RIMS2</i>	stopgain SNV	NM_001100117:c.C578G;p.S193X			chr8	104778645	104778645	C	G	0.292035398	0.67	113	33
KYSE150	exonic	<i>CLCN4</i>	nonsynonymous SNV	NM_001830:c.T494A;p.F165Y			chrX	10166040	10166040	T	A	0.3	0.50	20	6
KYSE150	exonic	<i>NEK10</i>	nonsynonymous SNV	NM_199347:c.C836A;p.A279E			chr3	27346430	27346430	G	T	0.302325581	0.46	43	13
KYSE150	exonic	<i>MYBPC1</i>	nonsynonymous SNV	NM_001254722:c.C2662G;p.P888A			chr12	102069075	102069075	C	G	0.307692308	0.75	91	28
KYSE150	exonic	<i>TPR</i>	nonsynonymous SNV	NM_003292:c.G7079T;p.G2360V			chr1	186283116	186283116	C	A	0.315315315	0.63	111	35
KYSE150	exonic	<i>COL24A1</i>	nonsynonymous SNV	NM_152890:c.C635A;p.S212Y			chr1	86591384	86591384	G	T	0.321428571	0.56	112	36
KYSE150	exonic	<i>TIPARP</i>	nonsynonymous SNV	NM_001184717:c.G19A;p.E7K			chr3	156395505	156395505	G	A	0.32173913	0.65	115	37
KYSE150	exonic	<i>FUBP1</i>	nonsynonymous SNV	NM_003902:c.A1579G;p.K527E			chr1	78422383	78422383	T	C	0.333333333	0.42	93	31
KYSE150	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.A1868T;p.D623V			chr6	152786478	152786478	T	A	0.337662338	0.69	77	26
KYSE150	exonic	<i>PLAG1</i>	nonsynonymous SNV	NM_001114635:c.G1096A;p.E366K			chr8	57078963	57078963	C	T	0.338983051	0.55	59	20
KYSE150	exonic	<i>OTOA</i>	nonsynonymous SNV	NM_001161683:c.T686A;p.F229Y			chr16	21712291	21712291	T	A	0.340206186	0.48	97	33
KYSE150	exonic	<i>ZNF365</i>	nonsynonymous SNV	NM_014951:c.G712A;p.E238K			chr10	64136664	64136664	G	A	0.340909091	0.27	44	15
KYSE150	exonic	<i>DQX1</i>	nonsynonymous SNV	NM_133637:c.G1571A;p.G524D			chr2	74747086	74747086	C	T	0.347826087	0.53	92	32
KYSE150	exonic	<i>SIPAL2</i>	nonsynonymous SNV	NM_020808:c.C4907A;p.P1636Q			chr1	232539227	232539227	G	T	0.347826087	0.75	23	8
KYSE150	exonic	<i>PTPRK</i>	nonsynonymous SNV	NM_002844:c.G4141A;p.G1381S			chr6	128294295	128294295	C	T	0.349056604	0.43	106	37
KYSE150	exonic	<i>GPR37</i>	stopgain SNV	NM_005302:c.G630A;p.W210X			chr7	124404401	124404401	C	T	0.35	0.57	20	7
KYSE150	exonic	<i>FBXO11</i>	nonsynonymous SNV	NM_001190274:c.G548A;p.C183Y	753548		chr2	48066037	48066037	C	T	0.350574713	0.59	174	61
KYSE150	exonic	<i>ZFP82</i>	nonsynonymous SNV	NM_133466:c.G725C;p.R242T			chr19	36884517	36884517	C	G	0.350649351	0.48	154	54
KYSE150	exonic	<i>EMILIN2</i>	nonsynonymous SNV	NM_032048:c.G1381A;p.E461K			chr18	2891506	2891506	G	A	0.351351351	0.48	148	52
KYSE150	exonic	<i>HELZ</i>	nonsynonymous SNV	NM_014877:c.G3288C;p.K1096N			chr17	65124866	65124866	C	G	0.351351351	0.50	74	26
KYSE150	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.G2170A;p.D724N			chr12	124285889	124285889	G	A	0.352112676	0.48	142	50
KYSE150	exonic	<i>FSIP2</i>	nonsynonymous SNV	NM_173651:c.C15163A;p.H5055N			chr2	186668929	186668929	C	A	0.353383459	0.49	133	47
KYSE150	exonic	<i>DDX42</i>	nonsynonymous SNV	NM_203499:c.A428T;p.N143I			chr17	61875453	61875453	A	T	0.35483871	0.27	124	44
KYSE150	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.C518T;p.S173F			chr12	124265706	124265706	C	T	0.35483871	0.47	155	55
KYSE150	exonic	<i>ATM</i>	nonsynonymous SNV	NM_000051:c.C7904G;p.A2635G			chr11	108203604	108203604	C	G	0.36	0.33	125	45
KYSE150	exonic:splicing	<i>IGSF10</i>	stopgain SNV	NM_178822:c.G5062T;p.G1688X			chr3	151162707	151162707	C	A	0.361111111	0.62	108	39
KYSE150	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C21167A;p.A7056E			chr19	9066279	9066279	G	T	0.364485981	0.56	107	39
KYSE150	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133378:c.A19822C;p.T6608P			chr2	179584815	179584815	T	G	0.365591398	0.56	93	34
KYSE150	exonic	<i>ZNF540</i>	nonsynonymous SNV	NM_001172226:c.G606T;p.Q202H			chr19	38102883	38102883	G	T	0.366666667	0.52	90	33
KYSE150	exonic	<i>PMS1</i>	stopgain SNV	NM_001128143:c.T1572G;p.Y524X			chr2	190719687	190719687	T	G	0.379310345	0.62	174	66
KYSE150	exonic	<i>ADH4</i>	stopgain SNV	NM_000670:c.G875A;p.W292X			chr4	100048464	100048464	C	T	0.391304348	0.44	46	18
KYSE150	exonic	<i>SIPAL2</i>	nonsynonymous SNV	NM_020808:c.G2359T;p.A787S			chr1	232601047	232601047	C	A	0.40625	0.50	64	26
KYSE150	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.G9097T;p.A3033S			chr14	105412691	105412691	C	A	0.421052632	0.63	38	16
KYSE150	exonic	<i>ZNF189</i>	nonsynonymous SNV	NM_003452:c.G1544C;p.R515T			chr9	104171594	104171594	G	C	0.430107527	0.50	93	40
KYSE150	exonic	<i>MCM3AP</i>	nonsynonymous SNV	NM_003906:c.C4691T;p.S1564F			chr21	47665068	47665068	G	A	0.430379747	0.44	79	34

KYSE150	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.G7725T;p.K2575N		chr14	105414063	105414063	C	A	0.55555556	0.40	63	35
KYSE150	exonic	<i>DNAH5</i>	nonsynonymous SNV	NM_001369:c.C8423T;p.T2808I		chr5	13792128	13792128	G	A	0.649350649	0.70	77	50
KYSE150	exonic	<i>ARID2</i>	stopgain SNV	NM_152641:c.C3817T;p.R1273X		chr12	46245723	46245723	C	T	0.661016949	0.51	118	78
KYSE150	exonic	<i>FLT1</i>	nonsynonymous SNV	NM_002019:c.C2306T;p.A769V		chr13	28919631	28919631	G	A	0.666666667	0.57	81	54
KYSE150	exonic	<i>ZFXH4</i>	nonsynonymous SNV	NM_024721:c.C8374A;p.G2792R		chr8	77767531	77767531	G	A	0.666666667	0.53	96	64
KYSE150	exonic	<i>PRF1</i>	nonsynonymous SNV	NM_001083116:c.G530A;p.R177H		chr10	72360129	72360129	C	T	0.727272727	0.50	11	8
KYSE150	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C54830T;p.T18277I		chr2	179428834	179428834	G	A	0.728813559	0.58	118	86
KYSE150	exonic	<i>MUC5B</i>	nonsynonymous SNV	NM_002458:c.C4889T;p.T1630M		chr11	1262999	1262999	C	T	0.791666667	0.68	24	19
KYSE150	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11468T;p.T3823I		chr3	195506983	195506983	G	A	0.823529412	0.50	17	14
KYSE150	exonic	<i>C18orf34</i>	nonsynonymous SNV	NM_001105528:c.C125A;p.A42D		chr18	30969587	30969587	G	T	1	0.20	50	50
KYSE150	exonic	<i>GPR112</i>	nonsynonymous SNV	NM_153834:c.T4507G;p.S1503A		chrX	135430372	135430372	T	G	1	0.53	104	104
KYSE150	exonic	<i>PIWIL3</i>	nonsynonymous SNV	NM_001008496:c.C2203T;p.L735F		chr22	25120909	25120909	G	A	1	0.55	86	86
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.A11128G;p.T3710A		chr3	195507323	195507323	T	C	0.083333333	0.50	192	16
KYSE180	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.T4747A;p.S1583T		chr11	1092928	1092928	T	A	0.083798883	0.67	179	15
KYSE180	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4679T;p.T1560M		chr11	1092860	1092860	C	T	0.086294416	0.76	197	17
KYSE180	exonic	<i>RP1L1</i>	nonsynonymous SNV	NM_178857:c.G3935A;p.G1312E		chr8	10467673	10467673	C	T	0.087179487	0.29	195	17
KYSE180	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.A8781T;p.E2927D		chr7	82581488	82581488	T	A	0.088495575	0.50	113	10
KYSE180	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C5912T;p.P1971L		chr11	1016889	1016889	G	A	0.089108911	0.39	202	18
KYSE180	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.A40729G;p.S1357G		chr19	8999446	8999446	T	C	0.08952239	0.50	67	6
KYSE180	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C5857T;p.H1953Y		chr11	1016944	1016944	G	A	0.095238095	0.90	105	10
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8981T;p.T2994L		chr3	195509470	195509470	G	A	0.095541401	0.87	157	15
KYSE180	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C4889T;p.T1630I		chr11	1017912	1017912	G	A	0.100591716	0.47	169	17
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8972T;p.T2991I		chr3	195509479	195509479	G	A	0.102040816	0.87	147	15
KYSE180	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4709T;p.T1570I		chr11	1092890	1092890	C	T	0.109756098	0.59	246	27
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G4936A;p.A1646T	1645683	chr3	195513515	195513515	C	T	0.11682243	0.88	214	25
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_138297:c.G358T;p.G120C		chr3	195498546	195498546	C	A	0.119402985	0.75	67	8
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8282T;p.A2761V		chr3	195510169	195510169	G	A	0.121019108	0.89	157	19
KYSE180	exonic	<i>NLGN1</i>	nonsynonymous SNV	NM_014932:c.G1174A;p.G392R		chr3	173996965	173996965	G	A	0.121052632	0.35	380	46
KYSE180	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C5114T;p.T1705I		chr11	1093295	1093295	C	T	0.124031008	0.81	129	16
KYSE180	exonic	<i>RP1L1</i>	nonsynonymous SNV	NM_178857:c.G4027A;p.E1343K		chr8	10467581	10467581	C	T	0.125	0.43	184	23
KYSE180	exonic	<i>MUC17</i>	nonsynonymous SNV	NM_001040105:c.C7964A;p.T2655K		chr7	100682661	100682661	C	A	0.128378378	0.47	296	38
KYSE180	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.T2530A;p.C844S		chr3	75786244	75786244	A	T	0.12987013	0.40	231	30
KYSE180	exonic	<i>GOT1L1</i>	nonsynonymous SNV	NM_152413:c.A1088T;p.Y363F		chr8	37791989	37791989	T	A	0.136363636	0.50	44	6
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8800T;p.L2934F		chr3	195509651	195509651	G	A	0.136585366	0.79	205	28
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C10175T;p.P3392L		chr3	195508276	195508276	G	A	0.138888889	0.49	324	45
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C10174T;p.P3392S		chr3	195508277	195508277	G	A	0.141955836	0.51	317	45
KYSE180	exonic	<i>EPPK1</i>	nonsynonymous SNV	NM_031308:c.G7132C;p.D2378H		chr8	144940290	144940290	C	G	0.144	0.67	125	18
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8734A;p.P2912T		chr3	195509717	195509717	G	T	0.144628099	0.34	242	35
KYSE180	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.C746T;p.S249L		chr3	75788028	75788028	G	A	0.147727273	0.73	176	26
KYSE180	exonic	<i>PHF3</i>	nonsynonymous SNV	NM_015153:c.G4043A;p.R1348H		chr6	64421527	64421527	G	A	0.149484536	0.62	194	29
KYSE180	exonic	<i>SI</i>	nonsynonymous SNV	NM_001041:c.T526C;p.Y176H		chr3	164785237	164785237	A	G	0.156	0.54	250	39
KYSE180	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.A4678C;p.T1560P		chr11	1092859	1092859	A	C	0.164893617	0.81	188	31
KYSE180	exonic	<i>EDARADD</i>	nonsynonymous SNV	NM_080738:c.G142C;p.D48H		chr1	236590703	236590703	G	C	0.174311927	0.53	109	19
KYSE180	exonic	<i>ADAMTS12</i>	stopgain SNV	NM_030955:c.C1429T;p.Q477X		chr5	33648977	33648977	G	A	0.185714286	0.54	70	13
KYSE180	exonic	<i>ABCA13</i>	nonsynonymous SNV	NM_152701:c.G13420T;p.G4474C		chr7	48547541	48547541	G	T	0.194444444	0.64	72	14
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.A3037G;p.S1013G	581;1645683;16	chr3	195515414	195515414	T	C	0.2	0.33	75	15
KYSE180	splicing	<i>NALCN</i>				chr13	101828650	101828650	C	T	0.208092486	0.64	173	36
KYSE180	exonic	<i>CBL</i>	nonsynonymous SNV	NM_005188:c.C641T;p.P214L		chr11	119144628	119144628	C	T	0.214876033	0.62	121	26
KYSE180	exonic	<i>C5orf42</i>	nonsynonymous SNV	NM_023073:c.C3494T;p.A1165V		chr5	37201706	37201706	G	A	0.219047619	0.87	105	23
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G8775C;p.Q2925H	1645684	chr3	195509676	195509676	C	G	0.223958333	0.63	192	43
KYSE180	exonic	<i>C7</i>	nonsynonymous SNV	NM_000587:c.C1414T;p.H472Y		chr5	40958288	40958288	C	T	0.228346457	0.21	127	29
KYSE180	exonic;splicing	<i>C6</i>	nonsynonymous SNV	NM_000065:c.C2101T;p.R701W		chr5	41155074	41155074	G	A	0.254901961	0.71	204	52
KYSE180	exonic	<i>SLC8A1</i>	nonsynonymous SNV	NM_001112801:c.G1893T;p.W631C		chr2	40404911	40404911	C	A	0.262032086	0.65	187	49
KYSE180	exonic	<i>NRG3</i>	nonsynonymous SNV	NM_001010848:c.C827A;p.T276K	1520616	chr10	84118498	84118498	C	A	0.263157895	0.60	76	20
KYSE180	exonic	<i>PPP2R1A</i>	nonsynonymous SNV	NM_014225:c.C560T;p.S187F		chr19	52715995	52715995	C	T	0.268292683	0.36	41	11
KYSE180	exonic	<i>DSPP</i>	nonframeshift insertion	NM_014208:c.2643_2644insAGTAGTGAC;p.D881delinsDSS	1474924	chr4	88536457	88536457	-	GTAGTGA	0.26984127	0.41	63	17
KYSE180	exonic	<i>OR7A10</i>	nonsynonymous SNV	NM_001005190:c.C98G;p.S33C		chr19	14952592	14952592	G	C	0.270588235	0.52	85	23
KYSE180	exonic	<i>RASL10B</i>	nonsynonymous SNV	NM_033315:c.C64T;p.R22C		chr17	34062267	34062267	C	T	0.272727273	0.67	22	6

KYSE180	exonic	<i>OR2W5</i>	nonsynonymous SNV	NM_001004698:c.G919A;p.V307M		chr1	247655348	247655348	G	A	0.277777778	0.67	54	15
KYSE180	exonic	<i>ZNF799</i>	nonsynonymous SNV	NM_001080821:c.C1475G;p.S492C		chr19	12501737	12501737	G	C	0.292207792	0.47	154	45
KYSE180	exonic	<i>ERCC4</i>	nonsynonymous SNV	NM_005236:c.G239A;p.G80E		chr16	14015919	14015919	G	A	0.300613497	0.57	163	49
KYSE180	exonic	<i>LPPR4</i>	nonsynonymous SNV	NM_001166252:c.G1161T;p.K387N		chr1	99771609	99771609	G	T	0.301369863	0.36	73	22
KYSE180	exonic	<i>FAM196B</i>	nonsynonymous SNV	NM_001129891:c.C1541T;p.A514V		chr5	169291344	169291344	G	A	0.310344828	0.50	58	18
KYSE180	exonic	<i>ABCB5</i>	nonsynonymous SNV	NM_178559:c.G1990C;p.E664Q		chr7	20784957	20784957	G	C	0.311320755	0.39	106	33
KYSE180	exonic	<i>RANBP17</i>	nonsynonymous SNV	NM_022897:c.G769A;p.E257K		chr5	170341179	170341179	G	A	0.317647059	0.61	170	54
KYSE180	exonic	<i>RUNDC3B</i>	nonsynonymous SNV	NM_001134405:c.A857G;p.Q286R		chr7	87407172	87407172	A	G	0.322580645	0.45	124	40
KYSE180	exonic	<i>GARNL3</i>	nonsynonymous SNV	NM_032293:c.C1168T;p.P390S		chr9	130104530	130104530	C	T	0.323529412	0.71	170	55
KYSE180	exonic	<i>HMCN1</i>	nonsynonymous SNV	NM_031935:c.C1061T;p.S354F		chr1	185892561	185892561	C	T	0.333333333	0.52	174	58
KYSE180	exonic	<i>GATAD2B</i>	nonsynonymous SNV	NM_020699:c.G992A;p.R331K		chr1	153788973	153788973	C	T	0.344827586	0.65	58	20
KYSE180	exonic	<i>ARID2</i>	nonsynonymous SNV	NM_152641:c.C994T;p.L332F		chr12	46230745	46230745	C	T	0.353535354	0.69	99	35
KYSE180	splicing	<i>TBC1D4</i>				chr13	75884077	75884077	C	G	0.35483871	0.55	93	33
KYSE180	exonic	<i>ANKIB1</i>	stopgain SNV	NM_019004:c.3109delA;p.I1037X		chr7	92028102	92028102	A	-	0.361111111	0.38	72	26
KYSE180	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C20482T;p.P6828S		chr19	9066964	9066964	G	A	0.363636364	0.35	110	40
KYSE180	exonic	<i>MKI67</i>	nonsynonymous SNV	NM_001145966:c.T4867C;p.S1623P		chr10	129904157	129904157	A	G	0.364341085	0.47	129	47
KYSE180	exonic	<i>IL16</i>	nonsynonymous SNV	NM_172217:c.C393G;p.C131W		chr15	81552193	81552193	C	G	0.379746835	0.47	79	30
KYSE180	exonic	<i>PTEN</i>	nonsynonymous SNV	NM_000314:c.G58A;p.G20R	753569;847650	chr10	89624284	89624284	G	A	0.385416667	0.57	96	37
KYSE180	exonic	<i>LRPIB</i>	stopgain SNV	NM_018557:c.C3443A;p.S1148X		chr2	141665523	141665523	G	T	0.391891892	0.66	74	29
KYSE180	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.G7666A;p.E2556K		chr16	70954610	70954610	C	T	0.413333333	0.23	75	31
KYSE180	exonic	<i>MTERFD1</i>	nonsynonymous SNV	NM_015942:c.A933T;p.E311D		chr8	97256273	97256273	T	A	0.428571429	0.41	161	69
KYSE180	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.C4679T;p.S1560L		chr12	124323133	124323133	C	T	0.431372549	0.55	51	22
KYSE180	exonic	<i>BDP1</i>	nonsynonymous SNV	NM_018429:c.G2533A;p.A845T		chr5	70805452	70805452	G	A	0.434782609	0.48	92	40
KYSE180	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.C1549T;p.R517C		chr3	75787225	75787225	G	A	0.439716312	0.55	141	62
KYSE180	exonic	<i>GPR98</i>	stopgain SNV	NM_032119:c.A5065T;p.K1689X		chr5	89970006	89970006	A	T	0.443298969	0.40	97	43
KYSE180	exonic	<i>DNMT1</i>	frameshift deletion	NM_001379:c.906delA;p.K302fs		chr19	10273397	10273397	T	-	0.513761468	0.63	109	56
KYSE180	exonic	<i>SSFA2</i>	nonsynonymous SNV	NM_001130445:c.C272A;p.A91D		chr2	182760771	182760771	C	A	0.617391304	0.61	115	71
KYSE180	exonic;splicing	<i>ABCA9</i>	nonsynonymous SNV	NM_080283:c.G469T;p.A157S		chr17	67041313	67041313	C	A	0.622641509	0.83	106	66
KYSE180	exonic	<i>HIRA</i>	nonsynonymous SNV	NM_003325:c.T2642C;p.L881P		chr22	19341561	19341561	A	G	0.631578947	0.50	19	12
KYSE180	exonic	<i>BRIP1</i>	nonsynonymous SNV	NM_032043:c.G1442A;p.G481D		chr17	59870989	59870989	C	T	0.637362637	0.67	91	58
KYSE180	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.G4534A;p.A1512T		chr11	1092715	1092715	G	A	0.64516129	0.60	31	20
KYSE180	exonic	<i>SCN5A</i>	nonsynonymous SNV	NM_000335:c.G1186C;p.V396L		chr3	38647594	38647594	C	G	0.65625	0.10	32	21
KYSE180	exonic	<i>A2M</i>	nonsynonymous SNV	NM_000014:c.A3494G;p.E1165G		chr12	9229390	9229390	T	C	0.659090909	0.50	88	58
KYSE180	exonic	<i>MYCBP2</i>	nonsynonymous SNV	NM_015057:c.A5887T;p.I1963F		chr13	77743757	77743757	T	A	0.666666667	0.82	99	66
KYSE180	exonic	<i>IFLTD1</i>	nonsynonymous SNV	NM_001145727:c.T658A;p.F220I		chr12	25672898	25672898	A	T	0.691056911	0.41	123	85
KYSE180	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11468T;p.T3823L		chr3	195506983	195506983	G	A	0.75	0.50	24	18
KYSE180	exonic	<i>DNAH5</i>	nonsynonymous SNV	NM_001369:c.G4309T;p.V1437L		chr5	13865823	13865823	C	A	0.819148936	0.68	94	77
KYSE180	exonic	<i>PDZD2</i>	nonsynonymous SNV	NM_178140:c.C629T;p.A210V	1430358	chr5	31983413	31983413	C	T	0.820224719	0.44	89	73
KYSE180	exonic	<i>KDM6A</i>	stopgain SNV	NM_021140:c.C997T;p.Q333X	715;907318;908	chrX	44918514	44918514	C	T	0.977777778	0.73	45	44
KYSE180	exonic	<i>HUWE1</i>	nonsynonymous SNV	NM_031407:c.G9169T;p.D3057Y		chrX	53578078	53578078	C	A	1	0.40	20	20
KYSE180	exonic	<i>NFE2L2</i>	nonsynonymous SNV	NM_001145412:c.A182T;p.D61V	543;1580994;15	chr2	178098815	178098815	T	A	1	0.44	64	64
KYSE180	exonic	<i>PTPRK</i>	nonsynonymous SNV	NM_002844:c.G3560A;p.R1187Q		chr6	128302412	128302412	C	T	1	0.35	54	54
KYSE180	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.T188C;p.I63T	5371;1287294;1	chr17	7578265	7578265	A	G	1	0.40	62	62
KYSE180	exonic	<i>ZNF831</i>	nonsynonymous SNV	NM_178457:c.T605C;p.L202P		chr20	57766679	57766679	T	C	1	0.29	17	17
KYSE450	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C5666T;p.T1889I		chr11	1017135	1017135	G	A	0.080536913	0.08	149	12
KYSE450	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.A10382G;p.D3461G		chr3	195508069	195508069	T	C	0.081081081	0.67	74	6
KYSE450	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.G943T;p.G315C		chr7	151970859	151970859	C	A	0.082987552	0.45	241	20
KYSE450	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C5912T;p.P1971L		chr11	1016889	1016889	G	A	0.085106383	0.55	235	20
KYSE450	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.T332A;p.M111K		chr3	195518119	195518119	A	T	0.086021505	0.50	93	8
KYSE450	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4679T;p.T1560M		chr11	1092860	1092860	C	T	0.088983051	0.86	236	21
KYSE450	exonic	<i>TEX2</i>	nonsynonymous SNV	NM_018469:c.C965G;p.S322C		chr17	62290613	62290613	G	C	0.089108911	0.56	101	9
KYSE450	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8734A;p.P2912T		chr3	195509717	195509717	G	T	0.090361446	0.47	166	15
KYSE450	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C4889T;p.T1630I		chr11	1017912	1017912	G	A	0.094444444	0.35	180	17
KYSE450	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C5114T;p.T1705I		chr11	1093295	1093295	C	T	0.096296296	0.54	135	13
KYSE450	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4703T;p.T1568M		chr11	1092884	1092884	C	T	0.097472924	0.63	277	27
KYSE450	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.C2656T;p.R886C		chr7	151933015	151933015	G	A	0.097560976	0.25	82	8
KYSE450	exonic	<i>DNAH5</i>	nonsynonymous SNV	NM_001369:c.A11844C;p.E3948D		chr5	13729587	13729587	T	G	0.098039216	0.27	153	15
KYSE450	exonic	<i>FAT3</i>	nonsynonymous SNV	NM_001008781:c.G391C;p.G131R		chr11	92085669	92085669	G	C	0.101754386	0.59	285	29

KYSE450	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C11127G;p.H3709Q		chr3	195507324	195507324	G	C	0.102564103	0.33	117	12
KYSE450	exonic	MUC4	nonsynonymous SNV	NM_018406:c.A5464C;p.T1822P		chr3	195512987	195512987	T	G	0.103139013	0.43	223	23
KYSE450	exonic	MUC6	nonsynonymous SNV	NM_005961:c.C5494T;p.P18325I		chr11	1017307	1017307	G	A	0.109589041	0.50	146	16
KYSE450	exonic	MUC4	nonsynonymous SNV	NM_018406:c.A11128G;p.T3710A		chr3	195507323	195507323	T	C	0.110091743	0.33	109	12
KYSE450	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C4801G;p.L1601V		chr3	195513650	195513650	G	C	0.111842105	0.65	152	17
KYSE450	exonic	OR6Q1	nonsynonymous SNV	NM_001005186:c.T322C;p.F108L		chr11	57798746	57798746	T	C	0.113924051	0.44	79	9
KYSE450	exonic	MUC4	nonsynonymous SNV	NM_018406:c.G4936A;p.A1646T	1645683	chr3	195513515	195513515	C	T	0.12	0.93	125	15
KYSE450	exonic	MUC4	nonsynonymous SNV	NM_018406:c.G8775C;p.Q2925H	1645684	chr3	195509676	195509676	C	G	0.120805369	0.56	149	18
KYSE450	exonic	OR6Q1	nonsynonymous SNV	NM_001005186:c.T320A;p.I107N		chr11	57798744	57798744	T	A	0.12195122	0.50	82	10
KYSE450	exonic	PCLO	nonsynonymous SNV	NM_014510:c.A8782G;p.K2928E		chr7	82581487	82581487	T	C	0.12195122	0.80	82	10
KYSE450	exonic	LGR6	nonsynonymous SNV	NM_001017404:c.G473A;p.G158E		chr1	202270324	202270324	G	A	0.125	0.67	72	9
KYSE450	exonic	TPTE	nonsynonymous SNV	NM_199260:c.C1535G;p.S512C		chr21	10906912	10906912	G	C	0.12804878	0.71	164	21
KYSE450	exonic	MUC4	nonsynonymous SNV	NM_018406:c.C8282T;p.A2761V		chr3	195510169	195510169	G	A	0.134920635	0.71	126	17
KYSE450	exonic	ZN7F17	frameshift insertion	NM_001128223:c.2739_2740insT;p.F913fs		chr3	75786035	75786035	-	A	0.13559322	0.88	59	8
KYSE450	exonic	PCLO	nonsynonymous SNV	NM_014510:c.A8781T;p.E2927D		chr7	82581488	82581488	T	A	0.135802469	0.73	81	11
KYSE450	exonic	EPPK1	nonsynonymous SNV	NM_031308:c.G7132C;p.D2378H		chr8	144940290	144940290	C	G	0.137254902	0.67	153	21
KYSE450	exonic	MUC2	nonsynonymous SNV	NM_002457:c.A4678C;p.T1560P		chr11	1092859	1092859	A	C	0.140090901	0.87	220	31
KYSE450	exonic	TIN	nonsynonymous SNV	NM_003319:c.T69630A;p.F23210L		chr2	179407875	179407875	A	T	0.152777778	0.64	72	11
KYSE450	exonic	FSIP2	nonsynonymous SNV	NM_173651:c.C11763A;p.D3921E		chr2	186665529	186665529	C	A	0.156862745	0.50	102	16
KYSE450	exonic	LRR1Q3	stopgain SNV	NM_001105659:c.C1195T;p.R399X		chr1	74507420	74507420	G	A	0.158536585	0.54	82	13
KYSE450	exonic	ZN7F17	stopgain SNV	NM_001128223:c.1730_1731insAAGTCAT;p.F577_L578delinsX		chr3	75787044	75787044	-	ATGACTT	0.162037037	0.14	216	35
KYSE450	exonic	MUC4	nonsynonymous SNV	NM_018406:c.A3037G;p.S1013G	81;1645683;16	chr3	195515414	195515414	T	C	0.170212766	0.25	47	8
KYSE450	exonic	TRIO	nonsynonymous SNV	NM_007118:c.A3214G;p.K1072E		chr5	14369630	14369630	A	G	0.173913043	0.13	46	8
KYSE450	exonic	PDZRN3	nonsynonymous SNV	NM_015009:c.C827T;p.S276L		chr3	73651596	73651596	G	A	0.181818182	0.38	44	8
KYSE450	exonic	FAT3	nonsynonymous SNV	NM_001008781:c.C5220G;p.I1740M		chr11	92531399	92531399	C	G	0.194736842	0.27	190	37
KYSE450	exonic	FMN2	nonsynonymous SNV	NM_020066:c.C2343A;p.F781L		chr1	240370455	240370455	C	A	0.207317073	0.35	82	17
KYSE450	exonic	ATAD2	nonsynonymous SNV	NM_014109:c.T4019C;p.V1340A		chr8	124335290	124335290	A	G	0.208633094	0.31	139	29
KYSE450	exonic	PLEC	nonsynonymous SNV	NM_201378:c.G10480A;p.D3494N		chr8	144993467	144993467	C	T	0.226415094	0.42	53	12
KYSE450	exonic	DNAH5	nonsynonymous SNV	NM_001369:c.G8530A;p.D2844N		chr5	13788942	13788942	C	T	0.228136882	0.57	263	60
KYSE450	exonic	MTMR4	nonsynonymous SNV	NM_004687:c.G2777A;p.R926Q		chr17	56572726	56572726	C	T	0.230769231	0.61	78	18
KYSE450	exonic	PLXNA1	nonsynonymous SNV	NM_032242:c.G3337C;p.V1113L		chr3	126736328	126736328	G	C	0.230769231	0.83	26	6
KYSE450	exonic	KIT	nonsynonymous SNV	NM_000222:c.C695T;p.T232M		chr4	55565871	55565871	C	T	0.238636364	0.67	88	21
KYSE450	exonic	TP53	stopgain SNV	NM_001126115:c.G619T;p.E207X	0566;946371;1	chr17	7574012	7574012	C	A	0.242424242	0.38	33	8
KYSE450	exonic	FAT3	nonsynonymous SNV	NM_001008781:c.A359G;p.E120G		chr11	92085637	92085637	A	G	0.253333333	0.46	225	57
KYSE450	exonic	ZN7F17	nonsynonymous SNV	NM_001128223:c.A973G;p.S325G		chr3	75787801	75787801	T	C	0.260869565	0.90	161	42
KYSE450	exonic	APCDD1	nonsynonymous SNV	NM_153000:c.C1019A;p.S340Y		chr18	10485703	10485703	C	A	0.263157895	0.20	38	10
KYSE450	exonic	DIP2B	nonsynonymous SNV	NM_173602:c.A4256T;p.N1419I		chr12	51133271	51133271	A	T	0.276315789	0.33	76	21
KYSE450	exonic	NLRP1	nonsynonymous SNV	NM_033006:c.G2911A;p.G971R		chr17	5437268	5437268	C	T	0.276595745	0.46	94	26
KYSE450	exonic	ARID1A	frameshift deletion	NM_006015:c.S013_5034del;p.1671_1678del		chr1	27102087	27102108	ATGTCCCT	-	0.28	0.57	25	7
KYSE450	exonic	NF1	nonsynonymous SNV	NM_000267:c.G4134T;p.Q1378H	8450;949171;1	chr17	29585385	29585385	G	T	0.285714286	0.63	112	32
KYSE450	exonic	DNAH6	nonsynonymous SNV	NM_001370:c.A6407C;p.Q2136P		chr2	84897552	84897552	A	C	0.292857143	0.46	140	41
KYSE450	exonic	ZN7F17	nonsynonymous SNV	NM_001128223:c.T400A;p.F134I		chr3	75788374	75788374	A	T	0.293868922	0.48	473	139
KYSE450	exonic	IGSF10	nonsynonymous SNV	NM_001178145:c.C1858G;p.Q620E		chr3	151154572	151154572	G	C	0.296610169	0.37	118	35
KYSE450	exonic	ABCA13	nonsynonymous SNV	NM_152701:c.A4129T;p.T1375S		chr7	48313392	48313392	A	T	0.299465241	0.48	187	56
KYSE450	exonic	MLL3	stopgain SNV	NM_170606:c.C7615T;p.Q2539X		chr7	151874923	151874923	G	A	0.303921569	0.35	102	31
KYSE450	exonic	SAMD9L	nonsynonymous SNV	NM_152703:c.C1892T;p.S631L		chr7	92763393	92763393	G	A	0.310679612	0.55	206	64
KYSE450	exonic	TAF1L	nonsynonymous SNV	NM_153809:c.C4266G;p.H1422Q		chr9	32631312	32631312	G	C	0.32	0.40	125	40
KYSE450	exonic	MRPL20	nonsynonymous SNV	NM_017971:c.A266C;p.N89T		chr1	1341199	1341199	T	G	0.33	0.58	100	33
KYSE450	exonic	BCL6	frameshift deletion	NM_001130845:c.1623_1624del;p.541_542del		chr3	187444603	187444604	TG	-	0.346153846	0.56	26	9
KYSE450	exonic	EPHB1	nonsynonymous SNV	NM_004441:c.G88A;p.A30T		chr3	134644687	134644687	G	A	0.346456693	0.75	127	44
KYSE450	exonic	DNAH9	nonsynonymous SNV	NM_001372:c.T2591C;p.V864A		chr17	11556315	11556315	T	C	0.363636364	0.56	143	52
KYSE450	exonic	PRDM9	stopgain SNV	NM_020227:c.C835T;p.R279X		chr5	23522947	23522947	C	T	0.368421053	0.62	57	21
KYSE450	exonic	ZN7F17	nonsynonymous SNV	NM_030580:c.A717T;p.K239N		chr8	145999617	145999617	T	A	0.368421053	0.86	19	7
KYSE450	exonic splicing	ABCA8	nonsynonymous SNV	NM_007168:c.G4155T;p.K1385N		chr17	66872769	66872769	C	A	0.369747899	0.61	119	44
KYSE450	exonic	ALK	nonsynonymous SNV	NM_004304:c.G2773A;p.G925R		chr2	29451792	29451792	C	T	0.375	0.50	16	6
KYSE450	exonic	ABCA13	nonsynonymous SNV	NM_152701:c.C13468G;p.H4490D		chr7	48547589	48547589	C	G	0.380952381	0.63	84	32
KYSE450	exonic	SIN3A	nonsynonymous SNV	NM_001145357:c.G3076T;p.A1026S		chr15	75676724	75676724	C	A	0.380952381	0.38	42	16
KYSE450	exonic	DNAH6	nonsynonymous SNV	NM_001370:c.G5571T;p.K1857N		chr2	84880935	84880935	G	T	0.387387387	0.40	111	43

KYSE450	exonic	<i>ABCB1</i>	nonsynonymous SNV	NM_000927:c.T2651G:p.L884R		chr7	87160644	87160644	A	C	0.405797101	0.57	138	56
KYSE450	exonic	<i>ANK2</i>	nonsynonymous SNV	NM_001148:c.C1567T:p.P523S		chr4	114195689	114195689	C	T	0.416666667	0.50	24	10
KYSE450	exonic	<i>DQXI</i>	nonsynonymous SNV	NM_133637:c.G514A:p.A172T		chr2	74751352	74751352	C	T	0.426229508	0.42	61	26
KYSE450	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.C37751T:p.P12584L		chr2	179449422	179449422	G	A	0.447619048	0.60	105	47
KYSE450	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.A4594C:p.M1532L		chr14	105417194	105417194	T	G	0.448717949	0.51	78	35
KYSE450	splicing	<i>OTOGL</i>				chr12	80730691	80730691	G	A	0.459459459	0.67	111	51
KYSE450	exonic	<i>OTOGL</i>	stopgain SNV	NM_173591:c.G3763T:p.E1255X		chr12	80712481	80712481	G	T	0.5	0.34	58	29
KYSE450	exonic	<i>TMEM232</i>	stopgain SNV	NM_001039763:c.T510G:p.Y170X		chr5	109963573	109963573	A	C	0.55952381	0.30	84	47
KYSE450	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.T47009C:p.V15670A		chr2	179436655	179436655	A	G	0.564102564	0.45	39	22
KYSE450	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.T3926G:p.F1309C		chr1	16256661	16256661	T	G	0.592592593	0.53	108	64
KYSE450	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.G4534A:p.A1512T		chr11	1092715	1092715	G	A	0.6	0.61	30	18
KYSE450	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.A10801G:p.I3601V		chr16	70908352	70908352	T	C	0.605150215	0.50	233	141
KYSE450	exonic	<i>TP53</i>	nonsynonymous SNV	NM_001126115:c.A140G:p.H47R	09707:909771;	chr17	7578394	7578394	T	C	0.681818182	0.40	44	30
KYSE450	exonic	<i>FBXO11</i>	nonsynonymous SNV	NM_001190274:c.G451T:p.A151S	753548	chr2	48066134	48066134	C	A	0.712	0.39	125	89
KYSE450	exonic	<i>OBSCN</i>	nonsynonymous SNV	NM_001098623:c.G11813A:p.R3938Q		chr1	228494226	228494226	G	A	0.818181818	0.78	11	9
KYSE450	exonic	<i>NOTCH1</i>	frameshift deletion	NM_017617:c.G6166_6167del:p.2056_2056del	907320	chr9	139393364	139393365	AT	-	0.946428571	0.74	56	53
KYSE450	exonic	<i>MLL2</i>	frameshift deletion	NM_003482:c.L5463_15466del:p.5155_5156del		chr12	49420283	49420286	AGAC	-	0.947368421	0.72	76	72
KYSE450	exonic	<i>FANCC</i>	nonsynonymous SNV	NM_000136:c.C733T:p.R245W		chr9	97897738	97897738	G	A	1	0.39	109	109
KYSE450	exonic	<i>NOTCH1</i>	nonsynonymous SNV	NM_017617:c.G344A:p.G115D		chr9	139418228	139418228	C	T	1	0.71	17	17
KYSE450	exonic	<i>NUP210</i>	nonsynonymous SNV	NM_024923:c.C3909G:p.N1303K		chr3	13373819	13373819	G	C	1	0.59	56	56
KYSE450	splicing	<i>RPS6KA6</i>				chrX	83351201	83351201	C	T	1	0.82	45	45
KYSE450	exonic	<i>VPS13B</i>	nonsynonymous SNV	NM_017890:c.G8903A:p.R2968Q		chr8	100832184	100832184	G	A	1	0.54	92	92
KYSE510	exonic	<i>SYNE1</i>	nonsynonymous SNV	NM_033071:c.G21040A:p.G7014R		chr6	152546954	152546954	C	T	0.080357143	0.56	112	9
KYSE510	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C7541A:p.P2514H		chr3	195510910	195510910	G	T	0.081504702	0.77	319	26
KYSE510	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.A11128G:p.T3710A		chr3	195507323	195507323	T	C	0.086206897	0.50	232	20
KYSE510	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.A8782G:p.K2928E		chr7	82581487	82581487	T	C	0.086956522	0.60	115	10
KYSE510	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11127G:p.H3709Q		chr3	195507324	195507324	G	C	0.088353414	0.55	249	22
KYSE510	exonic	<i>MLL3</i>	nonsynonymous SNV	NM_170606:c.G1181A:p.C394Y		chr7	151962126	151962126	C	T	0.089108911	0.89	101	9
KYSE510	exonic	<i>OTOA</i>	stopgain SNV	NM_170664:c.G1387T:p.E463X		chr16	21747639	21747639	G	T	0.090909091	0.92	143	13
KYSE510	exonic	<i>PCLO</i>	nonsynonymous SNV	NM_014510:c.A8781T:p.E2927D		chr7	82581488	82581488	T	A	0.094017094	0.64	117	11
KYSE510	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C26641T:p.L8881F		chr19	9060805	9060805	G	A	0.1	0.40	100	10
KYSE510	exonic	<i>UNC79</i>	nonsynonymous SNV	NM_020818:c.G3433A:p.E1145K		chr14	94079352	94079352	G	A	0.101010101	0.60	99	10
KYSE510	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8734A:p.P2912T		chr3	195509717	195509717	G	T	0.107142857	0.46	224	24
KYSE510	exonic	<i>ZNF717</i>	stopgain SNV	NM_001128223:c.1730_1731insAAGTCAT:p.F577_L578delinsX		chr3	75787044	75787044	-	ATGACTT	0.107142857	0.19	196	21
KYSE510	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.T8572C:p.S2858P		chr3	195509879	195509879	A	G	0.107692308	0.67	195	21
KYSE510	exonic	<i>FBN2</i>	nonsynonymous SNV	NM_001999:c.C8536G:p.R2846G		chr5	127595350	127595350	G	C	0.109090909	0.33	55	6
KYSE510	exonic	<i>UNC93A</i>	nonsynonymous SNV	NM_001143947:c.C661G:p.L221V		chr6	167117568	167117568	C	G	0.109243697	0.38	119	13
KYSE510	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11258T:p.A3753V		chr3	195507193	195507193	G	A	0.112426036	0.21	169	19
KYSE510	exonic	<i>AHNAK2</i>	nonsynonymous SNV	NM_138420:c.G6357C:p.M2119I		chr14	105415431	105415431	C	G	0.112676056	0.94	142	16
KYSE510	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.A1436G:p.Y479C		chr3	75787338	75787338	T	C	0.113636364	0.60	88	10
KYSE510	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.C8830T:p.R2944W		chr16	70937544	70937544	G	A	0.113821138	0.57	123	14
KYSE510	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G15448C:p.V5150L		chr2	179498583	179498583	C	G	0.118343195	0.50	169	20
KYSE510	exonic	<i>LRP1B</i>	nonsynonymous SNV	NM_018557:c.G11435A:p.C3812Y		chr2	141114006	141114006	C	T	0.12	0.50	150	18
KYSE510	exonic	<i>UNC79</i>	stopgain SNV	NM_020818:c.C2074T:p.Q692X		chr14	94046666	94046666	C	T	0.122807018	0.43	114	14
KYSE510	exonic	<i>DROSHA</i>	nonsynonymous SNV	NM_001100412:c.C11166T:p.P389L		chr5	31515108	31515108	G	A	0.125925926	0.71	135	17
KYSE510	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C5168T:p.P1723L		chr11	1093349	1093349	C	T	0.12749004	0.63	251	32
KYSE510	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.A4678C:p.T1560P		chr11	1092859	1092859	A	C	0.130081301	0.91	246	32
KYSE510	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C8800T:p.L2934F		chr3	195509651	195509651	G	A	0.130630631	0.72	222	29
KYSE510	exonic	<i>DNAH10</i>	nonsynonymous SNV	NM_207437:c.G4186A:p.E1396K		chr12	124315241	124315241	G	A	0.130952381	0.14	168	22
KYSE510	exonic	<i>RICTOR</i>	nonsynonymous SNV	NM_152756:c.C1582T:p.L528F		chr5	38962673	38962673	G	A	0.131221719	0.24	221	29
KYSE510	exonic	<i>MUC6</i>	nonsynonymous SNV	NM_005961:c.C4889T:p.T1630I		chr11	1017912	1017912	G	A	0.132978723	0.28	188	25
KYSE510	exonic	<i>MYBPC1</i>	nonsynonymous SNV	NM_001254722:c.G1062C:p.E354D		chr12	102043056	102043056	G	C	0.133333333	0.72	135	18
KYSE510	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.A9581C:p.Q3194P		chr5	90015998	90015998	A	C	0.136986301	0.50	73	10
KYSE510	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.C4679T:p.T1560M		chr11	1092860	1092860	C	T	0.139622642	0.73	265	37
KYSE510	exonic;splicing	<i>FAM5C</i>	nonsynonymous SNV	NM_199051:c.G428C:p.G143A		chr1	190234185	190234185	C	G	0.140186916	0.33	107	15
KYSE510	exonic	<i>RP1L1</i>	nonsynonymous SNV	NM_178857:c.G3935A:p.G1312E		chr8	10467673	10467673	C	T	0.140540541	0.27	185	26
KYSE510	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.T9023G:p.L3008S		chr14	64519654	64519654	T	G	0.142857143	0.48	280	40
KYSE510	exonic	<i>C5orf42</i>	nonsynonymous SNV	NM_023073:c.C3706T:p.P1236S		chr5	37196065	37196065	G	A	0.147982063	0.33	223	33

KYSE510	exonic	<i>SPEN</i>	nonsynonymous SNV	NM_015001:c.C1892T:p.T63II		chr1	16254627	16254627	C	T	0.152671756	0.70	131	20
KYSE510	exonic	<i>CDK5RAP2</i>	nonsynonymous SNV	NM_001011649:c.C2767T:p.L923F		chr9	123215760	123215760	G	A	0.159090909	0.50	88	14
KYSE510	splicing	<i>YME1L1</i>				chr10	27423053	27423053	T	C	0.160493827	0.46	81	13
KYSE510	exonic	<i>NF1</i>	nonsynonymous SNV	NM_000267:c.A3532G:p.T1178A	0:949171;1282	chr17	29560055	29560055	A	G	0.163398693	0.48	153	25
KYSE510	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.A3037G:p.S1013G	581;1645683;16	chr3	195515414	195515414	T	C	0.164948454	0.44	97	16
KYSE510	exonic:splicing	<i>USP24</i>	nonsynonymous SNV	NM_015306:c.G5936A:p.R1979Q		chr1	55562625	55562625	C	T	0.169014085	0.83	71	12
KYSE510	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.T10946C:p.L3649P		chr3	195507505	195507505	A	G	0.171428571	0.25	70	12
KYSE510	exonic	<i>OR4D11</i>	nonsynonymous SNV	NM_001004706:c.C333A:p.D111E		chr11	59271381	59271381	C	A	0.179104478	0.54	134	24
KYSE510	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.G11845A:p.G3949R		chr5	90052883	90052883	G	A	0.189189189	0.57	111	21
KYSE510	exonic	<i>ZNF554</i>	nonsynonymous SNV	NM_001102651:c.C512A:p.A171D		chr19	2833745	2833745	C	A	0.189873418	0.33	79	15
KYSE510	exonic	<i>HYDIN</i>	nonsynonymous SNV	NM_032821:c.G6688T:p.V2230L		chr16	70975701	70975701	C	A	0.19266055	0.33	109	21
KYSE510	exonic	<i>ZFH3</i>	nonsynonymous SNV	NM_001164766:c.C755T:p.P252L		chr16	72863710	72863710	G	A	0.194805195	0.60	154	30
KYSE510	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.G8775C:p.Q2925H	1645684	chr3	195509676	195509676	C	G	0.199052133	0.60	211	42
KYSE510	exonic	<i>SPHKAP</i>	nonsynonymous SNV	NM_001142644:c.G1727C:p.R576T		chr2	228883843	228883843	C	G	0.2	0.53	95	19
KYSE510	exonic	<i>GDPD4</i>	nonsynonymous SNV	NM_182833:c.G3T:p.M1I		chr11	76996180	76996180	C	A	0.201219512	0.36	164	33
KYSE510	exonic	<i>ZFH3</i>	nonsynonymous SNV	NM_001164766:c.C754T:p.P252S		chr16	72863711	72863711	G	A	0.201298701	0.58	154	31
KYSE510	exonic	<i>TTN</i>	stopgain SNV	NM_003319:c.G58299A:p.W19433X		chr2	179425365	179425365	C	T	0.201492537	0.37	134	27
KYSE510	exonic	<i>TTN</i>	nonsynonymous SNV	NM_133432:c.G10345A:p.E3449K		chr2	179622464	179622464	C	T	0.206185567	0.60	97	20
KYSE510	splicing	<i>BMPRIA</i>				chr10	88679227	88679227	G	A	0.206896552	0.39	87	18
KYSE510	exonic	<i>CDH10</i>	nonsynonymous SNV	NM_006727:c.C2177A:p.T726N		chr5	24487962	24487962	G	T	0.210227273	0.38	176	37
KYSE510	exonic	<i>AKAP6</i>	nonsynonymous SNV	NM_004274:c.C2365A:p.D789N		chr14	33046344	33046344	G	A	0.212121212	0.69	165	35
KYSE510	exonic	<i>DSP</i>	nonsynonymous SNV	NM_001008844:c.T1171A:p.Y391N		chr6	7568044	7568044	T	A	0.215189873	0.41	79	17
KYSE510	exonic	<i>LRKK2</i>	nonsynonymous SNV	NM_198578:c.G472A:p.D158N		chr12	40631806	40631806	G	A	0.218487395	0.38	119	26
KYSE510	exonic	<i>LRP1B</i>	nonsynonymous SNV	NM_018557:c.C3563T:p.S1188F		chr2	141660692	141660692	G	A	0.220588235	0.63	136	30
KYSE510	exonic	<i>LCT</i>	nonsynonymous SNV	NM_002299:c.T3356C:p.V1119A		chr2	136566561	136566561	A	G	0.223684211	0.65	76	17
KYSE510	exonic	<i>MGAT4C</i>	nonsynonymous SNV	NM_013244:c.G400A:p.E134K		chr12	86374104	86374104	C	T	0.2265625	0.45	128	29
KYSE510	exonic	<i>CDH23</i>	nonsynonymous SNV	NM_022124:c.G5722A:p.V1908I		chr10	73545397	73545397	G	A	0.228571429	0.63	35	8
KYSE510	exonic	<i>PDE6C</i>	nonsynonymous SNV	NM_006204:c.A647T:p.Y216F		chr10	95380661	95380661	A	T	0.229357798	0.64	109	25
KYSE510	exonic	<i>TNN</i>	nonsynonymous SNV	NM_022093:c.G3152A:p.R1051K		chr1	175097274	175097274	G	A	0.232142857	0.46	56	13
KYSE510	exonic	<i>COL22A1</i>	nonsynonymous SNV	NM_152888:c.T3323A:p.L1108H		chr8	139668150	139668150	A	T	0.234848485	0.48	132	31
KYSE510	exonic	<i>EP300</i>	nonsynonymous SNV	NM_001429:c.C3241T:p.P1081S		chr22	41551097	41551097	C	T	0.235294118	0.20	187	44
KYSE510	exonic	<i>SLCO1C1</i>	nonsynonymous SNV	NM_017435:c.G211C:p.E71Q		chr12	20854333	20854333	G	C	0.237704918	0.59	122	29
KYSE510	exonic	<i>DNAH7</i>	frameshift deletion	NM_018897:c.7731_7735del:p.2577_2579del		chr2	196726442	196726442	TTCTT	-	0.245901639	0.87	61	15
KYSE510	exonic	<i>FMOD</i>	nonsynonymous SNV	NM_002023:c.C2147T:p.T716I		chr1	203317281	203317281	C	T	0.25	0.56	64	16
KYSE510	exonic	<i>NELL1</i>	stopgain SNV	NM_006157:c.C1638A:p.C546X		chr11	21392487	21392487	C	A	0.25	0.27	88	22
KYSE510	exonic	<i>KCNT2</i>	nonsynonymous SNV	NM_198503:c.G1715A:p.S572N		chr1	196309539	196309539	C	T	0.253012048	0.40	166	42
KYSE510	exonic	<i>FANCA</i>	nonsynonymous SNV	NM_000135:c.G2712C:p.Q904H		chr16	89831364	89831364	C	G	0.253333333	0.58	75	19
KYSE510	exonic	<i>ZNF717</i>	nonsynonymous SNV	NM_001128223:c.C2510A:p.T837K		chr3	75786264	75786264	G	T	0.256578947	0.38	152	39
KYSE510	exonic	<i>MYH4</i>	nonsynonymous SNV	NM_017533:c.G1910A:p.G637E		chr17	10359860	10359860	C	T	0.257142857	0.33	140	36
KYSE510	exonic	<i>CHD2</i>	nonsynonymous SNV	NM_001271:c.G3602C:p.G1201A		chr15	93540193	93540193	G	C	0.258241758	0.66	182	47
KYSE510	exonic	<i>TPR</i>	nonsynonymous SNV	NM_003292:c.C2147T:p.T716I		chr1	186324566	186324566	G	A	0.258992806	0.61	139	36
KYSE510	exonic	<i>HECTD1</i>	nonsynonymous SNV	NM_015382:c.C4532T:p.S1511L		chr14	31598045	31598045	G	A	0.265625	0.35	128	34
KYSE510	exonic	<i>AKAP9</i>	nonsynonymous SNV	NM_005751:c.C9409G:p.Q3137E		chr7	91722461	91722461	C	G	0.266666667	0.44	60	16
KYSE510	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.G434A:p.G145E		chr5	89914979	89914979	G	A	0.27	0.33	100	27
KYSE510	exonic	<i>CDH1</i>	nonsynonymous SNV	NM_004360:c.C1280A:p.T427K	704:997932;100	chr16	68847358	68847358	C	A	0.27480916	0.36	131	36
KYSE510	exonic	<i>DISP2</i>	nonsynonymous SNV	NM_033510:c.G1381A:p.G461R		chr15	40659694	40659694	G	A	0.277777778	0.30	36	10
KYSE510	exonic	<i>EGFR</i>	nonsynonymous SNV	NM_005228:c.C2105A:p.A702D		chr7	55241657	55241657	C	A	0.28	0.21	50	14
KYSE510	exonic	<i>BRCA2</i>	nonsynonymous SNV	NM_000059:c.G4127A:p.G1376E		chr13	32912619	32912619	G	A	0.281553398	0.59	103	29
KYSE510	exonic	<i>IKZF2</i>	nonsynonymous SNV	NM_016260:c.G10A:p.E4K		chr2	214013344	214013344	C	T	0.285714286	0.48	175	50
KYSE510	exonic	<i>CIC</i>	nonsynonymous SNV	NM_015125:c.G1537A:p.E513K		chr19	42794457	42794457	G	A	0.290697674	0.40	86	25
KYSE510	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.G9022C:p.D3008H		chr5	90007119	90007119	G	C	0.3	0.30	110	33
KYSE510	exonic	<i>ARPP21</i>	nonsynonymous SNV	NM_016300:c.G2207A:p.G736E		chr3	35835218	35835218	G	A	0.305882353	0.69	85	26
KYSE510	exonic	<i>MAP3K13</i>	nonsynonymous SNV	NM_001242317:c.C1336T:p.H446Y		chr3	185191076	185191076	C	T	0.30952381	0.35	84	26
KYSE510	splicing	<i>KIT</i>				chr4	55598165	55598165	G	T	0.318181818	0.14	66	21
KYSE510	exonic	<i>BRCA2</i>	nonsynonymous SNV	NM_000059:c.G4552C:p.E1518Q	749713	chr13	32913044	32913044	G	C	0.322222222	0.45	90	29
KYSE510	exonic	<i>GPR98</i>	nonsynonymous SNV	NM_032119:c.A2309G:p.D770G		chr5	89938521	89938521	A	G	0.325203252	0.43	123	40
KYSE510	exonic	<i>PRKD1</i>	nonsynonymous SNV	NM_002742:c.G1796A:p.G599E		chr14	30095692	30095692	C	T	0.326530612	0.69	98	32
KYSE510	exonic	<i>MLL2</i>	nonsynonymous SNV	NM_003482:c.C9389T:p.S3130F		chr12	49431750	49431750	G	A	0.333333333	0.50	18	6

KYSE510	exonic	<i>DNAH8</i>	stopgain SNV	NM_001206927:c.G3763T:p.E1255X		chr6	38791380	38791380	G	T	0.34375	0.58	160	55
KYSE510	exonic	<i>PTPN22</i>	nonsynonymous SNV	NM_012411:c.T1242A:p.F414L		chr1	114380615	114380615	A	T	0.348484848	0.54	132	46
KYSE510	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C9935T:p.S3312F		chr19	90775111	90775111	G	A	0.37804878	0.35	82	31
KYSE510	exonic	<i>PTPRZ1</i>	stopgain SNV	NM_001206838:c.G147A:p.W49X		chr7	121608027	121608027	G	A	0.388888889	0.77	90	35
KYSE510	exonic	<i>PTPRZ1</i>	stopgain SNV	NM_001206838:c.G146A:p.W49X		chr7	121608026	121608026	G	A	0.393258427	0.77	89	35
KYSE510	exonic	<i>NRG3</i>	nonsynonymous SNV	NM_001010848:c.C1352T:p.P451L		chr10	84733611	84733611	C	T	0.40625	0.54	64	26
KYSE510	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G64936C:p.V21646L		chr2	179414318	179414318	C	G	0.406504065	0.54	123	50
KYSE510	exonic	<i>CUBN</i>	frameshift deletion	NM_001081:c.6775_6781del:p.2259_2261del		chr10	16962002	16962008	GCTGTAT	-	0.409090909	0.67	22	9
KYSE510	exonic	<i>LCT</i>	nonsynonymous SNV	NM_002299:c.G1961A:p.R654K		chr2	136570273	136570273	C	T	0.409090909	0.61	44	18
KYSE510	exonic	<i>FLT3</i>	nonsynonymous SNV	NM_004119:c.G877A:p.E293K		chr13	28623777	28623777	C	T	0.412621359	0.58	206	85
KYSE510	exonic	<i>ELAC2</i>	nonsynonymous SNV	NM_001165962:c.C1162T:p.R388C		chr17	12905613	12905613	G	A	0.414634146	0.65	41	17
KYSE510	splicing	<i>ENPP3</i>				chr6	132007049	132007049	T	G	0.416666667	0.40	36	15
KYSE510	exonic	<i>TTN</i>	nonsynonymous SNV	NM_003319:c.G35878A:p.V11960I		chr2	179453379	179453379	C	T	0.422619048	0.44	168	71
KYSE510	exonic	<i>ALG10</i>	nonsynonymous SNV	NM_032834:c.T505C:p.Y169H		chr12	34178933	34178933	T	C	0.424778761	0.63	113	48
KYSE510	exonic	<i>MUC2</i>	nonsynonymous SNV	NM_002457:c.G4534A:p.A1512T		chr11	1092715	1092715	G	A	0.43902439	0.56	41	18
KYSE510	exonic	<i>TRHDE</i>	nonsynonymous SNV	NM_013381:c.G2984A:p.R995Q		chr12	73056884	73056884	G	A	0.553846154	0.44	65	36
KYSE510	exonic	<i>UNC93A</i>	nonsynonymous SNV	NM_001143947:c.T26C:p.L9P		chr6	167705003	167705003	T	C	0.587209302	0.54	172	101
KYSE510	exonic	<i>HEPPL1</i>	frameshift deletion	NM_001098672:c.2259_2274del:p.753_758del		chr11	93822099	93822114	GAAAAGCA	-	0.588235294	0.10	17	10
KYSE510	exonic	<i>MED13L</i>	nonsynonymous SNV	NM_015335:c.G3634T:p.V1212L		chr12	116429125	116429125	C	A	0.595238095	0.56	84	50
KYSE510	exonic	<i>TP53</i>	stopgain SNV	NM_001126115:c.G631T:p.E211X	0566:946371:1	chr17	7574000	7574000	C	A	0.612244898	0.43	49	30
KYSE510	exonic	<i>OR7A10</i>	nonsynonymous SNV	NM_001005190:c.T568C:p.S190P		chr19	14952122	14952122	A	G	0.620689655	0.52	87	54
KYSE510	exonic	<i>ABCA8</i>	nonsynonymous SNV	NM_007168:c.A2069T:p.K690I		chr17	66903970	66903970	T	A	0.62195122	0.55	82	51
KYSE510	exonic	<i>CSK</i>	nonsynonymous SNV	NM_004383:c.C181T:p.P61S		chr15	75091218	75091218	C	T	0.625	0.40	24	15
KYSE510	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.C13457G:p.T4486S		chr14	64591831	64591831	C	G	0.626315789	0.55	190	119
KYSE510	exonic	<i>ARHGAP29</i>	nonsynonymous SNV	NM_004815:c.A1561C:p.S521R		chr1	94654787	94654787	T	G	0.630769231	0.63	130	82
KYSE510	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.A13256G:p.D4419G		chr14	64588827	64588827	A	G	0.631578947	0.45	190	120
KYSE510	exonic	<i>C7</i>	nonsynonymous SNV	NM_000587:c.G1036A:p.V346I		chr5	40950059	40950059	G	A	0.633440514	0.55	311	197
KYSE510	exonic	<i>THSD7A</i>	nonsynonymous SNV	NM_015204:c.G403A:p.V135M		chr7	11676376	11676376	C	T	0.634146341	0.49	123	78
KYSE510	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.C13510G:p.Q4504E		chr14	64591884	64591884	C	G	0.646017699	0.52	226	146
KYSE510	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_015180:c.G9790A:p.A3264T		chr14	64522707	64522707	G	A	0.659217877	0.64	179	118
KYSE510	exonic	<i>MYO9A</i>	nonsynonymous SNV	NM_006901:c.C1687T:p.H563Y		chr15	72283479	72283479	G	A	0.688888889	0.52	45	31
KYSE510	exonic	<i>MTOR</i>	nonsynonymous SNV	NM_004958:c.C3622T:p.R1208C		chr1	11270903	11270903	G	A	0.701863354	0.65	161	113
KYSE510	exonic	<i>SYNE2</i>	nonsynonymous SNV	NM_182910:c.C989T:p.S330L		chr14	64691219	64691219	C	T	0.71	0.56	100	71
KYSE510	exonic	<i>MUC16</i>	nonsynonymous SNV	NM_024690:c.C4196T:p.T1399I		chr19	9087619	9087619	G	A	0.734513274	0.52	113	83
KYSE510	exonic	<i>FAM205A</i>	nonsynonymous SNV	NM_001141917:c.G355A:p.V119M		chr9	34726882	34726882	C	T	0.788461538	0.46	52	41
KYSE510	exonic	<i>COL11A1</i>	nonsynonymous SNV	NM_080629:c.G786T:p.K262N		chr1	103491503	103491503	C	A	0.794520548	0.34	73	58
KYSE510	exonic	<i>HECTD1</i>	nonsynonymous SNV	NM_015382:c.C1342T:p.R448W		chr14	31638665	31638665	G	A	0.818584071	0.28	226	185
KYSE510	exonic	<i>MUC4</i>	nonsynonymous SNV	NM_018406:c.C11468T:p.T3823I		chr3	195506983	195506983	G	A	0.9375	0.40	16	15
KYSE510	exonic	<i>CLN8</i>	nonsynonymous SNV	NM_018941:c.G433A:p.G145R		chr8	1719653	1719653	G	A	0.990566038	0.38	106	105
KYSE510	exonic	<i>ANK1</i>	nonsynonymous SNV	NM_000037:c.C1435A:p.R479S		chr8	41573337	41573337	G	T	1	0.23	30	30
KYSE510	exonic	<i>CEP192</i>	nonsynonymous SNV	NM_032142:c.A6437G:p.D2146G		chr18	13096186	13096186	A	G	1	0.53	49	49
KYSE510	exonic	<i>CEP350</i>	nonsynonymous SNV	NM_014810:c.A763G:p.T255A		chr1	179966055	179966055	A	G	1	0.46	188	188
KYSE510	exonic	<i>DNAH6</i>	nonsynonymous SNV	NM_001370:c.C1820G:p.A607G		chr2	84800607	84800607	C	G	1	0.63	88	88
KYSE510	exonic	<i>DNAI1</i>	nonsynonymous SNV	NM_012144:c.A676C:p.N226H		chr9	34491547	34491547	A	C	1	0.26	68	68
KYSE510	exonic	<i>EPPK1</i>	nonsynonymous SNV	NM_031308:c.G1889A:p.R630Q		chr8	144945533	144945533	C	T	1	0.57	21	21
KYSE510	exonic	<i>FAM55A</i>	nonsynonymous SNV	NM_152315:c.A662G:p.Y221C		chr11	114393621	114393621	T	C	1	0.75	52	52
KYSE510	exonic	<i>FMN2</i>	nonsynonymous SNV	NM_020066:c.C1742T:p.P581L		chr1	240286605	240286605	C	T	1	0.57	125	125
KYSE510	exonic	<i>MYT1L</i>	nonsynonymous SNV	NM_015025:c.C229A:p.P77T		chr2	1947030	1947030	G	T	1	0.38	112	112

Supplementary Table 12. Detailed mRNA changes in GSE23400 and GSE20347 datasets

	GSE23400 (N=53)		GSE20347 (N=17)		GSE23400 cases	GSE20347 cases	Total cases	total%
	UP/DOWN (%)	P VALUE	UP/DOWN (%)	P VALUE				
EGFR	11.32075472	2.37E-05	5.882352941	0.007895971	6	1	7	10
ERBB4	No change		29.41176471	0.230702647				
FGFR1	1.886792453	0.001323702	11.76470588	0.042628458				
FGFR2	1.886792453	0.150144376	No change					
FGFR4	No change		No change					
MET	3.773584906	2.26E-14	35.29411765	2.56E-06	2	6	8	11.4
HGF	No change		No change					
EPHA4	No change		11.76470588	0.647604276				
EPHA7	9.433962264	0.021790414	5.882352941	0.141581499				
EPHB1	No change		No change					
JAK1	3.773584906	0.114802599	5.882352941	0.134851341				
JAK2	No change		52.94117647	4.01E-07				
HSPBAP1	26.41509434	7.90E-15	64.70588235	3.26E-07	14	11	25	35.7
CTSK	39.62264151	1.36E-11	76.47058824	4.83E-06	21	13	34	48.6
FN1	47.16981132	1.39E-07	70.58823529	0.000315771	25	12	37	52.9
IL7R	7.547169811	0.008930564	17.64705882	0.921657529				
PIK3CA	22.64150943	1.96E-09	17.64705882	0.000206892	12	3	15	21.4
PIK3C2A	3.773584906	0.015090773	11.76470588	0.001161327				
PIK3CG	No change		No change					
PIK3C2G	3.773584906	0.001470327	35.29411765	1.30E-05	2	6	8	11.4
PIK3C3	No change		No change					
RPS6KA6	No change		No change					
RPS6KA1	16.98113208	4.93E-09	23.52941176	0.001874493	9	4	13	18.6
MTOR	No change		No change					
XPO1	32.0754717	1.23E-13	35.29411765	2.12E-06	17	6	23	32.9
ALK	1.886792453	0.002898885	No change					
BRCA1	No change		11.76470588	3.91E-07				
BRCA2	1.886792453	5.78E-05	11.76470588	0.013021544				
KIT	32.0754717	4.98E-08	47.05882353	0.028009105				
MAGEC1	1.886792453	0.727750416	11.76470588	0.135146209				
MAGEC3	No change		No change					
HER-2	N.D.		N.D.					
APC	No change		No change					
PTEN	No change		No change					
PDGFR	N.D.		N.D.					
PTPN11	No change		No change					
NF1	No change		No change					
TP53	15.09433962	0.00112175	17.64705882	0.557665795				

Over-expression **Down-regulation**

N.D., No data available.

Supplementary Table 13a. Primers for qRT-PCR

qRT-PCR primer	Sequence (5'to3')
ZNF750-F	TAAGCCTCAATGTTGTGAAC
ZNF750-R	CTGATTTCTTGGAGAGTTG
SPRR1A-F	AATCATAATCGCTCCTTTGC
SPRR1A-R	TTGAAGGAAGACTAGGGATG
FLG-F	CAAGGTTACATTTATTGCC
FLG-R	TCAACCATATCTGGGTCATC
LOR-F	GTTTGCAAATCCTTCATGTC
LOR-R	AAACCAAAGAGGCTAAACAG
LCE3D-F	GAGGAAACAAGAATCCCAAG
LCE3D-R	AAAGCCAGAAGAGGGTATC
LCE3A-F	GAACCAGCAGCAGTGCCA
LCE3A-R	CGCCTTGCTGACCACTTC
GAPDH-F	GTCAGTGGTGGACCTGACCT
GAPDH-R	AGGGGTCTACATGGCAACTG

Supplementary Table 13b. shRNA targeting sequences

Gene Symbol	GENE ID	shRNA Sequence (5'to3')
<i>XPO1</i>	7514	GCTCAAGAAGTACTGACACAT
<i>FAT2</i>	2196	GCTCTGAACCTTCTTTGTAA

Supplementary Table 13c. Cloning primers

Cloning primers	Restriction enzymes	Sequence (5'to3')
FAT1-SHC003-F	<i>Nhe I</i>	CTAGCTAGCGCTACCGGTCGCCACCATGGGGAGACATTTGGCTTT
FAT1-SHC003-R	<i>Fse I</i>	CTACGAGGCCGGCCCTATTACTTATCGTCGTCATCCTTG
ZNF750-SHC003-F	<i>Nhe I</i>	CTAGCTAGCGCTACCGGTCGCCACCATGAGTCTCCTCAAAGAGCG GAAGCCAAAAA
ZNF750-SHC003-R	<i>Fse I</i>	CTACGAGGCCGGCCCTTACTTATCGTCGTCATCCTTGTAATCGGACA CCCGGGCCCTCCTTCGTAGTGTG

Supplementary Table 13d. siRNA targeting sequences

Gene Symbol	GENE ID	siRNA Sequence (5'to3')
<i>FAT1</i>	2195	GAAAUACCUACUCAAUAA
<i>FAT1</i>	2195	GAACUAACAUGGCUGGUUU
<i>FAT1</i>	2195	GGAAGGAAUUGGAAUCGUU
<i>FAT1</i>	2195	GAACUGAUGCCUCGGGUUU
<i>ZNF750</i>	79755	GGAAAGCCCUUCAAGUAUA
<i>ZNF750</i>	79755	CCACCAGAGUUUCCACAUA
<i>ZNF750</i>	79755	UCAAGAGCGGAAGCCAAA
<i>ZNF750</i>	79755	GCCGAUUCUUACGGAUUU

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