**SUPPLEMENTAL MATERIAL**

**Supplemental Table 1. Frequency of Molecular Alterations in 439 Patients**

|  |  |  |
| --- | --- | --- |
| **#** | **Type of alterations** | **Number of cases** |
| 1 | ABL1 | 1 |
| 2 | AKT1 | 6 |
| 3 | AKT2 | 7 |
| 4 | AKT3 | 3 |
| 5 | ALK | 4 |
| 6 | APC | 40 |
| 7 | AR | 1 |
| 8 | ARAF | 3 |
| 9 | ARFRP1 | 5 |
| 10 | ARID1A | 25 |
| 11 | ARID2 | 17 |
| 12 | ASXL1 | 17 |
| 13 | ATM | 14 |
| 14 | ATR | 7 |
| 15 | ATRX | 19 |
| 16 | AURKA | 11 |
| 17 | AURKB | 3 |
| 18 | AXL | 4 |
| 19 | BAP1 | 5 |
| 20 | BCL2 | 5 |
| 21 | BCL2L2 | 4 |
| 22 | BCOR | 10 |
| 23 | BCR-ABL | 1 |
| 24 | BIRC3 | 2 |
| 25 | BRAF | 24 |
| 26 | BRCA1 | 6 |
| 27 | BRCA2 | 25 |
| 28 | BRIP1 | 6 |
| 29 | C17orf39 | 2 |
| 30 | CBL | 1 |
| 31 | CCND1 | 28 |
| 32 | CCND2 | 9 |
| 33 | CCND3 | 7 |
| 34 | CCNE1 | 9 |
| 35 | CD58 | 1 |
| 36 | CD79A | 1 |
| 37 | CD79B | 1 |
| 38 | CDC73 | 1 |
| 39 | CDH1 | 10 |
| 40 | CDK12 | 3 |
| 41 | CDK4 | 18 |
| 42 | CDK6 | 11 |
| 43 | CDK8 | 5 |
| 44 | CDKN1B | 2 |
| 45 | CDKN2A | 36 |
| 46 | CDKN2A/B | 50 |
| 47 | CDKN2C | 3 |
| 48 | CEBPA | 3 |
| 49 | CIC | 2 |
| 50 | CKS1B | 1 |
| 51 | CREBBP | 16 |
| 52 | CRKL | 2 |
| 53 | CSF1R | 6 |
| 54 | CTCF | 2 |
| 55 | CTNNA1 | 1 |
| 56 | CTNNB1 | 5 |
| 57 | DDX3X | 1 |
| 58 | DNMT3A | 13 |
| 59 | EGFR | 41 |
| 60 | EMSY | 4 |
| 61 | EP300 | 8 |
| 62 | EPHA5 | 1 |
| 63 | EPHB1 | 2 |
| 64 | ERBB2 | 25 |
| 65 | ERBB3 | 4 |
| 66 | ERBB4 | 4 |
| 67 | ESR1 | 7 |
| 68 | ETV1 | 1 |
| 69 | ETV6 | 1 |
| 70 | EWSR1 | 4 |
| 71 | FAM123B | 2 |
| 72 | FANCA | 4 |
| 73 | FANCC | 3 |
| 74 | FANCD2 | 1 |
| 75 | FANCE | 1 |
| 76 | FBXW7 | 7 |
| 77 | FGF10 | 3 |
| 78 | FGF14 | 2 |
| 79 | FGF19 | 23 |
| 80 | FGF23 | 9 |
| 81 | FGF3 | 26 |
| 82 | FGF4 | 24 |
| 83 | FGF6 | 6 |
| 84 | FGFR1 | 15 |
| 85 | FGFR2 | 6 |
| 86 | FGFR3 | 6 |
| 87 | FGFR4 | 1 |
| 88 | FLT1 | 2 |
| 89 | FLT3 | 7 |
| 90 | FOXL2 | 1 |
| 91 | GATA2 | 2 |
| 92 | GATA3 | 11 |
| 93 | GNA11 | 2 |
| 94 | GNAS | 14 |
| 95 | GRIN2A | 4 |
| 96 | HGF | 4 |
| 97 | HIST1H2AC | 1 |
| 98 | HRAS | 5 |
| 99 | IDH1 | 24 |
| 100 | IDH2 | 5 |
| 101 | IGF1R | 4 |
| 102 | IGH | 1 |
| 103 | IKBKE | 2 |
| 104 | IKZF1 | 2 |
| 105 | IRS2 | 3 |
| 106 | JAK | 4 |
| 107 | JAK2 | 2 |
| 108 | JUN | 2 |
| 109 | KDM5A | 5 |
| 110 | KDM5C | 2 |
| 111 | KDM6A | 10 |
| 112 | KDR | 3 |
| 113 | KIT | 4 |
| 114 | KRAS | 72 |
| 115 | LRP1B | 9 |
| 116 | MAP2K1 | 2 |
| 117 | MAP2K4 | 5 |
| 118 | MAP3K1 | 5 |
| 119 | MCL1 | 26 |
| 120 | MDM2 | 21 |
| 121 | MDM4 | 4 |
| 122 | MED12 | 1 |
| 123 | MEF2B | 1 |
| 124 | MEF2C | 1 |
| 125 | MEN1 | 4 |
| 126 | MET | 5 |
| 127 | MITF | 1 |
| 128 | MLH1 | 3 |
| 129 | MLL | 6 |
| 130 | MLL2 | 21 |
| 131 | MSH2 | 4 |
| 132 | MSH3 | 1 |
| 133 | MSH6 | 5 |
| 134 | MTOR | 1 |
| 135 | MYC | 42 |
| 136 | MYCL1 | 6 |
| 137 | MYCN | 5 |
| 138 | MYD88 | 2 |
| 139 | MYST3 | 11 |
| 140 | NF1 | 35 |
| 141 | NF2 | 10 |
| 142 | NFE2L2 | 2 |
| 143 | NFKBIA | 10 |
| 144 | NKX2-1 | 4 |
| 145 | NOTCH1 | 12 |
| 146 | NOTCH2 | 5 |
| 147 | NRAS | 16 |
| 148 | NTRK3 | 1 |
| 149 | NUP93 | 2 |
| 150 | PALB2 | 4 |
| 151 | PASK | 1 |
| 152 | PAX5 | 2 |
| 153 | PBRM1 | 9 |
| 154 | PDGFRA | 5 |
| 155 | PIK3CA | 54 |
| 156 | PIK3CG | 2 |
| 157 | PIK3R1 | 6 |
| 158 | PPP2R1A | 1 |
| 159 | PRDM1 | 1 |
| 160 | PRKAR1A | 1 |
| 161 | PRKDC | 2 |
| 162 | PTCH1 | 8 |
| 163 | PTEN | 48 |
| 164 | PTPN11 | 6 |
| 165 | RAD50 | 3 |
| 166 | RAF1 | 2 |
| 167 | RB1 | 20 |
| 168 | RET | 7 |
| 169 | RICTOR | 8 |
| 170 | RNF43 | 1 |
| 171 | ROS1 | 1 |
| 172 | RPTOR | 4 |
| 173 | RUNX1 | 5 |
| 174 | SETD2 | 3 |
| 175 | SF3B1 | 7 |
| 176 | SGK1 | 1 |
| 177 | SMAD2 | 1 |
| 178 | SMAD4 | 26 |
| 179 | SMARCA4 | 5 |
| 180 | SMARCB1 | 3 |
| 181 | SOX10 | 1 |
| 182 | SOX2 | 6 |
| 183 | SPEN | 4 |
| 184 | SRC | 3 |
| 185 | SRSF2 | 1 |
| 186 | STAG2 | 4 |
| 187 | STAT3 | 1 |
| 188 | STAT4 | 1 |
| 189 | STK11 | 6 |
| 190 | TET2 | 7 |
| 191 | TGFBR2 | 1 |
| 192 | TNFAIP3 | 2 |
| 193 | TNFRSF14 | 1 |
| 194 | TOP1 | 5 |
| 195 | TP53 | 218 |
| 196 | TRAF2 | 1 |
| 197 | TRAF5 | 1 |
| 198 | TSC1 | 3 |
| 199 | TSC2 | 9 |
| 200 | TYK2 | 1 |
| 201 | U2AF1 | 1 |
| 202 | VHL | 3 |
| 203 | WT1 | 2 |
| 204 | XPO1 | 2 |
| 205 | ZMYM3 | 1 |
| 206 | ZNF217 | 16 |
| **207** | ZNF703 | 11 |
| **207** | **TOTAL** | **1813** |