**Table S1.** Distribution of the 543 mutations identified in *RAS* and *BRAF* genes.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***Gene*** | ***Exon*** | ***Codon*** | ***Mutation protein*** | ***Mutation***  ***DNA*** | ***No. +ve cases*** | ***%*** |
| *KRAS* | 2 | 12 | G12\_G13insG | c.36\_37insGGT | 1 | *0,2* |
| G12A | c.35G>C | 28 | *5,2* |
| G12C | c.34G>T | 26 | *4,8* |
| G12D | c.35G>A | 160 | *29,5* |
| G12R | c.34G>C | 7 | *1,3* |
| G12S | c.34G>A | 21 | *3,9* |
| G12V | c.35G>T | 102 | *18,8* |
| 13 | G13A | c.38G>C | 1 | *0,2* |
| G13C | c.37G>T | 10 | *1,8* |
| G13D | c.38G>A | 54 | *9,9* |
| G13S | c.37G>A | 7 | *1,3* |
| G13V | c.38G>T | 2 | *0,4* |
| 3 | 49 | E49K | c.145G>A | 1 | *0,2* |
| 59 | A59E | c.176C>A | 1 | *0,2* |
| A59T | c.175G>A | 1 | *0,2* |
| 61 | Q61H | c.183A>C | 12 | *2,2* |
| Q61L | c.182A>T | 8 | *1,5* |
| Q61R | c.182A>G | 7 | *1,3* |
| 4 | 117 | K117N | c.351A>T | 1 | *0,2* |
| 146 | A146T | c.436G>A | 11 | *2,0* |
| A146V | c.437C>T | 2 | *0,4* |
| *NRAS* | 2 | 12 | G12A | c.35G>C | 2 | *0,4* |
| G12C | c.34G>T | 2 | *0,4* |
| G12D | c.35G>A | 13 | *2,4* |
| G12S | c.34G>A | 3 | *0,6* |
| G12V | c.35G>T | 2 | *0,4* |
| 13 | G13A | c.38G>C | 1 | *0,2* |
| G13C | c.37G>T | 1 | *0,2* |
| G13D | c.38G>A | 1 | *0,2* |
| G13R | c.37G>C | 3 | *0,6* |
| 3 | 61 | Q61H | c.183A>C | 3 | *0,6* |
| Q61K | c.181C>A | 12 | *2,2* |
| Q61L | c.182A>T | 2 | *0,4* |
| Q61R | c.182A>G | 8 | *1,5* |
| *BRAF* | 15 | 600 | V600E | c.1799T>A (25)  c.1799\_1800TG>AA (2) | 27 | *5,0* |

**Table S2.** Distribution of the 115 *PIK3CA* mutations

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Exon*** | ***Codon*** | ***Mutation protein*** | ***Mutation***  ***DNA*** | ***No. +ve cases*** | ***%*** |
| 9 | 542 | E542A | c.1625A>C | 2 | 1,7 |
| E542G | c.1625A>G | 3 | 2,6 |
| E542K | c.1624G>A | 9 | 7,8 |
| 545 | E545A | c.1634A>C | 56 | 48,7 |
| E545D | c.1635G>C | 1 | 0,9 |
| E545G | c.1634A>G | 7 | 6,1 |
| E545K | c.1633G>A | 12 | 10,4 |
| 546 | Q546E | c.1636C>G | 3 | 2,6 |
| Q546H | c.1638G>T | 1 | 0,9 |
| Q546K | c.1636C>A | 1 | 0,9 |
| 20 | 1035 | A1035V | c.3104C>T | 2 | 1,7 |
| 1043 | M1043I | c.3129G>A (3)  c.3129G>C (1) | 4 | 3,5 |
| 1045 | D1045N | c.3133G>A | 1 | 0,9 |
| 1047 | H1047R | c.3140A>G | 13 | 11,3 |