**Supplementary Table 4.** Prevalence and Odds Ratios for breast cancer risk of LoF variants in all studied genes between selected Greek breast cancer patients and Reference Controls from ExAC and FLOSSIES.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Demokritos Cases** | | |  | **Controls (ExAC/FLOSSIES)** | | | | | **Cancer Risk (ExAC/FLOSSIES)** | | |
| **Gene** | **Truncating** | **Missense** | **Total** | **Cases, No** | **Freq (%)** | **Truncating** | **Missense** | **Total** | **Controls, No** | **Freq (%)** | **Odds Ratio** | **95% CI** | ***p*-value** |
| *ATM* | 13 | 3 | 16 | 1355 | 1.18 | 78/14 | 15/7 | 93/21 | 26862/7325 | 0.35/0.29 | 3.41/4.12 | 1.87-5.86/2-8.3 | **6.12x10-5/2.45x10-5** |
| *BLM* | 1 | 0 | 1 | 1355 | 0.07 | 50/NA | 0/NA | 50/NA | 24941/NA | 0.20/NA | 0.37/NA | 0.009-2.15/NA | 0.616/NA |
| *BRIP1* | 1 | 0 | 1 | 1355 | 0.07 | 52/11 | 0/0 | 52/11 | 26396/7325 | 0.20/0.15 | 0.37/0.49 | 0.009-2.19/0.01-3.39 | 0.616/0.789 |
| *CDKN2A* | 0 | 1 | 1 | 1355 | 0.07 | 1/NA | 4/NA | 5/NA | 23419/NA | 0.02/NA | 3.46/NA | 0.07-30.9/NA | 0.466/NA |
| *CHEK2* | 7 | 12 | 19 | 1355 | 1.40 | 155/28 | 63/11 | 218/39 | 25819/7325 | 0.84/0.53 | 1.66/2.63 | 0.98-2.67/1.44-4.68 | 0.11/**0.003** |
| *CHEK2* miss | 0 | 12 | 12 | 1355 | 0.89 | 0/0 | 63/11 | 63/11 | 26974/7325 | 0.23/0.15 | 3.79/5.9 | 1.86-7.12/2.38-14.78 | **1.2x10-3/2.45x10-4** |
| *CHEK2*^ | NA | 12 | 12 | 1355 | 0.89 | NA | 233/46 | 233/46 | 26974/7325 | 0.85/0.63 | 1.02/1.40 | 0.52-1.83/0.67-2.69 | 0.88/0.28 |
| *DICER1* | 1 | 0 | 1 | 1355 | 0.07 | 3/NA | 0/NA | 3/NA | 27171/NA | 0.01/NA | 6.68/NA | 0.13-83.28/NA | 0.307/NA |
| *ERCC3* | 1 | 0 | 1 | 1355 | 0.07 | 63/NA | 0/NA | 63/NA | 27164/NA | 0.23/NA | 0.32/NA | 0.008-1.84/NA | 0.539/NA |
| *FANCC* | 1 | 0 | 1 | 1355 | 0.07 | 16/NA | 24/NA | 40/NA | 26912/NA | 0.15/NA | 0.5/NA | 0.012-2.93/NA | 0.751/NA |
| *FANCL* | 1 | 0 | 1 | 1355 | 0.07 | 16/NA | 0/NA | 16/NA | 26795/NA | 0.06/NA | 1.24/NA | 0.029-7.97/NA | 0.642/NA |
| *FANCM* | 2 | 0 | 2 | 1355 | 0.15 | 167/40 | 0/0 | 167/40 | 26461/7325 | 0.63/0.55 | 0.23/0.27 | 0.03-0.86/0.03-1.04 | **0.044**/0.072 |
| *MLH1* | 1 | 0 | 1 | 1355 | 0.07 | 5/NA | 2/NA | 7/NA | 27157/NA | 0.03/NA | 2.86/NA | 0.06-22.31/NA | 0.494/NA |
| *MSH6* | 3 | 0 | 3 | 1355 | 0.22 | 15/NA | 4/NA | 19/NA | 26990/NA | 0.07/NA | 3.14/NA | 0.59-10.70/NA | 0.159/NA |
| *NBN* | 3 | 0 | 3 | 1355 | 0.22 | 17/14 | 0/0 | 17/14 | 25479/7325 | 0.07/0.19 | 3.32/1.16 | 0.62-11.49/0.21-4.16 | 0.155/0.789 |
| *NF1* | 1 | 0 | 1 | 1355 | 0.07 | 9/NA | 2/NA | 11/NA | 25350/NA | 0.04/NA | 1.7/NA | 0.04-11.72/NA | 0.616/NA |
| *PALB2* | 7 | 0 | 7 | 1355 | 0.52 | 17/6 | 0/0 | 17/6 | 26435/7325 | 0.06/0.08 | 8.03/6.3 | 2.81-20.42/1.81-22.75 | **7.16x10-3/0.003** |
| *PMS2* | 2 | 0 | 2 | 1355 | 0.15 | 25/NA | 10/NA | 35/NA | 25884/NA | 0.14/NA | 1.09/NA | 0.13-4.26/NA | 0.751/NA |
| *PTEN* | 2 | 0 | 2 | 1355 | 0.15 | 1/0 | 0/0 | 1/0 | 27173/7325 | 0.00/0.00 | 40.09/Inf | 2.08-2323.35/- | **0.017/0.036** |
| *RAD51C* | 5 | 2 | 7 | 1355 | 0.52 | 19/2 | 3/1 | 22/3 | 26361/7325 | 0.08/0.04 | 6.19/12.6 | 2.23-15.03/2.87-75.64 | **0.002/4.73x10-4** |
| *RAD51D* | 4 | 0 | 4 | 1355 | 0.30 | 5/2 | 0/1 | 5/3 | 26787/7325 | 0.02/0.04 | 15.81/7.2 | 3.13-73.54/1.22-49.3 | **0.002/0.022** |
| *SLX4* | 1 | 0 | 1 | 1355 | 0.07 | 36/14 | 0/0 | 36/14 | 26862/7325 | 0.13/0.19 | 0.55/0.39 | 0.01-3.28/0.01-2.54 | 1/0.616 |
| *TP53* | 2 | 6 | 7 | 1355 | 0.52 | 1/0 | 28/3 | 29/3 | 26889/7325 | 0.11/0.04 | 4.79/12.61 | 1.77-11.2/2.87-75.64 | **0.001/4.73x10-4** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

*Notes:* CNV carriers, double LoF variant carriers and the low risk *CHEK2* variants: p.(Ile157Thr)& p.(Ser428Phe) were excluded from the analysis. *ExAC data extracted were non-TCGA/non-Finnish. FLOSSIES data extracted were on European-Americans.*

*Abbreviations used:* ExAC, Exome Aggregation Consortium; Freq, Variant Observed Frequency; miss, missense; No, number; NA, Not Applicable*.* ^*CHEK2* p.I157T only.