**Supplementary Table 6. GSEA analysis of the DEGs in ACP02 and ACP03.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | ***n*, 213 (%)** | | **PTPRA**  **immunoreactivity** | | ***PTPRA* mRNA** | | **PTPRAprotein** | | **MZT2B**  **immunoreactivity** | | ***MZT2B* mRNA** | | **MZT2Bprotein** | | **UBE2T**  **immunoreactivity** | | | ***UBE2T* mRNA** | | | **UBE2Tprotein** | |
| **N (%) of**  **positives**  **cases** | ***p*-valuea** | **RQ (median ± IQR)** | ***p*-valueb** | **Ratio T/N**  **(median ± IQR)** | ***p*-valueb** | **N (%) of**  **positives**  **cases** | ***p*-valuea** | **RQ (median ± IQR)** | ***p*-valueb** | **Ratio T/N**  **(median ± IQR)** | ***p*-valueb** | **N (%) of**  **positives**  **cases** | ***p*-valuea** | **RQ (median ± IQR)** | | ***p*-valueb** | **Ratio T/N**  **(median ± IQR)** | | ***p*-valueb** |
| **Gender** | **Female** | **80 (37.6)** | 78 (37.9) | < 0.001\* | 0.95 ± 0.39 | 0.184 | 0.94 ± 0.11 | 0.223 | 25 (47.2) | 0.680 | 1.30 ± 0.55 | 0.290 | 1.24 ± 0.60 | 0.061 | 80 (37.6) | < 0.001\* | 1.64 ± 0.61 | | 0.189 | 1.51 ± 0.40 | | 0.077 |
| **Male** | **133 (62.4)** | 128 (62.1) | 0.94 ± 0.07 | 0.93 ± 0.06 | 28 (52.8) | 1.19 ± 0.44 | 1.13 ± 0.64 | 133 (62.4) | 1.56 ± 0.53 | | 1.42 ± 0.40 | |
| **Age (years)** | **< 50 years** | **55 (25.8)** | 54 (26.2) | 0.469 | 0.95 ± 0.65 | 0.038 | 0.93 ± 0.63 | 0.027 | 5 (9.4) | < 0.001\* | 1.08 ± 0.47 | 0.031 | 0.99 ± 0.48 | 0.001 | 55 (25.8) | < 0.001\* | 1.56 ± 0.62 | | 0.353 | 1.41 ± 0.38 | | 0.542 |
| **≥ 50 years** | **158 (74.2)** | 152 (73.8) | 0.94 ± 0.07 | 0.93 ± 0.05 | 48 (90.6) | 1.24 ± 0.49 | 1.25 ± 0.60 | 158 (74.2) | 1.59 ± 0.51 | | 1.47 ± 0.42 | |
| **Tumor location** | **Cardia** | **75 (35.2)** | 70 (34.0) | < 0.001\* | 0.94 ± 0.47 | 0.413 | 0.93 ± 0.29 | 0.968 | 12 (22.6) | < 0.001\* | 1.18 ± 0.42 | 0.434 | 1.09 ± 0.55 | 0.162 | 75 (35.2) | < 0.001\* | 1.56 ± 0.61 | | 0.821 | 1.49 ± 0.42 | | 0.841 |
| **Non-cardia** | **138 (64.8)** | 136 (66.0) | 0.94 ± 0.07 | 0.93 ± 0.06 | 41 (77.4) | 1.24 ± 0.50 | 1.23 ± 0.68 | 138 (64.8) | 1.58 ± 0.52 | | 1.45 ± 0.40 | |
| **Histological type** | **Diffuse** | **103 (48.4)** | 101 (49.0) | 0.780 | 0.95 ± 0.59 | 0.138 | 0.93 ± 0.29 | 0.294 | 3 (5.7) | < 0.001\* | 1.01 ± 0.25 | < 0.001\* | 0.87 ± 0.35 | < 0.001\* | 103 (48.4) | 0.631 | 1.61 ± 0.61 | | 0.322 | 1.42 ± 0.46 | | 0.410 |
| **Intestinal** | **110 (51.6)** | 105 (51.0) | 0.94 ± 0.06 | 0.93 ± 0.05 | 50 (94.3) | 1.43 ± 0.51 | 1.52 ± 0.45 | 110 (51.6) | 1.56 ± 0.46 | | 1.49 ± 0.39 | |
| **Stage** | **Early** | **20 (9.3)** | 20 (9.7) | < 0.001\* | 1.66 ± 0.42 | < 0.001\* | 1.74 ± 0.28 | < 0.001\* | 0 (0.0) | < 0.001\* | 0.93 ± 0.42 | 0.002\* | 0.77 ± 0.27 | < 0.001\* | 20 (9.4) | < 0.001\* | 1.26 ± 0.23 | | < 0.001\* | 1.29 ± 0.21 | | 0.001\* |
| **Advanced** | **193 (89.4)** | 186 (90.3) | 0.94 ± 0.06 | 0.93 ± 0.04 | 53 (100.0) | 1.22 ± 0.46 | 1.24 ± 0.60 | 193 (90.6) | 1.63 ± 0.50 | | 1.48 ± 0.43 | |
| **Tumor invasion** | **T1/T2** | **68 (31.9)** | 68 (33.0) | 0.650 | 1.54 ± 0.66 | < 0.001\* | 1.51 ± 0.78 | < 0.001\* | 3 (5.7) | < 0.001\* | 1.03 ± 0.33 | < 0.001\* | 1.05 ± 0.50 | < 0.001\* | 68 (31.9) | < 0.001\* | 1.29 ± 0.41 | | < 0.001\* | 1.29 ± 0.24 | | < 0.001\* |
| **T3/T4** | **145 (68.1)** | 138 (67.0) | 0.93 ± 0.04 | 0.92 ± 0.02 | 50 (94.3) | 1.29 ± 0.45 | 1.29 ± 0.64 | 145 (68.1) | 1.70 ± 0.46 | | 1.52 ± 0.42 | |
| **Lymph node metastasis** | **Absent** | **23 (10.8)** | 23 (11.2) | 0.486 | 1.53 ± 0.73 | 0.003\* | 1.54 ± 0.82 | 0.002\* | 1 (1.9) | < 0.001\* | 0.99 ± 0.41 | 0.001\* | 0.84 ± 0.38 | 0.001\* | 23 (10.8) | < 0.001\* | 1.32 ± 0.54 | | 0.003\* | 1.29 ± 0.18 | | < 0.001\* |
| **Present** | **190 (89.2)** | 183 (88.8) | 0.94 ± 0.07 | 0.93 ± 0.05 | 52 (98.1) | 1.24 ± 0.44 | 1.23 ± 0.61 | 190 (89.2) | 1.60 ± 0.52 | | 1.48 ± 0.44 | |
| **Distant metastasis** | **Absent** | **108 (50.7)** | 108 (52.4) | 0.064 | 0.94 ± 0.62 | 0.343 | 0.93 ± 0.62 | 0.378 | 13 (24.5) | < 0.001\* | 1.17 ± 0.41 | < 0.001\* | 1.08 ± 0.55 | 0.001\* | 114 (53.5) | 0.304 | 1.51 ± 0.52 | | 0.001\* | 1.38 ± 0.33 | | < 0.001\* |
| **Present** | **105 (49.3)** | 98 (47.6) | 0.95 ± 0.05 | 0.93 ± 0.04 | 40 (75.5) | 1.26 ± 0.74 | 1.38 ± 0.80 | 99 (46.5) | 1.69 ± 0.51 | | 1.50 ± 0.51 | |
| **Survival 5 year** | **Negative** | **148 (69.5)** | 143 (69.4) | < 0.001\* | 0.94 ± 0.06 | 0.005\* | 0.93 ± 0.04 | 0.047\* | 42 (79.2) | < 0.001\* | 1.25 ± 0.46 | 0.540 | 1.23 ± 0.59 | 0.030\* | 148 (69.5) | < 0.001\* | 1.63 ± 0.49 | | 0.004\* | 1.50 ± 0.47 | | 0.001\* |
| **Positive** | **65 (30.5)** | 63 (30.6) | 0.97 ± 0.65 | 0.94 ± 0.64 | 10 (18.9) | 1.12 ± 0.49 | 1.07 ± 0.57 | 65 (30.5) | 1.45 ± 0.45 | | 1.34 ± 0.24 | |
| ***H. pylori* infection** | **Negative** | **23 (10.8)** | 22 (10.7) | < 0.001\* | 0.95 ± 0.59 | 0.559 | 0.93 ± 0.24 | 0.819 | 2 (3.8) | < 0.001\* | 0.96 ± 0.37 | 0.002\* | 0.99 ± 0.54 | 0.034\* | 23 (10.8) | < 0.001\* | 1.48 ± 0.54 | | 0.126 | 1.30 ± 0.43 | | 0.314 |
| **Positive** | **190 (89.2)** | 184 (89.3) | 0.94 ± 0.08 | 0.93 ± 0.06 | 51 (96.2) | 1.24 ± 0.46 | 1.18 ± 0.63 | 190 (89.2) | 1.60 ± 0.54 | | 1.45 ± 0.40 | |
| ***H. pylori* CagA** | **Negative** | **73 (34.3)** | 72 (35.0) | < 0.001\* | 0.95 ± 0.55 | 0.316 | 0.93 ± 0.23 | 0.514 | 11 (20.8) | < 0.001\* | 1.14 ± 0.46 | 0.500 | 1.11 ± 0.51 | 0.084 | 73 (34.3) | < 0.001\* | 1.50 ± 0.50 | | 0.034\* | 1.45 ± 0.39 | | 0.848 |
| **Positive** | **140 (65.7)** | 134 (65.0) | 0.94 ± 0.07 | 0.93 ± 0.05 | 42 (79.2) | 1.25 ± 0.50 | 1.18 ± 0.71 | 140 (65.7) | 1.63 ± 0.52 | | 1.45 ± 0.45 | |
| **EBV** | **Negative** | **178 (83.6)** | 171 (83.0) | < 0.001\* | 0.94 ± 0.25 | 0.852 | 0.93 ± 0.08 | 0.980 | 41 (77.4) | < 0.001\* | 1.20 ± 0.44 | 0.345 | 1.14 ± 0.67 | 0.094 | 178 (83.6) | < 0.001\* | 1.56 ± 0.55 | | 0.339 | 1.45 ± 0.40 | | 0.462 |
| **Positive** | **35 (16.4)** | 35 (17.0) | 0.94 ± 0.07 | 0.93 ± 0.05 | 12 (22.6) | 1.26 ± 0.55 | 1.35 ± 0.79 | 35 (16.4) | 1.63 ± 0.47 | | 1.49 ± 0.39 | |