**Supplementary File 2A. Misclassification matrices for the neural network and CA125 predictions with detailed histopathological data.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **CA-125 Prediction** | | | **Neural Network Prediction** | | | **p-value** |
| **Diagnosis** | Correct | False Positive | False Negative | Correct | False Positive | False Negative |  |
| Other benign mass | 8 | 7 | -- | 11 | 4 | -- |  |
| Endometrioma | 4 | 4 | -- | 8 | 0 | -- |  |
| Cystadenoma | 2 | 1 | -- | 2 | 1 | -- |  |
| Borderline tumors | 6 | 11 | -- | 14 | 3 | -- |  |
| **Total false positive rate** | **23/43 (53%)** | | | **8/43 (19%)** | | | **0**.**002** |
| Stage I/II Invasive Serous Adenocarcinoma | 18 | -- | 4 | 19 | -- | 3 |  |
| Stage III/IV Invasive Serous Adenocarcinoma | 21 | -- | 1 | 20 | -- | 2 |  |
| **Total false negative rate** | **5/44 (11%)** | | | **5/44 (11%)** | | | **1**.**0** |
| Stage I/II Invasive Clear Cell/Endometrioid Adenocarcinoma | 11 | -- | 7 | 14 | -- | 4 |  |
| Stage III/IV Invasive Clear Cell/Endometrioid Adenocarcinoma | 7 | -- | 1 | 8 | -- | 0 |  |
| **Total false negative rate** | **8/26 (31%)** | | | **4/26 (15%)** | | | **0**.**002** |
| Invasive cancer (other histologies) | 4 | -- | 3 | 5 | -- | 2 |  |
| **Total false negative rate** | **3/7 (43%)** | | | **2/7 (29%)** | | | **1**.**0** |
| Correct – accurate classification as benign, borderline or control versus invasive cancer  False positive – incorrectly assigned benign, borderline or control to invasive cancer  False negative – incorrectly assigned invasive cancer to benign, borderline or control | | | | | | |  |

**Supplementary File 2B Misclassification matrices for the neural network stratified by age.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Cancer** | |  | **Benign/Borderline/Control** | |  | **Positive Predictive Value** | **Negative**  **Predictive**  **Value** |
| **Age** | **Correct** | **False Negative** | **p-value\*** | **Correct** | **False Positive** | **p-value\*** |  |  |
| ≤ 51 years | 19 | 3 | 0.71 | 20 | 2 | 0.72 | 0.86 | 0.91 |
| > 51 years | 68 | 8 | 49 | 8 | 0.89 | 0.86 |
| **\***Fisher’s exact test (two-tailed) | | | | | | | | |

**Supplementary File 2C. miRNA expression by tumor histology and stage.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Advanced Endometrioid | | | Early Endometrioid | | |  |  |
|  | Mean | St. Dev | N | Mean | St. dev | N | p (raw t.test) | Bonferroni-adjusted p |
| hsa-miR-23b-3p | 1.26 | 0.28 | 10 | 1.24 | 0.26 | 26 | 0.80 | 1.00 |
| hsa-miR-29a-3p | 2.68 | 0.31 | 10 | 2.44 | 0.39 | 26 | 0.08 | 1.00 |
| hsa-miR-32-5p | 1.71 | 0.57 | 10 | 1.36 | 0.40 | 26 | 0.05 | 0.66 |
| hsa-miR-92a-3p | 3.72 | 0.40 | 10 | 3.95 | 0.27 | 26 | 0.05 | 0.72 |
| hsa-miR-150-5p | 1.50 | 0.61 | 10 | 1.87 | 0.27 | 26 | 0.01 | 0.20 |
| hsa-miR-200a-3p | 1.51 | 0.83 | 10 | 1.64 | 0.53 | 26 | 0.58 | 1.00 |
| hsa-miR-200c-3p | 1.58 | 0.92 | 10 | 1.67 | 0.53 | 26 | 0.74 | 1.00 |
| hsa-miR-203a | 1.74 | 0.27 | 10 | 1.63 | 0.37 | 26 | 0.37 | 1.00 |
| hsa-miR-320c | 2.21 | 0.52 | 10 | 2.04 | 0.39 | 26 | 0.28 | 1.00 |
| hsa-miR-320d | 1.68 | 0.42 | 10 | 1.56 | 0.41 | 26 | 0.44 | 1.00 |
| hsa-miR-335-5p | 1.53 | 0.35 | 10 | 1.29 | 0.31 | 26 | 0.05 | 0.70 |
| hsa-miR-450b-5p | 1.57 | 0.40 | 10 | 1.36 | 0.34 | 26 | 0.11 | 1.00 |
| hsa-miR-1246 | 2.66 | 0.63 | 10 | 2.53 | 0.50 | 26 | 0.50 | 1.00 |
| hsa-miR-1307-5p | 1.59 | 0.19 | 10 | 1.59 | 0.27 | 26 | 0.99 | 1.00 |
|  |  |  |  |  |  |  |  |  |
|  | Advanced Serous | | | Early Serous | | |  |  |
|  | Mean | St. Dev | N | Mean | St. Dev | N | p (raw t.test) | Bonferroni-adjusted p |
| hsa-miR-23b-3p | 1.34 | 0.26 | 30 | 1.24 | 0.25 | 25 | 0.16 | 1.00 |
| hsa-miR-29a-3p | 2.50 | 0.32 | 30 | 2.55 | 0.37 | 25 | 0.64 | 1.00 |
| hsa-miR-32-5p | 1.45 | 0.52 | 30 | 1.29 | 0.45 | 25 | 0.24 | 1.00 |
| hsa-miR-92a-3p | 3.88 | 0.25 | 30 | 3.95 | 0.32 | 25 | 0.36 | 1.00 |
| hsa-miR-150-5p | 1.65 | 0.50 | 30 | 1.80 | 0.25 | 25 | 0.19 | 1.00 |
| hsa-miR-200a-3p | 1.22 | 0.59 | 30 | 1.38 | 0.50 | 25 | 0.30 | 1.00 |
| hsa-miR-200c-3p | 1.47 | 0.56 | 30 | 1.42 | 0.50 | 25 | 0.72 | 1.00 |
| hsa-miR-203a | 1.55 | 0.47 | 30 | 1.56 | 0.41 | 25 | 0.98 | 1.00 |
| hsa-miR-320c | 2.15 | 0.43 | 30 | 2.09 | 0.31 | 25 | 0.53 | 1.00 |
| hsa-miR-320d | 1.67 | 0.42 | 30 | 1.59 | 0.26 | 25 | 0.39 | 1.00 |
| hsa-miR-335-5p | 1.37 | 0.31 | 30 | 1.33 | 0.33 | 25 | 0.61 | 1.00 |
| hsa-miR-450b-5p | 1.35 | 0.37 | 30 | 1.19 | 0.38 | 25 | 0.13 | 1.00 |
| hsa-miR-1246 | 2.65 | 0.42 | 30 | 2.45 | 0.40 | 25 | 0.09 | 1.00 |
| hsa-miR-1307-5p | 1.60 | 0.20 | 30 | 1.57 | 0.16 | 25 | 0.62 | 1.00 |
|  |  |  |  |  |  |  |  |  |
|  | Advanced | | | Early | | |  |  |
|  | Mean | St. Dev | N | Mean | St. Dev | N | p (raw t.test) | Bonferroni-adjusted p |
| hsa-miR-23b-3p | 1.32 | 0.27 | 40 | 1.24 | 0.25 | 51 | 0.14 | 1.00 |
| hsa-miR-29a-3p | 2.55 | 0.33 | 40 | 2.49 | 0.38 | 51 | 0.45 | 1.00 |
| hsa-miR-32-5p | 1.51 | 0.54 | 40 | 1.33 | 0.42 | 51 | 0.07 | 0.96 |
| hsa-miR-92a-3p | 3.84 | 0.30 | 40 | 3.95 | 0.29 | 51 | 0.07 | 1.00 |
| hsa-miR-150-5p | 1.61 | 0.52 | 40 | 1.84 | 0.26 | 51 | 0.02 | 0.24 |
| hsa-miR-200a-3p | 1.29 | 0.66 | 40 | 1.51 | 0.53 | 51 | 0.08 | 1.00 |
| hsa-miR-200c-3p | 1.50 | 0.65 | 40 | 1.54 | 0.53 | 51 | 0.71 | 1.00 |
| hsa-miR-203a | 1.60 | 0.43 | 40 | 1.59 | 0.39 | 51 | 0.93 | 1.00 |
| hsa-miR-320c | 2.17 | 0.45 | 40 | 2.06 | 0.35 | 51 | 0.22 | 1.00 |
| hsa-miR-320d | 1.68 | 0.41 | 40 | 1.58 | 0.34 | 51 | 0.21 | 1.00 |
| hsa-miR-335-5p | 1.41 | 0.32 | 40 | 1.31 | 0.32 | 51 | 0.12 | 1.00 |
| hsa-miR-450b-5p | 1.40 | 0.39 | 40 | 1.27 | 0.36 | 51 | 0.11 | 1.00 |
| hsa-miR-1246 | 2.65 | 0.47 | 40 | 2.49 | 0.45 | 51 | 0.10 | 1.00 |
| hsa-miR-1307-5p | 1.60 | 0.20 | 40 | 1.58 | 0.22 | 51 | 0.73 | 1.00 |