Title: Performance of a deep learning based neural network in the selection of human blastocysts for implantation

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**Supplementary file 1A.** **Patient population characteristics.** All embryo images (except the PGT screened embryos) utilized for experiments reported in the study were obtained from cycles that belong to the presented distribution of parameters. All values in table are presented as median along with the range unless noted otherwise.

|  |  |
| --- | --- |
| Characteristics information  |  |
| Cycle characteristics | Test data set (n=97) |
| Age, years | 34 (43 - 24) |
| Day 3 follicle stimulating hormone, IU/L | 7 (12 - 4) |
| aBody mass index, kg/m2 | 23 (39 - 17) |
| Oocytes retrieved, n | 12 (27 - 6) |
| Mature (MII) oocytes, n | 11 (27 - 4) |
| Normally fertilizations (2PN), n | 8 (20 - 3) |
| bFertilization method, n (%) |  |
| Conventional insemination | 27 (27.84) |
| Intracytoplasmic sperm injection | 70 (72.16) |
| bInfertility Diagnosis, n (%) |  |
| Diminished ovarian reserve | 7 (7.22) |
| Polycystic ovary syndrome | 11 (11.34) |
| Uterine | 3 (3.09) |
| Unexplained | 15 (15.46) |
| Male factor | 37 (38.14) |
| Tubal | 10 (10.31) |
| Endometriosis | 1 (1.03) |
| Idiopathic | 1 (1.03) |
| Other | 12 (12.37) |
| a n = 91b Values represent the absolute count and percentage within the test set  |

**Supplementary file 1B.** **Total number of transfer outcomes for embryos selected by the network.** A total of 102 fresh-transfer embryos had known implantation outcomes (45 embryos implanted). 28 frozen transfers were performed by the clinic where 18 implanted. The table lists only embryos which were selected by the network with known outcomes for both fresh cycles and in frozen subsequent transfers.

|  |  |  |
| --- | --- | --- |
| **Embryos selected by the network with known outcomes** |  |  |
| **113 hpi** |
|  |  |
| **Fresh transfers** | 44 |
| **Fresh transfers with successful implantation** | 26 |
| **Frozen transfers**  | 5 |
| **Frozen transfers with successful implantation** | 4 |

**Supplementary file 1C. Cycle characteristics of the euploid test set**. Embryos used in the euploid embryo differentiation experiment based on the implantation outcomes, originated from cycles that belong to presented distribution of characteristics. These cycles are independent of the original 97 patient cohort test set and also the training data sets. All values in table are presented as median along with the range unless noted otherwise.

|  |
| --- |
| PGT screened euploid embryo cycle characteristics |
| Cycle characteristic | **Test data set (n = 97)** |
| \* Successful implantations, n (%) | 57 (58.76) |
| Available embryos, n | 5 (12, 1) |
| Patient age, n | 35 (47, 25) |
| Body mass index, kg/m2 | 23 (37, 17) |
| Day 3 follicle stimulating hormone, IU/L | 7 (13, 3) |
| Oocytes retrived, n | 15 (25, 2) |
| Normally fertilized (2PN) embryos, n | 9 (20, 2) |
| Number of blastocysts biopised, n | 5 (11, 1) |
| \*Infertility diagnosis, n (%) |  |
| Diminished ovarian reserve | 12 (12.37) |
| PCOS | 6 (6.19) |
| Unexplained | 16 (16.49) |
| Male factor | 20 (20.62) |
| Tubal | 9 (9.28) |
| Other | 31 (31.96) |
| Recurrent pregnancy loss | 3 (3.09) |
| \* Values represent the absolute count and percentage within the test set |