

**Name of Journal:** *Artificial Intelligence in Medical Imaging*

**Manuscript NO:** 58628

**Manuscript Type:** ORIGINAL ARTICLE

### *Basic Study*

**Predicting a live birth by artificial intelligence incorporating both the blastocyst image and conventional embryo evaluation parameters**

Miyagi Y *et al.* Predicting a live birth by AI

Yasunari Miyagi, Toshihiro Habara, Rei Hirata, Nobuyoshi Hayashi

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2.2. **Conventional embryo evaluation**. Every **blastocyst** with the following morphological features and clinical information, such as patient age, time of **embryo** transfer, time of in vitro fertilization, anti-Müllerian hormone value, FSH value, blastomere number on day 3 after insemination, **blastocyst** grade on day 3, **embryo** cryopreservation day, grade of inner cell mass, grade of TE, averaged ...

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Feasibility of deep learning for **predicting live birth** from a **blastocyst image** in patients classified by age Yasunari Miyagi<sup>1,2</sup> ... **artificial intelligence**, **blastocyst**, deep learning, **live birth**, neural network. ... function by a **conventional embryo evaluation** method that involves observation, assessment, and manual grading of the morphological ...

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Area under the curve was  $0.65 \pm 0.04$  (mean  $\pm$  SE). Estimated probability of belonging to the live birth category was found significantly related to the probability of live birth ( $P < 0.005$ ). Conclusions. Classifiers using artificial intelligence applied toward a blastocyst image have a potential to show the probability of live birth being the ...

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