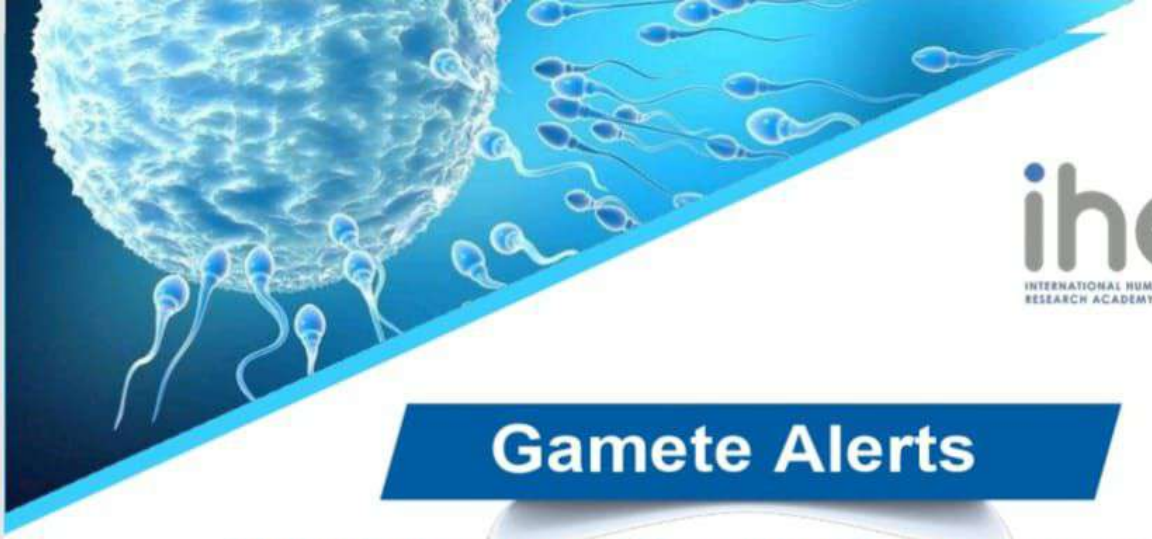

Gamete Alerts

Blastulation and ploidy prediction using morphology assessment in 33,999 day-3 embryos

This recent large retrospective study explores whether simple Day-3 embryo morphology can reliably predict blastocyst development and chromosomal normality, particularly for centres that still perform cleavage-stage transfers. Using data from nearly 34,000 Day-3 embryos, the authors analysed how cell number, degree of fragmentation, and maternal age relate to blastulation and euploidy confirmed by modern NGS-based PGT-A.

The study demonstrates that embryos with optimal or even faster cleavage rates and lower fragmentation on Day-3 are more likely to form good-quality blastocysts and achieve euploid status. Importantly, fragmentation was shown to primarily affect the embryo's ability to reach the blastocyst stage rather than its chromosomal competence once blastulation occurred. By applying machine-learning models, the authors developed a practical prediction tool that outperformed conventional embryo selection based solely on morphology.

What makes this work clinically relevant is its simplicity—the model relies only on routinely assessed Day-3 parameters and maternal age, without requiring time-lapse imaging or advanced laboratory infrastructure. This study provides a valuable decision-support approach for IVF laboratories, helping embryologists prioritise Day-3 embryos with higher developmental and genetic potential, especially in settings where extended culture or PGT-A is not routinely feasible.

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