

Review Form 3

Journal Name:	Annual Research & Review in Biology
Manuscript Number:	Ms_ARRB_122911
Title of the Manuscript:	AI in Reproductive Biology: Transforming Fertility Assessment, ART, and Research
Type of the Article	

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her</i>
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	In conclusion, while AI offers numerous benefits in reproductive biology, addressing challenges is crucial for its successful integration into day-to-day reproductive health. Balancing these benefits and challenges will shape the future of AI in this field.	
Is the title of the article suitable? (If not please suggest an alternative title)	yes	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	yes	
Are subsections and structure of the manuscript appropriate?	yes	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	Artificial Intelligence (AI) has revolutionized reproductive biology, transforming fertility assessment, assisted reproductive technologies (ART), and research. AI algorithms predict fertility treatment success by analyzing patient data, including demographics, medical history, and biomarkers. In ART, AI improves embryo selection during IVF, using objective criteria derived from extensive datasets, leading to better	

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<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</p> <p>-</p>	<p>Yes</p> <p>Artificial Intelligence (AI) has revolutionized reproductive biology, transforming fertility assessment, assisted reproductive technologies (ART), and research. AI algorithms predict fertility treatment success by analyzing patient data, including demographics, medical history, and biomarkers. In ART, AI improves embryo selection during IVF, using objective criteria derived from extensive datasets, leading to better implantation rates and live births. AI also streamlines laboratory processes, automates tasks, and enhances reproducibility and reliability.</p> <p>AI accelerates research by expediting data analysis and hypothesis generation, uncovering novel insights, and simulating biological processes. Ethical considerations, such as patient autonomy, informed consent, and data security, are paramount, necessitating collaborative efforts between stakeholders to ensure responsible AI integration.</p> <p>Before AI, fertility treatments relied on human judgment and were less efficient. AI's data-driven approach personalizes care, improves treatment efficacy, and enhances the success rates of fertility treatments. AI also analyzes vast amounts of research data, revealing patterns and therapeutic targets, and advances scientific understanding.</p> <p>AI's impact on research and understanding biological processes is profound. It enables personalized medicine by integrating genetic and health data, predicting fertility issues, and developing tailored treatment plans. AI also excels in image analysis for reproductive cells, improving the precision and efficiency of ART procedures.</p> <p>Historically, AI integration in reproductive biology began with fertility prediction models and has evolved to include genetic predictions and advanced imaging technologies. AI applications in reproductive health management extend to fertility treatment, pregnancy monitoring, genetic screening, and counseling.</p> <p>The current landscape of AI in reproductive biology is characterized by advantages such as precision in predictive modeling, enhanced ART, and accelerated research discoveries. However, challenges include data privacy concerns, high costs, integration difficulties, regulatory hurdles, and limited generalizability of AI models.</p> <p>In conclusion, while AI offers numerous benefits in reproductive biology, addressing challenges is crucial for its successful integration into day-to-day reproductive health. Balancing these benefits and</p>	
<p>Minor REVISION comments</p> <p>Is the language/English quality of the article suitable for scholarly communications?</p>	<p>yes</p>	
<p>Optional/General comments</p>	<p>How has AI transformed fertility assessment and assisted reproductive technologies (ART)? What role does AI play in embryo selection during in vitro fertilization (IVF)?</p> <p>How does AI contribute to the streamlining of laboratory processes in reproductive biology?</p>	

PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p>Are there ethical issues in this manuscript?</p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

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