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Interests: Andrology; Urology; Male infertility; Sexual dysfunctions;
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Guest Editor

Advances in Male Fertility and ART Technologies: Bridging Research and Clinical Practice

Male factor infertility accounts for approximately 30–50% of all infertility cases worldwide, yet it remains an area of rapid scientific evolution with significant translational gaps between laboratory innovation and clinical application. Recent decades have witnessed remarkable advances in diagnostic modalities—including genetic and epigenetic testing, seminal oxidative stress profiling and sperm DNA fragmentation analysis—alongside transformative developments in assisted reproductive technologies (ART) such as microfluidic sperm selection, magnetic-activated cell sorting (MACS) and sophisticated surgical sperm retrieval techniques. Despite these breakthroughs, nearly 40% of male infertility cases lack an identifiable etiology and the integration of emerging technologies into routine clinical practice presents ongoing challenges.

This Special Issue aims to bridge the critical divide between cutting-edge research and evidence-based clinical practice by curating a collection of original research articles, comprehensive reviews and clinical perspectives that address both foundational science and practical implementation. Contributions will explore topics including next-generation sperm selection methodologies, the role of artificial intelligence in reproductive decision-making, immune infertility mechanisms, personalized hormonal and antioxidant therapies and the ethical, economic and psychosocial dimensions of male factor ART. By fostering multidisciplinary dialogue among andrologists, reproductive urologists, embryologists, geneticists, and reproductive endocrinologists, this Special Issue aspires to catalyze the translation of scientific discovery into tangible improvements in patient outcomes.

Keywords: Male infertility; Assisted reproductive technology (ART); Sperm selection; Microfluidics; ICSI; Semen analysis; Reproductive genetics; Andrology

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