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Chapter 9 - Artificial gametes: A nanotechnology-driven future

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Abstract

This chapter overviews the new science of artificial gametes, ready to transform reproductive biology and biotechnology. Leveraging developments in nanotechnology, stem cell science, and genetic engineering, artificial gametes open up untold promise in the reversal of fertility, prenatal disease prevention, and reproductive inclusivity across a variety of population categories, including lesbian, gay, bisexual, transgender, and queer individuals and the infertile people. The chapter examines the molecular basis of gametogenesis, the integration of synthetic gametes into artificial embryos, and the future of gametes and next-generation reproduction in clinical practice.

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Abstract

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