

Abstract



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CRISPR Systems: Chemistry and Applications of Gene Editing

Gene editing with CRISPR technology is transforming agriculture and biomedicine. Understanding the underlying chemical mechanisms of RNA-guided DNA and RNA targeting provides a foundation for both conceptual advances and technology development. I will discuss how bacterial CRISPR adaptive immune systems inspire creation of powerful genome engineering tools, enabling advances in understanding the fundamental chemistry and biology of living systems and paving the way for applications in agriculture and biomedicine. I will also discuss the ethical challenges of some of these applications.