CRISPR edited bacteria hold great potential for cultured foods, probiotics, list goes on

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion and analysis.

The on-going CRISPR craze is focused on the use of Cas9-based technologies for genome editing applications in eukaryotes, with high potential for translational medicine and next-generation gene therapy. Nevertheless, CRISPR-Cas systems actually provide adaptive immunity in bacteria, and have much promise for various applications in food bacteria that include high-resolution typing of pathogens, vaccination of starter cultures against phages, and the genesis of programmable and specific antibiotics that can selectively modulate bacterial population composition. Indeed, the molecular machinery from these DNA-encoded, RNA-mediated, DNA-targeting systems can be harnessed in native hosts, or repurposed in engineered systems for a plethora of applications that can be implemented in all organisms relevant to the food chain, including agricultural crops trait-enhancement, livestock breeding, and fermentation-based manufacturing, and for the genesis of next-generation food products with enhanced quality and health-promoting functionalities. CRISPR-based applications are now poised to revolutionize many fields within food science, from farm to fork. In this review, we describe CRISPR-Cas systems and highlight their potential for the development of enhanced foods.

. . . .

Given that bacteria are ubiquitous throughout the production and consumption of food, CRISPR technologies have to the potential to impact all classes of bacteria across the food spectrum, including pathogenic, commensal, fermentative, probiotic, and spoilage organisms. CRISPR-based technologies with applications in food science include genotyping of bacteria, manipulation of microbial consortia, vaccination against phages, and genome editing.

Read full, open access article: CRISPR-Based Technologies and the Future of Food Science