



# Shaping the Future of the Food Production by CRISPR/Cas9 Gene Editing

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In previous decades advanced biotechnological techniques, including transgenesis, enables the precise and efficient targeted modification of an organism's genome. However, when it comes to food production, very few topics in science raised so much controversy as that of genetically modified organisms, or GMOs. As GMOs are generated through the transgenic introduction of foreign DNA sequences, a hazard that may arise from GMPs is uncontrolled integration of recombinant DNA into the genome<sup>1</sup>. The recent discovery of gene-editing tool CRISPR/Cas9, gives a promise for a completely new approach to the production of crops with desirable genetic traits. CRISPR/Cas9 tool, with the ability to cut out genes and splice in new ones, generates 'genome-edited crops' (GECs) through precise editing of an organism's native genome<sup>2</sup>. Thus, genomic alterations through the use of genome-editing technology are quite similar to those found throughout naturally occurring populations. Even more, gene editing by CRISPR/Cas9 is doable in an in vivo system, opening a completely new door in the crops and food production<sup>3</sup>. First CRISPR'd food reached the consumer market in September 2021, by Japanese startup Sanatech Seed. It was a variety of tomatoes containing high amounts of gamma aminobutyric acid (GABA) that may replace GABA supplements conventionally used to treat high blood pressure, insomnia, and other health problems. It is fully clear that CRISPR/Cas9 technology has a tremendous potential to shape the future of food production.

**Keywords:** CRISPR/Cas9, Gene editing, Food production

## References

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