

Breakthrough in gene editing of giant freshwater prawns

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The collaboration between Watershed AC, Evogene Ltd., and Ben-Gurion University (BGU) has made a significant breakthrough in gene-editing giant freshwater prawns using CRISPR technology. The project, now entering its second year with additional funding from the Israeli Innovation Authority (IIA), aims to enhance crustacean aquaculture by addressing challenges like limited genomic data and protocols in non-model organisms.

Evogene's GeneRator AI played a pivotal role by predicting optimal guide RNAs (gRNAs) for CRISPR editing, even in genomes that lack annotations, accounting for natural DNA variations and improving editing specificity. This led to the successful production of the first genetically edited giant freshwater prawn, marking a key milestone for traits like coloured eyes in post-larval prawns. The project also targets other crustaceans such as white-leg shrimp and red swamp crayfish, focusing on traits like growth rate, disease resistance, and environmental adaptation.

This breakthrough holds potential for more sustainable aquaculture practices by improving traits critical to crustacean farming.