Karasev

Plant-produced Microbial Vaccines

In recent years, plants have been increasingly explored for production of biomedicines and vaccine components. The two main advantages of plant systems are low cost and a greater potential for scalability as compared to microbial or animal systems. An additional advantage from the public health point of view is high safety compared to animal systems, which is important for vaccine production: there are no known plant pathogens capable of replicating in animals, and in humans in particular. A particular antigen or a protein has to be expressed in a plant using one of many available platforms; this antigen/protein subsequently needs to be purified or processed, and later formulated into a vaccine or a therapeutic; these need to be delivered to a human or animal body via an appropriate route. Naturally, all these vaccines and therapeutics must be subjected to regulatory approvals prior to their use. Thus, the challenge is to adapt plant-based platforms for production of cost-efficient biomedicals that can be approved by FDA for use as vaccine components or therapeutics which will be competitive against existing vaccines and drugs. This volume attempts to address the entire spectrum of challenges facing the nascent field of plant-based biomedicals, from the selection of an appropriate production platform to specific methods of downstream processing and regulatory approval issues.

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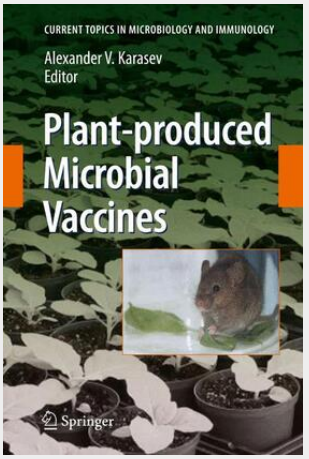

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