1. Record Nr. UNINA9910254050703321

Autore	Nicastro Jessica
Titolo	Bacteriophage Applications - Historical Perspective and Future Potential / / by Jessica Nicastro, Shirley Wong, Zahra Khazaei, Peggy Lam, Jonathan Blay, Roderick A. Slavcev
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (VII, 82 p.)
Collana	SpringerBriefs in Biochemistry and Molecular Biology, , 2211-9353
Disciplina	576.6482
Soggetti	Biochemical engineering Combinatorial chemistry Gene expression Biochemical Engineering Combinatorial Libraries Gene Expression
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	1. Introduction: What are Bacteriophage: a. Discovery and early phage work (including work with bacterial genetics, phage display, and phage therapy) -- b. Bacteriophage pathogenesis and host range -- c. Bacteriophage growth dynamics -- d. Bacteriophage pharmacokinetics(including mammalian host tolerance) -- 2. Applications with Bacteriophage: a. Phage Therapy -- i. Past – why phage therapy was unsuccessful in the past and what can (and is currently) being done to improve the system -- ii. Present /Future – current research objectives and future considerations -- Host range and how it can be expanded -- Lethal agent delivery systems (bacteriocidial) -- Lethality without lysis -- b. Phage Vaccines and Phage Immunostimulation -- i. Mammalian immune response to phage -- ii. Phage vaccine delivery vehicles -- iii. Phage Immunotherapy -- c. Phage as Delivery Vehicles: i. Phage for gene delivery -- Phage display for specific cell targeting -- Considerations for use and benefits in comparison to current systems -- ii. Phage as Drug Carriers -- Selectivity and cell attachment --

Phage T2 as a potential cancer therapeutic -- Phage for delivery to the brain and CNS (including current work with Alzheimer’s and drug addictions) -- d. Phage for Bacterial Detection: i. History of Phage bacterial detection -- ii. Methods (replication assays, conjugation with bioluminescence, labelling etc.) -- iii. Potential uses in healthcare and industry -- e. Phage for the targeting of Biofilms -- i. Phage candidates and important bacterial targets -- ii. History and potential uses in healthcare and industry -- f. Phage device coatings: i. Current phage coating practices and research -- ii. Callenges (notably phage orientation) -- iii. methods to overcome these challenges.

Sommario/riassunto

This book explores key applications of phage biotechnology and reviews recent advances in phage display technologies. The applications covered were selected on the basis of their significance and representativeness in the field. The small size and enormous diversity of bacteriophages make them ideal candidates for numerous applications across many industries. Since the discovery of phages and the advent of phage display systems, considerable attention has been focused on the development of novel therapeutic and industrial applications. Recent studies combine the genomic flexibility of phages with phage display systems in order to generate modified phages for targeted delivery.