Phages in the 21st century

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After several decades of languishing as tools for molecular biology, phages regained the interest they deserve because of their diversity, their role in bacterial evolution and dynamics, emergence of new pathogens and even biological cycles. Health threats raised by multi-resistant bacterial pathogens induced a renewed attention towards phage therapy. Phages are now appropriately considered as “nanomachines” and their components serve as new drugs, molecular machines, diagnostic tools and therapeutic agents. Nevertheless, our appraisal of the phage sequence space remains minimal. New sequence information fuels a recurrent debate on the need to revive phage taxonomy; routes have been proposed but none has yet received general approval. Classical genetic, biochemical and structural analysis goes on, and more and more sophisticated, on very few model phages. High throughput methodologies are not commonly used, maybe because not appropriate to phages in their present settings. Widely divergent terminologies adopted for different phages limit comprehensive computer analysis of phage sequences, genome organization, regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring information on phage proteins can be exploited for global regulatory networks and system biology. I shall illustrate how structuring(13,5),(988,986)