

## THE BACTERIOPHAGE-BACTERIA RIVALRY MECHANISM: MOLECULAR SYRINGE VS MOLECULAR SCISSORS

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*Abstract : Year 2012 marked the one-hundredth birth anniversary of Italian-born Nobel Laureate (1969) virologist Prof. Salvador Luria. He did pioneering investigations on possible mechanisms of lytic-type bacteriophage virus multiplication within Escherichia coli and Shigella dysenteriae. Later on he turned attention to the mechanism of bacterial resistance to phage infection. With regards to mutant bacteria being indestructible to phage infection, there have been reports for all the T-series phages. Bacteria have developed strategies to cope with different environmental stressors and combat infection by diverse phages, like a method to chop up any foreign DNA with restriction enzyme. Other strategies, such as prevention of adsorption, blocking of injection, abortive infection and the nucleic acid-based adaptive immune system 'CRISPR/CRISPR associated proteins' are effective against viruses. At the same time phages have found counter-attacking ways to circumvent and evade the bacterial protection strategies. Bacterial viruses exertive anti-restriction mechanisms, also are capable of circumvention of versatile CRISPR-based acquired immunity. Such confronting features have been discussed in this communication with a tribute paid to the legendary biologist and an end note on bacteriophage therapy.*

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