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## Learning from conflict: molecular strategies of MGEs to interfere with natural transformation

Natural transformability defines the ability of bacteria to take up exogenous DNA and integrate it in their chromosome. It is the most conserved mechanism of horizontal gene transfer (HGT), widespread in the tree of life. However, extensive variations in this phenotype are commonly reported. Using two bacterial pathogens, *Legionella pneumophila* and *Acinetobacter baumannii*, I will provide evidence that this results from a conflict between mobile genetic elements (MGEs) and natural transformation. I will provide examples of the molecular strategies used by MGEs to reduce the ability of the bacteria to undergo natural transformation. In one instance, inhibition by MGEs involves the targeting of an RNA chaperone, and in another the targeting of a DNA helicase. A molecular understanding of this conflict can reveal poorly characterized steps in the process of natural transformation. Also, the rampant genetic conflict between natural transformation and MGEs sheds new light on the evolutionary function of this mechanism of HGT.

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