

Small RNAs and RNA chaperones in *Agrobacterium tumefaciens*

Franz NABERHAUS

Microbial Biology, Ruhr University Bochum, Germany

*franz.narberhaus@rub.de

Small regulatory RNAs (sRNAs) play an important role in gene expression in all domains of life (1). Using bioinformatic and deep sequencing approaches, we and others identified more than 600sRNA candidates in *Agrobacterium tumefaciens* (2,3). Several of them are differentially expressed in response to stress conditions suggesting a regulatory function. The sRNA AbcR1 (ABC regulator1) accumulates during stationary phase and controls the expression of multiple ABC transporters by two distinct single stranded regions (4,5). One of its negatively-controlled targets is the *atu2422* mRNA, which encodes a substrate binding protein for proline and gamma-aminobutyric acid (GABA), a plant-secreted defense molecule. The absence of AbcR1 resulted in accumulation of *Atu2422* and increased GABA import (4).

The interaction between sRNAs and mRNAs often requires the help of the RNA chaperone Hfq (1). Hfq-Co-immunoprecipitation followed by deep sequencing showed that *A. tumefaciens* Hfq binds numerous sRNAs and mRNAs (6). Accordingly, many cellular processes including virulence are affected by the RNA chaperone (6,7). Similar virulence defects were observed in a mutant lacking YbeY, another RNA-binding protein. An overview of the impact of sRNA-mediated regulation in *A. tumefaciens* will be presented.

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