

Genome features and particularities of acholeplasmas and phytoplasmas

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The members of the two sister clades *Acholeplasma* and ‘*Candidatus* Phytoplasma’ share similar evolutionary trends. These are for instance the decrease of G + C content and genome condensation resulting in the loss of metabolic pathways. However, the majority of *Acholeplasma* species show a wide genetic environment, which is necessary for colonization of different ecological niches and sometimes allowing a ubiquitous distribution as shown for instance for *A. laidlawii*. In contrast, phytoplasmas depend on the colonization of insect vector and plant host. Obligate parasitism and vector- /host-pathogen interaction are characteristic for the members of this provisory genus. In consequence, the evolutionary split of the genera is indicated by the gene content involved in the transport systems, carbohydrate metabolism, amino acid synthesis, interacting membrane and effector proteins. Furthermore, genome condensation and intercellular colonization also resulted in genome instability of phytoplasmas. In contrast, horizontal gene transfers and duplication events are rare in acholeplasmas.

Here, we highlight basic points and selected particularities of genomes in both genera.