A tRNA methyltransferase and 5' endonuclease: molecular mechanisms of a multifunctional mitochondrial enzyme

Zusammenfassung

Transfer RNAs, the ubiquitous translational adapters of cellular protein synthesis, are synthesized as immature precursors. They have to undergo a number of processing and modification steps in order to become functional molecules. In human mitochondria, the subcellular factories responsible for energy production, a recently identified, novel type of enzyme complex is responsible for even two of these steps: the removal of extensions at the front end and chemical modification of a certain position within mitochondrial transfer RNA molecules. A subunit of the enzyme is moreover involved in the metabolism of certain amino acids and fatty acids. It is the primary aim of this project to elucidate the molecular-mechanistic basis and evolution of this unparalleled multiplex catalytic ability of an enzyme.

Keywords:
tRNA methyltransferase, RNase P, mitochondria, amyloid beta, structural biology, enzymology

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Weiterführende Links zu den beteiligten Personen und zum Projekt finden Sie unter
https://archiv.wwtf.at/programmes/life_sciences/LS09-032