

Chemical Studies to Elucidate the Evolution of the Ribosome (EvoRib)

Initiative: "Leben?" - Ein neuer Blick der Naturwissenschaften auf die grundlegenden Prinzipien des Lebens
(beendet)

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The today accepted theory of how life started on earth suggests that it all began with RNA. RNA can encode information in the form of the sequence of four canonical bases. At some point, RNA must have gained the property to self replicate, but it is unclear if it was RNA itself or if already peptides were around that helped in this process. Today it is the ribosome that in all organism catalyses peptide formation. It is here where RNA is decoded to give proteins that enable faithful replication of genetic information. Mistakes during this process lead to mutations, cell death and cancer. The origin of this process is right at the beginning of the transition from chemical evolution to the creation of living matter. It is this critical moment in evolution that until today determines life or death of a cell, which is in the focus of the research program.

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