

PERSPECTIVE: NON-CODING RNAS-REDOX GUIDED CELL EVOLUTION.

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Introduction:

Orchestration of genetic inter-communication between organellar (mitochondria & chloroplasts) and nucleic genomes is a complex mechanism in nature. Gene transfer phenomena are generally accepted as DNA-directed but experimental evidence is provided for RNA modularity in such a control, too. In this contribution, an uprising hypothesis concerning non-coding RNAs' partitioning in the evolution of photosynthetic organisms, via energy transduction and redox signalling will be discussed.

More specifically, we will try to unravel functional aspects of the RNA biochemistry concerning possible involvement of autonomous riboswitch-like molecules in the redox organismal fitness and (plant) cell bioenergetics, based on current data. Furthermore, we envision that commonalities regarding non-coding RNAs studies in photosynthetic extremophiles of primordial life; archean endosymbionts from hydrothermal vents and Antarctica, can decipher the context of RNA-mediated cell evolution, under a molecular eco-evolutionary umbrella.

References:

- [1] Kotakis Ch. (2015) *RNA Biology*, (in press).
- [2] Timmis J.N. (2012) *Current Biology* 22, R296-298.

Additional Information:

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Topic Short Title (listed on abstract
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