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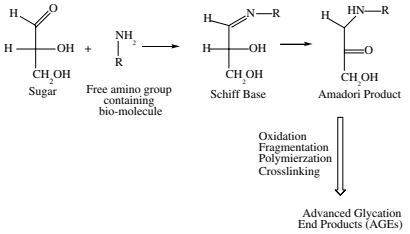
Yuyuan Li, Udayan Dutta, Menashi A. Cohenford, Joel A. Dain*

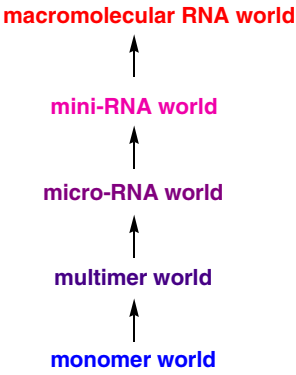
Reducing sugars and their metabolites can nonenzymatically interact with free amino group containing biomolecules to form a heterogeneous class of compounds known as the advanced glycation endproducts (AGEs).



The origin of the RNA world: Co-evolution of genes and metabolism pp 430–443

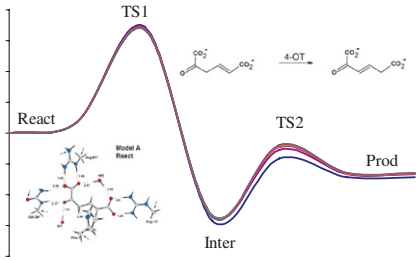
Shelley D. Copley,* Eric Smith, Harold J. Morowitz

Despite the appeal of the RNA world, it has been difficult to explain how macromolecular RNAs emerged from small molecules available on the early Earth. We propose a mechanism by which mutual catalysis in a pre-biotic network initiated a progression of stages characterized by ever larger and more effective catalysts supporting a proto-metabolic network, leading ultimately to the emergence of RNA as the dominant macromolecule.



Quantum chemical modeling of enzymatic reactions: The case of 4-oxalocrotonate tautomerase pp 444–457

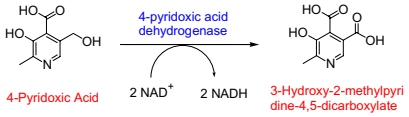
Robin Sevastik, Fahmi Himo*



PLP catabolism: Identification of the 4-pyridoxic acid dehydrogenase gene in *Mesorhizobium loti* MAFF303099 **pp 458–464**

Tathagata Mukherjee, Cynthia Kinsland, Tadhg P. Begley*

The gene encoding 4-pyridoxic acid dehydrogenase, a PLP catabolic enzyme, was identified and the corresponding protein overexpressed and characterized. This 33 kDa enzyme catalyzes the four electron oxidation, by NAD, of 4-pyridoxic acid to 3-hydroxy-2-methylpyridine-4,5-dicarboxylate. No accumulation of the aldehyde intermediate was detected.



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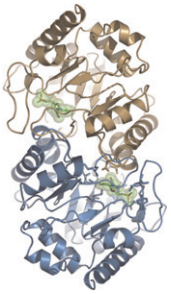
Brian P. Callahan,* Brian G. Miller*



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