The route from formamide to RNA and metabolism. Part I

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Formamide chemistry provides a coherent and essentially complete set of basic precursors for the onset of pre-biotic processes. Nucleobases, nucleosides, nucleotides, biogenic carboxylic acids, sugars, amino sugars, aminoacids and condensing agents are synthesized in a single and simple physical-chemical frame, suggesting the possibility of experimental conditions that can jointly provide the main components for the onset of both (pre)genetic and (pre)metabolic processes [1]. Recently, we focused on a novel role of meteorites in a plausible origin of life scenario: that of heterogeneous catalysts in the condensation of formamide. The energy source may be thermal [2] or associated with high energy particles (intended as mimic of Solar Wind) [3]. Without detracting at all from the possible terrestrial interest of each of these potential shrines, the findings reported here show that the energy source for bulk prebiotic syntheses might have been quite different from heat and that non-terrestrial minerals are plausible catalysts.

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