Potential synergism and mutualism in the origins of life: A one-pot experimental approach to non-enzymatic RNA and peptide polymerization

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Both RNA mononucleotides and amino acids have been reported to polymerize non-enzymatically on clay minerals into polymers of ~50 and ~10 mers, respectively. Additionally, lipid bilayer was also found to catalyze RNA non-enzymatic polymerization. We (Kaddour and Sahai, 2014) have recently emphasized the hypothesis that RNA and proteins might have co-emerged from a multicomponent soup, and co-evolved. To test this hypothesis, an experimental design, in which mononucleotides and amino acids are co-incubated in the presence of clays and lipids is proposed in this poster. But first, the conceptual basis for this study is presented.