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# Nucleic acids-mineral interactions; When G-quadruplexes meet Imogolites

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The DNA double helix, which defines the genetic code *via* complementary base-pairing correspond to the most widely recognized DNA structures. However, it is known that DNA and nucleic acids in general, including RNA, are structurally dynamic and able to form alternative secondary structures. One such category of nucleic acid secondary structure is the G-quadruplex (G4). Recent works have indicated that this structural motif play major roles and functions in biology. Thus, they are involved in key biological processes and functions such as transcription, replication, genome stability, epigenetic regulation, etc. Keeping in mind the importance of secondary structures in living systems, we formulated the hypothesis that stabilization of particular secondary structures of the prebiotic “neoformed” oligonucleotides would have been determinant in prebiotic conditions to generate self-replicating systems. The idea that G4 structures played a role in prebiotic chemistry is still speculative but it’s gaining interest as researchers look for alternatives to the classic “RNA world” hypothesis. Here, we highlight the chemistry of these organic biomolecules and their properties in the presence or absence of natural minerals such as imogolite (Fig. 1) with an emphasis on their formation, preservation or degradation.