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# Combinatorial Prebiotic Chemistry using non-biological compounds

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## Abstract

Prebiotic Chemistry is essentially "messy chemistry" – most Origins of Life (OOL) research tend to focus on known prebiotically available biomolecules to show how biopolymers or self-assembly can happen in a preferred prebiotic setting. While this was useful, there are still a huge number of non-biological compounds that exist in prebiotic chemistry that may have aided chemical evolution. Last year we showed how we can combinatorically make a huge set of heterogeneous polyesters using alpha hydroxy acids under a 24-hour wet-dry cycle. Here we show that a variety of plausibly prebiotic heterocyclic compounds can form polymers under mild wet-drying conditions via Ring Opening Polymerization and exchange reactions. Additionally, the initiation and co-polymerization with glycine will be shown too, which suggest that a variety of homo- and heteropolymers containing other monomer types should have been present in prebiotic environments, that may have had primordial catalytic, informational or self-assembly roles. Overall, this talk will suggest that perhaps the OOL could have been scaffolded by non-biological compounds derived from "messy" chemical system that went on to become to life-as-we-know-it.

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