

A simulation of polypeptide formation from oligopeptides in primordial earth hydrosphere

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Asparagine and aspartic acid might have transformed in the primordial hydrosphere of the earth as well as the pair of glutamine and glutamic acid. These amino acids seem to contribute to polypeptide, while simple amino acids: glycine and alanine easily form cyclic dipeptides not to reach long peptide chains. Asparagine-comprising or glutamine-comprising oligopeptides contribute some kinds of activation forms to lead polypeptides. The heating reactions of these peptides resulted in polypeptide formation with molecular weight up to about 5,000 Da in aqueous solutions. The new finding of polypeptide formation suggests a pathway of sequential polypeptides to evolve a diversity of polypeptides. The presentation will also show a pathway of asparagine-comprising dipeptides from alanyl alanine. The research proposes a scenario of polypeptide formation from simple amino acids.

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