

Forward from ATP (OOL)

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Christian de Duve in his book *Vital Dust* has some intriguing things to say about the origin.

We both feel that the likely reason for the 'tyranny of A' is "that adenine happened to be there before the other bases. It is certainly the easiest one to make abiotically." (and next is the other purine G – note GTP as 2nd to A in prime importance.)

He suggests this possibility "ATP, in turn, served to usher in RNA: in other words information may have entered by way of ENERGY. What may have happened is the condensation of 2 ATP molecules to ATP-AMP with the release of inorganic pyrophosphate. In this reaction, the 2nd ATP donates an AMP molecule to the first ATP, and the bond between ATP and AMP is sealed at the expense of the bond that originally existed between AMP and pyrophosphate in the ATP molecule."

He then goes on to say how this could lead to poly-A tails – "Unlike the synthesis of true RNA, the formation of poly – A takes place without the supply of information: it consists merely of 'dumb,' repetitive assembly."

Then he suggests this aspect – if ATP abundant and P_{Pi} scarce ATP would form poly-A and P_{Pi} – "In the opposite situation, excess P_{Pi} would drive the formation of ATP from poly-A (What would support this is finding a reasonable method of making abundant ATP through some prebiotic means)

He next suggests a possible scheme for the abiotic formation of the other 3 bases "an origin from adenine is not inconceivable. Once they were present, their incorporation into nucleotides could have been brought about by AMP ... This scenario is conjectural but not unlikely. It seems reasonable to suppose that the chemistry came first, without information, and that information came later."

Now it raps up nicely for me and my sun cycle idea when he wonders, "What the (present day) biological process has (that the) prebiotic

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process may have lacked, is a mechanism for the selection of whichever of the four available nucleotides is to be added at each step. The birth of this mechanism, which relies on simple molecular interactions, represents a true watershed in the development of life on Earth. It signals the transition from the age of chemistry to the age of information."

Yet the information inherent in this is – that information that best sets up a stable chemical response in the sun/heat cycle.

And that would be this

G–C would be more stable than A–U bonds

A–U bonds would be more stable than non W–C bonds –

thus the information inherent in this process

(and that he is looking for) is coding for stability

in that environment.

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