

ZULF'S AMBIVALENCE REGARDING SELF-REPLICATING RNA FOR ORIGINS OF LIFE

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While she walks slowly across a
young man's room She said, "I'm
ready for you" Why I can't
remember anything to this very
day 'Cept the look, the look Oh,
you know where, now I can't see I
just stare
I, I'm still alive Hey, I, oh, I'm still
alive Hey, I, oh, I'm still alive Hey,
I, oh, I'm still alive, yeah Ooh
yeah, yeah, yeah, yeah, oh, ooh
"Is something wrong", she said, of
course there is "You're still alive,"
she said, oh, and do I deserve to
be? Is that the question? And if so,
if so who answers? Who answers?

Pearl Jam, "Alive"

1. PERSONAL ASPECTS OF MY POSITION

First of all I do not have a severe obstruction to accepting that Self-Replicating RNA might actually solve the Origins of Life problem. I think it is possible that it does. I am not a random nay-sayer here. But I have not yet made up my mind yet.

Let me tell you what I would personally need to believe that Self-Replicating RNA are indeed the solution to Origins of Life Problem.

2. LIFE WITHOUT FRILLS

If the Self-Replicating RNA does replicate, but only if it has several French maids, a large retinue, several mansions in England and America, several football fields, a taste for Martini shaken not stirred, a large amount of money kept aside for Casino Royale and all manner of other things in order to do some replicating, then no.

To be more clear: if I take your Self-Replicating RNA away from your test tubes and throw it in the Ocean, will it actually do Self-Replicating, or will it call its lawyers and sue me for taking it away from its vast estate? I need Self-Replicating RNA to do self-replication without a lot of infrastructure. If it is self-sufficient, does this in random ocean environment, knows where to get its energy, then Self-Replicating RNA is a very good answer. If the molecule is even complicated I can

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still get sun and ocean to produce it by random covalent bonding. Why? Sun's energy going to the ocean is some $3 \times 10^{12} J/m^2$ which is so much energy, I can get positive probability of covalent bond formation, and then I have $T = 10^{11}$ days in a billion years. I can produce quite sophisticated molecules this way. I will produce huge amounts of totally useless organic molecules in the process that don't do anything. But in the end the probability that I will produce your designer Self-Replicating RNA will be quite high after a long time. I don't need any underwater hot springs. The Earth was hot all over for the first billion years.

If Self-Replicating RNA is actually alive, just by itself, without any infrastructure, then I have the way to produce it from sun and ocean in a billion years by probability theory.

3. WHAT'S THE PROBLEM?

The problem is that I don't know Self-Replicating RNA well enough. I just found [1] today for the first time. I don't have a feel for whether these things are actually alive yet.

REFERENCES

- [1] Birke Andrea Tews and Gregor Meyers. Self-Replicating RNA. *Methods Mol Biol.* 2017;1499:15-35.