

Editorial

SCIENTISTS PLAYING GOD!

Craig Venter has a habit of keeping himself in the headlines. Ten years ago, Craig Venter announced that scientists might soon define basic genetics required for booting life (1). The basis of the statement was a nice piece of scientific report from J. Craig Venter Institute in 1995 (2). It presented a list of specific genes essential for *Mycoplasma genitalium* to remain live in laboratory culture condition. It was followed by the above provocative statement by Venter and, as expected, it incited some debate – mostly aimless – but Venter was an immediate catch in Newspaper headlines.

Recently, Venter has claimed that ‘artificial life is only months away’ (3). The basis of the report was several pieces of elegant experimental reports from different laboratories. A good number of recent studies provide strong evidence that not-so-complicated RNA molecules may develop *de novo* from precursor peptide-nucleotide complex through fundamental chemical reactions, and that these nascent molecules show self-assembly and self-organizing capability amongst themselves (4, 5). It has also been demonstrated in different sets of experiments that simple fatty molecules under primitive thermodynamic conditions may trap short stretches of such nucleotides (6) and undertake replication under replicating environment (7). The entire process follows fundamental physical chemistry and can be demonstrated in test tube.

In this connection, one may recall the results of the Miller-Urey experiment. In this experiment, Stanley Miller and Harold Urey administered artificial lightning through a mixture of water vapour, methane, ammonia and hydrogen in a sealed glass tube and observed that complex broth of sugars, fatty molecules, nucleic acids, many amino acids, amines and several hydroxylated molecules were synthesized after cooling of the products (8, 9). Recent re-analysis of the Miller’s experiment products revealed that the pre-biotic richness of the end products of the experiment was significantly underestimated in the early analysis by Miller’s group because of insufficient technology available at that time (10).

In continuation of their previous study, Venter and his colleagues recently were able to make methylated stretch of synthetic genome of a specific strain of *Mycoplasma genitalium* to boot-up as it is, however, inside a xenogenic host, baker’s yeast (11). Also there is a recent report demonstrating that *E. coli* enzyme systems may be hijacked by artificial DNA for its replication (12, 13). Pooling them together, Venter is selling an idea that scientists are very near to creating artificial life (14).

The label that scientists attempt to play God is probably a fixed tag that scientists bear for ever, for scientists now and then perform brave experiment and tinker around like dare devils. Long ago – may be 3000 years ago – a group of Chinese philosophers had the courage to think that there could be logical basis of life process and the underlying logic can be studied, or *Aaruni*

insisted *Swetaketu* to study the process of unfolding of the life process through vehicles that allow us to see the invisible, to hear the inaudible, to acquire specific knowledge about things which used to be considered providential; they might have been labeled with the same tag: playing God. Galileo called up the scientists to *measure the measurable* and to device tools to *measure the unmeasurable*, and indeed improvised telescope to observe the sky; he was found guilty of questioning providential destiny. So, it is no wonder that the same psyche has been evoked when scientists are trying to synthesize life artificially in the laboratory.

There is no doubt that the new achievements in molecular cell physiology –

some of which are mentioned above – are significant and shall give valuable leads about some of the fundamentals of life and possibly origin of life, and about some hitherto-been unknown questions. Yet, there is absolutely no doubt that scientists are far away from fully synthesizing life – even at its crudest form – in a reproducible order from inert chemical mixture. This goal – although possibly shall not be accessed immediately but is believed to be reachable – keeps scientists working with romantic zeal and makes them leave no stone unturned to achieve it. This eternal attempt of scientists to hold the tracks of creation reminds us of Michelangelo's famous fresco in the Sistine Chapel giving embodiment of man's awe to the final enigma and attempt to hold it, in effect in one form.

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