“Scientists Create Synthetic Life” is the headline of an article ABC (Australia) News in Science 21 May 2010, about an experiment also reported in BBC News, 20 May 2010, Science Online 20 May 2010 DOI: 10.1126/science.1190719 and *Science* vol. 328, pp. 958, 21 May 2010. A team of scientists at J. Craig Venter Institute (JCVI) in Rockville, Maryland, and San Diego, California have made an artificial chromosome and inserted it into a bacterial cell which has replicated into billions of new cells with the genetic information from the synthesised chromosome.

The team started by analysing the genome of bacterium named *Mycoplasma mycoides*, used this information to construct long gene sequences from basic chemical components, and then inserted these into a yeast cell to get them to join together into a full chromosome. The newly made chromosome was then inserted into another bacterial cell named *Mycoplasma capricolum*
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These bacteria then reproduced into billions of new cells using the genetic information from the newly made chromosome, so they are have been declared a new species *Mycoplasma mycoides*
JCVI-syn1.0.

During the original chromosome synthesis the researchers had inserted some short DNA sequences that were not in the original *M. mycoides* genome so they could check that genome of reproduced cells was derived from the synthetic chromosome. They reported in *Science*
: “The only DNA in the cells is the designed synthetic DNA sequence, including "watermark" sequences and other designed gene deletions and polymorphisms, and mutations acquired during the building process. The new cells have expected phenotypic properties and are capable of continuous self-replication.”

Craig Venter described the experiments as being like making new software for the cell. Maryland biophysicist David Thirumalai commented: “It is a marriage of minds, imagination and God's creation of life itself.”

ABC , BBC

Editorial Comment: Venter's and Thirumalai's description of the experiment are more accurate than the ABC headline. Venter's team did something very intelligent that required a lot of creative design, but they did not create life. What they have done is to interpret genetic information already present in a bacterial chromosome, and using their understanding of DNA language they have assembled a new chromosome. However, in order to complete the chromosome assembly they had to make use of already existing yeast cells. Furthermore, the genetic information on the newly made chromosome has made new cells by using the already existing cellular machinery of the pre-existing recipient cells.

This experiment reminds us that the real key to the creation of life is not the chemicals DNA is made from, but the externally designed information encoded onto the DNA chemicals as well as the existence of DNA readers, cells to protect the process and a fluid environment that is friendly to the process. Without these, the DNA sequence is not life at all. The information used in this case as in all known cases is the product of a pre-existing mind, and using it required creative design and clever chemical engineering.

Therefore, we predict that all attempts to make new life by naturalistic or chance random evolutionary processes will fail. If Venter's team ever make a complete cell, not just a chromosome, from chemicals it will be because they used processes of creation, and will be irrefutable proof that life was created in the first place. (Ref. synthesis, abiogenesis, genetic engineering, prediction)

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