

THE CREATION OF SYNTHETIC LIFE

Call him maverick scientist or genomic wizard – Craig Venter is again in the headlines with another audacious feather in his cap. Craig Venter became famous as the bad boy of genome research when he first tried to patent a human gene more than a decade ago and then entered into fierce competition with the publicly funded Human Genome Project to be the first to decode the human genome.

Now scientists of the Craig Venter Institute in Rockville, Maryland have created what is being touted as “synthetic life”. Actually, what Daniel Gibson and his colleagues have done is to artificially manufacture the entire genome of the bacterium *Mycoplasma mycoides*. They then transplanted it into the empty cell of a different species *M. capricolum* which continued to survive and astonishingly multiply. On replication it produced proteins of only *M. mycoides*. To rephrase it, they rebooted a cell with the artificially created software of another species. On repeated replication by the process of “infinite dilution” eventually even the hardware has gotten replaced under instructions of the new software.

What are the possible gains of being able to create synthetic bacteria? First is the power to reduce environmental carbon dioxide and return oxygen to the atmosphere. Others include mass production of medicines and of course the creation of biofuels.

What could be the negative fallouts? ‘Bioerror’ and ‘bioterror,’ where new organisms either escape into the real world or are misused for warfare are what the doomsayers are warning us about.

The single-celled organism has several “watermarks” written into its DNA to identify it as

synthetic and help trace its descendants back to their creator, should they go astray. These watermarks include email ids, website address and quotations. The three inspiring quotes include one by the writer James Joyce ‘To live, to err, to fall, to triumph, to recreate life out of life’; another from the biography of the great scientist J. Robert Oppenheimer: “See things not as they are, but as they might be”. And from the mathematician Richard Feynman, who said: “What I cannot build, I cannot understand” (*www.naturenews.com 20 May 2010, The Hindu 3 June 2010, Gibson et al. Creation of a bacterial cell controlled by a chemically synthesized genome, Science 20 May 2010*).

INDIGENOUS SWINE FLU VACCINE

On 3rd June, the first indigenously produced Indian vaccine was also unveiled with the inaugural dose being taken by Union Minister for Health, Ghulam Nabi Azad. The vaccine has been developed by Zydus Cadila and will be available for Rs 350/- per shot. The mandate for developing the vaccine had been given to four companies - Serum Institute (Pune), Cadila Healthcare (Ahmedabad), Bharat Biotech (Delhi) and Panacea Biotech (Hyderabad) and the Government has already placed orders with three of them. While the Zydus Cadila vaccine is an egg based inactivated parenteral one, the vaccine from Serum Institute consists of nasal drops and will be available at end of June. The Cadila vaccine (VaxiFlu-S) has been tested on 269 people and 4 lakh doses will be available in the first batch. However it is approved only for the age group 18- 60 years and not cleared for children or pregnant women (*The Economic Times 9 June 2010, The Times of India 3 June 2010*).

Gouri Rao Passi
gouripassi@hotmail.com