What do you see as the potential benefits of adding new dna bases and new amino a...

Engineering

The DNA strand is composed of a phosphate molecule, a sugar molecule and a nucleotide base. One nucleotide base is attached to a complementary nucleotide base by a hydrogen molecule. In turn the other nucleotide base is attached to a sugar and phosphate molecule. This permits the DNA molecule to be double helix in nature.

The DNA structure is also known as the alphabets of life, as they are composed of bases such as A (Adenine), Guanine (G), Cytosine (C) and Thymine (T). The specific double helix structure permits the DNA to be replicated (Robert Adler 2008). In the US, scientists at the Scripps Research Institute, California, have created two artificial DNA letters, by a process known as ‘ genetic engineering’.

Scientists feel that they are able to insert them into the genetic code of living beings. The new DNA bases include dSICS and dMMO2. The artificial DNA bases do not need any artificial polymerase enzyme to permit replication. The properties that such DNA possesses would be novel and not artificial. Such DNA bases would be possessing specific primers for amplification, having materials to ensure tagging, are able to detect explosives and also develop nanomaterials using DNA. The DNA bases can also be utilized to silence any defective genes, enable complex calculations and build complex shapes (Robert Adler 2008). Q. #2.

)What potential problems do you see? Amino acids are not coded by DNA letters that are previously not available in nature. Using the 4 current DNA bases, there could b 64 letter combinations that code for a specific amino acid. However, 61 codons are already utilized for the 20 amino acids present

in nature. The three remaining codons do not represent an amino acid and hence could not build for proteins. Hence, scientists have to develop new codons that represent new amino acids, giving the potential for forming 216 codons. The processing of producing new DNA bases and amino acids is successfully done in the laboratory but may take time to be done inside the cell (Andrew Pullack 2001). Work CitedAdler, Robert.

“ Artificial letters added to life’s alphabet.” January 2008. New Scientist. 2 February 2008. http://www.

newscientist. com/article/dn13252; Pollack, Andrew. “ Scientists Are Starting to Add Letters to Life’s Alphabet.” 24 July 2001. New York Times. 2 February 2008.

http://query. nytimes. com/gst/fullpage. html? res= 9E04EEDE113AF937A15754C0A9679C8B63&sec= technology&spon=&pagewanted= all