BYTE QUEST

Vasavi College Of Engineering

Department Of Computer Science and Engineering

September 15, 2016

Volume 27

Contents:

Byte Quest is the article published by the CSE dept of Vasavi College of Engineering regarding the latest innovative Technologies and Software that have been emerged in the competitive world. The motto of this article is to update the people regarding the improvement in technology. The article is designed by the active participation of students under the guidance of faculty coordinators.

- Good ,bad or indifferent if you are not investing in new technology , you are going to be left behind.

  -Philip Green

- Once a new technology rolls over you, if you're not part of the steamroller, you're part of the road.

  -Stewart Brand.

FACULTY COORDINATORS

T. NISHITHA (ASST. PROFESSOR)

M. SUNDARI (ASST. PROFESSOR)

STUDENT COORDINATORS

AMREEN KOUSAR(4/4 CSE-A)

D.SWAPNA(3/4 CSE-A)

NIKITHA(2/4 CSE-A)

KRISHNA CHAITANYA(4/4 CSE-B)

RAHUL(3/4 CSE-B)

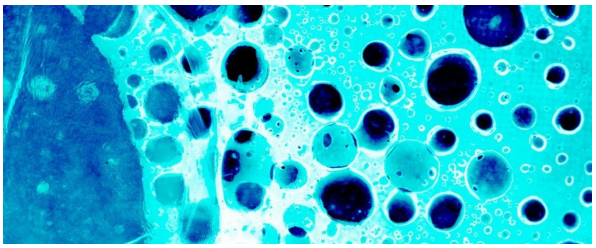
ABHINAV(2/4 CSE-B)

EXPERIMENTAL DRUG FIGTHS CANCER BY 'WAKING UP' THE IMMUNE SYSTEM

Scientists are hailing the discovery of a drug which is effective against metastatic pancreatic cancer with no obvious side-effects. IMM-101 works by 'waking up' the immune system to attack tumours.

By adding IMM-101 to the existing chemotherapy drug, gemcitabine, researchers from St George's, University of London in the UK were able to break through the protective cells shielding pancreatic tumours. Patients given the new immunotherapy drug felt better than those taking standard chemotherapy treatment and no toxic side-effects were noted.

The early signs are promising. Only a relatively small number of people (110) were included in the trial, and over the whole sample there was no significant survival benefit. This is because the drug was more effective in treating cancer that had advanced to the stage where it was identified



as having spread through the body. The median survival rate increased from 4.4 months to 8 months in patients with metastatic pancreatic cancer – some patients taking the new treatment lived for over a year, and one survived for nearly three years. But the drug didn't seem to help those whose cancer had stayed local, rather than spreading to secondary sites.

Hopefully, with further research completed, IMM-101 might be able to improve upon some of the stats.

ABHINAV(CSE-A 2/4)

DISEASE IS SPREADING THROUGH OUR OCEANS LIKE NEVER BEFORE

An international investigation into the health of the world's oceans has found that rising global temperatures are spreading disease at an unprecedented level, threatening the global food chains and suggest that the oceans have 'absorbed' 93 percent of the warming effects of climate change.

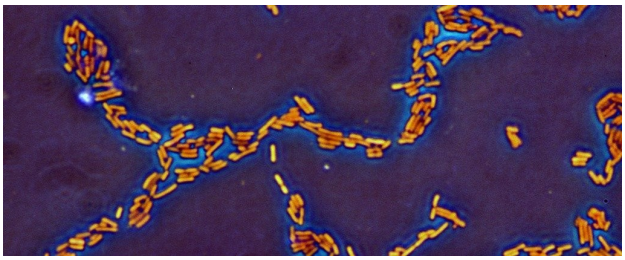
The investigation revealed that the oceans have been 'shielding' the living from the devastating effects of warming since at least the 1970s. Because oceans take up so much surface area on our planet, as radiation from the Sun hits them, the heat is quickly dissipated. In a world without the oceans, much of that heat would have remained, after bouncing off landmasses and getting trapped in the atmosphere - causing the planet to warm much faster than ours is right now.

The report claims that if the ocean's temperature continues to rise like it is today, Arctic environments will take a major hit, as ice-covered areas are expected to disappear, leaving nothing but open water. In this scenario, polar bears are likely to go extinct between 50 and 70 years from now.

The team hopes that their investigation will convince industries to switch to greener technologies, because our oceans are at a breaking point, and they can't take the brunt of global warming forever.

R.HEMANTH(CSE-B 3/4)

SCIENTISTS ARE CLOSE TO REWRITING THE GENETIC CODE OF LIFE



Geneticists have made a step forward in 'recoding' the genome which, so extensively could lead to the development of organisms that are resistant to viruses, and could even allowing biologists to code for all-new synthetic amino acids.

Firstly, DNA, and its four base pairs, A, T, C, and G, are translated into RNA, where the code is arranged in triplets, that each code for a specific amino acid the cell should use. But there are 64 possible triplets, or codons, and only 20 types of amino acids that exist in nature. This means that three or four codons might encode one amino acid, and there's some overlap

Harvard University researchers have now removed some of this 'overlap' in *E. coli* (*Escherichia coli*) – by changing 62,214 base pairs, and removing 7 of the 64 codon types across 3,548 of *E. coli*'s genes and 63 percent of the recoded genes produced are already tested.

One of the most exciting parts about this work is that being able to recode the DNA in this way could lead to bacteria that are resistant to all kinds of viruses. The team did this by removing the mechanism for the *E. coli* cell to be able to understand a codon. When they removed the protein, called RF1, when the codon, U - A - G, was read, the DNA machinery didn't stop like it usually would. This meant that their cells read the DNA differently - if U - A - G was specifically added in later and the cell was forced to read it, it wouldn't know what to do with it, and therefore wouldn't be affected. This forceful addition of DNA is something that happens naturally when viruses infect any living cell. They do this by splitting the host genome and adding in their own DNA - usually to produce more of the virus.

The researchers are hoping to eventually use these codons to create artificial amino acids in the bacteria. This would totally change the types of protein E. coli could create, and could have huge implications for manufacturing, and other industries.

M.ADARSH(CSE-A 3/4)