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Barbara McClintok
[June 16, 1902 - Sep 2, 1992]

Awarded Nobel prize in 1983 for the discovery of 'Transposons' or 'Jumping genes' in maize plant that control switching 'on' & 'off' of characters.

Francis Peyton Rous
[Oct 5, 1879 - Feb 16, 1970]

Awarded Nobel prize in 1966 for discovery of role of certain viruses in transmission of cancer.
Use of Adenovirus in Cancer treatment

Adenovirus is a medium-sized (90-100 nm), non-enveloped, icosahedral shaped structure. It also contains a Nucleocapsid.

Recent research has paved a way for treatment of cancer using Adenovirus, wherein the viral DNA is modified in such a way that they only kill tumour cells, not normal cells, very effectively.

Cancer Successfully Eradicated
Tetanus

Caused by Clostridium tetani. Symptoms begins with lockjaw and extremely painful muscle spasms. Spores of such microbe found in soil. Preventive measures include antibody injections.

Gas Gangrene

Caused by Clostridium perfringens. Incubation period 2-12 days. The organism produces deadly alpha-toxin that causes air gaps in tissues, resulting into its putrefaction. No effective treatment or cure. Amputation is done sometimes.
5 FACTS ABOUT MERS

1. What is MERS?
   - It is a viral respiratory illness and was first reported in 2012 in Saudi Arabia. Over 20 countries have been affected by MERS. It is considered to be a deadlier but less infectious cousin of Severe Acute Respiratory Syndrome (SARS).

2. What is the source of the virus?
   - We don't know for certain where the virus came from, but it likely came from an animal. In addition to humans, the virus has been found in camels. It is possible that some people became infected after contact with camels.

3. What are the symptoms and complications?
   - Most patients have severe acute respiratory illness with symptoms of fever, cough, and shortness of breath. Some patients also have gastrointestinal symptoms, including diarrhea and nausea/vomiting. For others, more severe complications followed, such as pneumonia and kidney failure.

4. How is it transmitted?
   - Like other coronaviruses that includes the common cold and SARS, it is thought to spread from an infected person's respiratory secretions, such as through coughing. However, the precise ways the virus spreads are not currently well understood. The virus has no vaccine as yet.

5. How bad is the situation in South Korea?
   - South Korea has put 2,500 people under quarantine and shut nearly 1,900 schools — mostly in Seoul and surrounding Gyeonggi province. Hundreds of public events, school trips, and sporting fixtures have been cancelled, with movie theatres, theme parks and shopping malls reporting big drops in the number of customers.

S. KOREA declared MERS free on 29 July 2015

Zmapp vaccine against Ebola Virus developed.
It is made/synthesized through monoclonal antibodies synthesis.

oh my god!!
Should move from Africa.....
let's go with the bats in economy class!
Lonar Lake

District: Buldhana
State: Maharashtra
Saline conc.: 0.4%
PH: 10

Lonar crater is a simple, bowl-shaped, preserved depression. High level of Iron, Phosphate, Magnesium, Nitrate, total organic carbon.

It is formed by crashing of a meteor on the earth.

Microflora:
- Gammaproteobacteria, Actinobacteria, Alphaproteobacteria, Betaproteobacteria, Halomonas, Alkalimonas, Pseudomonas, Bacillus, Methylophaga, Paracoccus, Rhodobaca, Idiomarina spp.

Four Novel Heterotrophs:
- Nitritalea halakaliphila
- Indibacter alkaliphilus
- Cecembia lonarensis
- Georgenia satyanarayani

One novel Methylophroph (Methylophaga lonarensis) have been described from Lonar Lake.
Bt Brinjal

Selective Action of Bt In Insects

- Ingestion
- Solubilization
- Activation
- Binding
- Insertion
- Pore formation
- Cell lysis
- Death

What are the benefits of Bt Brinjal?

Consumers will have a choice to buy non-infected, undamaged brinjal fruits, significantly reduced level of pesticide residue.

Why should we say 'No' to 'Bt Brinjal'?

- Long term health impacts not assessed.
- Antibiotic resistant genes in Bt Brinjal.
- Babies at a higher risk.
- Consumer choice violated.
- Farmers under threat.
- Ecological impacts.
- Australian & American studies that organism damage in mice that were fed GM grains.
Living Magnets

Bacteria can respond to environmental factors other than chemicals.

A fascinating example is that of the aquatic magnetotactic bacteria that orient themselves in the earth's magnetic field.

The biological phenomenon of microorganisms tending to move in response to the environment's magnetic characteristics is known as magnetotaxis (ability to sense a magnetic field).

Most of these bacteria have intracellular chains of magnetite (Fe₃O₄) particles or magnetosomes, around 40 to 100 nm in diameter and bounded by a membrane. Some species from sulfidic habitats have magnetosomes containing greigite (Fe₃S₄) and pyrite (FeS₂).

Bacteria swim to nutrient-rich sediments and O₂.
Academic Year - 2015-16

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2015-16

Bacterial Culture

Mrs. E. coli

Mr. Staphylococcus

"C'mon Baby - We'll make beautiful mucous together!"