

A Newsletter on Pharmacy Practice

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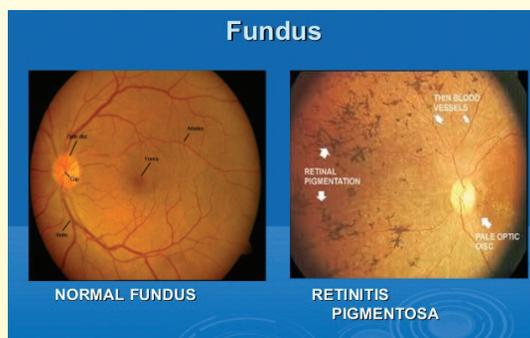
T. Indraja sai mani

T. Tejaswi priyanka

Dear reader

Medicine is a “miracle elixir” which helps in maintenance and restoration of health by the prevention and treatment of illness. Cancer is a complex disease and the positive notion of finding a cure for it makes it always alive in the minds of researchers, clinicians, physicians, druggists and the fraternity involved in this activity. There have been articles about experiments on a particular drug or therapy or extracts from fruits would kill the malignant tumor cell, but still fail to find a place in prescription practice. Preclinical studies at the National Cancer Institute, recommend a possible solution to *necroptosis*, a phenomenon of controlled cell death to make the human immune system free of cancer causing cells. Research on targeted cancer therapy brought into lime light the importance of colostrum and breast feeding in improving the natural immune system against cancer causing cells. Let the combined efforts result in the engineering of better approaches to create an immune response in various types of cancers.

CRISPR TECHNOLOGY FOR GENOME SURGERY IN TREATING RETINITIS PIGMENTOSA :

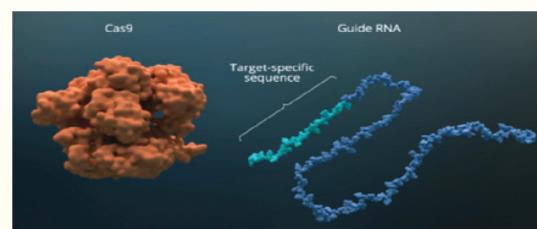


RETIITNIS PIGMENTOSA

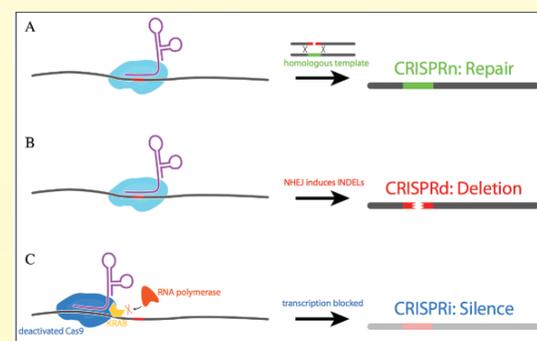
Retinitis Pigmentosa (RP) is a genetic disorder of the eyes that leads to loss of vision, night blindness due to bilateral degeneration of rod-cone photoreceptors, and progressive visual impairment. RP causes gradual cell death—first of rod cells, responsible for night vision, followed by the more scarce cone cells, which enable color and daylight vision. There are 2

main forms of RP, one is an autosomal dominant form where a person inherits one copy of the mutated gene from parent and another copy is a normal gene, and other is an autosomal recessive form where a person inherits 2 copies of mutated genes. Globally there is a prevalence of 1 in 4000 people.

CRISPR TECHNOLOGY



Clustered Regularly Interspaced Short Palindromic Repeats/Cas9 (CRISPR/Cas9) is a gene-editing system used to modify or correct specific areas of DNA that are mutated. This system comprises of 2 parts: Cas9, an enzyme that cuts DNA and Guide RNA sequence that guides Cas9 to a specific location in DNA where edit should be made. Cas9 and Guide RNA form a complex. The process begins when this complex recognizes and binds to a short segment of DNA adjacent to the target site. Thereby unbinding the DNA helix which allows guide RNA to pair with the specific target sequence in the DNA. If the sequence is paired precisely, Cas9 cut the DNA forming a double-strand break, then cells respond to such breaks by activating natural DNA repair pathways. This process can be applied in various conditions such as Disruption, Deletion, Corrections of DNA sequencing etc.



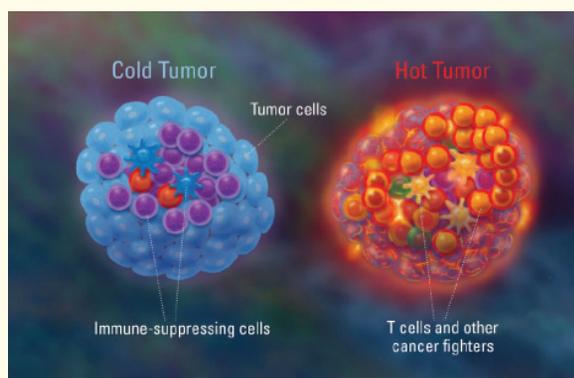
Source: <https://medium.com/eyecare-tomorrow/can-crispr-be-used-to-cure-retinitis-pigmentosa-c6868dbee8>



COMMON COLD VIRUS COULD DESTROY BLADDER CANCER

A New Study in the Medical Journal Clinical Cancer Research reported that a Strain of Common cold virus have been found to potentially target, infect and destroy CANCER cells in patients with bladder cancer. NMIBC (Non-Muscle Invasive Bladder Cancer) is found in the tissue of the inner surface of the bladder and is the tenth most common cancer in the UK with approximately 10,000 people each year diagnosed with the illness. Current treatment for NMIBC is ineffective and toxic in a proportion of patients and there is an urgent need for new therapies.

Researchers investigated the safety and tolerability of exposure to the oncolytic ('cancer-killing') virus coxsackievirus (CVA21), a naturally occurring strain of the common cold. This study was performed in fifteen NMIBC patients one week prior to pre scheduled surgery to remove their tumours who receive CVA21 through catheter in the bladder. Post surgery examination of tissue samples discovered that the virus was highly selective which targets only cancerous cells in the organ, replicates itself, inflames the tumour causing immune cells, rush to target and kill the cancer cells. These tumour cells devoid of immune cells are known as 'cold' areas immunologically so patients immune system prevents the elimination of cancer cells as it grows, however, treatment



with the virus causes inflammation and immune cell stimulation to create 'immunological 'heat'. 'Hot' tumours in this way are more likely to be rejected by the immune system. Urine samples collected from the patients on alternate days detected 'shedding' from the virus indicating that once virally infected cancer cells had died, the newly replicated virus continued to attack more cancerous cells in the organ. In majority of the patients reduction of tumours and increased cancer cell death was identified and in one patient no trace of cancer during the surgery, following one week of treatment showing its potential effectiveness. Oncolytic viruses such as the coxsackievirus could help to revolutionise treatment for this type of cancer and could signal a move away from more established treatments such as chemotherapy.

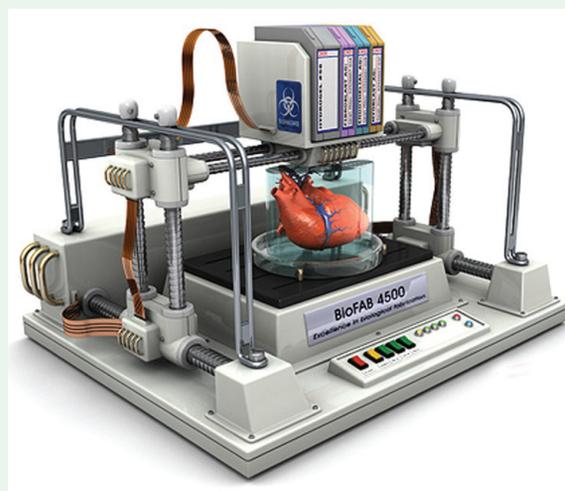
Source: <https://inews.co.uk/news/health/bladder-cancer-common-cold-virus-destroyed-study-499151>

3D BIOPRINTING A NEW FRONTIER IN REGENERATIVE HEALTH CARE

Bioengineers have conceived of a breakthrough technique for 3D bioprinting of organ tissues. The novel method allows scientists to recreate the complex vascular networks that mimic the body's natural passage ways for blood, air, lymph, and other vital fluids. Bioprinting refers to 3D printers which deposit layers of biomaterial to build complex bodily structures like skin, bones and even corneas. They can dissolve in some dissolvable gel or collagen which can supports the cells and mould them in required shape.

Organ transplants

The business of transplant organs is a complicated procedure with full of hurdles. First of all, there is the fact that there is great need for organ transplants that can not be met by human transplants alone. More than 100,000 people are on transplant waiting lists in the United States alone. Furthermore, those who do receive organs still risk organ rejection and have to be on immune-suppressing drugs. Bioprinting has the potential to resolve both those issues by allowing doctors to print replacement organs from a patient's own cells. For instance, experiments on the lung-mimicking structure found that the tissues were able to handle human-like flow and pulsatile breathing without bursting. Furthermore, the red blood cells could take up oxygen as they flowed through this 3D printed network. That is not the only experiments the researchers undertook. The team also implanted 3D printed tissues loaded with primary liver cells into mice. The result was that the



tissues successfully survived the implementation. Now, the researchers plan on exploring many more options. Printing body parts may, will be the next step in organ transplantation. Harvesting stem cells from a transplant recipient and printing them into a replacement organ could, help long waits for suitable donor (or) immune rejection of new organs.

Source : <https://www.cnn.com/2015/11/02/bioprinting-the-new-frontier-in-medicine-that-makes-human-tissue.html>

VIJAYA INSTITUTE OF PHARMACEUTICAL SCIENCES FOR WOMEN



SYNTHETIC OPIOD ASSOCIATED WITH INCREASED RISK OF HYPOGLYCEMIA

Tramadol is a synthetic analogue to codeine approved in 1995 which become a more common drug of choice for moderate to severe pain. It has a rapid onset of action, shown to be effective for a variety of moderate pain conditions, including postoperative abdominal surgery, arthroplasty recovery, active labor, and chronic non-cancer pain (CNCP). A Scientific report published by researchers show that patients who take tramadol are at greater risk for developing hypoglycemia, or abnormally low blood sugar levels. The research team, analyzed more than 12 million people reports from the FDA Adverse Effect Reporting System (FAERS) and Adverse Events Reporting System (ADERS) databases, which chronicle voluntary reports of adverse effects while taking medication, the period of study ranged from January 2004 to March 2019. Tramadol's metabolism was highly unpredictable due to the dependent nature of the drug's pharmacokinetics with the variable enzyme CYP2D6. It is probable that tramadol may induce hypoglycemia, it activates the μ -opioid receptor and inhibits central serotonin and norepinephrine reuptake. Serotonin pathways are known to have complex effects on peripheral glucose regulation. Only tramadol has a significant risk of developing hypoglycemia. In fact, there was a 10-fold greater risk of hypoglycemia using tramadol than any other opioid. Untreated, hypoglycemia can lead to serious complications of its own, such as neurocognitive dysfunction, vision loss, greater risk of falls and loss of quality of life.

Source : <https://www.webmd.com/pain-management/news/20141208/painkiller-tramadol-linked-to-low-blood-sugar#1>

NOVEL DRUG APPROVALS FOR 2019

DRUG NAME	ACTIVE INGREDIENT	APPROVAL DATE	USES
Vyndaqel	Tafamidis meglumine	03.05.19	To treat heart disease (cardiomyopathy) caused by transthyretin mediated amyloidosis in adults.
Piqray	Alpelisib	24.05.19	To treat breast cancer
Polivy	Polatuzumab vedotin-piiq	10.06.19	To treat adult patients with relapsed or refractory diffuse large B-cell lymphoma.
Recarbrio	Imipenem, cilastatin and relebactam	16.07.19	To treat complicated urinary tract and complicated intra-abdominal infections
Accrufer	Ferric maltol	25.07.19	To treat iron deficiency anemia in adults
Wakix	Pitolisant	14.08.19	To treat excessive daytime sleepiness (EDS) in adult patients with narcolepsy



ACTIVITIES OF DRUG INFORMATION CENTRE AT GOVT. GEN. HOSPITAL, VIJAYAWADA.	MAY JUN JUL AUG			
	No. of patients counselled	00	34	22
No. of drug interactions observed	00	19	12	16
No. of medication errors observed	00	12	11	13
No. of pharmacist interventions	00	05	04	03
No. of adverse drug reactions observed	00	02	02	01



"Education is the most powerful weapon which you can use to change the world."
-Nelson mandela.



VIJAYA INSTITUTE OF PHARMACEUTICAL SCIENCES FOR WOMEN



Campus News

- ❖ On account of **World Tuberculosis Day** (20-6-19) college organized a counseling session by the students of III Pharm. D for the patients at GGH, Vijayawada about the dreadful disease, cure and prevention.
- ❖ On the occasion of **International Day against Drug Abuse and Trafficking, Health for Justice, Justice for Health** (26-6-19), Student counseling session for patients at Government General Hospital, Vijayawada and awareness sessions for students were held to spread knowledge about the need of the hour, to **“say no”** to drugs and raise voice against the illicit trafficking of drugs.
- ❖ Awareness sessions were organized at Government General Hospital, Vijayawada about the causes, effects and preventive measures of the dreadful Hepatitis B disease on 29-07-2019.
- ❖ As it is observed as **ORS Week** from 25th July to 31st July, on 30-07-2019, Dr. P. Anil Kumar, Pediatrician, GGH, delivered a guest lecture to students on “The Amrut in Dehydration”.
- ❖ As it is observed as **Breastfeeding Week** from 1st to 8th August, on 6-8-19, college organized a seminar on “The importance of breastfeeding” by Prof. N. Indira Kumari, Gynecologist & Prof. V. S. Vittal Rao, Pediatrician, from old GGH, Vijayawada.
- ❖ On account of **World Organ Donation Day**, on 13-8-19, Dr. Kola Vijaya Sekhar, Prof. Ophthalmology, GGH, Guntur delivered a guest lecture on The Importance of Organ Donation.

To,

We are pleased to receive your feedback and suggestions to :

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