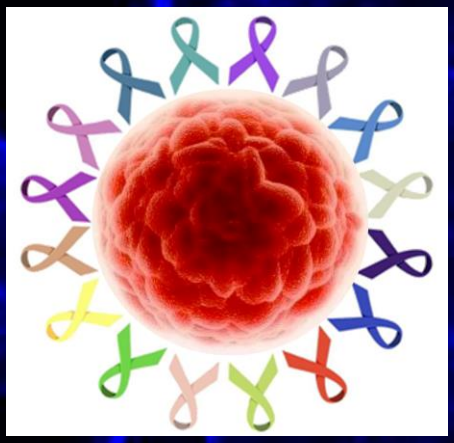
NATIONAL SEMINAR

On

"Recent Advances in Cancer Cell Biology & Therapeutics"



Sponsored by

Department of Biotechnology

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Organized by

CENTRE FOR SCIENTIFIC RESEARCH AND DEVELOPMENT

PEOPLE'S UNIVERSITY, BHOPAL

CENTRE FOR SCIENTIFIC RESEARCH AND DEVELOPMENT

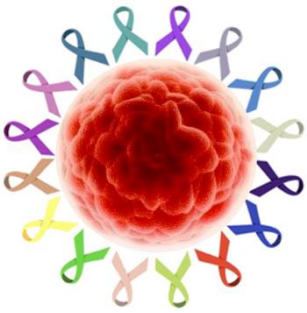
PEOPLE'S UNIVERSITY, BHOPAL

DBT Sponsored

NATIONAL SEMINAR

ON

"RECENT ADVANCES IN CANCER CELL BIOLOGY& THERAPEUTICS"



10th December 2022

Organized by

PEOPLE'S UNIVERSITY

CENTRE FOR SCIENTIFIC RESEARCH AND DEVELOPMENT, PEOPLE'S UNIVERSITY

VISION

- *Centre for Scientific Research and Development (C.S.R.D.), focuses on cutting-edge research in diverse areas of life sciences and its allied subjects.*
- *C.S.R.D. comprises of five functional laboratories of different streams of life sciences under one roof with expertise in Genetic engineering, Microbiology, Molecular Biology, Stem Cell Culturing, research and diagnosis of hemoglobinopathies.*

Mission

- *The Institute provides research facilities for constituent units of People's University and other Institutes all over India.*
- *There are 7 ongoing research projects based on its thrust area.*
- *The Centre provides special facilities for pursuing research work in the field of microbial biotechnology, ethanopharmacology, animal cell culturing, hemoglobinopathies and karyotyping with specialized equipment viz. flow cytometer, thermal cycler, gel documentation system, ELISA reader, gas chromatograph, atomic absorption spectrophotometer etc.*

Chancellor
People's University

Message

I am glad to know that Centre for Scientific Research & Development, People's University, Bhopal is organizing a DBT sponsored National Seminar on "Recent Advances in Cancer Cell Biology & Therapeutics"on 10th December 2022.

I appreciate Centre for Scientific Research & Development from the core of my heart for organizing such event that will provide a common platform for sharing ideas and knowledge in the current prospective of technological developments and innovations in the scientific field.

I heartily welcome and extend my best wishes to all the participants and wish the seminar a grand success.

Suresh N. Vijaywargia

Pro Chancellor
People's University

Message

I am happy to know that Centre for Scientific Research & Development, People's University, Bhopal is organizing a DBT sponsored National Seminar on "Recent Advances in Cancer Cell Biology & Therapeutics" on 10th December 2022.

This seminar will increase the social awareness about the biology as well as therapeutic advancement regarding cancer. At the same time, this event will serve as an excellent platform for knowledge sharing for advanced research among the scientists. I welcome all the participants and the organisors for their active participation in the national seminar.

Megha

Dr Megha Vijaywargia

Vice- Chancellor
People's University

Message

It's a matter of great honour that as a constituent unit of People's University, Centre for Scientific Research & Development is organizing a DBT sponsored National Seminar on "Recent Advances in Cancer Cell Biology & Therapeutics" on 10th December 2022.

Cancer is characterized by disordered and deregulated cellular and stromal proliferation accompanied by reduced cell death with the ability to survive under stresses of nutrient and growth factor deprivation, hypoxia, and loss of cell-to-cell contacts. At the molecular level, cancer is a genetic disease that develops due to the accumulation of mutations over time in somatic cells. Cancer work is allied to biological experiments where cells are grown in vitro, in two or three-dimensional systems. Preclinical and clinical studies of metabolism-related cancer therapies are gaining importance. Popularizing and disseminating research findings should be seriously attempted.

I wish the whole programme a great success.

Dr. Rajesh Kapur

Registrar
People's University

Message

I am delighted to learn and feel proud that DBT sponsored National Seminar on "Recent Advances in Cancer Cell Biology & Therapeutics"is being organized by the Centre for Scientific Research & Development, a constituent unit of People's University, Bhopal. In a very short period, People's University has carved a niche for itself among the leading universities of Central India.

I am sure that participation from esteemed experts, faculties, students and delegates from all over the country will provide a vital connect between alumni, academia and talented student community of this as well as other academic institutions.

I extend my warm greetings and felicitations to the organizers and participants and wish the Convention a great success.

Neerja Mallick

Dr. Neerja Mallick

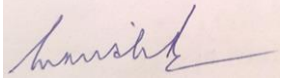
Organizing Secretary& Convenor
Director, CSRD
People's University

Message

I am extremely delighted to invite all the eminent speakers, invitees, delegates and our dear Students to the sprawling campus of People's University for attending the DBT sponsored National Seminar on "Recent Advances in Cancer Cell Biology & Therapeutics".

This National seminar is aimed to provide a common platform to scientists, academicians, medical practitioners and technologists engaged in various field of sciences for discussion on the recent advances of Cancer Cell Biology & Therapeutics. Let us join our hands together to share our knowledge and experience that will go a very long way to build up a healthy, prosperous and developed nation.

We hope that all of you will enjoy the academic feast, warm hospitality, rich heritage and culture of Madhya Pradesh.



Dr. Harish Rao

ORGANIZING COMMITTEE

Dr. Harish Rao

ORGANIZING SECRETORY & CONVENOR

FACULTY MEMBERS

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Recent advances in Cancer Cell Biology & Therapeutics

Programme Schedule

Morning session

- **9:00 am- 9:30 am:** Registration
- **9:30 am- 10:00 am:** Welcome address & Opening Ceremony
  9.30 am- 9.32 am: Reception of Hon'ble Dignitaries

  9.32 am- 9.35 am: Lightening of the Lamp by Dignitaries

  9.35 am- 9.40 am: Felicitation of Hon'ble Dignitaries

  9.40 am- 9.42 am: Release of Abstract book

  9.42 am- 9.45 am: Welcome address by the Organizing Secretary

  9.45 am- 9.50 am: Keynote address by Hon'ble Chief Guest

  9.50 am- 9.53 am: Introduction of the Guest of Honour by the Organizing Secretary

  9.53 am- 9.58 am: Words of Wisdom by the Guest of Honour

  9.58 am- 10.00 am: Conclusion of Inaugural Ceremony

Programme Schedule

Plenary Lecture series

- **10:00 am- 10:45 am: "Emerging roles of Interleukin 33 in cancer"**
  Dr.Rohit Saluja (Asst. Prof., AIIMS Hyderabad).....online

- **10:45 am- 11:30 am: "Biomarkers of cancer: the past, present & future."**
  Dr.Reeni Malik (Prof. & Head, Dept of Pathology, Gandhi Medical College, Bhopal)

11:30 am- 11:45 am: Tea Break & Poster session

- **11:45 am- 12:30 pm: "Clinical importance of a non-invasive molecular marker panel for prognosis in glial brain tumor: The blue print unravelled."**
  Dr.Puneet Gandhi (Prof. & Head, Dept of Research, BMHRC, Bhopal)

- **12:30 pm- 1:15 pm: "Recent advances in Oncology: A drive towards a cure."**
  Dr.Shyam Agarwal (Senior consultant oncologist, Bhopal)

1:15 pm- 2:15 pm: Lunch break & Poster session

Recent advances in Cancer Cell Biology & Therapeutics

Programme Schedule

Afternoon session

Oral presentation by the participants

- **2:20 pm-2:40 pm:** Talk 1: The systemic molecular markers of extracellular matrix: A dynamic niche of potential prognosticators in glioma
  Richa Shrivastava

- **2:40 pm-3:00 pm:** Talk 2: A Potent Nanocurcumin Preparation Impedes Proliferation in Glioblatoma and Regulates Inflammation *in vitro* and *in vivo* Models
  Kavita Peter

- **3:00 pm-3:20 pm:** Talk 3: Mechanoresponsive, proteolytically stable and biocompatible supergelators from ultra short enantiomeric peptides with sustained anti-cancer drug release propensity
  Rishabh Ahuja

- **3:20 pm-3:40 pm:** Talk 4: Hyaluronic Acid Inhibitors and Cytotoxic Drugs in Combination for Treatment of Pancreatic Ductal Adenocarcinoma (PDAC)
  Dr. Rupal Dubey

- **3:40 pm-4:00 pm:** Talk 5: Prevalence of Cervical Cancer among women at selected places in Bhopal (M.P) India
  Pinki Vishwakarma

4:00 pm- 4:30 pm: Tea break & Poster judging session

- **4:30 pm- 5:00 pm:** Prize distribution & Closing ceremony

Invited Talks

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Date: 10th December, 2022

CLINICAL IMPORTANCE OF A NON-INVASIVE MOLECULAR MARKER PANEL FOR PROGNOSIS IN GLIAL BRAIN TUMOR: THE BLUE PRINT UNRAVELED

Dr.Puneet Gandhi
Professor & Head
Department of Research & Training
ICMR-BMHRC, Bhopal.

Gliomas are primary intracranial tumors with a bleak prognosis. Although defined molecular markers are available for precise diagnosis as per WHO 2016-2021 guidelines, no substantial increase in the overall survival has been recorded. The reason for this gap is an overlook of the dynamic crosstalk between glial tumor cells and components of its microenvironment while assessing for clinical intervention & therapy.

A blueprint of a non-invasive marker panel representing different phases of gliomagenesis has been designed with reference to the role and involvement of secreted proteomic markers at various stages of tumor initiation and development. The secreted markers of inflammatory response, namely interleukin-6, tumor necrosis factor-α, interferon-Ɣ, and kynurenine, proliferation markers human telomerase reverse transcriptase and microtubule-associated-protein-Tau, and stemness marker human-mobility-group-AThook-1 are involved in glial tumor initiation and growth. Further, hypoxia and angiogenic factors, heat-shock-protein-70, endothelial-growth factor-receptor-1 and vascular endothelial growth factor play a major role in promoting vascularization and tumor volume expansion. Eventually, molecules such as matrix-metalloprotease-7 and intercellular adhesion molecule-1 contribute to the degradation and remodeling of the extracellular matrix, ultimately leading to glioma progression.

Our experience with glial tumors has delineated the roadmap to develop and evaluate the above non-invasive panel of secreted biomarkers using liquid biopsy for precisely evaluating disease progression and planning individual centric adjuvant therapy.

Invited Talks

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IMPLICATION OF IL-33 IN CANCER BIOLOGY AS A NEW THERAPEUTIC TARGET AND FUTURE PERSPECTIVES

Dr.Rohit Saluja
Assistant Professor
Department of Biochemistry
All India Institute of Medical Sciences (AIIMS) Bibinagar Hyderabad.

Interleukin-33 (**IL-33**), a member of the IL-1 cytokine family, is emerging as a new regulator of immune responses and inflammatory diseases. IL-33 signals via a heterodimer composed of IL-1 receptor-related protein ST2 and IL-1 receptor accessory protein (IL-1RAcP). Although IL-33 and its associated receptor ST2 appear to be expressed in different immune cells such as mast cells, eosinophils and basophil, the precise role of IL-33 in cancer has not been determined.IL-33 shows pleiotropic function in cancers. IL-33 may act as a double-edged sword having both a pro-tumorigenic and anti-tumorigenic cytokine, dependent on tumour microenvironment, cellular context, expression levels, bioactivity and the nature of the inflammatory environment.

There are various governingpathways are involved in regulation of cancers, and future research are required to understand the connection between IL-33/ST2 biology with cancers.Further research studies will help to understand on the precise role of IL-33 in specific cancers.

Invited Talks

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BIOMARKERS OF CANCER: THE PAST, PRESENT & FUTURE

Dr. Reeni Malik
Prof. & Head
Dept of Pathology, Gandhi Medical College, Bhopal

Any detectable molecular indicator of cancer risk, cancer occurrence, or patient outcome is considered a molecular cancer biomarker. These biomolecules include nucleic acids and proteins.Biomolecules can be detected in samples taken from tissues through tumour biopsy or, more conveniently and non-invasively, from blood (or serum or plasma), saliva, buccal swabs, stool, urine, etc. In the past detection was done on the basis of microscopic picture of the tumour, presence of tumour markers in the blood, followed by discovery of new techniques namely, Immunohistochemistry, molecular studies and now latest technologies like tissue microarrays, FISH, NGS, nano technology and procedures to examine circulating tumour RNA have evolved. They can be utilised as tools for determining cancer risk, cancer screening and early detection, precise diagnosis, patient prognosis, predicting therapeutic response, and cancer surveillance, and targeted therapy. As a result, they can aid in improving clinical practise decision-making. Rapidly expanding tumour and both local and distant metastases, are one of the main causes of cancer-related mortality. Recent developments in multimodality therapy have significantly increased local control and metastasis-free survival of patients. The prompt detection of resectable or metastatic tumours is the main cause for concern in disease prognosis, which emphasises the requirement for the identification of biomarkers for premalignant lesions.

Breast, lung, colorectal, prostate, and stomach cancer are just a few of the major malignancies that can be detected earlier attributable to these biomarkers. The scientific hurdle of creating novel biomarkers with higher sensitivity, specificity, and positive predictive value must be overcome, nevertheless, requiring advancement in the field of cancer biomarkers.

Invited Talks

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RECENT ADVANCES IN ONCOLOGY: A DRIVE TOWARDS A CURE

Dr. Shyam Agrawal

Senior Consultant Oncologist, Bhopal

Cancer is an increasing cause of morbidity and mortality in most countries. It has recently overtaken heart disease as the commonest cause of death. "Breakthroughs" in cancer research are reported regularly in the media. The last two decades have observed phenomenal progress and positive research in the management of Cancer patients which no other field of medicine has ever shown. We have observed cancer from an incurable disease to either become curable or it is converted into a chronic disease like blood pressure and diabetes mellitus. The overall cure rate is now with early detection is around 70%. There are a few steps where we can enumerate its success story.

1.Screening: Breast, Cervix, Head & Neck, Colorectal, Lung & Prostate Cancer.

2. Prevention: Apart from lifestyle improvements like Diet, Exercise, and Obesity Vaccination for HBV & HPV.

3. Early diagnosis: Warning signals=CAUTION

4. Staging through PET scan.

5. Advancement in chemotherapy: Nano Particle, Albumin bound, ADCC

6. Targeted therapy: Imatinib, Osimertinib, CDK 4/6 Inhibitors, ALk and so many.

7. Immunotherapy PD/PDL1 & CTLA4 inhibitors

8. Surgery: Robotic & VDO Assisted

9. Radiotherapy: IMRT, IGRT, VMAT, SBRT & SRS

The talk will elaborate on its detail.


Abstracts

The systemic molecular markers of extracellular matrix: A dynamic niche of potential prognosticators in glioma

Richa Shrivastava[a], Puneet Gandhi[a], Aadesh Shrivastava[b], Sandeep K Sorte[c]

[a]Department of Research and training, Bhopal Memorial Hospital and Research Centre, Bhopal-462038 (M.P), India.

[b]Department of Neurosurgery, All India Institute of Medical Sciences, Bhopal-462024 (M.P), India

[c]Department of Neurosurgery, Bhopal Memorial Hospital and Research Centre, Bhopal-462038 (M.P), India

Abstract:

The prognosis of glioma is bleak even with the availability of multimodal treatment, as there is an overlook of the dynamic crosstalk between tumor cells and components of the micro-environment. In this context, a novel platform of targeted therapy against deranged extracellular-matrix (ECM) markers has emerged as a promising modality. Based on lab evidence, vascular endothelial growth factor (VEGF), a potent angiogenic factor, intercellular-adhesion-molecule-1(ICAM-1) an adhesion transmembrane glycol-protein and membrane-bound matrix metalloproteinase (MMP14) a zinc-dependent, calcium-containing endo-peptidase were identified as molecules whose expression are significantly elevated in glioma patients and contribute to the degradation and remodelling of the ECM. Therefore, our objective was to assess the systemic expression of VEGF, MMP-14 and ICAM1 for a plausible association with patient-survival and whether these molecular markers can serve as independent prognosticators.

A cohort of 129 molecularly defined, IDH typed gliomas was analysed. Candidate biomarkers MMP14, VEGF and ICAM1 were quantitatively analysed by ELISA, using liquid-biopsy samples. Non-parametric statistics were applied and a p-value <0.05 was considered significant.

The median plasma/serum levels of circulating MMP14 (1.23ng/ml), VEGF (33.99ng/ml) and ICAM1 (9.114ng/ml) were evaluated and significantly differed from controls ($p<0.0001$), between histological grades ($p=0.025$; $p=0.05$) and astrocytoma/ oligodendroglioma subtypes ($p=0.0012$; $p<0.033$). All markers were negatively correlated with survival ($r=-0.4195$, $r=-0.4846$, $r=-0.3835$). Multivariate Cox-regression yielded VEGF, MMP14 and ICAM1 as good prognostic markers, independent of confounders ($p>0.05$).

This is the first evidence-based study that delineates a panel of non-invasive secreted-biomarkers to monitor the disease progression and foretell prognosis in glioma.

Keywords: Circulating biomarkers, Glioma, VEGF, MMP14, ICAM1, Prognostic

Acknowledgement: Women Scientist Scheme (WOS-A), Department of Science & Technology, New Delhi for fellowship to RS, **WOS-A/LS-684/2016.**

A Potent Nanocurcumin Preparation Impedes Proliferation in Glioblatoma and Regulates Inflammation *in vitro*and *in vivo* Models

***[a]Kavita Peter, [b]Puneet Gandhi, [a]RaginiGothalwal, [c]Santosh Kumar Kar**

[a]Deptt. of Biotechnology, Barkatullah University, Bhopal, M.P, India.

[b]Department of Research, Bhopal Memorial Hospital and Research Centre,Bhopal, M.P, India

[c]KIIT Technology Business Incubator, Bhubaneshwar, Orissa, India.

Abstract:

Glioblastoma is the most lethal diffuse glioma of astrocytic lineage. Despite recent advances in oncotherapy, conventional treatments often prove ineffective. Andthe prognostic outcomes of glioblastomaremain poor witha median survival rate of less than 15 months and five-year survival rate of ~5%. Thus, there is an urgent necessity to develop effective antitumor therapeutics those haveminimal toxicity and negligible adverse effects. Curcumin (*Curcuma longa*), is a known nontoxic, anti-inflammatory, antimicrobial, and anti-cancer agent.However, due to its hydrophobic nature,it binds to the membrane-lipid fatty-acyl chains and is unable to cross the cell membranes easily. Nanocurcumin preparationcan overcome thishitch while increasing bioavailability. For the present work,nanocurcuminwas prepared by anti-solvent precipitation method. Then the anti-cancer potential of natural curcumin and nanocurcumin was tested on U87-MG glioblastomacells by MTT assay. Further, the efficacy of nanocurcumin was compared with five commercially available nanocurcumin brands.Next, inhibition of inflammation was assessed by measuring the expression of inflammatory cytokine IL-6 in U87-MG cells.Nano-curcumin increased tumor cell cytotoxicity and down-regulated IL-6 release. In the mouse model for inflammation;created by challenging with Lipopolysaccharide, mice were givennanocurcumin and H&Estaining of brain samples was performed.The results corroborated the *in vitro* outcomes, demonstrating thatnanocurcumin can exert its anti-proliferative effects by inhibiting inflammation, the key player inglio-oncogenesis.

Keywords: Glioblastoma, curcumin, nanocurcumin, inflammation, IL-6

Mechanoresponsive, proteolytically stable andbiocompatible supergelators from ultra shortenantiomeric peptides with sustained anti-cancer drug releasepropensity

Rishabh Ahuja[a], Vaibhav Shivhare[a], Anita Dutt Konar*
[a]Department of Applied Chemistry, University Institute of Technology (UIT), RGPV Bhopal

Abstract:
Stimuli-responsive low molecular weight hydrogelators attract immense interest from diverse segments of biomedicine and biotechnology. Distinctly, herein we report newly synthesized enantiomeric ultrashort peptides of general formula Me-$(CH_2)_8$-CO-NH-CH(X)-COOH, where X = CH_2Ph in hydrogelators I (L-Phe) and II (D-Phe) respectively, which display excellent self-assembling propensity in physiological buffer at room temperature. Interestingly these biomolecules were endowed with mechanoresponsiveness, injectability and high mechanical integrity as confirmed by rheological measurements. Importantly they revealed resistance towards proteolytic degradation. Indeed dose dependent cell viability studies using MTT assay in four different cell lines, namely PANC-1, S1, HCT-116 and MDAMB-231, further confirmed the biocompatibility of the hydrogelators in vitro. The structural aspect of b-sheets of the hydrogelators was concluded on the basis of temperature dependent NMR, IR, PXRD and computational studies. We developed a user friendly delivery system, hydrogel nanoparticles (HNPs), with our mechanoresponsive and biocompatible hydrogelators, as these particles exhibited promising influence due to their enhanced surface area. Also the HNPs revealed excellent drug release kinetics for the model drugs 5FU/doxorubicin under physiological conditions in a sustained manner depending on the physicochemical parameters of the drugs. Taking these results together we envision that our designed hydrogelators and the delivery vehicle generated there from might represent a promising tool for administration of significant drug concentrations at lesion sites for a prolonged period, thus providing a better strategy for quick pain relief, rapid recovery and reduced systemic side effects.

Keywords: Mechanoresponsive, biocompatible, hydrogel nanoparticles, drug delivery vehicle,

Hyaluronic Acid Inhibitors and Cytotoxic Drugs in Combination for Treatment of Pancreatic Ductal Adenocarcinoma (PDAC)

Rupal Dubey
School of Pharmacy and Research, People's University, Bhopal

Abstract:
Pancreatic Ductal Adenocarcinoma (PDAC) or generally known as pancreatic cancer has the highest mortality rate of all major cancers. 91% of pancreatic cancer patients will die within five years of diagnosis. Pancreatic cancer is one of the few cancers for which survival has not improved substantially over nearly 40 years.
Effective drug delivery in pancreatic cancer treatment remains a major challenge. Because of the high resistance to chemotherapy and radiation therapy, the overall survival rate for pancreatic cancer is extremely low. Using liposomes, nanoparticles, and carbon nanotubes to deliver cancer drugs and other therapeutic agents such as siRNA, suicide gene, oncolytic virus, small molecule inhibitor and antibody has been a success in recent pre-clinical trials.
PDAC is characterized typically by a dense desmoplastic stroma with a large amount of Hyaluronic Acid (HA), making this molecule an attractive target for therapy. In normal physiological conditions, the amount of HA is controlled by a balance between synthesis and degradation; however, HA has been shown to be abundantly accumulated in the surrounding stroma of malignant tumor. The HA-rich microenvironment may promote tumor progression by enhancing cell proliferation, migration, invasion, metastasis, angiogensis and resistance to chemotherapeutics agents.
Recent studies have demonstrated substantial improvements in the effects of chemotherapy by a targeted depletion of stromal HA in PDAC using an enzymatic agent. These findings further strengthen our thought of developing a novel therapeutic approach to combat the chemoresistance of PDAC by targeting HA.
The idea is to develop surface modified polymeric nanoparticles bearing hyaluronic acid inhibitors and anticancer drug in combination. It has been suggested that the increased concentration of hyaluronic acid in pancreatic tumor site increases the tumor interstitial pressure. This further leads to increased HA-mediated intracellular signaling that promotes tumor cell proliferation, motility, and invasion, as well as induction of endothelial cell functions. Therefore delivery of hyaluronic acid inhibitors along with cytotoxic drug will deplete stromal hyaluronic load resulting in normalized interstitial pressure, re-expanded microvasculature, and consequently will improve the effects of cytotoxic drug at the tumor site.
Further, surface modification of polymeric nanoparticles with ligand specific to receptors over expressed on pancreatic tumor will allow the anticancer drug to be directed towards tumor site. This will promote accumulation of anticancer drugs at the tumour site and decreases toxicity to the normal cells.

Keywords: Pancreatic Cancer, Targeted delivery, Hyaluronic Acid, Adenocarcinoma

Prevalence of Cervical Cancer among women at selected places in Bhopal (M.P) India

Pinki Vishwakarma
Peoples College of Paramedical Sciences, People's University, Bhopal (M.P)

Abstract:
Cervical cancer is a preventable disease due to the long pre-invasive stage. Early detection and appropriate treatment are possible if robust screening is implemented. The overall sensitivity of the Pap test in detecting a high-grade squamous intraepithelial lesion (HSIL) is 70.80%. A Pap screening done in association with an HPV DNA test increases the sensitivity for early detection of precancerous lesions.There is a need to spread cervical cancer screening awareness programs, educate women regarding the symptoms of cancer, and motivate them to visit the hospital for a cancer screening. Pap smear-positive women need adequate treatment and regular follow-up. Hence, in the present study the researcher aimed to screen women for the cervical cancer.
Current study aimed to identify the incidence of cervical cancer among women, to screen the cervical cancer using (Papanicolaou) PAP smear, to refer the identified case for therapeutic management.
A descriptive screening study, was conducted by selecting the samples based on multistage randomized sampling method, the selected samples was examined using PAP smear test for screening cervical cancer and based on the findings of the samples, the patients were referred for therapeutic management.
The incidence of the cervical cancer among womens. A total of 1225women were screened for the cervical cancer using PAP smear test. Among them 50.9% had awareness of about cervical cancer and 38.6% had awareness about PAP smear.
The awareness among the women of awareness of cervical cancer districts of Bhopal about Cervical Cancer and its diagnosis (PAP smear) is less and it has to be increased to reduce the incidence of Cervical cancer.

Keywords: Cervical Cancer, women, PAP smear.

Isolation and identification of indigeneous bacterial isolates having asparaginase producing capability

Shreya Tiwari[1], Rakesh Mehta[2], Ragini Gothalwal[3] and Laxmikant Pandey[4]

[1]Department of Biotechnology, Barkatullah University Bhopal.
[2]Department of Biotechnology, Govt.MGM P.G, College, Itarsi, M.P India
[3]Department of Biotechnology, Barkatullah University Bhopal.
[4]Department of Biotechnology, St.Aloysius College Jabalpur.

Abstract:

Microorganisms such as bacteria and fungi are promising sources for structurally diverse and potent bioactive compounds (Laatsch, 2006; Lebar*et al*., 2007).Microorganisms are the primary source of enzymes, because they could be cultured in large quantities in short span of time and genetic manipulations can be done on bacterial cells to enhance the enzyme production. L-asparaginase is an important therapeutic enzyme used for treating Acute Lymphoblastic leukemia. Owing to its therapeutic use and demand, microorganisms have been in use for many years to produce L-asparaginase on an industrial scale. Gram-negative bacteria (*Serratia, Erwinia* and *Escherichia coli*) species were used in L-asparaginase production. Based on this concept recent research has targeted on amino acid metabolic enzymes that deregulate specific amino acid metabolism that is essential for cancer cell proliferation. These enzyme cuts off the supply of essential amino acids which leads to nutrient starvation of cancer cells resulting in their death. Thus the present work was intended to screen out certain new bacterial isolates with *in vitro* asparginase producing potential from sewage water sources. The sewage water samples were collected from 5 different location of Bhopal and were subjected to brain heart infusion media containing amino acid asparagine and phenol red indicator. The bacterial isolates forming pink or red colonies or hallow around indicating asparaginase producing capability were picked and pure cultured. The three asparaginase positive isolates one from Arera colony, Bag Sewaniya and Nehru nagar from AIIMS sewage sample reported to be bacillus and coccus respectively on Gram's staining which when subjected to biochemical characterization using catalase test, IMVC test and carbohydrate fermentation tests does not matches with the biochemical characteristics of standard *E.coli* and S.aureus. The outcomes of this preliminary screening encourages to further investigate the sewage water samples to screen out the possibly new & efficient asparaginase producing isolates with complete biochemical & molecular characterization in view of commercial prospects.

Keywords: L-asparaginase, anticarcinogenic, enzyme production, wastewater

In search of bioinspired hydrogels from amphiphilic peptides: a template for nanoparticle stabilization for the sustained release of Anticancer drugs

Vaibhav Shivhare[a], Rishabh Ahuja[a], Anita Dutt Konar*

[a]Department of Applied Chemistry, University Institute of Technology (UIT), RGPV Bhopal

Abstract:

The development of potent stimuli-responsive hydrogels has rapidly expanded in the last decades due to their diversified applications in the field of biomedicines. In accordance with this drift, herein, we aimed at modulating a series of amphiphilic peptide analogues with the general formula Me-(CH2)14- CO-NH-CH(X)-COOH, where X = CH2Ph in Hydrogelators I (L-Phe) and II (D-Phe) and X = CH2Ph(OH) in Hydrogelator III (L-Tyr), which displayed an excellent propensity to immobilize water at room temperature with a minimum gelation concentration of 0.04%/0.05%/0.02% w/v for Hydrogelators I–III, respectively, regardless of their configuration at the C-terminal centre. To validate this threshold concentration difference, we performed computational analysis that demonstrated the ability of the side-chains of Hydrogelators I and III to remain highly planar with the methylene units of the amphiphile and aromatic rings, promoting favourable correspondence through van der Waals forces and pi–pi stacking. Consequently Hydrogelators I and III self-assembled in an ordered organisation superior to Hydrogelator II. Furthermore, the spectroscopic and microscopic experiments revealed that the Hydrogelators manifested a b-sheet conformation and Nano fibrous morphology at the supramolecular level. As observed visually and additionally confirmed by differential scanning calorimetry (DSC) and rheological measurements, the hydrogels exhibited thermo-reversibility, Injectability and high mechanical strength. Importantly, these biomaterials were also found to be resistant towards proteolytic degradation and non-cytotoxic in the cell line HEK 293 using a dose-dependent cell viability assay. To date, the development of a structured approach for the release of drugs in a predictable manner from an optimised formulation, using peptide-based hydrogel nanoparticles as a delivery system remains in its infancy. Hence, we developed hydrogel nanoparticles (HNPs) with our fabricated amphiphilic peptides that exploited the weak noncovalent interactions for their fabrication, unlike other cross-linked polymers that require strongcovalent or ionic bonds for their formation. Interestingly, the as-synthesized nanoparticles showed anunprecedented ability to release the anticancer drugs 5-fluoro uracil/doxorubicin at physiological conditions depending on the physico-chemical parameters of the drugs. We believe that the reported injectable, biocompatible, amphiphilic peptide-based hydrogels hold future promise as a potential tool to transport drugs to a targeted site at a greater concentration, thus relieving the patient from surgical injury and simultaneously aiding in a faster recovery.

A descriptive review on cold-atmospheric plasma therapy in carcinoma

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Abstract:

The number of new cancer cases worldwide has increased to 19.29 million, affecting 10.06 million males and 9.23 million females, of which cancer related deaths rose to 9.96 million, affecting 5.53 million males and 4.43 million females. Recently, great progress has been made in cancer treatment, and many new methods have been used to treat cancer. Recently, one of the emerging areas in treating cancer is cold atmospheric plasma also called as "Plasma Oncology". It comprises of gas which is partially ionized and includes clouds of ions, electrons, and reactive neutral species like reactive oxygen species (ROS), hydroxyl radicals (HO), and nitrogen dioxide (NO). CAP has also shown significant potentials for other biomedical applications such as wound healing, skin regeneration, blood coagulation, tooth bleaching in cancer therapy & sterilization of infected tissues & inactivation of microorganisms thus CAP destroys tumors by activating tumor immune cells and inducing ICD in tumors. Cancer cells are more sensitive to its destructive effects than normal cells, which can make CAP is a promising application in cancer therapy. It has acquired attention of physician now-a-days since it selectively treats cancer cells without affecting normal cells. Two CAP devices, namely Dielectric Barrier Discharge and Plasma Jet, show significantly anti-cancer capacity over cancer cell lines. Several research directions of CAP are proposed which provides guidance for future research. Thus the present research is undertaken to provide evidence for using CAP as anti-cancer agent thereby supporting the survival of cancer patients.

Keywords: Cold Atmospheric Plasma, Plasma Oncology, Plasma Jet, Immunogenic cell death (ICD), Dielectric barrier discharge.

Ethanomedicinal and Ecotaxonomical studies of Barkatullah University Campus Area, Bhopal with special emphasis of Medicinal flora treating cancerous and Diabetes diseases

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Abstract:

Since previous years awareness and uses of traditional knowledge in Medicinal system. Ayurvedic, Allopathic, Homoeopathic used to cure of various diseases which is shows more important for health of human being. In modern Medicinal system there is indigenous knowledge of traditional uses of medicinal system have been disappear very rapidly. Present investigation of Ecotaxonomic and Ethanomedicinal uses of medicinal flora of Barkatullah University campus area have been done during 2011-2014.Bhopal is known as city of lakes for famous for Natural lakes Chota Talab and Bada Talab. Bhopal is capital of M.P.

The study area – Barkatullah University covered 360 acre (1.5 m^2) f land located B.U. campus area rich of forest vegetation and home of vast collection of plant which are used for treatment of various medical applications and play beneficial role for health. Medicinal plants are used as main sources of all traditional health care system.Medicinal plants of Barkatullah Campus area observed – includes – Herbs, Shrubs, Tree and their parts, may be annual, perennial and Climber species. Some important medicinal plants of Barkatullah University Campus area as – *Acacia arabica, Agele mamelos, Altenthra sessilis Asparagus racemosus, Azadirachita indica, Bahunia varigeta, Calotropis gigentea, Catharanthus roseus, Ocimum sanctum, Eucalptus globulus, Raulfia serpentina, Phyllanthus emblica, Riccinus communis, Solanum nigrum, Tinospora cordifolia, Terminalia arjuna, Tridax procombens, Withania somnifera, Sorc ashoka*.

Aim of research was to highlight unexplored vegetation includes various medicinal plants of Barkatullah University Campus area used for treating of various Harmful diseases. To preserve Biodiversity of flora of Bhopal city for sustainable development in near future.

Keywords: Barkatullah University, Vegetation, Diabetes, Cancer, Ethanomedicinal, Sustainable Development.

Iodine intake and papillary thyroid cancer

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Abstract:
Papillary thyroid disease is the most widely recognized thyroid malignant growth and in a couple of years, it is rising everywhere. Different investigations have found that iodine intake can be a rising factor for papillary thyroid malignant growth. Iodine is a trace element which is necessary component for thyroid function. Lack of iron and overabundance are related to hypertrophy and hyperplasia of follicular cells which might lead to excessive secretion of TSH which can be an important factor for thyroid malignant growth. Low iodine intake will bring about expanded TSH excitement, increased thyroid cell responsiveness to TSH, increased thyroid cell ECF-incited multiplication, decreased TGFβ 1 creation, and increased angiogenesis which can prompt the advancement of cancer development. There is no question that the presentation of general iodine prophylaxis in the previous population in persistent lack of iron deficiency a changing example of more significant papillary thyroid malignant growth. Iodine overabundance has likewise been shown as a potential healthful considering the predominance of separated thyroid disease in Iceland, Hawaii, and most as of late in China. Combining all the available evidences and studies reasons that iodine prophylaxis has shown a shift toward an ascent in papillary thyroid malignant growth however no clear connection between papillary thyroid disease and iodine taken. Future studies are also needed for the establishment of relationship between iodine intake and PTC.

Keywords: Iodine Intake, Papillary Thyroid Cancer, Thyroid Cancer, Thyroid Stimulating Hormone

Personalized neoantigen based cancer therapy

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Abstract:
Immunotherapy has been a revolutionary milestone in cancer treatment with various potentials including the availability of personalised vaccines. The mode by which these dosage forms act is by triggering the de novo T cell responses against neoantigens which are highly specific to the individual patient. Such innovative approaches have already been in existence with profound anti-tumour efficacies as depicted in studies involving malignant tumours associated with skin. The current exhibit aims to highlight or review the various types of vaccine-induced T cells that are found within tumours, additionally discussing the current status of personalized neoantigen vaccines in patients with cancer and also the future considerations of this novel, individualized approach of immunotherapy.

Keywords: Immunotherapy, Personalised vaccines, Neoantigens, De novo T cell responses and Vaccine-induced T cells

Novel approaches in cancer diagnostics and therapeutics

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Abstract:

In recent years, the majority of cancer treatment has been done through surgical excision of tumour masses.Chemotherapy and radiotherapy, among other chemical and physical therapies, have significantly slowed the spread of malignant cells. Additionally, these strategies are frequently combined to improve the treatment of this disease. It is well known that normal cell growth is also inhibited by surgery, chemotherapy, and radiotherapy. A bad quality of life is also a result of the severe side effects and high toxicity of various therapeutic techniques. This review includes cutting-edge methods for administering chemotherapy more successfully with the goal of improving prognosis. A lot of progress is currently being made in the creation of novel cancer treatment strategies in the very dynamic field of cancer treatment. Novel approaches have added new cancer treatment modalities compared to conventional cancer therapeutics, such as ligand- or receptor-based targeting, triggered release, intracellular drug targeting, gene delivery, cancer stem cell therapy, magnetic drug targeting, and ultrasound-mediated drug delivery. These methods have allowed for the specific detection of cancerous cells, which has allowed for their elimination with few adverse effects. Cancer therapies can also benefit greatly from lowering multi-drug resistance and incorporating influx transportation in the delivery of targeted drugs to cancer cells.The tumour microenvironment (TME), which is made up of immune cells like macrophages and tumour cells, is crucial to the emergence, spread, and prognosis of cancer.

Keywords: Cancer/tumour cells, Stem cell delivery, Chemotherapeutics, Targeted drug delivery, Gene delivery.

To study various tumour markers and their efficacies as diagnostic, prognostic and therapeutic tools

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Abstract:
Tumor markers are now a days gaining more importance in the field of interest. Several novel advances have been made in the area of multifactoral use of certain tumour biomarkers in day to day clinical practices and oncological departments. In several clinical presentations tumour markers are evidenced as leads for the differential diagnosis for certain malignant and non malignant tumours and diseases.
The primary objective of this study is to present various tumour markers that are specific for certain cancers and classification of tumour markers on their biochemical basis of presentation.
The secondary objectives include characteristics of an ideal tumour marker, molecular basis of detection of tumour markers, several methods of detection of tumour marker that further broadly are categorized into serology and flow cytometry methods of detection. Ectopic tumour markers are assuming a great role in indication of specific cancers but are of poor prognostic and metastatic tools value.
Another main aspect of this poster presentation is to glorify the multifactoral use of these tumour markers. They are employed in achieving therapeutic targets, in making differential diagnosis, prognosis, screening, monitoring progression of the disease, risk assessment, and assessment of response to therapy, and monitoring the risk of recurrence of the disease after the therapy during follow ups.
Only a handful of tumour markers are used in day to day clinical practice and hence incomplete knowledge about the application of tumour markers lead to mismanagement of diseases and hence increased morbidity and mortality. Novel advances in methods of detection of tumour markers have increased their judicious use in clinical practice and expanded the area of their uses as prognostic, screening and therapeutic tools.

Keywords: Tumour Markers, Differential Diagnosis, Serology, Flow cytometry, Ectopic Tumour Markers

Targeted drug delivery a major breakthrough in treatment of cancer

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Abstract:
Cancer is one of the primary causes of worldwide human deaths. Most cancer patients receive chemotherapy and radiotherapy, but these treatments are usually only partially efficacious and lead to a variety of serious side effects.
One of the major drawbacks of chemotherapeutic drugs is that they can't differentiate between cancerous cell and non-cancerous cell. As a result after chemotherapy immune system of patients becomes very week which leads to development of various secondary infections/diseases. Therefore, it is necessary to develop new therapeutic strategies. Identification of various receptors over expressed on cancerous cell as a targeting moiety is a turning point in cancer treatment. Also the emergence of nanotechnology has had a profound impact on general clinical treatment. The application of nanotechnology has facilitated the development of nano-drug delivery systems (NDDSs) that are surface modified by ligand specific to receptor over expressed on cancer cell and became highly tumor selective/targeted and allow for the slow release of active anticancer drugs to the cancer site. In recent years, targeted drug delivery system such as liposomes, dendrimers and polymer nanomaterials, carbon nanotubes have been considered promising carriers for tumor-specific drug delivery, reducing toxicity and improving biocompatibility. Among them, polymer nanoparticles (NPs) are one of the most innovative methods of non-invasive drug delivery. Here, we review the application of novel drug delivery system in targeted drug delivery, gene therapy, and early diagnostics for cancer therapy.

Keywords: Polymer nanocarriers; Cancer therapy; Targeted drug delivery; Novel drug delivery

Recent advances in the treatment of cancer

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Abstract:

Cancer is one of the most common diseasesin the developed world. There are over hundred different forms of cancer. Curing the disease requires eliminating all cells capable of causing cancer recurrence in a remaining survival term which is practiced by common treatment methods like surgery, chemotherapy, radiotherapy, immunotherapy, and hormone therapy.Cancer surgery is an operative procedure where a tumor and its associated tissues are surgically removed. Chemotherapyis a treatment that uses powerful drugs to kill fast-growing cells in an infected body. Radiation therapyis a cancer treatment that uses high doses of radiationto kill cancer cells and shrink tumors. Hormone therapy is a cancer treatment that slows or stops the growth of cancerous cells that uses hormones to grow. Immunotherapy is atreatment of disease with substances that stimulate the immune response by activating or suppressing the immune system. A plan for the treatment of cancer is a key component of any overall cancer control plan. It is the main goal to cure cancer patients or prolong their life considerably, ensuring a good quality of life.With the advancement in developing world the treatment techniques are also improving day by day.

Keywords: Immunotherapy,Chemotherapy, Hormones therapy, Surgery

Recent advances in cancer diagnosis techniques

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Abstract:

Cancer is a deadly disease which is causedby uncontrolled growth of cells.There are Several physical or chemical agents whichcontributes in cancer initiation. It is important for patients to have early detection of cancer which can substantially improve the survival rate. The aim of this study is to investigate about the advancements in cancer diagnosistechniqueswhich helps in early detection based on different principles. There are severalDiagnostictechniques involve in cancer such as biopsy, CT, MRI,PETBiopsy is based on the principle of histological study in this technique a piece of tissue is detected to study about infected cells. Computed tomography [CT] is based on the fundamental principle that the density of the tissue passed by the X -ray beam can be measured from the calculation of the attenuation coefficient. Magnetic resonance imaging {MRI}is a medical imaging technique used in radiology to form pictures of the anatomy and the physiological process of the body.Positron emission tomography [PET]is based on principle of radiopharmaceutical study it is an imaging test that can help reveal the metabolic or biochemical function of your tissues and organ.

As early as cancer is diagnosed it can be treated more successfully and possibility of patient survival will increase therefore using advance diagnostic techniques will be vital for exploration.

Keywords: Diagnosis, CT computed tomography, MRI magnetic resonance imaging, PET positron emission tomography.

Nanotechnology as the therapeutics for cancer

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Abstract:

Cancer is a disease in which some of the body's cells grow uncontrollably and spread to other parts of the body. Sometimes this orderly process breaks down, and abnormal or damaged cells grow and multiply when they shouldn't. The well-known conventional treatments for cancer include surgery, chemotherapy, radiation therapy etc.

Nanotechnology is being applied to cancer in two broad areas: i) the development of nano vectors such as nanoparticles which can be loaded with drugs or imaging agents and then targeted to tumours, and ii) high-through put nano sensor devices for detecting the biological signatures of cancer. Nanoscale devices (less than 100 nanometres) can enter cells and the organelles inside them to interact with DNA and proteins. There are a number of criteria that must be met when creating nanoparticles (NPs) that include effective binding and carrying of the drug, stability, biocompatibility and bioavailability of the drug, effective targeting and specific release of the drug. Nanoparticles act by two types of mechanisms such as the Passive Targeting, where the drug accumulates in areas around the tumour with leaky vasculature and the Active Targeting, where specific interactions occur between thedrug/drug carrier and target cells.Nanodevices used in cancer teratment include Cantilevers, Micelles, Nano tubes, Liposomes, Quantum Dots, Dendrimers, Nano shells etc. Carbon nanotubes (CNTs) are more dynamic compared with other nanomaterials in their biological applications. They can be used in cancer chemotherapy, drug delivery and nanoshells in cancer therapy. The nanotechnology based treatment specifically kills the cancerous cells while the conventional treatment affects and harms even the normal cells.

Keywords: Nanoparticles, Cancer, Nanotechnology, Carbon nanotubes

Effect of Microplastics on health with respect to cancer induction

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Abstract:
Microplastics have raised alarming situations in present scenario in variety of ways. Microplastics residues have been found in almost every part of biosphere. They are found in soil, water and air, which directly or indirectly adverselyeffect our environment and enter living organisms. Their impact is severely affecting health of humans and other living organisms. Various anomality's are cause due to microplastics among which one of the most dread diseases that can be induced by microplastics is cancer. Sufficient data is lacking at this time regarding direct effect of microplastics on health of living organisms and ecosystem.
The bio-accessibility and triggering cancer risk of MP-sorbed PAHs and PAH derivatives are closely related to human health. This study explored the adsorption behavior of phenanthrene and its derivatives, polyethylene (PE), polypropylene, polystyrene and theircatabolism which may be proved to be more harmful.The effect of microplastics on normal and cancer cells along with their mutagenic effect is presented in this paper. It was found that the rate of mutagenesis rapidlyincreased in presence of microplastics.

Keywords: Microplastics, mutagenesis, cancer, nanoplastics.

Antiproliferative effect of isolated essential oil from *Apium graveolens* L. Seeds on human breast cancer cell lines

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Abstract:

The aim of this study was to identify the main compounds and to evaluate the antiproliferative activity of the essential oil from the seeds of *Apium graveolens*.The essential oil content in the seeds of *A. graveolens* was isolated. *in-vitro* antiproliferative study of *A. graveolens* essential oil was investigated against MCF-7 cells breast cancer cell lines using MTT - (3-[4,5-dimethylthiazol-2-yl]-2,5 diphenyl tetrazolium bromide)- colorimetric assay. Further, the main bioactive components were elucidated by gas chromatography–mass spectrometry (GC–MS). Characterization of individual components was performed using a commercial mass spectrometry library. Sesquiterpenes were the main compounds found in the essential oil. In antiproliferative assay, the essential oil from the plant in analysis showed moderate activity in the proposed conditions. About forty three components were identified. This analysis showed the presence of volatile components, including Limonene (24.83%); β-selinene (22.95%); Acetaldehyde,(3, 3-dimethylcyclohexylidene) (17.32%); Ledol (4.85%);epsilo-Cyclogeraniolene (2.93%); 3-Oxatricyclo [4.1.1.0(2,4)]octane, 2,7,7-trimethyl (1.45%); Caryophyllene (1.42%);Carane,4, 5-epoxy,trans (1.29%) as the main compounds. Additionally, 4,5-di-epi-aristolochene (0.86%); 3,6,10,10-Tetramethyl-1-oxa-spiro[4.5]deca-3,6-dien-2-one (0.59%); β-elemene (0.50 %); Dihydronopol (0.46 %); Plinol (0.40%); 2(1H)-Naphthalenone, 3,4,4a,5,8,8a-hexahydro-4a-methyl, trans (0.31%); Isoshyobunone (0.30%); 1-Naphthalenol, decahydro-1,4a-dimethyl-7-(1-methylethylidene)-, [1R-(1.alpha.,4a.beta.,8a.alpha.)] (0.27%); 1H-Cycloprop[e]azulen-7-ol,decahydro-1,1,7-trimethyl-4-methylene-,[1ar-(1a.alpha., 4a.alpha., 7.beta., 7a. beta., 7b.alpha.)](0.11%); Aromandendrene (0.20%); 2-Cyclohexen-1-ol,3,5,5trimethyl- (0.17%); and werealso elucidated through GC-MS. *in- vitro* cytotoxic activity of the volatile oil of the plant has been evaluated and result moderate anti-proliferative activity against MCF-7 breast cancer cell lines. The study represents the first report of these compounds from *A. graveolens* oil.

Keywords: *A. graveolens*; Essential Oil; GC-MS; Isolated Components; Antiproliferative

Role of exosomes in cancer metastasis

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Abstract:

Exosomes are small, lipid enclosed membrane vesicles with a size ranging from 40 to 100nm. They are secreted by the cells into the extracellular environment and carry complex cargo content including proteins, lipids, mRNA, miRNA and DNA. Exosomes are defined by how they are formed – through the fusion and exocytosis of multivesicular bodies into the extracellular space. They can serve as functional mediators for inter-cellular communication leading to cancer metastasis. Metastasis is a complex multistep process of cancer cell invasion, survival in blood vessels, attachment to and colonization at multiple host organs. This study highlights the role of exosomes in the various steps of the metastatic cascade and how exosome dependent pathways can be targeted for cancer therapeutics. Exosomes are being pursued for use in an array of potential therapeutic applications. While externally modified vesicles suffer from toxicity and rapid clearance, membranes of naturally occurring exosomal vesicles are better tolerated, offering low immunogenicity and a high resilience in extracellular fluid. These "naturally-equipped" nanovesicles could be therapeutically targeted or engineered as drug delivery systems.

Keywords: Exosomes, Cancer, Metastasis, Cargo

A cross sectional study of thyroid profile, and iron levels of melasma cases

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Abstract:
Melasma, also called 'chloasma', is a common skin condition of adults in which light to dark brown or greyish pigmentation develops, mainly on the face. Although it can affect both genders and any race, it is more common in women .Melasma is an acquired pigmentary disorder described as symmetrical blotchy or splotchy hyperpigmented macules and patches. The aim of this study was to investigate thyroid profile with anti TPO, and iron in male and female patients. In this cross sectional observational study 76 females and 25 male who were diagnosed with melasma were included to investigate thyroid profile with anti TPO, iron levels were measured. In our study females were more affected then males. In female SD±mean value of serum TSH (5.1±2.51) and anti-TPO(11.2±3.1)levels were increased when compared to males(4.9±2.54) and (9.2±1.9).Serum iron value was low in females (83.7±30) than males (90±29).All biochemical parameter was not significant but anti TPO and FT3 showed significant (P<0001) in female with compared to male. Serum iron (83.7±30) SD±mean value was low in melasma females than males which is not significant. Similarly females SD±mean value T3 (1.30±0.62) and T4(6.8±1.9), FT4(1.2±0.44) were normal showed not significant to males T3(1.33±0.66) and T4(7.1±1.6), FT4(1.3±0.67) respectively. In conclusion, Melasma is more severe in females than males thyroid profile is not accurate parameter but anti TPO, and iron level are predictive marker of melasma .

Keywords: Melasma, TSH thyroid-stimulating hormone, T3 Triiodothyronine, T4 thyroxine, serum iron.

A Cross Sectional Study on Biochemical Parameters of HBV Positive Individuals Suffering from COVID-19 & its Effect on their Final Outcome

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Abstract:
Though COVID-19 primarily affected the respiratory system, but its extra-pulmonary manifestation in liver is one of the important manifestation that leads to hepatic decompensation and death. On the other hand, chronic hepatitis B infection can also lead to cirrhosis, liver cancer, liver failure, and premature death. The aim of this study is to find out the biochemical parameters of HBV Positive Individuals suffering from COVID-19 and its effect on their final outcome. This cross-sectional observational was conducted in the Department of Biochemistry L.N. Medical College, Bhopal over a period of two years (2020-2022). 200 subjects who are Covid positive will be included in this study. They were divided into two group, one group 60 Covid positive subjects who are Hepatitis B virus positive and another were 140 only Covid positive subjects. Out of total 200 Covid positive cases, 60 individuals were also HBV positive. Among them 41 male and average age of these was 54.6 years. When we compared for the pathological/ laboratory diagnostic parameters of all the Covid cases, mean White blood cell Count was more in HBV positive individuals. Lymphocyte count was grossly decreased in HBV positive individuals. Neutrophil count, Platelet count, Alanine aminotransferase, Aspartate aminotransferase, Total bilirubin, Gamma-glutamyltransferase, Alkaline phosphatase, Albumin all these were comparatively on higher side in HBV positive individuals. Taken together we can conclude that Cholangiocytes have a role in various immune response-related activities of the hepatic, and when its function is disturbed, it cause hepatobiliary damage due to a cytopathic effect.

Keywords: COVID-19, Hepatitis B, Cholangiocytes, ACE2 receptors

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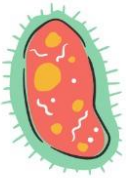

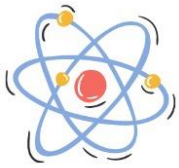

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