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*Proceedings of*

International E-Conference on

# CANCER SCIENCE AND THERAPY

December 07-08, 2020 I Webinar

## Conference Chairs

**Dr. Stephene Shadrack Meena**
Clinical Oncologist, Ocean Road Cancer Institute, Tanzania

**Dr. Olivier E Pardo**
Team Leader, Division of Cancer-Imperial College, UK

ASPAFA Cáncer Renal

Association of Patients and Families Kidney Cancer, Spain

## NOTE:

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# CANCER SCIENCE AND THERAPY

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DAY 1

## KEYNOTE SPEAKERS

**Xuezhen Yang**

The Second Affiliated Hospital of Bengbu Medical College, China

## LINC00992 contributes to the oncogenic phenotypes in prostate cancer via targeting miR-3935 and augmenting GOLM1 expression

**Background:** Accumulating evidence has revealed the critical role of long non-coding RNAs (lncRNAs) in cellular processes during tumor progression. As documented in cancer-related literatures, LINC00992 expression is associated with cancer progression, whereas its function in tumors including prostate cancer has not been characterized yet.

**Methods:** Data from GEPIA database suggested LINC00992 expression in prostate cancer tissues. The expression levels of RNAs were monitored via qRT-PCR. Western blot evaluated the levels of proteins. The proliferation, apoptosis and migration of prostate cancer cells were assessed by CCK-8, EdU, TUNEL, Transwell and wound healing assays. Luciferase reporter, RNA pull down and RIP assays were applied to detect the interplays among LINC00992, miR-3935 and GOLM1.

**Results:** Elevated levels of LINC00992 and GOLM1 were detected in prostate cancer tissues and cells. LINC00992 exerted facilitating functions in prostate cancer cell proliferation and migration. Mechanically, LINC00992 interacted with and negatively regulated miR-3935 to elevate GOLM1 expression in prostate cancer cells. In addition, the in vitro suppressive effect of silenced LINC00992 on prostate cancer cell proliferation and migration was reversed by GOLM1 upregulation. Likewise, LINC00992 depletion restrained tumor growth in vivo was offset by enhanced GOLM1 expression.

**Conclusions:** LINC00992 competitively bound with miR-3935 to elevate GOLM1 expression and therefore facilitate the oncogenic phenotypes of prostate cancer cells, implying a potential LINC00992-targeted therapy for prostate cancer.

**Keywords:** LINC00992; miR-3935; GOLM1; prostate cancer

## Biography:

Prof. Xuezhen Yang graduated from Peking University with a doctor's degree in Surgery, studied under Professor Liqun Zhou and Academician Yinglu Guo. He has been studying in several world famous universities for 5 years and have rich clinical experience in the diagnosis and treatment of urinary system tumor. He has been invited to give academic reports and won awards in international and domestic conferences for many times, and have served in many academic societies at home and abroad. Prof. Yang have won one national and one provincial project, published many papers and participated in the translation and compilation of four monographs.

**Sophia N Karagiannis**

St. John's Institute of Dermatology, School of Basic & Medical Biosciences, Kings College London, UK

## Immunotherapy with IgE antibodies to activate the tumour microenvironment

Monoclonal antibodies approved for the treatment of cancer are of the IgG class, the most common antibody class in human circulation. We hypothesised that exchanging the Fc regions of an anti-cancer IgG antibody with Fc regions of IgE, an antibody class known to exert immunological effects in tissues via very high affinity for cognate Fc receptors on tissue immune cells such as macrophages, may help to recruit and activate these cells against tumours. In our studies we demonstrated that IgE can kill tumours by harnessing known immunological mechanisms it naturally employs in parasite clearance and found that IgE potentiated monocyte/macrophage recruitment and the re-education of alternatively-activated wound healing type macrophages to classically-activated anti-tumour phenotypes. A first-in-class IgE therapeutic candidate is undergoing clinical testing in oncology, leading the way towards new opportunities to extend the current IgG-only pipeline for the treatment of cancer patients.

## Biography:

Professor Sophia Karagiannis is a translational cancer immunologist with academic and biotechnology experience in the USA and UK. She heads a cancer antibody discovery team focused on the crosstalk between patient immune cells and cancer and on the design of novel agents for skin, ovarian and breast cancers. Key areas of research in the Karagiannis laboratory include deriving antibodies from human B cells, engineering antibodies of any specificity or class/isotype, including Fc-engineered antibodies and antibody-drug conjugates for cancer therapy. Her group is the first internationally to design, evaluate and translate anti-tumour IgE class antibodies from concept to clinical testing. Sophia is a founder of Epsilogen Ltd, the first immuno-oncology company dedicated to developing IgE therapeutic agents for cancer. She is author of patents on antibody engineering for cancer therapy and serves as Secretary of the international AllergoOncology Task Force, a multidisciplinary consortium focused on the interface between Th2 immunity, allergies, IgE and cancer.

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DAY 1

## SPEAKER PRESENTATTIONS

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# Role of gene therapy in Colorectal Cancer diagnostics and therapeutics

**Sikandar Hayat Khan**
Pathology Naval Hospital, Pakistan

Global mortality related to cancer has just crossed 10 million, with one in every six death being attributed to this world wide curse. While cancers of lung, breast and colorectal area constitute the major global share of this disease, we do have malignancies emerging from every part of human body. Colorectal tumors, being the third commonest tumor attribute to almost more than 0.8 million cases worldwide. Traditional therapeutics including chemotherapy, radiation therapy and surgery have allowed some hope in terms of addition to life years but still the panacea remains far beyond the horizon. In recent years gene therapy has shown potential to provide a new opening for precise and accurate diagnosis along with curative cancer treatments. Multiple genome editing technologies including transcription activator like effector Nucleases (TALENs), Zinc Finger Nucleases (ZFN) and Cluster Regularly Interspaced Short Palindromic Repeats (CRISPR) / Cas technologies have demonstrated some leapfrogging in management of Cancer. Though an emerging technology, CRISPR / Cas can emerge if not as wholesome therapy can in real-time with ongoing improvements and research work can gradually metamorphose into a powerful combat tool against different types of cancers. This power point will summarize our review work relating to diagnostic and possible therapeutic potential of CRISPR technology.

**Keywords:** Colorectal cancers (CRC), CRISPR/Cas technology, KRAS mutation, organoids

## Biography:

A Medical Doctor, with fellowship in Chemical pathology (Pak), further qualifying Post Graduate Diploma in Endocrinology & Diabetes (UK) and MSc in Cancer, Molecular Pathology & Genomics (UK). Having a keen interest in metabolism, with cancer being considered as one of the metabolic disorder triggered both by genetics and epigenetics in one of the areas where the author is working more especially after completing his practical work in miRNA in breast cancer. The presenter has over 65 international and national publications with latest dealing with genome editing technologies, CRISPR/Cas in type-2 diabetes mellitus, and some more to follow. The author is also a member of American Society of Gene Cell Therapy (ASGCT) and avidly follows its proceedings.

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# Necessity of Nephrology Consultation in Cancer Patients

**Murat Tuğcu**
Marmara Universit, Turkey

Both the high risk of developing cancer in those diagnosed with chronic kidney disease and the development of kidney-related diseases in patients diagnosed with cancer due to various reasons have formed a common cluster area in nephrology and oncology. In this study, we investigated the indications for nephrology consultation, and prognosis of the patients in outpatient clinic. Patient's gender, age, cancer diagnosis, the reason for the consultation, laboratory results related to the reason of admission (creatinine, eGFR, proteinuria, electrolyte levels) and follow-up periods were recorded and analyzed. 52.4% of the patients were female, the average age was 62.7 years-old (min-max 37-86). Mean follow-up time was 15.6 months. The most frequently consulted malignancies were gastrointestinal (n: 39) and urogenital system tumors (n: 36). The first five cancer which most frequently consulted were colon + rectum (n: 28), lung (n: 17), breast (n: 15), renal cell carcinoma (n: 15), and ovary (n: 10), respectively. Acute kidney injury was the most common indication for consultation (n: 60). While 73.3% of the patients who were consulted with acute kidney injury improved, 21.6% had progressed. As a result of the study, it was found that those diagnosed with gastrointestinal and urogenital system cancer were consulted to nephrology more frequently. The more frequent occurrence of chemotherapy-related toxicity / proteinuria, dehydration and postrenal events in these cancers may explain this situation. As a result, clinical improvement was observed in the majority of patients and the concept of nephro-oncology should become more widespread in the medical world.

**Keywords:** cancer, nephrology, acute kidney injury, oncology, consultation, nephro-oncology

## Biography:

A Internal Medicine Doctor, with fellowship in Nephrology. The presenter has over 15 international and national publications. The author is also a member of Association (ERA-EDTA) - LinkedIn European Renal Association - European Dialysis & Transplant Association (ERA-EDTA).

# Operative outcome of laparoscopic colorectal cancer surgery in a regional hospital in a developing country: a propensity score-matched comparative analysis

**Suppadech Tunruttanakul**
Sawanpracharak Hospital, Thailand

**Background:** Laparoscopic surgery is an alternative procedure for colorectal cancers. However, high-level supporting evidence has been derived from high-volume centers in developed countries. During the early phase of applying the laparoscopic approach, we evaluated the procedure's short-term outcomes in our regional middle-volume hospital in a developing country.

**Methods:** We retrospectively analyzed data for a cohort of 223 colorectal cancer patients who underwent elective surgery from October 2017 to September 2019. We compared 165 patients undergoing open surgery (OS group) with 58 undergoing laparoscopic surgery (LS group) using a propensity score-matched analysis.

**Results:** After matching, each group contained 58 patients for evaluating outcomes. The LS group had more harvested mesenteric lymph nodes (5.0 nodes, 95% confidence interval (CI): 1.8–8.1; p-value: <0.01) with comparable blood loss (p-value: 0.54) and margin status (p-value: 0.66). However, LS was more time-consuming (68.8 minutes longer; 95% CI: 53.0–84.7; p-value: <0.01). Morbidity and mortality rates were equivalent (odds ratio (OR): 1.3, 95% CI: 0.25–2.73, p-value: 0.74, and OR: 2, 95% CI: 0.18–22.1, p-value: 0.57, respectively). The LS group experienced fewer days to begin normal eating (–0.5 days, 95% CI: –0.9 to –0.1, p-value: 0.04) and shorter hospital stay (–1.5 days, 95% CI: –2.7 to –0.4, p-value: <0.01). The conversion rate was 3.5%.

**Conclusion:** The laparoscopic approach was applicable even in a regional middle-volume hospital in a developing country. However, longer surgical time was a drawback.

## Biography:

Dr. Tunruttanakul is a general surgeon, graduated his surgical training on 2010. Since finished training, he's been working in a regional hospital of Thailand. He is interested in the field of laparoscopic surgery, therapeutic endoscopy and oncology. In 2015, He was awarded Dunlop-Bonpong scholarship and went to learn in his interested fields in Nepean Hospital Penrith NSW, Australia. He's been trying to improve quality of the surgical service in his regional hospital by developing and introducing the minimally invasive surgery until this day.

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# NLR and PLR as a predictive factor of response to sequential therapy TPF followed by concurrent chemoradiotherapy hypopharyngeal carcinoma

**Lamiss Mohamed Abd Elaziz[1,*], Saad Elzayat[2] and Dina Adam Elshahat Ali[1]**
[1]Tanta University, Egypt
[2]Kaferelsheikh University, Egypt

Proinflammatory markers such as neutrophil/lymphocyte ratio (NLR) and platelet lymphocyte ratio (PLR) have been studied as poor prognostic factors in various types of cancer. There is a lack of studies on predictors of response to sequential therapy TPF followed by concurrent chemoradiotherapy in locally advanced hypopharyngeal squamous cell carcinoma.

**Aim:** Thus, in this study, we have evaluated whether these markers could serve as prognostic predictors of response to treatment.

**Patients and methods:** Fifty-three patients with locally advanced hypopharyngeal squamous cell carcinoma stage III and IV a&b treated with sequential therapy 3 cycles of neoadjuvant TPF followed by concurrent chemoradiotherapy were recruited. Median values were used to calculate NLR and PLR from peripheral blood count. Univariate and multivariate analyses were used.

**Results:** Significant association of higher NLR ≥ 2.5 and higher PLR ≥ 140 was found with older age, lower performance status, tumor stage 4, regional lymph nodes 2 and 3 along with stage IV. Data from univariate analysis showed that overall response was significantly higher in patients with NLR < 2.5 and PLR < 140. Univariate analysis of both NLR and PLR indicated significant association with poor disease outcome; however, multivariate analysis showed only high NLR was significantly associated with poor treatment outcome.

**Conclusions:** Both NLR and PLR were significantly associated with poor overall survival, disease free survival and progression free survival. High NLR and PLR are associated with tumor aggressiveness, poor treatment response to sequential therapy TPF, followed by concurrent chemoradiotherapy, shorter overall survival, disease free survival and progression free survival

## Biography:

Lamiss Mohamed Abd Elaziz has completed her PhD from Tanta University and currently, she is working as an Assistant Professor. She has published more than 9 papers in reputed journals and has been serving as an Editorial Board Member of repute.

# The Cancer microbiome research: understanding the host-microbe interactions to treat cancer

**Gnanendra Shanmugam**
Yeungnam University, South Korea

Our body is surrounded by trillions of microbes, among these, majority are bacteria, while we also host fungi, virus and archaea. The gene content of these microbes all together is collectively termed as microbiome or microbiota. However, humans show 99% similarity in their genetic makeup, they show 80-90% variation in terms of microbiome. In this scenario, microbiome research can facilitate understanding of the significance, for the human, of the microbes, and of the interactions among them. The change in the microbiome configuration has been associated with a number of diseases, including obesity, inflammatory bowel disease, arthritis, autism, asthma and cancer. Thus cataloguing the required and appropriate sets of health-supporting microbiome features and their normal ranges in healthy humans is an essential step in identifying and correcting disease-implicated microbial configurations. Also, exploring the features that broadly distinguish healthy from unhealthy microbiomes will help in the detection of microbiome-related diseases and may potentially offer new ways of preventing disease onset or enhancing prognosis.

## Biography:

Dr. Gnanendra Shanmugam is currently an Assistant Professor (Research Professor) in the Department of Biotechnology at Yeungnam University, Gyeongsan, South Korea. He received his PhD degree in Bioinformatics from Bharathiar University, Coimbatore, India in 2014. After completing his PhD, he continued to have training as postdoctoral fellow (2016-2018) in Microbial genomics laboratory in the department of Biotechnology at Yeungnam University, Gyeongsan, South Korea. In 2018, he accepted the Assistant Professor position in the same university. He is a bioinformatician with keen research interests in deciphering the molecular mechanisms and pathways towards the novel lead discovery for various diseases. His research focuses is focused on Next generation sequencing analysis and he loves to develop machine learning, data mining algorithms with potential applications in predicting protein structure and functions. He has published over 25 peer-reviewed research articles.

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# Leiomyosarcoma: a rare presentation as multifocal lesion

[1]Mohanad Kareem Aftan, MD, [1]Afra Alfalahi, [2]Ethar Alzeena, [1]Usama albastaki, [1]Yamina Houcinat and [1]Khalid Mahmoud

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[2]Jadara Radiology Center, Amman, Jordan

Leiomyosarcoma is a rare type of connective tissue cancer, accounting for 5–10% of all soft tissue sarcomas. We present a case of leiomyosarcoma as unusual multifocal presentation. Retroperitoneal, mediastinal, pulmonary, uterine and bony regions were all involved at the time of presentation. The liver was normal without detected lesions. A 50-year- old lady presented to the emergency department with a history of right shoulder pain for 4 days. Right shoulder X-ray was done and showed a mediastinal mass at the edge of the film (Figure 1A). The patient noticed a growing abdominal mass over the past few months but didn't seek any medical advice.

Multiple imaging studies were performed including chest radiograph, chest, abdomen and pelvis CT scan with intravenous contrast, cervical and lumber spine MRI with contrast. The investigations showed a multilobulated heterogeneously enhancing mediastinal mass with multiple hypoenhancing/necrotic areas (Figure2A&B). It caused destruction and infiltration of the adjacent D1 vertebral body and directly extended through the right nerve root exit foramen to the spinal canal at the same level. Multilobulated lung parenchymal soft tissue mass involving the right lower lobe (Figure2C). Multiple lung nodules likely metastatic in nature (Figure2D). A third mass noted at the retroperitoneal region (Figure 3A&B) with similar characteristics to the aforementioned right lung mass. Its epicenter at the left upper aspect of the peritoneum with no local invasion. A fourth mass was found in the uterus with similar characteristics of other primary tumors (Figure 3C). Histopathology of ultrasound-guided biopsy of the retroperitoneal mass confirmed the diagnosis of high grade leiomyosarcoma (Figure 6).

**Keywords:** Leiomyosarcoma; soft tissue sarcomas; multifocal; Retroperitoneal; mediastinal; pulmonary

## Biography:

Dr. Aftan work in Rashid Hospital- Dubai- UAE. Former clinical MSK fellow in Royal National Orthopaedic Hospital- London. Former radiology resident in Jordan University Hospital- Amman-Jordan.

## Figures

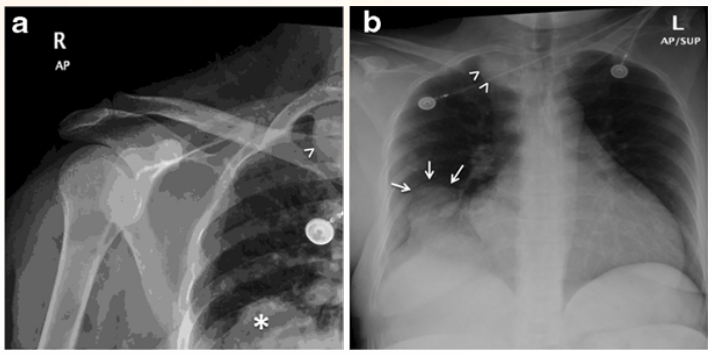


Figure 1. (A) AP view of the right shows a soft tissue opacity projecting over the bottom right corner of the film (white asterisk), another mediastinally based mass (arrow head).

(B) AP view portable chest X-ray confirms the presennce of masss in the lower zone of right lung (white arrows) and the above mentioned mediastinal mass (arrow heads). AP, anteroposterior.

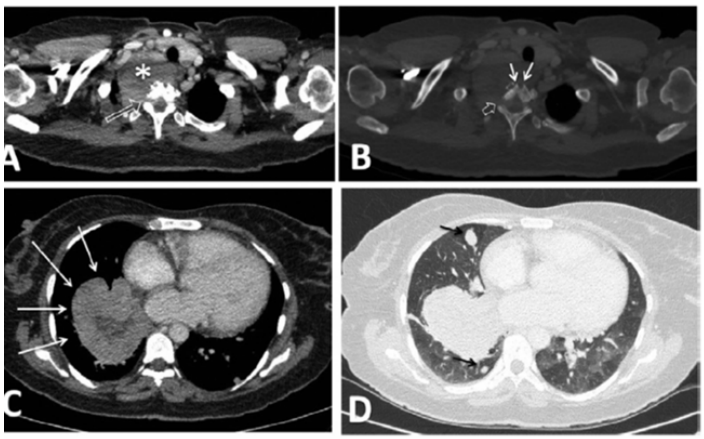


Figure 2. CT chest with i.v. contrast. (A) Mediastinal window at the level of lung apex shows multilobulated heteroge- neously enhancing soft tissue mass with multiple hypo- enhancing/necrotic areas (white asterisk), It directly extends through the right nerve root exit foramen to the spinal canal at the same level (long white open arrow). (B) Bone window at the same level shows posterior extension to the adjacent DI vertebral body causing infiltrative lytic bony changes (white arrows) and directly extending through the right nerve root exit foramen to the spinal canal at the same level (white open arrow). (C) soft tissue window at a lower level shows another multilobulated soft tissue mass with central necrotic areas involving the medial, anterior and basal aspects of the right lower lobe. It abuts but does not invade the adjacent pericar- dium (long white arrows). (D) Lung window shows multiple nodules (short black arrows) likely metastatic in nature.

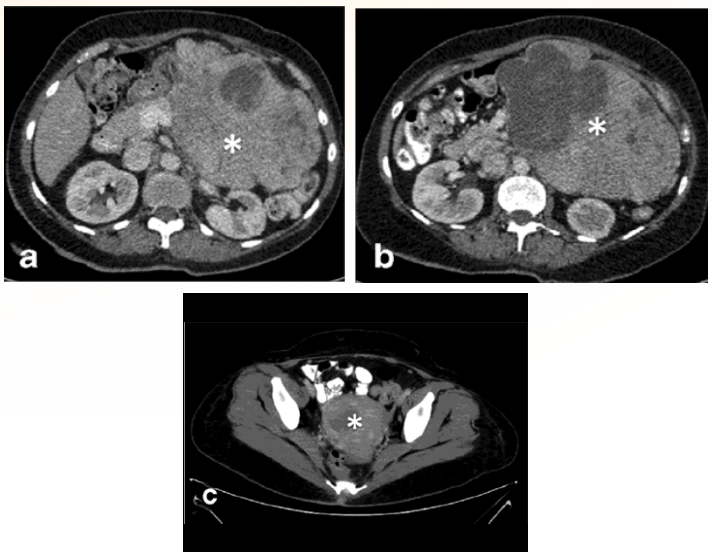


Figure 3. Abdomen and pelvis CT scan with IV contrast axial cuts. (A, B) Multilobulated soft tissue mass with necrotic center (White asterisk). Its epicenter at the left upper aspect of the peritoneum. It displaces but not invades the adjacent bowel loops, vascu lar structures and pancreas. (C) At a lower level shows another lesion with similar radiolog ical character- istics in the uterus (white asterisk).

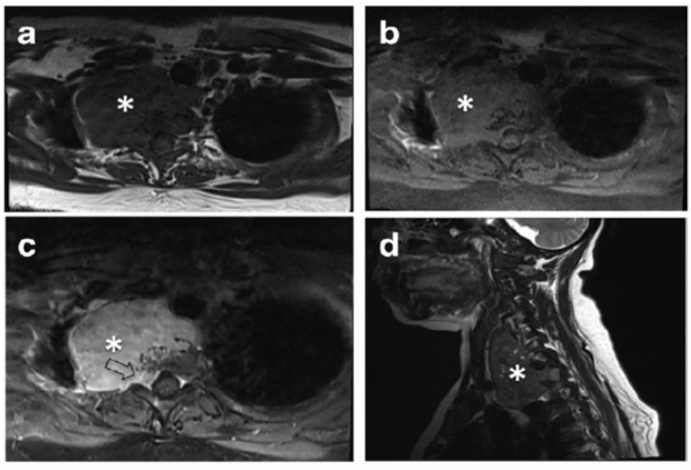


Figure 4. MRI. The mass is labeled with white asterisk. (A) Axial T1 sequence shows heterogeneously iso-Intense signal relative to muscle signal. (B) Axial STIR sequence shows heterogeneously mildly hyperintense mass relative to muscle signal. STIR, short tau inversion recovery. (C) Axial T1 sequence post contrast shows heterogeneous hyperenhancement with involvement of D1 vertebral body and extension into the spinal canal through the right neural foramen (open black arrow). (D) Sagittal T2 sequence shows its cranial extension to cricoid cartilage level.

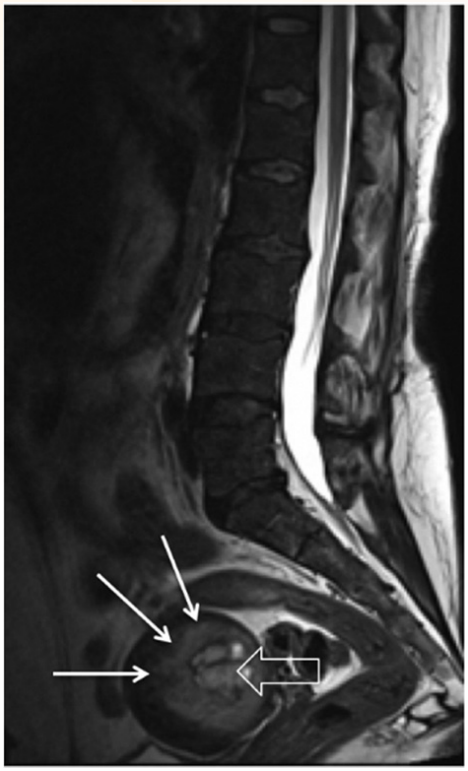

Figure 5. MR lumber spine T2 sequence sagittal cut shows similar soft tissues lesion within the uterus (long white arrows) with central area of necrosis (open white arrow).

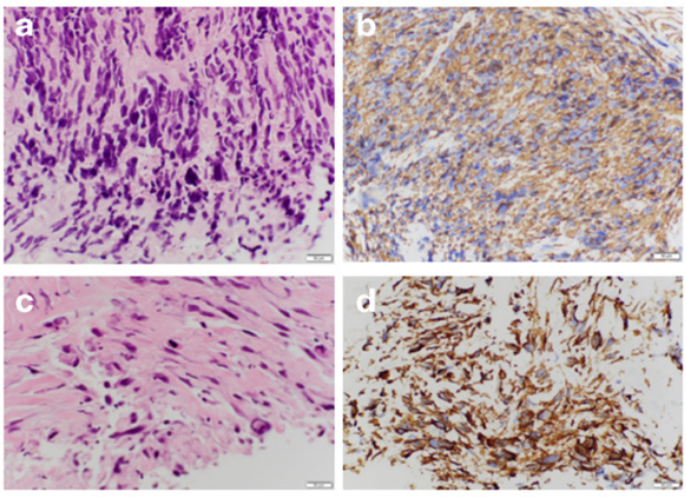


Figure 6. Histopathology of ultrasound guided biopsy of the retroperitoneal mass. (A) High power photomicrograph shows spindle cells, hyperchromatic nuclei, anesochariosis, pleomorphism and atypia. (B) SMA stain shows positive smooth muscle tumor. (C) Mitosis. (D) smooth muscle marker caldesmon. Other markers for other spindle cell tumors where negative. MDM2 test for de-differentiated liposarcoma is negative. Tests for lymphoma, nerve sheath tumor, solitary fibrous tumor is negative. SMA, smooth muscle actin.

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# Radiosynthesis of technetium-99m labelled methotrexate: biodistribution and preliminary evaluation as potential imaging agent in soft tissue and bone sarcoma

**Syed Ali Raza Naqvi[1,*], Tauqir A. Sherazi[2], Rashid Rasheed[1]** and **Syed Jawad Hussain Gillani[3]**

[1]Government College University, Pakistan
[2]COMSATS University Islamabad, Pakistan
[3]Institute of Nuclear Medicine Oncology and Radiotherapy (INOR), Pakistan

Soft tissue and bone sarcomas appear as rare but life threatening cancers, which can develop both in males and females with almost equal probability. Methotrexate (MTx) is a chemotherapeutic agent which is used in the treatment of soft tissue and bone sarcomas; hence can be used as diagnostic agent after radio-labeling with gamma emitting radionuclide. In this study, the lyophilized kit of MTx was formulated to prepare 99mTc-MTx for imaging of biopsy proven soft tissue and bone sarcomas patients. The radiosynthesis showed >96±0.16%labeling efficiency. 99mTc-MTx biodistribution profile of animal model and normal subject scintigraphic study showed that the tracer mainly excreted through kidneys. No clinical signs oftoxicity were observed in normal volunteer subjects and patients up to six hours post injection. Out of five (5) patients with known tumor, 03 showed T/NT ratios >5.0 (compared to normalT/NT ratio i.e. ~1.0). However, 2 patients who were radiologically disease negative on completion of chemotherapyshowed normal T/NT ratios. Preliminary results showed 99mTc-MTx can be studied in detail as a focal point in multicenter investigations to mature its use as imaging and staging of various MTx avid lesions.

**Keywords:** Radiosynthesis, Biodistribution, 99mTc-methotreaxte, Imaging agent, Soft tissue sarcoma, Bone sarcoma, Clinical study.

## Biography:

Syed Ali Raza Naqvi is a radioanalytical chemist and working as an associate professor of analytical chemistry in the department of Chemistry, Government college university, Fiaslabad Pakistan; whose work has focused on the development of radiopharmaceuticals for diagnosis and therapy of neuroendocrine tumors and bacterial infections. Since neuroendocrine tumors are commonly inoperable, they require targeted therapy for treatment. For these tumors, Naqvi advanced peptide receptor radionuclide therapy (PRRT) using 111In-labeled minigastrin peptides. He recently expanded his studies to include the radiolabeling of fluoroquinolone derivatives for the diagnosis of deep-seated bacterial infections. Naqvi is a principle investigator for three research projects on radiopharmaceuticals/radiodiagnostics, and he has authored a book titled Nuclear Analytical Techniques.

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# Suppression of lncRNA MALAT1 by betulinic acid inhibits hepatocellular carcinoma progression by targeting IAPs via miR-22-3p

**Feiyu Chen[1], Zhangfeng Zhong[1], Hor Yue Tan[1], Wei GUO[1], Cheng Zhang[1], Chien-Shan Cheng[1], Ning Wang[1], Junguo Ren[2*]** and **Yibin Feng[1*]**

[1]The University of Hong Kong, Hong Kong

[2]Xiyuan Hospital, China Academy of Chinese Medical Sciences, Beijing, PR of China

Betulinic acid (BA) is a natural product extracted from a broad range of medicinal and edible herbal plants. Previous studies showed that BA induces cell death in tumours derived from multiple tissues, however the underlying mechanism remains obscure. The present study aimed to study the effects of BA on autophagy and apoptosis of hepatocellular carcinoma (HCC). Human HCC cell lines and orthotopic HCC implanted mice were employed to examine the BA-induced tumor suppression; RT2 lncRNA PCR array and database analysis were used to explore the possible mechanisms; validation of pathways was performed using siRNA and miRNA inhibitors. The results indicated that BA regulated autophagy and induced apoptosis in HCC. The degradation of inhibitor of apoptosis proteins (IAPs), the conversion of LC3-I to LC3-II, as well as p62 accumulation were enhanced by BA, thereby suggesting that the down-regulation of IAPs and autophagic cell death are induced by BA. The addition of autophagy and lysosomal inhibitors indicated that BA induced autophagy-independent apoptosis via degradation of IAPs. Moreover, RT2 lncRNA PCR array and database analysis suggested that BA downregulated the levels of lncRNA MALAT1, which is considered to be an oncogene. Further investigations demonstrated that lncRNA MALAT1 functioned as a ceRNA (competing endogenous RNA) to contribute to BA-mediated degradation of IAPs by sponging miR-22-3p. Therefore, BA could be developed as a potential anti-cancer agent for HCC.

**Keywords:** Hepatocellular carcinoma; Betulinic acid; Cell Death; Apoptosis; lncRNA; Autophagy

## Biography:

Feiyu Chen is now the final year of PhD candidature at the School of Chinese Medicine, the University of Hong Kong. My work mainly focuses on the pharmacology of Chinese Medicine in hepatocellular carcinoma. Her 7 articles & interview papers published, which are 2 research articles (Clinical and Translatinal Medicine IF7.9, Frontiers in Pharmacology IF4.4); 3 review articles (Cancer Biology & Therapy IF: 3.38, Frontiers in Pharmacology IF4.4,Cancers IF6.1); 2 chapters for online open access books. And she have 2 articles that are under peer-review process.

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# Frequency of Regulatory B cells Phenotypes in Breast Cancer Patients in Egypt

**Sherein G. Elgendy[a],Ehsan MW. El-Sabaa[a], Shabaan H. Ahmed[a], Samir SM. Eid[a]** and **Mohamed A. El-Feky[a]**

[a]Assiut University, Assiut, Egypt

Accumulating evidence has indicated that immune regulatory cells are involved in the establishment of the anti-tumor activity however; the role of regulatory B cells (Bregs) in breast cancer (BC) remains unclear. This study detects the frequency of peripheral B-regs phenotypes in patients with BC, finds the relation between these phenotypes and BC stage and other clinicopathological characters. The expressions of the immune cell populations were analyzed by four-color flow cytometry in 40 naïve BC patients and10 age matched healthy individuals as controls attending the department of Clinical Oncology and Nuclear Medicine at Assiut University Hospitals. The percentages of B-regs phenotypes CD19+IL10+ and CD19+CD24hiCD27+IL10+ were higher in BC patients than in healthy controls. The percentage of CD19+IL10+ B cells phenotype was significantly associated with the HER-2 expression levels, T, and N stages of BC. High percentage of Bregs phenotypes CD19+IL10+ and CD19+CD24hiCD27+IL10+ in BC patients indicates possible role in immune-suppression during development of BC.

**Keywords:** Breast cancer; Clinicopathological characteristics; regulatory B cell; interleukin-10; Egypt

## Biography:

Sherein Gamal Elgendy is Bachelor of Pharmaceutical Science (2002), Faculty of Pharmacy and Medicine, Assiut University, Egypt. She has master's degree in microbiology and Immunology (2006), and Ph.D. in microbiology and immunology (2009).

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# Combinative therapy of Tamoxifen and Doxorubicin loaded dual niosomes for applications in Breast cancer treatment

**Pratik Kulkarni** and **Deepak Rawtani**
National Forensic Sciences University, India

This study was developed with the objective to prepare self-assembled niosomes to support sufficient entrapment and sustained drug release of the drugs having different solubility and mechanisms. In the current work, Tamoxifen- and Doxorubicin loaded dual niosomes were prepared for applications in combinatorial breast cancer treatment with statistical optimization by Box-Behnken experimental design. Transmission electron microscopy revealed a spherical shape morphology of the niosomes. The entrapment efficiencies for the drugs were found to be 74.3% and 72.7% for Tamoxifen and Doxorubicin, respectively. The drug release experiments at different pH values displayed a sustained release up to 3 days. Fourier transform infrared spectroscopy and differential scanning calorimetry showed a robust drug-excipient compatibility. The niosomes were stable over a period of 6 months under refrigeration with no significant changes. In vitro cytotoxicity studies on MCF-7 cell line showed a 15-fold improvement (0.01 mg per mL) and a better synergistic effect of the niosomes in comparison to the free drug combination (0.15 mg per mL). Moreover, the nanocarrier uptake studies by fluorescence microscopy and flow cytometry showed a good distribution and greater uptake of the niosomes throughout the cells. These results suggest a profound therapeutic application of the niosomes for a combinatorial breast cancer treatment.

**Keywords:** Niosomes, Breast cancer, Combinative drug delivery, Box-Behnken, Synergism

## Biography:

Mr. Pratik P. Kulkarni is a PhD. Research scholar (awaiting final defense) at the National Forensic Sciences University (NFSU). He received his bachelors in pharmacy from K.B Inst. Of Pharma. Edu. and Research, and a master's degree in nano drug delivery systems from NFSU, Gandhinagar, India. His research interests include development of drug loaded nanocarriers for combinative drug delivery applications. Till now he has published 9 scientific papers in journals of International repute. His work on Breast cancer nanoformulation was awarded a place in the virtual issue titled " Most original and Most significant scientific contribution" in 2018 (Elsevier).

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# The clinical feasibility for same day ER-HER2 phenotype detection by PET

**Michel Paquette, Olga Bednova, Brigitte Guerin, Roger Lecomte, Eric Turcotte, and Jeffrey V. Leyton (Presenter)**
Université de Sherbrooke, Canada

Positron emission tomography (PET) enables physicians to non-surgically view inside the human body and ascertain important molecular disease characteristics. Thus, PET and its implementation in clinical nuclear medicine is very much in line with the direction of precision medicine, which takes into account molecular variations in diseased tissues to personalize patient treatment. Individual breast tumors expressing either the human epidermal growth factor receptor 2 (HER2) or the estrogen receptor (ER) are managed well by oncologists due to the availability of several developed anti-HER2 and hormonal therapies, respectively. However, about half of breast cancers express both HER2 and ER. In addition, many patients with ER+ primary tumors that relapse after hormone therapy have recurrent tumors in which ER expression is lost and HER2 expression is gained, an occurence known as ER-HER2 treatment-induced phenotype switching. HER2 and ER tumor heterogeneity at diagnosis and phenotype switching represent unresolved clinical dilemmas and a major cause of treatment failure and mortality. Our imaging centre is addressing this by developing a fluorine-18 ($^{18}$F)-tagged small molecule radiopharmaceutical 4-fluoro-11β-methoxy-16α-[$^{18}$F]fluoroestradiol (4FMFES) for ER detection and creating a clinically translatable protocol that will allow it to be combined with the HER2 specific monoclonal antibody (mAb) trastuzumab radiolabeled with zirconium 89 ($^{89}$Zr-T). When injected intravenously, intact mAbs are able to equisitely home to and bind specific tumor phenotypes. However, intact mAbs are not deal for PET imaging as their long circulating half-lives result in high background for extended periods of time. We are engineering trastuzumab antibodies to have shortened circulating half-lives while maintaining high tumor uptake in an effort to provide same day ER-HER2 phenotype status. I will discuss our preclinical and clinical advancements and the feasibility of implenting a HER2-ER dual phenotype imaging approach in standard clinical nuclear medicine practice.

**Keywords:** Estrogen receptor, HER2, PET imaging, 4FMFES, 89Zr-trastuzumab, Antibody engineering

## Biography:

Dr. Leyton is a leading scientist in the field of antibody-based medicines. His projects range from an effort to map new intracellular transport routes that increase the cellular accumulation of delivered therapeutic payloads for biopharmaceuticals to his most recent efforts to redefine molecular imaging for cancer so doctors can make more informed decisions for patient management and therapeutic action. Dr. Leyton earned his PhD in Molecular and Medical Pharmacology from the University of California, Los Angeles and trained as a postdoctoral fellow in the department of pharmaceutical sciences at the University of Toronto prior to joining the Université de Sherbrooke.

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## VIDEO PRESENTATTIONS

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# Identification of the genetic variants found in patients clinically diagnosed with breast cancer in the Southwest Colombian

**Daniela Arturo-Terranonova** and **Maria Camila Arturo Terranova**
Universidad del Valle, Colombia
Unidad Central del Valle del Cauca, Colombia

Breast cancer is the most common neoplasm in women and the second leading cause of cancer death worldwide. According to the International Agency for Cancer Research (IARC), in 2018 in Colombia 3,702 women died from breast cancer (mortality of 11.9 per 100,000 people). The global cancer observatory refers that for this same year breast cancer in Colombia was reported in 13.1% of diagnosed patients. Genetic studies in Colombia that have focused on the search for mutations that make it possible to explain the epidemiology of cancer have shown varied results regarding the participation of associated genes. BRCA1 and BRCA2 mutations have been found to affect between 5 and 8% of patients with breast cancer in Colombia, and in 10% of patients with ovarian carcinoma. However, there are very few studies in which the incidence and prevalence of different genes associated with breast cancer can be determined that allow estimating a susceptibility to cancer, which provides an accurate diagnosis and timely treatment. In this way, our work aims to identify through a bibliographic search, the genetic variants found in patients clinically diagnosed with breast cancer in the Colombian Southwest, seeking to determine the prevalence of pathogenic mutations that may increase the risk of inheritance, recurrence, metastasis and mortality.

**Keywords:** Breast cancer, Colombia, Mutations, Prevalence.

## Biography:

Biologist with an emphasis on microbiology, who has developed research work on the association of epstein barr virus and cancer; She is currently a candidate for a master's degree in biomedical sciences with an emphasis on molecular biology in Universidad del Valle. belongs to the research group congenital diseases of the metabolism, where he has developed research associated with cancer genetics using bioinformatic methods using in-silico technology.

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# Baicalein-rich fraction from *Oroxylum indicum* exerts anti-cancer properties in cervical cancer cell lines via MAPK-dependent pathway and modulation of cytokines

**Nor Fazila Che Mat** and **Wahab N. H., Edinur**
Universiti Sains Malaysia, Malaysia

Baicalein, a potential anti-cancer compound isolated from *Oroxylum indicum* (*O. indicum*), has been previously tested for its anti-proliferative activities in multiple preliminary studies. The effects of baicalein-rich fraction (BRF) on the proliferation of cervical cancer cell lines and related mechanism were investigated. BRF suppressed cancer cells proliferation and BRF-induced SiHa and HeLa cell death was remarkably enhanced by ERK MAPK inhibitor (PD98059) and inhibited by p38 MAPK inhibitor (SB203580) and JNK MAPK inhibitor (SP600125). By Western blot analysis, BRF has activated JNK by significant upregulation of phosphorylated JNK level and suppressed p-ERK expression after 24 hours incubation period. Yet, no significant changes were detected for the expression of p-p38 MAPK. This suggesting that BRF induced apoptosis in cervical cancer cells predominantly through ERK inhibition and JNK activation. On top of that, apoptosis induction by BRF also enhanced through cytokines modulation. SiHa and HeLa cells treated with BRF have expressed downregulation of IL-6 and upregulation of IL-12 after 24 hours treatment. Thus, the modulation of MAPK signalling, when taken together with IL-6 reduction and IL-12 upregulation, provides a possible mechanism by which BRF exerts its action in cervical cancer cells.

**Keywords:** Baicalein, anti-cancer, *Oroxylum indicum*, cervical cancer, apoptosis, cytokines

## Biography:

Nor Fazila Che Mat is a lecturer at Universiti Sains Malaysia in Kelantan Malaysia. She obtained her undegraduate degreee and MSc degree in Biomedicine from Universiti Kebangsaan Malaysia, and received Ph.D in Immunology & Virology from Queen's University, Ontario, Canada (2011). She have almost 10 years experience in research and university teaching. She teach Virology, Immunology and Genetic subjects. Nor Fazila Che Mat current reseach is on HPV-associated cervical cancer, and determination of natural products as one of the alternative treatment of cervical cancer is the key of my research.

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# A paradigm of the complexity of B cells expressing membranous TNF-α in the tumor draining lymph nodes of breast cancer

**Atri Ghods[1], Fereshteh Mehdipour[1], Reza Rasolmali [2], Abdol-Rasoul Talei[2] and Abbas Ghaderi[1]**

[1]Shiraz University of Medical Sciences, Iran

[2]Shiraz Central Hospital, Iran

Membranous tumor necrosis factor-α (mTNF-α) is the membrane-bound primary form of TNF-α, mainly expressed by lymphocytes, monocytes and macrophages. It preferentially binds to TNF receptor 2, and exerts either immune stimulatory or regulatory effects in both direct and reverse signaling pathways. Herein, we investigated the expression of mTNF-α in CD19+ B cells derived from breast tumor-draining lymph nodes (LNs), and assessed its associations with breast cancer prognosticators. Mononuclear cells were isolated from 41 fresh axillary LNs and stimulated for 5 hours with PMA/Ionomycin. Cells were stained for CD19 and mTNF-α, and examined by flow cytometry. Results showed that 13±9.3% of $CD19^+$ B cells expressed mTNF-α with various intensities. The geometric mean fluorescence intensity (gMFI) of mTNF-α showed reverse correlation with the frequency of $mTNF\text{-}α^+$ B cells (R=–0.5, P=0.002). Besides, the frequency of mTNF-α-expressing B cells showed a decreasing trend in patients in N3 group (>9 involved LNs) compared with N1 (1-3 involved LNs, P=0.065), and negatively correlated with the number of involved LNs (R=-0.4, P=0.021). However, the gMFI of mTNF-α in CD19+ cells was significantly higher in N3 compared with N1 (P=0.023), and directly correlated with the number of involved LNs (R=0.3, P=0.050). Furthermore, the gMFI of mTNF-α in B cells was significantly higher in stage III compared with stage II (P=0.009). Therefore, higher frequency of mTNF-α-expressing B cells was associated with good prognostic markers, whereas the expression intensity of mTNF-α in B cells correlated with poor prognosticators of breast cancer. These data highlight the complex role of $mTNF\text{-}α^+CD19^+$ B cells in breast cancer immunity, and warrant further need for the full characterization of B cells with high or low expression intensities of mTNF-α.

**Keywords:** membranous TNF-α, $CD19^+$ B cell, Tumor draining lymph node, Breast cancer

## Biography:

Atri Ghods is a research assistant at Shiraz Institute for Cancer Research, where she works in a lab supervised by Prof. Abbas Ghaderi and Dr. Fereshteh Mehdipour. She was graduated from university with a master's degree in Medical Immunology. Her main research area is the characterization of adaptive immune responses formed in tumor-draining lymph nodes, and their changes during cancer progression. Focusing mostly on the role of TNF-a, mTNF-a, and their receptors in breast cancer immunity, she gained expertise in various cellular and molecular biology techniques. As a young researcher, she is interested to expand her knowledge in different areas of tumor immunology.

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## KEYNOTE SPEAKERS

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**Shu-Kui Qin[1], Qing Li[2], Jian Ming Xu[3], Jun Liang[4], Ying Cheng[5], Ying Fan[2], Jun Jiang[2], Hao Ye[6], Huimin Tao[7], Lian Li[7], Limin Zheng[7], Zhaohui Wei[8], Shu Li[9], Kun Meng[9], Bin Ye[9]** and **Yan Sun[2]**

[1]Nanjing Jinling Hospital, China
[2]National Cancer Center/National Clinical Research Center, Cancer Hospital, Chinese Academy of Medical Science and Peking Union Medical College, China
[3]The 5th Medical Centre, Chinese PLA General Hospital, China
[4]The Affiliated Hospital of Qingdao University, Qingdao, China
[5]Jilin Cancer Hospital, China
[6]SinoTech Genomics, China
[7]Sun Yat-Sen University, China
[8]Tigermed Consulting Co., Ltd., China
[9]Shenogen Pharma Group, China

## First-in-class small molecule Icaritin Induced Immunomodulatory Efficacy in Advanced HBV-Related Hepatocellular Carcinoma:Immunodynamic Biomarkers and Overall Survival

Advanced HBV-related HCC with poor prognosis is often associated with chronic inflammation, immune tolerance and marked heterogeneity. IL-6/JAK/STAT3 signal pathways play multiple regulatory roles in modulating inflammation and immunity in cancers. Polarisation of myeloid-derived suppressor cells (MDSCs) is involved in HBV-related immunosuppression and $CD8^+$ T-cell activation via ERK/IL-6/STAT3. Icaritin is a small molecule that has displayed anticancer activities via IL-6/JAK/STAT3 pathways in tumour cells and immune cells including $CD8^+$ T cells, MDSCs, neutrophils and macrophages. This study aimed to confirm icaritin immunomodulation in advanced HBV-related HCC patients with poor prognosis. Immunomodulation of MDSCs was evaluated in BALB/c mice in vivo. Immunomodulation of serum cytokines and panel of immune checkpoint proteins were assessed in HBV-related, histologically confirmed HCC patients. Poor prognostic characteristics included HBV-infection, bulky tumours, Child-Pugh B classification and metastasis. Clinical endpoints included safety, tumour response and overall survival (OS). Icaritin treatment-induced dynamics of serum cytokines IL-6, IL-8, IL-10 and TNF-α and soluble immune checkpoint proteins TIM3, LAG3, CD28, CD80, and CTLA-4 were assessed. No grade III/IV treatment-related adverse events were observed. Time-to-progression was significantly associated with the prognostic factors. Improved survival was observed in the advanced HCC patients with dynamic changes of cytokines, immune checkpoint proteins and immune cells. Median OS (329-565 days) was significantly correlated with baseline $HBsAg^+$, cytokines, tumour neo-antigens and *Stenotrophomonas maltophilia* infection. Composite biomarker scores of high-level AFP and Th1/Th2 cytokines associated with favourable survivals warrant further clinical development of icaritin as an alternate immune-modulatory regimen to treat advanced HCC patients with poor prognosis.

**Keywords:** icaritin anticancer immunomodulation, dynamic biomarkers, survival, HBV-related advanced HCC

## Biography:

Dr. Bin Ye graduated from Weizmann Institute, Israel in 1998, followed his Post.Doc training in Harvard Medical School, was promoted as Assistant Professor in Brigham Women's Hospital/Dana-Farber Cancer Center in 2008 with several competitive Cancer Research awards. He has contributed more than >40 original research papers and 7 patents Since 2011, Dr. Ye acted as senior Investigator and led China Biomarker Development (BMD) outsourcing at Novartis in early phase global trials. Dr. Ye jointed in Shenogen Pharma lead biomarker informatics and Translation Medicine in first-in-class icaritin development program from phase I to III and focus on immune therapy.

**Nagy Habib**

Imperial College London, UK

## Academic and Translational Medicine

Homosapiens are on an eternal pursuit to justify their existence. Clinical medicine can help healthcare professionals to meet part of this objective.

One of the greatest advantages of the medical profession is that the clinician can experience a feeling of achievement when a patient responds to the prescribed therapy. Sometimes a surgeon has to spend over 10 hours in the operating theatre or a physician can spend months or even years treating a “single” patient.

Academic medicine can offer the same inspiration when the passionate translational researcher develops a device or a drug that can be useful for thousands of patients. Apart from helping a vast number of patients worldwide, it provides the team of researchers with a true sense of pride and achievement.

To bring an idea or concept to fruition one has to nurse it from the innovation stage through to *in vitro* testing, *in vivo* proof of concept, clinical trials, device or drug registration, manufacturing, marketing and sales.

I will be describing examples of this journey that took me together with my colleagues at Imperial College London on a long voyage in the development of surgical devices and stem cell and RNA therapy.

## Biography:

Professor Nagy Habib is Head of Surgery at the Hammersmith Campus of Imperial College London and also a serial founder and entrepreneur of life science ventures. He is co-founder of several biotech companies: EMcision Ltd, OmniCyte Ltd, MiNA Therapeutics Ltd, Apterna Ltd, Medeva Plc and Bioenvision Ltd. Previously he was Pro-Rector for Commercial Affairs at Imperial College London. More recently, he has developed a saRNA (a new class of medicines) currently being trialed in patients with liver cancer in eight UK centres, and sites in Singapore and Taiwan

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**Vineet Datta, D Patil, D Akolkar, C Bose** and [1*]**S Schuster**

Datar Cancer Genetics Limited, Nashik, India
[1*]Bayreuth, Germany

# Role of Encyclopaedic Tumor Analysis in Improving Outcomes of Late Stage Refractory Cancers

Encyclopedic tumour analysis guided treatments with conventional drugs outperform available alternatives in refractory cancers. One of the major challenges in effective cancer treatment and better outcomes has been the issue of drug resistance, along with the ability to determine early one which drugs will work and which will not, and enhances our understanding of the cancer biology. Drug resistant cancers present a serious clinical challenge since there are virtually no treatments available. As a large proportion of all cancer patients eventually progress towards this phase, life extending treatment options for these patients are urgently required. The RESILIENT Protocol was designed to analyse all functional layers of a cancer cell i.e., DNA, RNA, proteins and germline genetics besides chemoresistance/sensitivity of live tumor cells. 143 patients started treatment and 126 patients were evaluable as per study criteria. All patients underwent PET-CT and Brain MRI scans prior to start of treatment to establish extent of disease. Treatment response was determined by follow-up PET-CT and MRI scans. In the majority (90.5%) of patients, further spread of cancer was effectively halted. In 42.9% of patients, treatments also led to a significant decrease in the extent of cancer.

**Keywords:** genomics, Tumor, refractory cancers, resilient

## Biography:

Dr. Vineet Datta brings over 20 years of global healthcare experience across clinical patient care, medical assistance, strategic leadership and healthcare consulting. His current role as the Executive Director at Datar Cancer Genetics is to globally expand the adoption of personal and accurate medicine across the clinical mainstream. He has held various leadership positions across the NHS, International SOS and Apollo Hospitals. He was awarded Diplomas for Membership to the Royal College of Physicians, United Kingdom (MRCP-UK) and the Royal College of Emergency Medicine (MRCEM), London. Vineet is an elected Fellow the Royal College of Physicians and Surgeons, Glasgow, and possesses the Advanced Pre-hospital Emergency Care Certification from the Royal College of Surgeons, Edinburgh. He currently also serves as the International Advisor to the Royal College of Physicians and Surgeons of Glasgow, in additional to his professional responsibilities.

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# The role of CA-125, GLS and FASN in predicting cytoreduction for epithelial ovarian cancers

**Yudi Mulyana Hidayat**
Universitas Padjajaran, Indonesia

Cytoreduction has an important role in improving the survival rate of epithelial ovarian cancer (EOC) patients. This study aimed to assess the ability of preoperative serum CA125, FASN and GLS as predictors of cytoreductive surgery for epithelial ovarian cancer (EOC). This observational-analytic cross-sectional study included 109 women diagnosed with epithelial ovarian cancer (EOC) between 2017-2019, who had serum CA-125, GLS, FASN measured preoperatively and underwent cytoreductive surgery. The average values of serum CA-125, FASN, and GLS in the suboptimal cytoreduction group were higher than those in optimal cytoreduction group. The cut off point (COP) was 248.55 ($p=0.0001$) with 73.2% sensitivity and 73.6% specificity for CA-125, 0.445 ($p=0.017$) with 62.5% sensitivity and 60.4% specificity for FASN, and 22.895 ($p=0.0001$) with 73.2% sensitivity and 75.5% specificity for GLS. The COP of CA-125 and GLS combined was 29.16 ($p=0.0001$) with sensitivity 82.1% and specificity 73.6%, while the COP of CA-125, GLS, and FASN combined was 0.83 ($p=0.0001$) with 87.5% sensitivity and 73.6% specificity. In summary, the individual roles of CA125, FASN and GLS levels in predicting suboptimal cytoreductive surgery for patients with EOC is questionable. However, the combination of CA-125 and GLS or CA-125, FASN and GLS can increase the sensitivity, specificity, and accuracy in predicting suboptimal cytoreductive surgery. The combined score is expected to help doctors to provide better therapy than before.

**Keywords:** epithelial ovarian cancer, CA-125, FASN, GLS, cytoreductive surgery

## Biography:

Dr. Yudi Mulyana Hidayat is a consultant in obstetrics and gynaecology. His special interest field is Oncology Gynecology. He has worked at Hasan Sadikin Hospital in Indonesia. He is also a lecturer at the Universitas Padjajaran Bandung. He is a member of the Asia Pasific Gynecology Endoscopy (APAGE), Europian Society of Gynecology Oncology (ESGO), Asian Society Gynecology Oncology (ASGO), International Gynecology Cancer Society (IGCS), World Association Laparascopic Surgery (WALS), and International Society for the Study of Trophoblastic Diseases (ISSTD). He has been trained in the minimal acces surgery in The Global Open University of New Delhi, India. He received his medical degree from the Universitas Padjajaran in October 1989, trained in obstetrics and gynaecology in October 1998, and as a consultant of Oncology and Gynecology in January 2007. His main clinical interest is in ovarian cancer, cervical cancer, and trophoblastic diseases. He has published over 20 peer reviewed articles and over 50 presentations in scientific meeting. He has written for 19 textbooks.

# Targeting RSK4 prevents both chemoresistance and metastasis in lung and bladder cancer: potential of re-purposed floxacins as novel therapeutic agents

**Olivier E Pardo**
Division of Cancer-Imperial College, UK

Lung and bladder cancers are mostly incurable due to early development of drug resistance and metastatic dissemination. Hence, novel therapies that tackle these two processes are urgently needed to improve clinical outcome. We have identified RSK4 as a promoter of drug resistance and metastasis in lung and bladder cancer cells and silencing this kinase sensitises to therapy and hinders metastasis in vitro and in vivo. This is mediated through inhibition of the NFkB pathway and of the transcription of anti-apoptotic proteins such as BCL2, cIAP1 and cIAP2. Drug screening revealed several floxacin antibiotics as potent RSK4 activation inhibitors and trovafloxacin reproduces all effects of RSK4 silencing in vitro and in vivo. Through crystallography, Markov transient analysis and biophysical assays, we propose a mechanism for the action of this compound. Finally, we show that patients undergoing chemotherapy and adhering to prophylactic levofloxacin in the large placebo-controlled randomised phase3 SIGNIFICANT Trial had significantly increased long-term overall survival times. Hence, we suggest that RSK4 inhibition represents a novel therapeutic strategy for treating lung and bladder cancer.

## Biography:

Olivier E Pardo graduated from the Faculty of Pharmacy Paris-V, France where he was awarded a Doctorate in Industrial Pharmacy (1997). He completed his PhD at Imperial College-London (2002), UK and subsequently joined the laboratory of Prof. Julian Downward at the CRUK-LRI as a post-doctoral fellow. In 2006, he became team leader at Imperial College-London, Department of Surgery and Cancer where he created the Cellular Regulatory Networks lab. His team focuses on understanding the molecular mechanisms underlying chemo-resistance and metastasis in lung and other cancers. This involves multidisciplinary collaborations with other labs in the UK, France, the US, Canada and China bringing in biochemistry, molecular biology, physics and bioinformatics expertise. The data generated by his lab led to the initiation of several clinical trials in lung and breast cancer patients.

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# The chemoprotective activity of D-ribose-L-cysteine (riboceine) against the cytotoxic effects of methotrexate and docetaxel on normal and cancer cell lines

**Benoit Banga N'guessan, Trudy Janice Philips** and **Regina Appiah-Opong**
University of Ghana, Ghana

Chemotherapy-induced oxidative stress (CIOS) plays a critical role in de novo cancer initiation and development. We hypothesised that preventing CIOS could reduce or prevent the advent of cancers induced by chemotherapeutic agents such as methotrexate (MET) and docetaxel (DOC). Riboceine (RIB) has been shown to replenish the decreased level of glutathione (GSH), the master antioxidant, in normal cells. However, there is a dearth of information on the protective effect of RIB on normal and cancer cells during chemotherapy. This study sought to determine the chemoprotective effects of RIB against the cytotoxic effects of DOC and MET on normal human prostate cell (PNT-2), human prostate cancer cell (PC3) and human breast cancer cell (MCF-7) lines. The effects of increasing concentrations of MET and DOC and their combination with RIB or N-acetylcysteine (NAC, positive control) on cell viability, GSH content and reactive oxygen species (ROS) level were determined and compared. Our results showed that 1) RIB protected the normal cells PNT-2 against the cytotoxic effects of MET and DOC; 2) RIB and NAC protected MCF-7 but not PC3 cell lines against the cytotoxic effects of MET and DOC; 3) the protective effect of RIB was associated with an increase in GSH content and a decrease in ROS level in both normal and cancer cell lines studied; 4) the effect of RIB was similar but less pronounced than the effect of NAC. Further studies including the investigation of other antioxidant defence systems such as catalase, superoxide dismutase and peroxidase should be conducted to confirm these findings at the molecular and *in vivo* levels.

**Keywords:** Cancer, Chemotherapy, Oxidative stress, D-ribose-L-cysteine, methotrexate, docetaxel.

## Biography:

Benoit Banga N'guessan obtained his PhD degree in Pharmacology from the University of Strasbourg (France). He was first employed as a Lecturer at Nangui-Abrogoua University (Cote d'Ivoire) and promoted to the rank of Senior Lecturer and later joined the University of Ghana where he employed up to date. Benoit Banga N'guessan have a broad background in Pharmacology and Toxicology with specific training and expertise in Ethnopharmacology-oriented drug discovery in oxidative stress-induced non-communicable diseases such as diabetes, asthma and cancer. He is the founding-chairman of the NGO PRORESMAT which was established in 2008 to promote the scientific valuation of the Traditional African Medicine.

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# Cancer Related Pain

**Nidhi Rawat**
St. John`s Medical College Hospital, India

In 2017, there were 24.5 million incident cancer cases worldwide and 9.6 million cancer deaths [1]. In recent times, the longevity in cancer patients has increased due to availability of better treatment options. The clinical course varies according to the type of cancer. Cancer related pain is seen in 60% of patients [2]. Presence of pain, fatigue and disturbed sleep causes decline in the functional status of cancer patients.

Cancer related can be visceral, somatic or neuropathic. The intensity of pain can be evaluated by numerical (1 to 10 rating), categorical (none, mild, moderate, severe), or pictoral (Wong-Baker FACES) methods. Medication regimens should be tailored to specific pathophysiologic pathways. The World Health Organization (WHO) pain ladder is the cornerstone of cancer pain management. The first line of treatment is the non-opioid analgesics. If inadequate, an opioid can be added.

However, treatment of cancer pain is difficult. Psychological stress could be a major factor for difficulty in attaining adequate pain control.

Non-pharmacologic pain management strategies consists of cryotherapy, iontophoresis, biofeedback and transcutaneous electrical nerve stimulation. Some of these modalities are contraindicated directly over an area of tumor. Certain procedures like trigger point injections might provide relief. Psychologic techniques include imagery, distraction training, relaxation techniques, and coping strategies.. Interventions include nerve blocks, vertebroplasty, spinal analgesia, dorsal column stimulators, and neuroablative procedures. Complementary and alternative medicine is also utilised for pain relief.

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**Keywords:** Cancer, pain

## Biography:

Dr.Nidhi is a Physiatrist from India. She has completed her medical specialisation from St. John`s Medical College Hospital, Bengaluru, India. She is working as an assistant professor of Physical Medicine & Rehabilitation at St. John`s Medical College Hospital, Bengaluru. She has 8 years of clinical, teaching and research experience in her field. Her interest is centered around the area of Neurological Rehabilitation.

Recent publications

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# 3,5-Bis[4-(diethoxymethyl)benzylidene]-1-methyl-piperidin-4-one, a Novel Curcumin Analogue, Inhibits Cellular and Humoral Immune Responses in Male Balb/c Mice

**[1]Arshad, Laiba; [2]Jantan, Ibrahim; [3]Bukhari, Syed N.A.,** and **[4]Fauzi, Mh B.**

[1]Forman Christian College (A Chartered University), Pakistan
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**Background:** 3,5-Bis[4-(diethoxymethyl)benzylidene]-1-methyl-piperidin-4-one (BBP), a novel synthetic curcumin analogue has previously been shown to manifest potent immunosuppressive effects on the *in vitro* phagocytosis process of human neutrophils.

**Objective:** In the present study, BBP was investigated for it's *in vivo* innate and adaptive immune responses mediated by different humoral and cellular immune factors.

**Methods:** Male Balb/c mice were orally fed with BBP (5, 10 and 20 mg/kg) for a period of 14 days and immunized with sheep red blood cells (sRBC) on day 0 for the determination of adaptive responses. The effects of BBP on phagocytosis process of neutrophils isolated from blood of treated/untreated animals were determined. The ceruloplasmin and lysozyme serum levels and myeloperoxidase (MPO) plasma level were also monitored. The mechanism was further explored by assessing its effects on the proliferation of T and B lymphocytes, T-lymphocytes subsets CD4+ and CD8+ and on the secretion of Th1/Th2 cytokines as well as serum immunoglobulins (IgG, IgM) and delayed type hypersensitivity (DTH) reaction.

**Results:** BBP showed a significant dose-dependent reduction on the migration of neutrophils, Mac-1 expression, phagocytic activity and reactive oxygen species (ROS) production. In comparison to the sensitized control group, a dose-dependent inhibition was observed on lymphocyte proliferation along with the downregulation of effector cells expression and release of cytokines. Moreover, a statistically significant decrease was perceived in serum levels of ceruloplasmin, lysozyme and immunoglobulins and MPO plasma level of BBP-treated mice. BBP also dose-dependently inhibited sheep red blood cells (sRBC)-induced swelling rate of mice paw in DTH.

**Conclusion:** These findings suggest the potential of BBP as a potent immunosuppressive agent.

**Keywords:** Curcumin analogue, innate immune response, adaptive immune response, phagocytosis, T-lymphocytes, immunoglobulin.

## Biography:

Dr Laiba Arshad is a registered Pharmacist and a recipient of Award of Scholarship under "Partial Support for PhD studies abroad" by Higher Education Commission of Pakistan during her PhD studies. She has a professional experience of institutional teaching. She has been participating in various national and international conferences and research seminars as well as served as International Conference organizer in her professional career. She has published over 10 research/review papers in peer-reviewed indexed journals and currently serving as a reviewer for many well reputed journals. She is a member of Malaysian Natural Product Society and actively involved in natural product research and in the field of immunology.

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# Manganese Superoxide Dismutase (MnSOD Val-9Ala) Gene Polymorphism and Susceptibility to Gastric Cancer

**Maryam Fekri Soofi Abadi[1*], Alireza Moradabadi[1*], Atefeh Soltani[2] and Shahriar Dabiri[1**]**
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Gastric cancer (GC) is the third most common cancer in Asia. Gastric carcinogenesis is a complex, multistep and multifactorial event. Reactive oxygen species (ROS) are considered to be involved in these processes. Manganese superoxide dismutase (MnSOD), one of the major antioxidant enzymes, constitutes first-line defense against ROS in mitochondria. It catalyzes the dismutation of superoxide radicals to H2O2 and oxygen in mitochondria. A substitution of T to C at nucleotide 47 changes the encoded amino acid from Val (GTT) to Ala (GCT) on the 16th residue of 24-amino acid signal sequence that helps in targeting the nascent protein to mitochondria.

In order to investigate the (T/C) polymorphism of MnSOD, the genomic DNA of 30 paraffin embedded tissue samples of gastric cancer collected from the Department, Kerman Medical School and the HRM analysis was performed.

The frequencies of MnSOD Ala/Ala, Ala/Val and Val/Val genotypes in cancer free samples were 7(23.3%), 19(63.3%) and 4(13.3%) from 30(100%) samples respectively. However, in gastric cancer patients, Ala/Ala, Ala/Val and Val/Val were observed in 5 (16.6%), 16 (53.3%) and 9(30%) (p=0.01). the frequency of MnSOD Ala allele in control and patients' sample was 54% and 43% respectively. Also, the frequency MnSOD Val allele was 44% and 56%.

we have been found the frequency of MnSOD Val-9Ala in gastric cancer patients and cancer-free samples. The HRM analysis which is a new technique represents a new mutation scanning technology without the need for time and cost consuming post-PCR processing.

**Keywords:** MnSOD, HRM, Gastric cancer

## Biography:

Alireza Moradabadi is hard working medical laboratory scientist especially in hematology with strong analytical and communication skills, whether in innovations or markets. Interested in marketing and market research especially in modern technology hematology.

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# Effect of dietary compounds on bacteriophages and possible repercussion on dysbiosis and risk of cancer

**Luigi Marongiu**
University of Heidelberg, Germany

Phage therapy is gaining momentum as a tool to combat bacterial infections and it is particularly relevant in the context of antibiotic resistance. Natural compounds such as essential oils and tea are used for millennia in popular medicine, and current research is unveiling the molecular role of their anti-microbial properties. However, the effect of these compounds on phages is still poorly understood. A better knowledge of how dietary products can affect phages and, in turn, the whole gut microbiome can help maintain healthy homeostasis, reducing the risk of developing diseases such as acute gastroenteritis or inflammatory bowel disease.

I present a literature review listing natural compounds that affect phages. The vast majority of the nutrients that I identified as active against phages were polyphenolic compounds, particularly flavonoids, but there were also polysaccharides and essential oils. The main consequence that these compounds produced was the inactivation of the phages, but some compounds, such as caffeine, were capable of inducing prophages. I will discuss the mechanism of these compounds' mechanism and how they could help fight bacterial infections.

**Keywords:** nutrition, cancer, phage, dysbiosis, microbial modulation.

## Biography:

Luigi Marongiu have a PhD from UCL, he completed his first postdoctoral position at the University of Cambridge studying noroviral infections and a second at the University of Edinburgh on veterinary viral infections. Currently working at the University of Heidelberg, Medical Faculty in Mannheim assessing the role of viral infections in the development of cancer and metastasis.

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# A novel deep learning tool for the diagnosis of COVID-19

**Ali Mahmoud Mayya**
Tishreen University, Syria

**Background:** A new challenge has been raised after the explosion of the infection of the Coronavirus. To facilitate treatment and diagnosis of the Coronavirus and support the medical opinion to define the future effects of Coronavirus especially in the case of cancer, a new Deep Learning (DL) model is designed and tested. Methods: The textual and image information of cases introduced by “Italian Society of Medical and Interventional Radiology” and some other resources were transformed into a complete database consisting of 120 cases, 28 attributes and four classes (COVID-19, H1N1, Pneumonia and Normal). The GoogleNet DL network is used to build the image model. Results: The designed tool got 95% accuracy for COVID-19 diagnosis and 72.43% for other-classes accuracy. Conclusions: Based on the textual and image models, a new tool is designed and used for the diagnosis of COVID-19 in order to support the medical decisions and minimize the required time to prove the presence of infection. The results of study can be used to analyse and predict future occurance of lung cancer for Covid-19 patients.

**Keywords:** Coronavirus, Deep Learning, Lung CT, Image processing, Lung Cancer.

## Biography:

Ali Mahmoud Mayya have the degree of PhD of computer engineering with rate 94%, Tishreen Univ. Lattakia, 2017. I have the degree of MSc. of computer engineering with (93.33%), Tishreen Univ. Lattakia, 2013. Degree of b.sc. of electronic engineering, department of computer and automatic control engineering (83.52%), Tishreen Univ. Lattakia, 2010. Certificate from Sohaj University- EGYPT, faculty of Science, department of Math science, 2009 in C# programming, Image Processing, Matlab, Neural networks. Seven years as a teacher at department of computer engineering, Tishreen University, Syria, (2011-2018). Four years as teacher at faculty of Medical Engineering, Al-Andalus University at 2014-2015, 2015-2016, 2016-2017 and 2017-2018.

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# Antitumoral effect of resveratrol and its possible modulation through adenosinergic system on different tumoral cell lines

**Sonia Muñoz-López, Alejandro Sánchez-Melgar, José Luis Albasanz** and **Mairena Martín**
University of Castilla-La Mancha, Spain

Growing evidence indicates that adenosine signaling is an interesting target in cancer therapy due to its involvement in various stages of tumorigenesis, such as proliferation, angiogenesis and metastasis. Extracellular adenosine is overproduced in the tumor microenvironment by two ectonucleotidases (CD39 and CD73) and exerts a potent immunosuppressive effect through activation of adenosine receptors (A1, A2A, A2B and A3). Our current efforts are focused on resveratrol (RSV) in cancer prevention. RSV is a phytoalexin present in grapes, peanuts and red wine, with promising effects in inhibiting cancer progression in several tumoral models. However, molecular mechanisms behind these effects remain unclear. Recently, our group has described that RSV acts as a non-selective adenosine receptor agonist in rat C6 glioma cells. The aim of the present work was to study the antitumoral effect of RSV and the possible mechanism involving adenosine receptors in two different human cell lines: HeLa epithelioma cervix cells and SH-SY5Y neuroblastoma cells. To this end, cell viability by XTT method, adenosine receptors quantification by Western-blotting, gene expression by real time PCR and 5'-Nucleotidase activity were assayed. Results herein showed a significant decrease in HeLa and SH-SY5Y cell viability in a time- and concentration-dependent manner after RSV treatment. Accordingly, there was a reduction in the number of treated cells. In addition, RSV caused an increase in A1 and A2A gene expression and a decrease in A2B protein level in HeLa cells. However, these parameters remain unaltered in SH-SY5Y cells. Furthermore, 5'-Nucleotidase (CD73) activity was significantly reduced in plasma membrane in both cell lines. As RSV is a non-selective adenosine receptors agonist, these results suggest the involvement of adenosine receptor mediated signaling in RSV antitumoral effects.

**Keywords:** resveratrol, adenosine receptors, 5'-Nucleotidase, cancer

## Biography:

Miss Sonia Muñoz López is currently a PhD student and recipient of Spanish Association Against Cancer fellowship at the University of Castilla-La Mancha (UCLM) in Spain. She has received her degree in Biology in 2017 and her Master of Biomedicine in 2018 from University of Alicante (UA). Her research interests lie in the discovery of mechanisms of action of resveratrol, a natural polyphenol present in the diet, using different tumoral cell lines.

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# To study the expression of epidermal growth factor in gall bladder carcinoma: An institutional study

**Dupinder Kaur**
Mahatma Jyotiba Phule Rohilkhand University, India

**Introduction:** Few studies have been performed to evaluate the EGFR expression in gallbladder carcinoma and its relationship with the grade of tumor. Based on these facts the aim of our study was to assess the EGFR overexpression in correlation to the grade of tumor.

**Material and Methods:** Seventy-five cases of histopathologically proven gall bladder cancer were included in the study. EGFR staining was done and score was calculated.

**Results:** It was observed that out of 75 cases of gall bladder malignancy, 63 (84%) cases were EGFR positive and 12 (16%) were EGFR negative. There was a statistically significant difference between the histological grade of EGFR positive and EGFR negative adenocarcinomas with significantly higher number of patients of EGFR overexpression presenting with poorly differentiated adenocarcinomas.

**Conclusion:**

1. EGFR overexpression has inverse relati.onship with grade of the tumor.
2. Intensity of EGFR expression may thus correlate with aggressiveness of disease and there is a possible scope of using this for targeted therapy in carcinoma gall bladder.

**Keywords:** gallbladder, carcinoma, tumor, EGFR, histopathology, malignancy

## Biography:

Dr Dupinder Kaur completed MBBS from Acharya Shri Chander College of Medical Sciences Jammu in 2013. She did her post-graduation from SRMS Bareilly, Uttar Pradesh, in 2016. She has participated in various CMEs, conferences and presented her research work. Her research work has been published in reputed medical journals. Presently she is working in NABL accredited laboratory in Jammu

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# Association between molecular genetic markers of DNA repair and cell circle control genes and progression-free survival of patients with ovarian cancer after platinum-based chemotherapy

**T.M. Zavarykina[1], S.V. Khokhlova[2], A.C. Tyulyandina[3], G.N. Khabas[2], A.V. Asaturova[2], Yu.A. Nosova[2], P.K. Brenner[1], M.A. Kapralova[1], R.R. Guliev[1], D.S. Khodyrev[4] and M.B. Stenina[3]**

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Ovarian cancer (OC) is one of the most common diseases in gynecological oncology. The chemotherapy of OC is based on platinum drugs. It is important to search for sensitivity markers to this group of drugs. We studied the polymorphic markers of DNA repair genes *XRCC1, ERCC2, XPG (ERCC5)*, the cell cycle control genes *(TP53, MDM2 and CDKN1A),* mutations of *BRCA1* gene and methylation of two genes *(BRCA1, RASSF1A)* and their relationship with the progression-free survival time (PFS), which is a surrogate clinical marker of sensitivity of ovarian cancer to platinum drugs. The most significant results were obtained for gene markers *XRCC1 (Gln399Arg) (p=0.025), MDM2 (T(-410)G) (p=0.06), TP53 (Arg72Pro)* ($p$ = 0.045), and methylation of a *RASSF1A* ($p$=0.09) и *BRCA1* ($p$=0.07) genes. For the other markers, there is insufficient statistical significance, associated primarily with a small number of patients at this stage of work. When a group was divided according to the type of sergery, in the subgroup with the complete and optimal cytoreductive sergery, a statistically significant association with PFS for marker of gene CDKN1A (Ser31Arg) was detected (p = 0.004). A trend towards significance for the marker *T(-410)G* of *MDM2* gene, *Arg72Pro* of *TP53* gene, methylation of *RASSF1A* gene were found in this subgroup of patients. Using multivariate data analysis, a model of risk of relapse in the period of 18 months after surgery was obtained with the following parameters: ROC AUC 84.2%, sensitivity 86.7%, specificity 75.0%. Thus, the relationship between the majority of the studied markers and the duration of PFS was found.

**Keywords:** Ovarian cancer, polymorphic marker, DNA methylation, cell cycle control, DNA repair, progression-free survival, platinum-based chemotherapy

## Biography:

Tatiana Zavarykina works in the Emanuel Institute of Biochemical Physics of Russian Academy of Science since 2002. In 2008 defended a Ph.D. thesis. From 2010 works in the molecular oncology field. From 2015 works on the project dedicated to the search for markers of sensitivity to platinum-based chemotherapy of ovarian cancer.

## NOTE:


Venue: Manchester Meeting Place, Sackville Street Campus, The University of Manchester, United Kingdom

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