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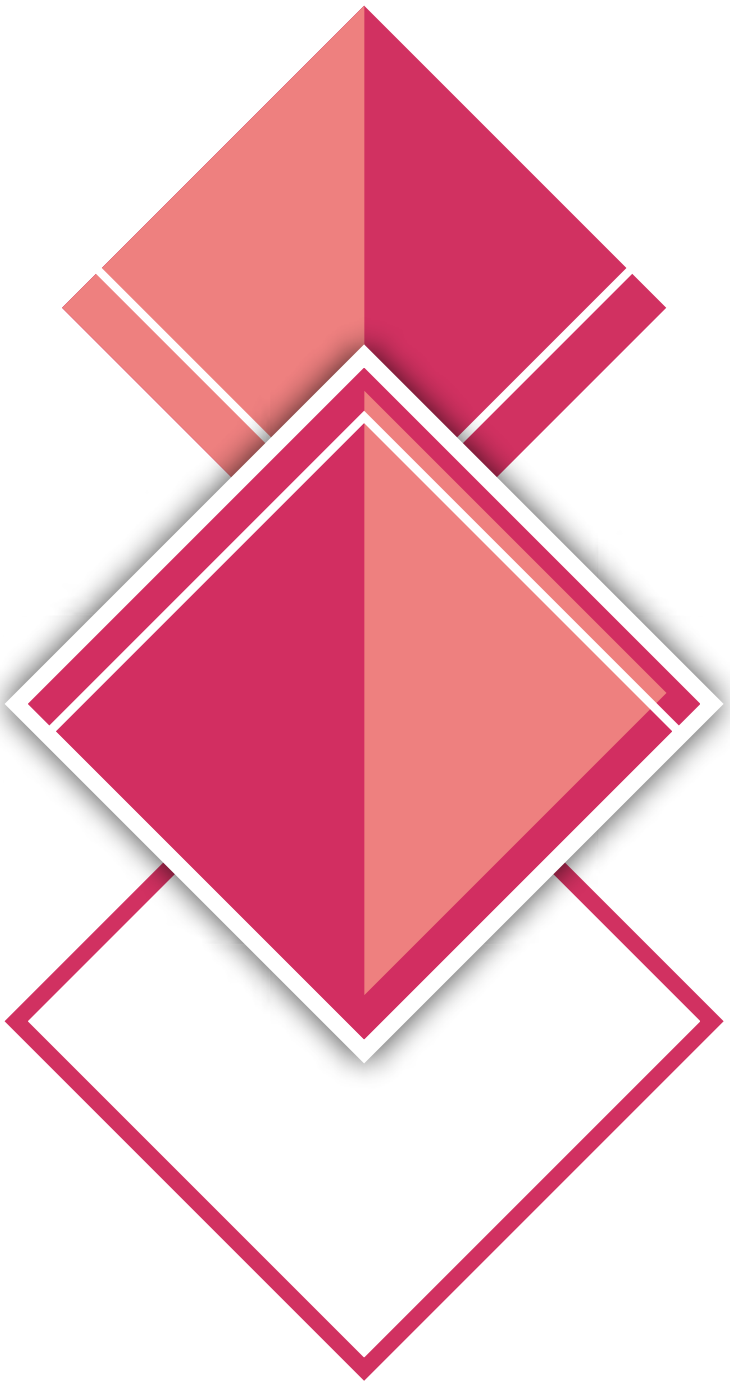
SEPTEMBER 23-25, 2019
LONDON, UK

3RD EDITION OF INTERNATIONAL CANCER CONFERENCE



Theme:
Cancer Free World – Possible or Not

Park Inn by Radisson Hotel & Conference Centre
Bath Road, Heathrow, Middlesex
UB7 0DU, London, UK

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ICC 2019

BOOK OF ABSTRACTS

3rd Edition of International

CANCER CONFERENCE

Theme:

Cancer Free World – Possible or Not

SEPTEMBER 23-25, 2019
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Thank You All...

Welcome Message

It is my privilege and sincere honor to have this opportunity to welcome our vast number of speakers and delegates from all around the world to the "3rd Edition of International Cancer Conference" (ICC) 2019.

Our presenters and attendees come from an array of academia, clinics, private and government sponsored laboratories and industries from across the globe. Numerous keynote and scientific presentations as well as poster exhibits presented during our 3-day conference will highlight contemporary developments in cancer biology, cancer causes and risk factors, cancer screening and diagnosis, radiology and imaging technologies, and advances in cancer research and treatment. The conference will also afford attendees the opportunity to make and renew friendships, network, and potentially collaborate on future endeavors and research projects to some day create a cancer-free world.

We are fortunate this year's conference is being held in London, the capital and largest city of the United Kingdom. London is said to be on the world's most important global cities and has been termed one of the world's most desirable, influential, most visited and innovative cities. We hope you and your family have the opportunity to visit some of London's most historic sites such as the Tower of London, the London Eye, the Palace of Westminster Abbey, Buckingham Palace, Piccadilly Circus, St. Paul's Cathedral and Trafalgar Square.

We hope you will have an academically productive time at the 2019 conference and a fun filled time in London. Thank you for your participation in ICC 2019.

Mark S. Parker, M.D., F.A.C.R.
Professor, Diagnostic Radiology and Internal Medicine
Director, Thoracic Imaging Division
Director, Thoracic Imaging Fellowship Program
Director, Lung Cancer Screening Program
VCU Medical Center

Welcome Message

I am truly honored and delighted to take this opportunity to welcome delegates from all around the world to ICC 2019.

ICC 2019 is a great conference for sharing the latest insights of academic and industrial research as well as to experience the unique environment of London, a city which has been at the heart of the artistic, cultural, and scientific development since many centuries.

As for the previous editions, we have an exciting program at this conference that will allow members to make and renew friendships and extend networks, and jointly explore current and future research directions.

We hope that you will have a productive and fun-filled time at this very special conference.

We thank you for your participation and look forward to seeing you in London!

Rossana Berardi
Professor of Medical Oncology
Director of Medical Oncology
Università Politecnica delle Marche - Ospedali Riuniti
Ancona - Italy

Keynote Speakers

Michael Thompson
University of Toronto
Canada

Sherri J. Tenpenny
Tenpenny Integrative Medical Center, USA

Mark S. Parker
VCU Medical Center
USA

Atif A. Ahmed
Children's Mercy Hospitals and Clinics, USA

Rossana Berardi
Universita Politecnica Delle Marche, Italy

Jozef Sabol
Department of Crisia Management, PACR, Czech Republic

Jianhua Luo
University of Pittsburgh
USA

Vladimir Torchilin
Northeastern University
USA

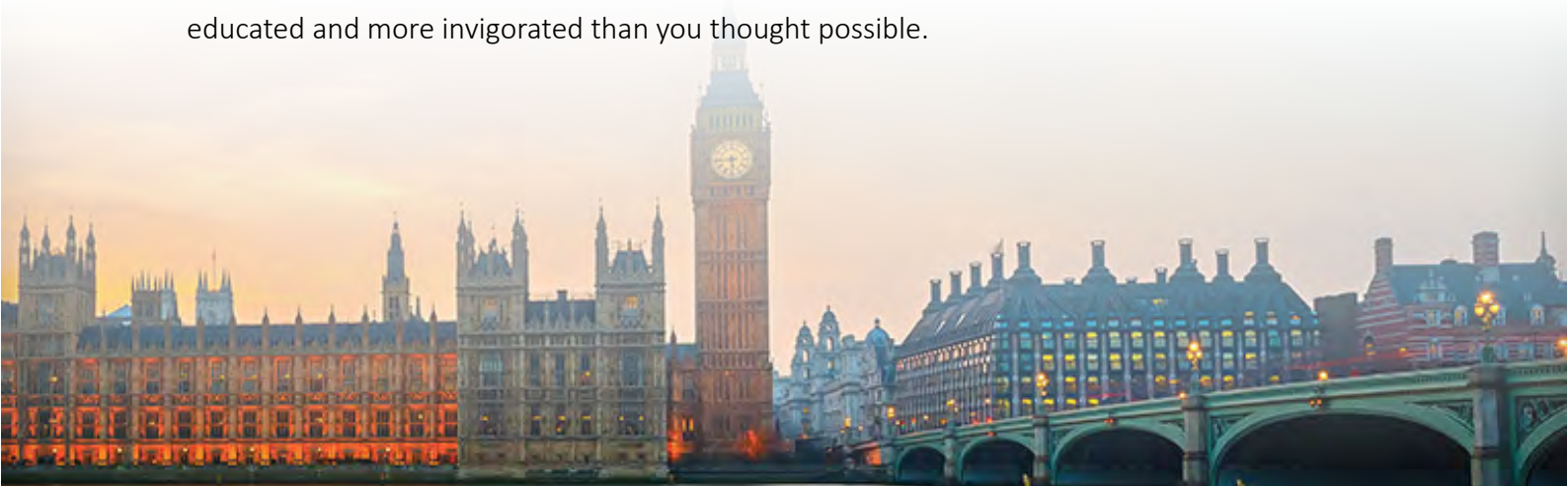
About MAGNUSGROUP

Magnus Group (MG) is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conference and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields. Participation from 80 different countries and 688 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.

About ICC 2019

ICC 2019, planned to achieve the knowledge transfer of highly updated and relevant information to a broad audience in cancer and related specialists in the field. It can be achieved by scheduled scientific sessions, keynote presentations by renowned scientists, and poster sessions at this cancer conference, which promises to deliver something for everyone involved in cancer research or practice.

Cancer conference explores the entire scope of cancer with earlier and contemporary work and provides a critical review of the present state of the subject. Our expert honorary speakers will provide you with the most clinically up-to-date relevant information, you'll leave better educated and more invigorated than you thought possible.



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DAY 1

KEYNOTE FORUM

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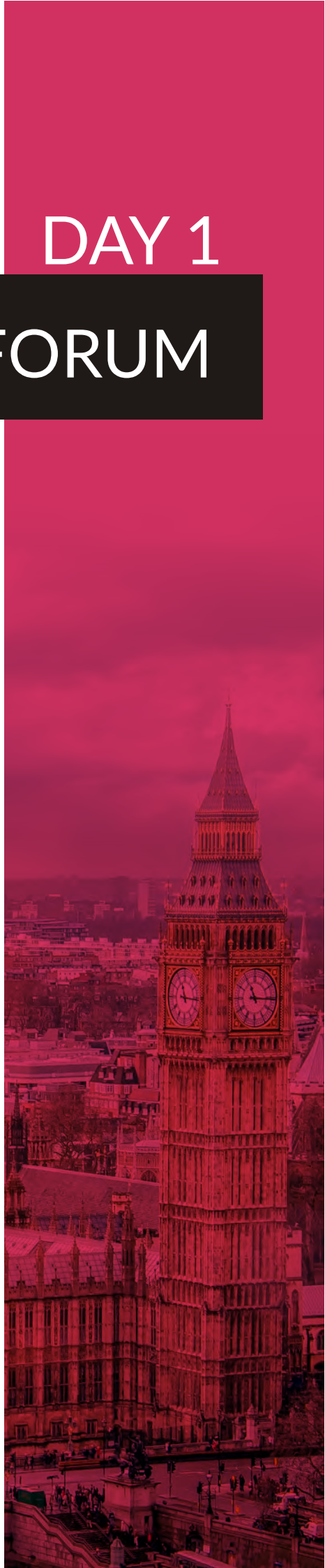

ICC-2019

Biography

Professor Michael Thompson obtained his undergraduate degree from the University of Wales, UK and his PhD in analytical chemistry from McMaster University. Following a period as Science Research Council PDF at Swansea University he was appointed Lecturer in Instrumental Analysis at Loughborough University. He then moved to the University of Toronto where he is now Professor of Bioanalytical Chemistry. He has held a number of distinguished research posts including the Leverhulme Fellowship at the University of Durham and the Science Foundation Ireland E.T.S Walton Research Fellowship at the Tyndall National Institute, Cork City. He is recognized internationally for his pioneering work over many years in the area of research into new biosensor technologies and the surface chemistry of biochemical and biological entities. He has made major contributions to the label-free detection of immunochemical and nucleic acid interactions and surface behavior of cells using ultra high frequency acoustic wave physics. Recently, scanning Kelvin nanoprobe detection has been introduced which offers the multiplexed detection of biochemical phenomena.

Thompson has served on the Editorial Boards of a number of major international journals including Analytical Chemistry, The Analyst, Talanta, Analytica Chimica Acta and Biosensors and Bioelectronics. He is currently Editor-in-Chief of the monograph series "Detection Science" for the Royal Society of Chemistry, UK. He has been awarded many prestigious international prizes for his research including The Robert Boyle Gold Medal of the Royal Society of Chemistry, E.W.R. Steacie Award of the Chemical Society of Canada, the Theophilus Redwood Award of the Royal Society of Chemistry and the Fisher Scientific Award in Analytical Chemistry of the Chemical Society of Canada. He was made a Fellow of the Royal Society of Canada in 1999.

Towards early stage detection of ovarian cancer

Michael Thompson

University of Toronto, USA

Ovarian cancer is the most deadly gynaecological disease that affects a quarter of a million women annually, resulting in over 140,000 deaths worldwide. Currently, detection of ovarian cancer requires time-consuming imaging techniques such as transvaginal ultrasound and MRI scans, which are generally only performed if it is already suspected that the disease is present. Although the blood sample CA-125 assay is the current most widely-employed test for ovarian cancer, it is far from ideal for providing a diagnostic conclusion by itself, especially at the early-stages of development of the disease. Also, the assay is known to generate both false negative and positive results, accordingly there is a general consensus in the medical community that there is an urgent need for disease detection based on alternative biomarkers, especially those that could be employed for assays at stages 1 and 2 in terms of disease progression. In our research on the detection of the disease, we are developing both a simple, low cost spectroscopic assay and, secondly, a detection system by biosensor configuration which could be employed for large scale screening of serum samples. Both systems are based on the sensing of the biomarker, lysophosphatidic acid (LPA), which has a sensitivity and specificity of over 90% for the disease, rendering it highly promising for use in testing for ovarian cancer. Successful detection of LPA has been achieved by HPLC-mass spectrometric methods this approach is obviously is not amenable to large scale screening. Our assays are based on the highly selective disruption of a protein complex composed of gelsolin and actin by LPA. The spectroscopic test involves the fluorescent detection of labelled actin removed by LPA present in serum with the gelsolin-actin combination being attached to silica and magnetic nanoparticles. Analogous chemistry is being used to develop a high-throughput biosensor–based configuration with the protein complex being attached to the surface of an ultra-high frequency, SH-acoustic wave lithium niobate device. The latter is capable of direct operation in serum and in an anti-fouling condition.

Audience Take Away:

- An critical appraisal of challenges associated with early stage detection of ovarian cancer via biomarkers
- Criteria associated with the development of a low cost, point of care rapid assay
- Description of an assay based on spectrofluorometric detection of lysophosphatidic acid
- Introduction to the biosensor approach to potential large screen screening of early stage OC

Biography

Dr. Sherri J. Tenpenny is an osteopathic medical doctor, board certified in three medical specialties. After investing more than 30,000 hours and 18 years investigating vaccine adverse effects, she is widely regarded as one of the most knowledgeable and outspoken physician on this topic. Dr. Tenpenny is a sought-after speaker for conferences, both nationally and internationally, and as a guest for radio, podcast and TV interviews. She has been a featured speaker in the docu-series, "The Truth About Cancer," "The Truth About Vaccines," "Vaccines Revealed" and many documentaries regarding vaccines, health and wellness.

Dr. Tenpenny is the author of several books including best-seller, "Saying No To Vaccines." She is contributing author for several other books including "Textbook of Food and Nutrients in Disease Management." Her articles for magazines have been published in at least 12 languages. Currently, she attends to patients three days per week at her clinic, Tenpenny Integrative Medical Center, located in Cleveland, Ohio.

Investigating adverse health risks from vaccine cell lines, adventitious contaminants and certain ingredients

Sherri J. Tenpenny, D.O., AOBNMM, ABIHM

Tenpenny Integrative Medical Center, USA

Vaccination is said to be a valuable public health tool for preventing infection. However, there are growing concerns over the increased number of reported severe side effects following vaccination. This presentation will discuss the use of immortalized cell lines, the presence of adventitious viral contaminants and the toxicity of residual chemicals found in vaccines commonly given to children and adults, and will explore the potential association with autoimmunity and cancer.

Audience Take Away:

- Knowledge regarding the little-discussed risks of vaccine ingredients
- An understanding that an association between a new-onset symptom and a recent vaccination should be sought and documented
- Encourage researchers to seek new ways to support immunity and overall health

Biography

Atif A. Ahmed is Professor and Director of Anatomic Pathology Division at the Department of Pathology of Children's Mercy Hospitals, Kansas City, Mo, USA. Dr. Ahmed graduated from University of Khartoum in 1988, completed residency and fellowship training in Pathology and is certified by the American Board of Pathology. Dr. Ahmed published more than 50 peer-reviewed articles as well as several book chapters; and is book editor of "Anatomic and Clinical Pathology Board Review" and "Gastrointestinal Stromal Tumors in Adults and Children". He is a Member of the Society for Pediatric Pathology, the Children's Oncology Group, and a Life Fellow of the College of American Pathologists. He is on the editorial board of several journals.

Personalized oncologic medicine in children: Current status and future promises

Atif Ahmed

Children's Mercy Hospital, Kansas City, Missouri, USA

Precision oncologic medicine is an emerging approach for cancer treatment that has recently taken giant steps into solid clinical practice. Recent advances in molecular diagnostics that can analyze the individual tumor's variability in genes have provided greater understanding and additional strategies to treat cancers. Although tumors can be tested by several molecular methods, the use of next generation sequencing has greatly facilitated our understanding of pediatric cancer and identified additional therapeutic opportunities. Pediatric tumors have a different genetic make-up with a fewer number of actionable targets than adult tumors. Nevertheless, precision oncology in the pediatric population has greatly improved the survival of patients with leukemia and solid tumors. The use of molecular diagnostics and the application of personalized targeted therapy in pediatric cancer can best be appreciated in relapsed/metastatic tumors, integrated morpho-molecular pathology diagnosis of new brain or hematologic malignancies, initial treatment of undifferentiated malignancies, and in the work-up of cancer predisposition syndromes. Novel techniques such as nanotechnology for precise drug delivery and immunotherapy with chimeric immunoreceptors promise a new direction and herald a bright future for more successful personalized targeted therapy. Although pediatric precision oncology is in its early phase, it has already affected the lives of many patients and provided grounds for more future practical developments.

Learning Objectives:

- Highlight the molecular techniques employed in pediatric personalized medicine and summarize the genetic differences between adult and pediatric cancer
- Discuss practical applications of precision oncology in current pediatric clinical practice
- Discuss novel and potential future developments in pediatric precision medicine

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DAY 1

SPEAKERS

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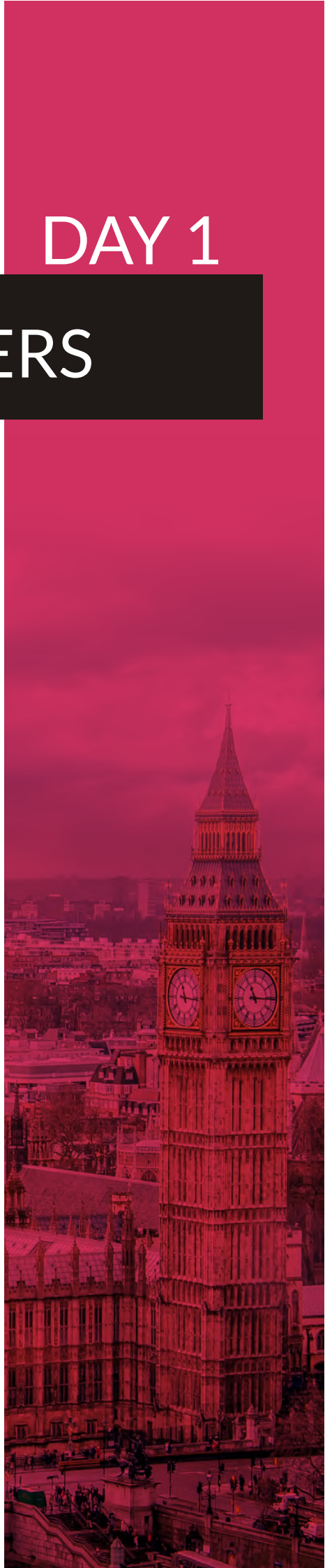

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Metastatic breast cancer; Cure or remission with loco-regional treatment?

Atilla Soran, MD, MPH, FNCBC, FACS
University of Pittsburgh Medical Center, USA

The incidence of de novo stage IV breast cancer (BC) is between 5 to 10% and, systemic therapy (ST) is the primary treatment choice. However, more and more studies show that ST may not be the only option. The traditional goal of loco-regional in such cases is to palliate symptoms but diagnosing low volume metastatic BC, advances in adjuvant therapies and targeted therapies encourages us to rethink treating primary tumor locally. In this session the possibility to prolong of survival (remission or cure) with loco-regional treatment in newly diagnosed stage IV breast cancer and the quality of life of these patients will be discussed. Randomized clinical studies Protocol MF07-01, MF07-01Q and their long-term results will be presented.

Audience Take Away:

- The incidence of de novo stage IV BC
- The treatment options of de novo stage IV BC
- The survival benefit of loco-regional treatment
- The long-term quality of life benefit with loco-regional treatment
- The new research idea: is there a subgroup of patient may have longer survival (remission/cure for life-time)

Biography

Atilla Soran,MD., MPH., FNCBC, FACS is a Clinical Professor of Surgery at the University of Pittsburgh. Dr. Soran has a long history of serving as a chair or a being a member on many scientific research committees such as The American Society of Breast Disease, The American Society of Clinical Oncology Breast Cancer Symposium Program, and NCBC International Program. Dr. Soran was appointed as a Board Member the NCBC in 2015 and International Committee Chair in 2016 and he also serves as a member of other prestigious associations such as American College of Surgeons. Dr. Soran has more than 150 publications, over 170 presentations in scientific meetings, and has 40 review articles and chapters in text books. Dr. Soran has received more than 20 national and international awards and honors. Dr. Soran is on the editorial board and reviewer in several medical journals. Dr. Soran was invited to several scientific meetings all over the world as a lecturer and moderator. Dr. Soran has conducted several clinical studies and received grants for his research. He has been recognized as an investigator by the NCI and has been serving a DOD- Congressionally Directed Medical Research Programs for Breast Cancer as a panel member for more than 10 years; he also initiated several studies internationally and is being chaired them.

Breast cancer service of the future

Dr Penny Kechagioglou*MBBS, MRCP, MBA, MPH, Mr Aldo Rolfo BSc, MBA, GradDip Health Admin
Genesis Care, UK

The Breast Service of the Future is a service transformation project, which aims at combining all elements of excellent cancer care from diagnosis to survivorship. At times of financial and workforce pressures, there should not be any compromise in the quality, efficiency and access to world class cancer care. In addition, cancer services should not only focus on the treatment itself but also on the individual patients and their wellbeing. Breast cancer incidence and biology will be discussed, as well as the reasons why we need to individualize patient diagnosis through imaging and genetics/genomics, through treatments such as radiotherapy and chemotherapy, as well as through personalized surveillance. The role of holistic care will be discussed together with the impact this has on improving patient outcomes.

Audience Take Away:

- The why and the how of individualizing patient treatment and follow up
- Advances in radiotherapy techniques and patient selection criteria
- The role of imaging and genetics/genomics in diagnosis and treatment
- Patient wellbeing and survivorship and how it could be incorporated early on into patient care

Biography

Dr. Penny Kechagioglou is a senior clinical oncology consultant with extensive experience and a diverse portfolio of clinical strategy, clinical and corporate governance to lead healthcare organisations, realise and manage change. Qualified as a doctor in Wales (UK) and completed an internal medicine residency programme in UK, after which she specialised in Clinical Oncology. Has worked as a consultant clinical oncologist in various UK NHS Trusts and has experienced in managerial roles such as Chief Medical Officer at Genesis Care UK, Clinical Governance Lead for Oncology/ Haematology in the NHS, Vice Chair and member of Research Ethics Committees, NICE Health Technology Assessment Committee member, Specialist advisor for the CQC and the Healthcare Ombudsman. Dr Kechagioglou is a principal investigator and co-investigator in many national and international breast cancer clinical trials and has an extensive medical education portfolio as Senior Clinical Lecturer, Academic mentor, Medical tutor and postgraduate GP Educator. She has completed an MSc in Public Health and an MBA and she is currently working toward a Doctorate in Business Administration.

It's about time: Wire-free localization of positive axillary lymph nodes prior to neoadjuvant therapy may offer an option to simplify and de-escalate axillary management

[1]Mary K. Hayes*, MD, [2]Heather R. Wright, MD, [2]Erica V. Bloomquist
[1]Department of Radiology, Memorial Healthcare System, Hollywood, FL, USA
[2]Department of Breast Surgery, Memorial Healthcare System, Hollywood, FL, USA

Breast cancer conservative surgical treatment programs rely on the available image guidance devices and skills of the radiologist and surgeon team. Each breast cancer treatment team adopts the most effective localization and margin assessment technique based on the skills and technologies available. Since 2015, Wire-Free Nonradioactive preoperative Localization (WFL) has been adopted in Europe and the US.

Women with locally advanced breast cancer who receive neoadjuvant treatment (NAT) in order to downstage the disease may be eligible for de-escalation of axillary lymph node surgery. Patients with a good response to NAT often require additional post-NAT needle localization interventions to guide the targeted surgery. However, since successful neoadjuvant treatments often result in complete or partial tumor response on imaging, this renders any post-NAT localization procedure to be more difficult and less reliable and can lead to unintended morbidity with more invasive and disfiguring axillary surgery.

The 12mm sized passive Nonradioactive WFL device (Cianna Medical, Inc. Aliso Viejo, CA, USA), has become a standard of care in over 55,000 breast cancer patients in 375 US sites. Preoperative WFL of the breast, soft tissue, or lymph nodes (LN) is placed via Mammography (MG), Ultrasound (US) or CT guidance received expanded FDA long-term clearance November 2017. This study of WFL of positive lymph node builds on prior studies that support targeted axillary dissection (TAD) and follows the ACOSOG-Z1071 subset analysis that suggested that selected node-positive patients who undergo NAT may potentially require less extensive (de-escalated) axillary surgery.

Our study builds on the current surgical literature to support a de-escalation of axillary surgery and reports on up-front long term WFL placement, device stability, and function over the 31-365 days prior to surgery. The WFL was successful in node-positive breast cancer patients prior to neoadjuvant treatment (NAT) response and did not adversely impact standard of care MRI imaging to monitor treatment response in the NAT time period.

Up front WFL, prior to NAT response, when the lesion is best visualized on imaging can allow for surgical treatment options that can be tailored to evolving evidence-based guidelines. This supports a clinically relevant paradigm shift in the management of breast cancer patients with locally advanced disease. Long-term (31-365 day) preoperative up-front localization of the positive LN may represent a more practical time period approach for targeted, de-escalated axillary LN surgery in these patients. This information may prove valuable to the multidisciplinary team (radiologists, oncologists, surgeons) and could support a clinically relevant paradigm shift in the management of NAT patients.

Audience Take Away:

- Wirefree localizations can be performed long term, prior neoadjuvant treatment response when the lesion is best visualized
- Varied and standard imaging methods can be used to follow tumor response with WFL in position
- No adverse events noted in study for long term WFL
- Up front WLF may represent a clinically relevant paradigm shift to simplify and more efficiently manage Breast Cancer patients

Biography

Mary K. Hayes, MD trained in Diagnostic Radiology at Cedars Sinai and Breast Imaging Fellowship at UCLA and served as Chief of Women's Imaging Centers Memorial Healthcare System, Hollywood, FL for over 20 years where over 700 new breast cancer patients are diagnosed annually. Service includes journal reviewer for JCCN, ACR Committee on Breast Imaging, NCoBC Quality Measurements Committee, speaking at the US Congressional Bipartisan Women's Healthcare Summit, Washington, DC, and trained radiologists in four continents on Breast Imaging Intervention. Her research was presented at RSNA, SBI, NCoBC, ASBrS, and SABCS and MD Anderson Conferences.

Massively parallel sequencing datasets for benchmarking virus integration tools

Luigi Marongiu, Ph.D.
Ruprecht-Karls University of Heidelberg, Medical Faculty Mannheim, Department of Experimental Surgery – Cancer Metastasis, and Centre for Biomedicine and Medical Technology Mannheim, Ludolf-Krehl-Str. 6, 68135 Mannheim, Germany.

Virus integration is increasingly indicated in the public domain as a major risk factor in carcinogenesis. Massively parallel sequencing (MPS) has become one of the most popular tools for the identification of viral genomes in human samples and several tools have been designed to detect viral integrants using MPS data. However, there is a lack of datasets containing well defined virus integrants that can be used to test the sensitivity and specificity of such tools. I developed a group of fastq files collectively called 'SImulated Sequences Mimicking Integration' (SISMI) in order to benchmark bioinformatics tools designed to identify viral integration from MPS data. The SISMI files were conceived to simulate MPS analysis of human genomes containing viral integrants at exact loci and assess the accuracy of the tools.

The SISMI files were constructed as follows. The human genome build GRCh38.92 was used as a base upon which selected viral sequences were placed at well defined positions following integration events reported in the literature. Background genetic variation was introduced simulating random single nucleotide mutations with EMBOSS' mbase as well as larger structural variants. The resulting files were converted to fastq format using ART, overall simulating an Illumina HiSeq MPS analysis. The SISMI fastq files were aligned to the human reference genome with BWA MEM, de-duplication was obtained with SAMBAMBA and the mapping was visualized with Integrated Genome Viewer. Analysis of structural genomic variation was done with Delly.

The SISMI files were designed at different levels of complexity. The first level (SISMI0) included a single viral integration in the sequence of the human mitochondrion; this level was intended to provide a toy set for building bioinformatics pipelines and had a read cover of 30×. The second level (SISMI1) was obtained by inserting several viral sequences on chromosome 21, and was envisioned to obtain pilot data on well-defined pipelines. The insertions were intended to mimic some events hard to define using MPS analysis, such as inversions and repetitions, and had a read coverage of 100×. The third level (SISMI2) was obtained by spreading the SISMI1's insertions on different human chromosomes. This level mimicked a complete human genome experiment and was split into two sub-sets: normal (without viral insertions) and abnormal (with viral insertions) ones, both with a read coverage of 100×.

The employment of the SISMI files to determine viral integration will be discussed.

Audience Take Away:

- I am presenting a tool for benchmarking research algorithms used in whole genome sequencing (WGS) analysis
- The attendees can use the tools I am presenting freely and directly on their experiments to test the accuracy of software designed to identify viral integrants in WGS data
- The attendees can use the tool I am presenting instead of designing one on purpose prior to the analysis of viral integration. This will reduce the burden upon the operator
- The tool can also be used as a teaching implement because it incorporates genetic variation that can be determine by different bioinformatic tools

Biography

Luigi Marongiu obtained a PhD at the University College London on a work related to the use of the Human Papillomavirus genome as a biomarker for the identification of cervical cancer lesions. He worked at the University of Cambridge (England) on nosocomial noroviral infections and at the University of Edinburgh (Scotland) on veterinary viruses. He is currently based at the University of Heidelberg, Faculty of Medicine in Mannheim (Germany) assessing the role of viral infections in the development of cancer and metastasis. He is combining wet lab with bioinformatics analysis to develop models that could predict oncogenesis.

Ageism and simple mastectomy: Are we there yet?

Pasupathy Kiruparan*, David Archampong, Geerthan Nagachandra, Debasish Debnath
Breast Unit, Blackpool Victoria Hospital, Blackpool, Lancashire, UK

Background: Age discrimination in the provision of health and care services was banned in the UK in 2012. However there continue to be age related discrepancies in the prevalence, treatment and outcomes experienced by people with breast cancer. British Association of Day Surgery recommends Day surgery ('Zero night stay') for 50% of simple mastectomies (with or without axillary surgery). We aimed to use length of stay for simple mastectomy (with or without axillary surgery) as a surrogate marker for treatment for breast cancer to assess any factors, such as ASA status and surgeon, which can be relevant to patient's age.

Methods: Retrospective analysis of all simple mastectomies (with or without axillary surgery) that took place at Blackpool Victoria Hospital between 1st January 2018 and 31st December 2018, were analysed. Data were obtained from the stored digital archive as well as case notes. Statistical analysis was performed using Chi square, Student T test and One-way Anova. P value less than 0.05 was considered to be statically significant.

Results: A total of 82 simple mastectomies took place. Length of stay (range 0-39 nights) was as follows: 0 night (Day-case)= 32 (39%); 1 night= 36 (43.9%); 2 nights= 4 (4.8%); 3 nights= 3 3.6%; >3 nights= 7 (8.5%). Age of patients ranged from 34-95 years (mean 70.4 ±1 SD 13.5; median 72). Day case mastectomy was associated with younger (67.2 years ±1 SD 14.9) patients, compared to patients who stayed as inpatient (72.4 years ±1 SD 12.4) [p=0.04]. Inpatient stay was associated more with ASA 3 (11 out of 11; 100%), compared to ASA ≤2 (39 out of 71; 54.9%) [p=0.001]. Higher age was associated more with ASA 3 (81.6 years ±1 SD 10.6), compared to ASA ≤2 (68.6 years ±1 SD 13.2) [p=0.001]. Mean age distribution as per consultant (n=3) was as follows- (70.8 years ±1 SD 14.3; 68.8 years ±1 SD 13.7 and 72.5 years ±1 SD 12.4) [p=0.61]. Factors that restricted same day discharge included anticoagulation treatment, social factors, poor mobility, haematoma, bilateral surgery, COPD, poor pain control, nausea and vomiting.

Conclusions: No ageism was noted in the practice of any surgeon. All surgeons performed simple mastectomies without any age discrimination. However a longer length of stay was associated with higher age group. Higher ASA grade was also noted to be associated with higher age. Study showed that day case mastectomies failed to meet the 50% mark as recommended by the guideline. Implementation of a dedicated pathway, based on multidisciplinary approach for optimisation of relevant co-morbidities and social factors would help improve the length of stay following mastectomy with or without axillary surgery.

Audience Take Away:

- Ageist attitudes, both on the part of older people themselves and on that of clinicians, may impact the treatment of breast cancer
- No ageism in the practice of surgeon in performing simple mastectomy was noted in the study
- However length of stay and ASA grade were associated with higher age group
- A multidisciplinary approach to optimize comorbidities and social factors, as encountered by patients with higher age group, would reduce the length of stay after simple mastectomy, hence improve patient experience

Biography

Mr Pasupathy Kiruparan qualified in 1985 (MBBS University of Colombo, Sri Lanka) and subsequently obtained LRCP (London), MCRS (England), FRCS (England), FRCS (Edinburgh) and intercollegiate FRCS (general surgery). He has been working as Consultant Breast and General Surgeon at Blackpool Victoria Hospital, UK, since August 2002. He is the former lead of breast surgery and honorary teacher at the Liverpool University, UK.

Window of opportunity clinical protocols in head and neck squamous cell cancer

Mercedes Porosnicu*, MD; Joshua Waltonen, MD; Hafiz Patwa, MD; Cristopher Sullivan, MD; Cristina Furdui, PhD; Pierre Triozzi, MD
Wake Forest University School of Medicine, USA

Head and neck squamous cell carcinoma (HNSCC) represents the 5th most common cancer in the world, characterized by poor prognosis. Significant recent therapeutic advances changed the HNSCC brand but superior survival is limited to a small percentage of patients. Promoting novel treatment strategies such as targeted drug therapy or immunotherapy in the management of earlier stages of HNSCC, as well as achieving a better patients' selection might increase treatment yield. Such goals can be explored by employing a window of opportunity clinical trial design. Window trials involve the administration of a novel drug between cancer diagnosis and scheduled definitive surgical treatment. Tumor tissue biopsies are obtained at diagnosis and after the investigation treatment, at time of surgery. Additional biospecimens, such as blood, and radiographic exams are collected along. Such study design allows for measurement of direct tumor response to novel agents in treatment- naïve patients. It also enables the evaluation of the safety profile of the drug in early treatment setting as well as collection and analysis of biomarkers that could potentially predict sensitivity or resistance to the investigated drug.

We present here two window of opportunity clinical protocols that we conducted in patients with newly diagnosed HNSCC. One clinical trial involves a biologic targeted drug and the other an immunotherapeutic.

EGFR inhibitors are the only targeted drugs that so far showed significant clinical efficacy in HNSCC. The monoclonal antibody cetuximab is now widely utilized as a single agent, in combination with chemotherapy or as a radiosensitizer. The EGFR tyrosine kinase inhibitor Erlotinib was tested in metastatic and recurrent HNSCC and it was dismissed from further evaluations because of a limited response rate of 4%. Our window of opportunity clinical trial exploring the administration of Erlotinib in neoadjuvant setting, before definitive surgery, shows significant activity of Erlotinib when given in a dose adjusted per smoking status. We also show that early PET scans can predict tumor response.

The immunotherapeutic checkpoint inhibitors are approved for use as single agents or in combination with chemotherapy in metastatic or recurrent HNSCC. Although there are exceptional responders and patients with significant prolongation of survival, the response rate remains below 20% for single agent utilization. We and others are conducting window of opportunity clinical protocols with checkpoint inhibitors searching for biologic markers to correlate with therapeutic response. In addition, our ongoing protocol aims to identify potential difference in tumor response to immunotherapy between HPV positive and HPV negative patients. It is postulated that such protocols will help with better patients' selection for future clinical trials with the goal to improve treatment results.

Advantages and hurdles in designing and conducting window of opportunity clinical protocols in patients with HNSCC will be discussed.

Audience Take Away:

- Understand the design of window of opportunity clinical protocols
- Understand the advantages in design and the difficulties in conducting window of opportunity clinical protocols
- Review potential radiologic and biologic biomarkers that could predict response to targeted drug therapies and immunotherapies
- Discuss rational for advancing targeted drug therapies and immunotherapy in the management of earlier stages of cancer

Biography

Dr. Mercedes Porosnicu is Associate Professor of Internal Medicine, Medical Oncology and Molecular Medicine at Wake Forest Comprehensive Cancer Center, NC USA. Her clinical practice is focused on Head and Neck Cancer and she is the Leader of the Head and Neck Cancer Disease Oriented Team. Dr. Porosnicu's laboratory and translational research focuses on novel therapeutic agents such as oncolytic viruses, targeted drug therapies and immunotherapy. Her research goal is to increase treatment efficacy by identifying mechanisms and predictors of tumor response that would allow for better patients' selection and for more efficient combination of biologic agents.

Utility of pap smears screening in the detection of cervical neoplasia

Dr. Saritha Karre* MBBS,MD[1], Dr. Chandrakumar Shanmugam MBBS, MD[2]
[1]ESIC Medical College & Hospital, Hyderabad, Telangana, INDIA
[2]RVM Institute of Medical Sciences, Siddipet, Telangana, INDIA

I will be discussing and describing on spectrum of lesions of cervical neoplasia and the utility of cervical cytopathology in detecting the premalignant and malignant lesions. Discussion on the risk of these lesions in different age groups, so that appropriate and preventive measures can be taken specifically to the age group effected.

Audience Take Away:

- This study will help for the early detection of cervical neoplasia
- Our study will help in risk stratification of the specific group effected by lesions of cervical neoplasia and hence the effected group can be subjected to repeated Pap screening program to detect the early lesions (dysplasia) and treated appropriately to prevent cervical cancer
- Yes, other faculty can use the knowledge obtained from our study by increasing the inclusion of patient in the affected age group and subjecting them for repeat Pap Smear for early detection of cervical neoplasia in the patients at risk
- Yes, the observations made from our study as identified at risk age group for the cervical neoplasia and further in the implementation of early detection and preventive stratigies
- In the planning for the screening of the age group at risk for the cervical neoplasia in a cost effective manner

Biography

I Dr. Saritha Karre born and brought from Hyderabad, completed my MBBS from Andhra Medical College, MD Pathology from Telangana, INDIA. Worked as Assistant Professor in Kamineni Institute of Medical Sciences, Presently I work as Associate Professor in ESIC Medical College & Hospital. Completed Internal Auditor & Quality Management systems certificate course.(Foundation for quality (India). Published 9 papers (3international and 6 national) 1 poster internationally, presented 3papers (oral presentation) and 1 poster in state conference. I completed Masters in Divinity that is accredited by the Asia Theological Association in 2018. I achieved National Award- Medical Excellence Award from Governor in 2018. International consortium for clinical research excellence, ethics and education declared me as subject expert in pathology in 2017.

A novel chemopreventive strategy based on tumor suppressor microRNAs produced in bioengineered edible plants

V. Vance* , PhD, J. MacArthur, PhD, K. Hogan, PhD, G.J. Pruss, L. Hofseth, PhD, M. Pena, PhD
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2College of Pharmacy, University of South Carolina, Columbia, South Carolina, USA 29208

MicroRNAs (miRNAs) are small noncoding RNAs that comprise an emerging class of therapeutic agents with significant potential for the prevention and treatment of many diseases, including cancer. Many different forms of cancer are associated with loss or reduced accumulation of one or more miRNAs that function as tumor suppressors. In animal models, restoration of missing tumor suppressor miRNAs prevents the initiation, progression and/or spread of the disease. However, the current absence of an efficient method for delivery of therapeutic miRNAs is a critical barrier to their use. Here we report our progress toward development of a chemopreventive strategy for miRNA replacement therapy based on ingestion of plant matter that has been bioengineered to produce tumor suppressor miRNAs. We have established edible plant lines (in the model plant Arabidopsis thaliana) that produce high levels of three different mammalian tumor suppressor miRNAs (miR-34a, miR-143 and miR-145). We used ApcMin/+ mice, a well -established animal model of colon cancer, to test the chemopreventive activity of diets containing these putative therapeutic plant tissues. In an ongoing pilot study, we found that ApcMin/+ mice fed the bioengineered plant-based diet in a preventive regimen developed significantly fewer intestinal tumors than mice fed a calorically- and nutritionally-matched control diet without plant tissue. These results raise the intriguing prospect of using edible plants, bioengineered to produce mammalian tumor suppressor miRNAs, as an effective, nontoxic, and inexpensive chemopreventive strategy in humans. Bioengineering of plants to produce miRNAs of any desired sequence is a well-established technology currently used for research purposes in diverse food crops. Thus, using edible plants to produce therapeutic miRNAs is highly feasible and has significant potential in basic, translational, and clinical applications to provide a cost-effective alternative to currently available synthetic RNA production and delivery methods.

Audience Take Away:

- It is possible to engineer edible plants to produce high quantities of mammalian/human therapeutic miRNAs
- The results of our pilot experiments raise the intriguing prospect of using edible plants, bioengineered to produce mammalian tumor suppressor miRNAs, as an effective, nontoxic, and inexpensive chemopreventive strategy in humans
- Bioengineering of plants to produce miRNAs of any desired sequence is a well-established technology currently used for research purposes in diverse food crops
- Thus, using edible plants to produce therapeutic miRNAs is highly feasible and has significant potential in basic, translational, and clinical applications to provide a cost-effective alternative to currently available synthetic RNA production and delivery methods

Biography

Vicki Vance is the Wade T. Batson Jr. Professor of Botany in the Department of Biological Sciences at the University of South Carolina (Columbia, South Carolina, USA 29208), where she has served for over three decades. Her areas of expertise include plant molecular biology, plant virology and plant defense systems with an emphasis on small regulatory RNAs, such as short interfering RNAs (siRNAs) and microRNAs (miRNAs). Recent work in the Vance lab has focused on engineering edible plants to produce human miRNAs for therapeutic purposes.

Inverse microRNA signatures in Alzheimer's disease and cancer: A diagnostic perspective

Wojda U.* Full Prof., Ph.D., Laskowska-Kaszub K., MSc, Nagaraj S. MSc, Zoltowska K.M.Ph.D.
Laboratory of Preclinical Testing of Higher Standard, Nencki Institute of Experimental Biology of Polish Academy of Sciences, Warsaw, Poland

One of the major challenges in cancer and Alzheimer's disease (AD) is identification of early, non-invasive biomarkers and elucidation of their functions. Circulating microRNAs (miRNAs) have been extensively studied as potential biomarkers for cancer and AD. Their profiles have been analyzed in AD blood, cerebrospinal fluid (CSF) and brain tissue. However, due to the high variability between the reported data, stemming from the lack of methodological standardization and the heterogeneity of AD, the most promising miRNA biomarker candidates have not been selected. Our review of recent decade literature shows that out of 137 miRNAs found to be altered in AD blood, 36 have been replicated in at least one independent study, and out of 166 miRNAs reported as differential in AD CSF, 13 have been repeatedly found. Only 3 miRNAs have been consistently reported as altered in three analyzed specimens: blood, CSF and the brain (hsa-miR-146a, hsa-miR-125b, hsa-miR-135a). Nonetheless, all 36 repeatedly differential miRNAs in AD blood are promising as components of the AD diagnostic panel. In addition, the analysis revealed that the miRNAs dysregulated in AD overlap highly with miRNAs implicated in cancer. However, the directions of the miRNA changes are usually opposite in cancer and AD, indicative of an epigenetic trade-off between the two diseases. Using bioinformatic tools (TargetScan, MirTarBbase and KEGG) we identified putative mRNA targets of the selected differential miRNAs in AD blood, including proteins involved in amyloidogenic proteolysis as well as in cancerogenesis. We confirmed (luciferase assay, quantitative RT-PCR and immunoblotting) that hsa-miR-200a-3p, one of the mostly upregulated miRNAs in AD blood, regulates BACE1 mRNA and protein, and also significantly affects proliferation. These data indicate that such miRNA panel may report multiple pathways contributing to AD as well as cancer pathology and therefore they can be used for the design of personalized therapies.

Audience Take Away:

- Panel detecting selected circulating miRNAs may facilitate early AD and cancer diagnostics
- AD and cancer patients present inverse miRNA signatures
- AD-implicated miRNAs target cancer-related transcripts
- miRNA profiles reflect AD and cancer complexity and may support personalized therapies

Biography

Urszula Wojda is a Full Professor of Biological Sciences, Head of the Laboratory of Preclinical Testing of Higher Standard at the Nencki Institute in Warsaw, a top research Institute of the Polish Academy of Sciences. She has completed her PhD from the Nencki Institute and conducted research at the Pasteur Institute in France and at the National Institutes of Health, USA (postdoctoral training). She has published more than 45 papers in reputed journals. She serves as Polish expert at the Management Board of the EU Joint Programming for Neurodegenerative Diseases (JPND) and as a member of several international editorial boards.

Application of CTCs for biomarker development of immunotherapies

Zhenlong Ye* Director, Ph.D , Xinchun Li. Ph.D., Qijun Qian. Ph.D.
Shanghai Baize Medical Laboratory, China

Immunotherapies with chimeric antigen receptor-modified T (CAR-T) cells and Immune Checkpoint Inhibitors (ICIs) have shown exhilarative clinical outcome in treating Cancers. When applying CAR-T-based and ICIs-based immunotherapies for treating solid tumors, detection of expressions of targeting antigens on tumor tissues with IHC assays is required. For example, MSLN and PD-L1 detection with IHC assays for MSLN-CAR-T-based and PD-1-based immunotherapies, respectively. However, assays on tumor tissue specimens can be limited by age, quality, and resection of patients. Thus, CTCs collected from blood can be used for detection of expressions of targeted antigens on tumor cells, and the concentration of PD-L1 that has been used as biomarkers for PD-1-based immunotherapies. In our work, we explored and validated the application of CTCs as standard biomarker for CAR-T-based and PD-1-based immunotherapies. Mesothelin, EGFR, MUC1, MMR, and PD-L1 were analyzed in CTCs for relative CAR-T cell-based therapies. And DNA from CTCs can be used for ctDNA sequencing for TMB and targeted therapy tests.

Audience Take Away:

- PD-L1, and MMR proteins can be tested for PD-1 inhibitor-based therapies
- Expression of CAR-T targeting antigens, like MSLN, EGFR, MUC1, can be detected with high purity CTCs
- DNA from CTCs can be used to complimentary for ctDNA sequencing for TMB and targeted therapy tests

Biography

Zhenlong Ye, Ph.D of Oncology, is the General Manager of Detection Department of Shanghai Cell Therapy Group Co., Ltd. He is also the member of Clinical Application Committee of Medicinal Biotechnology of China Medicinal Biotechnology Association and Vice-Chairman of Youth Science Group, and the member of Precision Medical Branch of China Medicinal Biotechnology Association. He has published 10 SCI papers as the first author or communication author, 15 patents as principle investigate and also participated in the compilation of one Chinese edition and one English edition. Besides, he is awarded the Shanghai Science and Technology Committee Rising-Star talent in 2019 and is the 12th batch of Shanghai Jiading District's shortage of innovative and entrepreneurial talents, and the 15th Shanghai Youth Post Expert.

Novel proteomic changes in yeast mitochondria provide insights into mitochondrial functioning upon over-expression of human p53

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Laboratory of Molecular Genetics, Department of Biosciences and Bioengineering, Indian Institute of Technology, Bombay, Powai, Mumbai-400076, India

Cancer cells display enhanced glycolytic activity and impaired oxidative phosphorylation even in the presence of adequate oxygen (Warburg effect). Mitochondrial physiology is a promising hit target for anti-cancer therapy because of its key role in Warburg effect and activating apoptosis in mammalian as well as yeast cells. Over-expression of human p53 in S.cerevisiae leads to cell cycle arrest and apotosis. Apoptosis is yet another regulatory phenomenon that has been conserved from yeast to humans. Escape from apoptosis is one of the hallmarks of tumour cells. It has been demonstrated that the expression of p53 and Bax induces apoptosis in yeast. In the present work we show that how S.cerevisiae escapes from p53 induced apoptosis in fermentable carbon source, whereas in case of non-fermentable carbon source this phenomenon is not observed. To shed the light on this aspect we performed a quantitative proteomic analysis of yeast mitochondria isolated from the cells grown on sucrose (fermentation) and glycerol (respiration) with and without p53 over-expression. Through this approach, we identified a total dataset of 1120 proteins with 1% FDR, of which 239(133+106) proteins are differentially experessed in both conditions. Interestingly, we observed that after over-expression of p53 in sucrose grown yeast cells, a complete set of pentose phosphate pathway (PPP) enzymes is up- regulated in the mitochondria that leads to enhanced mitochondrial NADPH production and ROS quenching. Increased association of a hexose transporter (HXT6) and a hexokinase (HXK2) with the mitochondria of fermenting yeast cells upon over-expression of p53 may direct glucose towards PPP inside the mitochondria. This metabolic control is a key element of apoptotic escape and tumour progression. In conclusion, our results provide the evidence that up- regulated PPP inside the mitochondria is a key to evade apoptosis by S.cerevisiae upon p53 over-expression. An impressive approach would be to study this fermenting yeast apoptotic evasion strategy in mamalian cancer cell lines.

Audience Take Away:

- This work is providing fermenting yeast apoptotic evasion strategy upon over-expression of tumor supressor protein p53 Here we have provided a novel idea related to detection of Glucose-6- Phosphate Dehydrogenase (G6PD) in mitochondria of p53 over-expressed sucrose grown cells This leads to enhanced Pentose phospahte pathway activity which causes increased NADPH production that leads to quenching of ROS generated because of over-expression of p53 An impressive approach would be to use this stratergy in mamalian cancer cell lines

Biography

Dr. Archana Kumari Redhu studied Bio-technology (Hons.) in her masters from Banasthali University (Rajasthan) in 2012. She then joined the research group of Prof. Rajendra Prasad at the Jawaharlal Nehru University (JNU). She then received her Ph.D. degree in August 2018 at the same institution. After earning her doctorate degree she Joined Indian Institute of Technology-Bombay (India) for her Post Doctoral Research.

Comparison between modified papanicolaou stain and hematoxylin-eosin stain for staining keratin in oral tissue sections

Nusyba Mohamed Ahmed Bushra Mohamed Ahmed*[1], Ramy Yousif Hasab Elrasul Mohammed[2], Nazik OmerEl-bashir[3]
[1]B.Sc. in Histopathology, University of Medical Sciences and Technology, Khartoum, Sudan
[2]M.Sc. in Histopathology, University of Medical Sciences and Technology, Khartoum, Sudan
[3]M.Sc. in Oral Pathology, University of Khartoum, Khartoum, Sudan

This presentation will discuss the aim of the study; to compare the staining specificity and intensity of Hematoxylin and Eosin (H&E) stain and Modified Papanicolaou stain, to stain the keratin present in Oral Squamous Cell Carcinoma. It will also discuss the methodology used to implement the study; an analytical cross-sectional study was conducted with different samples (n = 110) of oral squamous cell carcinoma. Duplicate sections were obtained from each block, and one section was stained with H&E and the other with Modified Papanicolaou. The stained sections were then evaluated based on the specificity and intensity of staining keratin using modified scoring criteria of poor satisfactory good and excellent. Then it will discuss the results obtained by the study; the staining specificity and intensity of Modified Papanicolaou stain were significantly higher than those of H&E (P = 0.0000001 and P = 0.00002, respectively). Finally, it will discuss how this new modified technique will improve the diagnosis; Modified Papanicolaou stain exhibited easier diagnosis of keratinization in samples of oral squamous cell carcinoma than H&E stain, because it provided better contrast to the background, allowing easy identification of keratin and more accurate diagnosis. Moreover, this modified method can be adapted for precise diagnosis of other tissues that form keratin in the presence of cancer, which can in turn help determine the appropriate treatment.

Audience Take Away:

- How this study was implemented and for what reasons
- How this new staining technique will help in the diagnosis of keratinized oral squamous cell carcinoma
- What were the limitation of this study that should be avoided to improve similar studies
- What are the recommendations for futures studies
- This study will help the audience to exhibited easier diagnosis of keratinization in samples of oral squamous cell carcinoma. Hence, allowing easy identification of keratin and more accurate diagnosis. Moreover, this technique can be used to teach student and medical laboratory technologist how to enhance the staining technique in terms of specificity and intensity when staining oral tissue section suspected to have keratinization. Also it will ease the diagnosis of pathologist since this technique gives different color contrast to the background and the keratin.

Biography

MS. Nusyba Bushra is an outstanding Biomedical Scientist. She received her B.Sc. from University of Medical Sciences & Technology (UMST), with an overall GpA of 4.97 out of 5.00. She had been awarded many prizes and scholarships during her academic years at the university including; University's scholarship for the year 2014 – 2015 and the year 2015 – 2016, University's prize in Histopathology and University's prize for the Best overall performance. Then she followed it by a higher educational diploma in Research Methodology & Biostatistics, and implemented a research with her diploma's supervisor doctor Mounkaila Noma.

Clinical presentation, management and biomarkers of cytokine release syndrome after anti-CD19 cart-cell therapy for r/r ALL

Ping Li*, Lili Zhou, Shiguang Ye, Xiaochen Tang, Aibin Liang
Department of Hematology, Tongji Hospital of Tongji University, Shanghai, China

Chimeric antigen receptor T (CAR-T) cell therapy has emerged as a novel treatment modality for B-cell malignancies. CD19-specific CAR-T cells induce high rates of initial response among patients with relapsed B-cell acute lymphoblastic leukemia (ALL). However, cytokine release syndrome (CRS) is the most common and severe toxicities of CAR T-cell therapy for ALL, and clinical experience is limited. Here, we describe the clinical presentation and management of 30 patients who presented with CRS following CAR-T cell therapy for relapsed/refractory ALL at our hospital. 12 of the 30 patients (40%) developed grade 1-2 CRS, 14 patients (46.7%) presented with grade 3-4 CRS and 2 patients (6.7%) died of grade 5 CRS. Compared with grade 1-2 CRS, grade 3-4 CRS correlated negatively with overall survival and progression-free survival (P =0.02). We found that higher ferritin levels and percentages of CD19 positive cells in blood lymphocytes cells at time of CAR-T cell infusion were associated with more severe CRS. Grade 3-4 neurotoxicity was frequently present in patients with grade 3 CRS. We also observed that the organ disfunctions occurred in sequence after fever onset during the period of CRS. Neurotoxicity, cardiovascular disfunction and cytopenia in some patients manifest as biphasic. Compared to use of tocilizumab for CRS grade 3, early intervention of tocilizumab for hyperpyrexia duration 6h alleviates the severity of CRS, and no patients died of severe CRS since this management approach was performed. As use of novel CAR-T cell therapy expands, the data from our clinical experience may help others anticipated the clinical course of organ function and manage CRS in CAR-T therapy.

Audience Take Away:

- Grade 3-4 CRS is a negative prognostic factor for overall survival and event-free survival
- Organ disfunction occurred in sequence after onset of fever during the period of CRS
- Early intervention of tocilizumab alleviates CRS severity

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DAY 2

KEYNOTE FORUM

3RD EDITION OF

INTERNATIONAL CANCER CONFERENCE

SEPTEMBER
23-25, 2019

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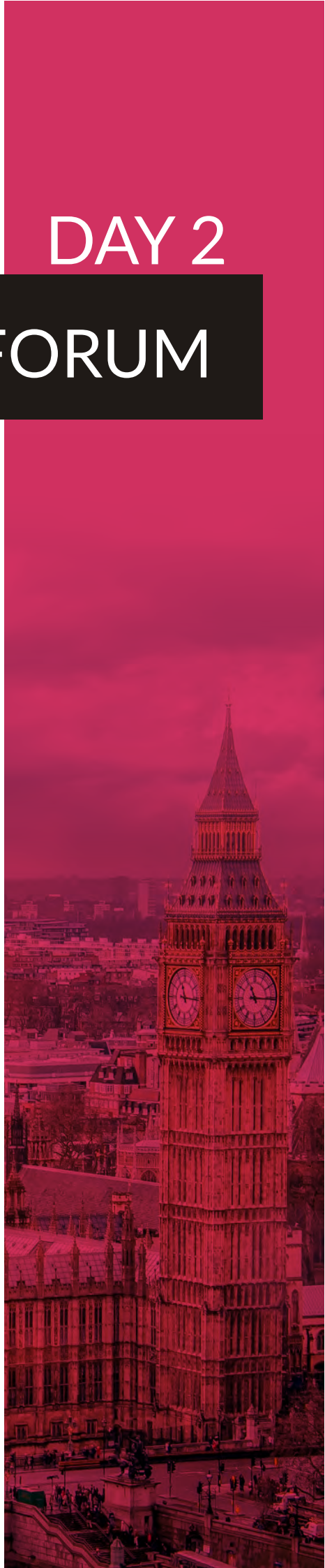

ICC-2019

Roles of fusion genes in human cancers

Jianhua Luo, MD, PhD

University of Pittsburgh, USA

Chromosome mutations and rearrangements are some of the hallmarks of human malignancies. Chromosomal rearrangement is frequent in human cancers. One of the consequences of chromosomal rearrangement is gene fusions in the cancer genome. We have identified a panel of fusion genes in aggressive prostate cancers. In the present study, we found that these fusion genes are present in 7 different types of human malignancies with variable frequencies. Among them, CCNH-C5orf30 and TRMT11-GRIK2 gene fusions were found in breast cancer, colon cancer, non-small cell lung cancer, esophageal adenocarcinoma, glioblastoma multiforme, ovarian cancer and liver cancer, with frequencies ranging from 12.9% to 85%. In contrast, four other gene fusions (mTOR-TP53BP1, TMEM135-CCDC67, KDM4-AC011523.2 and LRRC59-FLJ60017) are less frequent. Both TRMT11-GRIK2 and CCNH-C5orf30 are also frequently present in lymph node metastatic cancer samples from the breast, colon and ovary. Thus, detecting these fusion transcripts may have significant biological and clinical implications in cancer patient management. One of these fusion genes called MAN2A1-FER generated a constitutively activated tyrosine protein kinase. The fusion translocates FER kinase from the cytoplasm to Golgi apparatus. The fusion protein ectopically phosphorylates the N-terminal domain of EGFR, and activates the EGFR signaling pathway in the absence of a ligand. MAN2A1-FER has been found in a variety of human malignancies. It transforms immortalized cell lines into highly aggressive cancer cells. Expression of MAN2A1-FER produces spontaneous liver cancer in animals. Cancer cells positive for MAN2A1-FER are highly sensitive to several tyrosine kinase inhibitors, and can be targeted by genome therapy intervention. Thus, targeting at MAN2A1-FER or other oncogenic fusion genes may hold promise to treat human cancer effectively.

Biography

Dr. Luo has been studying molecular mechanisms of human malignancies in the last 32 years. Currently, he is a Professor of Pathology and Director of High Throughput Genome Center at University of Pittsburgh. In the last 20 years, Dr. Luo has been largely focusing on the genetic and molecular mechanism of human prostate and hepatocellular carcinomas. In this period, his group has identified and characterized several genes that are related to prostate cancer and hepatocellular carcinoma, including SAPC, myopodin, CSR1, GPx3, ITGA7, MCM7, MCM8, MT1h and GPC3. He has characterized several signaling pathways that play critical role in prostate cancer development, including Myopodin-ILK-MCM7 inhibitory signaling, myopodin-zyxin motility inhibition pathway, CSR1-CPSF3, CSR1-SF3A3 and CSR1-XIAP apoptotic pathways, MT1h-EHMT1 epigenomic signaling, ITGA7-HtrA2 tumor suppression pathway, GPx3-PIG3 cell death pathway, AR-MCM7, MCM7-SF3B3 and MCM8-cyclin D1 oncogenic pathways. He proposed prostate cancer field effect in 2002. He is one of the pioneers in utilizing high throughput gene expression and genome analyses to analyze field effects in prostate cancer and liver cancer. He is also the first in using methylation array and whole genome methylation sequencing to analyze prostate cancer. Recently, his group discovered several novel fusion transcripts and their association with aggressive prostate cancer. Subsequently, his group discovered that many of these fusion genes are recurrent in many other types of human cancers. One of the fusion genes called MAN2A1-FER, was found present in 6 different types of human cancers. He later defined a critical MAN2A1-FER/EGFR signaling pathway through ectopic phosphorylation that is essential for MAN2A1-FER mediated transformation activity. His group also developed a genome intervention strategy targeting at the chromosomal breakpoint of fusion gene to treat cancers. Overall, these findings advance our understanding of how cancer develops and behaves, and lay down the foundation for better future diagnosis and treatment of human malignancies.

Biography

Vladimir Torchilin got his M.S, Ph.D., and D.Sc. from the Moscow State University and serves currently as a University Distinguished Professor and Director, Center for Pharmaceutical Biotechnology and Nanomedicine, Northeastern University, Boston. He has published more than 400 papers, more than 150 reviews and book chapters, wrote and edited 13 books, and holds more than 40 patents. Google Scholar shows more than 60,000 citations of his papers with H-index of 111. He is Editor-in-Chief of Current Drug Discovery Technologies and Drug Delivery, Co-Editor of Current Pharmaceutical Biotechnology and on the Editorial Boards of many journals. He received more than $30 M from the government and industry in research funding. He has multiple honors and awards and in 2011, Times Higher Education ranked him number 2 among top world scientists in pharmacology for the period of 2000-2010.

Next generation of combination nanopreparations for multidrug resistant cancer

Vladimir Torchilin, Ph.D., D.Sc.

Center for Pharmaceutical Biotechnology and Nanomedicine, Northeastern University, Boston, USA

Pharmaceutical nanocarriers, including liposomes and polymeric micelles, are frequently used for the delivery of a broad variety of both soluble and poorly soluble anticancer drugs to enhance their in vivo efficiency. The next generation of drug delivery systems for cancer, especially, for multidrug resistant (MDR) tumors, includes multifunctional stimuli-responsive nanocarriers, i.e. nanocarriers that can circulate long; target the site of the disease; respond local stimuli characteristic of the pathological site by, for example, releasing an entrapped drug or deleting a protective coating to facilitate the contact between drug-loaded nanocarriers and target cells; and even provide an enhanced intracellular delivery of the drug with its subsequent delivery to specific intracellular organelles. Among new developments to be considered in the area of multifunctional pharmaceutical nanocarriers for MDR tumors are: drug- or/and siRNA-loaded delivery systems additionally decorated with cell-penetrating peptides for the enhanced intracellular delivery; "smart" multifunctional drug delivery systems, which can reveal/expose temporarily hidden functions under the action of certain local stimuli characteristic for the tumor microenvironment (such as lowered pH, redox-conditions, hypoxia, or locally increased expression of certain enzymes); new means for controlled delivery and release of siRNA; and approaches for intracellular drug delivery and organelle targeting. The application of nanocarriers co-loaded with siRNA and drugs to treat specifically MDR tumors will be specifically addressed.

Audience Take Away:

- How to engineer drug delivery systems responsive to local conditions/stimuli
- How to deliver drug-loaded nanopreparations inside cells and target them to individual organelles
- How to engineer liposome- and micelle-based drug delivery system for combination tumor therapy
- The advantages of using combination preparation of RNA/drug in treating MDR tumors

Biography

Mark S. Parker, M.D is a Professor of Diagnostic Radiology and Internal Medicine at VCU Health in Richmond, Virginia, USA. Dr. Parker Director of Thoracic Imaging, Director of the Thoracic Imaging Fellowship Program and Director of the Early Detection Lung Cancer Screening Program. Dr. Parker was inducted as a Fellow in the American College of Radiology in 2015. Dr. Parker has been recognized as one of America's Top Radiologists by the Consumers' Research Council of America on 7 occasions, Best Doctors' in America four times, Virginia's Living Magazine twice and by Richmond's Top Docs. Dr. Parker is an active member of 8 national medical organizations and societies, and has served as a board examiner for the American Board of Radiology (ABR). He has served as Technical Expert and Key Informant for the Agency for Healthcare Research and Quality (AHRQ); Evidence-Based Practice Center Systematic Review Protocol Project for the 2016 Imaging Guidelines for the Pretreatment Staging of Small Cell Lung Cancer. To date, Dr. Parker has given over 700 lectures, more than 50 on the topic of lung cancer and other neoplasms affecting the lungs, pleura, and mediastinum. Dr. Parker has over 40 publications in various peer-reviewed journals, more than 25 published abstracts-scientific proceedings and 20 scientific poster exhibits. Dr. Parker is the lead author of two core textbooks in thoracic imaging and the lead author on the recently first published textbook on Lung Cancer-Screening. Dr. Parker was instrumental in developing the first, multi-disciplinary lung cancer screening program in Virginia, a program that has served as the model for at least 9 other lung cancer-screening programs in the USA, and a center recognized by both the American College of Radiology and Lung Cancer Alliance as a Lung Cancer Screening Center of Excellence.

Is it fair calling LDCT lung cancer screening a failure? Why are less than 2% of those eligible getting screened?

Mark S. Parker, M.D., F.A.C.R.

VCU Medical Center, USA

Lung cancer is the leading cause of cancer death for both men and women worldwide, regardless of race and ethnicity. Each year, lung cancer alone claims the lives of more persons than all of the cancers of the breast, prostate, colorectum, kidney and melanoma combined. Historically, there has never been a widely accepted screening exam for the early detection of lung cancer that proved to reduce patient-specific mortality. This all changed however in November 2011 with the release of the National Lung Screening Trial (NLST) results which showed a 20% reduction in mortality in those high-risk persons that underwent annual lung screening with low-dose CT (LDCT). Subsequently, more than 40 medical societies and organization, many of which are stakeholders in lung health, lung disease, and lung cancer, have endorsed LDCT for the early detection of lung cancer in high-risk persons. The United States Preventive Services Task Force (USPSTF) in 2013 and the Centers for Medicare and Medicaid Services (CMS) in 2015 has also endorsed LDCT for the early detection of lung cancer in eligible persons. The latter endorsements allow at risk eligible persons to be screened without personal financial cost. Despite the cost of lung cancer screening with LDCT now being covered by CMS and most third party payer private insurance carriers, most high-risk former and or current cigarette smokers are still not taking advantage of early detection screening programs and remain at risk for this otherwise potentially lethal disease in the absence of proper screening. This presentation addresses some of the reasons why at risk persons are not seeking or being referred for lung cancer screening and potential ways to enhance screenee and provider participation.

Audience Take Away:

- Brief synopsis of the heavily cited data presented in the American Society of Clinical Oncology (ASCO) 2018 abstract regarding current lung cancer screening rates with low-dose CT in the United States
- Address some of the multifaceted reasons for the current low-screening rates for lung cancer with low-dose CT compared with other commonly employed screening exams
- How we might improve screenee and provider participation in the lung cancer screening process

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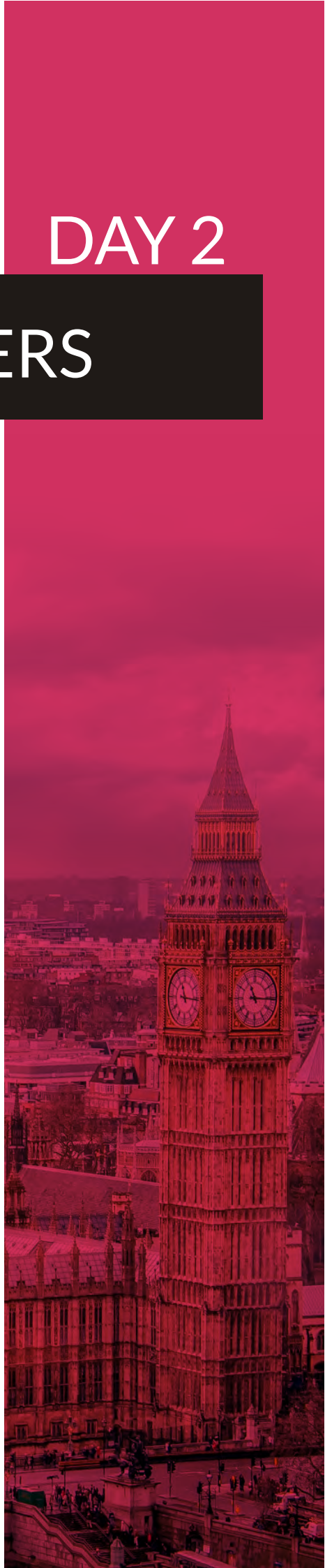

ICC-2019

Towards optimum immunotherapy

Prof. Angus Dalgleish MD
St. George's University of London, UK

Immunotherapy has finally been approved as a mainstream modality. Unfortunately, whereas dramatic increases in survival have been achieved, the majority of patients do not yet benefit. It is becoming evident that patients with systematically raised inflammatory markers do not benefit. Furthermore, tumours without evidence of immune cell infiltration and activation are also unlikely to be responders. In order to enhance and increase the number of responders to the standard immune oncology (1-0) agents such as the checkpoint inhibitors ("CPI's"), it is necessary to activate the innate immune system within the tumour and reduce systemic inflammation. Numerous drugs can reduce inflammation and those cells in the tumour micro environment (TME) that suppress immune responses. These include standard anti-inflammatory agents as well as some chemotherapy agents such as Gemcitabine and Cyclophosphamide.

Drugs that are capable of enhancing specific immune responses as well as reducing chronic inflammation are known as immune modulators, or "IMiD's". These include the Thalidomide analogues such as Lenalidomide and Pomalidomide. Other agents include heat-killed mycobacteria such as mycobacterium obuense, or "IMM-101". These agents can enhance the immune response to vaccines and CPI's. Importantly, it is the sequence of these combinations which is key to enhancing efficacy and not just combining all together.

More recently, lose dose Naltrexone (LDN) has been shown to be a very effective anti-inflammatory inhibiting TLR9 signaling. Other agents with anti-inflammatory and anti-cancer activity are the cannabinoids which we have shown to enhance radiotherapy and some chemotherapies.

Audience Take Away:

- In order to enhance CPI activity, it is necessary to prepare the host by pre-treating it with anti-inflammatory agents and immune modulators
- Combinations of agents can be more effective sequentially than when used together
- Many common chemotherapy agents can enhance the immune response when used in low doses
- Several such agents may be necessary in sequence to enhance clinical responses

Biography

Prof. Angus Dalgleish is the foundation professor of oncology at St. George's University of London. He has published seminal papers on HIV and its CD4 receptor and mechanisms of pathogens. Together with colleagues in Cologne, he developed the Lenalidomide programme, having researched and used Thalidomide in new clinical applications. He received the Lederberg prize for this work in 2011. He has pioneered cancer vaccines and immuno-therapy in the UK, and is now focussing on IMM-101 as a major immune modulator. He also as major research projects in LDN and the cannabinoids.

He is a fellow of the Royal College of Physicians (UK and Australia), Pathologists and of the Academy of Medical Sciences. He has published over 400 papers and co-edited five text books.

Targeting nuclear export inhibitors machinary in cancer

Ramzi M Mohammad, PhD
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Nuclear export is an evolutionary conserved mechanism that regulates the balanced nuclear expression of tumor suppressor proteins (TSPs). Overexpression of the major exportin protein chromosome region maintenance 1 (CRM1) results in nuclear exclusion of TSPs and is considered the underlying cause for low efficacy of drugs that target TSP activation. CRM1 overexpression has been linked to poor prognosis of pancreatic cancer (PC). Recently, we showed that inhibition of CRM1 by our specific inhibitors of nuclear export (SINEs) can suppress PC cell proliferation and induce tumor growth arrest in mice (Gastroenterology; 2013). Further, our large scale screening of gemcitabine (GEM) refractory PC patient tissue showed consistent over-expression of CRM1 that was concurrent with nuclear exclusion of major TSPs. These important findings suggest that CRM1 inhibition is could be an attractive strategy against GEM refractory PC. Here we show that SINEs synergize with GEM (CI<1) in a panel of PC cell lines and spheroid models that over express CRM1 [GEM resistant (GR) MiaPaCa-2-GR and AsPC-1-GR]. We also found that SINE-GEM can inhibit the proliferation of two recently identified stem cell models of PC (CD24+;CD44+;EpCam+). Mechanistically, SINEs were found to reverse GEM mediated expulsion of major TSPs and induce nuclear re-alignment of IκB, FOXO3a, p73, Par-4 and p27. Systems analysis of microarray expression datasets from SINE-GEM treated PC cells showed enrichment of gene networks in the nucleus of PC cells. Functional ontology of activated gene networks linked them to pathways that were relevant to stem cell and EMT inhibition and cancer fibroblast cell death associated signaling. These studies indicate that SINE-GEM can interfere with the EMT, stemness and fibroblast promoting signaling. Based on these important findings, we are initiating a SINE-GEM based multi-center Phase I/bII clinical trial in PC patients.

Biography

As a Director of GI-Cancer Research and Scientific Member of the Molecular Therapeutics Program at the Oncology Department, Karmanos Cancer Institute, Wayne State University with a track-record of cancer research for more than 34 years. I am one of the pioneers in developing animal models such as the Orthotopic Pancreatic Cancer animal model in 1990's and the establishment of several unique cancer cell lines such as WSU-DLCL, WSU-BL, WSU-NHL, WSU-FSCCL, WSU-WM, KCI-Pan, WSU-AML and more. I have published over 190 original scientific articles in peer-reviewed journals, review articles and book chapters (PubMed shows 146 articles under Mohammad RM and 190 under Mohammad R). I have been continuously and for 34 years funded by NCI, NIH and pharmaceutical companies and I have directed NIH funded research effectively. I have trained 52 pre-doctoral and post-doctoral students, and contributed to the research and education mission of the Cancer Center. I have taught second medical students' immunology, bacteriology and virology for the last 27 years at WSU Medical School-Department of Immunology and Microbiology. I have extensive experience in physiology, cancer biology, animal models including Pancreatic Cancer, Colon Cancer, Sarcoma and NHL (xenografts and transgenic models), tissue culture and statistical analysis. My current research interest is focused on drug discovery. Utilizing my established cell lines and animal models, I study the effects of new anticancer agents, marine products as well as standard chemotherapeutic drugs. My research is translational in nature and through my close work with clinicians I was able to introduce several experimental drugs into the clinic among which include Bryostatin-1, Aurastatin-PE & PYE, Dolastatin-10 & 15 and Cambertastatin-4 and small molecule inhibitors such as AT-101 (gossypol), Bcl2/BclX, MDM2, Bcl2-DNAi and CRM1.

Tribal researchers cancer control fellowship program

Thomas Becker*, MD, PhD[1]; Ashley Thomas, MPH[2], Linda Burhansstipanov, DrPH, MSPH[3]; Charles Wiggins, PhD[4]
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[3]Native American Cancer Research Corporation, Pine, Colorado, United States
[4]University of New Mexico, Albuquerque, New Mexico, United States

Relatively few studies of cancer prevention and control or of cancer etiology among American Indians/Alaska Natives (AI/AN) in the United States (US) have included AI/AN investigators. AI/AN investigators in key roles in cancer control projects are needed to more effectively address the cancer burden in AI/AN communities. Well-trained AI/AN researchers will have cultural competency and will be viewed as trustworthy and credible by community members who will participate in, or be affected by, research projects.

Building upon earlier success with 150 trainees, and 16 years of experience in this area, the overall goal of the Tribal Researchers' Cancer Control Fellowship Program is to reduce cancer incidence and mortality and improve cancer survival in tribal communities through the efforts of AI/AN researchers. One specific goal of this program is to increase research capacities and build research skills among AI/AN investigators, so that they will be better prepared to design and implement cancer-related research projects within AI/AN communities. Forty (ten per year) qualified AI/AN researchers will attend a tailored three-week cancer control research training, receive follow-up support, including field support, distance learning opportunities, and mentoring. Cancer control research internships are provided to interested trainees who complete the three-week curriculum, so they can master additional research skills relevant to careers in community-based cancer control under close mentorship.

To date, ten AI/AN research fellows have completed the training and have been receiving follow-up support. The Northwest Portland Area Indian Health Board will soon host a second cohort of fellows. The cohort has already been identified and will participate in a similar training to cohort one. Tribes represented in these cohorts include Navajo, Blackfeet, Apache, Tlingit, Choctaw Apache Tribe of Ebarb, Zwolle, Louisiana, Yupiit of the Andreafski, Cherokee Nation of Oklahoma, and Turtle Mountain Band of Chippewa Indians. Course modules include: Research Design and Grant Writing, Cancer Prevention and Control, Environmental Health Studies on the Navajo Nation, Physical Activity in Cancer Prevention and Survival, Epidemiology, Grant Management, Big Data, Qualitative Research Methods, Dietary Interventions for Cancer Prevention, and Cancer Survivorship. Nearly all AI/AN researchers in the country have come through our programs. We are optimistic we will add to this pool through grant funded projects.

Audience Take Away:

- Attendees will learn more about cancer epidemiology and cancer prevention in tribal people in the US, and may be able to plan similar programs among special population groups in their part of the world
- The most relevant information from this presentation relates to design and implementation of a cancer prevention programs in a special population group. The course is almost unique in the world, and could be easily implemented in other needy populations with similar cultural constraints

Biography

Dr. Becker is an epidemiologist with substantial experience in public health-related research in American Indian/Alaska Native (AI/AN) populations. He has over thirty years of research and collaboration with AI/AN populations in epidemiologic studies and over fifteen years of experience in guiding education programs to increase Native researchers' skills in designing and implementing chronic disease control projects. He serves as PI for the training activities for the NW NARCH. He assists with cancer control research at the NPAIHB and has completed several cancer linkage and other grant-funded cancer-related projects there. He has published numerous papers on health-related topics among AI/ANs.

The economic analysis of social security costs cancer-related in Italy

Mennini F S*[1,2], Gazzillo S[1], Nardone C[1], Migliorini R[3], Trabucco Aurilio M[3]
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[2]Department of Accounting and Finance, Kingston University, London, UK.
[3]Office of Medical Forensic Coordination, Italian National Social Security Institute (INPS), Rome, Italy

Introduction: Cancer represents the disease that, more than others, reduces people's workability, causing a considerable number of disabled and incapacitated workers. The aim of this study was to estimate indirect costs, and in particular the disability insurance costs induced by patients with cancers, between 2009 and 2015 in Italy.

Methods: The economic analysis was focused on two types of social security benefits: Disability Benefit (for workers with reduced workability), and Incapacity Pension (for workers without workability). Data were derived from the database of disability insurance awards of the Italian National Institute of Social Security (INPS). Considering the period between 2009 and 2015 (latest data available), the analysis estimated beneficiaries and related amount of costs for cancer patients. A probabilistic model with a Monte Carlo simulation was developed in order to estimate the total benefits provided and costs.

Results: An average of 142.000 beneficiaries of social security benefits affected by cancer per year was detected, representing 31% of all Italian beneficiaries for all diseases. The annual average expenditure was € 926,5 million for disability benefits, and € 409,2 million for incapacity pensions. So, disability insurance costs amount to € 1,3 billion every year in Italy; this expenditure has grown by 29% from 2009 to 2015.

Conclusion: The disability insurance costs caused by cancers have an important impact on the Italian Social Security System. Moreover, the related amount of costs grew up from 2009 to 2015, and probably it will continue to grow. Ensuring a more rapid access to innovative treatments could reduce these costs (accompanied by increase in QoL), through the reduction of people requesting a Social Security benefit to INPS.

Audience Take Away:

- The analysis shows results that, even if related to Italian environment in a limited period of time, can represent a widespread phenomenon. So, this study can be a starting point for further analyses. For example, it would be interesting to understand, from a medical and economic point of view, what's hidden behind the increase of beneficiaries and costs of disability benefits, and how to better manage the social burden due to cancer diseases. Therefore, this study provides some useful data to better understand how to reduce these costs and how to use the saved resources elsewhere

Biography

Prof. Mennini, is presently Professor for Health Economics and Economics at University "Tor Vergata" Rome, (Faculty of Economics). He is also Professor for Political Economics at University of Rome "Tor Vergata", Faculty of Science. He received PhD by prior publication degree at Kingston University, London, in 2019. Research Director, Centre for Economic Evaluation and HTA, CEIS - Faculty of Economics, University of Rome Tor Vergata. President Elect, SiHTA (Italian Society of Health Technology Assessment). Prof. Mennini is author of numerous publications, national and international, of Health Economics, HTA and Economic Evaluation. He is Top 10 most published Authors of HPV studies at a global level (source: Web of Science, 2018).

Protein induced by vitamin K absence (PIVKA-II) in the hepatocellular carcinoma (HCC) diagnostics

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Department of Immunochemistry Diagnostics, University Hospital in Pilsen, Czech Republic

Background: Hepatocellular carcinoma (HCC) is the fifth most common cancer worldwide. Its survival rate does not exceed 15 %. The prevalence rates differ based on ethnicity. Higher rates are observed in Asian countries, but its incidence rate has been increasing in the US and Europe during last years. Its mortality is almost equal to its morbidity. Carcinogenesis of HCC is multifactorial and includes a previous infection with Hepatitis B or C viruses (HBV, HCV), aflatoxin B or alcohol consumption resulting in liver cirrhosis. New cancer sometimes develops with no previous link to the above mentioned agents, sometimes non-alcoholic steatohepatitis (NASH) in diabetic patients has been associated with liver cancer.

Aim: The aim of this pilot study was to evaluate the clinical contribution of the new biomarker protein induced by vitamin K absence (PIVKA-II) for HCC diagnostics and compare it with the alpha-fetoprotein (AFP), a tumour marker routinely used in clinical practice.

Methods: A total 332 patients were enrolled into this study. The major cancer group with HCC includes 64 patients. All clinical stages were included, but advanced stages were more frequent. The second group contains 48 patients with liver metastases of colorectal cancer origin. The third group of patients with benign liver diseases includes 42 patients with liver cirrhosis resulting mostly from previous alcohol intake. The control group consists of 178 healthy individuals. Serum samples were collected at the time of the diagnosis prior to any kind of therapy.

Results: PIVKA-II and AFP achieved the highest serum levels in the group of HCC patients and the lowest levels in the control group. The optimal cut-off values at 95% specificity are shown in Table III for both biomarkers. We established individual cut-off values for each assessed group. In general, PIVKA-II achieved much better clinical sensitivity than AFP and the difference in this sensitivity was statistically significant in all comparisons. The PIVKA-II sensitivities varied over the ranges 89.1% - 96.9%. PIVKA-II achieved the best sensitivity (96.9%) when distinguishing between the HCC and control groups with the proposed cut-off values 60 mAU/ml. The AFP sensitivities varied over the ranges 34.3% - 50.0%. AFP achieved the best sensitivity (50.0%) in distinguishing between the HCC group and the group with metastatic colorectal cancer with the proposed cut-off values 6 ng/ml.

Conclusion: Newly tested PIVKA-II achieved better parameters of sensitivity in our pilot study than AFP - a traditionally used HCC tumour marker. We can recommend adding PIVKA-II to the routine panel of HCC tumour markers.

Audience Take Away:

- Hepatocellular carcinoma (HCC) is a serious type of cancer with the survival rate lover than 15 %
- Alpha-fetoprotein (AFP) as a mainly used single tumour marker has limited sensitivity
- PIVKA-II achieves better parameters of sensitivity than AFP and can broaden the spectrum of diagnosed patients with HCC
- PIVKA-II can also improve the differential diagnostics between HCC, liver metastasis and another benign types of liver diseases
- We recommend adding PIVKA-II to the routine panel of HCC tumour markers

Biography

Radek Kucera graduated from Charles University, Faculty of Pharmacy in Hradec Kralove in 1991. He took a Ph.D. degree in 2011 at Charles University, Faculty of Medicine in Pilsen. In January 2017 he finalized and defended his habilitation work and took the degree of associate professor. Nowadays, he works as a vice head of the Department of Immunochemistry Diagnostics and teaches biochemistry at the Faculty of Medicine in Pilsen. He participates in research regarding hormones, growth factors and tumor markers. He is an author of more than 60 articles with more than 190 citations in available literature, H-index 8.

Anti-leukemic potential of novel derivatives of dicarboximides

Urszula Wojda[1*], Iga Stukan[1], Marek Gryzik[1], Mikolaj Zdioruk[1], Mariola Napiórkowska[2], Marcin Cieślak[3], Karolina Królewska-Golińska[3], Barbara Nawrot[3]

[1]Laboratory of Preclinical Testing of Higher Standard, Nencki Institute of Experimental Biology of Polish Academy of Sciences, Warsaw, Poland
[2]Centre of Molecular and Macromolecular Studies, Polish Academy of Sciences, Lodz, Poland
[3]Chair and Department of Biochemistry, Medical University of Warsaw, Warsaw, Poland

Despite recent progress in leukemia pharmacology, particularly in chronic myelogenous leukemia (CML) treated in chronic phase with imatinib, some patients exhibit resistance or intolerance to chemiotherapy. Therefore the search for new therapeutics for leukemias, of improved selectivity towards cancer cells, remains necessary. Recently novel derivatives of dicarboximides were found to be selectively toxic towards CML (K562), acute myelogenous (HL-60) and acute lymphoblastic (MOLT-4) leukemia cells while non-toxic to normal primary human endothelial cells (HUVEC).1,2 The IC50 values for dicarboximides in K562 and HL-60 cells were similar or lower to IC50 of registered drugs, such as cytarabine, sorafenib or irinotecan. Therefore we aimed at preclinical evaluation in cellular and animal models of the antileukemic activity of the new derivatives of dicarboximides and at identification of molecular mechanism of action. Using cleavage assay of caspase 3, 7, 8, 9 and PARP, flow cytometry AnnexinV assay, immunoblotting, and qRT-PCR, we found that dicarboximides 7, 9 and 10 induced apoptosis in K562 and MOLT-4 cells via receptor and mitochondrial pathways. Specifically, compound 9 induced cleavage of caspase 8 and 9, and increased the expression of proapoptotic and cell cycle arrest genes. Compound 9 was further identified as adequate for testing in vivo, including determination of its formulation and way of administration in mice. The pharmacokinetics (PK) of compound 9 was established, followed by identification of its non-toxic concentration range in mice. Finally, efficacy of compound 9 was demonstrated in a mice CML model. Obtained characteristics allow to accept compound 9 as the leading candidate for further development as anti-leukemic agent.

Audience Take Away:

- New dicarboximides with potent antileukemic activity were identified. They showed significant cytotoxicity against leukemia cells and induced apoptosis via receptor and mitochondrial pathways
- Compound 9 was selected as a lead compound and the formulation, way of administration, PK and a toxicology profile in mice model were determined
- Anti-cancer activity of compound 9 was demonstrated in the CML mice model

Biography

Urszula Wojda is a Full Professor of Biological Sciences, Head of the Laboratory of Preclinical Testing of Higher Standard at the Nencki Institute in Warsaw. Her research is focused on molecular mechanisms of neurodegeneration and cancer. She has completed her PhD from the Nencki Institute and conducted research at the Pasteur Institute in France and at the National Institutes of Health, USA (postdoctoral training). She has published more than 45 papers in reputed journals. She serves as Polish expert at the Management Board of the EU Joint Programming for Neurodegenerative Diseases (JPND) and as a member of several international editorial boards.

Association of SPARC and CYP3A5 polymorphisms with peripheral neuropathy induced by nab-paclitaxel in chinese cancer patients

Weimin Cai*[1], Hong Sun[1], Xi Guo[2], Zhijia Tang[1], Peipei Wang[1], Ziteng Wang[1], Zhe Zhang[1], Rongyuan Zhuang[2], Feng Shen[2], Bei Xu[2], Yi Feng[2], Yan Wang[2], Yuhong Zhou[2]

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Objective: Genetic polymorphisms of drug metabolic enzymes, transporters and target receptors may account for the interindividual variability of unpredictable peripheral neuropathy induced by nab-paclitaxel. This study aims to identify the biomarkers for peripheral neuropathy induced by nab-paclitaxel in Chinese cancer patients.

Methods: A total of 92 Chinese Han cancer patients were included in the study. Twelve single nucleotide polymorphisms (SNPs) in SPARC, CYP1B1, CYP2C8, CYP3A5, MAPT and TUBB2A were genotyped using the SNAPshot technique. Peripheral neuropathy induced by nab-paclitaxel during the treatment was evaluated according to the National Cancer Institute-Common Toxicity Criteria (NCI-CTC) version 4.03. The effects of genetic variants on peripheral neuropathy induced by nab-paclitaxel were assessed.

Results: Patients who carried the SPARC rs1059829 or rs1053411 mutant alleles had higher risks for grade ≥2 peripheral neuropathy induced by nab-paclitaxel (rs1059829 A allele: odds ratio [OR] = 2.072, 95% confidence interval [CI] = 1.120–3.833, P = 0.0194; rs1053411 C allele: OR = 1.939, 95% CI = 1.042–3.607, P = 0.0353). We also found a significant association between the CYP3A5 rs776746 mutant allele and a lower risk for grade ≥2 peripheral neuropathy (OR = 0.5013, 95% CI = 0.2623–0.9581, P = 0.0352). However, when we considered the Bonferroni correction, the associations between these three SNPs and grade ≥2 peripheral neuropathy were not significant. No association between other genotypes and grade ≥2 peripheral neuropathy was found in this study (P > 0.05).

Conclusions: Several polymorphisms from genes encoding metabolic enzymes and transporters of nab-paclitaxel may be involved in peripheral neuropathy in Chinese cancer patients.

Audience Take Away:

- Genetic polymorphisms of drug metabolic enzymes, transporters and target receptors may account for the interindividual variability of unpredictable peripheral neuropathy induced by nab-paclitaxel
- This study aims to identify the biomarkers for peripheral neuropathy induced by nab-paclitaxel in Chinese cancer patients
- Several polymorphisms from genes encoding metabolic enzymes and transporters of nab-paclitaxel may be involved in peripheral neuropathy in Chinese cancer patients

Biography

Dr. Weimin Cai received his doctoral degree in pharmacology in 2000 from Nanjing Medical University During 1992~1994, Dr. Cai went to United States to study clinical pharmacy under the scholarship of WHO. Postdoctoral training in pharmacogenomics was completed at the University of Kentucky, College of Pharmacy, USA in 2001. Dr. Cai is currently chair and professor of Department of Clinical Pharmacy, School of Pharmacy of Fuan University. His research interests include clinical pharmacy and pharmacogenetics. He published more than 170 research papers in well-known journals, including more than 70 articles cited by SCI. He has held many elective offices in professional societies and is also the vice editor-in-chief of China Pharmacist.

Utilizing nano-cubosomes in cancer treatment

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[2]Department of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, Cairo University, Egypt
[3]Department of Biochemistry, National Cancer Institute, Cairo University, Egypt

Despite the variant incidence of CRC, among different countries it remains the third most common type of cancer and leading cause of cancer deaths worldwide. Cisplatin, the most common chemotherapy drug used in solid tumor treatment, is used in combination with other drugs to produce synergistic effects in eradicating cancer cells, while keeping its side effects to a minimal. Nano-cubosomes, thanks to the advantages of their liquid crystalline porous nano-architecture and capability for multi-drug encapsulation, appear to be of interest as nanocarriers for anti-cancer therapies. Hence, delivering cisplatin, as nano-cubosomes, concomitantly with other chemo-dugs can lead to a rationally designed therapy for chemo-resistant cancers and might overcome problems associated with conventional cisplatin treatment. The aim of the present study was to construct nano-cubosomes bearing cisplatin, metformin and cisplatin-metformin combination and investigate their effect on proliferation in Caco-2 and HCT-116 cell lines, as well as, tumorigenesis-associated metabolic markers in HCT-116 CRC cell lines. Results from this study revealed that nano-cubosomal formulations exhibited superior cytotoxic effect compared to unformulated cisplatin. This cytotoxic effect was profound upon incorporation of metformin, an mTOR inhibitor, in cisplatin nano-cubosomes. The induced CRC cell apoptosis was through inhibition of several metabolic pathways, namely, AMPK/mTOR and Akt/mTOR. Drug-loaded nano-cubosomes ensued depletion in glucose and energy levels that led to AMPK activation and thus mTOR inhibition. mTOR was additionally inhibited via suppression of p-Akt levels after nano-cubosomal treatment. Moreover, drug-loaded nano-cubosomes produced a notable escalation in ROS levels, evident as an increase in NADPH oxidase, inhibition of LDH and a consequential upsurge in caspase-3. These results demonstrated the influence exerted by low concentrations of cisplatin-loaded nano-cubosomes on CRC cell survival and enhancement of their cytotoxicity upon metformin addition.

Audience Take Away:

- How nano-cubosomes could be used in chemotherapy delivery and the implicated intracellular pathways in cancer cells
- The use of nano-particles will improve the use of chemotherapy and assist in drug delivery
- Nano-cubosomes also improve the efficacy of the drugs

Biography

I completed my PhD from Cairo University in 2018. I am currently a lecturer in the Pharmacology and Toxicology department, a premier research organization. I published 2 articles related to colorectal cancer in the BMC Cancer journal. I spent 6 months in the institute of molecular medicine in Heinrich Heine University, Düsseldorf, Germany. This was a German Egyptian Research Short term scholarship funded by the DAAD (Deutscher Akademischer Austauchdienst). I have attended several international and national conferences including but not limited to; European cancer congress (ESMO 2015), 12th and 13th congress of EACPT, 2016 and 2017 conference of BGICC.

Immunotherapy of solid tumor with the third generation of TCR-T TAEST16001

Yi Li[1,2,3,4]

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[4]Axis Therapeutics Ltd., Hong Kong SAR

T-cell triggering thresholds can be edited by engineered TCR with enhanced affinity. TAEST (TCR affinity enhanced specific T-cells) for NY-ESO-1 was generated, and the TCR had 29 X higher affinity to its antigen vs wild type T-cells and with good (80-90%+) expression. There was good in vitro (CTL/ELISPOT) and in vivo efficacy with strong evidence of tumor specific TAEST infiltration. TAEST, with its enhanced TCR affinity, is safe and showed encouraging efficacy (4/7 showed response and 3/7 SD) and safety profile in a Phase I study. Lymphodepletion pretreatment appeared to be critical for efficacy/cytokine response/persistence of TAEST cells.

Biography

Yi Li Ph.D., Principal Investigator at GIBH (Guangzhou Institutes of Biomedicine and Health, Chinese Academy of Sciences), CSO at XLifeSc (Guangdong Xiangxue Life Sciences, Ltd.). Dr. Li gained his PhD in Antibody Engineering at the University of Leicester, UK in 1996. After a one-year post-doctor training in 1997, he had been a research scientist, department head and director for several companies, including Immunocore/Medigen/Avidex, Biovation/Meck KgA and ADAS UK. In 2011, he has joined GIBH, and State Key Laboratory of Respiratory Disease, and has been currently holding positions of Principal Investigator.

A preliminary examination for mechanisms of action and the genes involved in the actions of AKBA in ovarian cancer cell lines

Kamla Khalfan Said Al Salmani*[1], Esther Moss[1], Don Jones[1], Raj Patel[2], Ikram Burney[4], Ahmed Al-Harassi[5], Mark D. Evans[1,3]

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[4]Department of Medicine, Sultan Qaboos University Hospital, Oman
[5]University of Nizwa, Oman

High grade Epithelial Ovarian Cancer (HG-EOC) is the most common type of ovarian cancer. The vast majority of patient present with advanced stage disease. Despite the recent advances in the management, almost all patients develop resistance to cytotoxic chemotherapy and the median survival remains dismal. There is an unmet need to identify novel agents for the treatment, especially for chemo-resistant disease. This study examined the biologically active component of Frankincense, 3-O-acetyl-11-keto-β-boswellic acid (AKBA), its mechanisms of action and the genes involved in the actions of AKBA with the HG - EOC.

OVCAR4 cell line was exposed to different concentrations of AKBA. Microarray and qPCR were used to study the specific apoptotic proteins expressions. After the analysis of each of these genes functions, using the gene card website, 50μM AKBA was found to induce significant ($P<0.001$) gene expression in different pathways. Genes controlling 9 different pathways, including apoptosis, cell cycle, DNA damage and repair, DNA synthesis, metabolism, response to stress, intracellular signalling, transport and cell adhesion and metastasis were either up- or down-regulated, and majority of these pathways are known to be directly or indirectly linked to apoptosis pathways.

AKBA is cytotoxic to ovarian cancer cells, at pharmacologically achievable concentrations. It induces multiple gene expression in different biological pathways in ovarian cancer cells. AKBA may form the basis of a novel anticancer treatment for ovarian cancer perhaps alongside conventional chemotherapy.

Acknowledgments:

It is my pleasure to thank Sultanate of Oman Government for their sponsorship of this project work, Sultan Qaboos University and Nizwa University for their collaboration in the project.

Audience Take Away:

- The consideration of herbal medicine in the research considering the treatment of cancer
- How can personal experience have a strong impact in researcher work
- The importance of recording and registering all each individual experience with the traditional medicine (Asia, china, India)

Biography

Dr Kamla Khalfan Al Salmani, MSc, PhD holder in Cancer Studies and Molecular Medicine from University of Leicester, UK. She works as Head of cytogenetic Lab in the National Genetic Centre, at the Royal Hospital, Ministry of Health. Twenty years of working experience in the diagnosis of Haematological cancer (Leukaemia's, Lymphomas, multiple myelomas ect).

Here PhD was in the study of Frankincense effect in the treatment of Ovarian Cancer and it is possibility to overcome resistant. Here project was a collaboration project between university of Leicester, SQU and university of Nizwa.

Here PhD work has been awarded by:

• First Prize in 9th Festival of Postgraduate Research. Poster presentation, Leicester University, 27th June 2013.

• Great achievement during the PhD by Sultanate of Oman Embassy and the cultural attach of London on 20th February 2016. London UK.

• Best Poster Presenter at (The First international conference in Frankincense and medicinal plants) at SQU 30Oct -1 Nov 2018.

Show me where cancer care is. Improving access to cancer services through trained patient navigators

Kenyangi Sofia Safina
African Cancer Control Alliance, Uganda

Introduction: A cancer diagnosis often produces an overwhelming emotional response, including feelings of shock, denial, fear, anxiety, anger, grief, and depression. Because a multitude of medical tests and consultations typically are needed to determine a definitive diagnosis and course of treatment, a cancer patient's path through the healthcare system can be complicated and confusing. Even worse, some patients may not fully comprehend the importance of prompt evaluation and treatment of their disease. To address these challenges, more and more cancer programs are looking to assist patients through this process. Patient navigation has emerged as an innovative, community-based approach to reducing cancer care access barriers along each step of the cancer care continuum; screening, diagnosis, treatment, and outcomes. There is urgent need to introduce patient navigation training programs in Uganda to equip navigators with skills to help them effectively navigate patients across the care continuum. Trained nurses, social workers, nutritionists, financial counselors, and other professionals can provide a depth of expertise in a cost-effective manner and improve treatment outcomes for cancer patients. A coordinated team will be formed composed of administrators to champion the program; supervisors to provide clinical and administrative support; and navigators to guide cancer patients through the cancer care continuum.

Specific Objectives:

- To improve basic cancer patient navigation skills
- To build a coordinated team of cancer patient navigators composed of representatives of cancer hostels, expert cancer patients, Uganda Cancer Institute (UCI) Social workers, clinical and research teams
- To develop cancer patients' navigation action plans at Uganda Cancer Institute
- To minimize barriers to care experienced by individual patients

Methods: The training will use a modified Harold P. Freeman Model (1990) and Patient Navigator Training Collaborative Model's materials for Level 1 patient navigators to train nurses, social workers, nutritionists, financial counselors, and other professionals. Content will be delivered through plenary presentations including navigation best practices and small group work.

Expected Training Outcomes: Thirty three navigators equipped with cancer patient navigation skills; patient navigation committee established; Patient Navigation Action Plans in place; improved access to services across the cancer care continuum.

Follow-up Actions:

- Holding of monthly patient navigators' meetings
- Implementing patient navigation action plans
- Compiling and submission of monthly patient navigation reports

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DAY 2

POSTERS

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Anti-inflammatory and antiproliferative properties of pequi oil in the gerbil ventral prostate

Kallyne Kioko Oliveira Mimura*[1], Elisangela Paes Cardoso[1,2], Khauara Lima Santos[1,2], Sergio Marcelino de Oliveira[1]
[1]Laboratory of Histophysiology and Animal Reproduction - LaHRA, Federal University of Mato Grosso - CUA/UFMT, Pontal do Araguaia, MT, Brazil.
[2]Araguaia Valley University Center - UNIVAR, Barra do Garças, MT, Brazil

The prostate is a gland commonly affected by proliferative and inflammatory lesions. As pequi (Caryocar brasilense) has shown therapeutic potential, this project aims to analyse the antiproliferative and anti-inflammatory actions of pequi oil in the ventral prostate of gerbil under the influence of testosterone. For this, the animals were divided into the following groups: T (subcutaneous administration of testosterone cypionate); P (pequi oil gavage); T+P (pequi oil and testosterone cypionate); Control (intact animals); CT (T group sham); and CP (group P sham). After animal death, total circulating blood leukocytes were quantified, showing a significant increase in group T compared to control, and a decrease in group T+P compared to group T, but not significant. The total leukocytes quantification in P, CT and CP groups were similar to the control group. The amount of neutrophils was significantly reduced after treatment with pequi oil (group T+P) compared to group T. Subsequently, the prostates were embedded in paraffin for histopathological evaluation. Morphometric analysis showed a slight increase in ventral prostate epithelial height in animals receiving testosterone when compared to controls. However, the animals in the groups that received pequi oil (T+P and P) showed a significant reduction in epithelial height in relation to group T. The evaluation of epithelial cell proliferative activity through Immunohistochemistry for labeling of positive PCNA cells showed that stimulation with testosterone (group T) promoted a significant increase in proliferating cells compared to the control group, and that pequi oil treatment (group T+P) was able to significantly reduce the amount of these cells when compared to group T. Our results show an effective therapeutic effect (anti-inflammatory and anti-proliferative) of pequi oil, which is promising, as investigations are being conducted with in view of the development of strategies to reduce the incidence and mortality caused by prostatic injuries with pequi. In addition, these data highlight the importance of preserving Cerrado species, since pequi is a typical plant in this biome and may contribute to raising awareness among government authorities and the general population of the importance of preserving the environment.

Audience Take Away:

- This study indicate that pequi oil has potential to assist in prostate cancer prevention
- Pequi oil has anti-inflammatory properties
- Use of pequi oil may help reduce the incidence and mortality caused by prostatic injuries with the use of pequi
- Study of the medicinal properties of pequi may provide new information to support its rational and safe use by society, which may also contribute to the sustainable development of Brazilian Savanna by adding value to a product of local biodiversity

Biography

Dr. Mimura is a biologist, with Masters and PhD in Structural and Functional Biology from the Federal University of São Paulo (UNIFESP), in São Paulo, Brazil. She developed part of her PhD at Northwick Park Institute for Medical Research (NPIMR), in London, UK. She then joined the research group of Prof. Sergio Marcelino de Oliveira at the Laboratory of Histophysiology and Animal Reproduction - LaHRA, where she obtained the position of an Associate Research at the Federal University of Mato Grosso - CUA/UFMT developing research using substances from the Brazilian Cerrado in the prevention of prostate cancer.

Effects of a psychoeducational intervention in patients with colorectal cancer undergoing chemotherapy

Wen Li Lin*, Shu Chan Chang , Wen Tsung Huang, Chao Jung Tsao
Cancer Center, Chi Mei Medical Center, Liouying, Taiwan, Province of China

Background: Colorectal cancer is the cancer with the highest prevalence in Taiwan. Care coordination has received increased attention because it critically affects patient safety and care quality across services.

Objectives: This paper is a report of a study conducted to examine the effects of a the psychoeducational intervention (PEI) on anxiety, depression, and self-efficacy in patients with colorectal cancer undergoing chemotherapy.

Methods: After baseline screening, patients with colorectal cancer who agreed to participate (n = 100) were randomized to either experimental or control group. The experimental group participated in a PEI. The PEI was constructed with two separate parts: educational information and materials relating to depression, anxiety, EORTC QLQ-C30, and self-efficacy. The intervention group participated in the PEI for at least 1 hour per section for 6 sections, in addition to using an educational manual designed and presented by the researchers. Participants in the control group were exposed only to the traditional pamphlet education approach in OPD. Data were collected just before the chemotherapy (T1), the 3rd (T2) and 5th weeks of chemotherapy (T3), and 2 weeks after the final session of chemotherapy (T4). The study was carried out from 2015 to 2016.

Results: Values for anxiety, depression, and quality of life two weeks (T4) after chemotherapy treatment ended showed significant differences for colorectal cancer patients who received PEI. Significant differences in self-efficacy were shown between the two groups after the fifth chemotherapy treatment (T3). The effects of anxiety, depression, and quality of life remained significant when group and time interactions were included in the model, showing a positive relationship between PEI and the variables of anxiety, depression, and quality of life.

Conclusion: Face-to-face PEI can be used effectively for colorectal cancer patients before chemotherapy in clinical oncology settings to reduce the degree of emotional disturbance and accelerate adaptation. PEI significantly improved disease care techniques, reduced chemotherapy-related discomfort, and improved quality of life for participants in the experimental group

Biography

Wen-Li, Lin is a registered nurse and also a oncology case manager of Chi Mei Hospital, Taiwan. Her specialty is advanced nursing practice with a focus in delivering health promotion, training and awareness education for patients with cancer. During her nursing career she has several years of nursing experience in oncology nursing. She obtained a Master in nursing from Fooyin University.

A novel combinational therapeutics to overcome chemoresistance in head and neck cancer

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Head and neck cancers (HNCs) are aggressive and cause sixth cancer-associated mortality in the world. The treatment options including surgery, radiation therapy, and chemotherapy are complex and often recommended in various combined modalities. Current chemotherapies like cisplatin and cetuximab to treat locally advanced HNCs, although firmly established, present a number of unresolved issues. Emerging evidence supports that aberrant regulation of cell cycle results in uncontrolled cell proliferation, making them attractive therapeutic targets in various cancer treatments. In addition, abundant underlying molecular mechanisms have been suggested for differences in treatment response, but the impact of MAPK signaling, a key driver of carcinogenesis in various cancers including HNCs and a major player mediating therapy resistance remains elusive. Therefore, to facilitate the use of chemotherapy as a therapeutic strategy in HNCs, we have developed a combination therapy that target on both cell cycle checkpoint and MAPK pathways. Two potential chemotherapeutic agents including palbociclib as a cell cycle check point inhibitor and Trametinib as a MAPK pathway inhibitor were selected, and investigated for anti-cancer effects in HNCs. The results indicate that the combination of palbociclib and trametinib significantly inhibited proliferation in 2D and 3D culture, induced G0/G1 arrest, senescence and apoptosis in vitro and in vivo. Moreover, the cell cycle and MAPK pathway were also significantly decreased in combination treatment, suggesting potential anti-cancer activities in HNCs. Collectively, co-targeting both the cell cycle check point and MAPK is a novel and attractive strategy for treating HNCs.

Audience Take Away:

- It will be a novel chemotherapeutic strategy in treatment of HNCs
- Overcome current clinical limitations for treating advanced HNCs
- This research concept will provide an impetus to target cell cycle and MAPK pathway as a therapeutic strategy
- Provide a new commercial breakthrough to pharmaceutical industry

Biography

PhD. Fang studied drug development at the Inha University, South Korea and got PhD in 2017. And he joined the research group of Prof. Hong at the department of new drug development, Inha University. Recently, we are focusing on developing novel therapeutic strategies including tumor microenvironment and precision medicine, phytochemical agents, receptor tyrosine kinase (RTK) inhibitors, and antibody for treating various malignancies.

Effects of nurse navigators on health outcomes of lymphoma Patients

Pei-Hua Wu*, Shu-Chan Chang, Wen-Tsung Huang, Chao-Jung Taso
Chi Mei Medical Center, Liouying, Taiwan, Province of China

Background: Lymphoma has the highest prevalence among all cancer types in Taiwan. Care coordination has received increased attention because it critically affects patient safety and care quality across services.

Objectives: This study examines and evaluates the effect that adopting a nurse navigator interventions for newly diagnosed lymphoma patients.

Methods: In this retrospective study , 212 lymphoma patients were recruited between January 2009 and December 2013. The experimental group comprised 115 patients who had received nurse navigator interventions. The nurse navigator coordinated the recruitment, liaison, care plan implementation, conducted disease education, telephone consultations, follow-ups, and evaluations. The control group comprised 97 lymphoma patients. The patients in the control group had similar characteristics to those in the experimental group, and received routine care.

Results: Adopting a nurse navigator interventions in lymphoma care increased patient follow-up appointment compliance rates at 3 months (p =0.007). The model also effectively reduced the patients' 14-day readmission rate (p =0.05). Furthermore, these improvements were statistically significant. The results also indicated that the survival rate for patients receiving care from lymphoma. A nurse navigator interventions was superior to that of the control group receiving traditional care.

Conclusion: Adopting a anurse navigator interventions in lymphoma care effectively enhanced clinical treatment adherence, increased survival rates, and reduced the 14-day readmission rate. This study provides evidence that standardized nurse navigator programs can improve patient outcomes in cancer care.

Biography

Pei-Hua Wu is a registered nurse and also a oncology case manager of Chi Mei Hospital, Taiwan. Her specialty is advanced nursing practice with a focus in delivering health promotion, training and awareness education for patients with cancer. During her nursing career she has several years of nursing experience in oncology nursing. She obtained a Master in Management from I-Shou University.

Assessing awareness of colorectal cancer symptoms and risk factors and its predictors among screening-eligible population in qatar, 2019

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Background: Colorectal cancer is the third most common cancer among men and the second among women worldwide. However, the public awareness regarding colorectal cancer is generally low.

Objective: The current study aimed to assess the awareness regarding colorectal cancer risk factors, symptoms, and its predictors among colorectal cancer screening-eligible population.

Design: A cross-sectional study design was employed.

Setting: Across six primary health centers in Qatar

Participants: Individuals (n=448), aged 50-74 years, attending at the main waiting areas of the selected health centers and are either Arabic or English speakers.

Data collection and analysis: Participants were interviewed using a modified version of the Cancer Awareness Measures (CAM) tool - Cancer Research UK. A non-probability sampling technique was applied to recruit participants. Data was analyzed using the SPSS version 22. Descriptive and analytic statistics were applied when appropriate. Multivariate linear regression was applied.

Results: A total of 448 clients have participated in the study (response rate 87%). The mean age of the participants was 58.48 years (SD=6.37 years). The participants' mean awareness score (%) regarding colorectal cancer symptoms, risk factors, and overall were 40.3%, 49.3%, and 45.2% respectively. A multivariate linear regression analysis identified that being a female, a non-Qatari Arab, and having a formal education were independent predictors of higher bowel cancer awareness.

Conclusion: In conclusion, the present study has shown a low awareness regarding the symptoms and risk factors of colorectal cancer as well as the related national screening program in Qatar. Such results underline the importance of tailoring future educational campaigns that are relevant, specific, and appealing to such cohort, especially the nationals.

Audience Take Away:

- It is expected that the audience will be better aware about the importance of detecting health inequity in the awareness about symptoms and risk factors of colorectal cancer, especially in heterogenous population, which is very necessary in colorectal cancer prevention and early detection
- It is expected that the audience will have better recognition of the significance of counselling public and patients about risk reduction of colorectal cancer as the study has showed a low awareness, similarly to previous studies conducted in UK and other countries
- It is expected that the audience will be better aware about Cancer Awareness Measures (CAM) tool - Cancer Research UK which is validated and could be utilized among different populations to provide comparable results

Biography

Dr. Mohamed Bala studied medicine at the university of Khartoum, Sudan and graduated as MBBS in 2012. He then joined the community and preventive medicine residency program at Hamad Medical Corporation, Qatar. Currently, he is a senior resident in community medicine and MSc student in epidemiology master program in London School of Hygiene and Tropical Medicine, UK. He has published many research articles in academic journals.

Epigenetic mechanisms linking obesity to colorectal cancer

Noha Hussein Sayed*[1], Tarek K. Motawi[1], Manal F. Ismail[1], Olfat G. Shaker[2]
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[2]Medical Biochemistry and Molecular Biology Department, Faculty of Medicine, Cairo University, Cairo, Egypt.

Colorectal cancer (CRC) is the third leading cause of cancer-related mortality. The aetiology of CRC is complex and involves the interaction of genetic and environmental factors. Recently, obesity has emerged as a major environmental risk factor for CRC. However, the mechanisms underlying this relationship have not yet been fully explained. Peroxisome proliferator-activated receptor gamma (PPARγ) has a well-established central role in differentiation and function of mature adipocytes. It plays a pivotal role in adipogenesis, inflammatory response and differentiation. Furthermore, PPARγ exerts antineoplastic effects. Its activation induces apoptosis and reduces tumour development by halting cancer cell proliferation. Various changes in the activity and expression of PPARγ have been reported in obesity. Epigenetic mechanisms such as DNA methylation, and microRNAs (miRNAs) might be involved in the deregulated expression of PPARγ. In an attempt to unravel one of the mechanisms responsible for the pathogenesis of obesity and its role in CRC susceptibility, the differential expression of miRNAs 27b, 130b and 138 in case of health, obesity and CRC were analysed, the role of the deregulation of the aforementioned miRNAs in obesity and CRC on PPARγ expression were investigated, and the methylation pattern of PPARγ gene promoter and how it affected PPARγ production in obesity and CRC was studied. 70 CRC patients (34 obese and 36 lean), 22 obese and 24 lean healthy controls were included in the study. MiRNA levels were measured in serum. PPARγ promoter methylation was evaluated in blood. PPARγ level was evaluated by measuring mRNA level in blood and protein level in serum. The three tested miRNAs were significantly upregulated in obese and CRC patients. Obese and CRC patients had significantly low gene expression and protein levels of PPARγ. A significant negative correlation was found between PPARγ levels and the studied microRNAs. There was a significant PPARγ promoter hypermethylation in CRC patients that correlated to low PPARγ levels. No significant association was found between obesity and PPARγ promoter hypermethylation. In conclusion, the study results suggest that upregulation of microRNAs 27b, 130b and 138, as well as, promoter hypermethylation are responsible for suppressed PPARγ production in CRC patients. In addition, the study introduces obesity as the risk factor that triggers this miRNA overexpression.

Audience Take Away:

- The audience will be able to understand some of the molecular mechanisms responsible for the pathogenesis of obesity and their role in CRC susceptibility
- The audience will learn about some epigenetic mechanisms, namely DNA methylation and miRNAs, and how they affect gene expression
- The integration of the present and yet to come evidence on the correlation between obesity and CRC-associated epigenetic disturbances will benefit future health strategies, and will expand knowledge about CRC etiology, risk prediction and prevention

Biography

Noha Hussein Sayed, Lecturer of Biochemistry, Faculty of Pharmacy, Cairo University. Egyptian, date of birth 5/3/1976. Ph.D. in Pharmaceutical Sciences, 2018; M.Sc. in Pharmaceutical Sciences, 2014; B.Sc. in Pharmaceutical Sciences, Faculty of Pharmacy, Cairo University, 1998.

The work to be presented has been published in "Scientific Reports" in 2017, under the title of "Peroxisome Proliferator-Activated Receptor Gamma in Obesity and Colorectal Cancer: The Role of Epigenetics".

Characterization of ferrocene-ruthenium conjugates as new anticancer drug candidates

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[1]RECAMO, Masaryk Memorial Cancer Institute, Brno, Czech Republic
[2]J. Heyrovský Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic

The success of cisplatin (cis-[PtCl2(NH3)2]) in cancer therapy started an unflagging interest in development of new drugs based on transition metal complexes. Among other metals, iron and ruthenium complexes play a prominent role. In our previous work we prepared a series of ferrocene derivatives bearing either substituted or unsubstituted saturated five- and sixmembered nitrogen-containing heterocycles.

The most promising ferrocene derivatives showed cytotoxicity against ovarian cancer cell lines in submicromolar concentrations. For their determination, we have developed a novel electrochemical method based on differential pulse voltammetry capable to detect ferrocene derivatives in low μM range in cancer cells.

The method is rapid, simple and requires only inexpensive instrumentation. Recently, we have prepared carbohydrate-ruthenium conjugates showing low cytotoxicity, but clear antimigratory and antiinvasive activity representing an important prerequisite point for their further evaluation as potential antimetastatic agents (submitted to Applied Organomet. Chem.).

In present work we tried to combine cytotoxic activity exerted by ferrocenes along with migrastatic effects, which showed ruthenium complexes. Thus, ferrocene-ruthenium cyclopentadienyl conjugates were synthesized and tested as a new class of potential anticancer drugs. Interestingly, these compounds retained both their cytotoxic and migrastatic activity. Moreover, due to the fact that these conjugates contain redox-active ferrocene, we were able to determine their cellular uptake by differential pulse voltammetry.

In conclusion, 1-benzyl and 1,1´-dibenzylferrocenes could be easily coordinated with Cp*Ru+ fragment to form hetero di- and trinuclear complexes. These compounds due to their cytotoxic and migrastatic properties represent a promising prerequisite for the development of new anticancer drugs.

Audience Take Away:

- Overview of transition metal complexes and their application in current cancer research
- Preparation of ferrocene-ruthenium conjugates
- Determination of intracellular accumulation of redox-active compounds by electrochemistry
- Determination of cytotoxic and migrastatic properties of tested compounds
- Elucidation of the mechanism of action of selected conjugates

Biography

Dr. Hrstka studied Molecular biology and genetics at the Masaryk University, Brno, Czech Republic and graduated as MS in 1998. He then continued in the research group of Prof. Doskar at the same institution and received his PhD degree in 2005. Since 2002 until now he joined the research group of Dr. Vojtesek at the Masaryk Memorial Cancer Institute, Brno, Czech Republic. He has published more than 80 research articles in SCI(E) journals.

Necroptosis is a programmed death pathway involving in functional and silent pituitary adenoma tumorgenesis

Dr.Alireza Sheikhi
Biochem Lab Company, Armenia

Background: Pituitary adenomas imposes burden of morbidity due to hormone hyper secretion and related effects on patients. Molecular mechanism underlying its incidence, development and progression have yet to be elucidated which can provide insights into new and more efficient therapeutic approaches. The involvement of necroptosis as an appealing way of cell death in pathogenesis of pituitary adenomas is perused in the current study.

Methods: The expression level of necroptosis crucial mediators (RIP1K, RIP3K, and MLKL) was assessed via Real-Time PCR in tumor tissues of prevalent functional and nonfunctional pituitary adenoma and normal Pituitary tissues. The effect of Shikonin on the cell viability and induction of apoptosis or necrosis in the presence and absence of necroptosis inhibitor (Necrostatin-1) were evaluated in pituitary adenoma cell line (GH3).

Results: Our results revealed that RIP1K expression level was increased in tumor tissues of different types of pituitary adenomas which was associated with significant decrease in the expression level of RIP3K and MLKL in tumor tissues comparing to normal pituitary. Shikonin reduced the percentage of GH3 viable cells in a dose dependent manner which was associated with the induction of apoptosis and necrosis. The Shikonin-induced cell death was diminished in response to suppression of necroptosis.

Conclusion: Necroptosis pathway is involved in the regulation of pituitary tumor cell proliferation. Suppression of necroptosis resulted in an accelerated cell proliferation which can cause pituitary tumor formation. Therefore, necroptosis biomarkers can be perused as hallmark mediators and the necroptosis pathway activation can be targeted as a therapeutic solution in management of pituitary tumors.

Keywords: Pituitary adenoma, Necroptosis, Shikoni

Biography

My basic education is clinical laboratory science and I finished my master and PhD in cancer biology and biochemistry field. Also designing new generation of antibody based anti-cancer drugs is my main field.

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DAY 3

KEYNOTE FORUM

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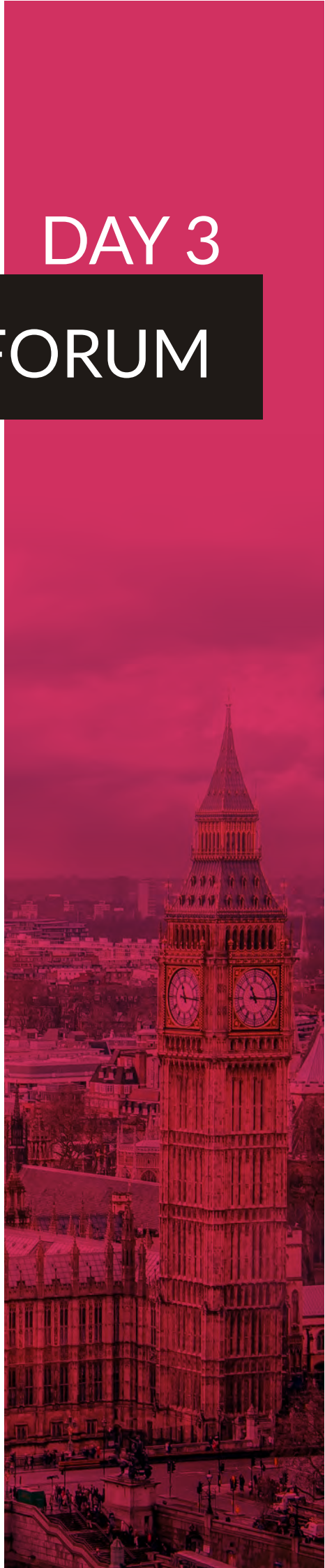

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Biography

Rossana Berardi, MD, Director of Department of Medical Oncology, Director of the Postgraduate School of Oncology, Head of "Genetic Cancer" Laboratory, Deputy Director of Department of Clinical and Molecular Science and coordinator of the Hospital Breast Unit at Università Politecnica of Marche Region – Ospedali Riuniti of Ancona, Italy. She is author of more than 200 manuscripts in peer-reviewed journals and of more than 100 abstracts, speaker at national and international meetings and involved in advisory boards expecially chest tumours, neuroendocrine tumours, SIADH and on clinical and translational research.

Dept of medical oncology in ancona: A new model of integrated care pathways for a multidisciplinary management for cancer patients

Prof. Rossana Berardi

Rossana Berardi, Universita Politecnica delle Marche, Italy

In recent years, thanks to scientific research, the therapeutic options for cancer patients have significantly increased with a significant improvement in prognosis. In addition, the outcome of cancer patients improves if they are treated in centers of reference with high volumes of users and that offer access to clinical trials. Several scientific evidences have shown that the correct management of the cancer patient requires an integrated multidisciplinary approach, which allows improving and speeding up the diagnostic-therapeutic approach. The Dept of Medical Oncology of Ancona is the reference regional cancer center for the entire region and neighboring territories. In order to improve the management of cancer patients, it offers innovative and various integrated care pathways (ICP) involving numerous specialists for a multidisciplinary management of diagnostic and therapeutic iter of cancer patients (among the others, the Breast cancer unit, involving breast cancer surgeons, radiotherapists, radiologists, physiotherapists and oncologists). Ospedali Riuniti of Ancona is the first and only in Italy to have achieved a certification for cancer ICPs, which are enriched with the genetic cancer center and with the GCP trials center, conducting numerous clinical trials including early stage trials (phase I) and offering patients numerous innovative therapies, that are both belong to Dept of Medical Oncology. Furthermore, along with the best and innovative oncologic therapies, the Dept focuses on psychological and social aspect of cancer patients, offering a range of social activities to support cancer patients and caregivers.

This innovative approach is the winning key to ameliorate the management of cancer patients and improving their prognosis and the description of this new model will be the object of the presentation.

Biography

Dr. Jozef Sabol is considered a highly knowledgeable and experienced expert in radiation protection applied to various medical modalities where ionizing radiation sources are used for both diagnostic and therapeutic purposes. He is the author of more than 200 scientific papers as well as more than 5 monographs on radiation protection applied to medical fields (e.g., Introduction to Radiation Protection Dosimetry, Singapore; Radiation Protection in Radiotherapy, Prague etc.). He spent 8 years working at the IAEA in Vienna where he specialized in the implementation of the Agency's safety standards in its Member States.

Assessment of the radiation risk to workers and patients

Dr. Jozef Sabol, Ph.D., DSc., Prof. (Assoc)

Dept. of Crisis Management PACR, Czech Republic

Purpose: The present system of radiation protection quantities, based on recent recommendations and reports presented by ICRP and ICRU, is rather complicated and thus not easily implementable in practice strictly in accordance with their definitions. The paper discusses some difficulties in the use of specific quantities for assessing personal exposure with specific emphasis on their use in nuclear medicine and a suggestion as to how the situation may be solved.

Methods: All relevant ICRP and ICRU recommendations related to the definitions of basic radiation protection quantities which have been introduced for setting dose limits, dose constraints and reference levels are critically reviewed and scrutinized. Special attention is paid to some inconsistencies between these quantities and operational or other measurable quantities. There is also a reference made to the latest draft of the ICRP/ICRU report on new operational quantities for external radiation exposure.

Results: Careful analyses of the present system of radiation protection quantities have shown that there is a need to reconsider the current approach based on the frequent modification of such quantities which may negatively affect the implementation of radiation protection requirements in practice. This is especially important in maintaining compliance with specific protection standards based on radiation monitoring.

Conclusions: The present system of the quantification of radiation exposure in nuclear medicine is too sophisticated to be easily applied by radiation workers, who can rely only on the available routine dosimeters or monitors, the response of which cannot be easily interpreted in terms of the current quantities. The present trend in refining the radiation protection system should be continued but should be limited to universities and research institutes. For routine monitoring a simpler system should be developed which can be better understood by radiation personnel and could be more readily implemented in practice, including in nuclear medicine, where there are problems with reliable assessment, especially with skin and eye lens exposure.

Audience Take Away:

- The paper will summarize the latest development and requirements regarding radiation protection related to the use of ionizing radiation and radionuclides in medicine with special emphasis on radiation oncology
- The audience can learn what is the current approach in using radiation sources to meet some new regulatory requirements based on international standards and recommendation of International Commission on Radiological Protection, International Atomic Energy Agency and World Health Organization
- The participants will acquire some useful information in order to improve the radiation protection of workers, patients and the public in line with the current philosophy of protection against harmful effects of ionizing radiation and minimize the undesirable radiation exposure

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DAY 3

SPEAKERS

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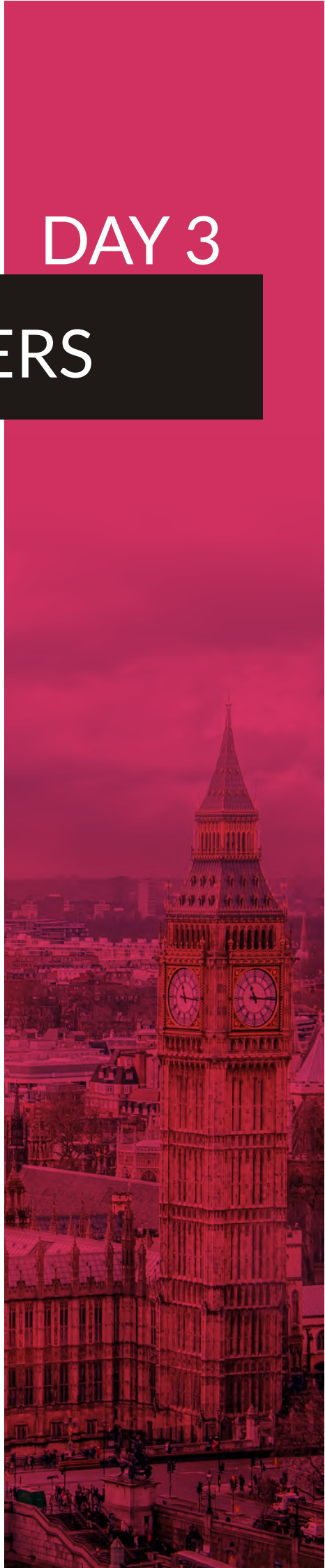

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Use of microRNAs as biomarkers in cancer patients

Jens C. Hahne*, Ph.D.[1], Andrea Lampis, Ph.D.[1], Michele Ghidini, MD.[2], Margherita Ratti, MD.[2], Rodolfo Passalacqua, MD.[2], Luciano Cascione, Ph.D.[3], Chiara Braconi, MD., Ph.D.[4,5], Owen Sansom, Ph.D.[6], Matteo Fassan, MD., Ph.D.[7] and Nicola Valeri, MD., Ph.D.[1,5]

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MicroRNAs are pivotal regulators for RNA silencing and post-transcriptional regulation of gene expression under physiological as well as pathological conditions. MicroRNAs can be detected in tissues and in most biologic fluids including serum, plasma and urines. Secreted microRNAs are either incorporated into micro-vesicles or circulate bound to proteins. In both cases microRNAs are protected from RNase degradation so that they may remain intact for long periods of time. Therefore they might represent potential new biomarkers.

We analysed expression of 800 miRNA's using nCounter Nanostring technology in 3-D cell culture models (organoids), formalin fixed paraffin embedded tissues as well as plasma and urine from cancer patients. Potential clinical applications of microRNA detection for cancer patients' management will be discussed.

Audience Take Away:

- The audience will receive a short introduction about microRNAs and the important role of microRNAs in regard to post-transcriptional regulation of gene expression
- The audience will receive an impression how organoid cell cultures can be used as model for clinical relevant questions
- Potential clinical applications of microRNA detection for cancer patients' management will be discussed

Biography

After studying general chemistry and biochemistry at the Albert-Ludwigs-University Freiburg i.Br. (Germany) I got the PhD in biochemistry from the same university. During my PhD work I was trained in virology, cell- and molecular-biology. During several postdoc positions [Department of Molecular Pathology at the University of Bonn (Germany), Charite Berlin (Germany), Department of Gynaecology and Obstetrics at the University of Wuerzburg (Germany)] I received a broad training and knowledge in molecular pathology and cancer research. At the moment I am working in the Department of Molecular Pathology at the ICR (London, UK). I have published more than 60 papers in reputed journals and has been serving as an editorial board member of repute.

The impact of γ-irradiation on the induction of bystander killing by genetically engineered ovarian tumor cells: Implications for clinical use as cancer vaccines

Jehad Zweiri
University of Liverpool-Medical School, UK

Cellular based therapeutic approaches for cancer rely on careful consideration of finding the optimal cell to execute the cellular goal of cancer treatment. Cell lines and primary cell cultures have been used in some studies to compare the in vitro and in vivo efficacy of autologous vs allogeneic tumour cell vaccines. This study examines the effect of γ-irradiation on a range of tumor cell lines in conjunction with suicide gene therapy of cancer. To determine the efficacy of this modality, a series of in vitro and in vivo experiments were conducted using genetically modified and unmodified tumor cell lines. Following co-culture of HSV-TK modified tumor cells and unmodified tumor cells both in vitro and in vivo we observed that the PA-STK ovarian tumor cells were sensitive to γ-irradiation, completely abolishing their ability to induce bystander killing of unmodified tumor cells. In contrast, TK-modified human and mouse mesothelioma cells were found to retain their in vitro and in vivo bystander killing effect after γ-irradiation. Characterisation of tumor cell death showed that PA-STK cells underwent pyknosis (necrosis) after γ-irradiation. These results suggest that PA-STK cells are not suitable for clinical application of suicide gene therapy of cancer, as lethal γ-irradiation (100Gy) interferes with their bystander killing activity. However, the human mesothelioma cell line CRL-5830-TK retained its bystander killing potential after exposure to similarly lethal γ-irradiation (100Gy). CRL-5830 may therefore be a suitable vehicle for HSV-TK suicide gene therapy. This study highlights the diversity among tumor cell lines and the careful considerations needed to find the optimal tumor cell line for this type of whole cell tumour vaccination.

Biography

Dr. Jehad Zweiri, lecturer in Cancer studies at the University of Liverpool Medical School, born and grew up in Jordan and received his Bachelor's degree from the University of Jordan in 1990. He obtained his master degree from London School of Hygiene and Tropical Medicine/University of London, and then obtained his PhD degree in 2000 from Kings College Medical School/University of London, in the field of Immune Gene Therapy of Cancer under the supervision of Professor Farzin Farzaneh. He then started his work as Postdoctoral Associate at the department of Immunology and Medicine at the University of Liverpool in 2002. In 2010 he was appointed as a lecturer in the University of Liverpool Medical School and he is currently fellow of the British Higher Education Academy since 2012.

Beliefs and perception about cervical cancer screening among HIV positive women in cote d'Ivoire

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Background: With 50,000 death every year, cervical cancer is the fourth most common cause of death by cancer in sub-Saharan countries. Due to high risk human papilloma virus (hr-HPV) persistence on the cervix, leading to pre-malignous lesions, the disease is more frequent among HIV-positive women. In low- and middle-income countries, cervical cancer screening strategy relies on visual inspection with acetic acid (VIA), an operator-dependent technic. Alternatives, using HPV-based detection through self-sampling are promising as it could increase women participation in screening and empowerment. Ivory Cost is part of a multi-country study on HPV Xpert assay-based screening among HIV-infected women (AIMA-CC project). Yet, few studies analysed the potential socio-cultural factors associated with cervical cancer screening in this context. Our study aims to assess beliefs and perceptions toward cervical cancer among HIV positive women in Abidjan.

Methods: We performed 21 in-depth interviews with two groups of HIV positive women: randomly attending a health center or member of a women association, in November 2018. All interviews were transcribed. Both Health Belief Model and PEN-3 Model were used as theoretical framework to categorize women's perceptions, enablers, nurturers, perceived gravity, perceived benefits and self-efficacy about cervical cancer, cervical screening and self-sampling technique introduction.

Results: Facilitators to HPV testing were knowledge about cervical cancer, awareness about women's vulnerability and HIV status role on it. Fear appeared to be a barrier to screening but also a facilitator among women with health awareness. Barriers to screening included lack of interest for HIV-associated health conditions, poor knowledge about screening and lack of resources to get treated. Self-sampling was considered as of interest, but most women would rather rely on health care providers to perform the sampling for HPV test.

Conclusions: This study provides useful information for counselling and opens the door to HPV-based screening implementation.

Audience Take Away:

- Beliefs and perception about cervical cancer screening among HIV women need to be assess before implementing a new screening strategy
- Fear is a central perception that need to be addressed to uptake screening adhesion
- HIV-dedicated health centers and specific relationship between patients and caregiver is an asset to develop cervical cancer screening programs
- Acceptability of self-sampling strategy need to be explored in practice
- Implementation of HPV-based cervical screening will represent a challenge in low resources settings

Biography

Dr. Mensah studied medicine at the Lyon University, France and graduated from her Public Health residency in 2016. She then joined the Metcalf Lab at Princeton University and worked as a Research Associate Specialist. Since October 2018, she joined the Ceped within the Health track and started her phD under Alexandre Dumont's supervision. Her research focuses on different aspects of HPV-based cervical screening implementation in different contexts in WestAfrican countries.

Prostate cancer prevention using natural products from brazilian cerrado

Sergio Marcelino de Oliveira* and Kallyne Kioko Oliveira Mimura
Federal University of Mato Grosso, Brazil

In this presentation will be discuss the many clinical trials on the use of nutritional supplements and diets to prevent cancer,including prostate cancer. Besides, will be revised a few substances from the cerrado with therapeutic properties already described in the literature. However, there are several exotic Brazilian fruit that have not been studied yet for their antioxidant potential, as also other functional capacities such as antiproliferative activity.

Audience Take Away:

- It will address issues that may help researchers to find new subjects for projects with the objective of identifying and/or testing molecules with therapeutic properties in the prevention of prostate cancer
- The topics explored may be useful for research groups to discuss their results on projects that use natural substances in cancer prevention
- The information discussed and presented can help people who want to gain knowledge about new natural ways of preventing cancer

Biography

I am a biologist, with a Masters and PhD in Cell and Structural Biology from the State University of Campinas-UNICAMP, in São Paulo, Brazil. I am currently a professor at the Federal University of Mato Grosso - CUA/UFMT, teaching Histology and Cell Biology. I am a coordinator of the Laboratory of Histophysiology and Animal Reproduction - LaHRA, developing research using substances from the Brazilian Cerrado in the prevention of prostate cancer.

The role of microbiome on detection of colorectal cancer

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Department of General Surgery,East Suffolk and North Essex NHS Foundation Trust, UK
Under Supervision of Prof. Tan Arulampalam, MD FRCS
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Colorectal Cancer (CRC) is a chief cause of mortality globally. While genetic causes contribute for a small proportion of risk factors for this problem, environmental risk is significantly crucial. Among environmental factors are changes of gut microbial composition (dysbiosis).

Recently, it is believed that gut microbiota symbiosis (normal composition) is a barrier against inflammatory and carcinogenic bowel diseases and many studies have revealed the importance of maintaining this ecosystem and its metabolic functions for inhibiting the colonization of harmful pathogens. Accordingly, microbial dysbiosis (altered composition) might trigger carcinogenesis causing CRC. Also, accumulating evidence suggests that chronic infection and the sequential inflammation (chronic colitis) contribute to tumor initiation and tumor progression, thus, terms such as microbial-associated CRC have recently appeared similar to colitis-associated CRCs.

Regarding the proposed carcinogenic role of microbiome in CRC, several studies reported that analysis of gut microbial community diversity/richness based on 16SRNA gene sequencing has shown significantly reduced microbial diversity in feces of colorectal cancer patients than in controls. This advent (16S rRNA gene sequencing) allows for describing the alterations in the microbiota composition, comparing it to the gut microbiota composition of healthy individual to that of patients with diseases. Thus, it seems achievable to use microbial variation markers in non-invasive early diagnosis and/or prognosis of CRC. However, a lot of work is still being required for making a reliable screening model for detection of CRC patients.

Below, this review will explain some facts about microbiome as a critical hidden organ in humans, evidence-proven changes in gut microbiome that might induce and promote colorectal carcinogenesis, and the foreseen probability of establishing a microbial marker and /or targets for diagnosis and treatment colorectal cancer.

Keywords: Microbiome, Colorectal, Cancer, CRC.

Significance of this review:

What is already known on this subject?

• Microbiome importance as a barrier against inflammatory and carcinogenic bowel diseases

• By 165 rRNA sequencing have supported the role of the gut microbiota in colorectal carcinogenesis (correlation relationship)

• Limited knowledge about the specific microbial species and their role in carcinogenesis remain an active area of inquiry (causal relationship)

What are the new findings?

• There are significant associations between loss-of-function mutations in tumour genes and shifts in the abundances of specific sets of bacterial taxa in CRC. These associations were detected by Metatranscriptomic Analysis [unbiased RNA-sequencing for the taxonomic composition and active biochemical functions of a complex microbial community(1)]→Potential functional interaction (causal effects ??)

• It might be better to study CRC-associated microbial changes in the same subject (paired CRC and healthy tissue samples) to avoid bias that might be resulted from exogenous (e.g diet) or endogenous (e.g. host genome) factors variations.

How might it impact on clinical practice in the foreseeable future?

• Diagnostic perspective: Microbial biomarker ↛by detecting special taxa (Taxonomy-based analysis) for accurate reliable detection and prognosis of CRC.

• Therapeutic perspective: Microbial targets ↛Verifying microbial dynamics (function-based analysis) in relation to CRC subtypes could dramatically improve ability for personalized therapy of colorectal cancers.

Biography

Currently, i am a surgical research/ observer fellow at esneft(colchester, essex, uk) conducting my md project through a joint supervision program (egypt-uk), the project is (the role of volatile compounds and microbiome on detection of colorectal cancer), won through a competitive cultural scholarship program by the egyptian higher ministry of education). basically, i am an assistant lecturer at the general surgery department at menoufia university/ egypt since 2016. i am a qualified surgeon, general surgery specialist in menoufia university hospital(egypt), well trained in general surgery for more than 5 years as well. additionally, i have mrcs and a full gmc license to practice. i have finished a valuable literature review on the microbiome and its relations to crc (causal vs interlinked ?) and determined the knowledge gap due to being more studied for generating biomarker models and developing more personalized treatment strategies.

Can prostate cancer originate in utero? Prostate carcinogenesis induced by maternal low protein diet in older offspring

Sergio Alexandre Alcantara dos Santos*Ph.D, Ana Carolina Lima Camargo Ms; Flavia Bessi Constantino Ms; Ketlin Thassiani Colombelli Ms; Luiz Marcos Frediani Portela; Sergio Luis Felis bino Ph.D; Luis Antonio Justulin Junior Ph.D,
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Although the carcinogenesis is frequently linked to genetic background, exposure to environmental risk factors has gained attention as the etiologic agent for several types of cancer. The intrauterine microenvironment has been described as preponderant factor for offspring health; and maternal exposure to insults have been linked to chronic disease in aged offspring. Using a model of maternal exposure to low protein diet (LPD; 6% protein), we demonstrated that impairment of offspring rat prostatic growth at post-natal day (PND) 21 was associated with prostate carcinogenesis in aged offspring.

Audience Take Away:

- The audience will can use the information on fetal programming, relating diseases that occur in adults with changes that occur during the gestational period
- The concept of fetal programming is relatively new, and there is a growing number of publications reporting that diseases classically related to aging (mainly metabolic diseases) have their beginning in the embryonic/fetal period, so we to instigate the study of the development of prostate cancer early in the development
- Intrauterine alterations caused by fetal programming, observed using global analysis tools (proteomics, mirnome and transcriptome) that remain in the individual and are related to the development of different types of cancer, giving special attention to prostate cancer

Biography

I am postdoc at the State University of São Paulo, UNESP, with experience in the areas of prostatic morphology, analysis of signaling pathways and bioinformatics tools. We sought markers for the prostatic cancer development induced by fetal programming by maternal low protein diet.

Bridging cancer care gaps, providing homes away from home. Relevancy of cancer patients hostels in uganda

Kenyangi Sofia Safina
African Cancer Control Alliance, Uganda

Introduction: Difficulties in accessing appropriate accommodation and transport is a well-documented as a major stress factor for cancer patients seeking care at Uganda Cancer Institute (Young, 2010). A recent assessment of the needs of cancer patients at Mbarara University Cancer Center revealed similar challenges (UCF, 2016). This limits access to cancer treatment services and negatively affects the quality of life of cancer patients. The Union for International Cancer Control (UICC) recommends establishment of "Hope Lodges" as a way of enabling cancer patients to access treatment who would otherwise be prevented by transport and accommodation challenges (UICC, 2014).

Methods: Five Cancer Patients hostels have been established in Kampala. The hostels provide accommodation and meals to cancer outpatients and their carers as they wait for / receive treatment at Uganda Cancer Institute. In addition, clinical navigators travel with patients from the hostels to the Uganda Cancer Institute and navigate them through different care access points. Priority is given to cancer patients who come from upcountry as they wait for laboratory results or receive chemotherapy and radiotherapy.

Results: About 120 patients' and 120 carers' beds are available each night in Kampala. Three meals are served to each patient and carer daily. Patients from up country can access cancer treatment without worrying about accommodation and meals.

Recommendations: There is need to establish more patient hostels to cater for increasing number of cancer patients in Uganda.

Formulation of a natural intraoral dispersible film (IDF) for intraoral delivery of various natural drugs using edible rice paper film as the carrier vehicle

Mukasa Eliphaz
University of the Witwatersrand, South Africa

Background: At present, pharmaceutical researchers are focusing on instantaneous intraoral dispersible technologies as novel drug delivery systems because; they have outstanding advantages over the traditional oral and parenteral routes of drug administration. Some essential natural drugs have low oral bioavailability due to extensive first pass metabolism and pre systemic degradation in the gastrointestinal tract.

Purpose of Study: This research, addresses these problems by formulating a cheap rice paper Intraoral Dispersible Film (IDF). IDFs are effective and could improve the bioavailability of some natural drugs.

Methods: In this study, formulation was optimized using the experimental factorial design. The IDFs were loaded with model, natural, anti-cancer drugs, Resveratrol and Curcumin with low oral bioavailability. They were evaluated for thickness, folding endurance, swelling behaviour, among others. These related to drug release properties. Permeation was evaluated using the pig mucosal membrane mounted on a Franz diffusion cell, and taste testing was done to determine acceptability using a taste panel. Sixteen formulations showed variations in disintegration time, thickness, Tensile strength and permeation profiles.

Results: The key finding is, ex vivo release profiles of the optimized formulation revealed first order release and later zero order. Published results were that When Curcumin was given orally at a dose of 2 g/kg to rats, a maximum serum concentration of 1.35±0.23 μg/ml was observed at time 0.83 hours, whereas in humans the same dose of Curcumin resulted in either undetectable or extremely low (0.006±0.005 μg/ml at 1 hour) serum levels (Siebenand, 2010). Boocock (Boocock et al., 2007) reported Cmax for two separate mono-glucuronide metabolites, for a total glucuronide metabolite concentration ~7.5 μM following a single 5.0 g oral dosage of Resveratrol. In this study, after permeation, a concentration of 6.73mg/ml of Resveratrol and 0.061mg/ml of Curcumin were detected after 2 hours of the experiment after administration of 20 mg of each of the drugs.

Conclusions: Therefore, it is evident that rice paper IDF could efficiently deliver natural drugs into the blood.

Keywords: Curcumin; Resveratrol; Instantaneous Intraoral Dispersible films; Rice paper films; ex vivo release profile.

Biography

Mukasa Eliphaz has worked at Medipharm Industries EA Ltd. Uganda factory for 15 years. He is specialized in cGMP and ORS Manufacture. He has studied at Mulago Hospital School of Dispensing for a Diploma Pharm in 1988. He taught at Mulago Paramedical School for 2 years. He has attended a Clinical Instructor's course at Mbale Health Manpower Development Centre in 1999 and worked as an Assistant Drugs Inspector at Uganda National Drug Authority for 7 years. He has also attended NIPER Chandigarh India for Assessment of quality of Pharmaceuticals. He did his BPharm in 2012 at NMMU Port Elizabeth South Africa. He has worked at Johannesburg General Hospital Charlotte Maxeke for his Pharmacist Internship in 2013. Presently he is an MPharm student at the University of the Witwatersrand, SA 2013 to 2016. Worked as a community Service Pharmacist in 2017 at Nessie Knight Hospital Sulengama Qumbu Eastern Cape, South Africa, Now in 2018 – 2019 working as a post community service Pharmacist in Qumbu Community Health Centre, Qumbu Eastern Cape, South Africa.

Molecular detection of herpes simplex virus (1,2) in oral squamous cell carcinoma presenting to khartoum teaching dental hospital (2014-2015)

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[3]Department of Oral And Maxillofacial surgery ,Khartoum Teaching Dental Hospital,Khartoum,Sudan

Introduction: In oral squamous cell carcinoma (O.S.C.C) many factors are attributed in the etiology of it including environmental and genetic factors. An important role in the etiology is played by oncogenic viruses. The most commonly implicated viruses in oral squamous cell carcinoma were the human papilloma viruses, herpes group, adenoviruses, and hepatitis C virus.

Materials and methods: An observational descriptive retrospective cross-sectional study was conducted at Khartoum Teaching Dental Hospital and the Department of Virology, Central Laboratory, Ministry of Science and Communication; in the period of 2014 and 2015 using Polymerase Chain Reaction (PCR). A total of 117 paraffin embedded tissue samples from oral squamous cell carcinoma were collected. DNA was extracted and HSV-1 & HSV-2 were detected using PCR.

Results: 117 paraffin embedded tissues were examined to detect HSV-1 & HSV-2 DNA with PCR after the extraction of DNA. HSV-1 was detected in twenty two samples while HSV-2 was detected in eight cases. Fifty seven patients (48.7%) had S.C.C in the mandible and 22 patients (18.8%) in the maxilla. Seventeen patients (14.5%) had lesions in the tongue, and sixteen (13.7%) had it in the lower lip. There was significant increase of occurrence of HSV-1 and oral squamous cell carcinoma in the mandible ($p > .05$).

Conclusion: Herpes viruses could be one of the factors that lead to oral squamous cell carcinoma as type 1 has a significant increase specially in the mandible.

Audience Take Away:

- Audiences are expected to predict the possibility of herpes simplex virus to cause oral squamous cell carcinoma.this research should be in awide pattern involving all oncogenic viruses detection in carcinomas as well as sequencing and detecting mutations to confirm hypothesis and eventually preventive methods can be taken involving vaccines introduction

Biography

Safa Abdelazim Ahmed Osman graduated from university of gezira 2010 ,finished clinical master of oral and maxillofacial surgery at university of khartoum ,with MJDF rcseng and FFDosom rcs Ireland.worked as a volunteer specialist at khartoum teaching dental hospital . Now working as a volunteer specialist at suba medical teaching hospital and as an assistant professor at alyarmouk college faculty of dentistry.

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