magnus Group

7th Edition of

International Cancer Conference

October 17-19, 2024 | Virtual Event

Web: https://magnusconferences.com/cancer-oncology/

Email: cancer@magnusconference.com

BOOK OF ABSTRACTS

OCT

17-19

7th Edition of

International Cancer Conference

BOOK OF ABSTRACTS

INDEX	Page No

Keynote Speakers

Michael Thompson
University of Toronto, Canada

Yan Leyfman
Icahn School of Medicine at Mount Sinai South Nassau, United States

Sergio Marchini
Humanitas Research Hospital, Italy

Klaus Brusgaard
Odense University Hospital, Denmark

Yasuhito Sasaki
Shonankamakura General Hospital, Japan

Jianhua Luo
University of Pittsburgh School of Medicine, United States

Irina Matei
Weill Cornell Medicine United States

Jie Xu
The University of Texas MD Anderson Cancer Center, United States

Jinyuan Zhou
Johns Hopkins University School of Medicine, United States

Hernando Lopez Bertoni
Johns Hopkins School of Medicine, United States

Shinya Tajima
National Hospital Organization Shizuoka Medical Center, Japan

George Zachos
University of Crete, Greece

Speakers

Amrita Dhar
Leicester Royal Infirmary, United Kingdom

Anil Kumar
Post Graduate Institute of Medical Education and Research, India

Bin Wu
The Second Affiliated Hospital of Jiaxing University, China

Borasisi Gabrielle Chenge
University of Lubumbashi, Congo, the Democratic Republic of the

Can Kucuk
Dokuz Eylul University and Izmir Biomedicine and Genome Center, Turkey

Eleni Petsalaki
University of Crete, Greece

Frederick H Silver
Robert Wood Johnson Medical School, Rutgers University, United States

Gaurav Vishal
Prathima Cancer Institute, India

Giuseppe Ercolano
University of Naples Federico II, Italy

Harsha Agarwal
Rajiv Gandhi Cancer Institute and Research Centre, India

Isoline Donohue
Stanford University, United States

Ivelis M Sarachi
Centro Diagnostico Mon, Argentina

John M York
University of California, United States

Kaly Keita
University Hospital Center of the Point G, Mali

Keerthiveena Balraj
Indian Institute of Technology - Delhi, India

Koustav Sarkar
SRM Institute of Science and Technology, India

Krishna Misra
Indian Institute of Information Technology-Allahabad, India

Madeline Xu
STEM program, Clinical and Translational Science Institute, United States

Madhavkumar Savaliya
University Hospitals of Leicester NHS Trust, United Kingdom

Maria Zahra
Cardiff and Vale NHS Trust Hospital, United Kingdom

Marie Louise Hammarstrom
Umea University, Sweden

Natalia Camejo
Hospital de Clínicas, Uruguay

Neema Tiwari
PGICH, India

Nicola Manfrini
University of Milan, Italy

Nicola Sarandria
Olimpia Medical Center - Planet Healthcare, Italy

Nur Aimi Aliah Zainurin
Aberystwyth University, United Kingdom

Punam Kumari Mandal
Tribhuvan University, Nepal

Puneet Gupta
Asian Institute of Medical Sciences, India

Queenalice Arul
AIIMS-All India Institute of Medical Sciences, India

Reddy Lahari Bollineni
Royal Stoke University Hospital. United Kingdom

Speakers

Romi Gupta
The University of Alabama at Birmingham, United States

Roopkaran Dhanjal
Leicester Royal Infirmary, United Kingdom

Saumya Pandey
Indira-IVF Hospital, India

Shahriar Zohourian Shahzadi
Erfan Hospital, Tehran University of Medical Sciences, Iran

Shanshan Jiang
Johns Hopkins University School of Medicine, United States

Sonal Manohar
Sunandan Divatia School of Science, NMIMS (Deemed-to-be) University, India

Sreedevi Gutta
California State University San Marcos, United States

Sujoy Neogi
Maulana Azad Medical College, India

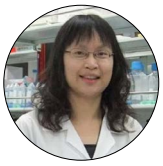
Surya Prakash Tadepalli
Jai Surya Multiple Knowledge Development Organization, India

Tanvi Gupta
National Cheng Kung University, Taiwan

Tapasree Roy Sarkar
Texas A&M University, United States

Wei Wu
UCSF Hellen Diller Comprehensive Cancer Center, United States

Yihua Zhong
Chongqing University Cancer Hospital, China



Yi Hui Wu
Chi Mei Medical Center, Liouying Campus, Taiwan

Yuko Harada
Shonan Atsugi Hospital, Japan

Zhixiong Chen
Chongqing University Cancer Hospital, China

Thank You All...

Welcome Message

Dr. Michael Thompson

University of Toronto, Canada

On behalf of the Scientific Committee, I take great pleasure in welcoming you to the 7th Edition of International Cancer Conference which in this case is being held remotely. The theme of this year's virtual conference is "Innovate to Eradicate: Inspiring Progress in the Fight against Cancer". This particularly comprehensive meeting will cover many aspects of research including cancer metabolism, cancer diagnosis, cancer prevention and detection, treatment and drug-based chemotherapy. The ICC 2024 Congress serves to bring together professionals from the global oncology and cancer research community. This virtual gathering welcomes doctors, scientists, researchers, patient activists, caregivers, pharmacists, oncologists, cancer experts, and industry representatives. Previous conferences in the ICC Series have become recognized internationally as a highly prominent forum, for meaningful interactions, communication, and education on a wide range of oncology-related topics. Attendees will have the unique opportunity to share their valuable work, encompassing clinical, translational, and basic research. All of us on the Scientific Committee will take great pleasure in meeting you via the online format for this Edition of the ICC 2024 meeting. I sincerely wish you have an enjoyable and productive conference.

Welcome Message

Dr. Marchini Sergio,

Humanitas Research Hospital, Italy

I am thrilled to welcome you all to the ICC-2024 Conference! This year's focus on early diagnosis in cancer couldn't be more timely or important. As we gather here, we are united by a shared goal: advancing the science and technology that enables earlier detection, ultimately saving countless lives. Early diagnosis is a cornerstone in the fight against cancer, and I am deeply enthusiastic about the innovative discussions, cutting-edge research, and collaborative spirit that will take place over the course of this event.

Together, we can push the boundaries of what is possible in cancer care, turning early detection from a hope into a standard. I look forward to engaging with each of you and contributing to the progress of this vital field.

Welcome Message

Dr. Yan Leyfman,

Icahn School of Medicine, United States

Welcome to the ICC 2024 Meeting!

We are thrilled to have you join us for what promises to be an exciting and transformative event, showcasing the latest scientific innovations and pioneering work in our field. This year's program features an incredible lineup of prominent leaders and cutting-edge research that will push the boundaries of discovery and progress.

We encourage you to take full advantage of this unique opportunity to network, exchange ideas, and foster collaborations that will propel our field to new heights. Together, we can shape the future of scientific innovation.

Enjoy the meeting, and thank you for being a part of ICC 2024!

Welcome Message

Dr. Yasuhito Sasaki

Shonan Kamakaura General Hospital, Japan

Dear congress visitors:

It is my great pleasure and honor to write a welcome note addressing to participants in ICC 2024. I have engaged in nuclear medicine practice and research for more than half a century.

“Theranostics” is an emerging topic of nuclear oncology. Combining gamma or positron emitting radionuclides with alfa or beta emitting radionuclides for labelling tumor seeking pharmaceuticals make it possible for both diagnosis and treatment of cancers, diagnostics combined with therapeutics. Effective and safe application of theranostics to cancer patients require precise dosimetry of lesions as well as normal tissues.

Dosimetrical technology developed by International Commission on Radiological Protection (ICRP) for internal exposures serves as basis for dosimetry of cancer patients undergoing theranostics. Personalized dosimetry is a current challenging issue in nuclear oncology to be discussed at the conference.

Welcome Message

Dr. Jinyuan Zhou

Johns Hopkins University School of Medicine, United States

Dear colleagues, it is an honor and pleasure to write a few welcome notes. Brain MRI is a key modality for detecting brain tumors. However, this modality has become more and more challenging in neuro-oncology. For example, gadolinium-enhanced MRI cannot distinguish between tumor recurrence and treatment effect (such as pseudoprogression). When an antiangiogenic therapy is used, tumor recurrence may appear as a non-enhancing tumor (called pseudoresponse). Currently, pseudoprogression and pseudoresponse have been two challenging diagnostic dilemmas in daily clinical practice. Protein-based APT imaging that I will talk to you is more specific than standard water-based MRI for active malignant tumors. The technique not only improves the detection, diagnosis, and response assessment of brain tumors, but potentially provides more accurate targets for biopsy, tumor resection, and radiotherapy.

ABOUT
MAGNUS GROUP

Magnus Group, a distinguished scientific event organizer, has been at the forefront of fostering knowledge exchange and collaboration since its inception in 2015. With a steadfast commitment to the ethos of Share, receive, grow, Magnus Group has successfully organized over 200 conferences spanning diverse fields, including Healthcare, Medical, Pharmaceutics, Chemistry, Nursing, Agriculture, and Plant Sciences.

The core philosophy of Magnus Group revolves around creating dynamic platforms that facilitate the exchange of cutting-edge research, insights, and innovations within the global scientific community. By bringing together experts, scholars, and professionals from various disciplines, Magnus Group cultivates an environment conducive to intellectual discourse, networking, and interdisciplinary collaboration.

Magnus Group's unwavering dedication to organizing impactful scientific events has positioned it as a key player in the global scientific community. By adhering to the motto of Share, receive, grow, Magnus Group continues to contribute significantly to the advancement of knowledge and the development of innovative solutions in various scientific domains.

ABOUT
ICC 2024

The 7th Edition of the International Cancer Conference (ICC 2024) is a virtual event scheduled for October 17-19, 2024. Under the theme "Innovate to Eradicate: Inspiring Progress in the Fight Against Cancer," this conference brings together a diverse community of researchers, clinicians, and healthcare professionals from around the world to advance the global conversation on cancer research, treatment, and care.

This abstract book highlights some of the most exciting developments in cancer science and clinical practice. Each abstract represents a vital contribution to the ongoing efforts to innovate and improve outcomes for cancer patients, covering a wide range of topics from novel therapeutic approaches to breakthrough diagnostic tools.

ICC 2024 offers a comprehensive program, featuring keynote lectures, oral presentations, poster sessions, and interactive discussions designed to foster collaboration and knowledge exchange. We invite you to engage with the material and connect with fellow professionals as we work together to inspire progress in the fight against cancer.

We look forward to a dynamic and enriching experience at ICC 2024, where innovation and collaboration will guide our shared mission to eradicate cancer.

ABOUT
CPD Accreditation

THE CPD GROUP
APPROVED PROVIDER
#780643
Verify @ https://thecpdregister.com

Continuing Professional Development (CPD) credits are valuable for ICC 2024 attendees as they provide recognition and validation of their ongoing learning and professional development. The number of CPD credits that can be earned is typically based on the number of sessions attended. You have an opportunity to avail 1 CPD credit for each hour of Attendance. Some benefits of CPD credits include:

Career advancement: CPD credits demonstrate a commitment to ongoing learning and professional development, which can enhance one's reputation and increase chances of career advancement.

Maintenance of professional credentials: Many professions require a minimum number of CPD credits to maintain their certification or license.

Increased knowledge: Attending ICC 2024 and earning CPD credits can help attendees stay current with the latest developments and advancements in their field.

Networking opportunities: ICC 2024 Conference provide opportunities for attendees to network with peers and experts, expanding their professional network and building relationships with potential collaborators.

Note: Each conference attendee will receive 24 CPD credits.

Table of Contents

OCT

17-19

7th Edition of

International Cancer Conference

KEYNOTE PRESENTATIONS

Activating the abscission checkpoint in human cells

Chromatin bridges are strings of chromatin connecting the anaphase poles or daughter nuclei and have been linked to tumourigenesis. Chromatin bridges can arise from segregation of interlinked chromosomes after improper resolution of double strand DNA catenates, or from dicentric chromosomes generated by end-to-end chromosome fusions. In response to chromatin bridges, the abscission checkpoint delays completion of cytokinesis (abscission) to prevent chromosome breakage or tetraploidization; however, how chromatin bridges are detected by the abscission checkpoint has not been previously reported. Here, we show that spontaneous or replication stress-induced chromatin bridges exhibit "knots" of catenated and overtwisted DNA next to the midbody. Topoisomerase IIα (Top2α), an enzyme that can relax DNA supercoils and untangle catenated DNA molecules by catalyzing passage of one double-stranded DNA molecule through a Top2-linked double-stranded break in another DNA molecule, forms abortive Top2-DNA Cleavage Complexes (Top2ccs) on DNA knots. Furthermore, impaired Top2α-DNA cleavage activity correlates with chromatin bridge breakage in cytokinesis. Proteasomal degradation of Top2ccs is required for localization of the DNA damage sensor protein Rad17 to Top2α-generated double strand DNA ends on DNA knots. In turn, Rad17 promotes local recruitment of the MRN (Mre11-Rad50-Nbs1) protein complex and downstream ATM-Chk2-INCENP signaling to delay abscission and prevent chromatin breakage. In contrast, dicentric chromosomes that do not exhibit knotted DNA fail to recruit Top2α next to the midbody and to activate the abscission checkpoint in human cells. These findings are the first to describe a mechanism by which the abscission checkpoint senses chromatin bridges, through generation of abortive Top2ccs on DNA knots, to preserve genome integrity.

Audience Take Away Notes

Audience will be able to expand their research and/or teaching in the following new-emerging research areas:

- Chromatin bridges
- Abscission checkpoint signaling
- Mechanisms that maintain genome integrity in cytokinesis

Eleni Petsalaki, Sofia Balafouti, Athina Kyriazi, George Zachos*

Department of Biology, University of Crete, Vassilika Vouton, Heraklion 70013, Greece

Biography

George Zachos completed his PhD at the University of Crete and received postdoctoral training at the Beatson Institute for Cancer Research, Glasgow, U.K. investigating DNA damage checkpoint mechanisms. In 2008, he moved to the Department of Biology of the University of Crete in Greece as an Assistant Professor in Cell Biology, became Associate Professor in 2015 and continues to hold this position today. Discoveries from the Zachos lab have identified novel mechanisms of the mitotic spindle and abscission checkpoints during cell division in human cells. He has published >40 papers in leading scientific journals and has received >2500 citations.

Bioreducible LiPBAE miR-590-3p nanomiRs inhibit recurrent glioblastoma growth and prolong survival

Despite aggressive therapy consisting of surgery followed by radio/chemotherapy Glioblastoma (GBM) recurs in almost all patients and, currently, there are no proven therapies to treat Recurrent GBM (rGBM). Recent developments in nanomedicine provide new and promising opportunities to develop new targeted therapeutics to treat brain tumors. In this study we combine bioinformatics, forward-thinking understanding of miRNA biology and cutting-edge nucleic acid delivery vehicles to advance targeted therapeutics for rGBM. Bioinformatic analysis of RNA sequencing from GSCs and clinical rGBM specimens identified TGF-Beta Receptor II (TGFBR2) signaling as a targetable pathway in rGBM. Mechanistically, we show that alterations in chromatin state driven by stem-cell driving events are conducive to a therapy-resistant state induced by TGFBR2. We show that blocking TGFBR2 via molecular and pharmacological approaches decreases the stem cell capacity, cell viability and re-sensitizes clinical rGBM isolates to Temozolomide (TMZ) in vitro. miRNA-based network analysis uncovered miR-590-3p as a tumor suppressor that efficiently simultaneously inhibits multiple oncogenic nodes downstream of TGFBR2 reducing self-renewal capacity of therapy-resistant GSCs. To translate these in vitro finding, we developed novel bioreducible Lipophilic Poly (ß-Amino Ester) Nanoparticles (LiPBAEs) for in vivo miRNA delivery. Following direct intratumoral infusion, these nanomiRs efficiently distribute through the tumors and mir-590-3p nanomiRs inhibited the growth and extended survival of animals bearing orthotopic human rGBM xenografts, with apparent curative effects in 3 of 10 treated mice. These results show that miRNA-based targeted therapeutics provide new opportunities to treat rGBM and bypass the resistance that is developed to standard of care.

Audience Take Away Notes

- General background about GBM
- Advanced approaches to target cancer stem cells as anti-tumor therapeutics
- General background on bioinformatics and polymeric nanoparticle design
- Novel concept about leveraging miRNAs as cancer therapeutics

Jack Korleski[1], Sophie Sall[1], Kathryn Lully[3], Maya K. Johnson[1,10], Amanda Johnson[1,2], Harmon Khela[1,10], Bachchu Lal[1,2], TC Taylor[1,10], Jean Micheal Ashby[1,8], Hector Alonso[1], Alice Li1, Yunqin Li[1,2], Karen Smith-Connor[1], Stephany Tzeng[3], John Laterra[1,2,7], Jordan J. Green3,[6,7,8,9], Hernando Lopez-Bertoni[1,2,8*]

[1]Hugo W. Moser Research Institute at Kennedy Krieger

[2]Department of Neurology, Johns Hopkins University School of Medicine

[3]Department of Biomedical Engineering, Institute for NanoBioTechnology, and the Translational Tissue Engineering Center, Johns Hopkins University School of Medicine

[4]Department of Ophthalmology, Johns Hopkins University School of Medicine

[5]Department of Oncology, Johns Hopkins University School of Medicine

[6]Department of Neuroscience, Johns Hopkins University School of Medicine

[7]Departments of Materials Science & Engineering and Chemical & Biomolecular Engineering, Johns Hopkins University

[8]Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins

[9]Department of Biology and

[10]Department of Neuroscience, Johns Hopkins University

Biography

Hernando Lopez-Bertoni was born in Paraguay, South America and moved to the United States after completing high school to pursue a career in science in the United States of America. The long-term goal of his research is to understand the molecular mechanisms involved in regulating stemness and differentiation in neoplastic and non-neoplastic neural cells. We want to better understand Glioblastoma Multiforme (GBM) by studying the molecular mechanism by which these cells acquire a stem-like phenotype and use this knowledge to develop new ways to treat and diagnose the disease.

Extracellular vesicles: A conserved inter-cellular communication system

Extracellular Vesicle (EV)-based communication is an evolutionarily conserved mechanism of intercellular communication, from bacteria to humans. Eukaryotic EVs are nanosized particles of endosomal origin that carry and deliver to target cells complex cargo including DNA, RNA, proteins, metabolites, etc, leading to functional changes and reprograming of target cells. As long-range messengers, EVs elicit as well as report systemic alterations, and are responsible for many of the systemic effects of cancer as well as other pathologies such as autoimmune diseases. We have developed novel in vivo approaches to dissect the EV-mediated mechanisms driving these effects, including pre-metastatic niche formation, thrombosis and cachexia, and used these to guide biomarker discovery for early cancer detection and responses to treatments. Undoubtedly, further insight into exosome biogenesis, molecular composition, biodistribution, and functions will open new avenues for translational studies of the diagnostic, prognostic, and therapeutic applications of extracellular vesicles/particles. Ultimately, we aim to improve cancer outcomes, especially solid tumors, where treatment options for metastatic disease are limited.

Irina Matei

Department of Pediatrics, Drukier Institute for Children's Health, Meyer Cancer Center, Weill Cornell Medicine, USA

Biography

Dr. Matei obtained her Ph.D from the University of Toronto, Canada, studying the molecular mechanisms of lymphocyte development and transformation. She then went on to study the function of tumor-derived Extracellular Vesicles (EVs) in metastasis with David Lyden at Weill Cornell Medicine in New York City, where she is currently an Assistant Professor of Immunology Research in Pediatrics. She combines innovative basic tumor biology research with translational studies, relating basic discoveries to advances in patient treatments. Her current research focuses on the crosstalk between tumor cells and the local and distant tumor microenvironment via EVs as well as immune-derived EVs.

Targeting oncogenic fusion genes in hepatocellular carcinoma

Hepatocellular Carcinoma (HCC) is one of the most lethal cancers for humans. MAN2A1-FER is one of the most frequent oncogenic fusion genes in the HCC. In this report, we showed that MAN2A1-FER ectopically phosphorylated the extracellular domains of PDGFRA, MET, AXL, and N-cadherin. The ectopic phosphorylation of these transmembrane proteins led to the activation of their kinase activities and initiated the activation cascades of their downstream signaling molecules. A panel of mouse monoclonal antibodies was developed to recognize the ectopic phosphorylation sites of PDGFRA. The analyses showed that these antibodies bound to the specific phosphotyrosine epitopes in the extracellular domain of PDGFRA with high affinity and specificity. The treatment of MAN2A1-FER positive cancer HUH7 with one of the antibodies called 2-3B-G8 led to the deactivation of cell growth signaling pathways and cell growth arrest, while had minimal impact on HUH7ko cells where MAN2A1-FER expression was disrupted. The treatment of 2-3B-G8 antibody also led to a large number of cell deaths of MAN2A1-FER positive cancer cells such as HUH7, HEPG2, SNU449, etc., while the same treatment had no impact on HUH7ko cells. When severe combined-immunodeficiency mice xenografted with HEPG2 or HUH7 were treated with Monomethyl Auristatin E (MMAE) conjugated 2-3B-G8 antibody, it slowed the progression of tumor growth, eliminated the metastasis, and reduced the mortality, in comparison with the controls. Targeting the cancer-specific ectopic phosphorylation sites of PDGFRA induced by MAN2A1-FER may hold promise as an effective treatment for liver cancer.

Audience Take Away Notes

- Oncogenic fusion genes in human liver cancer is relatively new topics. It plays an important role in HCC development
- MAN2A1-FER has novel oncogenic signaling pathways that may not be easily intercepted by convention small molecule targeting
- New approaches can be developed to target these fusion genes in diagnostic and therapeutic schema
- Screening for HCC based on serum fusion test will be developed that may help primary care physician to detect HCC early and save lives. The antibodies described in the study can be utilized to target HCC cancer cells

Jianhua Luo MD, PhD

Department of Pathology, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA

Biography

Dr. Luo has been studying molecular mechanisms of human malignancies in the last 35 years. Currently, he is a Professor of Pathology and Director of High Throughput Genome Center at University of Pittsburgh. In the last 29 years, Dr. Luo has been largely focusing on the genetic and molecular mechanism of human cancers such as prostate cancer. 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. He and his colleague helped to develop an ultra-low error synthetic long-read sequencing technology called LOOPSeq that can be utilized to quantify mRNA isoforms and mutation isoform distributions in single cell level. His group has discovered 21 novel fusion genes in prostate, liver and colon cancers. Subsequently, his group discovered that many of these fusion genes are recurrent in many other types of human cancers. 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 for human malignancies.

MYC expression is an adverse prognostic factor ALK+ anaplastic large cell lymphoma

The role of MYC dysregulation has been studied extensively in B cell lymphomas, but little is known about its significance in T cell lymphomas. This study, for the first time in the literature, assessed the clinicopathologic and prognostic significance of MYC expression in ALK+ Anaplastic Large Cell Lymphoma (ALCL) cases. Using >50% as the cutoff value for positive MYC expression by immunohistochemistry, 17 of 46 (37%) cases were MYC+. Patients with MYC+ tumors were older (median age, 39 versus 29 years, p=0.04) and more often showed a common morphologic pattern (100% versus 69%, p=0.02), when compared with those with MYC-negative tumors. By Fluorescence In Situ Hybridization (FISH) analysis, 9 of 31 (29%) cases showed increased MYC copy number and 1 of 31 (3%) case had a MYC rearrangement, and the remaining 21 (68%) cases showed no MYC aberrations. Among the cases with increased MYC copy number, 5 of 8 (62%) cases showed MYC copy gain and/or amplification and 3 of 8 (38%) had polysomy 8. MYC expression was associated with increased MYC copy number (p=0.01). MYC expression, but not increased MYC copy number, correlated with shorter overall survival (p=0.03). In conclusion, MYC expression identified a distinct group of ALK+ALCL patients with more aggressive behavior and shorter overall survival. Our data suggest that MYC expression is an adverse prognostic factor and may be useful in stratifying or predicting the prognosis of patients with ALK+ALCL.

Jie Xu

The University of Texas MD Anderson Cancer Center, United States

Biography

Dr. Jie Xu is currently an Associate Professor at the University of Texas MD Anderson Cancer Center and the Program Director of Hematopathology Fellowship Program. She is board certified by the American Board of Pathology in Anatomic Pathology, Clinical Pathology, and Hematology. In addition to clinical responsibilities, Dr. Xu has been actively participating in multiple research projects, leading to 150 papers. Her research has been supported by multiple funds. She serves as members of editorial boards for 5 journals and ad hoc reviewers for 19 prestigious journals.

Amide proton transfer MR imaging of brain tumors

Amide Proton Transfer (APT) imaging is a novel protein-based molecular MRI technique that generates image contrast based on endogenous cellular proteins in tissue. APT imaging is a specific type of chemical exchange saturation transfer imaging. Theoretically, the APT-MRI signal depends primarily on the mobile amide proton concentration and amide proton exchange rates (which are related to tissue pH). The APT technique has been successfully used for non-invasive pH imaging in stroke (where pH drops) and protein content imaging in tumor (where many proteins are overexpressed). In this talk, I will first talk about the basic principle of APT imaging at the protein level and review its current successful applications for the imaging of brain tumors, including the detection and grading of tumors, the assessment of treatment effect versus tumor recurrence, and the identification of genetic markers. Notably, APT MRI has the potential for the detection of high-grade tumors that do not show Gd enhancement and the assessment of pseudoprogression and pseudoresponse during brain tumor treatment. Finally, I will introduce recent consensus recommendations for APT imaging of brain tumors on 3T MRI systems.

Audience Take Away Notes

- Learn the novel APT imaging technique
- Researchers could expand their research and explore new applications on all fronts
- Radiologists could enhance their daily clinical practice

Jinyuan Zhou Ph.D.

Department of Radiology, Johns Hopkins University, Baltimore, MD 21287, USA

Biography

Dr. Jinyuan Zhou is an MRI physicist. His research focuses on developing new in vivo MRI methodologies to study brain function and diseases. He is currently a Professor in the Department of Radiology and Radiological Science. He has published more than 180 peer-reviewed papers, including two scientific papers, as the first author, in Nature Medicine. He was awarded a fellow of ISMRM in 2022.

Multiple endocrine neoplasia and sporadic insulinomas

Functional Pancreatic Neuroendocrine Tumors (PNETs) may be hereditary or sporadic. Hereditary forms are often caused by MEN1 mutations. The majority of insulinomas are sporadic, solitary and low-grade. The tumorigenesis in sporadic insulinomas is not well described. We describe the secondary events following the first hit MEN1 variant and the mutational profile of both MEN1 insulinomas and sporadic tumors. We included tissue from 4 MEN1 patients and 12 patients with sporadic PNETs for NGS exom analysis, transcriptomic analysis, histology and immunohistochemistry.

Variant call on all samples was performed using the GATK pipeline and variant filtering in Varseq software. CNV and LOH analysis was performed using Varseq based on Z-score, ratio-plot, and VAFs metrics. RNA was extracted from all tissue and processed for hybridization to Clariom S arrays using GeneChip Hybridization. Analysis was performed using the Transcriptome Analysis Console (TAC) software in combination with the R script for further analysis.

IHC stainings against insulin, glucagon, synaptophysin, islet-1 and Ki67 were conducted for all insulinoma specimens. This is the first study to evaluate the occurrence of a second hit in the MEN1 gene in PNENs from young patients with MEN1 syndrome on DNA, RNA and protein level.

Our study of sporadic insulinomas revealed a marked genetic heterogeneity with few recurrent alterations among candidate genes. Our findings give novel insights into beta-cell pathophysiology and insulin secretion, which provide the framework for future studies on possible drug targets in diabetes and hyperinsulinism.

Our results will be compared to a metaanalysis of published whole exom and genom sequencing data of well differentiated MEN1 and sporadic PNETs.

Audience Take Away Notes

- Update on the current knowledge about molecular mechanisms of insulinomas
- Essential knowledge on the route to new drug targets
- We provide a meta-analysis with an update including our recent results of sporadic and MEN1 PNETs pawing the way for new downstream studies

Klaus Brusgaard[1,2*], Kirstine Øster Andersen[1,3], Henrik Thybo Christesen[1,3], Evgenia Globa[4], Sönke Detlefsen[1,5], Maria Melikyan[6]

[1]Department of Clinical Research, Faculty of Health Sciences, University of Southern Denmark, Denmark

[2]Department of Clinical Genetics, Odense University Hospital, Denmark

[3]Hans Christian Andersen Children's Hospital, Odense University Hospital, Denmark

[4]Ukrainian Research Center of Endocrine Surgery and Transplantation of Endocrine Organs and Tissues, Kiev, Ukraine

[5]Department of Clinical Pathology, Odense University Hospital, Denmark

[6]Department of Endocrinology, Yerevan State Medical University and Center of Medical Genetics and Primary Health Care, Yerevan, Armenia

Biography

Dr. Brusgaard studied molecular biology at Southern Danish University, Institute of Natural sciences and graduated in 1990. Between 1990 and 1993 he was working as an associate professor at Institute of Medical Microbiology. He received his PhD degree in 1999 from Aarhus University at the Institute of Human Genetics. After which he was working first as a research fellow and since 2014 as a associate professor at Department of Clinical Genetics, Odense, Denmark. He has published more than 116 research articles in SCI (E) journals.

Multiplexed detection of biomarkers for early-stage ovarian cancer

Ovarian Cancer (OC) results in some 150,000 deaths worldwide of nearly 300,000 new cases each year. Unfortunately, only 20% of patients are diagnosed at the early stages (I and II) of the disease when treatment is most effective, leading to a 5- year relative survival rate of only 20%. Early diagnosis of OC improves survival rate to 93%; however, there is a lack of early diagnose due to few specific symptoms being observed, and the absence of reliable, cost-effective mass screening techniques. Several biomarkers have been identified for OC, of which Cancer Antigen-125 (CA125) is the only one currently clinically approved. However, the use of the CA125'assay is limited to high-risk women, and it is often performed with a transvaginal ultrasound. Although CA125 is elevated in over 90% of late-stage OC cases, it is elevated in only 50% of early-stage cases and can yield false-positive and false-negative results A highly attractive possibility with regard to biomarker detection would be the incorporation of a biosensor into the conventional automated robotic system to process and test patient samples. Such a technology would require device reversible signalling or flow-through cleaning, appropriate sensitivity and, critically, the capability of operation in a biological fluid. The reality is that the issue of fouling by components of such fluids has constituted a major problem.

Lysophosphatidic Acid (LPA) is a distinctly attractive potential biomarker for OC with high sensitivity (98%) and specificity. The normal level of LPA in the body is 0–5 μM, but increases to 5–50 μM in OC, even in stage I. In our research, we are employing three different biosensor-based strategies for LPA detection in tandem with that for CA-125. These techniques include an ultra-high frequency acoustic wave device, a chemiluminescence-based Iron Oxide Nanoparticle (IONP) approach and electrochemical detection based on both square wave and differential pulse voltammetry. For assay of LPA all these methods incorporate the protein complex gelsolin-actin, which enables testing for detection of the biomarker binding to the complex results in separation of gelsolin from actin. In proof of concept experiments, each of the approaches is capable of the detection of LPA at the sub micromole level. In addition to the work with LPA we are developing an electrochemical system for the tandem assay of CA-125 which is based on an aptamer probe for the marker.

Soha Ahmadi, Katharina Davoudian, Nataliia Ivanova, Navina Lotay, Lidia Nemtsov, Michael Thompson*

Department of Chemistry
University of Toronto, Toronto, Ontario, Canada

Biography

Professor Michael Thompson obtained his PhD in analytical chemistry from McMaster University. He was Lecturer in Instrumental Analysis at Lough borough University, UK before moving to the University of Toronto where he is now Professor of Bioanalytical Chemistry. Thompson has served on the Editorial Boards of a number of major international journals and is Editor-in-Chief of "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, The Elsevier Prize in Biosensor and Bioelectronic Technology and the E.W.R. Steacie Award of the Chemical Society of Canada. In 2023, with colleagues from Europe, he was awarded the prestigious Royal Society of Chemistry Horizons Prize. He has published over 300 papers.

Audience Take Away Notes

- How biosensor technology can employed for potentially large-scale screening of ovarian cancer biomarkers
- Comparison and assessment of chemiluminescence, electrochemical and acoustic wave biosensor-based detection of various biomarkers for early stage Ovarian Cancer (OC)
- Towards clinical application of a multiplexed approach to the assay of OC

Genomic instability analysis in DNA from Papanicolaou test provides a new avenue for early diagnosis of high-grade serous ovarian cancer

Epithelial Ovarian Cancer (EOC) is the 5th cancer-related cause of death among women worldwide. EOC is usually diagnosed at an advanced stage when tumour cells have already spread throughout the pelvis in the peritoneal cavity. Five-year survival rate is around 30% in patients with metastatic diseases but in the fraction of patients whose EOC is diagnosed at an early stage overall survival rate is much higher, approximately 90%. These data suggest that early detection of a greater fraction of EOC could reduce mortality by 15-40%.

Strategies that have been attempted to anticipate the diagnosis of EOC and EC until now have not been successful. The lack of specific and sensitive diagnostic tests for these tumours have given input to translational research to look for new molecular biomarkers that could be used for the early diagnosis. Molecular profiling of tumour biopsies has shown that some types of EOC and EC are characterized by relevant chromosomal abnormalities (i.e. Copy Number Alterations, CNAs), due to high genomic instability, even at an early phase of the tumour development. CNAs could be a biomarker that early intercepts these tumours.

Since most EOC originate from precursor lesions located in the Fallopian tube, the anatomic continuity of tubal lumen, endometrial cavity and cervical canal makes cytological sampling of the cervix hypothetically the best source to capture neoplastic cells. Papanicolaou test (Pap test) is a routine screening procedure for cervical cancer that is already in place in all European countries. We have recently demonstrated that the DNA purified from Pap test smears before High Grade Serous EOC diagnosis (HGSEOC) contains CNAs compatible with early phase of neoplastic transformation (Paracchini, Mannarino, Romualdi et al. Science Translational Medicine 2023). CNAs were detected through low-pass whole-genome sequencing of DNA derived from Pap test samples (pDNA) in terms of Copy number Profile Abnormality (CPA). CPA values of pDNA from pre-HGSOC women were substantially higher than those in samples from healthy women.

We integrated the CPA score into the EVA (Early Ovarian Cancer) test to detect HGSEOC presence up to 9 years before diagnosis. The sensitivity of the EVA test was 75% (95% CI, 64.97 to 85.79), the specificity 96% (95% CI, 88.35 to 100.00), and the accuracy 81%.

Sergio Marchini PhD

Department of Cancer Pharmacology/Translational Genomic Unit, IRCCS Humanitas Research Hospital Rozzano, Italy

Biography

Sergio Marchini was born in 1969 and graduated summa cum laude, in Biological Science, University of Milan in 1993. In 2000 he was awarded in advanced studies in Pharmacology, University of Pavia, Italy and in 2003 he got the Ph. D. degree at the Open University, London UK. From 2001 to 2021 he has a permanent position as researcher at the "Mario Negri" Institute for Pharmacological Research, Department of Oncology. Since 2011 he was appointed Head of Translational Genomic Unit, Laboratory of Cancer Chemotherapy. From 2021 up to now, he moved to Humanitas research Hospital (Rozzano, Italy) as Director of the Humanitas Genomic Facility, and head of Translational Genomic Unit. The two main areas of research activities are identification of molecular biomarkers for early diagnosis of ovarian cancer and use of liquid biopsy to track minimal residual disease over time and tumor evolution, in ovarian and mesothelioma patients.

This background of knowledge suggests a new path for the early diagnosis of HGSEOC based on measurement of CNAs or other molecular alterations in the Pap test smears-collected during routine gynaecological screening.

Audience Take Away Notes

- Early diagnosis of HGSEOC is now feasible through analysis of Pap-test smear
- This is a landmark discovery that make realistic the development of a test for early diagnosis
- The workflow described here could be used to implement early diagnosis projects for early disease detection
- This finding provides a practical response to the issue of early diagnosis in EOC
- Future international clinical trials should be designed based on this finding before introducing into a clinical practice

Other benefits

- Early diagnosis
- Reduce death
- Improve curability of HGSEOC

Micro-invasive solid papillary carcinoma of the nipple: A case study

Herein, we would like to present the case of about 80-year-old female. Her chief complaint was bloody nipple discharge in the left breast. And condensation was felt day by day. She came to our hospital for thorough examination and treatment. Ultrasonography detected intraductal carcinoma of about 10mm spreading. The discharge specimen of CEA data was as high as 300. Subsequently, biopsy was performed and diagnosed "Ductal Carcinoma In Situ" (DCIS). Hence, left mastectomy was done. Pathologically, total size of 20X20X15mm of low-grade DCIS and invasion of less than 1mm were observed. Histological subtype was "micro-invasive carcinoma of type B mucinous carcinoma". In situ lesions demonstrated "solid papillary carcinoma" with widely disrupted Myoepithelial Cell (MEC) layer and some fibrovascular-cores were infarcted. Invasive lesion was "mucinous carcinoma type-B". Besides, ER: 99%, PgR: 90%, HER2: 0, Ki-67-index: 5%. Hence, luminal-A subtype was considered. MECs revealed heterogenous or complete loss by CK5/6. And invasive cell populations revealed ER strong-positive same as In situ lesions. Previous report indicated generally, when DCIS changed to invasive lesions, the latter populations are ER negative of stem-like cells. However, in our case, ER positive invasive cell population might be related to good prognosis compared to high-grade one.

Furthermore, our aim is to detect the origin of the "nipple tumors". Because, "Terminal Duct Lobular Unit (TDLU)" which is thought the origin of breast tumors in general. However, TDLU are lacking in the nipple as a commonsense. Hence, the nipple tumors including "nipple adenoma" and other tumors of the origin is unknown in recent WHO classification. We tried to discover the origin of "nipple tumor" using selective combination of Immunohistochemistry (IHC). Previous reports indicated CK15 is well known to epithelial stem marker and CK19 is known to "Low Molecular Weight Cytokeratin (LMWCK)". CK5/6 is known to "High Molecular Weight Cytokeratin (HMWCK)" and "Estrogen Receptor (ER)" expression is thought important role for preventing genes and chromosomal instability. In our results, we would like to hypothesize that stem-like cells are not random distribution but in "peri-infarcted fibrovascular-core" of continuous IHC sections. The stem-like cell population showed "ER-/CK15+/CK19+/CK5/6+/Ki67-" IHC feature. These cell populations were considered they had bipotency. It might be considered stem-like/progenitor-like cell exists in the most hypoxic area of infarcted fibro-vascular core as "peri-infarcted niche" like as previous reports of "peri-necrotic niche" of brain tumors. According to

Shinya Tajima[1*], Hisaya Mori[2], Yoshihiro Sakai[2], Ichiro Maeda[3], Keiko Kishimoto[4,5], Prof. Masayuki Takagi[1,6]

[1]Department of Diagnostic Pathology, National Hospital Organization, Shizuoka Medical Centre, Shizuoka, Japan

[2]Department of General Surgery, National Hospital Organization, Shizuoka Medical Centre, Shizuoka, Japan

[3]Deaprtment of Diagnostic Pathology, Kitasato Institute Hospital, Kitasato University, Tokyo, Japan

[4]Department of Radiology, St. Marianna University School of Medicine, Kanagawa, Japan

[5]Nihom-bashi Arayla Clinic, Tokyo, Japan

[6]Department of Pathology, St. Marianna University School of Medicine, Knagawa, Japan

Biography

Shinya Tajima completed his gradutation in Keio University School of Medicine, he has employed in Department of Pathology at Keio University. He learns pathological anatomy and diagnostic pathology. Then, he belong's to Department of Radiology at St. Marianna University School of Medicine to study breast imaging. And he has presented some scientific exhibitions about radio-pathological correlation of the breast. He learns at St. Marianna University Graduate School of Medicine for four years. And after his PhD was acquired, now he is doing research about pathology in National Hospital Organization (NHO) Shizuoka Medical Center.

our results, it might be thought that hypoxic microenvironment might contribute to tumorigenesis as well as sustaining tumor survival. We think that our case might contribute to discover the origin of “tumors of the nipple”. Previous reports indicated stem-like cells are existed in “collecting duct” of the normal nipple. Our results might concordant of this theory. Also, many case reports of piling up might be thought important for understanding “nipple tumors”.

Audience Take Away Notes

- First, audience would learn “tumor of the nipple” is special feature and importance of the stem-like cells
- Second, audience would learn the association of ischemic microenvironment and tumorigenesis
- Third, audience would learn the microenvironment of tumorigenesis is important for pathogenesis of tumor histology
- To understanding tumor microenvironment of “nipple tumors” would help clinically for including targeted therapy or better solution in the future for knowing the importance of tumor microenvironment as well as tumorigenesis by our pathological knowledge. We believe that understanding of the pathogenesis of “nipple tumors” might contribute to molecular science for detecting the targeted molecule

Immunological interplay and therapeutic approaches for severe COVID-19 in multiple myeloma: A model for intervention

Introduction: During the early stages of the COVID-19 pandemic, Multiple Myeloma (MM) patients exhibited a high hospitalization rate (56%), with 20% requiring critical care and an 18% increased mortality risk. MM patients undergoing anticancer therapy who contracted symptomatic COVID-19 faced a 55% higher risk of death. Even in the post-pandemic era, MM patients remain highly vulnerable to severe SARS-CoV-2 infections due to their immunocompromised status. This study aims to: (1) develop a model that explains the pathogenesis and interplay between MM and severe SARS-CoV-2 infections, and (2) assess the therapeutic potential of Mesenchymal Stem Cells (MSCs) and Exosomal Vesicles (EVs) against severe SARS-CoV-2, supported by clinical evidence.

Methods: Severe SARS-CoV-2 infection induces multi-organ dysfunction via IL-6-mediated inflammation. In MM, IL-6 acts as a survival factor for myeloma cells, reshaping the bone marrow microenvironment and driving disease progression. In this model, severe SARS-CoV-2 exacerbates the pro-inflammatory state in MM patients due to elevated IL-6 production, leading to heightened complement activity, acute phase reactants, and systemic injury.

Results: Given the limited therapeutic options for immunocompromised patients, MSCs and EVs have emerged as promising interventions. Clinical evidence suggests that MSCs and EVs neutralize SARS-CoV-2 viral entry and modulate the immune response, enhancing therapeutic efficacy. Additionally, their regenerative properties promote tissue repair and angiogenesis. In clinical trials, MSCs and EVs demonstrated a 90% overall survival rate in severe SARS-CoV-2 patients within one month post-treatment, with sustained benefits for at least six months.

Conclusion: MSCs and EVs have shown to be safe, well-tolerated, and effective in improving survival rates in severe SARS-CoV-2 patients. By targeting multiple disease pathways, suppressing IL-6, dampening inflammation, and promoting tissue repair, MSCs and EVs offer a novel therapeutic approach. Their minimal drug interactions and side effects make them a viable option for MM patients, providing significant clinical promise as a potential treatment for severe SARS-CoV-2.

Yan Leyfman[1*] MD, Muskan Joshi[2], Gayathri Pramil Menon[2], Chandler Park[3]

[1]Icahn School of Medicine at Mount Sinai South Nassau, NY, USA

[2]Tbilisi State Medical University, Tbilisi, Georgia

[3]Norton Cancer Institute, Louisville, KY, USA

Biography

Dr. Yan Leyfman is a rising star in the field of oncology, recently recognized as a 2023 40 Under 40 Emerging Leader in Cancer. Amidst the COVID-19 pandemic, he led the Immunology Division of the Global COVID-19 Taskforce, developing the first mechanisms for SARS-CoV-2 and COVI-Flu. Dr. Leyfman's pioneering research on the interplay between cancer and COVID-19, presented at the 2021 ASCO meeting and published in BMC Journal of Hematology & Oncology, has significant clinical implications, and earned him recognition as a 2023 International Hero in Healthcare by the Lymphoma, Leukemia & Myeloma Congress. His contributions to advancing CAR T cell therapies, currently undergoing clinical trials, have earned him prestigious accolades including the 2020 iCHEM Emerging International Scholar Award and the 2023 Young Scientists Phacilitate Advanced Therapies Award.

Nuclear oncology in Japan: A historical review with emphasis on dosimetry caused by internal exposures

The purpose of this historical review is to trace the application of radiopharmaceuticals for diagnosis of tumors and treatment of cancer in the past half a century in Japan. Positron Emission Tomography□PET□using 18F labelled fluorodeoxyglucose (a radioactive glucose analog) has been playing an important role in clinical oncology covering 40% of 700,000 nuclear imaging procedures performed in a year in Japan. Since PET/CT devices became commercially available in 2001, increased numbers of PET images are obtained through dual-modality PET/CT imaging to reach more than 90% of PET imaging at present. The original trials of combining PET (functional image) and CT (anatomical image) were performed in Gunma University Hospital during the year 1983-1997, which will be described in detail. Nuclear medicine procedures cause internal exposures to patients. Radiation dosimetry caused by internal radiation sources is unique and important especially in radiopharmaceutical therapy. The system of radiological protection recommended by International Commission on Radiological Protection (ICRP) will be described together with some difficulties for applying to theranostics in nuclear medicine.

Yasuhito Sasaki MD, PhD, FSNMMI

Shonankamakura General Hospital, Japan

Biography

Yasuhito Sasaki M.D. Ph.D. Fellow SNMMI was born in1937 in Tokyo Japan, graduated from School of Medicine the University of Tokyo in 1963. He is now directing Radiological Research Division, Shonan Research Institute of Innovative Medicine of Shonan Kamakura General Hospital in Japan, which is affiliated to Graduate School of Medicine, Yokohama City University. He also serves as Consultant for Radiation Effects Association. Dr. Sasaki was trained as internist and specialized in Nuclear Medicine at the University of Tokyo and Johns Hopkins Hospital in Baltimore, U.S.A. In his professional career of 60 years as Nuclear Medicine Physician Dr. Sasaki has chaired departments of Radiology and Nuclear Medicine at several universities including Gunma University and the University of Tokyo. Later he has served as Director General of National Institute of Radiological Sciences. Dr. Sasaki has severed to ICRP, UNSCEAR and Radiation Council of Japan. He has contributed to the promotion of Nuclear Medicine in Japan, Asia and the World. He received Presidential Distinguished Service Award from the Society of Nuclear Medicine in 2000 for his contribution to the collaborative activities of SNM and JSNM in addition to other distinguished honors and awards including The Order of the Sacred Treasure Gold and Silver Star decorated by Emperor Akihito (2007), Honorable Recognition of Contributor to Disaster Prevention by the Prime Minister Yasuo Fukuda (2008) and the 13th Nagasaki Dr. Nagai Peace Memorial Prize Award (2021).

OCT

17-19

7th Edition of

International Cancer Conference

SPEAKERS
PRESENTATIONS

Gaurav Jha, Amrita Dhar*
General Surgery, University of Hospital Leicester NHS Trust, Leicester, United Kingdom

Implementation of Enhanced Recovery After Surgery (ERAS) protocols in cancer surgery: A case report

Introduction: Enhanced Recovery After Surgery (ERAS) protocols represent a paradigm shift in perioperative care, focusing on evidence-based practices to reduce surgical stress, optimize pain management, and accelerate postoperative recovery. Initially developed for colorectal surgery, ERAS protocols have been increasingly adopted across various oncologic surgeries, including gastrointestinal, gynaecologic, and hepatopancreatobiliary procedures. The implementation of ERAS protocols in cancer surgery aims to minimize postoperative complications, shorten hospital stays, and enhance patients' overall recovery. This case report illustrates the application and benefits of an ERAS protocol in a patient undergoing gastrectomy for gastric cancer, highlighting its potential for improving postoperative outcomes and promoting early return to normal activities.

Case Report: A 62-year-old male with a history of early-stage gastric adenocarcinoma presented to our institution for definitive surgical management. Following staging investigations, including CT and endoscopic ultrasound, the tumour was classified as cT2N0M0. After multidisciplinary discussion, the patient was scheduled for a laparoscopic distal gastrectomy with D2 lymphadenectomy. Given the patient's comorbidities, including controlled hypertension and Type 2 diabetes, the decision was made to implement an ERAS protocol to optimize perioperative care.

The ERAS protocol included preoperative counselling, carbohydrate loading up to two hours before surgery, avoidance of prolonged fasting, minimally invasive surgery, opioid-sparing analgesia using epidural anaesthesia, early ambulation, and initiation of oral intake on postoperative day one. Intraoperatively, goal-directed fluid therapy was used to maintain euvolemia, and a laparoscopic approach was employed to minimize surgical trauma. Postoperatively, pain was managed using multimodal analgesia, including paracetamol and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), supplemented by epidural analgesia.

The patient's postoperative course was uneventful, with early mobilization initiated on the day of surgery and advancement to a soft diet by postoperative day two. The patient was discharged on postoperative day four, significantly earlier than the average length of stay for similar procedures without ERAS protocols. At the two-week follow-up, the patient reported minimal pain, good functional recovery, and no postoperative complications.

Results: The adoption of the ERAS protocol in this case led to a substantial reduction in hospital stay, enhanced patient recovery, and minimized complications. By focusing on early mobilization, multimodal analgesia, and accelerated nutritional support, the ERAS protocol facilitated a smoother postoperative course and a quicker return to daily activities. The patient experienced a high level of satisfaction, with no readmissions or delays in adjuvant therapy initiation.

Conclusion: ERAS protocols have become an integral part of oncologic surgery due to their ability to reduce surgical stress, minimize opioid use, and accelerate recovery. This case demonstrates the benefits of ERAS implementation in gastric cancer surgery, supporting its broader adoption in diverse oncologic procedures. By reducing complications and enhancing recovery, ERAS protocols offer a significant advancement in perioperative care, potentially improving both short- and long-term outcomes for cancer patients. As ERAS principles continue to evolve, ongoing research is needed to optimize these protocols, tailor them to specific cancer types, and assess their impact on long-term oncological outcomes. The widespread adoption of ERAS protocols in cancer surgery represents a move toward more patient-centered and evidence-based care in the surgical field.

Audience Take Away Notes

- **Key Components of ERAS Protocols:** Learn about preoperative, intraoperative, and postoperative elements that optimize recovery in cancer surgery
- **Benefits of ERAS in Oncology:** Understand how ERAS reduces complications, hospital stays, and costs while improving patient outcomes
- **Practical Implementation of ERAS:** Gain insights into multidisciplinary strategies and overcoming challenges in ERAS adoption
- **Evidence Across Cancer Surgeries:** Review research and case studies showcasing ERAS benefits in different oncologic procedures
- **Future of ERAS Protocols:** Explore advancements and optimization of ERAS for personalized cancer care and improved long-term outcomes

Biography

Amrita Dhar, Core Trainee Doctor in General Surgery at University Hospitals of Leicester NHS Trust, UK.

Borasisi Gabrielle Chenge
University of Lubumbashi, Congo, the Democratic Republic of the

Management of retinoblastoma in the Lubumbashi region: Collaboration with neighboring regions and countries

Introduction: Lubumbashi is the 2nd city in the DRC, 2,812,000 inhabitants (2023). Its pediatric oncology unit (CUL) works in collaboration with ophthalmologists, pathologists, surgeons, imagers, etc...(RCP). Financially supported by several NGOs including AMCC, GFAOP... The management of retinoblastoma in developing countries poses multiple problems. The most important are the often late diagnosis, at an incurable stage, the lack of competent care structures and socio-economic problems (difficulties in accessing care structures, for local accommodation and for the financial support of the cost of treatment).

Methodology: Retrospective descriptive study, REDCap database from April 2016 to June 2023. 301 cases of childhood cancer, including 116 cases of retinoblastoma; 5 cases excluded due to lack of information; Thus, we treated 111 cases of confirmed retinoblastoma. We received 59% male and 41% female, who came from the city of Lubumbashi in 50%, the others came from neighboring cities, provinces and countries, traveling 4 to 1400Km. The city does not yet have a parents' center, which means that 24% of children have not been able to find accommodation. The socio-economic level of families is low in 91%, the number of dependents per family varies from 2 to 18 people. The children who were referred by a hospital institution were 43%, the others came after consulting general practitioners, pediatricians, or even traditional practitioners. Fifty percent of children reached stage IV of the disease. Children who presented with intraocular tumors without extension to the bone marrow, cerebrospinal fluid or beyond the optic nerve had benefited from the GFAOP protocol (Franco-African Pediatric Oncology Group). The others received metronomic chemotherapy on a case-by-case basis (i.e. paliative care). The percentage of deaths is 42%, 27 children escaped, 8 refused treatment. It should be noted that conservative treatment is very recent in Lubumbashi (12 months).

Conclusion: The early diagnosis of retinoblastoma is still paused in Lubumbashi, as is the training of reference center staff. The children come from neighboring towns and regions or from neighboring countries, the accommodation problem will be solved by the acquisition of a house for the parents. Free care for childhood cancer is desired. The early diagnosis of retinoblastoma is still paused in Lubumbashi, as is the training of reference center staff. The children come from neighboring towns and regions or from neighboring countries, the accommodation problem will be solved by the acquisition of a house for the parents. Free care for childhood cancer is desired.

Biography

Dr. Borasisi Gabrielle Chenge studied medicine at the University of L ubumbashi in the Democratic Republic of Congo, graduating in 1989, becoming a specialist in ophthalmology in 1999 after writing and defending a dissertation that discussed the discovery of onchocerciasis in the Kafubu basin in the DRC. Associate of higher and university education in 2007, having published the results of her thesis in the Belgian Bulletin of Ophthalmology on Endemic Limbo-Conjunctivitis of the Tropics in children in Lubumbashi in the DRC. She completed several internships in Belgium in Leuven and Brussels; in India in Koimbatore, New Delhi and Bombay. She has published around fifty articles in national and international journals; participated in several international ophthalmology congresses in Belgium, France, Italy, Kenya, Ivory Coast, Japan, Australia.

Tevfik Hatipoğlu[1,2], Esra Esmeray Sönmez[1,2], Xiaozhou Hu[2], Hongling Yuan[3], Ayça Erşen Danyeli[4], Ahmet Şeyhanlı5, Tuğba Önal-Süzek[6], Aybüke Olgun[7], Sermin Özkal[8], İnci Alacacıoğlu[9], Mehmet Ali Özcan[9], Hua You[10,11], Assoc. Prof. Can Küçük[1,12*]

[1]İzmir Biomedicine and Genome Center, İzmir, Türkiye

[2]İzmir International Biomedicine and Genome Institute, Dokuz Eylül University, İzmir, Türkiye

[3]Department of Basic Oncology, Oncology Institute, Dokuz Eylül Üniversitesi, İzmir, Türkiye

[4]Department of Pathology, Faculty of Medicine, Acıbadem University, İstanbul, Türkiye

[5]Department of Hematology, Faculty of Medicine, Gazi University, Ankara, Türkiye

[6]Department of Bioinformatics, Graduate School of Natural and Applied Sciences, Muğla Sıtkı Koçman University, Muğla, Türkiye

[7]İzmir Tepecik Research and Training Hospital, Health Sciences University, İzmir, Türkiye

[8]Department of Pathology, Faculty of Medicine, Dokuz Eylül University, İzmir, Türkiye

[9]Department of Hematology, Oncology Institute, Dokuz Eylül University, İzmir, Türkiye

[10]Chongqing Key Laboratory of Pediatrics, Ministry of Education Key Laboratory of Child Development and Disorders, Department of Hematology and Oncology, Children's Hospital of Chongqing Medical University, Chongqing 401122, China

[11]International Science and Technology Cooperation Base of Child Development and Critical Disorders, National Clinical Research Center for Child Health and Disorders, Children's Hospital of Chongqing Medical University, Chongqing 401122, China

[12]Department of Medical Biology, Faculty of Medicine, Dokuz Eylül University, İzmir, Türkiye

Genomic analyses of circulating cell-free DNA in follicular lymphoma: Diagnostic, prognostic, and therapeutic implications

In this talk, the potential of cfDNA genotyping on diagnosis and prognostication of Follicular Lymphoma (FL) will be presented. As a frequent non-Hodgkin lymphoma type, FL is generally indolent with a variable clinic presentation including asymptomatic as well as symptomatic cases. However, it may transform to more aggressive B cell lymphomas with poor prognosis. Its diagnosis typically involves immunohistochemical, morphological, or genetic characterizations of biopsies that require invasive interventions. These invasive procedures may pose certain risks to patients including pain or infection. Depending on the anatomical location and size of tumor tissues, it may be difficult to obtain enough tumor tissue for diagnostic evaluations. Moreover, tumor samples obtained may not fully represent the genetic heterogeneity in different sites of the same tumor tissue or different tumors in the body. To overcome these problems, we investigated the genotype of cfDNA in treatment-naive FL cases using an ultra-deep targeted next-generation sequencing panel including 110 FL-related genes. of significance, cfDNA concentrations and the extent of overlap of somatic variants in patient-matched cfDNA and tumor tissue DNA were higher in symptomatic cases compared to asymptomatic ones. This observation suggest that cfDNA analyses may provide more useful clinic information for symptomatic FLs. Furthermore, targeted NGS revealed the presence of tumor-associated somatic mutations such as KMT2D R2417* and EZH2 Y646F in cfDNA of FL patients. Given that pre-clinic and clinical investigations of EZH2 inhibitors showed anti-cancer efficacy against EZH2-mutant bearing tumors, FL patients with the EZH2 mutations in cfDNA may be suitable for EZH2 targeted therapy. We observed that high cfDNA concentrations or presence of BCL2 mutations were significantly associated with shorter survival. BCL2 mutation evaluations in cfDNA improved the prognostication potential of certain poor-prognosis associated variables used in routine clinics. Intriguingly, one of the FL patients with

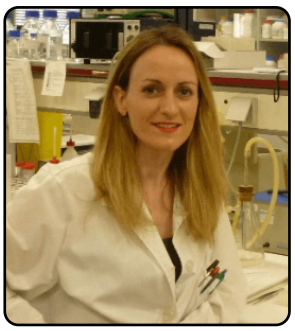
progressive disease contained mutations in early progression-associated genes exclusively in cfDNA at the diagnosis stage. If this observation can be reproduced in other FL patients, it may be possible to identify FL patients at high risk by applying a non-invasive blood test based on cfDNA genotyping. Altogether these observations suggest the potential of plasma cfDNA evaluations for improved diagnosis, prognostication and targeted therapy of FL.

Audience Take Away Notes

- The audience will have a better understanding on the significance and advantages of non-invasive clinic evaluations in cancer
- The audience will gain insight into the potential of cfDNA genotyping on improving diagnosis, prognostication, and targeted therapy of follicular lymphoma
- Other faculty may shape their future research on cfDNA and follicular lymphoma based on the results presented in this talk
- The audience may apply the methodologies mentioned in this speech in their own research

Biography

Assoc. Prof. Dr. Can Küçük completed his Ph.D. studies on oncology and cancer biology at The University of Nebraska Medical Center (UNMC). He performed post-doctoral studies at UNMC and City of Hope Medical Center. Dr. Küçük has publications in high impact journals such as Nature Communications, Blood, or PNAS. He earned prestigious international awards from the American Society of Hematology and the National Natural Science Foundation of China. Dr. Küçük's research focuses on genomic, transcriptomic, and epigenomic aberrations causing lymphoid cancers to identify biomarkers that can improve diagnosis or prognostication of lymphoid cancers and to discover more effective therapeutic targets.



Eleni Petsalaki*, Sofia Balafouti, George Zachos
Department of Biology, University of Crete, Heraklion, Greece

A new actin-related mechanism prevents chromatin bridge breakage in cytokinesis

Chromatin bridges are strands of incompletely segregated DNA connecting the anaphase poles or daughter nuclei. If unresolved, chromatin bridges can break in cytokinesis leading to micronuclei formation and accumulation of DNA damage. To prevent this, human cells form accumulations of polymerized actin (actin patches) at the base of the intercellular canal to stabilize chromatin bridges; however, the molecular mechanisms involved are incompletely understood. In the present study, we identify small GTPases, which control the growth or contraction of filamentous actin fibers, that localize to actin patches and are required for stable chromatin bridges in cytokinesis. Inhibition of these actin regulators reduces actin patch formation and promotes chromatin bridge breakage by confocal microscopy analysis of fixed cells or live-cell fluorescence microscopy. Furthermore, chromatin breakage in cells deficient for the above proteins is not caused by premature abscission, but correlates with reduced actin patches compared with wild-type cells. We also propose that DNA bridges generate tension inside the nucleus which is then transmitted through specific mechanosensitive complexes to the cell cytoskeleton to promote generation of actin patches in the cytoplasm. This study identifies a novel signaling pathway that prevents chromatin bridge breakage by promoting actin patch formation in cytokinesis in human cells. Because chromatin breakage can lead to genomic instability that is associated with cancer formation or progression, understanding how cells stabilize chromatin bridges may help us understand mechanisms of tumorigenesis.

Audience Take Away Notes

- Genomic instability can be caused by chromatin bridge breakage in cytokinesis
- Actin fibers, called actin patches, are formed at the base of the intercellular canal to stabilize chromatin bridges and prevent them from breaking
- Novel signaling pathways preventing chromatin bridge breakage by promoting actin patch formation in cytokinesis

Biography

Dr. Eleni Petsalaki is a Post Docroral Research Scientist in Dr. George Zachos' lab at University of Crete, Greece. She completed her PhD in 2014 in Molecular Biology and Biomedicine at the Department of Biology. Her main interest is mitotic cell division and mechanisms that monitor mitotic progression called the mitotic spindle checkpoint and the abscission checkpoint. She is an author of 16 publications including Journal of Cell Biology, Nature Communications, Journal of Cell Science and others. Her publications have received 305 citations so far. She is currently a member of FEBS, AACR, and Royal Society of Biology.

Frederick H. Silver PhD
Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ, USA
OptoVibronex LLC., Ben Franklin TechVentures, Bethlehem, PA

Noninvasive nondestructive comparison of pigmented and nonpigmented skin lesions

We have developed a new noninvasive technique termed Vibrational Optical Coherence Tomography (VOCT) to optically image and measure the resonant frequency of cellular, blood vessel, papillary collagen, and fibrotic tissue in the skin. Preliminary results on normal skin indicate that cells, blood vessels, and papillary collagen have resonant frequencies of 50, 100, and 150 Hz, respectively. Additional resonant frequencies at 80, 130, and 250-260 Hz are seen in cancerous lesions, corresponding to cancer associated fibroblasts, new thin blood vessels and fibrotic tissue, respectively. VOCT has been used to compare skin lesions including pigmented and nonpigmented melanomas to noninvasively differentiate between these melanomas based on OCT images and biophysical data. The results indicate that each of these lesions have unique physical properties and OCT images that can be used to noninvasively differentiate between pigmented lesions and different forms of melanomas. Color-coded OCT images reveal that In situ and nodular melanomas have different morphological characteristics that can be evaluated noninvasively in vivo using OCT images and resonant frequency profiles. Based on dermatopathology the clear margins of these lesions are not morphological and biophysically identical to normal skin. However, they have different properties from those of malignant melanomas. The results of this study suggest that the different subtypes of melanoma can be noninvasively evaluated via VOCT. Since VOCT data can be collected remotely over the internet, it can be used to provide critical information on skin lesions to general practitioners in areas where dermatologists are in short supply.

Biography

Dr. Frederick H. Silver is a Professor of Pathology and Laboratory Medicine at Robert Wood Johnson Medical School, Rutgers, the State University of New Jersey. He did his Ph.D. in Polymer Science and Engineering at M.I.T. followed by a postdoctoral fellowship in Developmental Medicine at Mass General Hospital in Boston, MA. Dr. Silver has published over 250 peer reviewed scientific papers, 5 textbooks on biomaterials and biomedical engineering, and has over 21 patents issued and pending. He is a section editor for Biomaterials for the MDPI Journal Biomolecules. He is an inventor of vibrational optical coherence tomography.

Dr. Gaurav Vishal
Prathima Cancer Institute, India

Behavior of buccal mucosal squamous cell carcinoma: A detailed study

Introduction: Squamous cell carcinoma of the buccal mucosa is the most common oral cavity cancer in Southeast Asia. In India, 60 to 80% of oral squamous cell carcinoma cases present with advanced stage as compared to 40% in developed countries. Carcinoma of the buccal mucosa is treated mainly by surgery followed by adjuvant therapy, depending upon the stage and histopathological characteristics. The purpose of this study was to evaluate the neck node status, patterns of neck metastasis, distribution of patients according to T stage and management of squamous cell carcinoma of the buccal mucosa.

Methodology: A total of 60 histopathologically proven cases of oral squamous cell carcinoma of buccal mucosa who had no previous malignancies were included in our study. Recurrent cases and prior treatment of oral cancer by chemotherapy and radiotherapy were excluded. All the patients involved in the study underwent tumor resection with neck dissection.

Results: A total of 60 patients were staged as per TNM criteria (AJCC 8th edition). More than 90% metastases occurred at levels I to III lymph nodes. The percentage of T1, T2, T3 and T4 lesions were 06.67, 26.67, 15.00 and 51.67% respectively. 45.00% patients were pathologically node-negative (pN0). In pathologically node-positive (pN+) patients N3 Category was the highest followed by N1 Category and N2 Category. The lymph node positivity was highest in T4 followed by T3 and T2. Final histopathological stage grouping revealed early stage (stage I and II) disease in 12 patients and advanced stage (stage III and IV) disease in 48 patients. 10, 37 and 13 patients were treated by surgery alone, surgery with postoperative radiotherapy and surgery with postoperative CTRT respectively.

Conclusion: This study concluded that more than 90% metastases occurred at levels I to III lymph nodes. 55.00% of the patients were pathologically node-positive (pN+) and nearly 22.00% of the patients were pathologically node-positive with extranodal extension (pN+/ENE+). Majority of the patients had diagnosed in advanced stage of carcinoma. Histopathology reports demonstrated the most of the patients had well-differentiated squamous cell carcinoma. Stage I and II (Early stage) patients were treated mainly by surgery alone and stage III and IV (advanced stage) patients were treated with combination therapy.

Audience Take Away Notes

- The aim of this presentation is to spread awareness about patterns of neck metastasis in buccal mucosa
- In general, the T stage usually reflects tumor burden and therefore the risk of nodal metastasis increases with increasing T stage of the primary tumor at any site. Certain histomorphological features of the primary tumor also increase the risk of nodal metastasis
- This study will help with the awareness levels and knowledge about risk factors, early sign and symptoms along with treatment options for buccal mucosa cancer

Biography

Dr. Gaurav Vishal is an Oral and Maxillofacial Surgeon (M.D.S), Fellowship in Oral Oncology and Reconstructive Surgery. He completed M.D.S-Oral and Maxillofacial Surgery from Institute of Dental Sciences, Bareilly, India in 2020 and Fellowship in Oral Oncology and Reconstructive Surgery from Rohilkhand Medical College and hospital, Bareilly, India in 2021. He has received the Emerging Oncosurgeon Award by HPP Cancer Hospital & Research Institute, with collaboration of Indian Medical Association, Lucknow (Oncological CME was organized in Lucknow), India. He has participated in various International conferences as a Speaker and Moderator. He is an expert in the field of Head & Neck Oncology, Reconstructive Surgery, Facial Trauma, Maxillofacial Pathology, Tobacco Cessation and Basal Implantology. He has several International and National Publications to his credit.

Giuseppe Ercolano
Department of Pharmacy, University of Naples Federico II, Naples, Italy

Innate lymphoid cells and cancer: A new frontier in immunology

Innate Lymphoid Cells (ILCs) have emerged as pivotal players in the immune system, with their roles extending far beyond traditional innate immunity. Recent advances in immunology have highlighted the significant influence of ILCs on tumor development, progression, and response to therapy. Here, we will explore the latest findings on how ILCs interact with the tumor microenvironment, modulate immune responses, and contribute to the dynamic landscape of cancer biology. We will delve into the mechanisms by which ILCs can either suppress or promote tumor growth, depending on the context, and discuss the potential of targeting ILCs as a novel therapeutic strategy in cancer treatment. By unraveling these complex interactions, we aim to uncover new avenues for immunotherapy and precision medicine, positioning ILCs at the forefront of cancer research and therapy.

Audience Take Away Notes

- The multiple roles of ILCs in tumor biology: How different subsets of innate lymphoid cells can either promote or inhibit cancer development depending on the tumor microenvironment
- Mechanisms of ILC interaction with the tumor microenvironment: The specific ways in which ILCs influence immune responses within tumors, including their impact on immune surveillance and tumor growth
- Therapeutic potential of targeting ILCs: Insights into how manipulating ILC activity could lead to new cancer treatments, either by enhancing anti-tumor immunity or reducing tumor-supportive functions

Biography
Dr. Giuseppe Ercolano graduated as Pharmacologist in 2014 at the University of Naples Federico II. In 2015, he started his PhD in Pharmaceutical science, at the Department of Pharmacy in Naples. In 2017, he spent one year at the Ludwig Institute for Cancer Research of the University of Lausanne (Switzerland) under the supervision of Prof. Pedro Romero. From 2019 to 2020 he worked as post-doctoral fellow at the University of Lausanne and the Department of Pathology and Immunology of the University of Geneva (Switzerland) under the supervision of Prof. Camilla Jandus. After one year as post-doctoral fellow at the Department of Pharmacy of the University of Naples Federico II (Italy), in 2022, he obtained a position as Researcher (RTDA). To date, he has published 36 papers in high-impact journals.

Harris Phillip
Department of Obstetrics and Gynaecology, Musgrove Hospital, Somerset NHS, United Kingdom

Cancer: An overview

In this presentation, I will explore the growth of cancer treatment and recognise some of our failures. I will lament that despite the strides made we are unable to find a cure. We will reflect on the papyrus papers in which is a description of the way cancer can be treated but also a conclusion in those very papers that cancer cannot be cured. Now over 5,000 years later, the conclusion appears aprospos. We explore and try to understand why cancers are more common in the west than in the east. We take a deep dive into Okinawa, Japan, a group of islands in southern Japan which is considered among the healthiest in the world. It has the lowest risk of age-related diseases such as diabetes and cancer. I invite you to look at their dietary intake and the active agent in their staple food-fucoidan.

We also explore the AHCC (Activated Hexose Correlated Compound) and the mechanism by which it is thought to work.

The usefulness of chemotherapy is highlighted but there will be a hint that our approach may not be appropriate. Drawing on information from the known mechanism by which natural Killer cells can conduct their function, through their use of kryptonite and wonder whether our development of chemotherapeutic agents should not function in a similar manner.

We conclude by highlighting the value of the AMAS test and wonder whether a chemotherapeutic agent can be developed which can be deployed once the AMAS test is positive which will be target driven and hence therapeutic. Could this be the development of the vaccines that have long been heralded?

Audience Take Away Notes

- The usefulness and the need for more wide spread use of AMAS test
- The change in approach of finding chemotherapeutic agents. This would help to unearth less toxic therapeutic agents and may move the community along in its therapeutic approaches to reduce the morbidity associated with cancer

Biography
Dr. Harris Phillip studied Chemistry at the Prairie View A&M university and Texas A&M University, Texas, worked with Dr Henry Ballard's research group. In 1986 joined Dr Scott's research group in Biochemistry at Texas A&M University. Attended medical school in Jamaica, at the University of the West Indies, completing his MBBS and DM degrees. Migrated to England where he completed the CCT (Certificate of Completion of Training) in Obstetrics and Gynaecology. He is widely published in several medical journals, having published more than 35 articles. He is author of 8 books.

Dr. Harsha Agarwal[1*], Roshika[2]
[1]Psycho Oncologist and Head of Psycho Oncology Department, RGCI&RC, Delhi, India
[2]Counselor, Psycho Oncology Department, RGCI&RC, Delhi, India

Role of psycho oncology in cancer management and research in current scenario - A real life experience

Psycho oncology is an interdisciplinary field at the intersection of psychology and oncology, focusing on the psychological, social, behavioral and ethical aspects of cancer. Psycho oncology plays a vital role in the comprehensive care of cancer patients, encompassing psychological, social and emotional aspects of their experience.

Psycho oncology addresses the psychological impact of cancer diagnosis, treatment and survivorship on patients, caregivers and families. It aims to enhance quality of life by providing psychological support, coping strategies and interventions tailored to individual needs. This proactive approach helps mitigate distress, anxiety, depression and other mental health challenges associated with cancer.

In cancer management psycho oncology begins with systematic psychosocial assessments to identify and address the diverse emotional challenges faced by patients and their care givers. These assessments inform tailored interventions such as cognitive behavioral therapy, mindfulness-based techniques and supportive counseling aimed at alleviating distress, enhancing coping mechanisms and improving overall quality of life. By integrating psychological care into multidisciplinary oncology teams, psycho oncologists foster collaborative approaches that optimize patient outcomes and treatment adherence.

Moreover, psycho oncology is integral to advancing cancer research by elucidating the impact of psychosocial factors on treatment outcomes and survivorship. Research endeavors encompass evaluating the efficacy of psychosocial interventions, exploring resilience factors and elucidating pathways linking psychological well-being to physical health outcomes. Through rigorous study designs and evidence-based practices, psycho-oncology contributes essential insights into enhancing patient centered care and informing clinical guidelines.

Psycho oncology is indispensable and complements medical treatments and research by providing holistic care and approach that acknowledges and addresses the multidimensional impact of cancer. By bridging clinical practice with empirical research, psycho oncologists contribute valuable insights that inform comprehensive cancer care strategies. By promoting psychological resilience, improving communication and relationships and supporting existential coping, psycho oncology contributes significantly to the overall well-being and quality of life of individuals affected by cancer. Future cancer management and research directions should continue to prioritize the integration of psycho social interventions into oncology practice to optimize patient outcomes and quality of life.

Audience Take Away Notes

- **Holistic approach:** Emphasizing the importance of addressing both physical and psychological aspects of cancer
- **Future outlook:** Highlighting the potential for psycho oncology to improve cancer outcomes and quality of life for patients globally
- **Improve treatment adherence:** Enhancing adherence to treatment regimens through psychological support and education
- **Managing side effects:** Effective management of side effects in cancer treatment requires a personalized approach, proactive monitoring and multidisciplinary collaboration between oncologists, psycho oncologists and care providers
- **Developing good communication:** By effective communication, healthcare providers can foster trust, enhance patient satisfaction, improve treatment adherence and ultimately support better outcomes in cancer management
- **Unconditional support for family and care givers:** Cancer does not only affect patients but also caregivers who play a critical role in the patients' journey. Psycho oncology extends support to caregivers by addressing their emotional needs, providing coping strategies and promoting caregiver well-being. This support is essential for reducing caregiver burden and enhancing their ability to provide effective support to the patient
- This can be used to expand research and teaching purpose as this paper is based on self- experience
- This provides a practical solution to a problem that could simplify or make a designer's job efficient
- It may assist the decisions to handle the patients and caregivers through the right channel

Biography

Dr. Harsha Agarwal is Doctorate in Psychology (2015) with specializations in Health, Clinical and Child Psychopathology. She did her Masters (2009) and Bachelors (2007) in Psychology as well. She is heading the Department of Psycho Oncology at Rajiv Gandhi Cancer Institute & Research Centre since 2018. Her vision is to create an ecosystem in the society, especially among cancer patients and their caregivers, where people can exchange their problems, stereotypical behavior and myths/stigma influenced mindset without any hesitation. Her passion to help mankind led her to establish an outpatient department for psychological services at a tertiary cancer centre. She is compassionately committed to serving mankind by actively listening to their concerns and guiding them a way out of their behavioral, emotional and psychological concerns at the time of diagnosis, pre, during and post their surgical/medical/radiation/bone marrow transplant lines of treatments. In view of lack of acceptance to the need of mental health, she has also been actively conducting researches to spread a word of awareness. Her research work, articles, contributions to the society has been published across several national and international journals. She is accredited and a globally recognized professional with certified credentials in the areas of suicide prevention counseling, Behavior event analyst, Graphology and Grapho therapy, Psychological assessments and diagnosis and is a nationally certified career counselor as well. She has won several awards and accolades for her efforts. Very recently her efforts were acknowledged with Dr. APJ Abdul Kalam Award 2023 for service excellence in psycho oncology; most promising psycho oncologist of the Year 2022 by Nationwide Health care Awards.

Isoline M. Donohue[1*], Ankit Srivastava[1], Angela M. Peralta[1], Aiko J. Tan[1], Audrey Nguyen[1], Tomas Bencomo[1], Jiangbin Ye[3], Bruce Ashford, Marie Ranson, David Kashatus, Carolyn S. Lee[1,4]

[1]Dermatology, Stanford University, Stanford, CA, United States

[2]Radiation Oncology, Stanford University, CA, United States

[3]Microbiology, Immunology & Cancer Biology, University of Virginia Health System, United States

[4]VA Palo Alto Healthcare System, Palo Alto, CA, United States

Mutation in OXA1L UTR drives metastatic cutaneous squamous cell carcinomas

Most cancer-related deaths are caused by metastases, yet the mechanisms that promote metastatic dissemination are not fully defined. To identify mutational drivers of metastasis in skin cancer, we analyzed 41 metastatic Cutaneous Squamous Cell Carcinomas (cSCC) and patient-matched controls. 29% (12 of 41) of cSCC metastases but only 6% (4 of 61) of primary cSCC contained a recurrent somatic mutation in the 5' Untranslated Region (UTR) of OXA1L, a nuclear gene encoding a mitochondrial protein. Examination of the originating primary tumor in the 29% of patients with metastatic cSCC identified the same OXA1L mutation, consistent with an early event in carcinogenesis. This 5'UTR mutation reduced OXA1L expression by decreasing mRNA stability and led to accelerated neoplastic invasion in organoids, as well as enhanced tumor growth and increased metastasis of OXA1L-mutant cells in vivo. Compared to Wild Type (WT) keratinocytes, isogenic OXA1L-mutant cells had decreased differentiation markers, increased stemness markers, and greater proliferative capacity. Targeted metabolomic profiling showed accumulation of Fructose-1,6-Bisphosphate (FBP) in OXA1L-mutant cells at ~50-fold higher levels than WT and this was confirmed using a fluorescent FBP biosensor. OXA1L mutagenesis also led to reduced aldolase activity, suggesting glucose flux constrained at this step may stimulate the pentose phosphate pathway. In line with this possibility, increased levels of reduced glutathione and a higher ratio over total glutathione were identified in OXA1L-mutant cells, suggesting greater capacity to buffer differentiation-promoting oxidative stress. Taken together, these findings indicate that mutation of OXA1L leads to metabolic reprogramming via aldolase suppression, which may underlie dedifferentiation and tumor metastasis in cSCC.

Audience Take Away Notes

- Tumor metastasis has many potential mutational drivers, including the OXA1L UTR in cSCC
- The regenerated human skin model, in vivo models, and cell-based assays are all methods that can be utilized to demonstrate cancer cell invasion, increased proliferation, and metabolic flux
- The focus on cell energetics and metabolomic reprogramming as a phenotype of cSCC metastasis is applicable to different cancer types

Biography

Isoline Donohue received her Bachelor of Science in Biological Sciences at the University of California, Davis in 2023. She joined the Lee lab as a research technician in the Department of Dermatology at Stanford University to study squamous cell carcinoma. She is applying for PhD programs in the fall of 2024 to begin in 2025.

Ivelís M. Sarachi
Breast Imaging and Interventional Department, Centro Diagnóstico Mon, La Plata, Buenos Aires, Argentina

Vacuum assisted breast biopsy: What can we do during an active bleeding and vasovagal syncope in order to complete the procedure?

Vacuum Assisted Breast Biopsy (VABB) is a minimally invasive procedure in which a suspicious Breast Sample (BS) is removed with a vacuum pump through a small skin incision under local anesthesia. Can be performed under Mammography (M), US or MRI guidance. Our topic is the VABB M guided; can be done in prone or in Upright Position (UP) with the breast held in a fenestrated compression. Once the needle has been positioned (9G or 12G), the notch is open, and a rotating cutting device removes BS. Procedure takes 20 minutes and patients return to normal activities. The most common complications include hematoma, Active Bleeding (AB) and Vasovagal Syncope (VS). Knowing what to do during these complications, allow us to successfully complete the procedure avoiding an insufficient BS and its suspension.

Audience Take Away Notes

- To know the management of an AB during a VABB with blood clots in BS which difficult the visualization of amorphous microcalcifications
- To know how to revert a VS during a VABB in the UP
- With the tips developed in this presentation you could be able to complete the VABB

Biography
Ivelís Sarachi studied Medicine in the “Universidad Nacional de La Plata” and graduated as MD in 2009. In 2010 she started the medical residency in radiology at the hospital “H.I.G.A Gral. San Martín” in La Plata City and received the PhD degree in 2014. In the same year, she started to work in “Centro Diagnóstico Mon” in the Breast Imaging Department. She has published more than 15 research articles and received a CUM LAUDE distinction in 2017 for her work “Implicancia en la categorización BI-RADS de la compresión focalizada con tomosíntesis” published in the “Congreso Argentino de Diagnóstico por Imágenes”.

John M. York[1,2,3*] PharmD, MBA; Giovanni Lara[2*] PharmD; Michika Maeda[2] MD; Mahesh Kandula[4,5] M.Tech, MBA; Subbu Apparsundaram[4,5] PhD

[1]Institute for the Global Entrepreneur, University of California, San Diego, San Diego, California, United States

[2]Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ, United States

[3]Burnett School of Medicine, Texas Christian University, United States

[4]Cellix Biosciences, Inc, Newark, NJ, 5Cellix Bio Private Limited, Hyderabad, India

Preclinical evaluation of CLX-155A, a novel prodrug conjugate of 5-FU and valproic acid, for triple-negative breast cancer

Introduction: The rationale for combination therapy in treating cancer is to use drugs with different mechanisms of action, thereby reducing the likelihood that resistant cancer cells will develop. CLX-155A is an oral prodrug conjugate hydrolyzed by intestinal enzymes to yield 5'-DFCR and valproic acid. 5'-DFCR is an intermediate in generating 5-FU, a clinically proven antimetabolite, producing DNA and RNA damage in cancer cells. Valproic acid is an approved antiseizure medication known to produce antitumor activity due to its epigenetic modulating histone deacetylase inhibitory activity. Thus, CLX-155A differs from capecitabine, an approved oral prodrug of 5-Fluorouracil (5-FU), used to treat metastatic breast and colorectal cancer. Hepatic carboxyl esterases hydrolyze capecitabine to yield intermediate 5'-DFCR, which the tumor will convert to 5-FU. Variability in therapeutic levels of 5-FU and severe neurologic (e.g., hand-foot syndrome), gastrointestinal, and hepatic toxicities have limited the use of capecitabine in treating solid tumors. Unlike capecitabine, CLX-155A yields 5-FU, independent of liver metabolism. Due to the combined activity of 5'-DFCR and valproic acid, CLX-155A can offer the potential for greater potency for anticancer effects. Hence, this preclinical work compares the efficacy of CLX-155A in a triple-negative human breast cancer xenograft model in nude mice as monotherapy and in combination with paclitaxel.

Methods: This study involved Foxn1 athymic nude female mice (7-8 weeks) implanted subcutaneously with MDA-MB-231 human triple-negative breast cancer (5 million cells/site) in the dorsal right flank. The study randomized these animals into different treatment groups (N=10 per group) as vehicle control, CLX-155A (1000 mg/kg/day), capecitabine (1000 mg/kg/day), CLX-155A plus paclitaxel (15 mg/kg) or capecitabine plus paclitaxel (15 mg/kg). Animals underwent oral treatment once daily for eight consecutive days. The combination groups received paclitaxel by intravenous route on study days 1, 3, and 6. Investigators recorded tumor volumes thrice weekly and observed clinical signs of toxicity, mortality, and body weights until study day 8. Later, animals were observed for tumor regrowth pattern and body weight recovery under post-treatment observation till day 25. The Tumor Growth Inhibition (TGI) percentage analysis involved calculation based on the tumor volume on a given day compared to the vehicle control group.

Results: All test groups exhibited significant tumor growth inhibition (***$p<0.001$; day 3-day 6). The capecitabine group and capecitabine+paclitaxel treatment group showed a %TGI of 115% and 143%, respectively, on Day 9. CLX-155A group and CLX-155A combination treatment group exhibited greater anticancer efficacy with higher %TGI of 145% and 167% on day 9. The study did not observe any notable regrowth of the tumors during the post-dose observation period in any of the groups. However, mortalities and moderate to severe body weight loss occurred in all the dose groups. The combination groups showed a higher degree of toxicity than the groups that received the drugs alone. At the end of the study, the number of surviving animals in the treatment groups was 5/10 (Capecitabine), 3/10 (CLX-155A), and 2/10 each in the combination groups.

Conclusion: CLX-155A showed significant antitumor activity in triple-negative breast cancer cell-derived tumor xenografts alone and with paclitaxel. The efficacy of CLX-155A was better than that observed with capecitabine alone or in combination with paclitaxel. The dose levels evaluated in this study for the test compounds alone and in combination with paclitaxel were higher than the maximum tolerated doses, as evidenced by a high incidence of mortality, significant body weight loss, and associated clinical signs of toxicity. While these initial data indicate that CLX-155A may have improved efficacy, regulators will require additional dose-ranging efficacy in the xenograft model further to characterize the CLX-155A's efficacy and safety profile.

Audience Take Away Notes

- The audience will be able to use such data to evaluate the candidacy of CLX-155A for phase 1/2 study investigation in solid tumors, such as breast and colon cancer, where clinicians might use capecitabine
- This research will add knowledge about antimetabolites, capecitabine, and their role in solid tumors, which academics can teach in both pharmacology and therapeutics class settings
- This research offers an avenue to examine drug design strategies to improve the therapeutic window of newer antimetabolite candidates for use in solid tumors
- This effort creates awareness about the antimetabolite and capecitabine alternatives. Such awareness will help clinicians reevaluate the current and future roles of antimetabolites and capecitabine based on their therapeutic benefits and toxicity profiles, which might limit current use, particularly that of capecitabine

Biography

John M. York, Pharm.D., MBA, Ph.D.c is at Texas Christian University, Burnett School of Medicine as an assistant clinical professor of medical education; University of California, San Diego, as a visiting professor of practice and co-director of the translational medicine capstone project and lead instructor at the Institute for the Global Entrepreneur. He also serves as faculty at Rutgers's Ernest Mario School of Pharmacy, overseeing scholarly projects within the industry post-doc program. York's oncology experience spans over 30 years, including efforts at Amgen, HDI, and Akita Biomedical. His activities include being an associate editor for Cancer Control from 2008-2018 and collaborating with the H Lee Moffitt Cancer Center in Tampa, FL. He has over 45 peer-reviewed articles on clinical translations, pharmacoeconomics, entrepreneurship, and management topics. His oncology consulting includes work with Celgene, Daiichi Sankyo, Genentech, HRA Pharma, Novartis, Pharmion, and Pfizer.

Giovanni Lara, PharmD is a postgraduate fellow in Translational Clinical Oncology at Novartis through the Rutgers Pharmaceutical Industry Fellowship program. He obtained his pharmacy degree from the University of California, San Francisco. He is published in peer-reviewed journals for his work in transporter research.
Michika Maeda, MD is a postgraduate fellow in Clinical Development at Novartis through the Rutgers Pharmaceutical Industry Fellowship program. She obtained a medical degree from the University of Illinois Chicago and completed internal medicine residency at Rush University Medical Center.

Mahesh Kandula, MTech, MBA, is an inventor of 76 United States Patents and more than 300 International Patents. He has over >18 years of scientific and entrepreneurial experience in the life science industry. Inventor of several potential novel molecular entities in various therapeutic areas, including Thrombosis, Lipid Disorders, Diabetes, CNS, Asthma, Cancer, Neurodegenerative Diseases, Hypertension, and Liver Cirrhosis. Previously, Mahesh co-founded Krisani Bio and worked with Indigene. Mr. Kandula received his Master of Technology degree from the Indian Institute of Technology Kharagpur and MBA from Babson College, USA.

Subbu Apparsundram, PhD, is an established scientist with extensive experience in drug discovery and development. Subbu has a strong focus on 505(b)(2) drug discovery and IND-enabling studies. Subbu founded VClinBio, which entered into a strategic partnership with Cellix Bio. Previously, Subbu was a project leader at Roche and a faculty member at the University of Kentucky Medical Center and Vanderbilt University. He has published several peer-reviewed research papers.

Michika Maeda[1*] MD; Giovanni Lara1 PharmD; Mahesh Kandula[2,3] M.Tech, MBA; Subbu Apparsundaram[2,3] PhD, John M. York[1,4,5*] PharmD, MBA

[1]Ernest Mario School of Pharmacy, Rutgers University, United States

[2]Cellix Biosciences, Inc, Newark, NJ, United States

[3]Cellix Bio Private Limited, Hyderabad, India

[4]Institute for the Global Entrepreneur, University of California, San Diego, San Diego, California, United States

[5]Burnett School of Medicine, Texas Christian University, Ft. Worth, Texas, United States

Preclinical evaluation of CLX-155A, a novel prodrug conjugate of 5-FU and valproic acid, to assess activity in a Foxn1 athymic nude mouse colorectal cancer model

Introduction: The rationale for combination therapy in treating cancer is to use drugs with different mechanisms of action. This approach reduces the likelihood that resistant cancer cells will develop. CLX-155A is an oral prodrug conjugate hydrolyzed by intestinal enzymes to yield 5'-DFCR and valproic acid. 5'-DFCR is an intermediate in generating 5-FU, a clinically proven antimetabolite, which produces DNA and RNA damage in cancer cells. Valproic acid is an approved antiseizure medication known to produce antitumor activity due to its epigenetic modulating Histone Deacetylase (HDAC) inhibitory activity.

CLX-155A differs from capecitabine, an approved oral prodrug of 5-Fluorouracil (5-FU), used to treat metastatic breast and colorectal cancer due to these mechanistic and metabolic considerations. In particular, hepatic carboxyl esterases hydrolyze capecitabine to yield intermediate 5'-DFCR, which the tumor will convert to 5-FU. Variability in therapeutic levels of 5-FU and severe neurologic (e.g., hand-foot syndrome), gastrointestinal, and hepatic toxicities have limited the use of capecitabine in treating solid tumors. Unlike capecitabine, CLX-155A yields 5-FU, independent of liver metabolism. Due to the combined activity of 5'-DFCR and valproic acid, CLX-155A can offer the potential for greater potency for anticancer effects.

Methods: This preclinical study aims to address the question about the efficacy of CLX-155A in a human colon cancer xenograft model in nude mice as monotherapy. This investigation involved Foxn1 athymic nude female mice (7-8 weeks) implanted subcutaneously with HCT116 human colon cancer (5million cells/site) in the dorsal right flank. The study randomized these animals into different treatment groups (N=10 per group) as vehicle control, CLX-155A (300mg/kg daily, 1000mg/kg daily, 150mg/kg BID, and 500mg/kg BID), capecitabine (1000mg/kg daily, 500mg/kg BID). Oral treatment was initially administered for 10 days, followed by 2 doses off for daily groups and 3 doses off for BID groups, and then continued for another 7 days. Investigators recorded tumor volumes thrice weekly and observed clinical signs, mortality, and body weights. The Tumor Growth Inhibition (TGI) percentage analysis involved calculation based on the tumor volume on a given day compared to the vehicle control group.

Results: CLX-155A showed dose-dependent tumor growth inhibition at daily and twice-daily regimens, which were significant from the sham control group ($p<0.0001$). On Day 18, CLX-155A demonstrated a TGI of 71.0 and 94.2% at 300 and 1000mg/kg/day QD and 50.5% and 98.4% at 150 and 500mg/kg BID, respectively. Capecitabine at 1000mg/kg daily and 500mg/kg BID showed TGI of 91.1% and 97.4%, respectively, on Day 18. Only one animal in the CLX-155A 500 mg/kg BID group expired, whereas two in the 500mg/kg BID group on the capecitabine group died. Animals tolerated CLX-155A well, with small changes in weight loss (-2.6% and -6.9% in 300 and 1000 mg/kg QD, -5.4% and -13.9% at 150 and 500 mg/kg BID, respectively).

Also, multiple capecitabine animals presented with a hunchback (3/10) and progressive body weight loss (-24.5% and -16.8% at 1000 mg/kg and 500 mg/kg BID, respectively).

Conclusion: CLX-155A at multiple doses displayed significant antitumor ($p<0.0001$) activity in human colon cancer cell-derived tumor xenografts. The once-daily dosing schedule of 300mg/kg/day demonstrated numerically better antitumor activity than the twice-daily dosing schedule at 150mg/kg BID. While these initial data indicate that CLX-155A shows activity in this model, there will be the need for additional dose-ranging efficacy in the xenograft model further to characterize the CLX-155A's efficacy and safety profile.

Audience Take Away Notes

- The audience will be able to use such data to evaluate the candidacy of CLX-155A for phase 1/2 study investigation in solid tumors, such as colon cancer, where clinicians might use capecitabine
- This research will add knowledge about antimetabolites, capecitabine, and their role in solid tumors, which academics can teach in both pharmacology and therapeutics class settings
- This research offers an avenue to examine drug design strategies to improve the therapeutic window of newer antimetabolite candidates for use in solid tumors
- This effort creates awareness about CLX-155 as an antimetabolite alternative and issues with current options such as capecitabine. Such awareness will help clinicians reevaluate the current and future roles of antimetabolites and capecitabine based on their therapeutic benefits and toxicity profiles, which might limit current use, particularly that of capecitabine

Biography

John M. York, Pharm.D., MBA, Ph.D.c is at Texas Christian University, Burnett School of Medicine as an assistant clinical professor of medical education; University of California, San Diego, as a visiting professor of practice and co-director of the translational medicine capstone project and lead instructor at the Institute for the Global Entrepreneur. He also serves as faculty at Rutgers's Ernest Mario School of Pharmacy, overseeing scholarly projects within the industry post-doc program. York's oncology experience spans over 30 years, including efforts at Amgen, HDI, and Akita Biomedical. His activities include being an associate editor for Cancer Control from 2008-2018 and collaborating with the H Lee Moffitt Cancer Center in Tampa, FL. He has over 45 peer-reviewed articles on clinical translations, pharmacoeconomics, entrepreneurship, and management topics. His oncology consulting includes work with Celgene, Daiichi Sankyo, Genentech, HRA Pharma, Novartis, Pharmion, and Pfizer.

Michika Maeda, MD (Presenting author) is a postgraduate fellow in Clinical Development at Novartis through the Rutgers Pharmaceutical Industry Fellowship program. She obtained a medical degree from the University of Illinois Chicago and completed internal medicine residency at Rush University Medical Center.

Giovanni Lara, PharmD is a postgraduate fellow in Translational Clinical Oncology at Novartis through the Rutgers Pharmaceutical Industry Fellowship program. He obtained his pharmacy degree from the University of California, San Francisco. He is published in peer-reviewed journals for his work in transporter research.

Mahesh Kandula, MTech, MBA, is an inventor of 76 United States Patents and more than 300 International Patents. He has over >18 years of scientific and entrepreneurial experience in the life science industry. Inventor of several potential novel molecular entities in various therapeutic areas, including Thrombosis, Lipid Disorders, Diabetes, CNS, Asthma, Cancer, Neurodegenerative Diseases, Hypertension, and Liver Cirrhosis. Previously, Mahesh co-founded Krisani Bio and worked with Indigene. Mr. Kandula received his Master of Technology degree from the Indian Institute of Technology Kharagpur and MBA from Babson College, USA.

Subbu Apparsundram, PhD, is an established scientist with extensive experience in drug discovery and development. Subbu strongly focuses on 505(b)(2) drug discovery and IND-enabling studies. Subbu founded VClinBio, which entered into a strategic partnership with Cellix Bio. Previously, Subbu was a project leader at Roche and a faculty member at the University of Kentucky Medical Center and Vanderbilt University. He has published several peer-reviewed research papers.

Kaly Keïta[1*], Abdoulaye Keïta[2]
[1]Department of Internal Medicine at the University Hospital Center of the Point G, Bamako, Mali
[2]Drug and Laboratory Unit, Regional Health Department of Koulikoro, Mali

Global assessment of predictive biomarkers in Malian BCLC stage C hepatocellular carcinoma patients under mono or combination immune checkpoint inhibitors treatment: A proposed research protocol

According to the Barcelona Clinic Liver Cancer (BCLC) staging system, only the advanced stage (stage C) Hepatocellular Carcinoma (HCC) patient is eligible for systemic treatments. In addition to tyrosine kinase inhibitors, multikinase inhibitors and anti-Vascular-Endothelial Growth Factor-2 (VEGF-R2), the systemic management of HCC has been revolutionized by the advent of Immune Checkpoint Inhibitors (ICIs), a therapeutic class of monoclonal antibodies that blocks the immune checkpoints. Numerous studies, almost outside Africa and particularly Mali, on predictive biomarkers in various cancers treatment with ICIs were performed but predictive biomarkers ones in patients with advanced HCC under ICIs remain insufficient and are not multidimensional approaches to propose a patient-specific choice for ICIs treatment and even to develop simplified therapeutic algorithms and novel prognostic index for efficient HCC management. Our central hypothesis is that the global assessment of predictive biomarkers could help patient-specific choices for ICIs treatment by developing simplified therapeutic algorithms and novel prognostic index for efficient HCC management. To assess hematogical, biochemical, immunohistological, epigenetical, genetical and neoantigenic predictive biomarkers in Malian BCLC stage C HCC cohort treated with sorafenib or ICIs, we are going to conduct a national and multi-centre cohort study with prospective data collection during the study period between January 1, 2024 to December 31, 2026. The participants will be distributed in 1:1 manner into experimental group/group A (ICIs mono or combination therapy with first or second line) and control group/group B (Sorafenib in first line). To detect a positive correlation between predictive biomarkers and clinical responses, irAEs and others outcomes, a cross-sectional analysis of data acquired during the follow-up between group A and group B will be done. This cohort study will make an important contribution to increase the knowledge on predictive biomarkers associated to therapeutic efficacy, Immune-Related Adverse Events (IrEAs) and others evolutionary outcomes in patient with HCC under ICIs. Our study will differ from previous studies by assessing globally the predictive biomarkers whose the well-conducted cross-sectional analysis could provide novel relevant predictive biomarkers, simplified therapeutic algorithm, and novel prognostic index development; and by holding in Africa particularly in Mali where predictive biomarkers especially in BCLC stage C HCC patient constitute almost a virgin ground.

Audience Take Away Notes

- This cohort study will determine the stage of HCC patients according to the Barcelona Clinic Liver Cancer staging system more prevalent in Mali
- This cohort study will identify predictive biomarkers associated to clinical responses to ICs
- This cohort study will identify predictive biomarkers associated to ICs Immune-Related Adverse Events (irAEs)
- This cohort study will actualize our data comparing therapeutic efficacy and tolerability between sorafenib versus ICs

- This presentation will drive great investment into predictive biomarker and immunotherapy research in advance HCC to further change the prognosis this disease

Biography

Dr. Keïta has been studying autoimmune and autoinflammatory disease in the last 8 years. Currently, he is an Associate Researcher in the Clinical Research Unit of the Department of Internal Medicine at the University Hospital Center of the Point G. In the last 5 years, Dr. Kaly Keïta has been largely focusing his research on Immune-Mediated Inflammatory Diseases (IMIDs) subdivided into three nosological entities such autoimmune diseases, autoinflammatory diseases, and inflammatory diseases with undetermined mechanism (including neoplasm). He and his colleagues published one of most overview immune-mediated inflammatory diseases whose neoplasms were more prevalent notably hepatocellular carcinoma. He is author of two medical books and co-author of two book chapters, author or co-author of more than seventy- two scientific articles and more than seventy-six scientific communications, and he is also reviewer and editor board member of some reputed medical journals.

Keerthiveena Balraj[1*], Anurag S. Rathore[1,2]
[1]Yardi School of Artificial Intelligence, Indian Institute of Technology Delhi, India
[2]Department of Chemical Engineering, Indian Institute of Technology Delhi, India

Application of deep learning techniques for the detection of breast cancer: Challenges and opportunities

Breast cancer is the second leading cause of mortality and fatal disease among women, making it a serious public health issue at present. Timely diagnosis plays a pivotal role in improving prognosis and survival rates, underscoring the urgency for early detection. Fortunately, advancements in the analysis of radiographic imaging and histopathological images is feasible to diagnosis and done by experienced radiologist. Recent developments in Artificial Intelligence (AI), in particular Machine Learning (ML) and Deep Learning (DL), have demonstrated promising outcomes in various fields, including the internet of things, automated machinery, and healthcare. DL techniques are dominating medical image analysis for the early detection of breast cancers. This study discusses the overall potential of ML and DL techniques to automatically grade, recognize, and assess the abnormal features that will empower radiologists to provide accurate diagnoses and facilitate personalized health care. In this study, a brief overview of the analysis of traditional and advanced techniques was discussed. This study highlights the open issues, research gaps, and future directions for the early detection and diagnosis of breast cancers. In this paper, we proposed an improved DL based classification pipeline for the detection of breast cancer from whole-slice images. This article presents a comparative analysis of two feature extraction methodologies that have been employed for breast cancer classification: (1) hand-crafted features from the histogram of oriented gradient, local binary pattern, and gray-level co-occurrence matrices; and (2) deep features from deep learning architecture. The retrieved handcrafted features and deep learning features are applied to classification algorithms such as support vector machine, gradient boosting, random forest, XGBoost, and softmax for the identification of breast cancers. It has been found that the proposed architecture obtained excellent results in terms of accuracy, sensitivity, specificity, and F1 score. This study may help clinicians to early progression with high accuracy for timely interventions and utilization of advanced DL technology, with a specific focus on its applications in the detection of breast cancers.

Audience Take Away Notes

- Analyze and compare various methods for extracting features, such as hand-crafted and deep features, in order to automatically grade and assess features in breast cancer diagnosis
- Investigating the capabilities of advanced machine learning methods, such as Generative Adversarial Network (GAN) and Convolutional Neural Network (CNN), for detecting breast cancer
- Various classification techniques, including support vector machine, gradient boosting, random forest, XGBoost, and softmax, are used to detect breast cancer
- Radiologists may use the insights obtained from this research into their clinical procedures, enhancing the precision and effectiveness of breast cancer screening, thereby helping patients through personalized healthcare solutions
- Researchers may investigate these approaches to further develop their research in medical imaging and deep learning applications

Biography

Dr. Keerthiveena Balraj earned her Ph.D. degree from Anna University, in 2021 and has 7+ years of research experience in the field of medical image analysis. Presently, she is a postdoctoral researcher and coordinator of the data analytics division at the Centre of Excellence in Biopharmaceutical Technology, IITD. She manages research and development efforts in mobile health for heart failure, pancreatic cancer, brain tumor identification, Multivariate data analytics and video-based cardiac function monitoring.

Dr. Koustav Sarkar[1*], Sudeshna Rakshit[1], Geetha Shanmugam[1], Melvin George[2]

[1]Department of Biotechnology, SRM Institute of Science and Technology, Kattankulathur, Chennai, Tamil Nadu 603203, India

[2]Department Clinical Pharmacology, SRM Medical College Hospital and Research Centre, Kattankulathur, Chennai, Tamil Nadu 603203, India

The function of epigenetic and epitranscriptomic modifications in T helper cells of Coronary Artery Disease (CAD) and its relationship to Non-Small Cell Lung Cancer (NSCLC) and Invasive Ductal Carcinoma (IDC)

Epigenetics' role in Non-Small Cell Lung Cancer (NSCLC) and Coronary Artery Disease (CAD) is currently emerging as a crucial player at several levels, ranging from pathophysiology to treatments. We aim to determine the combination of certain regular epigenetic controls that determine the pattern of methylation/demethylation or acetylation/deacetylation on different gene promoters linked to their pathogenesis. Certain genes, such as VEGFA, AIMP1, and so on, exhibit either up- or down-regulation in a pattern that is consistent with the involvement of many DNA damage (e.g., H2A.X) and repair factors (e.g., BRCA1, RAD51, ERCC1, XPF), transcription-coupled DNA repair factor, and replication proteins. Furthermore, aberrant histone methylation was discovered to be associated with BRCA1 complex in patients with CAD and NSCLC, among other epigenetic alterations. Although they altered the R-loop formation, which is susceptible to DNA damage, epigenetic therapies such the CRISPR/Cas9 mediated elimination or overexpression of a specific gene (BRCA1) showed encouraging alterations in sick circumstances. Together, Invasive Ductal Carcinoma (IDC) and Coronary Artery Disease (CAD) continue to be the leading causes of death in women each year. These conditions are caused by intricate signaling pathways and share a number of risk factors. Therefore, it's critical to identify the same epigenetic changes that may be causing the disease to proceed from CAD to IDC. Numerous epigenetic regulators, such as VEGFA and AIMP1, have been found. These regulators primarily function in inflammatory pathways in both disease states and changes in the epitranscriptome, such as aberrant m6A RNA methylation, in CD4+T helper cells in both CAD and IDC. Through the regulation of m6A RNA methylation and the tumor suppressor gene P53, CRISPR-Cas9 driven knockout/overexpression of a specific gene (BRCA1) presents a possible therapeutic method in sick circumstances. Furthermore, it had an impact on the establishment of the R-loop, which is susceptible to DNA damage. BRCA1 can also cause CTL-mediated cytotoxicity in breast cancer cells. Therefore, by comprehending the changes and interactions of epigenetic pathways, fresh treatment techniques to prevent the potential transmission of disease to disease can be developed. The involvement of common epigenetic mechanisms, as well as the interactions and modifications that our study discovered, will play a crucial role in helping to comprehend the upcoming development of innovative epigenetic therapeutics.

Audience Take Away Notes

- The audience will discover that patients with CAD have an increased risk of breast and lung cancer
- The researcher will be able to create several immunotherapeutic approaches for tumors with the aid of the mechanistic relationship between CAD and lung and breast cancer
- Our work will facilitate future research by other scientists investigating the distinct epigenetic and epitranscriptomic mechanisms involved in these three interrelated disorders
- Our results underscore the need for epigenetic and epitranscriptomic therapeutics for the disabling forms of CAD, lung cancer, and breast cancer, and they add to the body of information concerning

therapeutic approaches that use inflammatory cytokines as a prognostic marker
- Our research will undoubtedly advance in identifying multiple connections between CAD and lung cancer and breast cancer in order to create novel immunotherapeutic approaches to treat those illnesses

Biography

Dr. Koustav Sarkar has completed his PhD at the age of 28 years from Chittaranjan National Cancer Institute/ Jadavpur University, Kolkata, India. Currently, he is the Research Assistant Professor in Department of Biotechnology, SRM Institute of Science and Technology, Chennai, India. He presented papers in more than 50 national and international conferences. Dr. Sarkar has been involved in research over the last twenty years (including a Ph.D. and three Post-Docs) and made several important contributions to the development of advanced science and technology. He was involved in understanding the molecular mechanisms of the development of human immune responses in health & disease. Dr. Sarkar has already published 46 high-impact scientific publications in internationally reputed journals. He was also co-author of four book chapters. During PhD, Dr. Sarkar has developed a process for isolating glycoprotein(s) from neem leaf, which has immunomodulatory and cancer preventive functions. One patent (Patent Number: 259434; Grant Date: 12- Mar-2014) has been granted for this invention. He found out that the neem leaf glycoprotein helped to generate carcinoembryonic antigen specific anti-tumor immune responses utilizing macrophage & dendritic cell mediated antigen presentation to T and B cells and the induction of type 1 protective immunity. To study the intricate molecular mechanisms involved in the type 1 protective immunity, Dr. Sarkar moved to USA. Research from his US laboratory was essential in revealing for the first time a novel nuclear function for a well- known cytoskeleton structure associated protein, Wiskott Aldrich Syndrome Protein (WASp) in the transcriptional regulation of T Helper cell 1 (Th1)-differentiation through its effect on epigenetic modifications at the T-BET gene-promoter locus. Since that time, Dr. Sarkar has been actively involved in further understanding how different types of epigenetic mechanisms are involved in T helper cells of lung cancer and breast cancer in association with Coronary Artery Disease (CAD).

Krishna Misra*, Unnati Soni, Pritish Vardwaj
Indian Institute of Information Technology Allahabad, India

Target identification for oral squamous cell carcinoma and targeted drug delivery using platelet/RBC/hybrid membranes as nanocarriers

Nanomedicines are promising strategies for anticancer therapy; however, camouflaging nanomedicines with cell based carrier i.e. RBC/platelet membrane would significantly prolong its retention time in the bloodstream, enhance the targeting ability and reduce the off-target effects. Anticancer nanoparticles wrapped inside patient's own RBC/platelet membrane shall act as mimics which contain the complete set of surface receptors, antigens and proteins naturally present on platelet membranes This technique takes advantage of the unique natural properties of human RBC/platelet membranes, which have a natural preference to bind to certain tissues and organisms in the body, this targeting ability makes platelet membranes extremely useful for targeted drug delivery.

Platelets have great prospective as drug delivery systems, proficient of causing extraordinary changes in pharmacokinetics, pharmacodynamics and immunogenicity. These as well as their hybrid with RBC were found ensuring better stability of the particles, better escape from reticuloendothelial system, biocompatible and non-toxic, hence not inducing immunological response. These particles evade immune system attack. The natural flexibility permits the platelet mimics to distort and travel through narrow capillaries our work concerns preparation of human platelet, RBC and hybrid membrane nanoparticles dispersed with anticancer drugs for oral cancer. At present we are using herbal bioactives and other small molecules designed through in-silico studies.

Biography

Prof (Mrs) Krishna Misra PhD. FNASc, FBRSI Ph.D. Delhi University, Department of Taught Chemistry, Biochemistry and Biotechnology at University of Allahabad, Allahabad, India and Gen Secretary NASI, India. Honorary professor- Indian Institute of Information Technology Allahabad, also Chief advisor-India Pesticides Ltd., Lucknow and Chairperson of STEMM, DST, New Delhi. Research fields: Organic Chemistry, Biochemistry, Biotechnology, Bioinformatics, Bio-medical Engineering. Supervised 55 Ph.D, 260 publications, 6 books, 25 reviews, dozen book chapters and about 100 conference papers, Indian and US patents, visited Japan, U.K, USA (Invited talks/chair). One of the 50 Indian Women in S&T (i.e., book "Women in STEM" by CII TNTDPC).

Maria Zahra
Internal Medicine Trainee Cardiff and Vale NHS Trust Hospital Cardiff

Melanoma with brain metastasis

Melanoma metastasis to brain. A case related to the presentation of a patient who presented with seizures and CT head revealed space occupying lesion. This patient had a background of melanoma for which he had a biopsy done and he was waiting the results.

Audience Take Away Notes

- After presenting a case, which will include the clinical features, investigations for diagnosis the prevalence and pathophysiology would be discussed. In this presentation emphasis would be made on the available treatment options for this disease

Biography
Dr. Maria Zahra studied at the University of Health Sciences in Pakistan and graduated with an MBBS in 2020. She worked as a Junior Clinical Fellow for two years in Pakistan before joining the NHS as a Junior Clinical Fellow at Royal Albert Edward Infirmary in Wigan. Later on worked as a SHO in Royal Derby and Royal Gwent hospital Newport. Dr. Zahra has now started her Internal Medicine Training at University Hospital of Cardiff.

Gudrun Lindmark[1], Lina Olsson[2], Basel Sitohy[3], Anne Israelsson[4], Joel Blomqvist[2], Sara Kero[2], Tamer Roshdy[4], Sten Hammarström[4], Marie-Louise Hammarström[4*]

[1]Department of Clinical Sciences, Lund University, Helsingborg, Sweden
[2]HiloProbe AB, Umeå, Sweden
[3]Department of Radiation Sciences, Oncology, Umeå University, Umeå, Sweden
[4]Department of Clinical Microbiology, Umeå University, Umeå, Sweden

Colonode analysis of colorectal cancer lymph nodes - An improved method for assessment of tumor stage and prognosis

Colorectal cancer is globally one of the most prevalent cancers and a common cause of cancer-related mortality. The curative treatment is surgery. Unfortunately, recurrence is common with approximately 25% of the patients having relapse. Lymph Node (LN) metastasis is the single most important prognostic factor and a key factor when deciding on postoperative treatment. The present standard method for identification of LN metastases is histopathology, that is, microscopic examination of one or a few hematoxylin-eosin-stained tissue sections. It is an insensitive method mainly because less than 1% of the LN volume is examined. Furthermore, it gives no information on tumor aggressiveness. Thus, there is an obvious risk for misclassification with under- or overtreatment as consequence. To better identify patients at risk of relapse we constructed a qRT-PCR test, ColoNode, that determines CEACAM5, KLK6, SLC35D3, MUC2 and POSTN mRNA levels in LNs. This combination of biomarkers estimate the tumor cell load and aggressiveness allocating patients to risk categories with low (0,-1), medium (1), high (2) and very high (3) risk of recurrence.

To validate our previous finding that analysis of LNs by ColoNode gives a more accurate indication of the patient's risk of recurrence than histopathology we performed a prospective, national multicenter study including 196 colon cancer patients from 8 hospitals. All LNs examined by routine histopathology were analyzed by ColoNode in a double-blinded manner. Patients received postoperative treatment according to present guidelines using LN-status based on histopathology. On average, 21 LNs/patient, totally 4698 LNs, were examined.

At 3-year follow-up, 36 patients had died from colon cancer or lived with recurrence. ColoNode identified all patients that were identified by histopathology and in addition 9 patients who were undetected by histopathology. Thus, 25% of the patients who recurred were identified by ColoNode only. The recurrence frequency in risk group (0,-1) was only 4% suggesting that patients in this group are very likely to have been cured by surgery alone. Univariate analysis for covariation to survival showed that both the ColoNode risk group (1, 2, 3 vs. 0,-1) and TNM-stage III (pTN-stage III vs I/II) were strong indicators of poor prognosis with HRs of 6.84 [95% Cl, 2.37-19.71, P<0.0001] and 5.84 [95% Cl, 2.68-12.69, P<0.0001], respectively. Patients in ColoNode risk group (2, 3) had very high risk of recurrence with a HR of 10.64 (P<0.001). Multivariate Cox regression analysis including factors that were examined during histopathological examination proved ColoNode as the strongest prognostic factor of all variables that were significant in univariate analysis with a HR of 4.24 [95% Cl, 1.42-12.69, P=0.01]. TNM-stage III lost its univariate significance, while lymphovascular invasion and perineural invasion proved to be independent risk factors with HRs of 2.66 and 2.52, respectively (P=0.03).

In conclusion, ColoNode successfully identified colon cancer patients at risk of recurrence, doing so with significantly higher accuracy than standard histopathology. ColoNode further allocated patients to different risk groups after curative surgery. We anticipate that ColoNode will be a most valuable tool for decisions on

postoperative treatment potentially improving patient quality of life and outcome.

Audience Take Away Notes

- Oncologists will get to know about a new way to determine lymph node status of patients who have received curative surgery for colorectal cancer by using a combination of biomarker mRNAs
- Patients will be categorized into different risk groups depending on the aggressiveness of the tumor as determined by the biomarker assay. This will help the physicians to choose a beneficial treatment modality
- Using the biomarker mRNA assay to categorize colon cancer patients into different risk groups will improve accuracy of determining lymph node status and lower hospital costs since the method can be automated

Biography

Marie-Louise Hammarström received her PhD at Stockholm University, Stockholm, Sweden in 1979. In 1986 she moved to Umeå for a position as Assistant Professor. Since 2000 she holds a position as Full Professor of Immunology at the Medical Faculty of Umeå University. She has published 122 refereed research articles, mainly dealing with mucosal immunity in inflammatory bowel disease, celiac disease and cholera, the role of gut microbiota and prognostic biomarkers in colorectal cancer. She is one of the founders of HiloProbe AB, a start-up company established to transfer basic research results to products that could benefit patients.

Dr. Neema Tiwari[1*], Jyotsna Madan, Devajit Nath, Savitri Singh, Megha Ralli, Akanksha Bhatia, Silky Jain[2], Nidhi Chaturvedi[3]

[1]Department of Pathology, Post Graduate Institute of Child Health, Noida

[2]Department of Pediatric Hemat-oncology, Post Graduate Institute of Child Health Noida

[3]Clinical Hematologist, Optima Hospital, Meerut

Post chemotherapy changes in bone marrow aspirate smears of hematolymphoid malignancies in pediatric population

Introduction: In hematolymphoid malignancies a proper evaluation of bone marrow smears is important to assess post-chemotherapy related changes in bone marrow. Morphological examination holds importance in differentiating between marrow in remission vs minimal residual disease. In acute leukemias is necessary to identify relapses, and clues that predict the response during treatment and follow up to improve the sustained remission rate. Despite the current use of flow cytometry and quantitative PCR test for MRD assessment, there are very few studies highlighting the importance of cytomorphological assessment of bone marrows received post induction chemotherapy. Hence this short case series aims at highlighting importance of morphological examination of bone marrow in cases post induction chemotherapy.

Material and Methods: A Retrospective, descriptive study was done on 20 cases of post induction bone marrow samples of Acute leukemias. The bone marrow aspirate smears were analysed for morphological changes. Slides were stained with Leishman stain, H&E staining and special stains with PAS, MPO and Perls stain was done where required. This was a descriptive analysis.

Results: All the cases showed variability in morphology and post chemotherapy changes. 75% (15/20 cases) show megaloblastoid features in intermediate normoblasts.40% cases show (8/20) dyserythropoiesis. Dysmegakaryopoiesis was seen in 55% (11/20 cases) showed dysmegakryopoiesis, while 50% (10/20 cases) showed reduced cellularity.1 case showed relpase. 90% (18/20) cases showed presence of hematogones/ blast like cells. 3 out of those 18 cases where hematogones /blast like cells were MRD positive even when there was no clinical suspicion for relapse. Dysmyelopoiesis was noted in 65% (13/20) cases. 75% (15/20) cases showed presence of hemosiderin laden macrophages/hemophagocytosis. Erythroid predominance was seen in 85% (17/20) cases.

Conclusion: Morphological assessment of post induction bone marrows is extremely important as it is an important cytomorphological clue to assess whether the treatment is effective or not as well as to alert the clinician for any finding which is unsuspected by the clinician.

Audience Take Away Notes

- Authors want to highlight the importance of morphological examination of bone marrows post induction chemotherapy, which may hold important clues which can guide clinicians regarding treatment response and outcomes as well as alert clinicians for impending relapse etc which have not been suspected clinically

Biography

Neema Tiwari did her MBBS and MD in Pathology in Pathology from Eras Lucknow Medical college and Hospital. She is has worked as Senior Resident, Pathology in department of clinical hematology and hemato-oncology, King George Medical University, India and Post Graduate Institute of Child Health Noida, UP and has 4 years post PG experience. She is currently working as Assistant Professor in Post graduate Institute of Child Health, Noida. She has done numerous intramural and extramural (ICMR, DST) research projects and has many national and international publications in indexed and peer reviewed journals (>40) to her credit. She is a reviewer for 3 journals to of which are pubmed indexed. She has presented papers in IAP, ICC and CAP conferences. She has recently presented a poster on MDS in the ISHBT-EHS TUTORIAL-2018 held in India. She is an ICO Fellow from Barcelona Spain in Molecular pathology/hematology. She has co-authored 2 books titled-Analysis of various patterns of leukemia in Indian population-Neema Tiwari, Sunita Tiwari (Lambert publications, now available in Barns and Noble website, Amazon, flipkart)-2018. Manual of Hematology, Ahuja publishers-2021. Hematology Made easy-2024 (Questvision publication). 3 Book chapters in 3 books under publication. She has her youtube channel for teaching Pathology to postgraduate residents in her name with >1500 followers. She in International ambassador for College of American Pathologists in India for current 2 years. She is an International Observer (Pathology under Dr. Travis and Dr. Antenescou) alumni in Memorial Sloan Kettering Cancer Centre, New York, USA. Member European hematology association, Junior Member CAP, Member ISHBT, Member ESP.

Ivan Ferrari[1], Giancarlo Lai[2], Federica De Grossi[2], Stefania Oliveto[2], Stefano Biffo[2], Nicola Manfrini[2*]

[1]INGM, Istituto Nazionale Genetica Molecolare Romeo ed Enrica Invernizzi, Milan, Italy

[2]INGM, Istituto Nazionale Genetica Molecolare Romeo ed Enrica Invernizzi, Milan, Italy and Department of Biosciences, University of Milan, Milan, Italy

Introducing CancerHubs: A systematic data mining and elaboration approach for identifying novel cancer related protein interaction hubs

Introduction: Discovering the players and understanding the molecular mechanisms involved in cancer initiation and progression are fundamental issues for developing effective diagnostic tools and targeted therapies. Traditional methods for predicting protein involvement in cancer usually depend on identifying aberrant mutations in individual genes or linking transcript levels to patient survival. These methods are usually carried out separately and concentrate on one gene/protein at a time, ignoring nucleotide changes occurring outside of coding regions or mutations happening simultaneously in genes within the same network of interactions.

Methods: Here, by crossing publicly available mutational datasets with clinical outcome prediction and interactomic data, we constructed an R pipeline capable to define novel protein hubs predicted to play important roles in cancer. By adopting this comprehensive strategy, which we defined CancerHubs, we were able to rank genes according to a newly introduced metric termed the 'network score'. The network score predicts the level of involvement of a certain gene in a particular cancer by defining the number of mutated interactors that its encoded protein has.

Results: Taking advantage of the CancerHubs approach, we identified several novel broad-cancer and cancer-specific genes. Among these, we validated two: one encoding for a protein with broad tumour suppressor functions, and one encoding for a protein with oncogenic properties in multiple myeloma.

Our findings underline the importance of considering diverse molecular data types and network-level interactions in order to fully unravel the complexity of cancer biology and pinpoint novel potential therapeutic targets.

Conclusions: CancerHubs introduces a pioneering method for forecasting gene involvement in cancer. By ranking cancer-associated genes based on the number of mutant interactors their encoded proteins have, this approach identifies protein hubs potentially involved in cancer. This methodology globally improves the overall detection of cancer-associated genes, as demonstrated by its ability to accurately predict protein hubs previously never found related to cancer.

Audience Take Away Notes

- CancerHubs is a method that, by combining in a totally novel way unbiased mutational data, clinical outcome predictions and interactomic data, predicts if, and to what extent, cancer-related proteins are part of more broad cancer- mutated networks
- By using the CancerHubs approach scientists can generate lists of genes with putative impact in cancer pathology and from such lists they can define novel broad-cancer or cancer-specific genes

- Definition of novel cancer-related genes/pathways can deeply influence cancer research, paving the way for novel and more efficient therapeutic approaches

Biography

Professor Nicola Manfrini studied Biotechnology at the University of Milano-Bicocca, in Milan, Italy, earning his MS degree in 2007. Here, he also received his PhD degree in Biology, in 2011. After four years of postdoctoral fellowship and a period at the Curie Institute in Paris, France, in 2015 he joined the INGM Institute in Milan, Italy. From June 2021 to May 2024 he worked as Assistant Professor at the Department of Biosciences at the University of Milan, where he became Associate Professor in June 2024. From January 2022 he's also Junior PI at the INGM Institute of Milan, Italy.

Nicola Sarandria* MD, PhD, MBA; Domenico Sarandria MD
Olimpia Medical Center, Vicenza, Italy

mHBOT effects on post-radiation pain in a patient recovering from prostate adenocarcinoma: A case report and physiological discussion

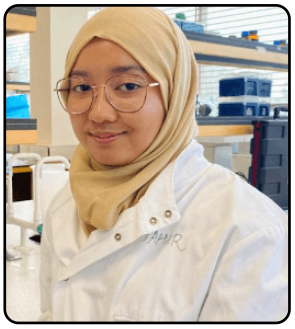
In this presentation the a case report will be presented focusing on the effects of Mild Hyperbaric Oxygen Therapy (mHBOT) in a patient with a severe pain symptomatology due to the sequelae of a radiotherapy cycle for prostate adenocarcinoma. A physiological discussion on the biochemical reasons and mechanisms of the effects of mHBOT on the symptomatology will be addressed. Successful improvement of symptoms was recorded at the end of the cycle.

Audience Take Away Notes

- Possibilities of mHBOT
- Management of post-radiation pain syndrome
- Mechanism of action of mHBOT
- Mechanism of actions of radiotherapy of prostate adenocarcinoma

Biography

Nicola Sarandria is the Scientific Director of Planet Healthcare. He had several experiences like traveling, studying, and working in the USA, UK and Switzerland. In 2014, he became the highest scoring student of that year to get enrolled at his medical school in Milan. He graduated from medical school with 110 cum laude (with honors) and got licensed to practice medicine and surgery. He continued his education achieving post-graduate diplomas, PhD and an MBA from Institutions ranging from Harvard Medical School to North Wales Management School. He is a member of the international high-IQ society (with a score in the 99.5th percentile) and a writer of fiction books (winning the 5-stars readers' favorite award)



Nur Aimi Aliah Zainurin[1*], Mandana Pennick[2], Manfred Beckman[1], Helen Phillips[1], Luis A J Mur[1]

[1]Department of Life Sciences, Aberystwyth University, Aberystwyth, United Kingdom

[2]Glan Clwyd Hospital, Betsi Cadwaldr University Health Board, Bodelwyddan, United Kingdom

Towards a home companion diagnostic test for the early detection of breast cancer

Breast cancer is one of the deadliest cancers with 685,000 deaths and 2.26 million cases reported in 2020. Early detection is crucial for better treatment outcome. Mammography is the gold standard screening modality for breast cancer diagnosis but use of a cost-effective companion diagnostic with a high sensitivity and specificity is required to reduce the mortality rates; especially in group perceived to be low risk, e.g., younger women. This study aims to discover the novel biomarkers in liquid biopsies by direct infusion high resolution mass spectroscopy (DI-MS) to facilitate the development of low-cost and high throughput biomarker assay (or panel of biomarker profiles) that could be exploited such as ELISA. Metabolite profiling focused on urine samples from Breast Cancer (BC; n=9), Benign Breast Disease (BBD; n=31), Symptomatic Control (SC; n=35) and age-matched Healthy Control (HC; n=24) groups, using DI-MS. Multivariate statistical analyses used the R-based metaboanalyst 5.0 platform. Data mining revealed 185 urinary metabolites that significantly ($p<0.05$) different across the sample groups. Heatmap depicted the expressions (up or down-regulated) of the urinary metabolites were consistent with the high frequency clinical breast tissue metabolic biomarkers related to breast cancer from previous published studies. Partial Least Squares Discriminant Analysis (PLS-DA) showed a clear separation between (1) groups (BC vs HC, BC vs BBD and BC vs SC), (2) BC subtypes (luminal A, luminal B, HER2 enriched and triple negative), (3) grades (I, II and III) and (4) stages (metastatic and non-metastatic). Based on pairwise analysis between BC and HC groups, the volcano plot revealed 150 metabolites were significantly up-regulated while 273 were down-regulated. Receiver Operator Curve (ROC) analysis identified m/z 430.19974, 369.17542 and 370.1783 with accuracies of 0.949, 0.921 and 0.926 respectively with the potential as the diagnostic biomarkers for breast cancer. In conclusion, the encouraging preliminary finding from this study illustrates that urinary metabolites can be a promising adjunct tool to the current breast screening programme which warrant further analysis with larger patients' cohorts.

Audience Take Away Notes

- The audience will understand that the easily obtained liquid biopsy, urines, can be used to indicate the presence of breast cancer. Diagnosis can be based on as little as 3-5 biomarkers which singly and combination can be used as the basis of an in-expensive test that could be widely exploited
- Early diagnosis is key for a positive outcome following the diagnosis of cancer. The identification of a small suite of urinary biomarkers for cancer could be the first stages of the development of a test that could be deployed in a primary care or even home setting as part of nationwide screens. This could facilitate the detection of early stage breast cancer
- Key to the successful development of any such study is the testing of our findings in a large population, in many nations, to consider how age, environment, ethnicity or genetic background could influence metabolomic signature urine samples for breast cancer. Therefore, the research

needs to be expanded to other research facilities with metabolomic platform(s). This is essential to establishing the validity of our observations

- Although not a short term solution, technology to allow the practical development of an (e.g.) ELISA based test to metabolites is well established. Such a test could be a viable companion test to pre-screen women to triage towards mammogram screening programs. This would make health services more efficient
- The identified biomarker(s) will be therefore essential to design of new tests

Biography

Miss Aimi Zainurin is a doctoral student (PhD) in Department of Life Sciences, Aberystwyth University, UK, working on breast cancer project under research group of Prof. Mur, Clinical Hub Aberystwyth (https://www.clinicalhubaberystwyth.com/). She graduated with Biochemical-Biotechnology Engineering (Hons) and MSc Biotechnology Engineering in 2017 and 2019 respectively from International Islamic University Malaysia. She worked as a scientist trainee in one of the top Asian biopharmaceutical companies and followed as a researcher at National Institute of Health in Malaysia before decided to further her study. Her research interests in omics sciences focus on identifying and understanding the underlying relationship between the biomolecules, their molecular processes, and biological pathways.

Punam Kumari Mandal[1*], Menuka Bhandari[2]
[1]Department of Community Health Nursing, Tribhuvan University, Institute of Medicine, Biratanagar Nursing Campus, Biratnagar, Koshi Province, Nepal
[2]Department of Pediatric Nursing, Tribhuvan University, Institute of Medicine, Biratanagar Nursing Campus, Biratnagar, Koshi Province, Nepal

Prevalence and predictors of tobacco use among elderly in Eastern Nepal: A community-based study

Introduction: The tobacco epidemic is a major public health threat, causing over 8 million deaths annually, including 1.2 million from second-hand smoke. Death from cancer is twice as high among smokers in comparison to nonsmokers, with having four times greater risk of death from cancer in heavy smokers, and quitting tobacco use can lower the risk of getting cancer at any age This study aims to identify the prevalence and predictors of tobacco use among the elderly of Biratnagar.

Methodology: A cross-sectional community-based study was conducted on 400 elderly and the sample was selected through multistage cluster sampling from four wards of Biratnagar Metropolitan. An interview was conducted using a structured questionnaire to collect data related to the prevalence and predictors of tobacco use. Descriptive statistics like mean, median, and standard deviation, and inferential statistics like the chi-square test were used to find out the predictors of tobacco use. Variables with a p-value ≤0.01 in the bivariate analysis were included in the multivariate analysis to find out the predictors of tobacco use. The backward elimination strategy was used to select the variables for the final model. The probability value of <0.05 was used to indicate statistical significance.

Results: The findings of the study showed that the overall prevalence of tobacco use is 61%, among them 51.5% are smokeless tobacco users and 35.8% are tobacco smokers. Among the tobacco smokers, 70.6% of the respondents use cigarettes and 22.4% of the respondents use Bidi as a smoking product. Among the current smokeless tobacco user's majority (85.9%) were using Khaini/Surti. Moreover, one-third (33.5%) were exposed to secondhand smoke at their home and less than half (42.2%) of the respondents were influenced by friends in the use of tobacco. In multivariate analysis sex, education, advertisement influence, and media exposure were the predictors of tobacco use.

Conclusion: The study concludes that less than two-thirds of the respondents reported tobacco use in any form. More than half of the respondents stated the use of smokeless tobacco followed by one-third as tobacco smokers. Likewise, the predictors of tobacco use were sex, education, ethnicity, advertisement, and media exposure. The study result would provide more evidence to concerned authorities and implications to policy at the local level to design strategies to reduce tobacco use addressing its predictors among the elderly. The local authority in collaboration with other organizations should develop plans and programs such as community-based interventions to reduce the prevalence of tobacco use.

Keywords: Elderly, Prevalence, Predictors, Tobacco Use, Community.

Audience Take Away Notes

- The audience will be able to learn about the prevalence and predictors of tobacco use among the elderly and they will use these findings in designing strategies to reduce tobacco use addressing its predictors in LMICs. Reducing tobacco use among the elderly requires a comprehensive approach, including community-based interventions. It will help to sensitize the audience that it is crucial to raise awareness about tobacco use among the elderly to close the cancer care gap. The findings will help them to develop educational campaigns specifically for older adults that address the risks of tobacco use

Biography

Ms. Punam Kumari Mandal is an assistant professor at Tribhuvan University Institute of Medicine, BNC. She graduated MPH from the Institute of Medicine, Nepal in 2013. She is teaching research, and biostatistics, and supervised research work for more than 10 years. She is a member of the research committee at this institute. She has been involved in quantitative, qualitative as well as collaborative research. She has been awarded the gold medal by the President of Nepal. She received Nepal Bidhya Bhushan and Nepal Chatra Bidhya Padak Awards in 2009. She has presented papers and published more than 20 articles in national and international journals.

Dr. Gupta Puneet[1*], Shrivastava Pooja[2*]
[1]Chairman Oncology Department, Asian Institute of Medical Sciences, Faridabad, Haryana, India
[2]Psycho-oncologist, Oncology Department Asian Institute of Medical Sciences, Faridabad, Haryana, India

Evaluating psycho-oncology parameters in 300 consecutive cancer inpatients admitted in a tertiary cancer care center of Northern India

Aims and Objectives: The study evaluated the psycho-oncology parameters, including denial, anger, bargaining, depression, acceptance, and bereavement (nick-named DABDAB) and others. This study investigated whether or not there is a need to employ (full-time or visiting) psycho-oncology expertise in a tertiary Indian anti-cancer care facility. Psycho-oncology expertise, in general, is lacking in current Indian Scenario.

Materials and Methods: A total of 300 serial cancer clients (126 females & 174 males) admitted between March 2024 and Sept 2024 were evaluated at presentation using questionnaire method as well as direct in-person interview. All patients were assessed for DABDAB parameters and at the same time were given Gupta GLITTER cognitive therapy. Each patient had a minimum of 8 visits and up to 12. The study validated "Gupta Total Wellness Questionnaire Sheet" that inquired about physical, mental, social, spiritual, and economical parameters in relation to DABDAB.

Results: The study revealed that majority (78%) cancer clients at presentation were in need of psycho-oncology care, especially psychology counseling. The study categorized the patient into 7 categories, including DABDAB and others. The patterns of psycho-oncological scenario at presentation was denial (46.1%), anger (37.5%), bargaining (33.5%), depression (53.2%), acceptance (38.4%), bereavement (2.03 %) and others (Schizophrenia and Parkinson's) (1.02%). Only a minority of clients were in need of expert psychiatrist consultation. The gender based analysis revealed females to have denial (24.5%), Anger(18.4%), Bargaining (16.3%), Depression (22.4%), Acceptance (19.3%), Bereavement (1.02%) whereas in males parameters were denial (21.9%), Anger(19.5%), Bargaining(17.2%), Depression(21.9%), Acceptance(21.1%), Bereavement(0.8%). The overall results suggest that the stage of acceptance is more prevalent among male patients (20%), whereas female patients revealed higher occurrence in denial (25%) depression (20%) and bereavement (1%).

Conclusion: Evaluating the psycho-oncology patterns of inpatients at presentations in a tertiary anti-cancer care canter in Northern India suggest that engaging a full-time psycho-oncologist and a visiting psychiatrist is an optimal staffing. The result highlights the gender differences in DABDAB parameters that different genders should be treated with tailored psychological interventions.

Keywords: ABDAB, Psycho-oncology, Gupta GLITTER therapy, Staffing.

Audience Take Away Notes

- Cancer patients need screening at presentation for DABDAB parameters
- These visits are utilized currently for cognitive interventional whole body imagery technique called

Gupta GLITTER therapy

- A busy tertiary cancer care facility shall employee a full time psycho-oncologist and a visiting psychiatrist
- One may use Gupta Total Wellness Sheet for evaluation of DABDAB parameters along with concurrent using the whole body imagery cognitive Gupta GLITTER therapy
- The intervention (DABDAB Assessment, Gupta Total Wellness Sheet, Gupta GLITTER therapy) can help a psycho-oncologist for day to day assessment and cognitive therapy of a cancer patient and their accompaniments
- This research can be used by other cancer care facility
- The study provides a solution to psycho-oncology issues and makes the Psycho-oncology job easier and efficient without involving any medical or monitory demand [Drug and Device free care]
- Our study yields a defined path, tool and technique to assist a psycho-oncologist for assessing and gathering structured as well as unstructured mental health information from the client and concurrently deliver a whole body imagery cognitive interventional therapy [Gupta GLITTER therapy]

Biography

Dr. Puneet Gupta is a leading senior oncologist in India [MBBS, MD, DNB Radiation Oncology, DM Medical Oncology 1996, MBA Health Administration]. He initiated courses in India, "Diploma in Cancer Nursing, Psycho-oncology, and DrNB Medical Oncology." He introduced treatments in India like arterial chemotherapy using arterial pumps, Mylotarg in acute leukemia, Alemtuzumab in T-cell leukemia, Cetuximab in HNN, Gupta GLITTER Therapy, use Chemoport, TDXD deruxetan for low HER2 breast cancer, and dendritic cell therapy plus interferon for metastatic prostate cancer. He has published World's first book titled "Applied Spiritual Biology."

Queenalice Arul
AIIMS-All India Institute of Medical Sciences, India

Rehabilitation of postsurgical oral CA patient with obturator prosthesis after hemi-maxillectomy

Background: Hemi-maxillectomy, the surgical removal of part of the maxilla, often results in significant defects that affect speech, mastication, and aesthetics. These defects can lead to nasal regurgitation, impaired speech, and psychological distress.

Objective: This paper discusses the clinical and laboratory procedures involved in the fabrication of a maxillary obturator for a hemi-maxillectomy patient. The goal is to restore function and aesthetics, improving the patient's quality of life.

Methods: The process involves taking detailed impressions of the defect, designing a prosthesis that fits securely, and ensuring it restores the separation between the oral and nasal cavities. The obturator is typically supported by the remaining teeth and may require adjustments to accommodate changes in the soft tissues over time.

Results: Properly designed obturators can significantly improve speech, prevent nasal regurgitation, and enhance the patient's ability to eat and drink. They also play a crucial role in the psychological rehabilitation of patients by restoring facial aesthetics.

Conclusion: Maxillary obturators are essential in the rehabilitation of hemi-maxillectomy patients. They help restore critical functions and improve the overall quality of life, making them a vital component of post-surgical care.

Biography

Dr. Queen Alice, Faculty in Department of Dentistry, AIIMS (All India Institute of Medical Sciences) Kalyani, West Bengal is an Maxillofacial Prosthodontist & Implantologist graduated from Tamil Nadu DR MGR Medical University. Received International Fellowship in Implant Dentistry & In Clinical Dental Lasers and Fellowship in Indian Board of Forensic Odontology. Serving as a Scientific Editor & Reviewer in various Reputed Speciality journals & Awarded as Best Reviewer by Elsevier Publications. Received patent for antimicrobial denture base copolymer with a novel composition. Currently conducting many research projects on rehabilitation prostheses for oral cancer resected patients.

Gaurav Jha[1], Reddy Lahari Bollineni[2*]

[1]General Surgery, University of Hospital Leicester NHS Trust, Leicester, United Kingdom

[2]Geriatric Medicine, Royal Stoke University Hospital, Stoke-on-Trent, United Kingdom

Beyond AFP: A diagnostic challenge of hepatocellular carcinoma with normal labs and unusual presentation

Background: Hepatocellular Carcinoma (HCC) is a primary malignancy of the liver that typically arises in the context of chronic liver disease and cirrhosis. Biochemical markers such as Alpha-Fetoprotein (AFP) and Liver Function Tests (LFTs) are often used to aid diagnosis. However, up to 30-40% of patients with HCC may present with normal AFP levels, making early diagnosis challenging. Here, we report an unusual case of HCC in a middle-aged patient presenting with non-specific symptoms, normal biochemical markers, including AFP and LFTs, and a non-cirrhotic liver. This case highlights the need for a broader diagnostic approach beyond conventional laboratory tests to avoid missing atypical presentations of HCC.

Case Report: A 58-year-old male with no significant past medical history presented with vague abdominal discomfort and fatigue. Initial laboratory workup, including Liver Function Tests (LFTs), AFP, and hepatitis serologies, was unremarkable. Abdominal ultrasound showed a mildly heterogeneous liver without distinct masses, prompting further evaluation with contrast-enhanced Magnetic Resonance Imaging (MRI), which revealed a 3.5 cm lesion in the right hepatic lobe with arterial phase hyperenhancement and washout in the venous phase—findings highly suggestive of HCC. Serum levels of Des-Gamma-Carboxy Prothrombin (DCP) were elevated at 148 mAU/mL (normal<40 mAU/mL), while AFP remained within normal limits. A percutaneous liver biopsy confirmed a well-differentiated HCC in a non-cirrhotic liver. The patient underwent a successful partial hepatectomy with clear margins.

Results: Histopathological analysis confirmed a moderately differentiated HCC with negative margins. The patient's postoperative course was uneventful, and follow-up imaging six months later showed no evidence of recurrence. This case illustrates the critical role of imaging and alternative biochemical markers, such as DCP, in diagnosing HCC, particularly in AFP-negative patients.

Conclusion: This case underscores the importance of maintaining a high index of suspicion for HCC in patients presenting with non-specific symptoms and normal laboratory values, particularly in non-cirrhotic livers. The use of alternative markers such as DCP, combined with advanced imaging modalities, can facilitate early diagnosis and improve outcomes. Clinicians should be vigilant and adopt a comprehensive diagnostic approach to avoid missing atypical presentations of HCC.

Audience Take Away Notes

- Understanding the variability in the presentation of HCC and recognizing that normal lab values do not rule out malignancy
- Familiarity with alternative biochemical markers such as DCP, GPC3, and miRNA in diagnosing AFP-negative HCC
- Importance of comprehensive assessment, including imaging and histopathology, when biochemical

markers are inconclusive
- Broader perspective on differential diagnoses and avoiding tunnel vision, thereby improving diagnostic accuracy

Biography

Clinical Fellow in Geriatrics Medicine at Royal Stoke University Hospital, University Hospitals of North Midlands NHS Trust

Praveen Guruvaiah[1], Suresh Chava[1], Chaio-Wang Sun[1], Nirupama Singh[2], Courtney A Penn[3], Dr. Romi Gupta[1,4*]

[1]Department of Biochemistry and Molecular Genetics, UAB, Birmingham, Alabama, USA

[2]Department of Pathology, Division of Laboratory Medicine, University of Alabama at Birmingham, Birmingham, AL, 35233, USA

[3]Division of Gynecologic Oncology, Department of Obstetrics and Gynecology, Vanderbilt University Medical Center, Nashville, TN, 37232, USA

[4]O'Neal Comprehensive Cancer Center, The University of Alabama at Birmingham, Birmingham, AL, 35233, USA

ATAD2 is a driver and a therapeutic target in ovarian cancer that functions by upregulating CENPE

Ovarian cancer is a complex disease associated with multiple genetic and epigenetic alterations. The emergence of treatment resistance in most patients causes ovarian cancer to become incurable, and novel therapies remain necessary. We identified epigenetic regulator ATPase family AAA Domain-containing 2 (ATAD2) is overexpressed in ovarian cancer and is associated with increased incidences of metastasis and recurrence. Genetic knockdown of ATAD2 or its pharmacological inhibition via ATAD2 inhibitor BAY-850 suppressed ovarian cancer growth and metastasis in both in vitro and in vivo models. Transcriptome-wide mRNA expression profiling of ovarian cancer cells treated with BAY-850 revealed that ATAD2 inhibition predominantly alters the expression of centromere regulatory genes, particularly Centromere Protein E (CENPE). In ovarian cancer cells, changes in CENPE expression following ATAD2 inhibition resulted in cell-cycle arrest and apoptosis induction, which led to the suppression of ovarian cancer growth. Pharmacological CENPE inhibition phenotypically recapitulated the cellular changes induced by ATAD2 inhibition, and combined pharmacological inhibition of both ATAD2 and CENPE inhibited ovarian cancer cell growth more potently than inhibition of either alone. Thus, our study identified ATAD2 as regulators of ovarian cancer growth and metastasis that can be targeted either alone or in combination with CENPE inhibitors for effective ovarian cancer therapy.

Audience Take Away Notes

- Ovarian cancer remains a challenge for modern oncology practice because of its late stage detection, poor survival when the disease is metastasized, and lack of effective therapies. Identification and targeting of ATAD2 can be employed as a new therapeutic intervention for ovarian cancer
- New epigenetic regulator is involved in ovarian cancer growth and progression
- Clinically relevant targetable mechanism for ovarian cancer therapy

Biography

Dr. Gupta did her BS and MS in India. She joined Max Planck Institute for Molecular Genetics, Berlin, Germany for her PhD and obtained her degree in the area of ribosome biology and protein translation. After that she moved to Yale University for her Postdoc training, where she extensively performed studies to identify new regulator of cancer growth and progression. Many of her studies are published in journals like Cell Reports Medicine, eLife, PNAS, Cell Reports, Oncogene among others. Currently she is an Assistant Professor in the UAB and Associate scientist at O'Neal Comprehensive Cancer Center at UAB. Her lab works on identifying new molecules and pathways and studying their role in tumor initiation and progression. Her long-term goal is to not only identify new molecules and signaling pathways that regulate the disease but also develop more effective and durable cancer therapies.

Gaurav Jha[1], Roopkaran Dhanjal[2*]

[1]Cardiothoracic Surgery, University of Hospital Leicester NHS Trust, Leicester, United Kingdom

[2]Orthopaedic Surgery, University of Hospital Leicester NHS Trust, Leicester, United Kingdom

Young and breathless: Unmasking ALK-positive lung cancer in young asymptomatic non-smokers

Introduction: Lung cancer is primarily considered a disease of older adults with a history of smoking; however, there is a growing recognition of lung cancer occurring in younger, non-smoking individuals. A subset of these patients presents with driver mutations, such as Anaplastic Lymphoma Kinase (ALK) rearrangements, which can significantly impact the approach to treatment and prognosis. ALK-positive Non-Small Cell Lung Cancer (NSCLC) typically occurs in younger patients with minimal or no smoking history and often presents at an advanced stage due to the absence of specific symptoms. Early diagnosis in such populations remains challenging due to low clinical suspicion, highlighting the need for awareness and potential screening strategies even in non-traditional risk groups. This case report describes a rare presentation of ALK-positive NSCLC in a young, asymptomatic, non-smoking adult discovered during a routine health check.

Case Report: A 29-year-old female with no significant smoking history or notable family history of cancer presented for a routine health check. She reported no respiratory symptoms such as cough, hemoptysis, dyspnea, or weight loss. Physical examination and laboratory investigations were unremarkable. A routine chest X-ray, however, revealed a small solitary pulmonary nodule in the right upper lobe. Subsequent Computed Tomography (CT) of the chest confirmed a 2.5 cm spiculated lesion with no mediastinal lymphadenopathy or distant metastasis. A bronchoscopy with a biopsy of the lesion was performed, and histopathological analysis confirmed adenocarcinoma. Molecular testing, including Fluorescence In Situ Hybridization (FISH), revealed an ALK gene rearrangement. The patient was staged as T1bN0M0 (Stage IA2) ALK-positive NSCLC.

Results: The diagnosis of ALK-positive NSCLC in a young, asymptomatic, non-smoking individual underscores the importance of considering lung cancer in non-traditional demographics. The patient was treated with an ALK inhibitor, alectinib, which is considered a first-line therapy for ALK-positive NSCLC. The patient showed a good response to therapy with a significant reduction in tumor size on follow-up imaging after three months. She remains asymptomatic and continues to be monitored regularly with no evidence of disease progression or recurrence at the 12-month follow-up. This case highlights the role of targeted therapy in the management of genetically driven lung cancers and emphasizes the importance of genetic profiling in all NSCLC patients, regardless of age or smoking history.

Conclusion: This case report illustrates a rare presentation of ALK-positive NSCLC in a young, asymptomatic, non-smoking patient, diagnosed incidentally during a routine health check. It highlights the need for heightened clinical awareness of lung cancer in younger populations without traditional risk factors and advocates for potential screening and early detection strategies in such demographics. Furthermore, the case underscores the pivotal role of molecular testing in guiding targeted therapies, which can significantly improve outcomes in patients with driver mutations like ALK rearrangements.

Audience Take Away Notes

- Lung cancer can occur in young, non-smoking individuals and may present without symptoms, leading to delayed diagnosis
- Routine imaging can incidentally identify lung cancer in asymptomatic patients, warranting further investigation and molecular profiling
- ALK-positive NSCLC should be considered in younger patients with lung nodules, regardless of smoking history
- Early identification of genetic mutations like ALK rearrangements can guide targeted therapy, significantly improving patient outcomes
- There is a need for increased awareness and possibly tailored screening strategies for lung cancer in younger, low-risk populations

Biography
Foundation Year 2 Doctor in Trauma and Orthopaedics at University Hospitals of Leicester NHS Trust.

Saumya Pandey (M.Sc. Biochemistry, Ph.D. Life Science)
Department of Clinical Research, Indira-IVF Hospital, Udaipur-Lucknow, India (formerly), University of Texas Medical Branch, Galveston, Texas, USA (formerly)

Toll-like receptors-autophagy-PI3AKT "immune-metabolic intersections" in benign prostate hyperplasia and prostate cancer in the robotic prostatectomy golden era: Damage associated molecular patterns in immunogenic cell-death?

Objective: I aimed to investigate the potential immunomodulatory role of complex autophagy, toll-like receptors and PI3-Akt signaling networks/cross-talks in single cell immunobiology by targeting circulating tumor cells in benign prostate hyperplasia and prostate cancer for eventual design of promising patient-friendly cost-effective predictive and prognostic biomarkers and/or pharmacological scaffolds for future immunotherapeutically potent combinatorial drugs with minimal adverse effects in the robotic prostatectomy era.

Material and Methods: *Cell-viability MTT-proliferation and cytotoxicity assays were performed under basal and glucose-deprived metabolic/physiological conditions in TLR-4 agonist Lipopolysaccharide (LPS/endotoxin)-treated AR+/- prostate cancer cells in culture, primarily LNCaP and PC3 cells.*

Autophagy-flux was monitored by assessing the relative ratios of LC3-II vs LC3-I in 0-12-24-48 hours' time-course in GD-triggered cells in absence and/or presence of TLR-4 agonist LPS followed by protein isolation by RIPA-method, protein estimation by Bradford's assay, Western blotting (primary antibodies: LC3, Beclin1, Bcl-2, Atg 2/5, HMGB1 from Cell Signaling Tech./Santa Cruz Biotech., CA, USA). Immunoblots (primary antibody 1:10) were subjected to densitometric scans and relative protein expressions/fold-changes determined (Kodak Imaging software); Glyceraldehyde-3-Phosphate-Dehydrogenase (GAPDH) and/or beta-actin were used as internal controls.

Tumor biopsies were collected from clinically diagnosed/confirmed patients of prostate cancer (early vs advanced as per Prostate Specific Antigen (PSA)-Gleason grade/TNM stage) of North American ethnicity (American Whites, African Americans, Caucasians, Hispanics) from New York State, USA undergoing radical robotic prostatectomy and Circulating Tumor Cells (CTCs) were evaluated for phenotypic differential expression of target genes involved in autophagy/apoptosis/proliferation/necrosis using high-throughput precision-based Single Cell Analysis (SCA). Further, clinical follow-ups of robotic prostatectomy patients (tobacco users/non-users) post-surgery was planned for future bio-bank development in prostate cancer.

Results: LNCaP and PC3 prostate cancer cells were ≥80% viable under basal and glucose-deprived metabolic/physiological conditions in TLR-4 agonist LPS/endotoxin-stimulated sterile culture in vitro conditions; autophagy-flux was significant in GD-triggered/starvation and/or hypoxic conditions with relatively higher expression levels of LC3-II (14 kDa) vs LC3-I (16 kDa) in 0-12-24-48 hours' time-course. TLR4 agonist LPS-modulated autophagic flux was significant in LNCaP cells in 48 hours with differential LC3-II vs LC3-I expression levels; protein expression patterns of LC3-II isoform were significantly higher than LC3-1 over 0-12-24-48 hours in AR+/- prostate cancer cells ($p \leq 0.05$).

Hypoxic, vascular insufficient, necrotic tumor cores were assessed for CTCs and frozen for prostate cancer/oncofertility biobank/biorepository. Robotic prostatectomy CTCs-SCA clinical research datasets in North American patients of New York State, USA yielded promising outcomes for predictive and prognostic biomarkers-development (Autophagy-TLR-PI3Akt) for subgroup-stratification of susceptible early vs advanced prostate cancer patients (tobacco users vs non-users) with differential survival trends (Risk Ratios/Hazard Ratios/Odds Ratios) post-surgery. Moreover, necrotopic marker High-Mobility-Group-Box-1 protein, apoptotic marker Bcl-2, and autophagy-signature: Atg2-Atg5, Atg7, Atg-10 and Beclin1 protein expression levels were relatively higher in TLR agonist/GD-triggered prostate cancer cells.

Conclusions: My promising translational research study strongly highlights the emerging immunotherapeutic potential of Autophagy/Toll-like Receptors/PI3-Akt cross-talks/signaling-networks in DAMPs-mediated AR+/- Prostate Cancer for future large sample size-based pharmacogenetics/genomics/transcriptomics/metabolomics-based CTCs-single cell biology-public health oriented meaningful multicentric large sample-size based epidemiology studies (prospective/retrospective) in ethnically disparate population-subsets (tobacco users/non-users) of States of New York/Texas, USA as well as Asia-Pacific region (North+South India). Further, bio-banking in prostate cancer and development of oncofertility-biorepositories may prove to be a boon in DAMPs-mediated "prostate cancer-infertility" men's health/urology-oncology-reproductive medicine research globally.

Biography

Dr. Saumya Pandey possesses brilliant academic credentials with earned Post-Doctorate:Biochemistry-Molecular Biology, Graduate School of Biomedical Sciences, University of Texas Medical Branch (UTMB), Galveston, TX, USA/ Visiting Scientist: Urology (Robotic-Prostatectomy), James Buchanan Brady Foundation,-Lefrak Center of Robotic Prostatectomy, Department of Urology, New York Presbyterian-Weill Cornell Medical College, New York, NY, USA/ Doctorate: Ph.D. Life Sciences, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, UP, India–ChhatrapatiShahujiMaharaj University, Kanpur, UP, India/Doctoral Research Fellowship:Biomedical Sciences, Creighton University, Omaha, Nebraska, USA/M.Sc. Biochemistry, University of Lucknow, Lucknow, UP, India, and recently worked as Head-Clinical Research, IndiraIVF-Hospital, Udaipur-Lucknow, India with 66 scientific publications in international journals.

Shanshan Jiang, M.D., Ph.D.
Department of Radiology, Johns Hopkins University, Baltimore, MD 21287, USA

Using chemical exchange saturation transfer MRI to determine genetic markers in gliomas

Chemical Exchange Saturation Transfer (CEST) imaging is an important molecular MRI technique that can image numerous low-concentration biomolecules with water-exchangeable protons (such as cellular proteins) and tissue pH. Applications of CEST or more specially protein-based Amide Proton Transfer (APT) imaging in identifying molecular markers in gliomas has been explored in recent years. In this paper, after briefing the basic principles and quantification methods of CEST imaging, I review its early applications in identifying IDH mutation status, MGMT methylation status, 1p/19q deletion status, and H3K27M mutation status in gliomas. Finally, we will discuss the limitations or weaknesses in these studies.

Audience Take Away Notes

- Learn the novel CEST imaging technique
- Researchers could expand their research and explore new applications on all fronts
- Radiologists could enhance their daily clinical practice

Biography
Dr. Shanshan Jiang is currently an Associate Professor of Radiology in Johns Hopkins School of Medicine. Her research has primarily focused on developing and applying innovative MRI techniques to diagnose and treat neurological diseases. In particular, she pioneered the implementation of the protein-based Amide Proton Transfer (APT) MRI approach in neuro-oncology. She has published more than 50 journal articles. She was awarded ISMRM junior fellow in 2018.

Miloni Mandani, Sonal M. Manohar*
Department of Biological Sciences, Sunandan Divatia School of Science, SVKM's NMIMS (Deemed-to-be) University, Vile Parle (West), Mumbai, Maharashtra, India

First-in-class clinical candidate ONC201 exhibits synergism in combination with doxorubicin against human triple negative breast cancer cells

Triple Negative Breast Cancer (TNBC) is the most aggressive subtype of breast cancer with worst prognosis. Cytotoxic chemotherapy is the mainstay of treatment for the advanced stage disease. However, response rates to these agents are limited and many responders eventually become resistant. Combination therapy is a rational strategy to increase response and tolerability of chemotherapeutic agents and to decrease resistance towards them. First-in-class small molecule clinical candidate ONC201 (also known as TIC10) has shown remarkable activity in several difficult to treat cancers. In the present study, we show that ONC201 exhibits synergism when combined with Doxorubicin (Dox) against TNBC cell lines. At the end of treatment, Dox+ONC201-treated samples showed enhanced decrease in cell viability as compared to single drug controls. We observed that ONC201 was able to rescue MDA MB 231 cells from Dox-induced G2-M arrest and senescence as observed by cell cycle analysis using flow cytometry. Gene expression analysis using qRT-PCR indicated that, though ONC201 alone did not upregulate expression of its key target genes such as Death Receptor 5 (DR5), ATF-4 and Caseinolytic Protease (cIpP), it downregulated Dox-induced p21 expression (a hallmark of Dox-induced senescence) in the Dox+ONC201-treated MDA MB 231. Further, when cells were allowed to recover after drug treatment, viable fraction of Dox-treated samples continued to show senescent morphology, while these senescent cells were not observed in Dox+ONC201-treated samples. Overall, this study indicates that ONC201 shows synergistic response when combined with Dox against TNBC cells and may exhibit senolytic properties.

Audience Take Away Notes

- Usually, selection of drugs for combination therapy and demonstration of the clinical benefit is done by trial and error, and therefore is time consuming and inefficient. This preclinical in vitro study to assess efficacy of drug combination and its mechanism of action provides proof-of-concept for focused potential clinical trials and consequently, for tailoring therapies to improve outcome for aggressive TNBCs

Biography

Dr. Sonal studied Life Sciences at the University of Mumbai and graduated as MSc in 2006. She then joined R & D of Piramal Life Sciences Ltd., Mumbai, India (a reputed pharmaceutical company) in the Department of Pharmacology as a research scientist. While working, she simultaneously completed her PhD degree in 2015 at the same institution. After three-year postdoctoral fellowship at IIT Bombay, Mumbai, India, she obtained the position of Assistant Professor at NMIMS (Deemed-to-be) University. She has published more than 30 research and review articles in reputed peer-reviewed journals.

Sajjad Sabahuddin, Sreedevi Gutta*
Computer Science and Information Systems, California State University San Marcos, San Marcos, CA, USA

An attention based network for improved glioma grading

Accurate prediction of glioma grade is significant for treatment planning and management. Prior studies require a segmentation network to extract the tumor region, which was then used by classification network for grade prediction. However, tumor segmentation was a challenging pre-processing task and inaccurate tumor extraction can lead to poor classification performance. In this work, we propose an attention-based model for grade prediction. The model contains attention layers to estimate the regions of interest that are relevant for grade classification. The F1-score of the proposed model is 91.18%, which is at least 6% higher than the state-of-the-art deep learning models. In addition, the proposed model was able to generate a more interpretable output.

Audience Take Away Notes

- The audience will learn about a novel approach to glioma grade prediction that addresses the limitations of previous methods. Specifically, they will understand:
- The significance of accurate glioma grade prediction for treatment planning and management
- The challenges associated with prior methods, which rely on tumor segmentation followed by classification
- The proposed solution: an attention-based model for grade prediction that doesn't require explicit tumor segmentation
- How attention layers are used to identify relevant regions for grade classification, improving accuracy and interpretability

Biography
Sreedevi Gutta is an assistant professor at the California State University San Marcos. She received her bachelor's in technology degree in Electronics and Communication Engineering from the Jawaharlal Technological University Kakinada, and MSc and PhD degrees in Computational and Data Sciences from the Indian Institute of Science in 2014 and 2018, respectively. Her current research interests include medical imaging, machine learning, and deep learning.

Sujoy Neogi*, Meghna Kinjalk, Deepak Goyal, Priyanka Bamoria, Narender Kumar, Nitesh Sharma, Simmi K Ratan

Department of Pediatric Surgery, Maulana Azad Medical College, Delhi, India

Benign pediatric tumors: Benign but pose serious diagnostic and therapeutic challenge

We present three cases of benign pediatric tumors in which there was significant diagnostic dilemma. We share our experience how a pre-sacral dermoid cyst gave rise to bowel bladder obstruction and subsequent incontinence, a retroperitoneum teratoma just superior to left kidney mimicking left congenital pelvi-ureteric junction obstruction, and a fibroblastoma at the sacro-coccygeal region mimicking sacro-coccygeal teratoma. After the successful diagnosis, the management for these tumors was also equally challenging. Through this paper we wish to convey that benign tumors in children can be extremely debilitating and complacency in management can be fatal.

Biography

Dr. Sujoy Neogi is currently working as Associate Professor in the Department of Pediatric Surgery, Maulana Azad medical College, Delhi, India. He has multiple papers in international journals, coauthored many books related to Pediatric Surgery and is in the editorial board of many reputed journals. He has a keen interest in neonatal surgery, minimal access surgery, pediatric oncosurgery and video urodynamics.

Dr. Surya Prakash Tadepalli
Founder President of the Jai Surya Multiple Knowledge Development Organization, Visakhapatnam, Andhra Pradesh, India

Unveiling secrets and a permanent remedial approach for the global monster cancer

Introduction: Up until recently, it was thought that cancer may strike without warning. Now, however, we know that each type of cancer has a specific cause, so let's see whether we can treat them all separately. We can now pinpoint the causes of every type of cancer as well as the most effective methods for curing and preventing it. Let's also discuss the various types of cancer, their causes, and therapies.

Objective: In the past, no one had ever heard of or even heard of cancer; today, the word "cancer" is heard frequently everywhere in the world. Amidst the bewildering chaos, an enigmatic and previously unknown malignancy has emerged, resembling a monstrous entity that relentlessly expands and devours its victims across the globe. This unprecedented cancerous surge has caused widespread alarm, leaving everyone searching for answers about its origins and modes of transmission. Though it comes with multifaceted causes, unraveling its secrets may hold the key to preventing its catastrophic spread, as in the past, it was believed to strike without reason, leaving no hope for a cure in its wake.

Methods: However, we are now at a point where we can explain the causes of many different types of cancer, which means that when we know the reason of a disease, we can cure it with confidence and take preventative measures to avoid it. Knowing the origins of cancer makes it fairly simple to both treat and prevent it. Since nature did not appear out of thin air, every medicine that we use today also comes from our planet. Similar to this, nature has provided alkaloids that can readily prevent and treat cancer. We are only now learning about these naturally occurring alkaloids.

Results: However, none of the medical plants or alkaloids that are currently available are hazardous to human life. These are right in front of us, yet no one knows if they can cure cancer. Some medicinal plants are simple to recognize, while others require the assistance of plant identification experts. However, some natural alkaloids are not only extraordinarily therapeutic but also irreversible.

Conclusion: Whatever it was in the past, there is now an explanation for everything, and relevant treatment techniques and preventive measures are available. We can now determine the causes of all cancers as well as the best approaches to treat and prevent them. Let's also go over how to identify each type of cancer, as well as its causes and therapies. As a result, the time has arrived for people to stop worrying about the cancer epidemic. To avoid this malignancy in the future, it is sufficient to take preventative measures.

Biography

Surya Prakash Tadepalli holds an education qualifications are included in MS-Clinical Microbiology, M.SC-Psychology, MS-Dietetics, BAMS, MBA, MA-Dance, PGDCPA, DAFE, PGDY, D. Psychotherapy, D. Sports injury management, D. Anatomy and Physiology, DNHE, LL. B, and BS-BZC. His skills are Included in Healthcare, Prevention And Management of old Age, Child Care, Free Medical Camps, Epidemiological Infectious Diseases Management, Health Education, Counseling, Self- Diagnosis, Rejuvenation, Purification Therapy, Health Fitness, Environmental Awareness, Chronic And

Incurable Disease Management, And Self-Confidence Development. Research papers focuses on early stages Indian medicine substitute for heart surgeries, aids is not frightful it can be cured, novel remedial approaches against virulent coronaviruses, Indian classical dance as the best medicine for diabetes and heart diseases. He has also explored the prevention and management of old age problems, why to scare of fistful heart, and self- diagnosis and its management in zero investment. NHWA awards Life Time Achievement, Excellence, Siro Mani receives the AIDS Day award. TSHA and ET-E-TG receive the COVID Warrior state and National Level awards, Kavi Mitra, Vruksha Mitra and Miraculous Doctor Awards.

Tanvi Gupta*, Wen Pin Su
Institute of Clinical Medicine, College of Medicine, National Cheng Kung University, Tainan, Taiwan

New paradigm shift towards pancreatic cancer enabling nano-based biosensors for detection of exosomes

Pancreatic cancer shows high mortality rate with poor prognosis and is expected to be the major cause of cancer deaths by 2030. Due to its aggressive nature for growth and progression, it usually goes unnoticed at an early stage due to lack of symptoms and by the time diagnosis are performed the disease has reached to its advanced stage. Current promising approach for the early diagnosis is the nano-based biosensors enable to detect exosomes in the patient. The traditional method for characterization of exosomes are qRT-PCR and ELISA but there are limiting factors such as requires large sample volume, less sensitive, expensive and tedious. Therefore, these methods can be replaced by involving the nano-based biosensors which have high sensitivity, specificity, low sample volume, efficient, high throughput and cheaper for detection of various exosomal biomarkers. The test can detect cancerous exosomes using a nano-biosensor which can be detected at an early stage of pancreatic cancer. This test can be detected in all stages of cancer which can be characterized by cancer exosomes and results in high sensitivity from the nano- biosensor. The expression levels of cancerous exosomes are easier to distinguish between cancer and healthy patients which seems quite tedious with ELISA or Nanoflow. The electronic read-out system makes the test easy and simple for the users without any medical personnel assistance. The nano- biosensor can detect multiple biomarkers for pancreatic cancer on a single chip which allows being helpful in diagnostic purposes. Therefore, this method can be aimed to be applied at large scale which can be cost-effective and requires minimal instrumentation with high specificity and sensitivity.

Keywords: Pancreatic Cancer, Exosomes, Nano Biosensors, Diagnosis.

Audience Take Away Notes

- The audience will be able to understand how they could improve their research by integrating the use of nano-biosensors to enhance the detection of various biomarkers with high efficiency
- They can use this method at a small scale first and when the output is good they can think to move on to large scale to minimize time and improve the diagnosis
- Definitely, it can involve group of researchers in chemical, biological and engineering department to work together for the development of biosensors
- This method will be very helpful in the clinics to overcome conventional diagnostic challenges

Biography

Ms. Tanvi Gupta studied MSc. Biotechnology Honors at Lovely Professional University, India and graduated in 2018. She was awarded with the government fellowships in India such as IASc-INSA-NASI Summer Research Fellowship Program (SRFP) 2017, BIRAC funded Project which was completed in CSIR-IIIM, Jammu in 2019. She also received international summer research fellowship, TEEP@India, 2018 which was completed at National Chiao Tung University, Taiwan. Later, she joined for her PhD degree in 2020 under supervision of Dr. Wen Pin Su at the Institute of Clinical Medicine, College

of Medicine, National Cheng Kung University, Taiwan. She has received Taiwan Scholarship for her doctorate degree (PhD) by Ministry of Education of the Republic of China (Taiwan). She has presented her work in many conferences and has been awarded with Young Investigator Award in KSMO, 2022 and Foreign Investigator Award in the The Liver Week 2021, held in South Korea.

Olajumoke Ogunlusi[1], Mrinmoy Sarkar[1], Arhit Chakrabarti[2], Devon J Boland[3], Danielle Fails[4], Bani Mallick[2], Jeff Jones[1], Tapasree Roy Sarkar[1*]

[1]Department of Biology, Texas A&M University, College Station, TX, USA
[2]Department of Statistics, Texas A&M University, College Station, TX, USA
[3]Texas A&M Institute of Genome Sciences & Society (TIGSS), College Station, TX, USA
[4]Fortis Life Sciences, Montgomery, TX 77356, USA

Targeted immunotherapy to inhibit circadian-disruption induced aggressive tumorigenesis

Background: Epidemiological studies have shown that Circadian Rhythm Disruption (CRD) is associated with the risk of breast cancer. However, the role of CRD in mammary gland morphology and aggressive basal mammary tumorigenesis and the molecular mechanisms underlying CRD and cancer risk remain unknown.

Methods: To investigate the effect of CRD on aggressive tumorigenesis, a genetically engineered mouse model of aggressive breast cancer was used. The impact of CRD on tumor microenvironment was investigated using the tumors from LD12:12 and CRD mice via scRNA seq. ScRNA seq was substantiated by multiplexing immunostaining, flow cytometry and realtime PCR. The effect of LILRB4-immunotherapy on CRD-induced tumorigenesis was also investigated. Here we identified the impact of CRD on basal tumorigenesis and mammary gland morphology and identified the role of LILRB4 on CRD-induced lung metastasis.

Results: We found that chronic CRD disrupted mammary gland morphology and increased lung metastasis and induced an immunosuppressive tumor microenvironment by enhancing LILRB4a expression. Furthermore, targeted immunotherapy against LILRB4 reduced CRD-induced immunosuppressive microenvironment and lung metastasis.

Conclusions: These findings identify and implicate LILRB4a as a link between CRD and aggressive mammary tumorigenesis and establishes the potential role of the targeted LILRB4a immunotherapy as an inhibitor of CRD-induced lung metastasis.

Audience Take Away Notes

- According to the Occupational Health Supplements survey (NIOSH, 2015), in the USA, 27% of the working population is involved in shift work (13). Studies showed that women who work the night shift had an increased risk of skin cancer, breast cancer, and gastrointestinal cancer. Therefore, it is imperative to understand the effect of circadian disruption on women's healtho.

Biography

Dr. Sarkar received her Ph.D. from Purdue University on Biological Engineering, where she worked on “biophysical and biomolecular approaches to assess cell signaling and cross talk in breast cancer cells”. She did her first post-doctoral research at National Cancer Institute (NCI/NIH), focusing on the tumor suppressor role of C/EBP□. During her second post-doctoral research at M.D. Anderson Cancer Center with Dr. Sendurai Mani, she has focused on identification and characterization of a breast cancer stem cell marker (GD2). Dr. Sarkar gained extensive experience working with cancer cell lines as well as in vivo xenograft models. She is currently an Assistant Professor at Biology and a co-director of the Center for Statistical Bioinformatics.

Wei Wu M.D., Ph.D.
Department of Medicine, the University of California, San Francisco (UCSF), California, USA
UCSF Hellen Diller Comprehensive Cancer Center, San Francisco, CA 94158, USA

The applications of deep learning approaches in cancer research

Advancements in Artificial Intelligence (AI) are revolutionizing various sectors and rapidly reshaping cancer research and personalized clinical care. The combination of big data and powerful computing capacity has unlocked the transformative potential of AI-based approaches, particularly deep learning and generative AI, in oncology. These innovations have significant applications in cancer diagnosis, treatment, and prognosis.

In this talk, I will present two studies that employ deep learning prediction models to detect cancer characteristics from digital pathology images. The first study focuses on predicting genomic mutations, tumor stage, grade, and survival outcomes directly from H&E-stained Whole Slide Images (WSIs) of individual esophageal cancer patients by leveraging modern deep learning techniques. We achieved an average AUC of 0.90 for epithelium vs. stromal classification, and 0.87 for Esophageal Adenocarcinoma (EAD) vs. Esophageal Squamous Cell Carcinoma (ESCC) classification on the validation datasets. Additionally, these models predicted tumor stage, grade, and survival outcomes with an accuracy greater than 90%. TP53 gene alterations, occurring in over 50% of esophageal tumors, were predicted with an AUC of 0.91 from WSIs using our model.

The second study involved building a customized deep-learning model to detect YAP-positive Drug-Tolerant Persister (DTP) cell states from whole histopathological image slides. The model achieved accuracies of 0.9091, 0.8949, and 0.902 in the training, validation, and testing datasets for lung cancer, respectively. With further clinical validation, this model could be implemented in routine cancer care to identify patient subpopulations with YAP1-activated tumors, who would benefit most from YAP1-targeted small molecule inhibitors.

These applications demonstrate the remarkable capabilities of AI in early detection, accurate diagnosis, optimization of cancer treatment protocols, and prediction of disease progression, recurrence, and patient survival. Furthermore, AI is also playing a key role in drug discovery, repurposing, and combination therapy strategies. We anticipate that the integration of AI technologies in cancer care will enhance the precision, efficiency, and personalization of patient management, ultimately improving clinical outcomes and quality of life for cancer patients.

Audience Take Away Notes

- The general concept of artificial intelligence and its potentials in cancer research
- Application of deep learning algorithms on digital pathology images
- Practical examples of deep learning models in translational cancer research

Biography

Dr. Wei Wu received his medical and research training in cancer biology in China and completed postdoctoral training in the United States and Canada. He is actively engaged in systems and computational cancer biology, focusing on gene regulatory networks mediated by both protein-coding and non-coding transcripts in the mammalian genome. His current research emphasizes multi-omics approaches to unravel the complexities of tumor heterogeneity and evolution, as well as the development of AI-based models to understand the mechanisms of drug resistance. His ultimate goal is to explore the cancer genome to identify potential "actionable and druggable" small-molecule therapies for cancer treatment.

Yihua Zhong
Department of Gastroenterology, Chongqing University Cancer Hospital, School of Medicine, Chongqing University, Chongqing, China

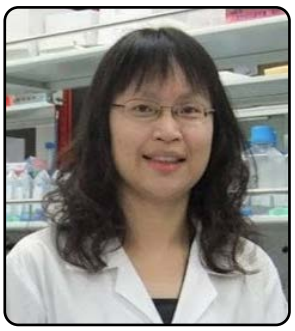
Capsule endoscopy-based diagnosis of GMLC (Gastroin-Testinal Metastases of Lung Cancer)

Gastrointestinal metastases of lung cancer are relatively uncommon, yet occur at a higher frequency than would be expected among patients that exhibit a longer survival interval. Metastases that arise in the small intestines are often associated with no or few symptoms such that their early diagnosis can be challenging. In this report, we describe an extremely rare case of a lung squamous cell carcinoma that had metastasized to the small intestine and was associated with symptoms of abdominal pain. The patient underwent capsule endoscopy which detected an irregular mass in the distal ileum that was hemorrhagic, after which laparoscopic ileal resection and anastomosis in parallel with partial bladder resection were performed. Subsequent pathological biopsy confirmed that the intestinal mass was consistent with metastatic squamous cell carcinoma. With surgery and subsequent maintenance therapy with targeted drugs, the survival of the patient was more than 6 months. As a noninvasive testing strategy, capsule endoscopy can be easily performed to support etiological diagnostic efforts in cases where other diagnostic options are lacking. Early diagnosis and therapeutic intervention can contribute to better prognostic outcomes for GMLC patients.

Audience Take Away Notes

- Advanced age, parenteral metastasis and intestinal perforation were negative prognostic factors for GMLC, while abdominal surgery was positive prognostic factors
- Small intestine metastasis is the most common site of GMLC. As a non-invasive test, SBCE is recommended as a first-line test for rapid and detailed etiological diagnosis
- Small intestine metastasis is the most common site of GMLC. As a non-invasive test, SBCE is recommended as a first-line test for rapid and detailed etiological diagnosis
- After MDT discussion, adequate and careful evaluation, targeted surgery and systematic treatment of specific patients can improve GMLC patients survival and quality of life

Biography
Dr. Zhong graduated from Chongqing Medical University, majoring in Clinical Medicine, and received her postgraduate degree in 2011. He has been engaged in clinical work on gastrointestinal tumors for a long time. In 2013, he was awarded the position of deputy chief physician. He is currently the deputy head of capsule endoscopy of Chongqing Digestive Committee and a member of other professional committees. He has written more than 10 SCI, CSCD and other papers.



Yi-Hui Wu
Department of Medical Research, Chi Mei Medical Center, Liouying Campus, Tainan, Taiwan

Col11A1 and Akt inhibitor in epithelial ovarian carcinoma

The Extracellular Matrix (ECM) plays an important role in the progression of cancer. Collagen is the most abundant component in ECM, and is involved in the biological formation of cancer. Although type XI collagen is a minor fibrillar collagen, Collagen XI Alpha 1 chain (COL11A1) expression has been found to be upregulated in a variety of human cancers including colorectal, esophagus, glioma, gastric, head and neck, lung, ovarian, pancreatic, salivary gland, and renal cancers. High levels of COL11A1 usually predict poor prognosis, owing to its association with angiogenesis, invasion, and drug resistance in cancer. However, little is known about the specific mechanism through which COL11A1 regulates tumor progression. Here I will present a summary of what we have done about COL11A1 in EOC, as well as the newly discoveries.

Audience Take Away Notes

- COL11A1 promotes tumor progression and predicts poor clinical outcome in ovarian cancer
- COL11A1 promotes tumor aggressiveness via the TGF-□1-MMP3 axis
- COL11A1 confers chemoresistance on ovarian cancer cells through activation of Akt/c/EBP□ pathway and PDK1 stabilization
- COL11A1 or Akt could be used as prognosis predictive markers or as the target for drug design in EOC

Biography
Dr. Yi-Hui Wu studied Institute of Toxicology at the Chung Shan Medical University, Taiwan and graduated as MS in 2001. She received her PhD degree in 2007 at the same institution. Addition, she also worked as a visiting scholar for one year supervised by Professor Benjamin K. Tsang at University of Ottawa. She then joined the Chi Mei Medical Center, Liouying Campus as an Associate Research Fellow. She has published more than 30 research articles in SCI journals.

Yuko Harada[1*], Makoto Toyoda[2], Shuto Ifuku[1], Kenjiro Sakaki[2]
[1]Department of General Internal Medicine, Shonan Atsugi Hospital, Atsugi, Japan
[2]Department of Cardiovascular Surgery, Shonan Atsugi Hospital, Atsugi, Japan

Cancerous pericarditis in gastric cancer

An 88-year-old male patient was referred to our hospital for unexplained anemia, Gastric fiberscope revealed gastric cancer. No metastasis was suspected on admission. However, his anemia sustained in spite of the treatment with blood transfusion and iron supplement. His LDH level rapidly increased within a few weeks. Abdominal echography revealed liver metastasis. Patient was able to eat and walk without symptoms for a few weeks, then his blood pressure dropped and he presented with general fatigue. Pericardiocentesis revealed Class IIIa atypical cells. The findings of Tl/BMIPP cardiac scintigraphy were compatible with cancerous pericarditis.

Cancerous pericarditis is usually caused by lung cancer or breast cancer. Gastric cancer is a rare cause of cancerous pericarditis. As the patient does not show any symptoms suspecting cardiac tamponade until the terminal stage, diagnosis and treatment are sometimes delayed. We will add more discussions with review of literature.

Tl/BMIPP cardiac scintigraphy is widely used in Japan, but not in western countries. We will demonstrate the figures of Tl/BMIPP cardiac scintigraphy performed for patient with cancerous pericarditis. The usefulness of Tl/BMIPP cardiac scintigraphy is also discussed.

Audience Take Away Notes

- The audience will be able to use the knowledge from our experience for the management of cancerous pericarditis
- Our presentation will raise a caution for false assumption from routine check-up. Cardiac catheterization is not always a perfect test or the heart
- Cardiac Scintigraphy is a non-invasive test for the heart. It can evaluate ischemic and non-ischemic cardiac disease

Biography
Yuko Harada, M.D., received her M.D. degree from Keio University School of Medicine. She is currently Director of General Internal Medicine at Shonan Atsugi Hospital. From 2020 she was Vice Director of Cardiology at Kawasaki Municipal Ida Hospital. From 2018 she was Division Head of General Internal Medicine at Yamato Tokushukai Hospital. From 2014 she was Director of Internal Medicine at Shin-yurigaoka General Hospital. Until 2014 she was Chief of Cardiology at Kawasaki Municipal Ida Hospital, where she also completed her residency. She has authored numerous pioneering research and medical papers in the fields of Internal Medicine, Cardiology, and Radiology.

Zahra Husain
Eastern Health Cluster, Saudi Arabia

Proposal for new diagnostic criteria for sarcopenia based on CT imaging in Saudi population: A novel method in oncology research

Background: Sarcopenia has been shown to be an independent predictor of lower overall survival in oncology patients. Several studies have used Computed Tomography (CT) to measure psoas muscle surface area to define sarcopenia. However, the cut-off values based on CT imaging remain undetermined in Saudi population. The aim of this study is to provide sex and age specific percentiles for Psoas Muscle Area (PMA), Psoas Muscle Index (PMI) and Psoas Muscle Density (PMD) in Saudi population and to establish a formula to calculate the standard PMA based on individual's anthropometric measurement.

Methods: Preoperative CT imaging at the third lumbar vertebra level was used to measure PMA, PMI and PMD in 400 adult donors for Living Donor Kidney Transplantation (LDKT). We determined the age and sex-specific cut-off values of PMA in order to define low skeletal muscle mass. A formula was generated to calculate the standard PMA using body weight as independent variable and further validated on a new dataset involving individuals from the general population.

Results: Males had significantly higher measurements of PMA among females (10.7±2.7 vs. 5.8±1.9, $p<0.0001$). PMA was positively correlated with body weight in both genders. The estimated PMA using the generated formula correlated strongly with the manually traced PMA measurements. The mean differences between estimated and measured PMA values were 0.81±1.70 (95%CI, -1.75 to 0.13) among males and 0.17±1.19 (95%CI, -0.49 to 0.83) among females. These outcomes emphasize the validity of our predictive computations.

Conclusion: PMA can be used in opportunistic screening for sarcopenia and as a radiological marker to predict overall survival in oncology patients.

Biography
Dr. Zahra Husain studied MBBCH at Dubai Medical College (UAE) and graduated in 2019. She then joined the Diagnostic Radiology residency program at Dammam Medical Complex (Saudi Arabia). She received the Saudi Board in Diagnostic Radiology in November 2023. She is currently a clinical fellow in the Musculoskeletal Imaging fellowship program at the Eastern Health Cluster (Saudi Arabia).

OCT

17-19

7th Edition of

International Cancer Conference

POSTERS PRESENTATIONS

Anil Kumar[1*], Indu Pal Kaur[2], Lekha Saha[1]
[1]Department of Pharmacology, Post Graduate Institute of Medical Education and Research, Chandigarh, India
[2]University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh, India

Nucleic acid encapsulated optimized solid lipid nanoparticles for oral delivery

Diseases and molecular targets considered undruggable, particularly those hidden within the Tumor Microenvironment (TME), remain challenging for existing therapeutic approaches. In such cases RNA interference (RNAi) therapeutics, such as Small Interfering RNA (siRNA) present a potential therapeutic approach. siRNAs are engineered to degrade mRNAs or inhibit/decrease translation to alterations seen in cancer cells. However, their clinical application is hindered due to their large size decrease target protein expression to counteract the transcriptional and translational and negative charge. Nucleic acids like mRNA and siRNA need delivery systems to bypass the liver's Reticuloendothelial System (RES), enhance targeted uptake, minimize off-target effects, and protect against RNAse degradation. Several delivery strategies, including GalNAc conjugation and Lipid Nanoparticles (LNPs) mediated delivery systems have been explored. In this study our aim was to develop a formulation which could be resistant in stomach acid and release its content only in large intestine. Here in this study a novel double layer coated Solid Lipid Nanoparticle (SLNs) formulation was developed featuring an outer eudragit S100 layer to bypass gastric environment and inner hyaluronic acid layer with a PEGylated lipid core. CT-DNA encapsulated in SLNs showed a good encapsulation and minimal to low cytotoxicity even at 100µM in HCT-116 human colorectal cancer cells and CT-26 rat colon cancer cells. This formulation uses neutral lipid compare to usual cationic and ionizable lipids. Further studies are planned to assess its ability to deliver siRNA through the oral route and downregulate specific targets in DMH-induced colorectal cancer in rats.

Audience Take Away Notes

- **RNAi Delivery Challenges:** Understand the obstacles in delivering siRNA, including its size, charge, and degradation risk
- **Novel SLN Formulation:** Learn about a new double-layer SLN designed to resist stomach acid and release in the large intestine
- **Neutral Lipid Benefits:** Discover the advantages of using neutral lipids over cationic/ionizable lipids for reduced toxicity
- **In Vitro Results:** Review the formulation's effectiveness and low cytotoxicity in colorectal cancer cells
- **Future Potential:** Explore the formulation's potential for oral siRNA delivery in cancer treatment

Biography

Anil Kumar has studied masters degree in Zoology from Central University of Himachal Pradesh in 2019. Post masters he has joined as a PhD student in the year 2022 in the research group of Prof. Lekha Saha in the Department of Pharmacology at the Institute of Post graduate Institute of Medical Education and Research (PGIMER), Chandigarh, India. He has contributed to 11 articles (5 review articles and 6 research articles in reputed journals.

Bin Wu*, Jing Wang, Yiyu Shen
Department of Hepatobiliary Surgery, The Second Affiliated Hospital of Jiaxing University, Jiaxing, China

Classification of pancreatic cancer on the basis of metabolic pathways and correlation of the metabolic subtype with tumour immunity

Background: Pancreatic cancer, particularly Pancreatic Ductal Adenocarcinoma (PDAC), is known for its aggressiveness, early metastasis, and poor prognosis. Despite advancements in diagnostic techniques and treatments, the survival rate remains low. Understanding metabolic reprogramming in pancreatic cancer cells and its impact on the tumour microenvironment is crucial for developing new therapeutic strategies.

Methods: We utilized standardized RNA-Seq data from the TCGA-PAAD cohort, as well as microarray expression data from the GSE57495 and GSE21501 cohorts. Using Gene Set Variation Analysis (GSVA), we quantified the activity of metabolic pathways in tumour samples and performed unsupervised clustering to identify distinct metabolic subtypes. We analysed the associations between these subtypes and tumour immune cell infiltration, gene mutations, and drug sensitivity.

Results: This study integrated data from TCGA-PAAD, GSE57495, and GSE21501, forming a comprehensive dataset of 372 samples and 15,557 genes. Using Gene Set Variation Analysis (GSVA), we calculated enrichment scores for 72 metabolic pathways and identified 12 significantly enriched pathways. Unsupervised clustering revealed two metabolic subtypes (C1 and C2) with distinct Overall Survival (OS) rates. Further analysis revealed significant differences in pathway activity and immune cell infiltration between these subtypes. We identified 1,226 differentially expressed genes, and GO and KEGG enrichment analyses were performed to reveal key biological processes. A machine learning prognostic model developed using the random forest algorithm demonstrated robustness and predictive accuracy and was validated externally with additional datasets. The model risk score was significantly correlated with clinical features and served as an independent prognostic factor. Our findings revealed the mutational landscape and suggested potential therapeutic strategies on the basis of metabolic characteristics, enhancing the understanding of the roles of key gene in tumour biological features and the immune response. This study highlights the heterogeneity of metabolic pathways and the relationship of these pathways with the tumour immune microenvironment, providing a foundation for precision treatment strategies in pancreatic cancer.

Conclusions: Metabolic subtyping of pancreatic cancer revealed significant heterogeneity in metabolic pathways and the relationship of metabolic subtype with tumour immune microenvironment features. These findings provide a new theoretical basis for precision treatment strategies targeting metabolic pathways and immune evasion mechanisms in pancreatic cancer.

Biography

Dr. Bin Wu received his master's degree from Shandong First Medical University, China in 2018. He is currently a PhD candidate. He is good at the diagnosis and minimally invasive treatment of common diseases of liver, biliary and pancreas, and the basic and clinical translational research of pancreatic malignant tumors. He has published more than 20 research articles in SCI (E) journals.

Madeline Xu[1*], Sunghan Jung[2], Anita C. Bellail2, Chunhai Hao[2]
[1]STEM program, Clinical and Translational Science Institute STEM
[2]Department of Pathology and Laboratory Medicine, Indiana University School of Medicine, Indianapolis, Indiana, United States

The synergy of SUMO1 degraders and FOLFOX treatment of metastatic colon cancer

Recently, we have discovered the Small-Molecule degraders of Ubiquitin-like Modifier 1 (SUMO1) that has been considered as undruggable oncoprotein. The degrader compounds degrade SUMO1 oncoprotein through activation of Cullin-1 E3 ligase-mediated ubiquitination of the protein in colon cancer cells and suppress the growth of Patient Derived Xenografts (PDXs) of advanced colon cancer. Advanced colon cancer is resistant to the standard chemotherapy regimen FOLFOX (5-fluorouracil, oxaliplatin, leucovorin). Here, we report the synergy of the combination of SUMO1 degraders and FOLFOX in treatment of advanced colon cancer. In a CRISPR-Cas9 genome wild knockout screen, we found that Glucose-6-Phosphate Dehydrogenase (G6PD) is involved in the activity of SUMO1 degraders. In analysis of The Cancer Genome Atlas (TCGA) database, we found that G6PD gene expression was significantly associated with the poor prognosis of colon cancer patients. CRISPR-Cas9 knockout G6PD in colon cancer cell lines drastically reduces the anticancer activity of SUMO1 degraders. G6PD is a substrate of SUMO1 and SUMO1 conjugation enhances G6PD dimerization and enzymatic activity. By degradation of SUMO1, the small-molecule degraders reduce G6PD conjugation of SUMO1, its dimerization, and enzymatic activity, which sensitizes colon cancer cell lines to FOLFOX. The combination of SUMO1 degraders and FOLFOX synergically suppresses the growth of advanced colon cancer PDXs. In conclusion, the studies suggest the combination treatment of advanced colon cancer with SUMO1 degraders and FOLFOX.

Audience Take Away Notes

- Introduction of therapeutic innovation of small-molecule degraders as novel anticancer drugs
- Novel therapy of advanced colon cancer using SUMO1 degraders, alone or in combination with FOLFOX
- G6PD as a therapeutic biomarker in the combination treatment of advanced colon cancer

Biography
Miss Madeline Xu was a STEM student of the Clinical and Translational Science Institute, Indiana. She has joined the team and worked on the project in the last two years. She has learned quickly, conducted bench work independently and thus contributed to this project significantly.

Madhavkumar Savaliya[1,2,3*], Drishty Surati[1,2,3], Ramesh Surati[3], Shailesh Padmani[6], Stergios Boussios[1,4,5]

[1]Department of Medical Oncology, Medway NHS Foundation Trust, Gillingham, United Kingdom

[2]Department of Acute Medicine, University Hospitals of Leicester NHS Trust, Leicester, United Kingdom

[3]Department of General Medicine, Metas Adventist Hospital, Surat, Gujarat, India

[4]Faculty of Life Sciences & Medicine, King's College London, London, United Kingdom

[5]Kent Medway Medical School, University of Kent, Canterbury, United Kingdom

[6]Sahyog Imaging Center, Surat, Gujarat, India

Posterior reversible encephalopathy syndrome after Pazopanib therapy

The term Posterior Reversible Encephalopathy Syndrome (PRES) refers to an acute syndrome characterised by a range of neurological symptoms and posterior transient changes on neuroimaging. Common clinical presentation includes headache, confusion, visual disturbances, seizures, and focal neurological deficit. With the advancement and increasing availability of neuroimaging, this syndrome is increasingly recognised. There are several underlying causes for PRES, including certain medications. Tyrosine Kinase Inhibitors (TKIs) such as pazopanib can increase the risk of developing PRES by markedly elevating the blood pressure due to its effect of inhibition of Vascular Endothelial Growth Factor Receptors (VEGFRs). We have reported a case of a 55-year-old male patient with the clear cell type of Renal Cell Carcinoma (RCC) who developed PRES within a short period after starting pazopanib therapy. Seven days after the initiation of the Pazopanib, he began complaining of a headache in the evening and reported three episodes of vomiting. Following morning he had a generalised tonic-clinic seizure and presented with low Glasgow Coma Scale of 9/15 points. His BP on presentation was 200/100 mmHg and a Magnetic Resonance Imaging (MRI) scan showed cortical and sub cortical hyper intensities involving bilateral parieto-occipital lobe. With the effective control of his blood pressure and discontinuation of pazopanib his symptoms quickly improved. On subsequent follow-up MRI scan after four weeks his typical lesion of PRES resolved completely. This case represents rare association of pazopanib causing PRES and importance of its early recognition and timely discontinuation of the medication to prevent permanent neurological damage and improve patient's overall outcome.

Audience Take Away Notes

- The audience can gain insights into the prevalence of PRES associated with pazopanib therapy and identify potential risk factors that may increase susceptibility to this condition
- The presentation can provide a detailed understanding of the typical clinical symptoms and diagnostic features of PRES, aiding in early recognition and prompt management
- Attendees can learn about effective management strategies for PRES, including the importance of discontinuing pazopanib and controlling blood pressure
- The poster can discuss the potential long-term neurological consequences of PRES and highlight the need for ongoing monitoring and follow-up

Biography

Dr. Madhavkumar Savaliya did his medical school at Surat Municipal Institute of Medical Education and Research (SMIMER), India and graduated as MBBS in 2015. He then did his post-graduation training in medicine at Holy Family Hospital Mumbai, India and received his DNB General Medicine degree in 2019. After working for about two years as senior resident in India, he then moved to United Kingdom in 2022 to join Medway NHS Foundation Trust as Medical Training Initiative (MTI) trainee. Currently he is working as a Medical Registrar at University Hospitals of Leicester NHS Trust in United Kingdom.

Natalia Camejo[1*], Cecilia Castillo[1], Nicolas Ayala[1], Joaquin Manzanares[1], Gianina Muñoz[1], Lujan Cabrera1, Dahiana Amarillo[1], María Guerrina[1], Guadalupe Herrera[2], Carolina Dörner[3], Gabriel Krygier[1]

[1]Department of Oncology, Hospital de Clínicas, Montevideo, Uruguay
[2]Department of Quantitative Methods, Faculty of Medicine, Montevideo, Uruguay
[3]Departmental Hospital of Soriano - "Zoilo A. Chelle", U.E 30, Soriano, Uruguay

Prevalence of healthy behaviors in cancer survivors in Uruguay

Introduction: The American Cancer Society (ACS) has established guidelines to improve the quality of life and survival of cancer survivors. Adherence to these recommendations is low internationally, and there is no available data in Uruguay.

Objective: To determine the proportion of cancer survivors who comply with the five healthy behavior guidelines recommended by the ACS at the Hospital de Clínicas and the Departmental Hospital of Soriano.

Materials and Methods: This observational and prospective study included early-stage (I-III) cancer patients under follow-up. A questionnaire was applied to assess dietary habits, physical activity, alcohol, and tobacco consumption. Compliance was scored from 0 (does not comply) to 1 (complies) for each of the five healthy behaviors, with a total score ranging from 0 to 5. Patients were classified as having low (0-2), moderate (3), or high adherence (4-5). The relationships between adherence and age, sex, education level, tumor site, stage, and time since diagnosis were analyzed. Statistical analyses were performed using R software, with p-values <0.05 considered significant.

Results: A total of 288 patients with a median age of 68 years were included; 52.4% were women, and 47.5% had completed secondary education. The most frequent tumors were breast, colorectal, and prostate. Only 15% consumed sufficient fruits and vegetables, 63.5% maintained a BMI <30, 32.3% achieved recommended physical activity, 80.6% did not smoke, and 95.5% did not drink alcohol excessively. Adherence was low in 42%, moderate in 29.5%, and high in 28.5%, with higher adherence among younger patients (p=0.009), women (p=0.004), patients with higher education levels (p<0.001), and those diagnosed at earlier stages (p=0.009). Breast cancer patients showed higher adherence (p=0.025). No relationship was found between adherence and time since diagnosis (p=0.155).

Conclusions: Although most survivors followed recommendations to not smoke (80.6%) and moderate alcohol consumption (95.5%), a third had a BMI above the recommended level, two-thirds did not achieve recommended physical activity, and 85% did not consume the recommended fruits and vegetables. Overall, 57.8% met fewer than 3 of the 5 recommendations. Adherence was lower among older patients, men, stage III patients, and those with lower education levels, suggesting that these groups may benefit more from specific interventions.

Audience Take Away Notes

- Understand the prevalence of healthy behavior adherence among cancer survivors
- Identify demographic and clinical factors associated with adherence to healthy behaviors
- Apply this information to develop targeted interventions to improve adherence among cancer survivors, enhancing their overall quality of life

- This research provides insights that can help healthcare professionals understand the challenges cancer survivors face in adhering to healthy behaviors
- Clinicians can use these findings to develop targeted interventions to improve the health behaviors of cancer survivors
- The information can guide healthcare professionals in counseling and supporting their patients, leading to better health outcomes and quality of life

Biography

Dr. Natalia Camejo studied Medicine at the Universidad Mayor de la República in Montevideo, Uruguay, graduating in August 2006. She completed her residency in Medical Oncology at the Hospital de Clínicas and obtained her specialty in Medical Oncology in March 2011. Dr. Camejo is an Assistant Professor at the Oncology Department of Hospital de Clínicas. She has published numerous research articles in reputable journals and has been actively involved in clinical research focusing on breast cancer. Her work aims to improve the quality of life of cancer survivors through better understanding and management of treatment-related side effects.

Natalia Camejo*, Camila Montenegro, Dahiana Amarillo, Cecilia Castillo, Gabriel Krygier
Department of Oncology, Hospital de Clínicas, Montevideo, UruguayCity, MO, United States

Addressing sexual health in oncology: Perspectives and challenges for better care in Uruguay

Introduction: The effects of oncological treatments on emotional well-being can negatively impact sexual health and intimate relationships. Improvements in cancer management have prolonged patient survival, highlighting the importance of addressing sexual health following diagnosis.

Objectives: To explore physicians' practices regarding the approach to sexual health during oncological consultations, identify barriers to addressing it, and assess the need for training in sexual health.

Methodology: This observational and cross-sectional study evaluated the management of sexual health by physicians involved in cancer treatment through an anonymous questionnaire distributed via SurveyMonkey. A univariate and multivariate analysis of variables such as age, gender, specialty, experience, and level of training was conducted. Univariate comparisons used appropriate statistical tests, establishing a significance level of $p<0.05$.

Results: Among the 133 surveyed physicians, 61.7% were women, 33.9% were medical oncologists or radiotherapists, and 33.8% were postgraduate students. A total of 31.6% never or rarely addressed sexual health, and 44.4% never or rarely included the patient's partner in the discussion. Additionally, 49.6% indicated that gender does not affect the approach to the topic. Responses regarding which gender is addressed more frequently showed a balance between both genders. Only 10.5% frequently felt prepared on this topic, while 24.8% almost never had adequate tools to address it. Furthermore, 97.7% of oncologists and 92.9% of otolaryngologists recognized the need for training in sexual health. Sexual health was discussed more often among patients diagnosed with prostate, cervical, and breast cancer and less among those with head and neck, bladder, and colorectal tumors. The approach was more frequent among patients treated with curative intent (77.4%) than those treated with palliative intent (5%). The main barriers identified were lack of training (46%), time constraints (39.8%), and patient discomfort (34.6%).

Conclusions: The majority of professionals treating oncology patients do not address sexual health, with lack of training, time constraints, and patient discomfort being the main barriers. However, 92% expressed the need for training in sexual health, which could contribute to early intervention, establish strategies, and timely referrals to specialists in the field.

Audience Take Away Notes

- Understand the current practices and barriers faced by oncology professionals in addressing sexual health
- Recognize the importance of training in sexual health to improve patient care
- Apply this knowledge to develop strategies for early intervention and appropriate referrals,

enhancing patient quality of life

- This research provides insights into the gaps in addressing sexual health among cancer patients, highlighting the need for improved training and resources
- Clinicians can use this information to advocate for better training programs and develop comprehensive care plans that include sexual health
- The findings can guide the implementation of strategies to overcome barriers, leading to improved patient outcomes and quality of life

Biography

Dr. Natalia Camejo studied Medicine at the Universidad Mayor de la República in Montevideo, Uruguay, graduating in August 2006. She completed her residency in Medical Oncology at the Hospital de Clínicas and obtained her specialty in Medical Oncology in March 2011. Dr. Camejo is an Assistant Professor at the Oncology Department of Hospital de Clínicas. She has published numerous research articles in reputable journals and has been actively involved in clinical research focusing on breast cancer. Her work aims to improve the quality of life of cancer survivors through better understanding and management of treatment-related side effects.

Rambod Mozafari[1], Karo Servatyari[2], Luisa Lorenzi[3], Fabio Facchetti[3], Shahriar Zohourian Shahzadi[4*], Sara Behafarid[5]

[1]Department of Hematology and Oncology, Tohid Hospital, Kurdistan University of Medical Sciences, Sanandaj, Iran

[2]Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran

[3]Pathology Unit, Department of Molecular and Translational Medicine, University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy

[4]Department of Pathology, Erfan Hospital, Tehran University of Medical Sciences, Tehran, Iran

[5]Department of Radiology, Besat Hospital, Kurdistan University of Medical Sciences, Sanandaj, Iran

Parapharyngeal lymph node as an isolated manifestation of follicular dendritic cell sarcoma: First report in Iran

Follicular Dendritic Cell Sarcoma (FDCS) is a rare type of sarcoma that originates from the stromal component of the germinal center of the B-follicle. Its presentation and prognosis vary, as it can be nodal or extranodal, localized or multifocal, and can be fatal in 20% of cases. Due to its rarity, FDCS diagnosis requires a high level of suspicion. Most cases have been reported in Europe or the United States, and no cases have been previously reported in indi- viduals of Iranian descent. This case report describes a 33-year-old Iranian man with no sig- nificant medical history who presented with a palpable nodule in the neck and odynopha-gia. Magnetic resonance imaging revealed a mass with heterogeneous enhancement in the parapharyngeal space. Pathological examination confirmed FDCS, likely localized to a para-pharyngeal lymph node with no extranodal involvement. The patient underwent radiation therapy and remained disease-free 28 months after diagnosis.

Keywords: Lymph Node, Follicular Dendritic Cell Sarcoma

Biography

Dr. Zohourian Shahzadi studied Medicine at the Shahid Beheshti University of Medical Sciences, Tehran, Iran and graduated as General Practitioner in 2000. He received his PhD degree of anatomical and clinical pathology in 2008 at the Iran University of Medical Sciences, Tehran, Iran. After one year postdoctoral fellowship of dermatopatholoy supervised by Dr. Parviz Toossi at the Shahid Beheshti University of Medical Sciences, Tehran, Iran, he is practicing anatomical and clinical pathology at Erfan Hospital, Tehran, Iran. He has published articles in credible journals.

Yongjiang Yu
The People's Hospital of Tongliang District, Chongqing City

UBE2A binding to WAC through the ATR/CHK1 axis facilitates DNA damage repair, resulting in parp inhibitor resistance in ovarian cancer

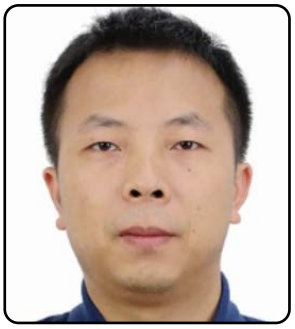
Backgroud: Ovarian cancer is the most malignant gynecological tumor, although maintenance therapy with poly (ADP-ribose) Polymerase Inhibitor (PARPi) has improved patient outcomes, PARPi resistance remains a major challenge in clinical practice. Therefore, there is an urgent need to find new targets of PARPi resistance and to clarify the mechanisms of resistance.

Methods: 3 pairs of PARPi sensitive and PARPi resistance ovarian cancer tissues were selected to next generation sequencing. Differently expressed gene was used to taking the next steps in research. In terms of functional phenotype, proliferation, migration, invasion and apoptotic changes were observed in SKOV3 cell lines after knockdown and overexpression of UBE2A. Taking a survival analysis approach to clarify the relationship between UBE2A and poor survival prognosis in ovarian cancer Mechanistically, Immunoprecipitation-Mass spectrometry (IP-Mass) was used to find possibly proteins that can interact with UBE2A. The binding of these two proteins was then confirmed by the CO-IP method. RNA-seq and KEGG enrichment analyses were used to clarify the gene enrichment pathway after knockdown of UBE2A in the SKOV3 PARPi resistant cell lines.

Results: UBE2A was highly expressed in ovarian cancer PARPi resistant tissues and cells, and highly expression of UBE2A was associated with poor prognosis in ovarian cancer. Overexpression of UBE2A increased PARPi resistance and knockdown of UBE2A increased PARPi sensitivity in ovarian cancer. When UBE2A was inhibited, the therapeutic efficacy of PARPi was enhanced. UBE2A can interacted with WAC to activate the ATR/CHK1 axis.

Conclusion: Our study identified UBE2A as a newly target of PARPi resistance ovarian cancer, targeted UBE2A therapy may improve the treatment effective of PARPi. And we clarified the mechanism by which UBE2A interacted with WAC to activate the ATR/CHK1 axis to accumulated DNA damage leads to PARPi resistance in ovarian cancer.

Keywords: Ovarian Cancer, Parpi Resistance, UBE2A, WAC, DNA Damage



Zhixiong Chen*, Jieli Huang, Hao Sun, Shouru Zhang
Department of Gastrointestinal Cancer Center, Chongqing University Cancer Hospital, Chongqing, China

Prophylactic placement of Self-Expandable Metal Stents (SEMS) during total gastrectomy may have a preventive effect on anastomotic leakage in patients who underwent neoadjuvant therapy - A single center retrospective analysis

Background: Placement of Self-Expandable Metal Stents (SEMS) by endoscopy has become a recommend treatment for Esophagojejunal Anastomotisis Leakage (EJAL). There is no clear conclusion on whether neoadjuvant therapy will increase the incidence of EJAL in Adenocarcinoma of the Gastroesophageal junction (AEG) patients. Furthermore, there is no research on whether a prophylactic placement of SEMS during operation would prevent EJAL. Here we reported the incidence of EJAL of AEG patients in single center, and analyzed the potential clinical significance of placement SEMS in advance for the prevention of EJAL.

Methods: Retrospectively, a total of 85 patients diagnosed AEG in our center from 2017-2023 who underwent total gastrectomy were classified into 3 groups: Neoadjuvant Chemoradiotherapy (Group NCR, n=42); Chemotherapy (Group NCO, n=15); Operation only (Group OO, n=28). 11 patients in Group NCR are placed on SEMS during operation. Clinical data such as the incidence of EJAL and Anastomotic Stenosis (AS) of each group were analyzed.

Results: 31 cases in Group NCR were not placed SEMS (4 cases in 31 were diagnosed EJAL and treated with SEMS), 11 patients in Group NCR are placed on SEMS during operation (no patients were diagnosed EJAL). There was one case diagnosed EJAL in both Group NCO (1 of 15) and Group OO (1 of 28). The overall EJAL rate was 8.2% (6 of 85), 12.9% in Group NCR (4 of 31), 6.7% in Group NCO (1 of 15), 3.6% in Group OO (1 of 28). The total AS incidence rate was 9.4% (8 of 85), and no cases were diagnosed AS in patients who were preplaced SEMS.

Conclusion: The incidence of EJAL in AEG patients who underwent neoadjuvant therapy was higher than that of non- neoadjuvant therapy patients. Prophylactic placement of SEMS during operation in AEG patients who underwent neoadjuvant therapy may play a certain role in preventing EJAL.

Audience Take Away Notes

- Neoadjuvant Chemoradiotherapy may increase the risk of Anastomotisis Leakage (EJAL) in Adenocarcinoma of the Gastroesophageal Junction (AEG) patients. Patients need to be informed of the risk of EJAL complications
- Esophagojejunostomy after laparoscopic total gastrectomy is the most technically difficult type of anastomosis, Prophylactic placement of SEMS during operation in AEG patients may play a certain role in preventing EJAL
- It can be inferred that if you feel unsatisfied with esophagojejunostomy, regardless of whether

neoadjuvant therapy is used or not, prophylactic placement of SEMS may be a wisdom clinical strategy in laparoscopic total gastrectomy

Biography

Dr. Zhixiong Chen studied surgery at Chongqing Medical University and graduated as M.D in 2018, He then joined the Gastrointestinal Cancer Center of Chongqing University Cancer Hospital. In 2019, he went to the Digestive Endoscopy Center of Fudan University Zhongshan Hospital for further studies and supervised by Dr. Pinghong Zhou. He has published more than 6 research articles in SCI (E) journals. He proficient in both gastrointestinal surgery and endoscopic surgery.

BOOK OF ABSTRACTS

We wish to meet you again at our upcoming events

International Cancer Research Conference

March 24 -26, 2025 | Singapore | Hybrid Event

https://cancer-conferences.magnusgroup.org/

8th Edition of International Cancer Conference

September 18-20, 2025 | London, UK | Hybrid Event

https://magnusconferences.com/cancer-oncology/

Questions? Contact

Phone: +1 (702) 988 2320 or Whatsapp: +1 434 264 7183

cancer@magnusconference.com