Joint Event

International Conference on

Oncology and Hematology Research

&

International Conference on

Applied Microbiology

September 22-23, 2025 | Brussels, Belgium

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Scientific Program

Meeting hall: Dubai

09.00 - 09.45	**Registrations**
09.45 - 10.00	**Introduction**

Keynote Presentation

10.00 - 10.45	**Green Tea Extract Exhibits Antitumor and Antiangiogenic Activity in Ehrlich Solid Tumor-Bearing Swiss Albino Mice: Impact of Treatment Timing Relative to Tumor Inoculation** **Aliaa Mahmoud Issa Abdou,** Cairo University, Egypt

Oral Presentations

Session Chair:
Aliaa Mahmoud Issa Abdou, *Cairo University, Egypt*

10.45 - 11.15	**NTRK Fusion–Positive Low-Grade Glioma of the Spine: Case Report and Literature Review** **Rawan A Alturki,** Service Neurosurgery Resident, King Saud Medical City, Saudi Arabia

Network & Refreshments (11.15 - 11.30)@ Foyer

11.30 - 12.00	**Prognostic Differences between Cardiac and Non-Cardiac Gastric Cancer: A Meta-Analysis of Histological Subtypes and Survival Outcomes** **Talshyn Amirkhanqyzy Nurulla & Azbergenov Nurbek Kozhakhmetuly,** Marat Ospanov West Kazakhstan Medical University, Kazakhstan
12.00 - 12.30	**Intracellular Bacteria Cause Chronic Disease by Altering the Innate Immune Response** **Meg Mangin, RN,** Chronic Illness Recovery, USA
12.30 - 13.00	**Diagnostic Accuracy of MRI for Parapharyngeal Space Tumors: A Retrospective Cohort Study Evaluating Radiologic-Pathologic Agreement** **Mohammed Alshahrani,** King Fahad Medical City, Saudi Arabia

Group Photo (13.00 - 13.10)

Lunch (13.10 - 14.00) @ Restaurant	
14.00 - 14.30	**Intrinsic and Extrinsic Apoptosis Responses in Leukaemia Cells following Daunorubicin Treatment** **Hussain Al Aamri,** Oman College of Health Sciences, Oman
14.30 - 15.00	**Glossopharyngeal Schwannoma Presenting with Hearing Loss: A Rare Case Report and Literature Review** **Rawan A Alturki,** Service Neurosurgery Resident, King Saud Medical City, Riyadh, Saudi Arabia
15.00 - 15.30	**Investigating The Relationship between Carotid Body Tumor and Thyroid Cancer: A Retrospective Study** **Mohammed Alshahrani,** King Fahad Medical City, Saudi Arabia
15.30 - 16.00	**Integrating Anatomical Location with PD-L1 and BCL2 Biomarkers for Prognostic Stratification in Gastric Cancer: A Literature Review** **Talshyn Amirkhanqyzy Nurulla & Azbergenov Nurbek Kozhakhmetuly,** Marat Ospanov West Kazakhstan Medical University, Kazakhstan
Network & Refreshments (16.00 - 16.20) @ Foyer	
Poster Presentations	
P-001	**Antioxidant and Cytotoxic Properties of Extracts from Submerged-Cultivated Mycelial Biomass of Medicinal Mushrooms** **Mikheil Asatiani,** Agricultural University of Georgia, Georgia
E-Poster Presentations	
EP-1	**Comparison of Flow Cytometry, Immunoturbidimetry and Immunofixation for The Assessment of Kappa and Lambda Light Chains in Patients with Plasma Cell Myeloma** **Alicja Bogdanowicz,** Medical University of Lublin, Poland

EP-2	**Regulation of T Cell Activity in Cancer by a microRNA Family: Review of a Case Study** **Pouyan Asadi,** Golestan University of Medical Sciences, Iran
EP-3	**Altered Cell-to-Cell Communication in Cancer Progression** **Pouyan Asadi,** Golestan University of Medical Sciences, Iran

Video Presentations

VP-1	**cGAS Inhibits TP53 and Prevents DLBCL Cell Lines from Ferroptosis** **Rui Wang,** Suqian Affiliated Hospital of Xuzhou Medical University, China
VP-2	**Role of Somatic Chromosomal Microarray Analysis in Myeloid and Lymphoid Malignancies** **Shivani Golem,** University of Kansas Medical Center, USA
VP-3	**New Extended Investigations in Breast Cancer Diagnosis Including miRNAs** **Aurelian Udristioiu,** Titu Maiorescu University of Bucharest, Romania
VP-4	**Application of Nanotechnology to Enhance Molecular Stability in Erythrocyte Membranes during Preservation** **Andrey Belousov,** Kharkiv National Medical University, Ukraine
VP-5	**In-silico Identification of Hedgehog Signalling Pathway Correlated Non-Coding RNAs in Acute Lymphoblastic Leukaemia** **Elham Talebi,** Islamic Azad University, Iran

Conference concluded followed by Vote of Thanks

Day-1 Keynote Presentations

GREEN TEA EXTRACT EXHIBITS ANTITUMOR AND ANTIANGIOGENIC ACTIVITY IN EHRLICH SOLID TUMOR-BEARING SWISS ALBINO MICE: IMPACT OF TREATMENT TIMING RELATIVE TO TUMOR INOCULATION

Aliaa Mahmoud Issa Abdou
Cairo University, Egypt

Abstract

Green tea has anticancer effects. This work aimed at studying the antitumor and antiangiogenic effects of green tea extract administered at two different times into Swiss Albino mice with subcutaneous Ehrlich solid tumors. Mice were divided into three groups: a control group (tumor only), a "Tea-before" group (green tea extract given before tumor cell inoculation), and a "Tea-after" group (green tea extract given after tumor mass palpation). Tumor growth, survival rates, histopathological changes, necrotic area percentage, and blood vessel areas (angiogenesis marker) were recorded and evaluated after 2 and 4 weeks. Results demonstrated that both tea-treated groups showed delayed tumor growth and increased survival compared to control group. Histopathological examination revealed a notable presence of giant multinucleated cells in both tea-treated groups at 2 and 4 weeks. Tumor necrosis was significantly higher ($P < 0.05$) in both tea-treated groups relative to the control, regardless of the time of administration. However, the "Tea-after" group evaluated at 2 weeks had smaller necrotic areas compared to all other groups. Concerning angiogenesis, blood vessel areas were markedly reduced in the "Tea-before" group after 4 weeks, indicating a stronger antiangiogenic effect when the extract was administered prior to tumor inoculation. Conversely, the "Tea-after" group showed inconsistent results, with an increase in blood vessel area at 2 weeks, suggesting a less effective antiangiogenic response. In conclusion, green tea extract exhibits antitumor and antiangiogenic effects, with timing of administration influencing its efficacy. Administering green tea before tumor formation enhanced its antiangiogenic properties, while post-inoculation treatment had a more pronounced impact on tumor size and survival. These findings show the potential effect of green tea for cancer treatment, however, further investigations into the benefits of green tea extract and drink on tumor formation and growth.

Biography

Aliaa Mahmoud Issa, born in Egypt in 1955, earned her B.Sc. in Zoology from Cairo University in 1977, followed by a master's and Ph.D. in cancer studies from Cairo University and Roswell Park Memorial Institute, USA respectively. She is Professor Emeritus of Histochemistry and Cancer Biology and a former Head of the Cell, Histology, and Genetics section at Cairo University. She teaches undergraduate and postgraduate courses, supervises thesis, and has served as an external examiner. Her research focuses on cancer, nanoparticles, sterility, gene effects, and herbal extracts effects. She has 41 publications and has participated in numerous scientific conferences.

Day-1
Oral Presentations

NTRK FUSION–POSITIVE LOW-GRADE GLIOMA OF THE SPINE: CASE REPORT AND LITERATURE REVIEW

Rawan A Alturki

Service Neurosurgery Resident, King Saud Medical City, Saudi Arabia

Abstract

Background: Pediatric intramedullary spinal cord low-grade gliomas (PIMSC-LGGs) are rare, accounting for less than 5% of central nervous system tumors. Recent advances in molecular profiling have revealed the prognostic and therapeutic significance of neurotrophic tropomyosin receptor kinase (NTRK) gene fusions, found in only 0.55–2% of gliomas. Larotrectinib, a selective TRK inhibitor, has shown promise in managing NTRK-fusion–positive tumors.

Case Presentation: A 10-year-old girl with a history of spinal cord lesion underwent tumor debulking in July 2021, initially diagnosed as ependymoma, later revised to astrocytoma. She re-presented in October 2021 with severe upper back pain and progressive lower limb weakness. MRI revealed tumor progression, prompting complete microsurgical resection. Molecular analysis confirmed an NTRK2 fusion, and Larotrectinib therapy was initiated, leading to clinical and radiological improvement. In January 2023, she developed recurrent lower limb weakness and gait imbalance. MRI showed a new leptomeningeal lesion, and biopsy indicated progression. She started on vincristine and carboplatin. Despite recurrence, Larotrectinib had previously induced a significant reduction in tumor size and improvement in neurological function.

Discussion: Our case highlights the importance of integrating histopathology with molecular genetics to guide management. While some NTRK-fusion cases progress despite targeted therapy, others, like ours, demonstrate substantial benefits. Literature supports Larotrectinib's high efficacy in various NTRK-driven cancers, but its role in pediatric LGGs requires further investigation.

Conclusion: This report underscores the potential of targeted therapies in pediatric spinal LGGs with NTRK fusions. Early molecular testing is crucial for identifying candidates for precision treatment and may have significant prognostic implications.

Biography

Rawan A. Alturki a service neurosurgery resident at King Saud Medical City in Riyadh, Saudi Arabia, driven by a deep passion for neurosurgery and neuro-oncology. My clinical and academic journey has allowed me to participate in complex neurosurgical cases, publish case reports, present at conferences, and contribute to literature reviews. I focus on integrating molecular profiling into patient care to advance outcomes in rare CNS tumors, with a particular interest in pediatric neuro-oncology and precision medicine. Beyond the operating room, I am actively involved in neurosurgical education, organizing and teaching workshops that enhance surgical skills for trainees. I value collaboration, continuous learning, and translating research into practice. My career goal is to become a leading neurosurgeon who combines innovative research with compassionate patient care, ultimately contributing to the global advancement of neurosurgical science and education.

PROGNOSTIC DIFFERENCES BETWEEN CARDIAC AND NON-CARDIAC GASTRIC CANCER: A META-ANALYSIS OF HISTOLOGICAL SUBTYPES AND SURVIVAL OUTCOMES

Talshyn Amirkhanqyzy Nurulla
Marat Ospanov West Kazakhstan Medical University, Kazakhstan

Abstract

Introduction: Gastric cancer (GC) remains a serious global health problem, characterized by high morbidity and mortality rates. Its clinical course is influenced by the location of the tumor – cardia (proximal) or non-cardia (distal) – and the histological subtype according to the Lauren classification (intestinal, diffuse, mixed). Cardial gastric cancer (CGC) often has diffuse or ring-shaped cells and is accompanied by poor prognosis. Non-cardia gastric cancer (NCGC) more often has an intestinal histological type. Despite numerous studies, it remains unclear whether tumor location is an independent prognostic factor or whether its influence is mediated by histological subtype. In this study, we investigate this relationship through a systematic review and meta-analysis.

Objective: To analyse prognostic differences between cardiac and non-cardiac gastric cancer, taking into account histological subtypes and survival outcomes, using meta-analysis.

Materials and Methods: We identified 420 records through a systematic search (Scopus, PubMed, Web of Science, July 2025); 45 full texts reviewed, 15 included in synthesis, 7 in meta-analysis. Data on sample size, country, tumor location, histology, HRs and follow-up were extracted. Study quality (NOS≥7=high) was assessed. Pooled HRs were calculated (RevMan 5.4, R metafor) with subgroup/sensitivity analyses and funnel plots for publication bias.

Results: The diffuse type was significantly associated with worse survival compared with the intestinal type. CGC consistently demonstrated poorer survival than NCGC with HR ranging from1.15 to 1.42. Tumor location remained an independent prognostic factor after adjustment for histology. The diffuse type predicted a poor prognosis regardless of location.

Conclusion: Cardiac gastric cancer is associated with significantly poorer survival outcomes, especially when combined with diffuse histology. The location of the tumor and its histological subtype play an important role in formulating clinical tactics, determining the stage of the disease and planning molecular profiling, which contributes to the effectiveness of personalized therapy and the accuracy of prognosis.

Biography

Talshyn Amirkhanqyzy Nurulla was born on September 23, 1994, in the Mughalzhar District, Aktobe city, Republic of Kazakhstan. In 2012, she was admitted to the West Kazakhstan Marat Ospanov Medical University in Aktobe and successfully graduated from the Faculty of General Medicine in 2017. From 2017 to 2019, she completed an internship in the specialty of Therapy and obtained the qualification of a general practitioner. In 2019, she completed primary specialization in Pathological Anatomy (adult profile) and became a qualified pathologist. From 2019 to 2020, she worked as an assistant at the Department of Pathological Anatomy and Forensic Medicine at WKMU. From 2020 to 2022, she completed a residency in the specialty of Therapy at WKMU. Since 2022, she has been working as an assistant at the Department of pathological anatomy and forensic medicine at the same university.

INTRACELLULAR BACTERIA CAUSE CHRONIC DISEASE BY ALTERING THE INNATE IMMUNE RESPONSE

Meg Mangin
RN, Chronic Illness Recovery, USA

Abstract

Background/Objectives: Patients with chronic diseases have elevated 1,25-dihydroxyvitamin-D and low 25-hydroxyvitamin-D. The absence of hypercalcemia, hypercalciuria, elevated parathyroid hormone, and chronic kidney disease suggests extra-renal production of excess 1,25-dihydroxyvitamin-D.

Methods: In normal immune function, extra-renal 1alpha-hydroxylase (CYP27B1) catalyzes 25-hydroxyvitamin-D to 1,25-dihydroxyvitamin-D in immune cells, leading to transcription of antimicrobial peptides via the vitamin D receptor (VDR). CYP27B1 transcription in macrophages is regulated by cytokines (e.g., Interferon-y [INF-y]). L-form bacteria invade immune cells and use strategies to avoid phagocytosis. Parasitization of macrophages by these pathogens may be the stimulus for persistent production of cytokines which induce CYP27B1 activity and excess 1,25-dihydroxyvitamin-D production. Down-regulation of the VDR by intracellular bacteria interferes with 1,25-dihydroxyvitamin-D production regulatory processes and thus prevents transcription of antimicrobial peptides to allow bacterial persistence. Bacterial interference with enzymatic traffic patterns allows production of excess 1,25-dihydroxyvitamin-D and prevents normal 1,25-dihydroxyvitamin-D functions which inhibit the expression of inflammatory cytokines.

Results: Evidence for persistent intracellular bacterial infection and vitamin D metabolism dysfunction has been seen in natural experiments that suggest increased bacterial killing following reduction in elevated 1,25-dihydroxyvitamin-D.

Conclusion: Non-resolving inflammation associated with many common chronic diseases may be caused by survival strategies of intracellular bacteria and is evidenced by elevated 1,25-dihydroxyvitamin-D and depleted 25-hydroxyvitamin-D as markers of an infectious disease process.

Biography

Meg Mangin, R.N. is the founder and Executive Director of Chronic Illness Recovery. Ms. Mangin has presented at numerous conferences, including Days of Molecular Medicine in Karolinska, Sweden, and 8th Global Summit on Microbiology & Infectious Diseases. She is the co-author of a chapter in the medical textbook Vitamin D: New Research and the lead author of a ground-breaking review article on vitamin D, inflammation and infection published in the journal "Inflammation Research".

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DIAGNOSTIC ACCURACY OF MRI FOR PARAPHARYNGEAL SPACE TUMORS: A RETROSPECTIVE COHORT STUDY EVALUATING RADIOLOGIC-PATHOLOGIC AGREEMENT

Mohammed Alshahrani
King Fahad Medical City, Saudi Arabia

Abstract

Background: The parapharyngeal space is a complex anatomical region that houses critical neurovascular structures and gives rise to rare tumors, accounting for only 0.5–1% of head and neck neoplasms. The majority of these tumors are benign (70–80%), with salivary and neurogenic tumors being the most common, while malignancies are comparatively rare. Magnetic Resonance Imaging (MRI) is highly effective in the preoperative assessment of these tumors due to its excellent soft-tissue contrast and advanced imaging techniques such as diffusion-weighted imaging (DWI) and perfusion studies. However, the accuracy of MRI in real-world clinical settings remains underexplored. This study aims to evaluate the diagnostic accuracy of routine clinical MRI in comparison to histopathology and quantify the level of diagnostic agreement for parapharyngeal tumors.

Methods: This retrospective study evaluated MRI diagnostic accuracy for parapharyngeal tumors at two Saudi tertiary centers (2018-2024). Eligible patients underwent institutional MRI and surgical excision, with histopathology serving as the reference standard. Two reviewers independently extracted data, comparing MRI reports to final pathology. Statistical analysis included sensitivity, specificity, predictive values, and Fleiss' κ for MRI-pathology agreement, with $p<0.05$ considered significant.

Results: Among 31 patients (58.1% female, median age 37.5 years), 90.3% had benign tumors. Neurogenic (41.9%) and salivary (25.8%) tumors were the most common, with 61.3% located in the prestyloid space. We found no significant variations in the baseline characteristics of the benign and malignant groups. MRI showed moderate overall diagnostic agreement (κ=0.525), with near-perfect concordance for schwannomas (κ=0.912) and paragangliomas (κ=0.839), but poor agreement for hemangiopericytomas (κ=-0.051). MRI demonstrated 90.3% accuracy for malignancy detection, with high specificity (92.9%) and NPV (96.3%), but limited sensitivity (66.7%) and PPV (50.0%).

Conclusion: MRI demonstrates high accuracy (90.3%) for diagnosing parapharyngeal tumors but has limited sensitivity (66.7%) for detecting malignancy due to overlapping imaging features and low prevalence. MRI is highly effective for identifying characteristic lesions; however, ambiguous cases require supplementary studies. Larger studies are needed to refine diagnostic criteria.

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INTRINSIC AND EXTRINSIC APOPTOSIS RESPONSES IN LEUKAEMIA CELLS FOLLOWING DAUNORUBICIN TREATMENT

Hussain Al Aamri
Oman College of Health Sciences, Oman

Abstract

Background: Daunorubicin is used clinically in the treatment of myeloma, acute lymphatic and myelocytic leukaemia. The toxic lesions caused by daunorubicin induce various modes of cell death, including apoptosis. Apoptosis is highly regulated programmed cell death that can be initiated mainly via two pathways, through death receptors (extrinsic) or involvement of the mitochondria (intrinsic). Induction of apoptosis via these pathways has been alluded following treatment with daunorubicin, but never compared in acute lymphoblastic leukaemia over a time course.

Methods: This study investigated the mechanisms of daunorubicin induced apoptosis in the treatment of CCRF-CEM, MOLT-4 (acute T-lymphoblastic leukaemia) and SUP-B15 (acute B-lymphoblastic leukaemia) cells. Cells were treated with daunorubicin for 4 h, and then placed in recovery medium (without daunorubicin) for 4 h, 12 h and 24 h. Apoptotic response was analysing using annexin-V expression, caspase activity, mitochondrial membrane potential change and an array to detect 43 apoptotic proteins.

Results: Daunorubicin induced apoptosis in all leukemic cell lines, but with different levels and duration of response. Both apoptosis levels and caspase activity increased after four hours recovery then declined in CCRF-CEM and MOLT-4 cells. However, SUP-B15 cells displayed initially comparable levels but remained elevated over the 24 h assessment period. Changes in mitochondrial membrane potential occurred in both MOLT-4 and CCRF-CEM cells but not in SUP-B15 cells. Expression of apoptotic proteins, including Bcl-2, Bax, caspase 3 and FADD, indicated that daunorubicin potentially induced both extrinsic and intrinsic apoptosis in both CCRF-CEM and MOLT-4 cells, but only extrinsic apoptosis in SUP-B15 cells.

Conclusion: This study describes variations in sensitivities and timing of apoptotic responses in different leukaemia cell lines. These differences could be attributed to the lack of functional p53 in coordinating the cells response following cytotoxic treatment with daunorubicin, which appears to delay apoptosis and utilises alternative signalling mechanisms that need to be further explored.

GLOSSOPHARYNGEAL SCHWANNOMA PRESENTING WITH HEARING LOSS: A RARE CASE REPORT AND LITERATURE REVIEW

Rawan A Alturki

Service Neurosurgery Resident, King Saud Medical City, Saudi Arabia

Abstract

Background: Glossopharyngeal schwannomas are rare benign tumors originating from Schwann cells of the ninth cranial nerve, comprising a small fraction of all intracranial schwannomas. Their clinical and radiological features often mimic vestibular schwannomas, making preoperative diagnosis challenging. MRI remains the imaging modality of choice, and surgical resection is the mainstay of treatment.

Case Presentation: We report a 14-year-old female with a one-year history of progressive right-sided hearing loss, tinnitus, and intermittent headaches. Neurological examination revealed significant sensorineural hearing loss. MRI demonstrated a 4.2 × 2.9 × 2.5 cm solid, enhancing lesion in the right cerebellopontine angle extending into the pars nervosa of the jugular foramen, suggestive of glossopharyngeal schwannoma. She underwent a right retrosigmoid microsurgical resection with intraoperative cranial nerve monitoring, achieving near-total removal while preserving lower cranial nerve function. Postoperatively, her hearing improved, and follow-up MRI initially showed stability. However, at one year, imaging revealed tumor progression, and she was treated with stereotactic radiosurgery over seven sessions.

Discussion: Glossopharyngeal schwannomas are diagnostically challenging due to their nonspecific presentation. Surgical resection, when feasible, offers symptom relief and functional preservation, but residual or recurrent tumors may require radiosurgery. Literature review highlights the importance of multidisciplinary management to optimize outcomes and minimize complications.

Conclusion: This rare pediatric glossopharyngeal schwannoma case emphasizes the importance of early detection, precise surgical technique, and vigilant follow-up. Combining microsurgical resection with radiosurgery can achieve durable tumor control while preserving neurological function.

Biography

I am a service neurosurgery resident at King Saud Medical City in Riyadh, Saudi Arabia, driven by a deep passion for neurosurgery and neuro-oncology. My clinical and academic journey has allowed me to participate in complex neurosurgical cases, publish case reports, present at conferences, and contribute to literature reviews. I focus on integrating molecular profiling into patient care to advance outcomes in rare CNS tumors, with a particular interest in pediatric neuro-oncology and precision medicine. Beyond the operating room, I am actively involved in neurosurgical education, organizing and teaching workshops that enhance surgical skills for trainees. I value collaboration, continuous learning, and translating research into practice. My career goal is to become a leading neurosurgeon who combines innovative research with compassionate patient care, ultimately contributing to the global advancement of neurosurgical science and education.

Poster Presentations

ANTIOXIDANT AND CYTOTOXIC PROPERTIES OF EXTRACTS FROM SUBMERGED-CULTIVATED MYCELIAL BIOMASS OF MEDICINAL MUSHROOMS

Mikheil Asatiani
Agricultural University of Georgia, Georgia

Abstract

Submerged cultivation of ten medicinal mushrooms (*Hericium erinaceus, Pleurotus ostreatus, Trametes versicolor, Fomes fomentarius, Ganoderma lucidum, Grifola frondosa, Coprinus comatus, Flammulina velutipes, Lentinus edodes, and Trametes pubescens*) was performed to evaluate biomass yield, extract composition, antioxidant activity, and cytotoxic potential. Four extraction methods were applied: hot water (–W), ethanol (–ET), ethyl acetate from biomass (–AB), and ethyl acetate from culture liquid (–AC), with water extracts generally producing the highest yields (up to 0.564 g/g BDW in G. lucidum). Qualitative analysis revealed that water extracts contained the broadest spectrum of bioactive classes, including peptides, saponins, phenols, alkaloids, reducing sugars, flavonoids, and triterpenoids, while ethanol and ethyl acetate extracts showed solvent-specific selectivity, particularly for alkaloids and triterpenoids. Quantitative profiling showed high phenolic and flavonoid contents in *G. frondosa* and *G. lucidum* biomass and culture liquid extracts (227.6 ± 14.2 mg GAE/g; 359.9 ± 2.5 mg QE/g), whereas ascorbic acid concentrations were generally below 1 mg/g. DPPH assays indicated that culture liquid extracts (EtAc-C) exhibited the highest free radical scavenging activity, often surpassing 90% at 20 mg/mL, comparable to the synthetic antioxidant BHA. Water and ethanol extracts showed moderate activity, and EtAc extracts from biomass were highly species dependent. Cytotoxicity against MCF7 breast cancer cells was evaluated via MTT assay. Ethyl acetate extracts, especially from biomass, displayed the strongest inhibitory effects. H. erinaceus 445 EtAc-B (500 µg/mL) reduced viability by 70% ($p < 0.0001$), *T. versicolor* 130 EtAc-B by 64% ($p < 0.05$), and P. ostreatus 2175 EtAc-B/EtAc-C by 38–58%. Water and ethanol extracts exhibited lower, concentration-dependent effects. Submerged-cultivated medicinal mushrooms produce bioactive-rich extracts with significant antioxidant and selective cytotoxic potential. Ethyl acetate extracts from biomass and culture liquid, particularly from H. erinaceus and *T. versicolor*, represent promising candidates for further development as functional ingredients or anticancer agents. (The study was supported by Shota Rustaveli National Science Foundation of Georgia, NFR – 22 – 352).

Biography

Mikheil Asatiani, Associate Professor at the Institute of Microbial Biotechnology, Agricultural University of Georgia. His research focuses on medicinal and edible mushrooms, bioactive compounds, lignocellulose-degrading enzymes, and biomass bioconversion into value-added products. Prof. Asatiani has authored numerous publications, serves on multiple editorial boards, and leads national and international research projects.

E-Poster Presentation

COMPARISON OF FLOW CYTOMETRY, IMMUNOTURBIDIMETRY AND IMMUNOFIXATION FOR THE ASSESSMENT OF KAPPA AND LAMBDA LIGHT CHAINS IN PATIENTS WITH PLASMA CELL MYELOMA

Alicja Bogdanowicz
Medical University of Lublin, Poland

Abstract

Background/Objectives: Plasma cell myeloma (PCM) is the second most common hematologic cancer, with an incidence of 26.7% and a mortality rate of 26.3% among hematologic malignancies. An important element in the diagnosis and differentiating PCM is measuring free light chains (FLCs). Elevated FLCs are markers of abnormal plasma cell activity (clonal proliferation). Therefore, this study aims to compare three methods used to measure FLCs: the immunoturbidimetry (IT), flow cytometry (FC), and immunofixation (IFE).

Methods: The study group consisted of 46 patients diagnosed with PCM. The median age of patients was 73 years and 52.2% were women. Among patients, 50% were classified as high-risk according to the International Staging System (ISS). The concentration of FLCs in serum was measured by the IT using the Optilite analyser and IFE using the HYDRASYS 2 SCAN FOCUSING analyser. Intracellular expression of FLCs in CD138+/CD19- cells was assessed in bone marrow using the FACSCanto II flow cytometer.

Results: Expression of intracellular lambda antigens (FC) positively correlated with the serum concentration of lambda FLCs (IT) (rho=0.651). Furthermore, the expression of intracellular lambda antigens (FC) and the concentration of lambda FLCs (IT) correlated positively with the percentage of plasmocytes in the bone marrow (rho=0.968; rho=0.611, respectively), β2-microglobulin (rho=0.545; rho=0.669, respectively), creatinine (rho=0.619; rho=0.705, respectively) and negatively with glomerular filtration rate (GFR) (rho=-0.577; rho=-0.661, respectively) and haemoglobin (rho=-0.498; rho=-0.507, respectively). However, the expression of intracellular kappa antigens (FC) and the concentration of kappa FLCs (IFE) correlated positively with the percentage of plasmocytes in the bone marrow (rho=0.981; rho=0.474, respectively), β2-microglobulin (rho=0.423; rho=0.500) and negatively with haemoglobin (rho=-0.568; rho=-0.741, respectively).

Conclusion: Compared methods are not equivalent in the determination of FLCs. Thus, further studies to assess which of the compared methods is characterized by the highest diagnostic utility are warranted.

Biography

Alicja Bogdanowicz have been interested in biology from an early age. And graduated from the Medical University of Lublin with a degree in medical analytics, gaining knowledge and skills in the field of laboratory medicine. After completing her education, she started her career as a laboratory diagnostician in the Department of Laboratory Diagnostics of the University Clinical Hospital No. 4 in Lublin and as a junior research and teaching assistant in the Department of Laboratory Diagnostics at the Medical University of Lublin.

REGULATION OF T CELL ACTIVITY IN CANCER BY A MICRORNA FAMILY: REVIEW OF A CASE STUDY

Pouyan Asadi
Golestan University of Medical Sciences, Iran

Abstract

Background: Conflicting in vitro and in vivo findings prompted an investigation into the role of microRNAs in T cell memory formation. Upon antigen exposure, naïve $CD8^+$ T cells differentiate into cytotoxic effectors that eliminate infected or malignant cells. Most effector cells undergo apoptosis post-clearance, while a subset transitions into memory T cells-crucial for rapid and robust secondary immune responses. Despite their importance, the molecular mechanisms driving memory T cell differentiation remain incompletely understood.

Method: The let-7 family of noncoding microRNAs, known tumor suppressors in non-immune cells, is highly expressed in naïve T cells but downregulated upon activation, suggesting a regulatory role in T cell fate decisions. Researchers explored let-7's role by transferring $CD8^+$ T cells with varying let-7 expression into melanoma-bearing mice to assess their functional impact in vivo. Transcriptomic profiling and pharmacological manipulation were employed to dissect underlying pathways and identify mechanisms driving memory T cell differentiation.

Results: Elevated let-7 expression enhanced memory T cell formation and suppressed tumor growth, whereas let-7-deficient cells failed to control tumors. Memory T cells, lacking key inhibitory checkpoint receptors, resisted tumor-induced exhaustion. In contrast, low-let-7 cytotoxic T cells exhibited dysfunctional phenotypes due to checkpoint engagement. Transcriptomic analysis revealed that let-7 suppresses reactive oxygen species (ROS)-related pathways, promoting a memory-like state. Inhibiting ROS production in let-7-deficient T cells restored their antitumor efficacy and prolonged survival in vivo.

Conclusion: Let-7 miRNAs modulate $CD8^+$ T cell fate by promoting memory differentiation and limiting exhaustion, offering a dual advantage in cancer immunotherapy. The findings suggest that enforced let-7 expressions could enhance immune resilience against tumors. With advances in gene engineering, therapeutic overexpression of let-7 in non-activated T cells may represent a viable strategy for future clinical applications.

Biography

Pouyan Asadi is a researcher specializing in molecular oncology and cancer biology, with a strong focus on the cellular and molecular mechanisms driving tumor progression and immune regulation. His work centers on the role of microRNAs in modulating T cell responses within the tumor microenvironment. He has actively participated in several international conferences in the fields of biomedicine and oncology and has authored or submitted multiple peer-reviewed articles to leading scientific journals. He is committed to sharing his research findings with the global cancer research community and fostering meaningful collaborations. At the International Conference on Oncology Research, he presents a study investigating how the let-7 microRNA family influences $CD8^+$ T cell differentiation and function in cancer. His broader goal is to contribute to the development of innovative immunotherapeutic strategies and to engage with experts in the field to advance translational cancer research.

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ALTERED CELL-TO-CELL COMMUNICATION IN CANCER PROGRESSION

Pouyan Asadi
Golestan University of Medical Sciences, Iran

Abstract

Background: Cell-to-cell communication is a fundamental process that orchestrates tissue development, repair, and immune defense by enabling the precise exchange of biochemical and physical signals between cells. In cancer, these communication networks are hijacked or reprogrammed, allowing malignant cells to manipulate their surroundings, evade immune surveillance, and coordinate metastatic spread. Such interactions occur through direct contact, soluble factors, and extracellular vesicles, creating a dynamic tumor microenvironment that actively supports disease progression. Understanding these altered signaling pathways is crucial for developing targeted interventions that can disrupt tumor-supportive interactions and restore normal cellular behavior.

Method: Recent studies have examined communication via membrane receptors, soluble molecules (growth factors, cytokines, chemokines), microRNAs, and extracellular vesicles. Circulating tumor cells (CTCs) and their clusters, as well as electrical signaling alterations (e.g., sodium ion channel modulation, NALCN loss), were analyzed in relation to metastatic efficiency. Diagnostic advances, including liquid biopsies and high-resolution imaging in animal models, were evaluated for their ability to detect early metastatic events.

Results: CTC clusters exhibit up to 50-fold higher metastatic potential than single CTCs, aided by protective intercellular signaling. Altered electrical activity and NALCN dysfunction enhance dissemination. Tumor masking strategies exploit normal cell signaling to evade immune surveillance. Targeted therapies-such as monoclonal antibodies (trastuzumab, rituximab), CAR T-cell therapy, SERMs, and aromatase inhibitors-demonstrate the potential of disrupting malignant communication. However, current imaging detects tumors only after reaching 10–100 million cells, limiting early intervention.

Conclusion: Targeting cell-to-cell communication offers a promising strategy to inhibit tumor progression and metastasis. Integrating molecular diagnostics, immune-based therapies, and communication-blocking agents could transform cancer management. Continued research is essential to overcome detection limits and adapt treatments to cancer's evolving nature.

Day-1
Video
Presentations

CGAS INHIBITS TP53 AND PREVENTS DLBCL CELL LINES FROM FERROPTOSIS

Rui Wang
Suqian Affiliated Hospital of Xuzhou Medical University, China

Abstract

Although the cyclic GMP-AMP synthase (cGAS)-stimulator of interferon genes (STING) pathway has been well recognized as the sensor of cytosolic DNA and plays a critical role in regulating anti-tumor immunity and cell death, whether and how cGAS plays a role in tumorigenesis and tumor progression is not well understood. Here we show that high level of cGAS was associated with poor prognosis in DLBCL patients. Using CRISPR-cas9 cGAS knockout DLBCL cell lines, we find that cGAS inhibition leads to a significant decrease of cell viability, cell growth and proliferation rate, and a significant increase of ferroptosis with mitochondrial and lipid ROS accumulation. These phenotypes can be largely rescued with ferroptosis inhibitors ferrostatin-1 (Fer-1) and liproxstatin-1 (Lip-1). Pharmaceutically inhibition of cGAS with a cGAS inhibitor G140 exhibited the same phenotype. Furthermore, we find that this cGAS induced ferroptosis resistance is not STING dependent. In vivo mouse xenograft models also showed a decrease of tumor growth with cGAS knockout. Mechanically, cGAS inhibits tumor suppressor TP53 protein expression and prevents DLBCL cell lines from undergoing ferroptosis. cGAS knockout leads to a rescue of TP53 and a decrease of MDM2, which sensitizes cells to ferroptosis. Our findings uncover a new mode of tumor promotion based on cGAS regulation of p53-MDM2, ROS responses and ferroptosis. Collectively, this previously unrecognized role for cGAS in cancer progression suggests that cGAS can serve as potential targets for new cancer interventions.

Biography

Rui Wang is a consultant oncologist, and a physician-scientist in Suqian Affiliated Hospital of Xuzhou Medical University and Cancer Science Institute of Singapore. She has more than 11 years of clinic working experience with tumor patients. She holds an M.D and has research interest in cancer chromosome instability and immunology. Her research has been focused on tumor genome instability and how innate immune signaling and metabolic pathways orchestrate with overall aim of identifying innovative therapeutic targets. Rui Wang has gained international research experience working at esteemed institutions in Yale University School of Medicine and Cancer Science Institute of Singapore, has a distinguished publication record as the first/corresponding author on highly impacted journals like Cell Reports, Critical Reviews in Oncology/Hematology, Steroids, International Journal of Oncology, featuring research articles, reviews, and conference contributions. She has peer-reviewed for more than 40 publications.

ROLE OF SOMATIC CHROMOSOMAL MICROARRAY ANALYSIS IN MYELOID AND LYMPHOID MALIGNANCIES

Shivani Golem
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Abstract

Chromosomal microarray analysis (CMA) is a high-resolution whole-genome test that detects genetic abnormalities associated with genomic material losses, gains, and a cancer-specific genomic change called copy-neutral loss-of-heterozygosity (CN-LOH). Comprehensive whole genome testing detects additional genetic abnormalities in genes associated with cancer that can be used in diagnosis, prognosis, and treatment decisions for any given cancer type, whether liquid cancer or solid tumors. CMA testing, especially in new diagnostic myeloid and lymphoid cancer cases with non-informative karyotype or FISH findings, identifies clinically significant gains, losses, and CN-LOH changes in the patient's cancer genome, which helps the clinician in diagnosis, prognostication, and therapy decisions. Discuss the cytogenomic assay limitations and how CMA can detect cryptic gene fusions, submicroscopic focal duplications or deletions, disease-defining subtypes, and prognostically significant CN-LOH regions with clinically significant cancer-associated genes. This presentation will include our institute's experience with improvised diagnostic genetic and genomic testing of hematological malignancies, and how CMA testing plays a crucial role in precision medicine.

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NEW EXTENDED INVESTIGATIONS IN BREAST CANCER DIAGNOSIS INCLUDING MIRNAS

Aurelian Udristioiu
Titu Maiorescu University of Bucharest, Romania

Abstract

Background: Breast cancer impacts over one million patients worldwide annually, with prognosis influenced by clinical and biological factors such as age, tumor size, nodal involvement, and histological grade.

Objective: Aim of this study was to emphasis that the aberrant miRNA expressions in breast cancer, (BC), plays a pivotal role in cancer initiation and progression.

Method: This study includes published data which demonstrated the aberrant miRNA expression, in BC associated to BRCA1 and BRCA2 gene mutations. Basal-like BC represents approximately 15% of cases and are often classified as triple-negative breast cancers, (TNBCs). TNBCs, characterized by the absence of estrogen receptors, progesterone receptors, and HER2, likely encompasses both basal-like and poorly differentiated luminal breast cancers.

Results: BC susceptibility related to BRCA1 mutations can reach up to 87% in older women. The mutated BRCA1 and BRCA2 genes are among the most critical genetic markers associated with inherited breast cancer predisposition, along with mutations in the PTEN and P53 genes. Breast cancer treatments may include chemotherapy, hormonal therapy, surgery and/or radiotherapy, depending on the stage and molecular characteristics at diagnosis. Modern emerging therapies use and modified miRNA strands that naturally inhibiting cell division.

Conclusion: Understanding the genetic structure of malignant breast cancer cells provides valuable scientific insights that can enhance the prediction of tumor aggressiveness and improve treatment outcomes.

IN-SILICO IDENTIFICATION OF HEDGEHOG SIGNALLING PATHWAY CORRELATED NON-CODING RNAS IN ACUTE LYMPHOBLASTIC LEUKAEMIA

Elham Talebi
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Abstract

Background: Acute lymphocytic leukaemia (ALL) is the most prevalent form of cancer in children, originating in the blood and bone marrow. Despite advances in treatment, understanding the molecular mechanisms underlying ALL remains critical. The Hedgehog (Hh) signalling pathway plays a significant role in the pathogenesis of ALL. Long non-coding RNAs (lncRNAs), known for their involvement in diverse cellular processes, including tumorigenesis, may interact with this pathway; yet, their specific roles remain largely unexplored.

Method: This study aimed to identify lncRNAs associated with the Hedgehog signalling pathway in ALL using bioinformatics approaches. Keywords such as ALL, microRNA, and lncRNA were used to search the GEO database, leading to the selection of dataset GSE128254. Data preprocessing and expression matrix generation were performed, followed by differential expression analysis using the LIMMA package in R. Target genes of miRNAs were identified via the Mir System database. Then, 8 genes were selected from the target pathway, and the correlation coefficient r was calculated between these genes and all the lncRNAs in the study. Finally, Cystoscope software was used to visualize the miRNA-gene-lncRNA network, illustrating the interaction between these components.

Results: A study of bone marrow-derived samples showed varied expression of Hedgehog pathway genes such as PTCH1, PTCH2, GLI1, GLI2, GLI3, SMO, and SUFU. The Hmisc. package analysed the expression matrix of the GSE128254 study to investigate the relationship between 8 genes of the hedgehog pathway and all lncRNAs. According to the reported results, only lncs have been selected that have a coefficient of 0.7 or more, and their p-value is smaller than 0.05.

Conclusion: These findings suggest that lncRNA-based biomarkers, in conjunction with pathway-specific gene interactions, could serve as effective tools for early cancer detection and provide new insights into ALL pathogenesis.

Biography

Elham Talebi holds a master's degree in Genetics from Tehran Medical Sciences, Islamic Azad University, Tehran, Iran, with a strong academic background in molecular and medical genetics. Her research focuses on bioinformatics-driven exploration of molecular pathways in cancer, particularly the role of lncRNAs in acute lymphocytic leukaemia. She has authored multiple peer-reviewed publications and presented at international congresses across Europe and Asia. Elham's expertise spans molecular genetics, medical biotechnology, and systems biology, with hands-on experience in PCR and data analysis using R. She is an active member of scientific communities and contributes as a journal reviewer. Her current work aims to identify novel biomarkers for early cancer detection through integrative genomic approaches.

Note: