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Preventive Medicine World Conference
PRMWC 2025

Pharma RnD and Drug Discovery World Conference
PRDWC 2025

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Joint Event On

Preventive Medicine World Conference

& Pharma R&D and Drug Discovery World Conference

17-19 October 2025

Venue

Millennium Hotel Paris CDG, France

PRMWC & PRDWC 2025

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ABOUT US

Precision Global Conferences

Precision Global Conferences is a highly established scientific conference organizer. We take high integrity in conveying your achievements to the world and emphasize your incredible work and scientific contribution. Precision global conferences have developed the progression, broadcast, persistence, research, and development activities in cancer, neurology, and nursing science.

We support the beacon of quality research works and efforts of academicians, researchers, scientists, doctors, and all the future young experts to confide their outstanding works fearlessly. Our primary goal is to make health care accessible and understandable to people. We are ecstatic to pass on the ray of research, developments, and cutting-edge therapies worldwide. Hence, we are here to organize and conduct highly esteemed conferences.

This conference will emphasize the outstanding works and their medicinal consequences through hybrid presentations. If you're searching for a perfect podium that can reflect your professional ethics and voice your appointment, we are here with the best team, welcoming your honorable presence.

EXHIBITOR

Siemens Digital Industries

Siemens Digital Industries (DI) empowers companies of all sizes within the process and discrete manufacturing industries to accelerate their digital and sustainability transformation across the entire value chain. Siemens' cutting-edge automation and software portfolio revolutionizes the design, realization and optimization of products and production. And with Siemens Xcelerator – the open digital business platform – this process is made even easier, faster, and scalable. Together with our partners and ecosystem, Siemens Digital Industries enables customers to become a sustainable Digital Enterprise. Siemens Digital Industries has a workforce of around 70,000 people worldwide.

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KEYNOTE SESSIONS | DAY 1

Graham Betts-Symonds
Irish Red Cross, Ireland

An Innovative Approach to Empowering Prisoner Communities for Preventive Health in Places of Detention

The Irish Red Cross Global Hub for Community-Based Health in Detention (CBHinD) was established in 2022 through an MoU with the ICRC and IFRC. Recognized by WHO (Europe) Health in Prisons Project (HIPP) as best practice, it is based on a multidisciplinary, peer-led "whole prison approach" (WHO, 2007). Originating in Irish prisons over 15 years ago, the programme empowers trained prisoner volunteers to deliver preventive health initiatives within formal prison health systems.

Replicated in Australian (ARC 2018) and Norwegian prisons (NRC 2020; 2022), with training support from the Irish Red Cross, Irish Prison Service (IPS), and Education and Training Board, the programme follows an Action Research framework (UWO 2023).

Key peer-led initiatives include:

HIV/HCV testing advocacy, resulting in high participation and detection of undiagnosed HCV cases (Bannion et al, 2016; Crowley et al, 2018; IRC, 2017).

Latent TB testing support, enabling curative treatment for those at risk of developing active TB (Phillips 2022).

Weapons amnesties, reducing violent incidents by over 50% post-intervention (Abiodun et al, 2015; UWO, 2015).

Lifestyle change programmes, supporting inmates with NCDs like type II diabetes to improve health and reduce medication use.

Mental health support, facilitated by volunteers and psychologists, showed statistically significant improvements in inmate wellbeing using the Warwick-Edinburgh Scale (IPS 2019; UWO 2023).

Participants also reported increased self-esteem and personal development, aiding reintegration and health behaviour transfer post-release (Marron et al, 2022; Greene et al, 2017). These benefits have been mirrored in international adaptations of the programme.

Volunteers played a crucial role during the COVID-19 pandemic, particularly in preparedness and vaccine advocacy, achieving 79% compliance (UWO 2023).

This paper presents an overview of the CBHinD initiative and its growing global replication as a model for community-driven, cost-effective prison health reform.

Biography

Dr Graham Betts Symonds developed the Community-Based Health and First Aid methodology for the IFRC, published in 2009, which operates in over 120 countries in local communities. In 2009, he adapted the programme for use in a detention setting on behalf of the Irish Red Cross and Irish Prison Health Services and established the Red Cross Movement's Global Hub to drive detention preventive community-based health. Graham has 35 years of experience in community health, disaster preparedness, and risk reduction with extensive teaching and research experience.

Xiaomin Shi
Department of Mathematics, Shanghai University, Shanghai, China

The Receptor Occupancy Equation Modified by Elimination Rate Constant and Dosing Interval

For open systems such as human body, blood drug concentration decays over time, therefore, we cannot obtain the steady-state receptor occupancy by the conventional method. Thus, under the assumption of rapid equilibrium, we still have the traditional pharmacodynamic(PD) model. This assumption implies that both association and dissociation rate constant must be enough large, thus, drug-target residence time is very small. Evidently, this assumption is not consistent with the reality, so that the PD model related to this assumption does not explicitly contain parameters of pharmacokinetics (PK), such as dosing interval and elimination rate constant. However, PK and PD are coupled. Therefore, we must improve this PD model. And different dosing regimens should correspond to different PD models. According to the popular definition, the receptor occupancy and PD model are equivalent. Although the precise definition of drug efficacy is still not clear, the precise description of receptor occupancy is the most critical step. For multiple dosing regimens, I found the Hill-Langmuir equation can describe average steady-steady target occupancy by integrating PK and PD and including all parameters of PK and PD. In obtained equation, the effective dissociation constant is the product of elimination rate constant and dosing interval and dissociation constant. Therefore, after removing fast equilibrium assumption, the essential relationship between PK and PD becomes apparent. In this presentation I will introduce the derivation process of the modified receptor occupancy.

Biography

Dr. Xiaomin Shi retired from the Department of Mathematics at Shanghai University in 2022. Dr. Shi has written about 20 papers on the subject of drug-target binding kinetics, target gene expression dynamics under p53 pulsing, calcium signaling dynamics, and fluid dynamics. In 2022, he just started learning drug-target binding kinetics. After obtaining a bachelor's degree in Mechanics from Department of Mathematics in Fudan University in 1984, he started work at Enterprise Management Department, Shanghai Dafu Rubber Factory. After obtaining a Master Degree in Fluid Mechanics from Fudan University in 1989, he entered Department of Hydrology, Shanghai Marine Forecasts Center. After obtaining his Ph.D in Fluid Mechanics from the Institute of Applied Mathematics and Mechanics, Shanghai University in 2003, because his dissertation is related to calcium signaling dynamics, he came to the Institute of Biochemistry and Cell Biology of CAS to do his postdoc from February to June of 2004. During this short time, he learned p53 dynamics. After postdoc retirement, he moved to College of Biological Science in Shanghai University. In 2007 he came to Institute of Systems Biology in Shanghai University. In 2016 he moved to Department of Mathematics in Shanghai University.

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ORAL SESSIONS | DAY 1

Florencia Dutra*[1], Julia Córdoba[1], Ignacio Estevan[1], Soledad Bonapelch[2], Martin Rebella[2], Gonzalo Silveira[2], Fiorella Cavarelli[2], Ana Carina Pizzarosa[2]

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Design And Implementation of Comprehensive Treatments for People with Rheumatoid Arthritis

Rheumatoid arthritis (RA) is a systemic autoimmune disease that has a significant impact on the quality of life of those affected. Its hallmark is erosive arthritis leading to permanent joint deformities and functional limitations. Globally, there is an estimated prevalence of 1%. In Uruguay, care for people with RA has focused mainly on the biological aspects of their health, either through medical polyclinics, rheumatology, or specialized units. However, these strategies have paid little attention to the contextual situation of people living with RA. It is understood that to deploy health care that has an impact on the quality of life of the person suffering from RA, their expectations and needs must also be taken into account. There is evidence that treatment adherence improves significantly when treatments incorporate therapeutic strategies that address aspects related to social support networks, life course interests, quality of life, self-care, self-esteem, family dynamics, and anxiety. In addition, an improvement in motivation for change, group support, and adoption of healthy habits has been observed when integrated into the therapeutic process.

The general objective of this proposal is to evaluate the effect of non-pharmacological interventions in people with RA receiving standard treatment. The specific objectives are: i) to describe the health status of people with RA from the biological, psychological, and social dimensions, ii) to determine the severity of disability and the dimensions of disability most affected in people with RA, iii) to determine the socioeconomic factors related to disability and its severity, iv) to evaluate the quality of life and relate it to the level of disease activity and v) to analyze the relationship between the dimensions that integrate the biopsychosocial approach to health with adherence to treatment and the effect of the intervention applied.

This is a prospective experimental study in a cohort of people who have been diagnosed with RA and are on standard treatment. Three groups of patients with RA who meet the definition of standard treatment in follow-up in the Systemic Autoimmune Diseases Units (hereinafter UEAS) and rheumatology polyclinic of public and private providers will be formed. This population's biological, psychological, and

social dimensions will be measured at an initial (t0) and final (t1) time in control groups, groups with remote activities, and groups that participate in face-to-face exchanges.
By the time of the presentation at your Congress, if this proposal is accepted, we will have the results of the characterization of T0 and the comparison with T1.
This study is funded by the Comisión Sectorial de Investigación Científica (CSIC) of the Universidad de la República of Uruguay.

Biography
Degree in Psychology (Universidad de la República, Uruguay).Master in Community Psychosocial Rehabilitation (Universität Jaume I, Spain).Professor at the Center for Experimentation and Social Innovation (CEIS) and the Disability and Quality of Life Program (Faculty of Psychology, University of the Republic, Uruguay). Her main line of research is disability and mental health from an integral and intersectional perspective.

Yu-Te Liu*[1], Chao-Hsiang Hsiao[1], Bor-Show Tzang[1,2,3,4], Tsai-Ching Hsu[1,2,4]
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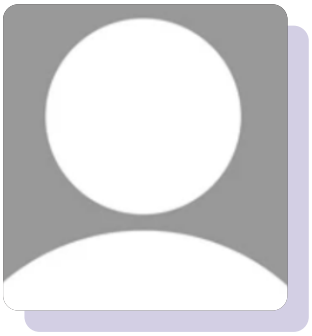
[2]Clinical Laboratory, Chung Shan Medical University Hospital, Taichung, Taiwan, Republic of China
[3]Department of Biochemistry, School of Medicine, Chung Shan Medical University, Taichung, Taiwan, Republic of China
[4]Immunology Research Center, Chung Shan Medical

In vitro and in vivo effects of A traditional Chinese medicine (TCM) in human breast cancer cells

Background: Breast cancer is the leading cause of cancer-related death in women worldwide. Although traditional Chinese medicine (TCM) is commonly used by patients with breast cancer, little is known about TCM prescriptions for breast cancer. This study investigated the effects of a new TCM formula, T33, comprising Radix Kansui, Rheum rhabarbarum, Paeonia lactiflora, Jiangbanxia, and Zhigancao on breast cancer cells in vitro and in vivo.
Methods: To evaluate the effects of T33 on human breast cancer, HMEpiC, MDA-MB231, and MCF-7 cells were treated with different concentrations of T33 and then analyzed using MTT and Transwell migration assays. To elucidate the involvement of autophagy in the T33-induced death of MDA-MB231 and MCF-7 cells, immunofluorescence staining with LC3-II-specific antibodies was performed. Tumor xenografts were generated by subcutaneously injecting either MDA-MB231 or MCF-7 cells into BALB/c nude mice to determine the effects of T33 on these cell lines in vivo.
Results: The experimental results revealed that 0.1 mg/mL, 0.5 mg/mL, 2.5 mg/mL, 5 mg/mL, and 10 mg/mL T33 significantly inhibited the proliferation and invasion of MDA-MB231 and MCF-7 cells. Moreover, significant autophagy was observed in MDA-MB231 and MCF-7 cells in the presence of 2.5 mg/mL, 5 mg/mL, and 10 mg/mL T33. An animal study further revealed that both low (200 mg/kg) and high (600 mg/kg) doses of T33 inhibited the proliferation of xenografted breast cancer cells in BALB/c nude mice.
Conclusion: These findings demonstrate for the first time that T33 has potential in the treatment of breast cancer owing to its antiproliferative effects and induction of autophagy.

Biography
Yu-Te Liu is currently affiliated with De-Yi Chinese Medical Clinical in Changhua, Taiwan, and the Institute of Biochemistry, Microbiology and Immunology at Chung Shan Medical University in Taichung, Taiwan. From 2008 to 2014, Dr. Liu served as an Attending Doctor in the Department of Chinese Medicine at Changhua Christian Hospital. He earned his Master's degree from the School of Chinese Medicine at China Medical University, Taichung, between 2009 and 2011



Siobhan Fleming
SIEMENS Digital Industries Pharmaceuticals, Ireland

AI-powered Pharma: Transforming Drug Discovery, Development, and Production

In this session, we will explore state-of-the-art technologies, and present important use cases and reference projects for AI in pharma and life sciences.
Today, the process of bringing a new medicine to market remains far too lengthy and complex. At SIEMENS, our mission is to transform this reality by combining deep scientific and engineering expertise with cutting-edge artificial intelligence technologies. Our goal is to accelerate the next generation of breakthroughs in the pharmaceutical industry. SIEMENS is at the forefront of developing and implementing AI-driven solutions that empower pharmaceutical companies to significantly shorten the time it takes to move a drug from the laboratory to the patient.
AI presents a tremendous opportunity to revolutionize this journey. By analyzing vast amounts of data at lightning speed, AI enhances decision-making, streamlines project execution, and equips operators with precise, real-time information. With our AI-powered pharmaceutical solutions, we support critical activities across the entire drug development lifecycle. This includes everything from early-stage drug discovery and formulation to process design, technology transfer, engineering, and day-to-day operations.
We enable this transformation by equipping scientists and engineers with powerful AI tools. These include enterprise-wide data connectivity, AI-ready FAIR (Findable, Accessible, Interoperable, Reusable) data, comprehensive digital twins of products, processes, and plants, and generative AI copilots that assist in both development and operations. Our approach democratizes AI—making it accessible and usable by anyone, anywhere, at any stage of the pharmaceutical value chain.
At every step, SIEMENS is a trusted partner, helping pharmaceutical companies enhance productivity, improve quality, and reduce time-to-market. With AI-powered pharma, we offer a tireless, transformative ally that complements human expertise and drives innovation. In this presentation we will explore how together we can unlock the full potential of AI to deliver life-saving medicines faster, more efficiently, and with greater precision than ever before.
Bullets:
•Explore cutting-edge AI technologies transforming the pharmaceutical industry, with real-world use cases and reference projects from SIEMENS.
•Understand how AI accelerates drug development, from discovery to operations, by enhancing decision-making, speeding up processes, and improving data accuracy.

•Learn about Siemens' AI-powered tools, including FAIR data frameworks, digital twins, and generative AI copilots that support scientists and engineers across the drug lifecycle.
•Discover how AI democratization enables broader access to innovation, helping pharma companies reduce time-to-market and deliver life-saving medicines more efficiently.

Biography

Siobhan Fleming is solution owner for the Life Sciences Digital Laboratory at Siemens, where she leads global efforts to accelerate multimodal R&D through digital innovation. At Siemens, she helps bridge traditional lab operations with transformative digital solutions, focusing on data integrity, research efficiency, and scientific discovery. She works closely with industry leaders to drive digital adoption, optimize workflows, and build sustainable digital ecosystems. Passionate about advancing science through technology, she is committed to guiding organizations through their digital transformation while upholding the highest standards of scientific excellence. In her personal time, she enjoys making art, sea swimming, and helping others to explore their creativity for innovation and wellbeing.

Mohammad Hamid Nedaie*, Arash Nemat, Mohammad Yasir Essar, Henry Ashworth, Hasibullah Aminpoor, Abdul Wahed Sediqi, Wafaa Binti Mowlabaccus, Shoaib Ahmad
Department of Microbiology, Kabul University of Medical Sciences, Kabul, Afghanistan

Basic Life Support Knowledge Among Healthcare Providers in Afghanistan: A Cross-Sectional Study of Current Competencies and Areas for Improvement

Basic life support (BLS) is a type of emergency care provided by healthcare workers and public safety professionals to individuals experiencing cardiac arrest, respiratory distress, or other cardiopulmonary emergencies. Despite having a high burden of cardiovascular disease and trauma from conflict in Afghanistan, little is known about the level of BLS knowledge Afghani healthcare workers have. A cross-sectional study was conducted in Kabul, Afghanistan, to assess healthcare workers' training and knowledge of BLS. The study, which took place from March to June 2022 across multiple public and private hospitals, was approved by the institutional ethics committee of Ariana Medical Complex. The sample size was calculated using a nonprobability convenience sampling method, and the study population consisted of healthcare workers actively working in a health center who were willing to complete a questionnaire. The results of the study showed that most participants (71.3%) were in the 21–30-year-old age range, and a third (32.3%) were doctors. 95.3% of participants had poor knowledge of BLS, with a mean score of 4.47±1.58 out of 13. Additionally, it was evident from questionnaire responses that providers are not adequately performing BLS. These findings suggest that further work, including regular BLS courses, is necessary to improve the knowledge and practice of BLS by healthcare workers in Afghanistan.

Biography
Dr. Mohammad Hamid Nedaie, MD, is an Internal Medicine Specialist and Lecturer at Kabul University of Medical Sciences, currently serving as a Clinical Fellow in Endocrinology and Metabolic Dysfunction in the UK. With a strong commitment to education, patient care, and clinical research, Dr. Nedaie focuses on improving healthcare delivery and outcomes in Afghanistan. His work bridges academic medicine and frontline clinical practice, aiming to enhance both medical education and the management of chronic diseases. Through mentoring, research, and clinical service, Dr. Nedaie remains dedicated to advancing internal medicine and contributing to the development of a stronger, evidence-based healthcare system.

Adel A. Al-Asfour
Kuwait University, Kuwait

Growth Suppression of Oral Squamous Cell Carcinoma Cells by Lactobacillus Acidophilus

Objectives: Oral squamous cell carcinoma (OSCC) is a highly aggressive form of oral cancer. Probiotic lactobacilli have demonstrated anticancer effects, whilst their interaction with Streptococcus mutans in this context remains unexplored. The objective of this study was to investigate the antiproliferative effect of Lactobacillus acidophilus on OSCC and to understand the effect of S.mutans on OSCCs and whether it affects the antiproliferative potential of L. Acidophilus when co-exposed to OSCC.
Methods: The human head and neck squamous cell carcinoma cells of the oral cavity (HNO97cellline) were exposed to cultures of L. Acidophilus and S.mutans separately and in combination. Further,3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide(MTT) assay was performed to assess the viability of HNO97 cells. Bacterial adhesion to HNO97cells was examined by confocal microscopy, and apoptosis by Nexin staining. To understand the underlying mechanism of apoptosis, expression of the tumor necrosis factor (TNF)−related apoptosis-inducing ligand(TRAIL) gene and protein were determined by real-time polymerase chain reaction and quantitative enzyme-linked immunosorbent assay, respectively.
Results: A significant decrease (53%−56%) in the viability of HNO97 cells on exposure to L.acidophilus, S.mutans, and the 2 species together demonstrated the antiproliferative activity of L.acidophilus and S.mutans. Both bacteria showed adhesion to HNO97 cells. The expression of the TRAIL gene increased 5-fold in HNO97 cells on treatment with L.acidophilus and S.mutans, which further increased to 17-fold with both species present. Expression levels of the TRAIL protein were significantly ($P<.05$) increased in bacteria-treated cell lysates. Further, bacteria-treated HNO97 cells exhibited lower live and intact cell percentages with higher proportions of cells in early and late apoptotic stages.
Conclusions: L.acidophilus exhibits antiproliferative activity against OSCC cells, possibly partially via a TRAIL-induced mechanism of apoptosis, which is not affected by the presence of S.mutans. These findings may encourage further investigation into the possible therapeutic application of probiotic L.acidophilus in OSCC.

Biography

Dr. Adel Al-Asfour is a distinguished oral and maxillofacial surgeon from Kuwait, renowned for his extensive contributions to dental education, clinical practice, and research. Dr. Adel Al-Asfour held a prominent academic position, including serving as the former Dean of the College of Dentistry and the former Dean of the College of Allied Health at Kuwait University. He is a recertified Diplomate of the American Board of Oral and Maxillofacial Surgery. He is an Affiliate Fellow of the International Association of Oral and Maxillofacial Surgeons and has been actively involved in various dental and medical societies, contributing to the advancement of oral health in Kuwait and beyond. In addition to his academic roles, Dr. Adel Al-Asfour practices in the private sector in Kuwait, where he specializes in a wide range of oral and maxillofacial surgical procedures. His areas of expertise include orthognathic surgery, dental implants, bone grafting, temporomandibular joint disorders (TMD), and surgical treatment of complex pathologies, as well as impacted wisdom teeth surgery. Dr. Adel al-Asfour has contributed significantly to dental research, focusing on topics like bone grafting materials and dental implantology.

Dr. Adel al-Asfour's dedication to excellence in oral and maxillofacial surgery, combined with his leadership in dental education and research, has made him a prominent figure in the field in Kuwait.

Baby Joseph
St.Joseph University, India

Harnessing Artificial Intelligence for Next Generation HSP70 Modulators in Cancer and Neurodegeneration

Heat Shock Protein 70 (HSP70) has emerged as a pivotal molecular chaperone implicated in cancer, neurodegenerative disorders, and infectious diseases, making it an attractive yet challenging therapeutic target. Despite its central role in proteostasis, drug discovery efforts against HSP70 have been hindered by structural complexity, dynamic conformational states, and context-dependent biological functions. Recent advances in Artificial Intelligence (AI) and computational drug design now offer transformative possibilities in overcoming these barriers. AI driven molecular docking, deep learning- based binding affinity prediction, and generative chemistry platforms enable the identification of novel HSP70 modulators with higher precision and efficiency. Integration of machine learning with pharmacokinetic/ pharmacodynamics (PK/PD) modelling further accelerates candidate optimization, while systems pharmacology approaches provide insights into pathway-level interactions and off target liabilities. This synergy between AI and molecular chaperone biology paves the way for rational, accelerated, and cost- effective drug discovery. The present work highlights emerging strategies in AI assisted HSP70 targeting, providing a roadmap for next-generation therapeutics in oncology and neurodegeneration.

Biography

Prof. Dr. Baby Joseph, Pro Vice Chancellor, St. Joseph University, Chennai has 26 years of Teaching, Research and Administrative experience in Colleges and Universities. During this period, He was designated as Scientist (CSIR), Principal of 2 Colleges (MCC affiliated to M.S. University Tirunelveli and Santhigiri College under MG University Kottayam Kerala respectively), Director- international Centre for Bio-resource Management, Director Interdisciplinary research Centre, Dean Research at Hindustan Institute of Technology and Science (Hindustan University) at Chennai, VC in-charge – HITS Chennai, BVPU Pune and finally, Pro Vice Chancellor – SJU, Tamil Nadu, India. Though he is from life sciences, most of my research work belongs to Biomedical interdisciplinary with clinical biotechnology, bioinformatics, Molecular toxicology, cancer biology and gene silencing food technology. He has Published 176 papers and out of that 156 are indexed in both Scopus and web of science. His h index is 41. He has Guided and awarded degrees to 25 Ph.D. Research Scholars and 127 M. Phil. Scholars. He has published 7 books with ISBN. Completed 4 major projects.2 patents obtained and 3 are filed. Protected 3 novel genes in the world Gen-Bank. He is a member of 12 professional bodies, Research delegates of India to the European Union and Asian Confederation of science and Technology. He is also an elected advisory board member of many International Universities and research institutes. He has started 14 centres of Excellence for cutting edge research. He is recognized as an excellent Academician, innovative and promising Researcher and an able Administrator with control, coordination, Management, discipline, diligence and dutifulness. Helped many universities in accreditation and high rankings. He is an active member of the World Technology University Network. He is also a G20 awardee for the best researcher, administrator and for significant contributions

Alexandra Kalacheva*[1,2], Metodi Popov[3], Valeri Velev[4], Rositsa Stoyanova[5], Tsvetelina Velikova[6], Maria Pavlova[6]

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[2]CIBALAB Medical Diagnostic Laboratory, Sofia, Bulgaria
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[4]Department of Epidemiology and Hygiene, Medical University of Sofia, Sofia, Bulgaria
[5]National Center of Infectious and Parasitic Diseases, Department of Microbiology, The National Reference Laboratory for Enteric Diseases, Sofia, Bulgaria
[6]Medical Faculty, Sofia University St. Kliment Ohridski, 1 Kozyak Str., Sofia, Bulgaria

Potential for Misinterpretation in the Laboratory Diagnosis of Clostridioides Difficile Infections

Background/Objective. Toxin-producing strains of Clostridioides difficile (C. diff) are the most commonly identified cause of healthcare-associated infection in the elderly. Risk factors include advanced age, hospitalization, prior or concomitant systemic antibacterial therapy, chemotherapy, and gastrointestinal surgery. Patients with unspecified and new-onset diarrhea with ≥3 unformed stools in 24 h are the target population for C. diff infection (CDI) testing. To present data on the risks of laboratory misdiagnosis in managing CDI. Materials. In two general hospitals, we examined 116 clinical stool specimens from hospitalized patients with acute diarrhea suspected of nosocomial or antibiotic-associated diarrhea (AAD) due to C. diff. Enzyme immunoassay (EIA) tests for the detection of C. diff toxins A (cdtA) and B (cdtB) in stool, automated CLIA assay for the detection of C. diff GDH antigen and qualitative determination of cdtA and B in human feces and anaerobic stool culture were applied for CDI laboratory diagnosis. MALDI-TOF (Bruker) was used to identify the presumptive anaerobic bacterial colonies. The following methods were used as confirmatory diagnostics: the LAMP method for the detection of Salmonella spp. and simultaneous detection of C. jejuni and C. coli, an E. coli Typing RT-PCR detection kit (ETEC, EHEC, STEC, EPEC, and EIEC), API 20E and aerobic stool culture methods. Results. A total of 40 toxigenic strains of C. diff were isolated from all 116 tested diarrheal stool samples, of which 38/40 produced toxin B and 2/40 strains were positive for both cdtA and cdtB. Of the stool samples positive for cdtA (6/50) and/or cdtB (44/50) by EIA, 33 were negative for C. diff culture but positive for the following diarrheal agents: Salmonella enterica subsp. arizonae (1/33, LAMP, culture, API 20E); C. jejuni (2/33, LAMP, culture, MALDI TOF); ETEC O142 (1/33), STEC O145 and O138 (2/33, E.

coli RT-PCR detection kit, culture); C. perfringens (2/33, anaerobic culture, MALDI TOF); hypermycotic enterotoxigenic K. pneumonia (2/33) and enterotoxigenic P. mirabilis (2/33, culture; PCR encoding LT-toxin). Two of the sixty-six cdtB-positive samples (2/66) showed a similar misdiagnosis when analyzed using the CLIA method. However, the PCR analysis showed that they were cdtB-negative. In contrast, the LAMP method identified a positive result for C. jejuni in one sample, and another was STEC positive (stx1+/stx2+) by RT-PCR. We found an additional discrepancy in the CDI test results: EPEC O86 (RT-PCR eae+) was isolated from a fecal sample positive for GHA enzyme (CLIA) and negative for cdtA and cdtB (CLIA and PCR). However, the culture of C. diff was negative. These findings support the hypothesis that certain human bacterial pathogens that produce enterotoxins other than C. diff, as well as intestinal commensal microorganisms, including Klebsiella sp. and Proteus sp., contribute to false-positive EIA card tests for C. diff toxins A and B, which are the most widely used laboratory tests for CDI. Conclusions. CDI presents a significant challenge to clinical practice in terms of laboratory diagnostic management. It is recommended that toxin-only EIA tests should not be used as the sole diagnostic tool for CDI but should be limited to detecting toxins A and B. Accurate diagnosis of CDI requires a combination of laboratory diagnostic methods on which proper infection management depends.

Biography

My name is Alexandra Kalacheva, and I am a medical doctor. I graduated from Sofia University Faculty of Medicine in August 2023. Since September 2023, I have been a resident in “Ajibadem City Clinic-Tokuda” University General Hospital, I specializing in Clinical Microbiology and making a PhD at the Department of Epidemiology. Throughout my academic and professional development, I have actively participated in numerous European and international congresses, presenting my research in the fields of microbiology, virology, and epidemiology. Recently, I was invited as a lecturer at the Virology Congress in Zurich, where I delivered a presentation to an international audience. In addition, I presented posters at the Federation of European Microbiology Society (FEMS) Congress and at the Clostridioides difficile (CDI) Conference. My career goal is to contribute to the advancement of infectious disease research and to find the key to prevention.

Osama Almutairi*[1,2], Milena Pavlova[3], Robin van Kessel[4], Wim Groot[3,5]
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[2]Department of Health Services Research, Care and Public Health Research Institute-CAPHRI, Maastricht University Medical Centre, Faculty of Health, Medicine and Life Sciences, Maastricht University, Netherlands
[3]Department of Health Services Research, Care and Public Health Research Institute-CAPHRI, Maastricht University Medical Center, Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht, The Netherlands
[4]LSE Health, Department of Health Policy, London School of Economics and Political Science, London, United Kingdom
[5]Maastricht Economic and Social Research Institute on Innovation and Technology, United Nations University, Maastricht, The Netherlands

Umbrella Review of Digital Health Interventions for Preventing Type 2 Diabetes: A Systematic Review of Systematic Reviews

Background: Type 2 Diabetes Mellitus (T2DM) remains a major global public health costing millions of lives and leading to huge burden of comorbidities and straining health institutions. Mobile apps and other Digital Health Interventions (DHIs) aimed at facilitating lifestyle changes to prevent diabetes are the recent innovative approaches to prevent diabetes and promote risk reduction. This umbrella review aims to synthesize current evidence from existing systematic reviews on the effectiveness of DHIs in preventing T2DM with a focus on their role in promoting lifestyle modifications and reducing diabetes risk.
Methods: This is an umbrella review of previous systematic reviews and meta-analyses published between 2015 and 2025. The literature search involves databases, such as PubMed, Cochrane Library, Scopus, MEDLINE, and CINAHL. Eligible articles are those that focused on diabetes prevention and investigated diabetes education and lifestyle interventions for participants with prediabetes, overweight, obesity, and metabolic syndrome and examined the outcomes of lifestyle changes, diabetes, glycemic control, and diabetes incidence. Intervention data were categorized by type of intervention, duration, and primary outcomes, and effect size.
Results: This umbrella review included 13 eligible systematic reviews and meta-analyses, containing different primary studies. The findings indicate that DHIs result in weight loss (average of 2.5-4.8 kg or -3.98%) while also decreasing HbA1c levels (0.3% to 0.5%). The most effective interventions were those that incorporated interactive features, including behavior change techniques, such as self-monitoring, goal setting, and goal attainment real-time feedback. Most reviews demonstrate that while fully automated DHIs are effective, interventions that integrate digital technology and human interaction (e.g., remote coaching) achieve better results, especially in terms of long-term sustainability, adherence and effectiveness. Success was commonly attributed to user engagement, content personalization, and

optimal platform usability. The reviews and meta-analyses identified predominantly included studies conducted in Europe and United States of America, with the least studies from Asia while none was conducted in the Middle-East or Saudi Arabia. The methodological quality of the synthesis was low, underscoring the need for further primary and secondary research.

Conclusion: Digital Health Interventions are an effective and practical method for the prevention of T2D. They bring about necessary lifestyle changes and improve significant metabolic parameters in populations that are most at risk. Their ease of implementation and wide availability makes them an important part of contemporary public health strategy. Subsequent use of these interventions should focus on evidence-based behavior change techniques and the most effective combinations of digital health technology and human interaction for sustained long-term adherence and effectiveness. Remaining gaps include long term equity of access, especially in low-resource settings and among people with low digital literacy. Moreover, the findings underscore the pressing needs of extensive research exploring DHIs in T2DM prevention in Arab countries, especially Saudi Arabia, which is one of the countries with the highest burden of diabetes.

Biography

I am a specialist in Preventive Medicine and Public Health in Saudi Arabia and a PhD candidate in the Department of Health Services Research, Care and Public Health Research Institute at Maastricht University. My work focuses on leveraging digital technologies to enhance the prevention and management of chronic diseases, with a particular focus on type 2 diabetes. I have a strong interest in evidence synthesis and the implementation science of digital health interventions, aiming to understand how innovative tools can be effectively adopted in real-world practice. My doctoral research, “Umbrella Review of Digital Health Interventions for Preventing Type 2 Diabetes,” seeks to provide a comprehensive evidence base to inform innovation, guide policy, and support effective strategies for diabetes prevention worldwide.

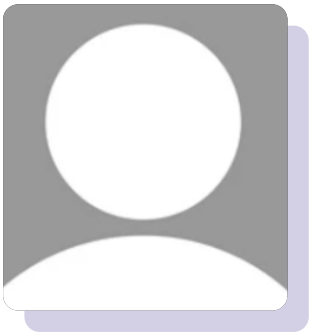
Xiaomin Shi
Department of Mathematics, Shanghai University, Shanghai, China

Regulatory Principles of Gene Expression Driven by Pulsed Transcription Factors Dynamics

In response to different stimuli, ERK(kinase) exhibits single pulsed(transient) or sustained dynamics. Transcription factors (TFs), such as NF-κB, Msn2, and p53 exhibit pulsed or sustained dynamics. The dynamical patterns of signaling molecules encode upstream stimuli. Different dynamical patterns of same molecules can result in different genes expression, and trigger different cell fate. How TFs dynamics regulate target genes expression? Using a minimal model, I found that a Hill-type equation can describe the steady-state fold changes in mRNA and target protein expression. This equation reveals the regulatory principle of target gene expression upon pulsed transcription factor dynamics: the average steady-state fold changes in mRNA transcription and target protein expression are the same. Amplitude modulation is effective for lower-affinity protein expression, and TFs duration and frequency can be used to fine tune genes expression with higher TFs-DNA binding affinity. Furthermore, fold change in protein expression spend a longer time to reach steady state for longer half-lives of mRNA and protein. This is the waiting time for cells to finish the task. The waiting time for triggering apoptosis is the longest. These results advance the understanding of the central dogma of molecular biology.

Biography

Dr. Xiaomin Shi retired from the Department of Mathematics at Shanghai University in 2022. Dr. Shi has written about 20 papers on the subject of drug-target binding kinetics, target gene expression dynamics under p53 pulsing, calcium signaling dynamics, and fluid dynamics. In 2022, he just started learning drug-target binding kinetics. After obtaining a bachelor's degree in Mechanics from Department of Mathematics in Fudan University in 1984, he started work at Enterprise Management Department, Shanghai Dafu Rubber Factory. After obtaining a Master Degree in Fluid Mechanics from Fudan University in 1989, he entered Department of Hydrology, Shanghai Marine Forecasts Center. After obtaining his Ph.D in Fluid Mechanics from the Institute of Applied Mathematics and Mechanics, Shanghai University in 2003, because his dissertation is related to calcium signaling dynamics, he came to the Institute of Biochemistry and Cell Biology of CAS to do his postdoc from February to June of 2004. During this short time, he learned p53 dynamics. After postdoc retirement, he moved to College of Biological Science in Shanghai University. In 2007 he came to Institute of Systems Biology in Shanghai University. In 2016 he moved to Department of Mathematics in Shanghai University.



Kate Frkovich*[1], Rajakrishnan Vijayakrishnan[2]
[1]Heart Failure Nurse Coordinator, Froedtert Hospital and the Medical College of Wisconsin, Milwaukee, WI, USA
[2]Advanced Heart Failure and Transplant Cardiology, Associate Professor, Froedtert Hospital and the Medical College of Wisconsin, Milwaukee, WI, USA

Opportunities to Better Leverage Nursing Educational Support as a Cardio-Protective Factor in Preventive Care

Hypothesis: Patient risk for 'Heart Failure with a Preserved Ejection Fraction' can be significantly mitigated vis-a-vis nurse to patient, education of pathophysiology.
Purpose: To embolden 'nurse to patient' messaging about the rationale for an array of lifestyle choices as a protective factor in the effort to decrease the potential for the advancement of 'Heart Failure with a Preserved Ejection Fraction' class diagnosis progression.
Problem: A knowledge deficit in 'at risk' patient populations creates a barrier to delivering optimal patient outcomes. The maxim mentioned above is explored from a heart failure nursing perspective.
Assumption: A collaborative approach may offer insight.
Assumption: People who understand the pathology of lifestyle choices are better equipped to make heart healthy choices.
Assumption: Health Literacy Discrepancies may be a barrier to delivering optimal patient outcomes for provider teams.
Challenge: There are opportunities to better equip patients with sources of quality knowledge, efficiently.
Response: Nurses are the best equipped group to fill this gap.
Recommendation:
(1) Better resourced providers can help deliver more favorable outcomes for patients.
(2) Face to face, 'nurse to patient' communication is the ideal venue for education activities.
Plan: Nursing education to be leveraged as a protective factor in the general population

Biography
Kate Frkovich is a Heart Failure Nurse Coordinator with Froedtert Health, Milwaukee, WI. Kate completed a BS in Nursing, graduating Cum Laude; and a BA in Philosophy from the University of Wisconsin - Madison. Prior to her current role, Kate was engaged as a Staff Nurse in the Advanced Heart Failure clinic at Froedtert's Center for Advanced Care. She completed the Froedtert Hospital Nurse Residency Program with work in both the Pulmonary Care Unit and Cardiac Step Down Unit. Kate's previous work experience involved law enforcement and case management. Kate has completed advanced trainings, and has a decade of clinical experience, related to motivational interviewing and trauma informed care. Kate is a certified Integrated Yoga therapy instructor. With her diverse work experience ranging from health care to social work, she engages a philosophical approach to the integration of health, wellness, and care for society.

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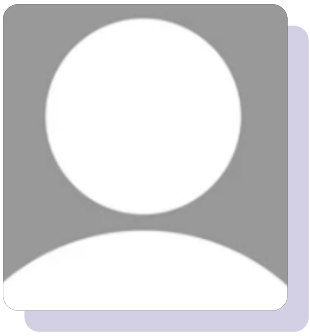
17-19 October 2025

POSTER SESSIONS | DAY 1



Krista A. Varady*, Shuhao Lin, Sofia Cienfuegos, Mark Ezpeleta, Vasiliki Pavlou, Sarah Corapi, Mary-Claire Runchey, Shaina J. Alexandria, Lisa Tussing-Humphreys
Department of Kinesiology and Nutrition, University of Illinois Chicago, Chicago, IL, USA

Time-restricted Eating versus Daily Calorie Restriction: Effects on Inflammatory Markers over 12 Months in Adults with Obesity

Obesity is associated with chronic systemic inflammation and elevated levels of inflammatory cytokines, such as tumor necrosis factor-alpha (TNF-alpha), interleukin-6 (IL-6), and C-reactive protein (CRP). Weight loss through lifestyle interventions can reduce inflammation in adults with obesity. Time-restricted eating (TRE) and calorie restriction (CR) are two popular diet interventions that can produce clinically significant weight loss. However, no studies to date have directly compared the effects of TRE versus CR on inflammatory cytokines in adults with obesity. Here, we performed a secondary analysis on a recently published study to compare the long-term (12-month) effects of TRE versus CR on key inflammatory cytokines. We found that while TRE and CR produced similar amounts of weight loss (4-5% from baseline), no statistically significant changes in circulating levels of TNF-alpha, IL-6, and CRP were noted in the TRE or CR groups, compared to controls, by month 12. However, we did observe that circulating CRP levels were positively related to body weight, visceral fat mass, and insulin resistance, while IL-6 and TNF-alpha were not related to any metabolic marker. Thus, TRE and CR may not affect key inflammatory mediators with 4-5% weight loss, but more research is warranted.

Biography
Krista Varady, PhD, is a Professor of Nutrition at the University of Illinois, Chicago. Her research focuses on the efficacy of intermittent fasting for weight management and metabolic disease risk reduction in adults with obesity. She has been studying fasting for almost 20 years and is one of the top researchers in this field. Her work is funded by the NIH, the American Heart Association, and the University of Illinois. She has published over 120 publications on this topic and is also the author of two books for the general public, entitled the “Every Other Day Diet” and “The Fastest Diet.”

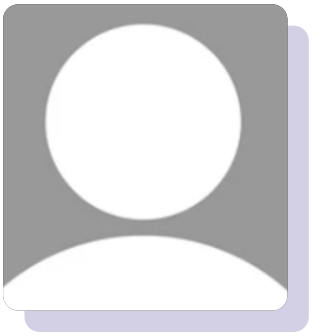
Joan Glenny Pescov*[1], S. Schurer[1], M.J. Martinez[2]
[1]Molecular and Cellular Pharmacology, University of Miami - Miller School of Medicine, Miami, FL, USA
[2]Cancer Biology, University of Miami - Miller School of Medicine, Miami, FL, USA

Structure-Guided Identification of ATP-Competitive BUB1B Inhibitors for Castration-Resistant Prostate Cancer

Castration-resistant prostate cancer (CRPC) poses a major therapeutic challenge due to its resistance to androgen deprivation and progression driven by constitutively active androgen receptor variants (AR-Vs). Using a systems biology approach, our group identified BUB1B, a mitotic serine/threonine kinase, as a master regulator within a gene signature associated with CRPC progression. BUB1B is upregulated in resistant tumors and promotes AR-independent growth, but currently lacks selective small molecule inhibitors or a resolved crystal structure, limiting therapeutic development. To address this, we generated predictive structural models of the BUB1B kinase domain using a combination of homology modeling, AlphaFold, and IntFold. We applied a multi-step computational strategy to identify potential ATP-competitive inhibitors, integrating deep learning-based compound prioritization, ensemble molecular docking across multiple conformations, and post-docking validation using MM-GBSA analysis and molecular dynamics (MD) simulations. This workflow prioritized compounds with high stability, binding site fidelity, and engagement of key ATP-binding motifs. From this integrated analysis, we identified a subset of structurally diverse compounds that consistently demonstrated strong binding affinities and stable interactions in the kinase active site. These compounds engaged conserved hinge residues and catalytic loop contacts essential for ATP-pocket binding. Additionally, we flagged compounds with strong interactions in specific conformational frames, acknowledging the dynamic flexibility of kinase domains. Importantly, our findings align with biological evidence showing that BUB1B overexpression confers resistance to androgen receptor antagonists and enhances tumor growth in CRPC models. Top-ranked compounds are now being prioritized for in vitro validation using kinase inhibition and cell viability assays to determine their ability to suppress BUB1B activity and reduce CRPC cell proliferation. This work highlights a computationally driven framework for drug discovery targeting kinases without resolved crystal structures. By combining advanced protein modeling, artificial intelligence–based screening, and multi-frame docking analysis, we present a tractable shortlist of BUB1B inhibitor candidates. These findings offer a promising foundation for developing first-in-class therapies against therapy-resistant prostate cancer.

Biography

I am currently a Pharmacology Ph.D. candidate at the University of Miami, where I focus on molecular oncology and drug discovery. My research centers on optimizing the Drug Target Ontology (DTO) and Biological Assay Ontology (BAO), two structured databases used to standardize pharmacological data. In parallel, I am developing selective BUB1B kinase inhibitors through virtual screening and molecular dynamics. Most recently, I worked as a Research Intern at Eli Lilly, contributing to RNA computational chemistry efforts involving predictive machine learning. Together, these experiences reflect my multidisciplinary training and strong commitment to translational pharmacology.



Stefan Dalichau*, Jansen J, Tetzel S, Meyer P, Buhlmann J
BG Kliniken - Klinikverbund der gesetzlichen Unfallversicherung gGmbH, BG Ambulanz Bremen, Germany

Title-1: Effects of Muscle Strengthening Programs for Longshoremen Suffering Work-related Low Back Pain

Background: The physical demands for longshoremen in container transshipment are associated with a high incidence of back complaints. Especially the straddle carrier and container bridge crane drivers, as well as the dock workers strapping and releasing the container on the ship, are often unable to work due to low back pain.
Objective: The aim of the investigation was to assess the effects of various muscle-strengthening programs in the prevention of low back pain.
Methods: On behalf of the Berufsgenossenschaft Handel und Warenlogistik (Germany) 118 male employable longshoremen suffering low back pain matched for pain severity and accompanied functional restrictions were randomized to three training (TG1-3) and one control group(s) (CG). The dock workers carried out a muscle strengthening program over a period of six months two times weekly in a physiotherapy practice (TG1), in a health fitness centre (TG2) and in a gymnastic group of the statutory health insurance (TG3). The CG did not get any kind of treatment.
Results: While there was an increase in both pain severity and functional restrictions in the CG, the parameters were reduced in all TG ($p < .05$) after six months of training. Furthermore, frequency of medical care as well as absenteeism decreased. Moreover, physical fitness and general well-being were improved by all different muscle strengthening programs ($p < .01$) in the same way. At the end of the investigation over 80 % of the whole sample agreed to participate in future in a training program.
Conclusion: Because of the positive results follow-up programs for muscle strengthening to avoid work-induced low back pain and to promote health will fundamentally be funded by the company in the future.

Title-2: Sustainability Effects of an Exercise Program at the Workplace for the Prevention of Musculoskeletal Complaints in Aircraft Manufacturers

Background: The physical demands for aircraft manufacturers are associated with a high incidence of musculoskeletal complaints. Especially, working in the wing and flap production is particularly associated with frequent overhead and bent body positions.

Objective: The aim of this study was to evaluate the sustainability effects of a targeted exercise program at the workplace for the prevention of musculoskeletal complaints in aircraft manufacturers.
Methods: On behalf of a large aircraft manufacturer in Germany, a preventive exercise program consisting of mobilization, strengthening, stretching, and relaxation with 10 training units each of 60 minutes was carried out during the work time over 7 weeks with 170 employees suffering mild to severe musculoskeletal complaints, especially in the spine, the knee, and shoulder joints. The participants were examined at the beginning (T1), immediately after the end of the program (T2), and 6 months later without additional support in the meantime (T3) using an extensive assessment.
Results: In T2 there was a significant reduction in musculoskeletal complaints, an increase in the trunk and upper body muscle strength and an increase in resistance to work-related psychological stress (resilience). 6 months later in T3, these improvements continued to increase ($p < .05$). There was also a reduction in body weight and a decrease in the average daily smoked cigarettes. In addition, the employees assessed their physical performance as increased and were sure to pay more attention to their own health. Thus, both short-term and sustainable effects could be demonstrated in almost all examined parameters with effect sizes from 0.99 to 1.11.
Conclusion: Targeted physical training at the workplace shows positive effects in the bio-psycho-social context of health, both in the short term and in the 6-month follow-up and promotes personal responsibility and self-management.

Title-3: 8-year Sustainability in Outpatient Pulmonary Rehabilitation in Patients with Work-Induced Asbestosis

Background: The aim of this study was to evaluate the effects of outpatient medical rehabilitation (OMR), mainly composed of exercise therapy and sports, for patients with work-induced asbestosis and focused on keeping up sustainability effects.
Methods: 157 male patients aged 65,2 ? 5,7 years suffering from asbestosis were carried out over a period of three weeks, 5 times weekly, 6h at a time, phase 1 of the OMR, consisting of evidence-based content of the pulmonary rehabilitation. In the immediately following phase 2, the patients completed once a week for 3 hours over 12 weeks, further therapeutic applications with the focus on exercise therapy and sports and were subsequently transferred to health sports groups near their residence (phase 3). The effects of the OMR were evaluated at the beginning (T1), at the end of phase 1 (T2) and phase 2 (T3), as well as 6 months (T4) and 18 months (T5) after T3. 61 patients (73.5 years ± 5.6) were re-examined 6 years after T5 (T6) without any interim care.
Results: 72.1% of the 61 patients ($n = 44$) carried out health sports twice a week in T5 as well as in T6 eight years after T1 and were able to maintain their physical performance (6-minute walk test, hand force, PWC test) as well as the perceived quality of life (SF-36, baseline/transition dyspnea index) according to age, while the rehab effects of the 17 patients breaking off any sporting activities after T3 fell significantly ($p < .01$) below the starting condition in T1.
Conclusions: Despite a restrictive pulmonary disease, specific exercise therapy and sports can mobilize physical reserves of performance and induce an increasing quality of life as well as a higher resilience in activities of daily living. These positive effects could be stabilized in the long term by regular training. The results underline the necessity of integrating aftercare strategies into the concept of rehabilitation with special consideration of perceived self-efficacy.

Title-4: Health Promotion and Prevention of Musculoskeletal Complaints in Welders

At 22.1 days, the professional group of welders has an unusually high number of days of incapacity to work in Germany, which is significantly higher than the average absenteeism in metal production (16.2) and processing (13.9). With 32.1 %, the greatest proportion of absenteeism is due to muscular and skeletal disorders. Static loads in the form of posture and holding work from many seconds to several minutes in non-physiological and non-functional body positions with high-precision pressure characterize the requirement profile of the welder. Our own experimental, measurement-based investigations regarding the three-dimensional recording of the large joints and spine, as well as scientific study results on muscle activity and fatigue during welding, underline the high level of mechanical stress on the spine as well as the neck, shoulder girdle, and arm region and explain the high incidence of musculoskeletal complaints.

Possible approaches of prevention focus on the ergonomic relationship and behaviour prevention as well as on body and strength training accompanying both the vocational training and the daily work routine. Additional information and training events about work and health in all its facets, such as ergonomics, sports, nutrition, addictive and luxury foods, as well as risk factors of chronic diseases, as complementary programmes of occupational health promotion appear to be particularly useful for securing sustainable positive effects.

The possibilities of prevention apply to trainees and experienced welders alike, but the focus of the preventive efforts should concentrate on the apprenticeship, since it is much easier to relearn postures and ergonomic crafting techniques than retraining what has already been learned. Moreover, the compliance of employees is more pronounced in adolescence than in more advanced stages of life.

Biography

Stefan Dalichau has been dealing with evidence-based evaluation and sustainability of programs in work-related prevention, rehabilitation and health promotion for many years. The importance of physical activity in the context of health promotion characterizes the focus of his work in research and teaching at the University of Bremen as well as in his practical tasks with companies and insurance companies in Germany.

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17-19 October 2025

KEYNOTE SESSIONS 1 | DAY 2

Vladan Radosavljevic
Institute of Epidemiology, Military Medical Academy, Belgrade, Serbia

Assessing Human Exposure to Key Chemical Carcinogens Diagnostic Approaches and Interpretation

Chemical carcinogens classified by the International Agency for Research on Cancer (IARC) as Group 1 very probably contribute to cancer occurrence in over 13.5 million people and death from cancer in over seven million people. In percent, chemical elements and chemical compounds very probably contribute to cancer occurrence in about 68% of all cancer cases and very probably significantly contribute to cancer death in about 72% of all cancer deaths (yearly and globally). There are two main reasons for increasing cancer cases in the next decades: first, growing of the world population and, second, un-proportional growing of the elderly population. Consequently, by 2050, the number of cancer cases predicts to reach 35 million.

The mentioned chemical carcinogens were used for decades without proper evaluation of their health effects. Early detection is crucial as most carcinogens have cumulative effects. Identifying urinary markers of exposure can help detect, eliminate, or reduce sources of carcinogens, advancing preventive oncology.

While completely eliminating carcinogens is impossible, improving detection and monitoring, especially through specialized urine analysis, can help define preventive measures to lower carcinogen levels in the body.

The described screening protocol is applicable in any location with HPLC (High Performance Liquid Chromatography) and ICP (Inductively Coupled Plasma) devices. They are non-invasive, quick, effective, affordable, and inexpensive, requiring only urine samples.

This screening protocol aims to develop, improve, and implement a screening protocol for many malignant diseases and some chronic non-communicable diseases like cardiovascular, endocrine, neurological, hematological, dermatological, and malignant diseases. It supports medical professionals in interpreting HPLC and ICP urinary analyses and providing guidance on reducing or avoiding carcinogen exposure. In some cases, doctors may identify sources of exposure and inform authorities to address and eliminate these hazards.

Biography

Vladan Radosavljevic graduated from the Medical Faculty of the University of Belgrade, Serbia, in 1991. He specialized (May 1995) and received his doctorate (November 1999) in epidemiology at the Medical Faculty of the University of Belgrade. Dr. Radosavljevic was the head of the Department of Epidemiology and deputy director of the Military Institute for Preventive Medicine in Belgrade from 2003 to 2010. He was the head of military preventive medicine from 2010 to 2020 in the Ministry of Defense of Serbia, and in 2020, he moved to the Institute of Epidemiology of the Military Medical Academy, Belgrade, where he works as an expert epidemiologist. He was a professor at the Biological Weapons course at the Military Academy of the University of Defense in Belgrade and a research associate at the Epidemiology course. Since 2015, Dr. Radosavljevic has been a United Nations expert on biological weapons within the mechanism of the United Nations Secretary-General.

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

A New Tension-Sensitive Signaling Pathway Involving Polymerization of Actin Prevents Chromatin Bridge Breakage in Cytokinesis in Human Cancer Cells

Chromatin bridges are strands of incompletely segregated DNA connecting the anaphase poles or daughter nuclei. Chromatin bridges can arise from incompletely replicated DNA, defective resolution of DNA catenates, or dicentric chromosomes, which are formed by chromosome fusions. If unresolved, chromatin bridges can break in cytokinesis, leading to micronuclei formation and accumulation of DNA damage, which leads to changes in the DNA sequence and can result in carcinogenesis. To prevent this, human cells activate the abscission checkpoint, which delays abscission to prevent chromatin bridge breakage or tetraploidization due to regression of the cleavage furrow. We recently showed that the DNA topoisomerase IIα enzyme binds to catenated DNA on chromatin bridges, and Rad17 protein is recruited on DNA “knots”. In turn, Rad17 recruits the Mre11-Rad50-Nbs1 protein complex and activates the ATM-Chk2-INCENP signaling pathway, which leads to proper localization of Aurora B at the midbody in order to delay abscission. Furthermore, 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 the 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.

Key points

•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 Postdoctoral Research Scientist in Dr George Zachos' lab at the University of Crete, Greece. She completed her PhD in Molecular Biology and Biomedicine in 2014 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 >500 citations so far. She is currently a member of FEBS, AACR, EACR and Royal Society of Biology.

Bernd Blobel

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[2]Faculty European Campus Rottal-Inn, Deggendorf Institute of Technology, Deggendorf, Bavaria, Germany

[3]First Medical Faculty, Charles University, Prague, Staré Město, Czech Republic

[4]Department of Informatics, Bioengineering, Robotics and System Engineering, University of Genoa, Genoa, Italy

Why We Need to Advance from Data Focus to Knowledge Focus for Managing Healthcare Transformation Towards Intelligent and Ethical Health and Social Care Ecosystems?

Health and social care systems around the globe currently undergo a transformation towards personalized, preventive, predictive, participative precision medicine (5 PM), considering the individual health status, conditions, genetic and genomic dispositions, etc., in personal, social, occupational, environmental, and behavioral context. This transformation is strongly supported by technologies such as micro- and nanotechnologies, advanced computing, artificial intelligence, edge computing, etc. For enabling communication and cooperation between actors from different domains in different contexts with different objectives, using different methodologies, languages, and ontologies based on different education, experiences, etc., we have to understand the transformed health ecosystems and all its components in structure, function, and relationships in the necessary detail, ranging from elementary particles up to the universe. That way, we advance the design and management of the complex and highly dynamic ecosystem from data to knowledge level. The challenge is the consistent, correct, and formalized representation of the transformed health ecosystem from the perspectives of all domains involved, representing and managing them based on related ontologies. For mapping the domain perspectives, the ISO/IEC 21838 Top Level Ontologies standard is used. Thereafter, the outcome can be transformed into implementable solutions using the ISO/IEC 10746 Open Distributed Processing Reference Model. A model and framework for this system-oriented, architecture-centric, ontology-based, policy-driven approach has been developed by the author and meanwhile standardized as ISO 23903 Interoperability and Integration Reference Architecture. The formal representation of any ecosystem and its development process, including examples of practical deployment of the approach, is presented in detail. This includes correct systems and standards integration and interoperability solutions.

Biography

Dr. Bernd Blobel studied Mathematics, Technical Cybernetics and Electronics, Bio-Cybernetics, Physics, Medicine, and Informatics at the University of Magdeburg and other universities in the former GDR. He received his PhD in Physics with a focus on neurophysiological studies. Furthermore, he completed his Habilitation (qualification as a university professor) in Medicine and Informatics. He worked in Environmental Medicine and was the Head of the Institute for Biometrics and Medical Informatics at the University of Magdeburg, before moving to the Institute for Integrated Circuits of the Fraunhofer Society in Erlangen as Head of the Health Telematics Project Group. Thereafter, he served as Head of the German National eHealth Competence Center at the University of Regensburg until his retirement. He was the German Representative to various SDOs, including HL7, ISO, CEN, OMG, and SNOMED, and chaired the national mirror groups. He is a Fellow of several international academies and has published more than 600 papers, as well as edited and authored many books.

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ORAL SESSIONS 1 | DAY 2

Alanoud EO Alateeq*[1], Bahiga H Daoud[2], Fathy M El-Gamal[2], Nermine MT Foda[2], Sayed M Mehana[3]

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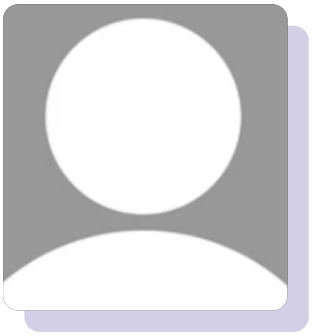
[2]Professor of Industrial Medicine and Occupational Health, Community Medicine Department. Faculty of Medicine, Alexandria University, Egypt
[3]Lecturer of Diagnostic Radiology, Medical Research Institute, University of Alexandria

Respiratory Disorders, Pulmonary Function and Radiological Abnormalities Among Workers Exposed to Welding Fumes at Shuaiba Industrial Area in The State of Kuwait

Introduction: The welding process produces visible smoke that contains harmful metal fumes and gas by-products. Results of previous researches on effects of welding emissions on respiratory health were equivocal.
Aim: To study the prevalence of respiratory symptoms and diseases, and to investigate the changes in lung function and radiological abnormalities among welders.
Method: This cross-sectional study was conducted in the Shuaiba industrial area, Kuwait. Two hundred and thirty-five welders and 155 unexposed workers were interviewed by the British Medical Research Council questionnaire; workers underwent measurements of lung functions, and chest X-rays were performed and interpreted, according to the ILO classification of pneumoconiosis.
Results: exposure to welding fumes significantly increased the prevalence of chronic cough in the early morning, which was 1.74 times higher compared with unexposed workers. Chronic bronchitis was more encountered, but the result was not statistically significant.
Metal fume fever was experienced by 23.4% of the studied welders; the majority reported one or two attacks per year, and attacks usually lasted for one or two days. Frequency of sick leaves were significantly higher among welders (35.74%) compared with unexposed workers (14.19%), and were mainly due to respiratory diseases, followed by musculoskeletal disorders, and injuries. Lung function indices (LFIs) investigated in this study (FVC, FEVI, FEV1%, PEFR, FEF75%, FEF50%, and FEF25%) showed significant decrements in welders after adjusting for age, height, weight, and smoking, moreover, increase in duration of exposure to welding fumes was significantly associated with decrease in lung functions after allowing for the effect of confounders.
Findings suggestive of pneumoconiosis were observed in this study.
Conclusion: Welding fumes had significant adverse effects on the respiratory system of welders, and the level of protection for exposed workers should be increased.

Biography

Dr. Alanoud E.O.E. Al-Ateeq is a Kuwaiti occupational health specialist currently serving as the Head of Shuaiba Industrial Medical Center. Born on April 12, 1977, in Kuwait, she earned her MBChB from Kuwait Medical College in December 2003, followed by an MSc in Occupational Health from the University of Birmingham in 2009 and a PhD in Industrial Medicine and Occupational Health in 2019. Dr. Al-Ateeq has been a member of the Kuwait Medical Association and the International Commission on Occupational Health (ICOH). She has extensive experience in the Ministry of Health since 2007, focusing on workplace inspections and disability assessments. Her professional training includes various conferences and workshops in occupational health, and she has contributed as a speaker and guest lecturer in multiple settings, including the College of Nursing and Kuwait University. Additionally, she has served on medical committees assessing disability in patients.



Youwei Jiang
Co-founder, Genekine Biotech Co., Ltd, China

Antibody Engineering via Yeast Surface Display

We develop new technologies for surface display of full-length IgG antibody, VHH nanobody, and antibody fragments (Fab, scFv) by using yeast P. pastoris, wherein the N-glycosylation pathway is humanized. These technologies integrate mammalian cell quality control with yeast display's high-throughput screen into one platform. The quality control in antibody screening will address multiple developability issues in the early stages of lead discovery. Here, we present several case studies of antibody engineering by using our yeast display technologies. Antibodies can be highly toxic because they target both tumor tissue and normal tissue. Since the extracellular pH in most solid tumors is lower than that of normal tissues, we applied our yeast display platform to engineer a pH-dependent antibody with selective binding in the acidic tumor microenvironment, aiming at improving antibody target selectivity and reducing off-target antibody toxicity. The common light chain bispecific antibody is an elegant technology that simplifies the production of IgG–like bispecific antibodies. We used our yeast display platform to perform a high-throughput screening of the light chain library to isolate common chains for two different original antibodies. It is important to determine antibody cross-reactivity to ensure that it is specific enough for the intended use. Antibodies raised against a specific human antigen may not cross-react with nonhuman antigen, which can affect the choice and efficacy of pre-clinical animal models. On the other hand, cross-reactivity can cause the antibody to bind to non-specific antigens, leading to false positive or other errors in the assay. We used our yeast display platform and co-selection strategy to select nanobody cross-reactivity from an immune library raised against a human antigen. A high-throughput flow cytometry assay was used to confirm the species cross-reactivity of selected nanobodies. A group of nanobodies has specific binding to human antigen but no cross-reactivity to mouse antigen. Another group of nanobodies has cross-reactivity to both human and mouse antigens. Our yeast display platform and co-selection strategy can broadly apply to screen an antibody library for species cross-reactivity.

Biography

Youwei Jiang is co-founder of Genekine Biotech (www.genekine.com). He has led a team to develop an innovative technology for yeast surface display of full-length IgG and other antibody formats. Prior to this, Youwei worked as a scientist in preclinical development of antibody and protein drugs at GlycoFi and Merck. He did post-doctoral research work at Memorial Sloan-Kettering Cancer Center and The Rockefeller University in USA. Youwei holds a PhD in Biochemistry from City University of New York.

Vekilyan Mikhail Arturovich
[1]Vinogradov University Clinical Hospital (branch). Vinogradov, (branch) of the Federal State Autonomous Educational Institution of Higher Education "People's Friendship University of Russia named after Patrice Lumumba", Moscow
[2]Federal State Autonomous Educational Institution of Higher Education 'Peoples' Friendship University of Russia named after Patrice Lumumba', Moscow

Analyses Of Morbidity and Mortality from Malignant Neoplasms and Cancer of The Prostate Gland in The Russian Federation in The Period 2011-2023

Malignant neoplasms are a significant public health problem in Russia. All malignant neoplasms mortality is second only to cardiovascular disease in the mortality structure of the Russian population, and Russia is one of the ten countries with the highest male mortality rates. Prostate cancer is one of the most common malignant neoplasms in men worldwide. In addition, prostate cancer is not only the most common urological cancer, but also the most common cause of death among all urological diseases.

Notably, it is the most diagnosed pathology in more than half of the world's countries. The incidence of prostate cancer increased significantly in the early 1990s, which was associated with improved diagnostics - the introduction of prostate-specific antigen (PSA) testing - but subsequently, in the late 1990s, the incidence decreased.

According to data for 2021, prostate cancer in Russia ranked 3rd (15.1%) in the structure of malignant neoplasm morbidity in the male population.

Aim of the study: to study the morbidity and the mortality rates from malignant neoplasms and prostate cancer in the Russian Federation for 2011-2023.

Materials and methods: Database on morbidity and mortality from malignant neoplasms in Russia and population of the Ministry of Health of Russia (form No. 7) and ROSSTAT for 2011-2023.

Results of the study: Figure 1 shows the prevalence of malignant neoplasms in Russia in 2011-2023 (number of patients per 100 thousand population), whose data are reflected in Figure 1. With great regret, it is necessary to summarize that the prevalence of prostate cancer, as well as all malignant neoplasms in Russia, grows annually, so that in 2023, in comparison with 2011, all malignant neoplasms increased by 28.7%, and prostate cancer by 39.46%.

These facts can be explained by:

- Ageing of the population, since with the increase in the number of older men (over 65 years old) the number of new cases of prostate cancer increases.
- Improved diagnostics, since in recent years, in Russia, prostate-specific antigen (PSA) testing has been more actively used, which contributes to early detection of the disease.

Biography

Mikhail Arturovich Vekilyan studied at Volgograd State Medical University from 2002 to 2008, specializing in Medical Economics. He completed clinical internships in surgery (2008–2009) and urology (2009–2011) at the same institution. From 2013 to 2015, he earned a Master's degree with distinction in Public Policy in Health Care from Lomonosov Moscow State University. In 2017, he successfully defended his candidate's thesis in urology and pharmacology. Between 2019 and 2022, he completed a Master's program in Health Care Management at the Russian Academy of National Economy and Public Administration. His professional experience includes serving as a urologist at the Clinical Hospital of JSC "Russian Railways" in Volgograd, Deputy Chief Surgeon in St. Petersburg, and from 2020 to 2024, Head of the N.A. Lopatkin Research Institute of Urology and Interventional Radiology. Since 2024, he has been the Director of the University Clinical Hospital named after N.A. Lopatkin, a branch of the People's Friendship University of Russia named after Patrice Lumumba.

Afnan Almass
Ministry of Health, Riyadh, Saudi Arabia

Artificial Intelligence in Preventive Medicine

Artificial intelligence (AI) is revolutionizing the field of preventive medicine by enabling personalized and proactive healthcare solutions. By harnessing the power of machine learning and big data analytics, AI can predict and prevent various health conditions before they manifest. From early disease detection to lifestyle recommendations tailored to individual needs, AI is paving the way for a paradigm shift in healthcare. This talk will delve into the transformative role of AI in preventive medicine, exploring its potential to enhance wellness, reduce healthcare costs, and ultimately improve patient outcomes. Join us to discover how AI is reshaping the future of preventive healthcare.

Biography
Emergency medicine consultant, head of the emergency department, and head of academic affairs at Al-Dariyah Hospital. The Saudi Board of Emergency Medicine Training Program, the Arab Board, and the European Board are certified in emergency medicine. He holds a master's degree in disaster medicine and a master's degree in medical education. Interested in out-of-hospital care, research, and education. A member of many committees and societies, such as SASEM and GFEM, editor board member and reviewer in SJEM, has multiple national and international conference participations, and is a member of the Saudi Motorsport Federation medical team, as well as the Bahrain Formula 1 medical team.

Pedro Fonte
[1]Department of Chemistry and Pharmacy, Faculty of Sciences and Technology, Universidad do Algarve, Gambelas Campus, Faro, Portugal
[2]Center for Marine Sciences (CCMar), Universidad do Algarve, Gambelas Campus, Faro, Portugal
[3]iBB—Institute for Bioengineering and Biosciences, Instituto Superior Técnico, University of Lisbon, Lisboa, Portugal
[4]Associate Laboratory i4HB—Institute for Health and Bioeconomy at Instituto Superior Técnico, University of Lisbon, Lisboa, Portugal

Functionalization of Biomaterials for Drug Delivery Applications

The functionalization of biomaterials has emerged as a pivotal strategy in advancing drug delivery systems, enhancing therapeutic efficacy, and minimizing adverse effects. We explored novel approaches to biomaterial modification, focusing on antimicrobial cellulose-based materials and mesoporous silica nanoparticles (MSNs) as drug carriers. Carbohydrate-binding modules to functionalize cellulose with cationic antimicrobial peptides confer enhanced antibacterial activity against Gram-positive and Gram-negative bacteria. This bio-recognition strategy enables stable, orientation-controlled peptide immobilization, rendering cellulose-based materials promising for use in wound dressings and scaffold engineering. Also, MSNs functionalized with CpG oligodeoxynucleotide (CpG ODN) to deliver camptothecin (CPT) for skin cancer treatment. By employing chitosan-coated MSNs, this system achieves high drug encapsulation efficiency and targeted delivery, while leveraging the immunostimulatory effects of CpG ODNs. In vitro and in vivo studies demonstrate enhanced cytotoxicity against cancer cells and significant tumor regression. Together, these functionalization strategies exemplify the potential of biomaterials in creating next-generation antimicrobial surfaces and targeted drug delivery platforms.

Biography
Pedro Fonte is an Assistant Professor at the University of Algarve, Portugal, and a researcher at CCMAR, University of Algarve, and iBB, University of Lisbon. He specializes in nanocarrier development for targeted drug delivery, overcoming biological barriers to enhance treatment precision. His expertise includes lyophilization, solid-state characterization, and structural analysis of therapeutic proteins. His research focuses on cancer treatment and wound healing. He has led multiple funded projects and published over 60 peer-reviewed papers, 10 book chapters, and 1 edited book. Recognized among Stanford University's Top 2% Scientists, his work has earned numerous awards and international collaborations.

Lulu Wang
Reykjavík University, Iceland

AI-driven Microwave Imaging for Breast Cancer Detection

Breast cancer continues to be the leading cause of cancer-related deaths among women globally. Early identification and monitoring of breast lesions are essential, with medical imaging playing a pivotal role in this process. Although X-ray mammography is the most widely used imaging tool for breast cancer, it is unsuitable for pregnant women and individuals with dense breast tissue. Microwave breast imaging presents a promising alternative due to its non-ionizing, non-invasive, and cost-effective nature. Recent advancements in microwave breast imaging have opened new pathways for early detection and treatment of breast cancer. By integrating microwave imaging with artificial intelligence (AI) techniques, breast tumors can now be identified and classified quickly and affordably. This talk will highlight recent developments in AI-driven microwave imaging for breast cancer detection.

Biography

Dr. Lulu Wang holds a Full Professorship in the Department of Engineering at Reykjavík University, Iceland. In addition, she serves as a Visiting Professor in the Department of Physiology and Biomedical Engineering at the Mayo Clinic in Rochester, USA, and as a Professor Extraordinaries in the College of Science, Engineering, and Technology at the University of South Africa. Dr. Wang's interdisciplinary research spans the areas of electromagnetic sensing and imaging, artificial intelligence (AI) for healthcare, and the development of innovative medical devices. Her work is driven by the pursuit of translational impact, with numerous findings having progressed beyond the laboratory to successful commercialization. She has published over 100 peer-reviewed scientific articles and is the author of three academic books. In recognition of her contributions to the field, she also served as the editor for five additional volumes. Her inventive capacity is reflected in her portfolio of 35 granted patents. Dr. Wang's achievements have been recognized by several esteemed scientific and engineering societies. She is a Fellow of the American Society of Mechanical Engineers (ASME Fellow), a Full Member of the scientific research honor society Sigma Xi, and a Professional Member of the Royal Society of New Zealand. Furthermore, she has been selected as a Nominator for the prestigious VinFuture Prize, underscoring her international reputation and commitment to advancing science for global good. Since 2021, Dr. Wang has been consistently listed among Stanford University and Elsevier's compilation of the world's top 2% of scientists.

Nidhi Kakkar
Department of Medicine for Older People, Stockport NHS Foundation Trust, Stockport, Greater Manchester, United Kingdom

Strategies to Prevent Diabetic Foot Ulcers in the Geriatric Population: A Comprehensive Approach

Background: Diabetic foot ulcers (DFUs) are a significant health concern among individuals with diabetes, particularly in the geriatric population, where physiological changes associated with aging, such as impaired circulation, neuropathy, & decreased immune function, exacerbate the risk of ulceration & its subsequent complications. These ulcers are not only a cause of morbidity but also a major contributor to increased healthcare costs and even hospitalizations. Effective prevention strategies are thus crucial in reducing the incidence of DFUs and improving the quality of life for elderly diabetic patients.
Objective: This abstract aims to evaluate the effectiveness of preventative measures for diabetic foot ulcers in the geriatric age group, with a specific focus on multidisciplinary approaches, early screening, patient education, and tailored care protocols.
Methods: We conducted a comprehensive review of current literature on diabetic foot ulcer prevention in the elderly, with an emphasis on evidence-based interventions. Key prevention strategies were identified, including regular foot screenings, blood glucose management, footwear recommendations, skin care, & lifestyle modifications. Additionally, the role of healthcare professionals (e.g., podiatrists, nurses, endocrinologists) in early detection & preventative care was examined. This review also examines the integration of technological advancements, including telemedicine and wearable sensors, in the monitoring of foot health.
Results: The analysis highlighted several preventative strategies that have proven effective in the geriatric population, e.g., structured foot care programs & the use of custom orthotic devices. Early detection through regular foot examinations, combined with proper glycemic control, reduced the incidence of foot ulcers by up to 30%. Educational interventions promoting daily foot inspection and the use of appropriate footwear were also associated with improved patient outcomes.
Conclusion: Preventing diabetic foot ulcers in the geriatric population requires a multifaceted, proactive approach that integrates medical management, patient education, and lifestyle interventions. Multidisciplinary collaboration between healthcare providers is crucial to ensure the early identification & prevention of risk factors. Future research should focus on the development of individualized prevention protocols & the integration of emerging technologies to further reduce the burden of diabetic foot ulcers in this vulnerable group.

Biography

Dr. Nidhi Kakkar is a dedicated resident doctor at Stepping Hill Hospital in Stockport, working in the Department of Medicine for Older People. Beyond her clinical work, she actively supports Stockport NHS Charity, demonstrating a passion for enhancing patient well-being. Dr.Kakkar combines her commitment to healthcare with her enthusiasm for running, participating in events like the Budapest Half Marathon & the Manchester Marathon, to raise funds for charity. Her efforts showcase a caring approach to both her patients and the wider NHS community.

Mohammad Kamil
Director General, Lotus Holistic Institute, Abu Dhabi, UAE

Title-1: Structure Determination and Identification of Taiwania flavone -A Novel biflavonoid, using Mass Spectrometry

Taiwaniaflavone (3,3'-linked bi-apigenin)(1) and its methyl ethers [(2) and (3)] isolated from the leaves of Taiwania cryptomerioides Hayata (Taxodiaceae) have been identified on the basis of spectral data and by synthesis of taiwaniaflavone methyl ethers [(5) and (29)]. Five known biflavones [7), (8), (9), (10), and (11)] have also been isolated from the same plant. Mass spectrometric analysis has made it possible to identify the structure. The details of the analysis will be dealt with.

Title-2: Safety and Quality of Traditional Herbal Products

In the present scenario, the demand for traditional Herbal products is growing exponentially throughout the world during the last few decades. However, the purity of these herbal products exposes the human population to multiple risks and creates major concerns for various health agencies on both national and international levels. Adulteration of herbal products with undeclared synthetic drugs or by mixing the analogs of prescription drugs that are created by replacing or adding functional groups to the original chemical are the recent major problems since they may cause adverse side effects. The illegally added adulterants are frequently anorexic, anxiolytic, and antidepressant pharmaceuticals. As a result, the World Health Organization (WHO), the European Union (EU), and the U.S. Food and Drug Administration (FDA) are expanding their alerts to consumers about tainted phytopharmaceuticals that contain undeclared, active pharmaceutical ingredients. The adulterants included prescription medications such as sildenafil and fluoxetine, withdrawn medications including sibutramine and phenolphthalein, and unapproved drugs including dapoxetine and designer steroids. Twenty percent of the adulterated supplements contained 2 or more undeclared drugs, for example, weight loss supplements containing both an anorectic and a laxative. Most supplements adulterated with drugs were marketed as weight loss, sexual enhancement, or sports supplements.
Consumers may unknowingly take products laced with varying quantities of approved prescription drug ingredients, controlled substances, and untested and unstudied pharmaceutically active ingredients. As advice to the consumers, when using any product marketed as a dietary supplement, the buyers should check with their health care professionals about any nutrients needed in addition to a regular diet.

Biography

Professor Dr. Mohammad Kamil, M.Sc., M.Phil., Ph.D., D.Sc., Chartered Chemist (U.K.) and Fellow of the Royal Society of Chemistry (London), has worked in various capacities. As in charge of the Drug Standardization lab. CCRUM, Ministry of Health -India, Associate Professor at Hamdard University, India; Professor & Head Department of Pharmacognostic Science, Zayed Complex for Herbal Research & Traditional. Medicine, Ministry of Health, UAE (1996-2010); Head TCAM Research at Department of Health, Abu Dhabi (2010-2020).

Presently working as Director General, Lotus Holistic Healthcare Institute, Abu Dhabi, UAE, since 2021. He is heading the Scientific Committee for the Sheikh Zayed International TCAM Awards.

Recipient of many honors and awards lastly received Sheikh Zayed International Award in Traditional Herbal Research in 2020. Produced 20 Ph.D. and M.Phil. students, besides guiding a huge number of M. Sc dissertations and 40 Interns. More than 750 research papers with more than 8000 citations.

Prashant Sakharam Bhokardankar
Professor and HOD, Dept. Of Rasshastra Bhaishajya Kalpana (Ayurvedic pharmaceutical), Datta Meghe Ayurvedic Medical College Hospital and Research Centre, Nagpur, INDIA

An Insight of Ayurvedic Drugs in Asthma: A Gift to Humanity

The prevalence of bronchial asthma, a well-known hypersensitivity illness, is rising quickly in the modern world, especially in wealthy nations. Patients search for the potential of using complementary and alternative medicine systems since contemporary medicine does not provide a suitable therapy for its terminal and long-lasting cure. As one of the largest systems of traditional medicine in the world, Ayurveda has a wealth of information about asthma symptoms and treatments. An overview of Ayurvedic asthma treatment has been attempted, along with potential comparative research. The old definition of etiopathogenesis provided by Ayurveda can be fairly connected with current research. Like other traditional medical systems, Ayurveda has employed nearly natural remedies to treat asthma. However, the traditional method of using herbs differs greatly from the style and sense of bringing about the use of natural remedies. The current review discusses the special way that Ayurveda uses herbs and how it benefits patients. The Ayurvedic herbal medications that have demonstrated anti-asthmatic properties based on current research, which are favorable ethnopharmacological associations. Additionally, an effort has been made to draw attention to additional facets of Ayurvedic treatment for asthma in clinical settings, either as a stand-alone or combined therapeutic strategy.

Biography
Dr Prashant Bhokardankar is BAMS. He did his MD(Doctor of Medicine) in Ayurveda in the subject Rasshastra(Ayurvedic Pharmaceutical), from the Government. Ayurveda College, Nanded, India, in 2005. He started his career as a Lecturer in the Department of Rasshastra-Bk at Siddhakala Ayurved College, Sangamner. He served various pharma companies like Dabur and Arya Vaidya Pharmacy, Coimbatore. Currently, he is working as a Professor and HOD at DMAMCHRC, Nagpur since 2019.He has published various national and international research papers in indexed Journals. He has organized various seminars and workshops on traditional medicines, also known as Ayurvedic medicines. He worked as a Principal investigator for various funded Research projects during his tenure. He has vast experience in the Ayurveda Pharma sector.

Jayeshkumar Kanani
Surat Municipal Institute of Medical Education and Research, Surat, India

Temporal Dynamics of Suicide Attempts in India: Insights by Time, Demographics, and Method for Preventive Strategies

Background: Suicide represents a major public health challenge worldwide. Identifying when suicide attempts are most likely to occur can provide critical insights for prevention, yet limited data exist on their temporal distribution in India.
Methods: We analyzed autopsy-based data of suicide attempts with respect to daily (morning, afternoon, evening, night), hourly, and weekday patterns, and further examined variation by sex, age, marital status, and chosen method.
Results: Young adults and married individuals accounted for the majority of cases. Attempts were most frequently reported during the afternoon and evening hours, with distinct gender-related peaks—males between 4 and 6 pm and females around 6 pm. Hanging emerged as the predominant method. A weekday pattern was also evident, with more attempts observed on Mondays and Fridays.
Conclusion: The study highlights clear temporal and demographic trends in suicide attempts. Preventive medicine strategies should consider deploying resources during identified high-risk periods, with special attention to vulnerable groups such as young adults and married individuals. Enhanced surveillance and timely interventions during afternoon and evening hours, especially at the start and end of the work week, may help mitigate suicide risk.

Biography
Dr. Jayeshkumar Kanani has over 14 years of experience, including 8 years in the field of forensic medicine and Toxicology. Appointed in 2016 as an autopsy medical officer, he has conducted over 4,000 autopsies, providing invaluable medico-legal expertise in death investigations. His expertise extends to histopathological studies, scientific writing, court testimonies, and mentoring students in forensic medicine. Dr. Kanani has published eight peer-reviewed papers in international journals such as Elsevier, BMC, and Springer Nature, with seven as the first author. He has demonstrated exceptional skill in managing the publication process and successfully publishing articles with tight deadlines. His research interests include general medicine, forensic medicine, Toxicology, Surgery, Cardiology, Pathology, Oncology, and Neurology. He is passionate about contributing to the academic and professional community and welcomes opportunities to collaborate on research and editorial endeavors.

Joint Event on

Preventive Medicine World Conference & Pharma R&D and Drug Discovery World Conference

17-19 October 2025

KEYNOTE SESSIONS 2 | DAY 2

Patricia Tak Hing Tai
University of Saskatchewan, Canada and Medical Writer of UpToDate, United States

Updates on Preventive Medicine in Cancer

Cancer affects approximately 40% of Canadians in their lifetime, with 25% succumbing to the disease. This update highlights recent advancements in prevention and treatment to improve survivorship. Brain cancer: Prevention through a healthy diet, smoking cessation, genetic counseling to assess hereditary risks, and regular exercise to improve blood flow should all be emphasized. Head and neck cancer: Global campaigns against smoking and alcohol consumption should be initiated. The choice between radiotherapy and surgery largely depends on the cancer stage and the natural history of the specific cancer type. Lung cancer: Prevention efforts focus on education of smoking risks. Early detection minimizes treatment morbidities by enabling less invasive surgery or radiotherapy. High-risk smokers are advised to undergo low-dose CT scans. Skin cancer: Prevention includes limiting sun exposure, using SPF 30+ sunscreen, and avoiding peak UV hours. As radiotherapy may result in second malignancies, newer treatments are nowadays available for locally advanced basal cell carcinoma: vismodegib, while cemiplimab, a PD-1 inhibitor, was approved for advanced squamous and basal cell carcinomas. A few PD-L1 inhibitors now treat Merkel cell carcinoma and melanoma. Brachytherapy preserves function and cosmetic outcomes by treating over a smaller volume and likely reduces second malignancy risks. Gastrointestinal cancer: Smoking cessation, adequate treatment of Barrett's esophagus, and other precancerous conditions of the gastrointestinal tract are the most important strategies. Prostate cancer: Prevention includes a diet rich in tomatoes and soy while avoiding obesity. Prostate-specific antigen (PSA) screening facilitates early detection, and nomograms help tailor treatment decisions. Again, radiotherapy may result in second malignancies of the bladder and rectum. Young patients should have prostatectomy. More research is done on cryotherapy recently. Gynecologic Cancers: Prevention strategies include safe sexual practices and widespread human papillomavirus (HPV) vaccination. Self-administered HPV swab test provides accessible early cervical cancer detection, surpassing traditional Pap smears, and would prove invaluable in countries with scarce healthcare providers and resources. The choice of surgery versus radiotherapy depends on the cancer stage. Both should address post-treatment vaginal fibrosis, which affects sexual health. Healthcare teams should prioritize counseling for gynecologic and prostate cancer survivors to improve sexual well-being. Hematologic cancers: Avoiding chemicals is the key, along with lifestyle changes such as quitting smoking, reducing alcohol consumption, and maintaining a healthy diet. Pediatric cancers: Genetic counseling and a balanced, nutrient-rich diet (often called the 'rainbow diet') may be beneficial. Conclusions: Recent advances in cancer prevention and treatment have improved survival and quality of life by minimizing treatment morbidities. Future challenges include controlling healthcare costs and increasing accessibility in developing nations. Continued collaboration among researchers, oncologists, and healthcare providers will shape future innovations.

Acknowledgment: Special thanks to the team of the International Oncology Cancer Research Group (IOCRG), for contributing to this presentation.

Biography

Professor Patricia Tai graduated with a gold medal from the University of Hong Kong in 1984. Since then, she has become an experienced clinical oncologist with expertise in skin and urologic cancers. She is one of the international experts on Merkel cell carcinoma and has been an author in UpToDate since 2000. As the author of 149 full publications and 126 abstracts, and an honorary professor at the University of Hong Kong, she also serves as a clinical professor at the University of Saskatchewan, Canada. She now collaborates with UpToDate and welcomes partnerships on photodynamic therapy, Merkel cell carcinoma, and prostate cancer.

Ruobo Zhou
The Pennsylvania State University, USA

Unraveling the Ultrastructure and Functions of the Neuronal Membrane Skeleton Using Super-Resolution Fluorescence Microscopy

The neuronal membrane-associated periodic skeleton (MPS), composed of actin, spectrin, and associated molecules, forms a lattice-like cortical structure whose molecular composition and functions have remained incompletely understood. Using co-immunoprecipitation and mass spectrometry, we identified hundreds of candidate MPS-interacting proteins spanning diverse functional categories. Super-resolution imaging of representative proteins, including previously unknown structural components, motor proteins, cell adhesion molecules (CAMs), ion channels, and signaling proteins, revealed periodic distributions characteristic of the MPS along neurites. Genetic perturbations of the MPS and its interacting proteins indicate roles in axon-axon and axon-dendrite interactions, axon diameter regulation. Functionally, the MPS serves as a dynamic platform for signal integration. It recruits G protein-coupled receptors (GPCRs), CAMs, and receptor tyrosine kinases (RTKs) in response to extracellular cues, promoting colocalization and RTK transactivation that trigger extracellular signal-regulated kinase (ERK) signaling. In addition to signaling, the MPS spatially gates major forms of endocytosis by restricting pit formation to MPS-free “clearing” zones across axonal and somatodendritic compartments. Disruption of the MPS enhances both basal and ligand-induced endocytosis, while ligand-triggered endocytosis activates ERK signaling to further remodel the MPS, establishing a self-reinforcing feedback circuit. Notably, MPS integrity limits amyloid precursor protein (APP) endocytosis and suppresses amyloid-β 1-42 production, linking cytoskeletal organization to neuronal health and disease susceptibility. Together, these findings reveal the MPS as a dynamic, multifunctional scaffold that coordinates structural integrity, protein interactions, receptor signaling, and membrane trafficking, establishing a unifying principle by which cytoskeletal architecture shape’s neuronal function, connectivity, and homeostasis.

Biography

Dr. Ruobo Zhou is an Assistant Professor of Chemistry, Biochemistry and Molecular Biology, and Biomedical Engineering at Penn State. He is affiliated with several graduate programs in the Huck Institutes of the Life Sciences and is a member of the Penn State Cancer Institute. He earned his B.S. in Applied Physics from the University of Science and Technology of China, his Ph.D. in Physics from the University of Illinois at Urbana-Champaign and completed postdoctoral training in Chemistry and Chemical Biology at Harvard University. His work focuses on the intersection of physics, chemistry, and biology, with an emphasis on bioimaging and cellular biophysics. Dr. Ruobo Zhou has received multiple honors, including the 2023 Scialog Fellowship for Advancing Bioimaging and the 2021 NIH MIRA award.

Joint Event on

Preventive Medicine World Conference & Pharma R&D and Drug Discovery World Conference

17-19 October 2025

ORAL SESSIONS 2 | DAY 2

Andrea Hincapie Bendeck*[1], C.Mounzer[1], J.Peterson[1], R.Lorenzetti[2]
[1]West Virginia University / School of Medicine, USA
[2]West Virginia University Eastern / Associate Dean of Student Affairs, USA

A Programmatic Review of A Culinary Medicine Program at West Virginia University School of Medicine

The Culinary and Lifestyle Medicine Track (CLMT) at West Virginia University School of Medicine offers medical students hands-on culinary training and community-based nutrition education. This programmatic review assesses student participation and its impact on patient care. Mixed methods, including surveys and questionnaires, were used to gather feedback from graduates. Since 2017, 40 students have completed the track, with 12 passing the Certified Culinary Medical Specialist exam at a 100% success rate. All students participate in nutrition and wellness initiatives. Exit surveys reveal increased confidence in applying nutrition principles in clinical care, highlighting the track's role in integrating practical nutrition knowledge into patient interactions.

Purpose: This study evaluates medical student engagement in community-based nutrition education through CLMT and explores graduate perspectives on culinary training and its impact on patient care.

Study Design/ Methodology: This qualitative study uses mixed methods to examine student experiences in CLMT. A curriculum review was conducted alongside exit surveys and questionnaires completed by graduates from the classes of 2022 and 2023.

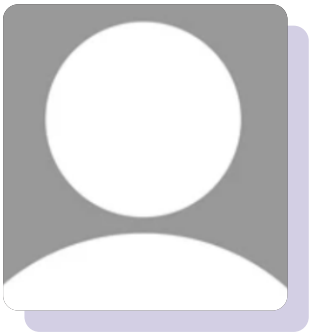
Findings: Since 2017, 40 students have graduated from CLMT and matched into diverse residency programs. Twelve passed the Certified Culinary Medical Specialist exam. All students participated in nutrition-focused community service, including cooking demonstrations and wellness discussions. Exit surveys report increased readiness to apply nutrition knowledge in clinical settings and carry these skills into residency and beyond.

Practical/Social Implications: The CLMT equips future physicians with tools to address chronic disease through lifestyle counseling and nutrition education. The program promotes patient-centered care and provides a model for integrating culinary medicine into medical curricula. Other institutions may replicate this approach to enhance preventive care competencies among trainees.

Conclusion: The WVU CLMT reflects a shift in undergraduate medical education. By connecting nutrition science with community engagement, it prepares students to address lifestyle-related health concerns in diverse practice settings.

Biography

Andrea Hincapie Bendeck, a third-year medical student in the United States, is passionate about patient-centered care and culinary medicine. With a background in public health and research, I am currently focused on studying for STEP 2 and applying for residency. When not in the hospital, I enjoy journaling and doing yoga.

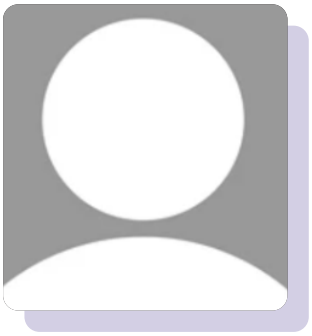


Maheshkumar Baladaniya*[1], Shraddha Baldania[2]
[1]PT, MS, DPT, 369 S Main St, New City, NY
[2]PT, DPT, Enjoy Rehab PT PC Woodbury, NY, USA

Rehabilitation Strategies for COVID-19 Survivors: A Guide to Restoring Functional Independence

The pandemic of coronavirus disease 2019 (COVID-19) and the response to it are creating tsunami of rehabilitation needs. This white paper offers a comprehensive guide to designing effective rehabilitation strategies for individuals recovering from COVID-19. With a focus on treating respiratory and neuromuscular dysfunctions, the rehabilitation demands of COVID-19 survivors are becoming more widely acknowledged. Focused on restoring functional independence, the paper addresses key considerations in the rehabilitation process, including musculoskeletal, respiratory, cardiovascular, and psychosocial aspects. This white paper serves as valuable resource for healthcare professionals and individuals seeking guidance on effective rehabilitation strategies post-COVID-19, emphasizing the restoration of functional independence

Biography
Maheshkumar Baladaniya is a highly credentialed physical therapist with a strong foundation in both clinical care and health informatics. He holds a Doctor of Physical Therapy (DPT) from the University of Montana, a Master of Physical Therapy (MPT) in Neurology and Sports from the National Institute of Medical Science in Jaipur, India, and a Master of Science (MS) in Health Informatics from the American College of Commerce & Technology in Virginia. He is also a Certified Autism Specialist (CAS), qualified to work with both pediatric and adult populations. Maheshkumar currently practices at Neighborhood Physical Therapy PC in New City, New York, providing care in both outpatient and home care settings. He is an active member of the American Physical Therapy Association (APTA), reflecting his commitment to professional development and high standards of practice



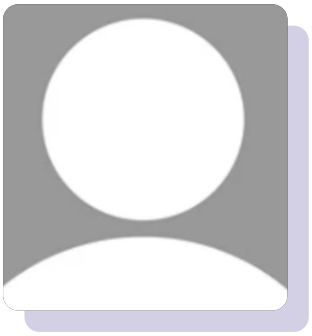
Sing-Yung Wu
Professor Emeritus, Department of Radiological Science, UC Irvine College of Medicine, USA

An Alternate Approach to Neonatal Screening of Thyroid Function

Thyroid hormone (TH) plays a critical role in early fetal brain development during the first trimester, including the proliferation, migration, and differentiation of neuronal cells. Because this developmental window occurs before birth, some neurological defects may be irreversible by the time treatment begins after birth according to the current neonatal screening. There are persistent reports of mild brain damage and lower IQ in some children with congenital hypothyroidism (CH) despite early detection and treatment after birth, reveal potential shortcomings in the current neonatal screening strategy and underscore the need for improvement. In this report we propose an alternate approach to assess fetal thyroid function in utero by examining the characteristic fetal thyroid hormone (TH) metabolism — specifically, the sulfation pathway. Sulfoconjugation is a major metabolic pathway for TH in developing mammals due to low type 1 monodeiodinase. The significant rise of sulfated iodothyronines in mammalian fetal compartments raises the possibility that significant fetal to maternal transfer of the conjugates may occur in late gestation as the fetal hypothalamic-pituitary-thyroid system become more mature. This transfer may be a novel mechanism to maintain low T3 states or regulate serum T2, a thermogenic hormone that is important for normal tissue maturity. The possibility that the transferred iodothyronine sulfate, especially T2S and its metabolite may serve as a marker of fetal thyroid function needs to be further explored. Further investigation into fetal TH metabolism and function may provide a rational alternative for managing CH at the early stage of fetal development and mitigating long-term adverse outcomes from neonatal-screen-associated “catch-up” treatment postnatally.

Biography

Dr. Sing-Yung Wu is a Professor in Residence in the Department of Radiological Sciences at the School of Medicine, where they also serve as a Principal Investigator at the affiliated Medical Center. With a distinguished academic background, they earned a Ph.D. in Experimental Pathology from the University of Washington, Seattle, in 1969, followed by an M.D. from Johns Hopkins University in 1972. Dr. Sing-Yung Wu has built a longstanding career at the intersection of medical research and clinical practice, contributing significantly to advancements in radiological science and medical education.

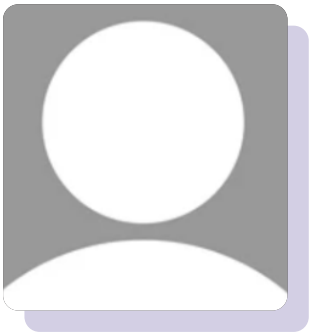


Puthayalai (June) Treerat*[1], Molly A. Hughes[1], Matthew A. Crawford[1], Rachel A. Letteri[2]
[1]Division of Infectious Diseases & International Health, Department of Medicine, University of Virginia, Charlottesville, VA, USA.
[2]Department of Chemical Engineering, University of Virginia, Charlottesville, VA, USA

Chemokine-Derived Antimicrobial Peptides as A Novel Strategy for Combating Infections Caused by Multidrug-Resistant Bacteria

Pneumonia remains a leading global cause of mortality across all age groups, with multidrug-resistant (MDR) pathogens presenting a significant treatment challenge (WHO, 2021). Beyond their roles in immune regulation, specific chemokines exhibit intrinsic antimicrobial properties. We recently developed an 8-mer antimicrobial peptide (AMP), named peptide D8, which is derived from the N-terminal region of the human chemokine CXCL10. Peptide D8 demonstrates broad-spectrum bactericidal activity, including efficacy against diverse MDR pathogens. It is proteolytically stable, non-hemolytic, and non-toxic toward human cells in vitro. To evaluate its therapeutic potential in vivo, the efficacy of peptide D8 was assessed via different routes of administration in two separate murine models of Klebsiella pneumoniae infection: topical administration of D8 in a wound infection model and systemic administration via intraperitoneal injection of D8 in a pneumonia model. In each case, peptide D8 administration significantly reduced host mortality. These findings highlight chemokine-derived AMPs as a promising new class of anti-infective agents. By combining host-derived origin, stability, and broad efficacy, peptide D8 represents a potential innovative therapy for drug-resistant bacterial infections of the wound and lung.

Biography
June Treerat is a Research Scientist at the University of Virginia School of Medicine in Charlottesville, VA. In this role, they contribute to advancing biomedical research through both independent and collaborative projects within the institution. June has been actively involved in academic presentations, including participation in the MAMPM Poster Session, highlighting their engagement in scholarly dissemination and scientific dialogue. Their work at the University of Virginia reflects a strong commitment to research excellence and innovation in the medical sciences.



Alexander Melerzanov*[1] & Kirill Balbek*[2]
[1]Deputy CEO Biophysics of the Future Institute, MIPT, Russia
[2]PhD student, MIPT, Russia

Physical Medicine as a Universal Tool

Physical Medicine is on the rise for the last decade. The important part of this development consists of neuromodulation technologies that are considered a part of the whole Longevity Medicine Tactics. Electromagnetic, light and sound waves perform different therapeutic impacts of the central nervous system. There is a variety of different effects, some claimed and needed more RWE, some clinically proven.

The evident benefits of Physical Medicine that it does not contradict but rather compliment pharmacotherapy and also carries minimal risk of side effects and in most of case has low running cost. In our report we introduces several methods developed in our University in collaboration with industrial partners that provide clinically proven effects as for treatment of patients with chronic diseases and existed conditions due to extreme workload so for secondary prevention for people with defined risk factors.

We present our concept of Adaptation Medicine based on a Theory of Universal Stress Response of Hans Selye and on 30 years empirical clinical findings. We have deployed combined audio-visual, constant and intermittent currents for correction of central nervous system and general pathological conditions and prevention of complications for patients with cardiovascular diseases and injuries in several centers, collected and analyzed outcomes. Additionally, at the moment, we are developing an AI-based system and a therapy personalization.

The object of the investigation was the new mode of combined therapy for patients with inadaptation syndrome suffering from panic attacks and other malfunctions due to long-term persisting chronic diseases and other age-associated psychosomatic conditions.

The major idea of our study is the development of a new routine for secondary prevention, preservation of the quality of life with a goal of potential impact towards longevity.

Biography

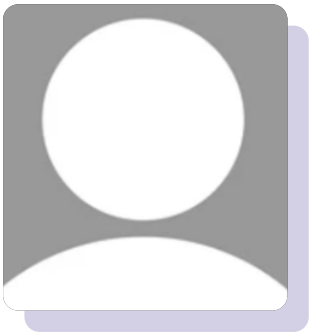
Dr. Alexander Melerzanov, MD, PhD, is an Associate Professor and Deputy CEO of the Biophysics of the Future Institute at the Moscow Institute of Physics and Technology (MIPT), where he also leads the Biomedical and Digital Technologies Laboratory at the AI Center. He serves as a Consulting Physician at Hospital #1. Dr. Melerzanov earned his MD degree from Sechenov Moscow Medical University in 1994 and completed his PhD in Public Health at the same institution in 2011. With over 30 years of experience in clinical practice, education, and research, he has authored more than 100 scientific articles, patents, and guidance books.

Edmond Kubi Appiah
Drexel University, USA

Sociodemographic and Clinical Correlates of Telomere Length Among U.S. Adults: Evidence from NHANES 2021–2023

Background: Telomere length, a biomarker of cellular aging, has been associated with chronic disease risk and premature mortality. However, population-level data examining its relationship with sociodemographic and health indicators in the United States remain limited. This study investigates the associations between telomere length and key factors including age, gender, race/ethnicity, poverty-income ratio (PIR), body mass index (BMI), smoking status, diabetes status, and thyroxine (T4) levels.
Methods: We conducted a cross-sectional analysis using weighted data from the 2021–2023 cycle of the National Health and Nutrition Examination Survey (NHANES). Telomere length was categorized into short, intermediate, and long tertiles. Chi-square tests and Rao-Scott adjusted statistics were used for bivariate associations. Cumulative logistic regression models were employed to assess multivariable-adjusted relationships between telomere length and explanatory variables, controlling for the complex survey design.
Results: A total of 4,450 adults were included. Telomere length was significantly associated with age ($p < 0.0001$), diabetes status ($p < 0.0001$), smoking status ($p = 0.0144$), and BMI category ($p = 0.0239$). Participants aged 30–49 were significantly more likely to have longer telomeres than those aged 65+ (aOR = 5.08; 95% CI: 3.86–6.67). No significant association was observed between telomere length and race/ethnicity or T4 levels. In fully adjusted models, prediabetes was marginally associated with shorter telomere length (aOR = 0.83; 95% CI: 0.66–1.03; $p = 0.0886$).
Conclusion: Telomere length is strongly associated with age and modestly linked to metabolic and behavioral risk factors such as diabetes, BMI, and smoking. These findings reinforce the utility of telomere length as a biological aging marker and highlight the need for targeted interventions addressing modifiable risk factors among younger adults.

Biography
Dr. Edmond Kubi Appiah is a clinician and public health researcher with a Master of Public Health in Epidemiology. He has extensive experience in clinical research coordination, biostatistical analysis, and health disparities research, particularly among underserved populations. Dr. Appiah has contributed to multi-site studies at Drexel University and led population-based analyses using NHANES data to explore systemic and oral health outcomes. His research interests include aging biomarkers, chronic disease epidemiology, and the intersection of socioeconomic determinants and health. He is committed to advancing data-driven health equity initiatives and fostering interdisciplinary collaboration in public health and translational science.



Isadora Christina Ribeiro
Universidad Estadual de Campinas, Brazil

Effect of Resistance Training on Cognition, Physical Performance, and Brain Anatomy in Older Adults with Mild Cognitive Impairment

Introduction: Alzheimer's disease is the most prevalent dementia in the world and has a high socioeconomic impact. Mild cognitive impairment (MCI) refers to the unnatural cognitive loss of aging with preservation of independence in activities of daily living. Individuals with this diagnosis have a higher risk of developing dementia. Non-pharmacological interventions, such as physical exercise, are beneficial for the cognition of this population. However, the impact of resistance training (RT) on the brain anatomy of the elderly with MCI has not yet been clarified. This study aimed to investigate the impact of RT on cognition, functionality, and brain anatomy (gray matter volume and white matter integrity) of elderly individuals with MCI.
Methods: Forty-four elderly individuals diagnosed with MCI were evaluated, 22 in the training group (TG) and 22 in the control group (CG). Participants underwent neuropsychological testing and magnetic resonance imaging (MRI) assessments at the beginning and end of the 24-week study. The TG was also evaluated for physical performance. We used repeated measures ANOVA within a general linear mixed model to compare moments (pre- and post-intervention) and groups (control and training). We included age and education as covariates. The values were corrected for multiple comparisons using the False Discovery Rate.
Results: The TG showed better performance in the Rey Auditory Verbal Learning Test, body mass index, waist-to-hip ratio, physical activity level, Timed Up and Go test, Sit-to-Stand Test, and upper and lower limb muscle strength after 24 weeks of training. The CG showed a significant decrease in gray matter volume in the hippocampus and precuneus (right and left hemispheres), while the TG showed no reduction in the right hippocampus and precuneus. However, it showed a decrease in the volume of these regions on the left side and in the left superior frontal gyrus. In the analysis of white matter integrity, fractional anisotropy increased in the TG and decreased in the CG. Axial diffusivity decreased in the TG, while radial diffusivity increased in the CG, and mean diffusivity varied, increasing and decreasing in both groups according to the tract evaluated.
Conclusion: RT improved memory performance, anthropometric measures, and functional capacity in elderly individuals with MCI. Furthermore, it appears to play a protective role against atrophy of the hippocampus and precuneus (right hemisphere) and positively influences white matter integrity parameters.

Biography

PhD candidate in Medical Pathophysiology and Master's degree in Gerontology from the School of Medical Sciences at UNICAMP. She holds a bachelor's degree and a teaching degree in Physical Education from the School of Physical Education at UNICAMP. She specializes in neuroscience and neuroimaging, physical training for the elderly, and exercise physiology. Her research interests include physical exercise, resistance training, physical and mental health of the elderly, and Alzheimer's disease.

Joint Event on

Preventive Medicine World Conference & Pharma R&D and Drug Discovery World Conference

17-19 October 2025

KEYNOTE SESSIONS | DAY 3

Laxmikant Rathi
Govardhan Hospital, Director, Amravati, Maharashtra, India

From Curing the Problem to Curing the Person

The evolving landscape of modern healthcare demands a paradigm shift from the traditional biomedical model, which focuses on diagnosing and treating isolated symptoms or diseases, to a more holistic, person-centered approach. “From Curing the Problem to Curing the Person” emphasizes the necessity of viewing patients not merely as carriers of disease but as whole individuals shaped by complex interactions of biological, psychological, social, and spiritual dimensions. While curing the problem addresses the immediate physiological condition, curing the person involves a deeper understanding of the patient’s lived experiences, values, cultural background, and emotional well-being.

This shift is particularly significant in mental health, where healing cannot be limited to the remission of symptoms but must extend to enhancing quality of life, restoring personal meaning, and fostering resilience. Integrative models of care—blending clinical interventions with counseling, lifestyle changes, community support, and sometimes spiritual guidance—are proving essential for sustained recovery. The approach also strengthens the therapeutic alliance, encourages patient participation, and reduces the risk of relapse by addressing root causes and systemic influences rather than just superficial outcomes.

By prioritizing empathy, dignity, and empowerment, the healthcare system can evolve from a reactive problem-solving institution to a proactive promoter of overall human well-being. This abstract calls for a redefinition of healing as not just the absence of disease, but the presence of purpose, connection, and wholeness in the life of every individual.

Biography

Dr. Laxmikant Rathi is a Consulting Psychiatrist Practicing in the field of Mental Health for the last 44 years at his own 25 Bedded Govardhan Hospital, Near Rajkamal Bridge, Ambapeth, Amravati - 444601, Maharashtra, India. He completed his M.B.B.S. from the Government Medical College, Nagpur, in 1979, his D.P.M. from Seth G.S. Medical College and KEM Hospital, Mumbai, in 1981, and his M.D. (Psychiatry) from the same institution in 1982. He serves as Advisor to the World Congress of Asian Psychiatry (WCAP), Executive Council Member of the SAARC Psychiatric Federation, Immediate Past President of the Indian Psychiatric Society, and Member of the World Federation for Mental Health. He conducts numerous Mental Health awareness programs for the public by writing articles, giving interviews, and posting on social media platforms. He has written many chapters on various subjects in various books. He participates in many Research programs also. He has given lectures at various platforms Nationally in various conferences all over the nation. Different international organizations have invited him as a faculty, for example, the American Psychiatric Association, the British Indian Psychiatrists Association, the SAARC Conference, the Asia Pacific Psychiatric Conference, the Mayo Clinic, the Neuropsychiatry Conference, and the Bangkok Conference. He is a Recipient of the Lifetime Achievement Award by the Indian Medical Association and the Lions Club International. The Honorable Smt has also felicitated him. Pratibha Patil, former President of India, for His Medico-Social contributions.

Joint Event on

Preventive Medicine World Conference & Pharma R&D and Drug Discovery World Conference

17-19 October 2025

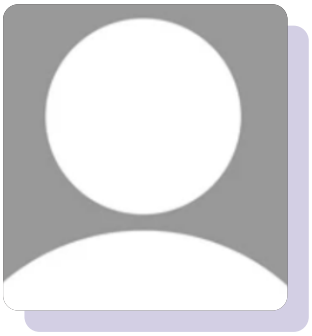
ORAL SESSIONS | DAY 3

Yunli Chen*, Heling Bao, Sailimai Man, Yi Sun, Yuanyuan Huang, Yan Luo, Liping Yan, Canqing Yu, Jun LV, Linhong Wang, Bo Wang, Liming Li, Hui Liu
Department of Health Management Research, Institute of Medical Information, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China

Prevalence of Human Papillomavirus Infection and Its Associations with Metabolic Risk Factors in China: A Nationwide Population-Based Study

Background: The association between metabolic risk factors and human papillomavirus (HPV) infection is under debate. This study aimed to investigate the associations between metabolic risk factors and HPV infection, while also providing updated data on the prevalence of HPV infection in the post-vaccine era in China.
Methods: This multi-center cross-sectional study involved 684,632 adult women who had undergone a standard health screening in 2019. HPV infection prevalence was estimated. Linear and nonlinear associations between HPV infection and metabolic risk factors were assessed, such as body mass index (BMI), systolic blood pressure (SBP), fasting plasma glucose (FPG), and low-density lipoprotein (LDL).
Results: The standardized prevalence of overall and high-risk HPV infection was 16.2% (95% confidence interval [95%CI]: 15.1-17.3) and 12.8% (95%CI: 11.8-13.7), respectively. The most prevalent genotypes were HPV-52, HPV-58, HPV-16, and HPV-53. HPV infection was negatively associated with BMI, with women in the highest quartile having the lowest odds of infection compared to those in the lowest quartile (odds ratio[OR]=0.84, 95%CI: 0.78-0.91, P<0.0001), indicating a significant linear trend (Ptrend<0.0001). Nonlinear associations were observed for SBP (Pnon-linearity<0.0001), FPG (Pnon-linearity<0.0001) and LDL (Pnon-linearity=0.008). The overall HPV risk was observed to decrease with increasing SBP, especially when SBP was below 114 mmHg. Both FPG and LDL were positively associated with HPV risk. ORs were more pronounced when FPG was less than 4.9 mmol/L and LDL was between 2.7 and 3.5 mmol/L. However, for women aged over 50 years, the dose-response curves initially showed a rising trend, followed by a decline.
Conclusions: The prevalence of HPV infection in China remains high and may be associated with metabolic risk factors. Longitudinal studies are needed to validate the association between metabolic risk factors and HPV infection.

Biography
Yunli Chen, Master of Public Health, affiliated with the Department of Health Management Research, Institute of Medical Information, Chinese Academy of Medical Sciences, and Peking Union Medical College. Main research interests are maternal health and infectious disease epidemiology.



Mohamad Monif Assker*, Ammar Mektebi, Mohamed Elsaid, Tularam Yadav, Fatima Abdallh, Abdelmonem Siddiq, Reem Sayad, Motaz Saifi, Ramadan Abdelmoez Farahat
Department of Radiology, Sheikh Khalifa Medical City, Abu Dhabi, UAE

Mpox Vaccine Acceptance Among Healthcare Workers: A Systematic Review And Meta-Analysis

Introduction: Mpox is a zoonotic viral disease that emerged in May 2022 and has since shown a high prevalence in non-mpox-endemic areas, resulting in an outbreak that caused more than 84,000 cases in 110 countries around the globe. Several vaccines are available to prevent the disease, and multiple studies have been conducted to assess the attitudes of different populations toward receiving the mpox vaccine. This study systematically reviews all the studies conducted on mpox vaccine acceptance/hesitancy among healthcare workers.
Methods: A systematic literature search was conducted through four electronic databases, including PubMed, Scopus, Web of Science, and Google Scholar, up to March 2023. Studies that described mpox vaccine acceptance/hesitancy among healthcare workers were included, and the data were extracted using a uniform extraction sheet. Following the extraction, the meta-analysis included ten studies with 7322 healthcare workers. Three researchers independently assessed the risk of bias in the included study using the Newcastle–Ottawa Scale (NOS).
Results: Ten studies were included in the review. This review indicates that the prevalence of mpox vaccine acceptance was 58.5%, and the prevalence of mpox vaccine hesitancy was 41.5%. There was a higher prevalence of acceptance in countries located in Asian and African areas compared to those in North America and Europe, estimated at 68% and 44.3%, respectively. Among the studies conducted solely among physicians, there was a high prevalence of mpox vaccine acceptance, at 77.1%, compared to 49% in studies that included all healthcare workers.
Conclusion: There is a significant variation in the prevalence of mpox vaccine acceptance among different populations. Further research is needed to identify the factors that contribute to this variation and to develop interventions to increase vaccine acceptance. In addition, it is important to promote research on mpox vaccine acceptance and hesitancy among healthcare workers in countries where data is limited. This research will help policymakers develop effective policies to increase acceptance and reduce the disease burden.

Biography

Mohamad Assker is a radiology professional affiliated with Sheikh Khalifa Medical City in Abu Dhabi and the University of Sharjah. His expertise spans cardiothoracic imaging, neuroradiology, and general radiology. Assker's contributions to the medical field are recognized through his publications, which have garnered over 40 citations on Scholar. His work reflects a commitment to advancing diagnostic imaging and enhancing patient care in the UAE's as well as global healthcare systems.

LAZĂR Ștefan-Augustin
Department of Public Health, Babeș-Bolyai University Cluj-Napoca, Romania

How Young People in Cluj Napoca Choose Healthcare Providers: An Analysis of Public and Private Health Institutions' Communication on Youth-Oriented Services

This presentation explores how young adults in Cluj-Napoca (Romania) decide between public and private healthcare providers and how institutional communication strategies shape—or fail to shape—those choices. Although people aged 18–34 constitute nearly one-third of Romania's population and have pressing needs in preventive, mental-health, and reproductive services, they interact with the medical system far less than recommended. Understanding why requires looking beyond service quality or price and focusing on the digital conversation that surrounds healthcare.

Drawing on a mixed-methods study conducted over one month, we merge insights from 42 online survey responses with 12 semi-structured interviews of hospital decision-makers. The quantitative strand gauges how often young adults encounter promotional content, which platforms they trust, and how clearly, they perceive public- versus private-sector messages. The qualitative strand captures the institutional side: outreach tactics, perceived barriers, and emerging priorities voiced by managers in both sectors. A convergent-parallel design allows us to analyse the two data sets independently—using Wilcoxon signed-rank and χ^2 tests for the survey, and thematic coding for the interviews—then integrate them to see where perceptions collide or converge.

Three headline findings emerge. First, a channel mismatch: public hospitals rely heavily on Facebook and static websites, while their target demographic spends most of its screen time on Instagram and TikTok. Second, a quality gap: young adults rate private providers' messages as substantially clearer and more up-to-date than those from public institutions. Third, systemic barriers: confusing jargon, information overload, and low trust discourage patients regardless of provider type.

The session concludes with practical, evidence-based recommendations. Public institutions should pivot to short-form, video-centric content, embed direct booking links, and co-create posts with clinicians and peer influencers. Private clinics—despite higher visibility—must still simplify language and maintain transparency. Together, these steps could make preventive and curative services more accessible, trusted, and widely used by Cluj's youth.

Biography

Stefan-Augustin Lazar is a Cluj-Napoca-based public-health researcher and dynamic person whose work bridges academia, civic innovation, and youth empowerment. After earning his bachelor's degree from Babeș-Bolyai University's School of Public Health, he dedicated time to designing community-wellbeing programs across Cluj-Napoca. In 2023–24, he co-led Our Cluj's pioneering Wellbeing System Map, convening over forty local stakeholders to redefine youth services.

Chang Liu*[1], Guangcong Liu[1], Danbo Wang[1], Lianzheng Yu[2], Liwen Hu[3]
[1]Cancer Hospital of China Medical University, Cancer Hospital of Dalian University of Technology, Liaoning Cancer Hospital & Institute, Shenyang, People's Republic of China
[2]Liaoning Center for Disease Control and Prevention, Shenyang, Liaoning, People's Republic of China
[3]Guangdong Provincial Engineering Technology Research Center of Environmental Pollution and Health Risk Assessment, Department of Occupational and Environmental Health, School of Public Health, Sun Yat-et University, Guangzhou, People's Republic of China

The Association Between Ambient $Pm_{2.5}$'s Constituents Exposure and Cervical Cancer Survival

Increasing evidence links exposure to ambient particulate matter with a diameter less than 2.5 µm (PM2.5) with reduced survival in cancer survivors, but little was known about the association between PM2.5 exposure and cervical cancer survival. We analyzed data from 5144 cervical cancer patients diagnosed between January 2014 and December 2020, who completed recommended treatments. Exposure levels were determined by the monthly average concentration of ambient PM2.5 and its five constituents, obtained from Tracking Air Pollution in China (TAP) based on individual residential addresses. Log-rank tests and multivariate Cox Proportional Hazardous regression were performed to examine the impacts of PM2.5 and its constituents on overall survival (OS) of cervical cancer patients. We observed that for every increase of 1 µg/m3 in average individual exposure, the hazard ratios (95%CI) for ambient PM2.5, sulfate (SO42-), ammonium (NH4+), and nitrates (NO3-) were 1.078 (1.069–1.086), 6.755(5.707–7.996), 2.123(1.935–2.329), and 3.717(3.237–4.267), respectively. Subgroups with longer OS had larger HRs of PM2.5 and its constituents, which might be attributed to more cumulative exposure. No evidence of a threshold for the hazardous effects of PM2.5 on the OS of cervical cancer patients was identified. Furthermore, long-term exposure to PM2.5 was negatively associated with pretreatment counts of monocytes, neutrophils, and lymphocytes in the peripheral blood of cervical cancer patients. In conclusion, elevated levels of PM2.5 mass, SO42-, NH4+, and NO3- in ambient PM2.5 exposure were associated with reduced OS among cervical cancer patients. There may be no discernible threshold effect of PM2.5 on the risk for cervical cancer patients.

Biography

Chang Liu, Associate Professor, Attending Physician, PhD in Oncology. Member of the Second Tumor Endocrinology Committee of the Chinese Anti-Cancer Association. Member of the Cancer Prevention and Treatment Committee of the Liaoning Provincial Association of Preventive Medicine. Member of the Reproductive Health Professional Committee of Liaoning Provincial Preventive Medicine Association. Member of the Minimally Noninvasive Gynecological Tumor Professional Committee of Liaoning Maternal and Child Health Association. She has presided over three provincial science and technology projects, one Wu Jieping Medical Fund, one medical and engineering cross-disciplinary fund, and participated in eight National Natural Science Foundation projects as the first participant or other ranking participants. During the past five years, she has published six SCI journal articles. She was granted four invention patents.

Maria I. Dalamagka
Anesthesia Department, General Hospital of Larisa, Greece

Epilepsy in Children and Anesthesia

Epilepsy, also called seizure disorder, is the most common childhood brain disorder in the United States. The aetiology of epilepsy in children is multifactorial, with congenital, metabolic, infective, and problems associated with prematurity being common causes. Nearly 3 million Americans have epilepsy. About 450,000 of them are under 17 years old. About 1 in 200 children (0.5%) have epilepsy, a neurological condition where children have a predisposition to recurrent, unprovoked seizures. There are many different types of epilepsy, especially in infancy, childhood, and adolescence. Epilepsy can be thought of in terms of either the site of seizure origin in the brain (generalized or focal seizures) or the underlying cause. Genetic epilepsies (formerly called idiopathic or primary epilepsies) occur in an otherwise normal person and are due to a genetic predisposition to seizures. Some epilepsies are due to an underlying abnormality of the brain structure or chemistry (formerly called symptomatic or secondary epilepsies). Other epilepsies have no known cause. Epilepsy is commonly diagnosed in children and can be confused with different conditions. An accurate diagnosis is essential. A seizure is an excessive surge of electrical activity in the brain that can cause a variety of symptoms, depending on which parts of the brain are involved. Seizures can be provoked or unprovoked. Provoked seizures, caused by fever in a young child or severe hypoglycemia, are not considered to be forms of epilepsy. Unprovoked seizures have no clear cause but can be related to genetics or brain injury. When a child has two or more unprovoked seizures, epilepsy is often the diagnosis. Despite advances in antiepileptic medication therapy, a significant number of pediatric patients with epilepsy have seizures that are not well controlled. Antiepileptic medications interact with anesthetic agents, and common anesthetics can precipitate or suppress seizure activity. There are important pharmacokinetic and pharmacodynamic interactions between AEDs and drugs commonly used in anesthesia. These affect both drug efficacy and the risk of seizure activity intraoperatively.

Biography

Dr. Maria Dalamagka, MD, MSc, PhD, is a consultant anesthesiologist at the General Hospital of Larisa, Greece. Her expertise spans anesthesia management in pediatric, autistic, surgical, orthopedic, urological, obstetric, and otorhinolaryngological cases, as well as emergency treatments. During the COVID-19 pandemic, she played a critical role in managing ICU patients in the operating room recovery unit. Additionally, she has explored acupuncture as an early intervention for chronic pain. Dr. Dalamagka is an active editor for various medical journals and has contributed significantly to the field through her research and editorial work.

Min Zhang*[1], Zhiming Sun[2], Yurong Yu[3]
[1]Deputy director of Health Policy Research Department, Jiangsu Health Development Research Center & NHC Key Laboratory of Contraceptives Vigilance and Fertility Surveillance, Nanjing, China & Jiangsu Provincial Medical Key Laboratory of Fertility Protection and Health Technology Assessment, Nanjing, China
[2]Vice Principal of Xuzhou Medical University, Xuzhou, Jiangsu, China
[3]Master candidate of Nanjing Medical University, Nanjing, Jiangsu, China

Research on the Accessibility Evaluation of Critical Care Resources for Pregnant and Postpartum Women in Jiangsu Province

Objective: To reveal the spatial distribution of women of childbearing age and the allocation of maternal critical care resources, assess the spatial accessibility of critical maternal care resources, and provide a scientific basis for optimizing resource allocation.
Methods: Taking the critical maternal care centers in Jiangsu Province in 2024 as the supply side and the women of childbearing age in Jiangsu Province as the demand side, an integrated service capacity index was constructed using the entropy weight method. Combined with the nearest neighbor method and the Gaussian two-step floating catchment area method, the assessment was conducted from both time and supply-demand dimensions.
Results: The distribution of women of childbearing age mainly concentrated in core cities of the Yangtze River Delta, such as Nanjing, Suzhou, and Wuxi. 92.12% of the critical care centers were located in the top 20% of areas with the highest density of women of childbearing age. In terms of time cost, the average time for women of childbearing age in the province to reach the nearest critical care center was 18.55 minutes, with 70.16% of them able to obtain care within 15 minutes, 27.39% within 15-30 minutes, and 2.45% requiring more than 30 minutes. From the supply-demand perspective, within a 15-minute threshold, 69.39% of women of childbearing age could access care, but 30.28% were in a state of low accessibility. Within a 30-minute threshold, 96.47% of women of childbearing age could obtain care. Within a 45-minute threshold, 98.81% of women of childbearing age could obtain care.
Conclusion: The distribution of women of childbearing age in Jiangsu Province shows significant regional clustering characteristics, and resource allocation still needs to be optimized. The accessibility levels in the peri-urban areas of cities and the eastern suburbs of Lianyungang and Yancheng in northern Jiangsu still need to be improved. The “abundance and high quality” of resource-intensive areas has not yet fully translated into fairness and accessibility. In the future, measures such as optimizing the transportation network, adding critical care centers, and enhancing the service capacity at the grassroots level should be taken to reduce regional disparities and improve the fairness and efficiency of resource allocation.

Biography

Min Zhang is a researcher in public health and spatial epidemiology, focusing on healthcare resource equity and accessibility. With expertise in spatial analysis, [Name] leverages advanced methods like the Gaussian two-step floating catchment area model and entropy weight techniques to evaluate healthcare disparities. Their recent study in Jiangsu Province, China, examines the spatial mismatch between maternal critical care resources and women of childbearing age, revealing urban-rural gaps and clustering trends. Min Zhang's work emphasizes actionable strategies, such as optimizing transportation networks and decentralizing resources, to enhance healthcare fairness. Their findings contribute to evidence-based policy making, aiming to reduce regional inequities in maternal care accessibility and improve health outcomes globally.

Frances Law*[1,2], Rita Hui Ting Lok[1], Byron Chiang[1], Carmen Chui Shan Lai[2], Sik Hon Matthew Tsui[3], Pui Yin Joseph Chung[4], Siu Chung Leung[5]

[1]Department of Social Work and Social Administration, University of Hong Kong, Hong Kong, China (Hong Kong)
[2]The Hong Kong Jockey Club Centre for Suicide Research and Prevention, University of Hong Kong, Hong Kong, China (Hong Kong)
[3]Accident and Emergency Department, Queen Mary Hospital, Hong Kong, China (Hong Kong)
[4]Department of Psychiatry, Pamela Youde Nethersole Eastern Hospital, Hong Kong, China (Hong Kong)
[5]Department of Emergency Medicine, School of Clinical Medicine, University of Hong Kong, Hong Kong, China (Hong Kong)

Community-Based and Technology-Enhanced Care for Young Adults with Suicide Ideation

Suicide remains a critical public health issue, particularly among young adults, despite declining overall rates in Hong Kong. This study integrates findings from two randomized controlled trials (RCTs) to explore the efficacy of community-based and technology-enhanced interventions in reducing suicide risk and self-harm behaviors among young adults.

The first RCT evaluated a combined approach of a self-help mobile app and volunteer support for a total of 40 post-discharge patients aged 18-45 with self-harm episodes or suicide attempts. Participants were randomly assigned to one of three groups: mobile app + TAU, mobile app + volunteer support + TAU, and TAU only. Findings revealed that the combination of volunteer care and use of a mobile app was effective in improving service compliance and reducing perceived burdensomeness and thwarted belongingness, which led to transient improvements in hopelessness and suicide risk. This underscores the value of technology-enhanced, community-driven care in supporting individuals during the transition from hospital to community settings.

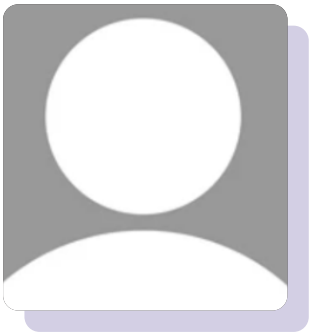
The second RCT examined the impact of a competency-based module (CbM) combined with online social work treatment-as-usual (OSW) for young men aged 18-34 reporting suicide risk. A total of 54 participants were recruited via online forums and assigned to either OSW or OSW+CbM groups in the 2-arm, 4-wave randomized waitlist-controlled trial. Results revealed that the CbM significantly improved self-respect, self-worth, and reduced suicide risk and depression symptoms. Thus, the potential benefits of adopting gender-sensitive interventions in enhancing mental health outcomes have been highlighted.

These studies emphasize the importance of integrating gender-specific, community-based, and technology-enhanced strategies in suicide prevention efforts. The findings advocate for tailored interventions that address psychosocial needs and leverage digital tools to strengthen the continuity

of care. This research contributes to advancing intervention designs, informing mental health policies, and inspiring further exploration of innovative approaches to improve the quality of life for young adults – specifically young men – at risk of suicide.

Biography

Dr. Law is an Associate Professor in the Department of Social Work and Social Administration at the University of Hong Kong. Her research focuses on community-based solutions for vulnerable groups at risk of suicide, drug abuse, poverty, and bullying. She has extensive experience working with NGOs and has authored about 100 peer-reviewed articles and books on evidence-based practice models.



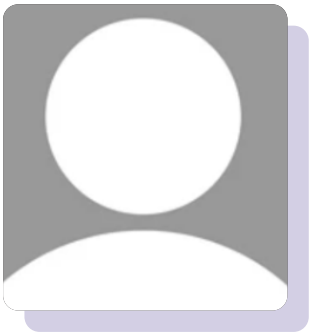
Sanabil Ahsan
Warwick Medical School, Australia

The Role of Circular RNAs (circRNAs) as a Prognostic Factor in Lung Cancer: A Meta-Analysis

Background: Lung cancer remains the leading cause of cancer-related mortality worldwide, with non-small cell lung cancer (NSCLC) accounting for over 80% of cases. Circular RNAs (circRNAs), a class of non-coding RNAs, are increasingly recognized for their roles in tumorigenesis and cancer progression across various malignancies, including lung cancer. This meta-analysis aimed to systematically evaluate the prognostic significance of circRNAs in lung cancer.
Methods: A systematic search was conducted in PubMed, Embase, and MEDLINE databases to identify studies reporting the association between circRNA expression and overall survival (OS) or disease-free survival (DFS) in histologically confirmed lung cancer patients. Pooled hazard ratios (HRs) and 95% confidence intervals (CIs) were calculated to assess prognostic impact.
Results: A total of 43 studies were included in the meta-analysis, encompassing 39 distinct circRNAs. Of these, 28 circRNAs were upregulated and 11 were downregulated in lung cancer. High expression of upregulated circRNAs was significantly associated with poorer OS (HR 1.93; 95% CI 1.61–2.33; $p < 0.00001$). In contrast, high expression of downregulated circRNAs correlated with improved OS (HR 0.73; 95% CI 0.58–0.94; $p = 0.01$). No statistically significant association was found between circRNA expression and DFS (HR 1.44; 95% CI 0.92–2.24; $p = 0.11$).
Conclusions: This meta-analysis highlights the pivotal role of circRNAs as prognostic biomarkers in lung cancer, particularly NSCLC. Elevated expression of upregulated circRNAs is linked to worse prognosis, whereas increased expression of downregulated circRNAs predicts favorable outcomes. Targeting circRNAs with downregulatory actions may represent a promising therapeutic strategy in the management of lung cancer.

Biography
I'm a final-year medical student at Warwick Medical School with roots in Australia and clinical experience spanning the UK and Malaysia. Having moved across countries to pursue medicine, I've developed not only resilience and adaptability but also a deep appreciation for culturally sensitive, patient-centered care. My medical journey has been enriched by leadership roles in student societies, volunteering with diverse communities, and running a successful online business — all of which have shaped me into a highly organized, empathetic, and driven future doctor. I'm passionate about general practice, health equity, and empowering underserved populations through accessible, preventive care. I'm particularly inspired by

the intersection of medicine, community, and education — whether it's teaching, advocating for mental well-being, or organizing events that connect students with career pathways across the globe. With graduation approaching, I'm eager to bring my experiences back home to Australia and contribute meaningfully to the healthcare system — as a clinician, a collaborator, and a lifelong learner.



Yuanyuan Wang
National Clinical Research Centre for Obstetrical and Gynecological Diseases, Peking University Third Hospital, Beijing, China

The Prevalence of Intimate Partner Violence Against Women Diagnosed with Infertility in China: A National Cross-Sectional Study

Background: Intimate partner violence (IPV) and infertility are significant global health concerns on women's health and rights. In a patriarchal society, a woman's value is unfairly defined by motherhood. Evidence has shown that infertile women face a higher risk of IPV, yet high-quality data on its prevalence among this population remains limited. This study aims to quantify the prevalence of IPV against infertile women in China and identify associated risk factors.
Methods: A national cross-sectional study was conducted in China from October 2021 to August 2022, utilizing a multistage stratified cluster sampling design. Infertile women were recruited from 30 reproductive centers across ten provinces. A self-administered questionnaire, including the Revised Conflict Tactics Scale (CTS-2) and the Scale of Economic Abuse-12 (SEA-12), measured IPV in the past 12 months and over a lifetime. A structural equation model (SEM) explored risk factors for past 12-month IPV victimization.
Findings: A total of 12,392 infertile women were included. The weighted 12-month prevalence of IPV against infertile women was 34.1% (95% CI: 33.2–34.9), and lifetime prevalence was 44.2% (95% CI: 43.3–45.1). The SEM analysis identified female-factor infertility (standardized coefficient: standardized coefficient: 0.0473, p=0.0118) and ever-experienced infertility treatment failure (0.0774, p<0.0001) as direct drivers of 12-month IPV victimization. Other factors included the participant's unstable employment (0.0442, p=0.0059), non-nuclear family structure (0.0479, p=0.0130), and the current male partner's adverse behaviours (0.5470, p<0.0001).
Interpretation: Globally, this is the first national-level study to examine IPV against infertile women, revealing a high prevalence rate in China. The findings underscored the need for gender-transformative interventions and improved access to infertility care to reduce the dual burden of IPV and infertility.

Biography
Yuanyuan Wang is a researcher affiliated with the National Clinical Research Center for Obstetrical and Gynecological Diseases at Peking University Third Hospital in Beijing, China. She works within the Ministry of Education Key Laboratory of Assisted Reproduction and the Center for Reproductive Medicine, part of the hospital's Department of Obstetrics and Gynecology. Her work focuses on advancing reproductive health through clinical research and innovation in assisted reproductive technologies, contributing to the development of evidence-based practices in obstetrics and gynecology both nationally and internationally.

Ewa Danuta Bialek
Institute of Psychosynthesis, Warsaw, Poland

Preventive Medicine vs Self-Education. Lifelong Health Education in The System of Medicine for Years

Being in my late senior years and having over 55 years of professional experience, first in science-immunology and clinical diagnosis (25 years), and then 30 years in practicing psychosynthesis (psychology with the soul), I have also come full circle into the realm of pedagogy, passionate about creating "a model of education for the future", so that years later we won't need therapy. The inspiration for this work came from my earliest childhood, marked by traumatic experiences because of my father's arrest as a political prisoner in communist Poland and his torture in some of the toughest prisons, and the surveillance of my family for almost 10 years. Not only did my father pay for it with his health (he died in a few years), but also my mother and brother. I was 2 years old then.

Using my example, life showed me how the lack of proper psychological support for a child results in "diseases of unknown etiology", treated as symptoms without effect and transforming into another chronic nature, not subject to the applied treatment by many specialists. I viewed my problems in two ways: as a patient (starting with pediatricians) and as a scientist-practitioner (also on myself) of the application of lifelong education programs that I created.

I transformed my dramatic childhood experiences into a passion for research and discovery by creating programs to support the development of children in families, kindergartens, and schools at all stages of their education. They have become the subjects of my self-education manuals, evaluations by teachers and students ("Health Education in Practice"), as well as a published academic book: "The University of Integrated Education."

In my presentation, I will outline the principles of my model as a canvas for the theme of "Medicine for the ages," incorporating aspects of preventive medicine and the creation of an integrated health support system.

Biography

Dr. Ewa Danuta Bialek, a lifelong scientist in medicine, completed postgraduate studies in psychology and several courses in Psychosynthesis. In 1997, she founded the Association "Education for the Future" and in 2004, the Institute of Psychosynthesis in Warsaw, Poland. She has written 52 books and over 60 scientific articles. She dedicates herself to educating people about well-being and creating thorough methods that cater to the necessity for health education and well-being across all stages of life. She described its practical execution, such as running her original programs, which were highly rated by students who consulted her, both in her manuals and books. Now she is retired.

Zhiyin Xu*[1], Zhaowen Zhang[1], Dongli Xu[1], Jingjing Li[2], Mei Zeng[2,3]
[1]Department of Infectious Diseases Control and Prevention, Minhang District Center for Disease Control and Prevention, Shanghai, China
[2]Department of Infectious Diseases, National Children's Medical Center, Children's Hospital of Fudan University, Shanghai, China
[3]School of Public Health, Key Laboratory of Public Health Safety, Ministry of Education, Fudan University, Shanghai, China

Dynamic Epidemiological Changes of Hand, Foot, and Mouth Disease and Real-World Effectiveness of Ev71 Vaccination: A Case Study in Shanghai (2009-2023)

Background: A significant reduction in hand-foot-mouth disease (HFMD) cases has occurred nationally since the EV71 vaccine was licensed for use in China in 2016.
Objective: To evaluate the effectiveness of EV71 vaccination against HFMD by analyzing the dynamic epidemiological and virological trends before and after its introduction in Minhang District, Shanghai.
Methods: HFMD data from 2009 to 2023 were extracted from the National Notifiable Disease and Virological Surveillance System in Minhang District, Shanghai. EV71 vaccination data were retrieved from the Shanghai Immunization Platform Information System. Epidemiological trends and virological characteristics were compared before and after EV71 vaccine introduction over a 15-year period (2009-2023). A test-negative case-control design was implemented to estimate vaccine effectiveness (VE) against HFMD across seven epidemic seasons (2017-2023).
Results: A total of 73,160 HFMD cases, 361 severe cases, and 3 deaths were reported during 2009-2023. Following EV71 vaccine introduction, significant declines occurred in the HFMD incidence rate (53.1%), case-severity rate (95.2%), and fatality rate (100.0%). The proportion of cases in the 6-10-year age group increased by 105.7%. The predominance of EV71 and CA16 serotypes was replaced by CA6 and CA10 in the post-2017 period. Full-dose immunization coverage remained above 60% during 2019-2023. The overall VE against EV71-associated HFMD was 90.0% (95% CI: 74.8 to 96.0) for the two-dose series and 66.9% (95% CI: -0.7 to 89.1) for one-dose vaccination. For two-dose vaccination, VE was 91.9% against EV71-associated outpatient visits, 87.7% against non-severe hospitalization, and 100% against severe complications. No significant association was observed between EV71 vaccination status and non-EV71-related illnesses.
Conclusion: HFMD incidence declined substantially following the introduction of EV71 vaccination in Shanghai. Two-dose EV71 vaccination provided effective protection against EV71-associated HFMD. The observed serotype replacement and predominance of non-EV71 pathogens underscores the need for multivalent vaccine development to control HFMD epidemics.

Biography

Zhiyin Xu has his expertise in evaluation and passion in improving the health and wellbeing. He has been committed to the prevention and control of infectious diseases of children in Shanghai for 15 years, undertaking multiple national, municipal, and district-level key infectious disease prevention and control projects, and participating in research for projects funded by the National Natural Science Foundation of China. His major scholarly background focuses on assessing the epidemiological characteristics, risk factors, disease burden, vaccine efficacy evaluation, and disinfection effectiveness assessment of infectious diseases among children in Shanghai, China. His research encompasses HFMD, enteric infectious diseases, COVID-19, zoonotic diseases, etc.

Mehmet Erkan Üstün*, Efecan Cekic, Mehmet Besir Surme, Fatih Akbulut, Rustem Ozturk, Iskender Samet Daltaban
Hacettepe University, Turkey

Title-1: Secondary Benefits of Microsurgical Intervention on the Vertebral Artery (V1 Segment) Q2 for Refractory Vertebrobasilar Insufficiency: Alleviation of Parkinsonism-Like Symptoms

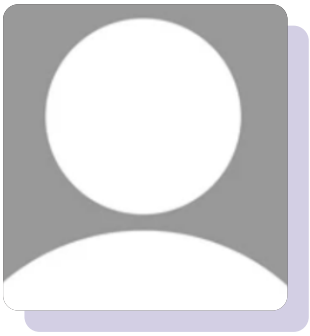
Objective: The objective of this study was to investigate the outcomes of micro neurosurgical interventions on the V1 segment of the vertebral artery in patients with refractory vertebrobasilar insufficiency (VBI) due to Dolic arteriopathy and external compressions, and to assess the secondary benefits of Parkinsonism-like symptoms.
Methods: Retrospective analysis encompassed 101 patients treated for vertebral artery Dolic arteriopathy or compression-related refractory VBI from 2016 to 2023. Of these, 16 patients exhibited drug-resistant Parkinsonism-like symptoms. The diagnostic evaluation included cerebral computed tomography/magnetic resonance angiography or digital subtraction angiography, as well as brain computed tomography or magnetic resonance perfusion studies, corroborated by preoperative and 6- and 12-month postoperative Movement Disorder Society-Unified Parkinson's Disease Rating Scale Part 3 assessments. Data were analyzed using Turkey's "E-nabız" system, with Stata 16 employed for statistical scrutiny.
Results: A significant reduction in Movement Disorder Society-Unified Parkinson's Disease Rating Scale scores was observed (preoperative: 26.75 10.91; 6 months: 23.09 9.24; 12 months: 22.5 8.73; $P < 0.001$). Postoperative follow-up denoted that 43.7% of patients ceased medication, and 50% reduced antiparkinsonian drugs. The micro-neurosurgical approach resulted in complete remission of VBI-related symptoms in 84.6% of patients, with the remainder showing partial or marked improvement. At 6 months post-operation, perfusion studies revealed posterior border zone or cerebellar perfusion enhancements in 81% (13 out of 16) of patients, with full symptom resolution. In contrast, the remaining 19% (3 out of 16) showed partial perfusion and clinical improvements, particularly in regions supplied by the posterior cerebellar artery or posterior inferior cerebellar artery. The absence of operative mortality and minimal transient morbidities underscored the procedure's safety.
Conclusions: Micro neurosurgery for vertebral artery anomalies in refractory VBI patients, particularly those with concomitant Parkinsonian-like syndromes, has demonstrated potential in symptom remission and medication reduction.

Title-2: Complementary Advantages of Microsurgical Treatment for Vertebral Artery Dolic arteriopathies: Mitigating Symptoms of Restless Leg Syndrome in Refractory Vertebrobasilar Insufficiency

Objective: This retrospective study examines the impact of microsurgical treatment on vertebral artery (VA) Dolic arteriopathies and associated restless leg syndrome (RLS) in patients with refractory vertebrobasilar insufficiency (VBI). Patients and Methods: We analyzed 78 patients with grade 2 and 3 kinks, and found out that the targeted microsurgical interventions, primarily designed to address VBI, improved secondary RLS symptoms in 12 patients. Procedures included arteriolysis and, depending on severity, grafting. Statistical analysis was conducted using Stata 16 (Stata Corp LP, Texas, USA).
Results: In twelve patients aged 55 to 72 years with refractory VBI and drug-resistant RLS, micro-neurosurgical correction of V1 segment Dolic arteriopathy, abnormal elongation, and kinks in the artery demonstrated promising outcomes. Postoperatively, 83.33% (10 patients) reported complete resolution of RLS symptoms, and 16.66% (2 patients) experienced partial symptom relief ($p<0.05$).
Overall, 86.8% of various VBI-related symptoms were significantly improved or resolved ($p<0.05$). The microsurgical technique, avoiding traditional flow-arresting procedures, proved to be highly effective in this preliminary study with no mortality and minimal temporary complications, underscoring its potential treatment avenue for such complex neurovascular conditions.
Conclusion: This study sheds light on the relationship between VBI and RLS, proposes a potential vascular etiology for RLS, and underscores the need for a more comprehensive diagnostic approach for patients with refractory VBI.

Biography

Completing my medical education at Hacettepe University, School of Medicine in 1986, I began my career in the field of Neurosurgery at Ankara University's Avicenna Hospital and completed it in 1992. At this hospital, I had the opportunity to work with renowned masters of functional neurosurgery, from whom I learned a great deal. In 2009, I received the title of Professor in Neurosurgery, and in 2011, I completed my doctoral education in the field of Anatomy, earning the title of PhD. In addition to standard neurosurgical procedures, I also perform functional neurosurgical operations, where the primary goal of the surgery is to restore lost or damaged function.



Mahsa Babaei*[1,2], Soheila Kashanian[3,4], Sasan Abbasi Majd[5], Elahe Mahdavian[6]
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[2]Department of Biology, Faculty of Science, Razi University, Kermanshah, Iran
[3]Faculty of Chemistry, Sensor and Biosensor Research Center (SBRC), Razi University, Kermanshah, Iran
[4]Nanobiotechnology Department, Faculty of Innovative Science and Technology, Razi University, Kermanshah, Iran
[5]Faculty of Chemistry, Razi University, Kermanshah, Iran
[6]Department of Chemistry and Physics, Louisiana State University in Shreveport, Shreveport, LA, USA

Decoding the Binding Mechanisms of Fusaro chromanone with DNA and Human Serum Albumin

Drugs are mainly transported to target tissues by plasma proteins, such as human serum albumin (HSA) and transferrin. HSA, the most abundant protein in plasma, is a critical carrier for drugs, dyes, and ions, making drug–HSA interaction analysis a priority in pharmacology. In addition, many anticancer drugs exert biological activity through DNA binding. This study investigated the interaction of Fusaro chromanone (FC101g), a potent anticancer mycotoxin, with two key biomacromolecules—DNA and HSA—using a combination of experimental spectroscopic methods and molecular docking. UV-Vis spectroscopy showed a hypochromic effect for DNA with a slight wavelength shift, indicating groove binding, and a drop in HSA absorption suggested changes in HSA's structure upon drug binding. Fluorescence spectroscopy revealed static quenching for both DNA and HSA. The interaction with DNA mainly involved van der Waals and hydrogen bonds, while the binding to HSA was mostly due to hydrophobic bonds. Thermodynamic analysis confirmed that binding occurs spontaneously, with different contributions of enthalpy and entropy for each biomolecule. Competitive fluorescence tests with Hoechst 33258 confirmed that FC101g prefers the DNA minor groove. Competition assays with warfarin and ibuprofen identified the IA/IB subdomain (Sudlow's site I) as the HSA binding site. CD spectroscopy showed minor structural changes in DNA, further supporting groove binding, and there were conformational changes in HSA that suggested an increase in α-helical content. Viscosity measurements showed little change in DNA length, again supporting groove binding. Molecular docking backed up these results, placing FC101g in the DNA minor groove and in the hydrophobic regions of HSA.

Overall, the combined spectroscopic and computational methods demonstrated that FC101g binds to DNA through the minor groove via van der Waals and hydrogen bonds, and to HSA through hydrophobic interactions at Sudlow's site I. These findings enhance our understanding of how FC101g binds, which could inform strategies for drug delivery and the design of anticancer drugs.

Biography

Mahsa Babaei, Ph.D. is an accomplished biochemist and faculty member at Arak University, Iran. She earned her Ph.D. in Biochemistry from Razi University, focusing on redox-sensitive chitosan-based nanoparticles for targeted doxorubicin delivery in breast cancer therapy. Dr. Babaei has published extensively in international journals on nanomedicine, protein interactions, and biosensing technologies. She has led multiple research projects, contributed as a reviewer for international journals, and conducted numerous workshops on drug delivery systems, molecular docking, and nanotechnology applications. Her work bridges innovative pharmaceutical research and translational therapeutics, advancing targeted drug development and precision medicine.

Ganesh Panditrao Lahane*, Arti Dhar
Department of Pharmacy, Birla Institute of Technology and Sciences (BITS) Pilani, Hyderabad Campus, Jawahar Nagar, Shameerpet, Hyderabad, Telangana, India

Nesfatin-1 Protects Calcium Oxalate-Induced Nephrolithiasis: Insights from In Vivo And In Vitro Models

Introduction: Nephrolithiasis is a common and recurrent urological disorder worldwide, characterized by oxidative stress, inflammation, apoptosis, and fibrosis. The PKCα/NADPH oxidase pathway is a significant contributor to oxidative stress and inflammation in renal cells, promoting stone formation. Nesfatin-1, a bioactive peptide, is known for its antioxidant, anti-inflammatory, and antifibrotic effects. Despite these properties, its role in nephrolithiasis has not been investigated. Thus, the present study aimed to explore the protective effects and underlying mechanisms of nesfatin-1 in a glyoxylate-induced nephrolithiasis mouse model and calcium oxalate monohydrate (COM)-induced injury in renal epithelial cells.
Methods: Mouse model of nephrolithiasis was established via intraperitoneal injection of glyoxylate, while renal cells were stimulated with COM in vitro. Post-treatment with nesfatin-1 was administered, and nephrolithiasis was assessed by analyzing renal function, histopathology, oxidative stress, inflammation, apoptosis, and fibrosis. The involvement of PKCα and NADPH oxidase pathways were investigated using confocal microscopy, western blotting, and RT-PCR in cultured NRK-52E cells.
Results: Nephrolithiasis was confirmed by Pizzolato staining, shows increased CaOx stone deposition in the kidneys. Also, mice showed reduced nesfatin-1 expression and elevated markers of kidney damage, such as increased blood urea nitrogen, serum creatinine, histological abnormalities, ROS, inflammation, apoptosis, and fibrosis. Nesfatin-1 significantly ameliorated these changes in both the mouse model and COM-exposed renal cells by reducing MDA and enhancing SOD, CAT, and GPx levels. Nesfatin-1 also reduced F4/80-positive macrophage infiltration and MCP-1 expression in kidneys, and decreased the expression of Caspase-3, Bax, TGF-β, Smad2/3,4, and type IV collagen. Mechanistically, nesfatin-1 inhibited COM-induced PKCα/NADPH oxidase pathway in NRK-52E cells.
Conclusion: Nesfatin-1 protects against kidney stone formation and tubular injury by suppressing oxidative stress via the PKCα/NADPH oxidase pathway. The findings suggest that nesfatin-1 could serve as a potential therapeutic agent for the treatment of nephrolithiasis.

Biography

Ganesh is a final-year PhD scholar at BITS-Pilani, Hyderabad Campus, India, working under the supervision of Prof. Arti Dhar in the Department of Pharmacy. His research focuses on investigating the functional role and therapeutic potential of peptides in chronic kidney disease. He has authored several research and review articles in peer-reviewed journals, contributing to advancements in nephrology and peptide-based therapeutics. His expertise includes in vitro and in vivo models for studying renal pathophysiology, molecular mechanisms of kidney diseases, and targeted peptide therapeutics. Ganesh is passionate about translational research and aims to bridge the gap between basic science and clinical applications in renal disorders.

Donales Rehema Kapira*[1], Peter Nambala[1], Janelisa Musaya[1], Driftone Zgambo[2], Fredrick Jumah[3]
[1]Malawi Liverpool Wellcome Programme, Blantyre, Malawi
[2]Nkhotakota District Hospital, Malawi
[3]Rumphi District Hospital, Malawi

Maternal Health and Rhodesiense Human African Trypanosomiasis: Case Series from Malawi

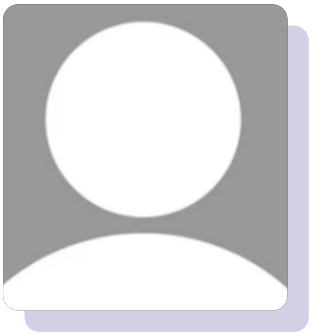
This study explored maternal and fetal outcomes associated with Rhodesiense Human African Trypanosomiasis (rHAT) during pregnancy in Rumphi and Nkhotakota districts, Malawi. A retrospective review of 409 medical records was conducted, complemented by interviews with affected individuals. Data sources included surveillance reports, maternal health files, and inpatient notes.

Three pregnancy-associated rHAT cases were identified. The first involved a 27-year-old woman in her fourth pregnancy who developed progressive symptoms at six months' gestation. She was initially misdiagnosed and delivered a stillborn baby; rHAT was confirmed a day after the delivery. The second case was a 24-year-old woman in her third
pregnancy, diagnosed with rHAT at eight weeks after presenting with fever and body aches. She later delivered a live baby who experienced recurrent illnesses and poor growth in early childhood. The third case involved a 20-year-old first-time mother who presented during the third trimester with vomiting, weakness, frequent urination, and anemia. She received Fexinidazole treatment and delivered a live baby who experienced recurrent illness in early infancy.

These cases illustrate the serious risks posed by rHAT during pregnancy, including stillbirth and adverse early childhood health outcomes. Delayed diagnosis, non-specific symptom presentation, and inadequate clinical documentation highlight critical gaps in healthcare access and surveillance for vulnerable populations. The findings underscore the need to strengthen antenatal screening programs, improve health data management, and expand access to diagnostics to better protect maternal and child health in rHAT-endemic regions.

Biography

Donales Rehema Kapira is an early-career researcher passionate about maternal and child health in the context of neglected tropical diseases (NTDs). She previously worked as a Laboratory Technician at the Malawi Liverpool Wellcome Programme before receiving a £ 16,996 pre-master's fellowship in 2023 to investigate anemia associated with hybrid schistosomiasis in southern Malawi. In 2024, she received an RSTMH Early Career Grant to examine the impact of rhodesiense Human African Trypanosomiasis during pregnancy. Her work focuses on integrating diagnostic tools into maternal care and advocating for health equity among underserved populations.



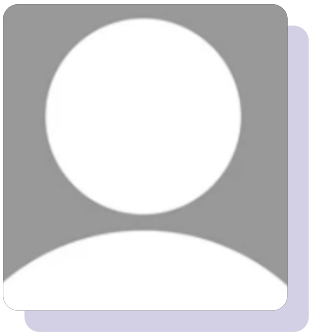
Sangeeta
Delaware State University, USA

First-Time Exploration of Characteristics and Health Status of Adult Caregivers

Background: Exploration of issues surrounding informal caregiving is critical for targeted interventions. The objective of this study was to examine the characteristics of caregivers and compare them with those of non-caregivers as regards health status.
Methods: We used the Behavioral Risk Factor Surveillance System population-based data for the year 2021 (N = 3,640) to explore, for the first time, characteristics of Delaware caregivers. Data were weighted on the basis of population estimates, accounting for the complex sampling methodology.
Results: 18.5% (95% CI, 16.7%-20.4%) of respondents were caregivers. They were significantly more likely to be above 50 years, female, white, with higher income and health insurance. 34% were providing care for a parent, and 22% cared for a spouse. The most common care recipient diagnoses reported were Alzheimer's disease (13%), followed by cancer and heart disease. Significantly more caregivers reported poor health status.
Conclusions: Caregiving is a significant public health issue. Delaware is one of the fastest aging states and caregiving trends are projected to increase. Understanding the characteristics can help enhance strategies that support caregiving role, in turn improving the ability of recipients to experience an improved quality of life.
Main messages:
1.Caregiving burden will increase as the population ages.
2.Critical to understand caregiving characteristics to facilitate and inform strategies such as evidence-based programs for caregivers.

Biography
Sangeeta Gupta, MD MPH is Associate Professor of Public Health at Delaware State University. Prior to joining academia, Dr. Gupta has served as a senior chronic disease epidemiologist in health departments. Dr. Gupta has been the Principal Investigator and co-investigator for projects funded by the Centers for Disease Control and Prevention (CDC) related to cancer, tick-borne diseases, HIV and Coordinated Chronic Disease Prevention and Health Promotion Program. She is interested in applying epidemiologic methods to address the influences of socioeconomic and place-based factors on chronic diseases. Her interest is in applying epidemiologic methods to address health disparities and inequities through analyzing

and addressing social determinants of health. Dr. Gupta has experience in coordinating and conducting surveillance studies, program evaluations in low and middle income countries. Recent research includes work on the role of health literacy in managing the dual burden of infectious diseases and non communicable diseases (NCDs) in Ghana and Uganda. Dr. Gupta serves on several national committees and organizations including Council of State and Territorial Epidemiologists (CSTE), American Public Health Association (APHA) and National Association of Chronic Disease Directors (NACDD).



Krati Chauhan
The University of Vermont Medical Center, USA

Effect of Hypertension and Diabetes on Prevalence of Inflammatory and Infectious Eye Diseases

Introduction: Inflammatory and infectious eye diseases (IIMED) are an important cause of visual impairment in people >65 years of age. Hypertension (HTN) and diabetes mellitus (DM) are common comorbidities in this age group. What impact HTN and DM have on (IIMED) in this age group is not known. Our study examines the effect of HTN and DM on (IIMED) using Medicare data.
Methods: We have used Medicare data through the Vision and Eye Health Surveillance System (VEHSS). Medicare is a federally funded insurance program in the United States that primarily enrolls individuals > 65 years. VEHSS uses ICD-9 and 10 codes to identify eye diseases and organizes them into two levels: category and subgroup. Each ICD code is assigned to a single subgroup, and these subgroups are combined to form a category. We collected data on age, gender, race, and presence of IIMED, HTN, and DM from 2014 to 2019. We identified the prevalence of IIMED in the presence of HTN and DM, stratifying by gender and race.
Results: Medicare beneficiaries with DM and HTN have a higher prevalence of IIMED for males and females and for all races from 2014 to 2019. Prevalence of IIMED is higher in patients with HTN as compared to DM for males and females and for all races. Prevalence of IIMED is highest in Asians, followed by Hispanics, and is higher in females. Prevalence has increased from 2014 to 2019 for males and females and for all the races except for Asians, where the prevalence has remained stable.
Conclusion: Prevalence of inflammatory and infectious eye diseases is higher in Medicare patients with HTN and DM. Further research would provide information on the reasons behind these findings.

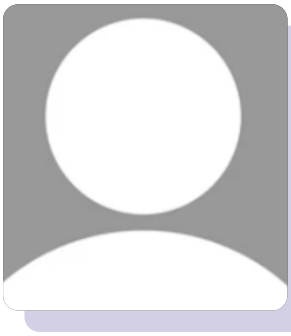
Biography
Dr. Krati Chauhan, MD, MPH, is a board-certified rheumatologist and Associate Professor at The University of Vermont Medical Center. She earned her Doctor of Medicine degree from the prestigious All-India Institute of Medical Sciences (AIIMS) in India. Dr. Chauhan completed her residency in Internal Medicine at Creighton University and went on to pursue a fellowship in Rheumatology at the renowned Mayo Clinic. She holds board certifications from the American Board of Internal Medicine in both Internal Medicine and Rheumatology. In addition to her clinical work, Dr. Chauhan is actively involved in medical education and research, contributing to advancements in rheumatologic care and training the next generation of physicians.

Paul Andrew Bourne
Northern Caribbean University (NCU), Mandeville, Manchester, Jamaica, WI

Social Isolation during the Coronavirus Disease 2019 (COVID-19) Pandemic and its Influence on the Sexual Transmitted Infections (STIs) Screening Habits and Status of Jamaicans

Introduction: The current COVID-19 pandemic has shifted the focus of health promotion and health education strategies of healthcare policymakers from primary healthcare programmes to COVID-19 prevention and mitigation. This research was conducted to determine whether social isolation influences the Sexually Transmitted Infections (STIs) screening habits of Jamaicans during the COVID-19 Pandemic.
Objectives 1. To examine the relationship between social isolation due to the COVID-19 Pandemic and the Sexually Transmitted Infections screening rates of Jamaicans. 2. To know if Jamaicans are at risk for Sexually Transmitted Infections (STIs) transmission during the COVID-19 Pandemic.
Methods and **Materials:** An online cross-sectional survey was used to evaluate the influence of social isolation due to COVID-19 on Sexual Transmitted Infections (STIs) screening rates of Jamaicans 458 respondents participated in the online survey who were selected randomly with ages ranging from 18 years of age to greater than 65 years of age. The data was entered into the IBM SPSS software for statistical analysis, including descriptive statistics, correlations, cross-tabulation, and chi-square testing.
Findings: At a class interval of 95% using a two-tailed significance, there is a correlation between sexual activity and condom use. As sexual activity increases(r=1), the use of condoms decreases(r=-509). Most sample respondents (55.90%) choose to practice social isolation, 37.12% choose to do so sometimes, and 6.9% decide not to do So.
Conclusion: There is a weak relationship between social isolation and STI testing, as evidenced by people stating that they are still getting screened even though they are in isolation.

Biography
Dr. Paul Andrew Bourne is a multi-talented individual with expertise in research, social epidemiology, health demography, applied statistics, leadership, public affairs commentary, and public speaking. He has published over 300 scholarly papers, including a study on domestic violence against Jamaican women during the COVID-19 pandemic, which is hosted on the World Health Organization website. He has attended numerous conferences and actively participated in community activities and media presentations. In 2019, he received recognition for an outstanding poster presentation at the Ministry of Health and Wellness Annual National Health Research Conference. Dr. Bourne is a member of prestigious organisations, including the SAS Eminent Fellow Membership, the Scholars Academic and Scientific Society, and the Jamaica Statistical Society. He served as the Director of Institutional Research and Honours Society Coordinator at Northern Caribbean University. Currently, Dr Bourne is the managing director at Socio-Mecdical Research Institute.

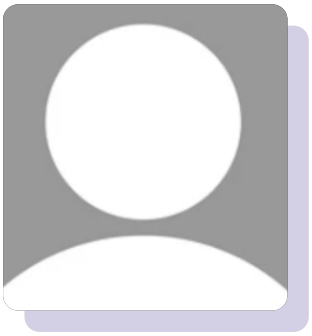


Aweke Mulu Belachew*[1,2], Haizhou Li[1,2], Xirong Tian[1,2], Tianyu Zhang[1,2,3] , Zhiyong Liu[1,2]
[1]State Key Laboratory of Respiratory Disease, Guangdong-Hong Kong-Macao Joint Laboratory of Respiratory Infectious Diseases, China-New Zealand Joint Laboratory on Biomedicine and Health, Guangzhou Institutes of Biomedicine and Health (GIBH), Chinese Academy of Sciences (CAS), Guangzhou, China
[2]University of Chinese Academy of Sciences (UCAS), Beijing, China
[3]State Key Laboratory of Respiratory Disease, Guangzhou Chest Hospital, Guangzhou, China

Virtual Screening and Identification of Hit Molecules as Promising zinc-independent NADH pyrophosphatase Inhibitors against Mycobacterium abscessus

Mycobacterium abscessus is among the most frequently isolated species in nontuberculous mycobacterial infections and is notoriously challenging to eliminate. To date, there is no universally established treatment regimen proven to be consistently effective against M. abscessus. To accelerate anti-tuberculosis drug discovery, the computational screening has emerged as an attractive and efficient strategy for identifying new therapeutic options against tuberculosis. Our screening approach leverages machine learning in combination with molecular docking using AutoDock and molecular dynamics simulations, and has been previously applied to Mycobacterium tuberculosis. We identified three novel compounds—Izumiphenazines, Hodgkinsine, and Phenazine, 1, 1’-ethylenebis [2-amino]—with strong predicted interaction with M. abscessus NADH pyrophosphatases (NudC). Structural clustering analysis and ADMET-profiling suggest favourable drug-like properties. Docking and molecular dynamics simulations revealed plausible binding modes and mechanisms of action. These findings underscore the potential of computational hit screening to accelerate therapeutic discovery against M. abscessus. They also provide valuable insights for developing and optimizing NudC inhibitors targeting drug-resistant mutations.

Biography
I am a PhD student from Ethiopia, currently pursuing my doctoral studies in Biochemistry and Molecular Biology at the Guangzhou Institutes of Biomedicine and Health (GIBH), under the Chinese Academy of Sciences (CAS). My research focuses on drug discovery for infectious diseases, aiming to identify and develop novel therapeutic agents to combat global health threats. With a strong academic foundation and a passion for biomedical innovation, I am dedicated to advancing scientific understanding and contributing to improved public health outcomes. My long-term goal is to bridge global research efforts and support disease treatment strategies, particularly in resource-limited settings.



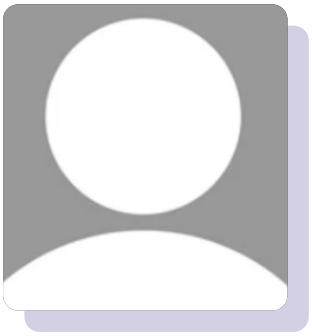
Dennis Amaechi*, Ini. P. Ekpe, Yisa B.N Obidigwe, Emmanuellamary Mmesoma, Akpan, Edidiong Benedict
Department of Biochemistry/Medical Biochemistry, Veritas University, Abuja

Phytochemical Profiling(GC-MS) and Hematological modulating effects of Ethanol Leave Extract of Eucalyptus Camaldulensis in Wistar rats

Background: The extract of the leaves of E. camaldulensis has been used for centuries in traditional medicine, its leaves and essential oils have found various application in everyday life due to their antiseptic, anti-inflammatory and antipyretic properties.
Aim: This study evaluates phytochemical profiling(GC-MS) and the effect of ethanol leaf extract of E. camaldulensis on some hematology parameters (white blood cell, red blood cell, MCV, hemoglobin, PCV mean cell hemoglobin concentration, mean corpuscular hemoglobin, red blood cell distribution, platelets) of wistar rats.
Methods: forty-two Wistar rats weighing 100g-280g were randomly divided into six groups, with seven rats per group. Normal control was administered (orally) distilled water, DMSO and feed, group A to F was administered (orally) 150mg/kg body weight, 250mg/kg body weight, 350mg/kg body weight, 450mg/kg body weight and 550mg/kg body weight. Extraction of the plant was done using 90% ethanol and Soxhlet apparatus. All biochemical analysis were carried out using standard laboratory techniques. This experiment lasted for 21 days.
Results: The findings demonstrated that the E. camaldulensis extract significantly altered the packed cell volume (PCV) of the administered groups in comparison to the normal control group at a significance level of ($P < 0.05$). In contrast to the control group, the administered group's white blood cell count (WBC) did not significantly rise ($P < 0.05$). Phytochemical screening revealed the presence of alkaloids, saponins, terpenoids, catecholic tannins, carbohydrates, glycosides, fats, and oils in E. camaldulensis leaf extract. The plant extract's GC-MS examination revealed that it contains compounds like 1H Cycloprop[e]azulene, decahydro, 1,2 Benzenedicarboxylicacid,mono, 9 Octadecenoicacid,methylester, 7-Hexadecenal,(Z)-, 1,2-Benzenedicarboxylic acid,2-eth etc
Conclusion: E. camaldulensis contains phytochemicals that may be utilized as pharmacological probes, and it also increases blood volume, potentially making it a suitable treatment for anaemia in patients.

Biography

Dennis Amaechi Wesley is a Lecturer in the Department of Biochemistry,Faculty of Natural and Applied Sciences, Veritas University, Abuja. He is a Clinical Biochemist and a Medical Research Scientist who holds a B.Sc degree in Biochemistry from Lagos State University(LASU), M.Sc in Clinical Biochemistry from University of Calabar and Ph.D in Clinical Biochemistry. He belong to several professional bodies including the Society of Toxicology(SOT) USA and the Nigerian Society of Biochemistry and Molecular Biology(NSBMB).Dennis is an entrepreneur and holds a certificate from the University of Bocconi, Milano. He is a peer reviewer to some international journals and has published articles in his area of specialization in a number of scientific journals.



Samia Abd elhamid Elzwi
University of Benghazi, Libyan Arab Jamahiriya, Libya

Differences between Factors Affecting Vitamin D in Diabetic Patients in Benghazi

Vitamin D is a steroid hormone that is ingested through food, but the majority of it is produced in the skin or diet and transformed by the liver into 25 (OH) vitamin D and the kidney into 1.25 dihydroxyvitamin D the (active metabolite) that is responsible for intestinal absorption of calcium and bone mineralization. In addition to rickets and osteomalacia, autoimmune diseases have also been linked to low vitamin D level. Diabetes mellitus is common disease in low and middle-income countries and has been growing at faster rate. Besides, link between diabetes and vitamin D has been showed as results of many studies. However, vitamin D is a widely known for its role in improving pancreatic cell function and insulin sensitivity, its mechanism is especially via the promotion of the expression of insulin receptors and enabling peroxisome proliferator –a activated response-δ which promotes glucose uptake in peripheral tissues, almost like antidiabetic drug pioglitazone mechanism of action.

Biography

Samia Elzwi medical doctor graduated from university of Benghazi, Libya. Her date of birth is 16-1-1977. Aim graduated as medical doctor from university of Benghazi. She is working as general practitioner for 4 years then join pharmacology department as post graduate student. In post graduate study we taking first part pharmacology (general pharmacology, physiology and biochemistry, for 1 year. In second part we taking advance (CVS, CNS, Gene) for 1 year. In research part, we study effect of zingiber officinale extract on some pharmacology parameter in rodents. Her interest is in neuropharmacology and new drug discovery.

Dharmendra Kumar*,Pramod Kumar Sharma
Sanskaram college of Pharmacy, Sanskaram University, Jhajjar, Haryana, India

Quercetin-Loaded Banana Starch Nanoparticles: A Novel Anti-Cancer Delivery System

Nowadays, polymeric nanoparticles are one of the most chosen drug delivery systems for the treatment of life-threatening diseases such as cancer. Drug loading, drug entrapment, and drug release have been the challenges in nanoformulations till now. Various researchers are working to improve these limitations. Evaluation of drug loading, entrapment, size release, and activity of prepared starch nanoparticles. In the present study, starch was isolated from a novel source, i.e., unripe banana fruit. Banana starch contains amylose and amylopectin in a certain ratio (26-28:72-74). Banana starch was selected as polymer due its unique composition and function Such as amylose is a straight- chain polymer of D-glucose linked by 1-4 glycosidic bonds, while amylopectin is a branched-chain polymer of D-glucose linked by α-1,4 glycosidic bonds and α-1,6 glycosidic bonds. These structural differences impart unique drug release properties: amylose facilitates immediate release, while amylopectin provides sustained release. This dual release capability makes banana starch an intriguing candidate for drug delivery applications. Quercetin-loaded banana starch nanoparticles were prepared using the nano-precipitation method. Drug loading and drug entrapment were determined by different methods. The percentages of drug loading and entrapment efficacy were found to be 51.9 %. SEM analysis of nanoparticles reports the size of nanoparticles from 66.67 nm to 113.33 nm. In-vitro drug release was found to be 44.84 % within the first hour and 96.96 % within 12 hours. Prepared nanoparticles showed a good antioxidant effect against the DPPH radical scavenging model was found 98 percent. Percentage inhibition of cancer cells at different concentrations (0.001, 0.01, 0.1, 1, 10 µg/ml) of prepared nanoparticles and isolated quercetin were found to be 3.11, 11.52, 54.56, 57.21, 83.48, and 2.38, 2.11, 6.22, 36.92, and 72.45, respectively. Histopathological studies of tissues confirmed that burn-created wounds were healed by prepared nanoparticles within 21 days. Prepared nanoparticles suppressed the anti-inflammatory response, as confirmed by the histopathological studies.

Biography
Dr. Dharmendra Kumar is an Associate Professor & Head of Department of School of Health and Allied Science at Sanskaram University, Jhajjar, Haryana, India. Dr. Kumar has published over 15 Patents, 15 books and more than 25 research papers in prestigious journals indexed by SCI and Scopus. He is actively involved with various publishing houses worldwide as an editor, author, and reviewer.

Sadia Suri Kashif*[1], Sadaf Naeem[2], Saira Saeed Khan[3]
[1]Ziauddin University, Karachi, Pakistan
[2]Jinnah Sindh Medical University, Karachi, Pakistan
[3]University of Karachi, Pakistan

Evaluation of Allium cepa Extract on Fertility Outcomes in Successive Rat Generations

Allium cepa Linn. (onion), a widely consumed Allium species and a long-standing component of traditional medicine, is rich in bioactive phenolic compounds. The present study aimed to investigate the fertility-enhancing effects of A. cepa extract on reproductive outcomes across two rat generations (F0 and F1). The extract was first subjected to in vitro antioxidant evaluation using DPPH and ROS assays, followed by in vivo toxicity testing. For the fecundity experiment, eighteen male-female rat pairs (n = 36, F0) were assigned to three groups and administered either 75 mg/kg, 150 mg/kg A. cepa extract, or saline control throughout the pre-cohabitation, cohabitation, gestation, and lactation phases. Reproductive parameters such as body weight, fertility index, live birth index, and litter size were recorded. Hematological indices, hormonal levels (FSH, LH, Testosterone, Estradiol), antioxidant status (SOD, glutathione peroxidase), lipid profile, and reproductive organ histology were evaluated in both F0 and F1 generations. The ethanolic extract demonstrated strong antioxidant potential in vitro. Long-term exposure did not alter body weight, fertility index, litter size, or survival index; however, significant improvements were observed in semen pH, sperm motility, count, viability, and volume in both generations. At 150 mg/kg/day, A. cepa extract markedly enhanced fecundity in males and females, as reflected by elevated hemoglobin, FSH, LH, testosterone, and glutathione peroxidase ($p < 0.05$), alongside reductions in total lipid, LDL, and cholesterol ($p < 0.05$). Histological analysis revealed improved spermatogenesis and folliculogenesis with healthier tissue architecture. Collectively, these findings indicate that A. cepa extract enhances reproductive performance in rats, likely through modulation of hormonal activity and reduction of oxidative stress.

Biography

Dr. Sadia Kashif is an Assistant Professor at Ziauddin University, Pakistan, where she serves as both an academician and an active researcher. With a background in Pharmacology, her primary research interest lies in the pharmacological evaluation of natural compounds, with a special focus on their potential in managing psychological health conditions and reproductive disorders. Over the years, Dr. Sadia has developed a strong research portfolio, having authored around more than 20 research papers and 2 book chapters published in reputable journals and has also been serving as an editorial board member. Her work emphasizes the use of plant-based and naturally derived substances as safer, more sustainable therapeutic options, aiming to bridge the gap between traditional remedies and modern scientific validation. In addition

to her research, Dr. Sadia is deeply committed to teaching and mentoring, inspiring the next generation of scientists and healthcare professionals. Her contributions reflect a growing effort to integrate natural product research into mainstream pharmacological innovation, with the ultimate goal of improving patient outcomes and expanding treatment options.

Anthony Muyunga*[1,5], Kevin Ouma Ojiambo[1,6], Janet Nakigudde[2], Jovan Mugerwa[1], Owori Benard[1], Kevin Naturinda[1], Brian Mikka[4], Janet Peace Babirye[1], Namutale R. Nalule[1], Isaac Samuel Kintu[1], Enos Kigozi[4], Caroline Birungi[2,3]

[1]Clinical Epidemiology Unit, Department of Internal Medicine, School of Medicine College of Health Sciences, Makerere University, Kampala, Uganda
[2]Department of Psychiatry, School of Medicine, Makerere University College of Health Sciences, Kampala, Uganda
[3]Mulago Immune Suppression Syndrome Clinic, Mulago National Referral Hospital, Kampala, Uganda
[4]Infectious Diseases Institute, College of Health Sciences, Makerere University, Kampala, Uganda.
[5]Reach Out Mbuya Community Health Initiative, Kampala, Uganda.
[6]Uganda National Institute of Public Health (UNIPH), Ministry of Health, Uganda

Prevalence and Factors Associated with Probable Anxiety Disorders Among Elderly Persons Living with HIV at Mulago ISS Clinic: A Cross-Sectional Study

Introduction: Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) is a major public health concern globally. Due to advancements in Anti-Retroviral Treatment (ART) therapy, more people with HIV are living longer with about 1.4 million infected people in Uganda. Anxiety disorders are often unrecognized and undetected in older persons living with HIV (PLWH) yet they impair an elderly person's physical health and decrease the ability to perform daily activities.
Objective: To determine the prevalence and factors associated with probable anxiety disorders among elderly PLWH at Mulago Immune Suppression Syndrome (ISS) clinic.
Methods: A cross-sectional study was conducted at Mulago ISS clinic among 273 systematically selected participants living with HIV/AIDS on antiretroviral therapy for at least 6 months between April and May 2024. Interviews were conducted using the Generalized Anxiety Disorder 7-item (GAD-7) screening tool to help identify individuals who may be at risk for anxiety disorders and structured questionnaires for socio-demographics, and psychological factors. Drug and clinical factors data were extracted from records, entered into Epidata, and later to STATA version 17 for analysis. Prevalence was reported as a percentage and modified Poisson regression analysis was used to determine the factors associated with anxiety disorders
Results: We enrolled 273 participants with a median age (Interquartile range) was 56 (52, 61.5) years. 54.9% were females, 56.8% didn't have a partner and 53.8% were employed. The prevalence of probable anxiety disorders was 16.8% (95% CI 12.5-21.6). Employment status (aPR- 2.113, 95% CI 1.252-3.567), family history of mental health disorder (aPR-2.041, 95% CI 1.228-3.394), stigma (aPR-2.564, 95% CI 1.544-4.257) and family support (aPR-2.169, 95% CI 1.272-3.699) were significantly associated with having probable anxiety disorders.

Conclusion: One in every six elderly persons living with HIV may have a probable anxiety disorder. Being unemployed, having a family history of mental health disorders, having stigma and having inadequate family support were significantly associated with having a probable anxiety disorder. Healthcare workers should provide comprehensive anxiety screening and patient-centered care for elderly persons with HIV. At the same time, the government develops financial empowerment strategies and supports mental health through family groups, and public campaigns to reduce HIV stigma and educate families on effective support.

Biography

Anthony Muyunga is a medical doctor with a Master's degree in Clinical Epidemiology and Biostatistics from Makerere University. He has extensive experience in HIV care, tuberculosis coordination, and health systems strengthening, with a particular focus on quality improvement and patient-centered approaches. His professional journey includes leadership roles at Reach Out Mbuya, Infectious Diseases Institute, Ministry of Health, and Makerere Joint AIDS Program. Dr. Muyunga's research interests center on integrating non-communicable disease care into HIV programs and advancing preventive mental health. He is committed to generating evidence that informs policy and improves healthcare outcomes in resource-limited settings.

Tarek Aboul-Fadl*, Mohamed A. Sharkawy, Ahmed S. Aboraia, Wesam S. Qayed
Department of Medicinal Chemistry, Faculty of Pharmacy, Assuit University, Assuit, Egypt

Structure-Based Design and Synthesis of 3-Spiroindolin-2-one Derivatives as Potential Anticancer Agents

Novel 3-spiroindolin-2-one derivatives were rationally designed, synthesized, and evaluated as potential anticancer agents. Docking simulations predicted strong binding to CDK6, MDM2, and VEGFR2, which was confirmed by submicromolar enzyme inhibition assays. Several compounds demonstrated selective cytotoxicity against A-549, HCT-116, and PC-3 cancer cells (IC_{50} = 1.09–50 µM), with reduced effects on normal WI-38 fibroblasts. Mechanistic studies revealed G1/S cell-cycle arrest and robust pro-apoptotic activity, while molecular dynamics verified stable binding within target proteins. In silico ADMET profiling
indicated favorable pharmacokinetics. Collectively, these findings highlight 3-spiroindolin-2-ones as promising multitarget scaffolds for anticancer drug development.

Biography
Prof. Tarek Aboul-Fadl has completed his PhD in Medicinal Chemistry from Assiut University, Egypt (1994) under the channel system and joint supervision scheme between Assiut University and Josai University/Japan. He performed his postdoctoral training as a postdoctoral research fellow and scientist of Pharmaceutical and Medicinal Chemistry at University of Vienna, Austria (1997- 1998), Friedrich-Alexander-Universität, Erlangen Nürnberg, Germany (1999 and 2013) and University of Utah, USA (2001-2002 and 2004-2005). He has over 88 publications and 4 patents that have been cited over 2424 times, and his publication H-index is 27 (Google Scholar), 23(Scopus). He was awarded ACDIMA Research Award for the Best Scientific Research in Arab World, 2012. He was listed in the World's 2% Top-Cited Scientists by Stanford University for three successive years (2021-2024).

Andrey Belousov*[1,2], Ekateryna Belousova[1], Elena Malygon[2]
[1]Laboratory of Applied Nanotechnology of Belousov, Ukraine
[2]Kharkiv National Medical University, Ukraine

The Role of Magnetite Nanoparticles (ICNB) in Stabilizing Protein and Lipid Molecular Structures in Red Blood Cell Membranes During Preservation

This study was devoted to the learning changes in the structure of erythrocyte membranes at the level of molecular bonds during their storage at a positive temperature by means method of infrared spectroscopy (IR). Objects of research were red blood cells (RBCs) into bags containing preservative CPD and RBCs into bags containing preservative CPDA-1. As membrane protective used saline which had previously been treated with magnetite nanoparticles (ICNB) by the Belousov's method. The physiological solution that was treated with nanoparticles was added to the preserved RBCs according to the developed method. A sample of control was the addition of intact saline. Analysis of changes occurring in the IR spectra of samples of control and test in the CPD medium was showed that during the first 28 days storage of: 1. In the suspension of control of the RBCs, noticeable destructive changes in the molecular structure membrane of erythrocytes at the 14th day storage begins. After three weeks, the molecular structure of the membrane of erythrocytes is completely destroyed; 2. In the sample of test there was a weakening and rupture of molecular bonds only at the 28th day storage of RBCs. Complete destruction of the structure of the membrane of erythrocytes occurs at the 35th day of storage. Analysis of changes occurring in the IR spectra of samples of control and test in the CPDA-1 medium was showed that during 49 days storage of: 1. In the suspension of control of RBCs, noticeable destructive changes in the molecular structure begins in four weeks, and after six weeks storage the molecular structure of erythrocyte membranes are completely destroyed; 2. In the sample test, a significant weakening of intra-and intermolecular bonds in the structure of erythrocyte membranes occurs after six weeks. However, the complete destruction of the structure is not observed. After seven weeks of storage of erythrocytes, obvious violations of the molecular structure of lipids and proteins that make up the RBCs are visible, but some of the strongest compounds still remain. In general, the results clearly showed that the presented method of application of nanotechnology significantly increases the storage time of RBCs in different versions of preservatives due to mechanisms to reduce violations of the molecular structure of proteins and lipids in the erythrocyte membranes. The presented method of application of nanotechnology is not only safe for use in practice in the Blood Service, Transfusiology, and Hematology, but also is the most promising innovation project.

Biography

Prof. Andrey Belousov is Doctor of Medicine. Author a new medicine products – nanotechnology preparations based on magnetite nanoparticles (Fe3O4) of the size 6-12 nm: the peroral form - Micromage-B (the biologically active additive officially registration in Ukraine); Magnet-controlled sorbent brand of MCS-B for extracorporal detoxication of biological liquids (officially registration in Ukraine and was allowed for medical practice); Nanobiocorrector for intravenous application – ICNB (intracorporal Nano sorbent). The published more 310 scientific works on results application of nanotechnology preparation in experimental and practical medicine. A. Belousov - the Head of Laboratory Applied Nanotechnologies of Belousov, DM, Professor of Department Anesthesiology, Intensive Care Kharkiv National Medical University, Ukraine.

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